

Wired Vareo® Local Lighting Controls

8 Series
Local Lighting Controls
D48 Bus
Architectural-Style

LOCAL LIGHTING CONTROLS

Wired *Vareo* local lighting controls function much like standard dimmers and switches, but can be controlled as part of the whole-house lighting control system. Local lighting controls are useful in locations where single circuits of lighting need to be dimmed or switched. Wired *Vareo* dimmers incorporate advanced features such as fade-on/fade-off, long fade-off, and rapid full-on. Wired *Vareo* local lighting controls include a Front Accessible Safety Switch (FASS™) for safe lamp replacement. HomeWorks® wired *Vareo* local lighting controls install in single-pole, 3-way, or 4-way applications.

ACCESSORY CONTROL

Remote switches (VETS-R) are used in conjunction with a wired *Vareo* local lighting control to provide 3-way and 4-way control. Use up to nine VETS-R controls with a single wired *Vareo* local lighting control for switching from up to ten locations.

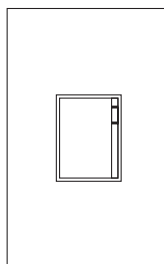
COLORS AND FINISHES

Vareo local lighting controls are available in Architectural matte finish plastic colors and Architectural metal finishes. Custom paint matching is also available. Please contact Lutron Customer Service or your local Lutron Representative for details and pricing. See Appendix F: Colors & Finishes.

GANGING VAREO CONTROLS

Gang multiple *Vareo* controls together (mounted side-by-side behind a single faceplate) in a series of connected wallboxes for a cleaner look. A scored section or “fin,” along each side of the mounting plate is removed, to facilitate ganging of controls. The load rating for each control must be derated when a fin has been broken.

For ganging and derating information, see Table 1 pg. 54.

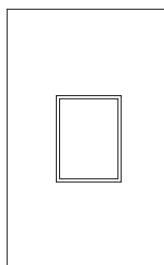


DIMMING CONTROL LOAD RATINGS

HWV-600D dims a single incandescent or magnetic low-voltage circuit up to 600 W/VA from one location.

HWV-1000D dims a single incandescent or magnetic low-voltage circuit up to 1000 W/VA from one location.

HWV-FDB-8A dims a single fluorescent circuit up to 8 A from one location when used with Lutron Hi-lume® and Eco-10® electronic fluorescent dimming ballasts.



SWITCHING CONTROL LOAD RATINGS

HWV-1000NS switches a single circuit of any lighting load type up to 1000 W/VA from one location. HWV-1000NS requires a neutral wire connection.

Note: For wattages exceeding those listed above or for load types other than those listed, a power booster or interface is required. See pg. 107 for more information.

INSTALLATION NOTE

Use 3½ in. (89 mm) deep wallboxes for ease of installation.

CONNECTION TO D48 DIMMER INTERFACE

All wired *Vareo* local lighting controls must be connected to a D48 dimmer interface. A dimmer interface is available as a stand-alone component (model # HWI-D48) or as an integral part of processors with model numbers containing “D48” (H8P5-D48-120 and H8P5-MI-D48-120). Each wired *Vareo* local lighting control communicates with a dimmer interface, via a one pair twisted shielded 18 AWG to 22 AWG (1.0 mm² to 0.5 mm²) cable.

See pg. 131.

Wired Vareo® Local Lighting Controls (cont.)

All HomeWorks® Vareo Local Lighting Controls

Model Numbers	HWV-600D: 600 W/VA Dimming Control. HWV-1000D: 1000 W/VA Dimming Control. HWV-1000NS: 1000 W/VA Switching Control with Neutral Wire. HWV-FDB-8A: Fluorescent Dimming Control. VETS-R: 3- or 4-Way Accessory Control.
Input Voltage	120 V \sim , 50/60 Hz
Regulatory Approvals	UL, CSA, NOM
Environment	Ambient operating temperature: 0 °C to 40 °C, 32 °F to -104 °F Ambient operating humidity: 0-90% humidity, non-condensing. Indoor use only.
Cooling Method	Passive cooling.
Low-Voltage Wire Type	One pair twisted shielded #18 AWG to #22 AWG (1.0 mm ² to 0.5 mm ²) NEC® Class 2 (IEC PELV) wiring.
Low-Voltage Wiring Configuration	Daisy-chain, star, T-tap, home run. Link terminator not required. Total length of wire on any Dimmer Interface bus cannot exceed 500 feet (150 m). Maximum of four devices per Dimmer Interface bus.
Low-Voltage Connections	Butt-splice (provided). <i>See Fig. 5, pg. 53.</i>
Addressing	Via DIP switch located on front of unit underneath the wallplate. The device may be addressed without removing it from the wall. Counts as 1 of 4 addresses on a Vareo bus. <i>See Fig. 1, pg. 52.</i>
ESD Protection	Meets or exceeds the IEC 61000-4-2 standard.
Surge Protection	Meets or exceeds ANSI/IEEE standard c62.41.
Air Gap	FASS™ (Front Accessible Service Switch). <i>See Fig. 4, pg. 53.</i>
Fail-Safe Operation	In the unlikely event that communication with the processor is interrupted, all Vareo Local Lighting Controls will still operate, offering local control.
Dimensions	<i>See Fig. 2, pg. 53.</i>
Mounting	Controls mount in standard US wallboxes. For easier installation, Lutron recommends using 3½ in. (89 mm) deep wallboxes. <i>See Fig. 6, pg. 53.</i>
Ganging	When ganging Vareo Local Lighting Controls, it is necessary to remove side fins and to derate the control. <i>See Table 1, pg. 54</i> for specific derating information. If mounting one control above another, leave at least 4½ in. (11.4 cm) vertical spacing between them.
Auxiliary Controls	Use only Vareo Auxiliary TapSwitches™ (VETS-R); mechanical 3- or 4-way switches will not work. Up to 9 VETS-R Auxiliary TapSwitches may be used with one Vareo Local Dimming or Switching Control.
Shipping Weight	0.6 lb. (0.3 kg)

Wired Vareo® Local Lighting Controls (cont.)

HWV-600D • 600 W Dimming Control

Load Types ¹	Incandescent, magnetic low-voltage ^{2,3} , tungsten halogen, electronic low-voltage ² (using ELVI-1000 Interface). Output is compatible with Lutron® NGRX-PB-WH and HP 2•4•6™ Power Boosters for dimming applications up to 30,000 W per dimmer.
Maximum Load	no fins broken: 600 W/VA one fin broken: 500 W/VA two fins broken: 300 W/VA
Minimum Load Required	40 W/VA
Line-Voltage Wiring	See Figs. 10, 12, 13 pg. 55. Standard single-pole and 3-way wiring.

HWV-1000D • 1000 W Dimming Control

Load Types ¹	Incandescent, magnetic low-voltage ^{2,3} , tungsten halogen, electronic low-voltage ³ (using ELVI-1000 Interface). Output is compatible with Lutron NGRX-PB-WH and HP 2•4•6 Power Boosters for applications up to 30,000 W.
Maximum Load	no fins broken: 1000 W/VA one fin broken: 900 W/VA two fins broken: 700 W/VA
Minimum Load Required	40 W/VA
Line-Voltage Wiring	See Figs. 10, 12, 13 pg. 55. Standard single-pole and 3-way wiring.

HWV-1000NS • 1000 W Switching Control with Neutral Wire

Load Types ¹	Incandescent, magnetic low-voltage ² , tungsten halogen, electronic low-voltage ² , fluorescent with magnetic ballasts ⁵ .
Maximum Load:	no fins broken: 1000 W/VA one fin broken: 700 W/VA two fins broken: 550 W/VA
Minimum Load Required	5 W/VA
Line-Voltage Wiring	See Figs. 11, 14, 15 pgs. 55, 56. Single-pole and 3-way wiring. Requires a neutral wire connection in the wallbox.

Wired Vareo® Local Lighting Controls (cont.)

HWV-FDB-8A • 8 A Fluorescent Dimming Control

Load Types ^a	Lutron® Hi-lume® and ECO-10® Fluorescent Dimming Ballasts.
Maximum Load ^b	no fins broken: 8 A, 20 ballasts one fin broken: 6 A two fins broken: 4.5 A
Minimum Load Required	1 ballast
Line-Voltage Wiring	See Figs. 16, 17 pg. 57. Requires a neutral wire connection in the wallbox.

VETS-R • 3- or 4-way Accessory Control

Compatible Controls	HWV-600D, HWV-1000D, HWV-1000NS and HWV-FDB-8A.
Maximum Load	See local lighting control.
Minimum Load	See local lighting control.
Line-Voltage Wiring	See Figs. 12, 13, 14, 15, 17 pgs. 55, 56, 57. Standard single-pole, 3-way, and 4-way wiring.

(1) To reduce the risk of overheating and possibly damaging other equipment, do not install HWV-600D or HWV-1000D to control receptacles, motor-operated appliances, fluorescent lighting, or electronic low-voltage transformer loads. Do not install HWV-1000NS to control receptacles or motor-operated appliances.

(2) Because low-voltage transformers vary widely in efficiency, the input VA of each transformer should be measured directly. If this is not possible, use the maximum lamp wattage figures for the transformer, which have a built-in safety margin.

(3) For low-voltage applications using the HWV-600D or HWV-1000D, core and coil (magnetic) low-voltage transformers must be used. Do not use any solid-state electronic low-voltage transformers. Operation of a low-voltage circuit with all lamps inoperative or removed may result in current flow in excess of normal levels. To avoid transformer overheating and premature transformer failure, Lutron strongly recommends the following:

- Do not operate low-voltage circuits without operative lamps in place.
- Replace burned-out lamps as soon as possible.
- Use transformers that incorporate thermal protection or fuse transformer primary windings to prevent transformer failure due to overcurrent.

(4) For proper dimming performance, fluorescent lamps must be operated at full intensity for 100 hours prior to dimming.

(5) To determine the maximum load, add the line currents listed on each ballast connected to this control. The total line current can not exceed the maximum load capacity rating of the control. Warning: Do not exceed a maximum of 20 ballasts per control.

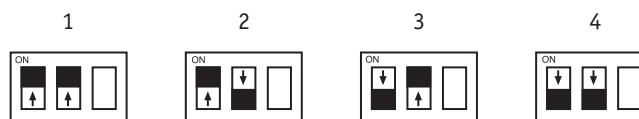
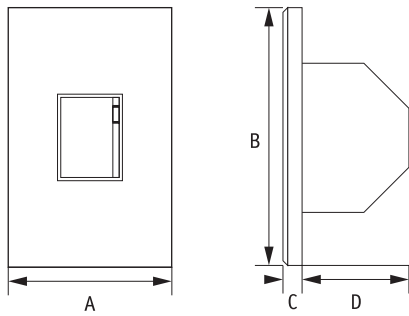


Figure 1 – DIP Switch Settings

Wired Vareo® Local Lighting Controls (cont.)



	Inches	mm
A	2 ³ / ₄	70
B	4 ¹ / ₂	114
C	5/16	7.6
D	1 ⁵ / ₁₆	32.7

Figure 2 – Dimensions

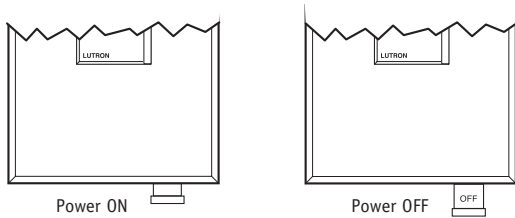


Figure 4 – FASS™ (Front-Accessible Service Switch)

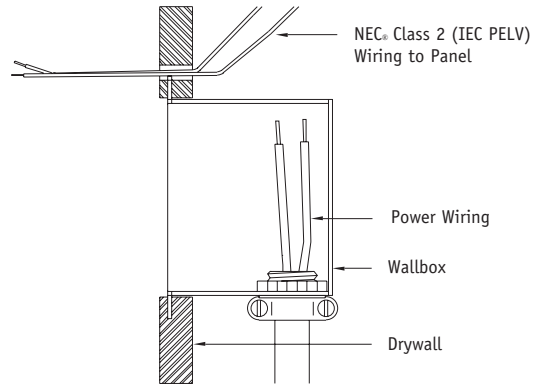


Figure 3 – Wire Installation*

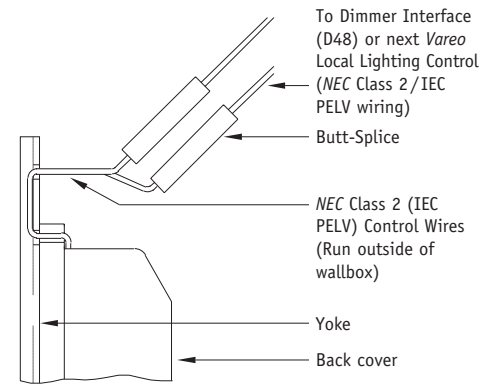


Figure 5 – Class 2 Wire Connection*

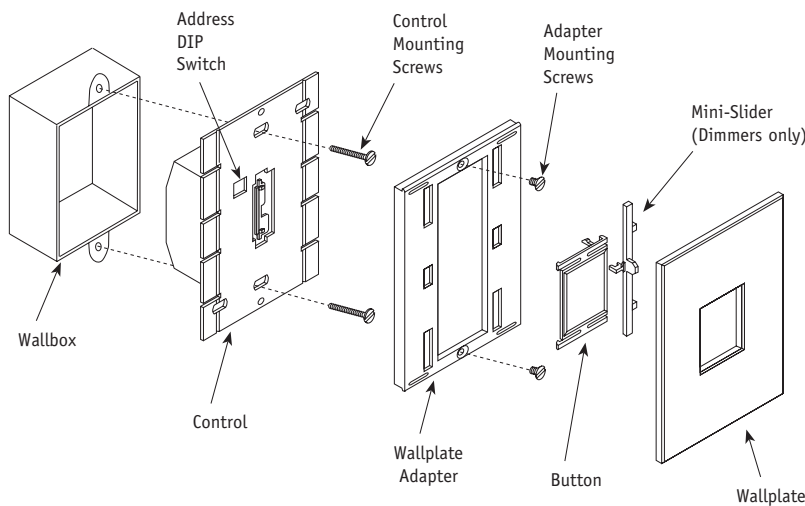


Figure 6 – Mounting and Parts Identification

* Consult HomeWorks Application Note #38 for alternative wiring methods.

Wired Vareo® Local Lighting Controls (cont.)

Control	Load Type	Minimum Load	Maximum Load		
		All Cases	Single-Gang	End of Gang	Middle of Gang
HWV-600D	Incandescent	40 W/VA	600 W	500 W	400 W
	Magnetic Low Voltage	40 W/VA	450 W/600 VA	400 W/500 VA	300 W/400 VA
HWV-1000D	Incandescent	40 W/VA	1000 W	800 W	650 W
	Magnetic Low Voltage	40 W/VA	800 W/1000 VA	600 W/800 VA	500 W/650 VA
HWV-1000NS	Magnetic Low Voltage	5 W/VA	800 W/1000 VA	550 W/700 VA	400 W/550 VA
	All other lighting	5 W/VA	1000 W	700 W	550 W
HWV-FDB-8A	Lutron Hi-lume or ECO-10 Fluorescent Dimming Ballasts	1 ballast	8 A	6 A	4.5 A
VETS-R	N/A*	N/A*	N/A*	N/A*	N/A*

* See local lighting control

Table 1 – Minimum and Maximum Load Ratings

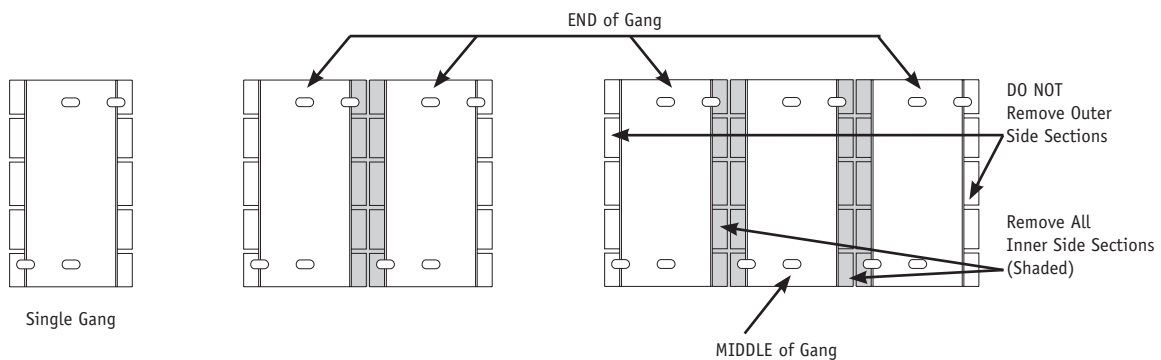


Figure 7 – Ganging Configuration and Derating Information

Wired Vareo® Local Lighting Controls (cont.)

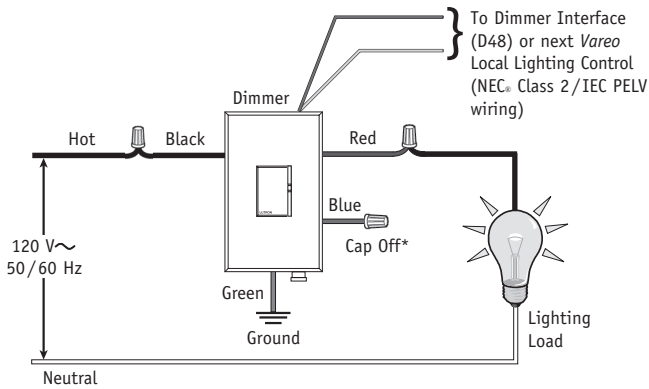


Figure 10 – HWV-600D and HWV-1000D Single-Location Wiring Diagram

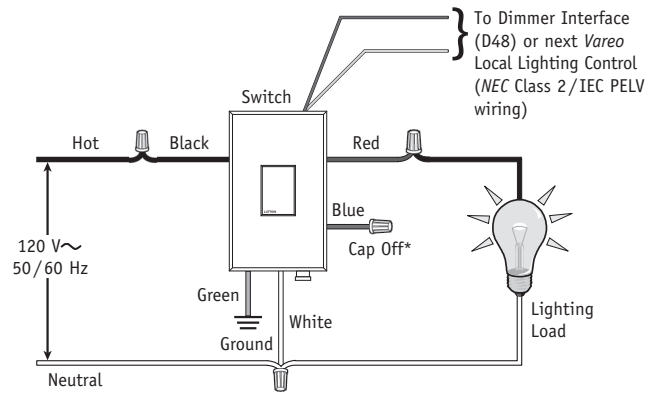


Figure 11 – HWV-1000NS Single-Location with Neutral Wiring Diagram

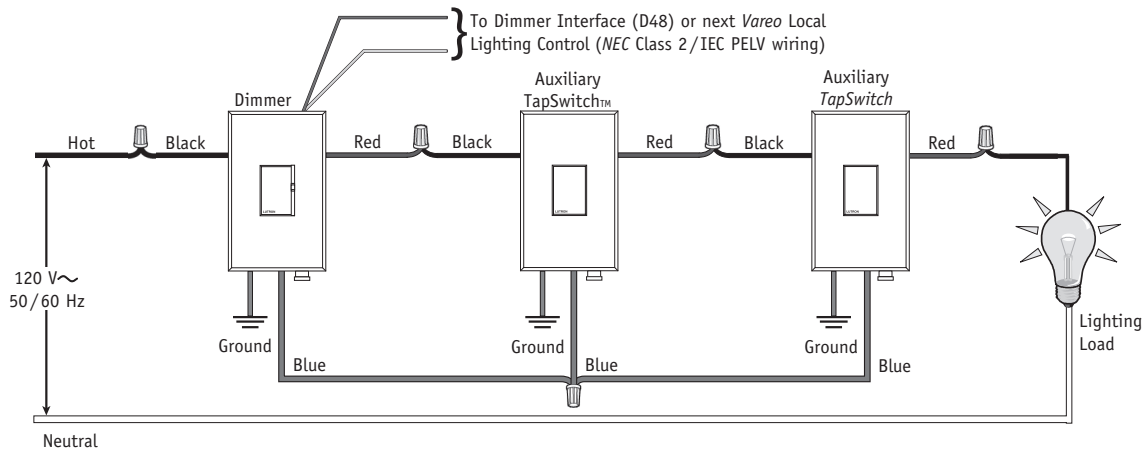


Figure 12 – HWV-600D and HWV-1000D Multi-Location Wiring Diagram (Control Line Side)

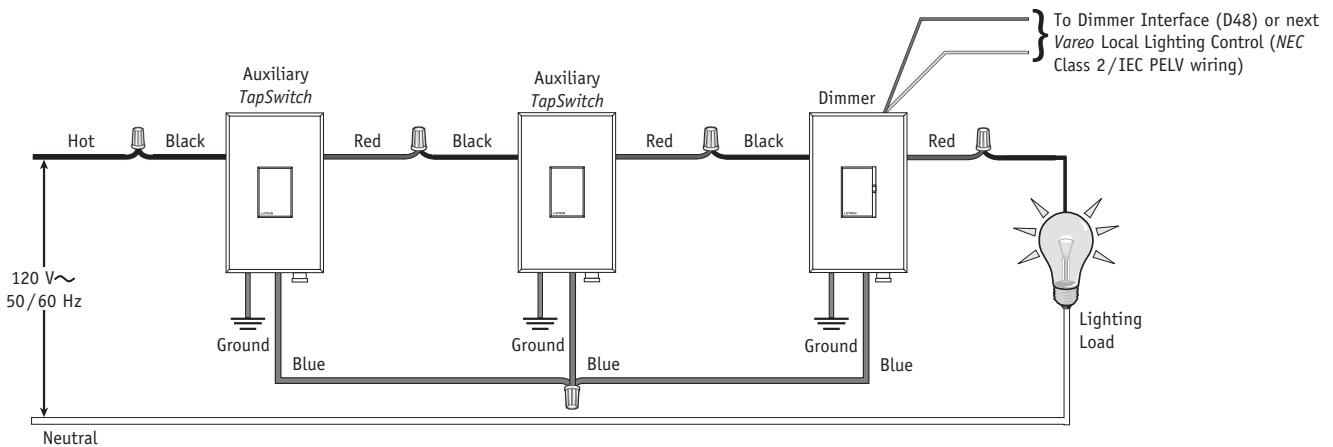


Figure 13 – HWV-600D and HWV-1000D Multi-Location Wiring Diagram (Control Load Side)

* When using controls in single-location installations, cut off the uninsulated portion of the control's multi-location wire (blue wire) and cap off using one of the provided wire connectors. **DO NOT** connect the blue wire to any other wiring or to ground.

FRONT ROOM

Wired Vareo® Local Lighting Controls (cont.)

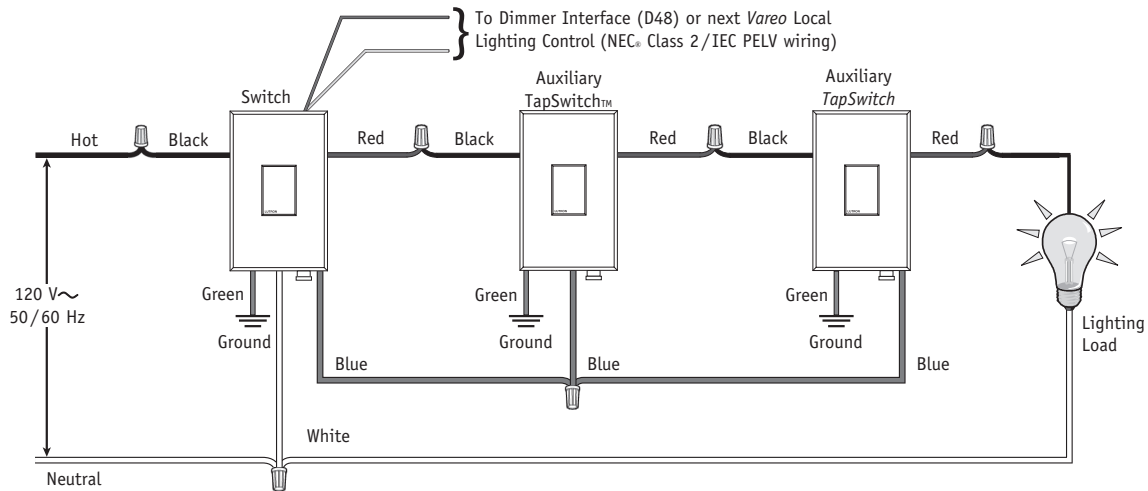


Figure 14 – HWV-100NS Multi-Location with Neutral Wiring Diagram (Control Line Side)

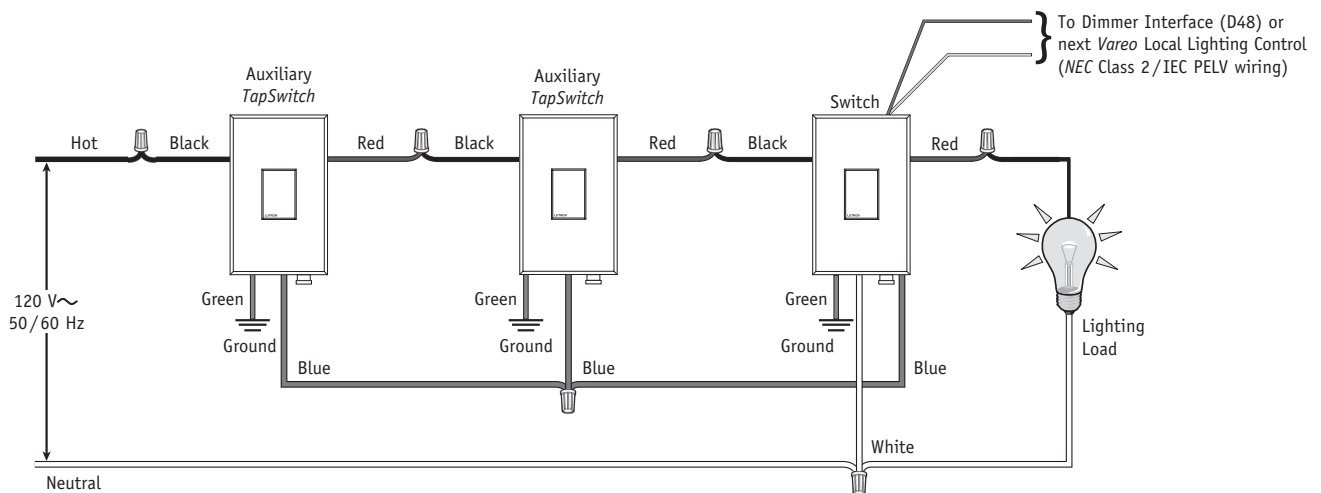


Figure 15 – HWV-100NS Multi-Location with Neutral Wiring Diagram (Control Load Side)

FRONT ROOM

Wired Vareo® Local Lighting Controls (cont.)

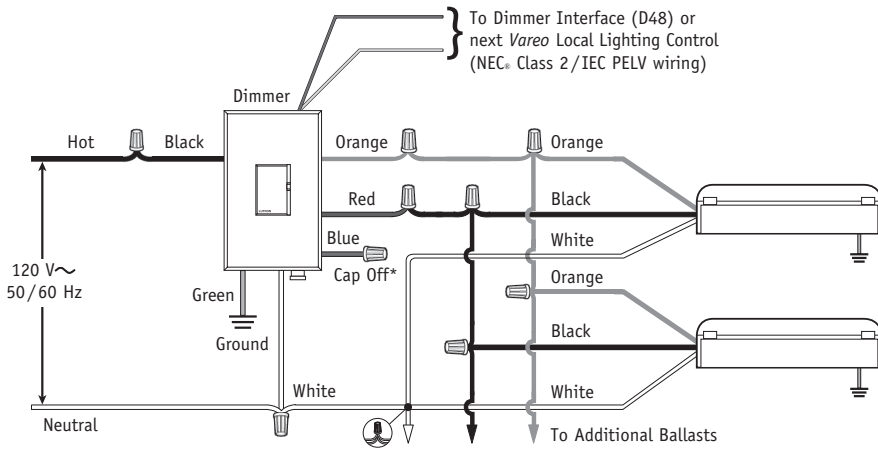


Figure 16 – HWV-FDB-8A Single-Location Wiring Diagram

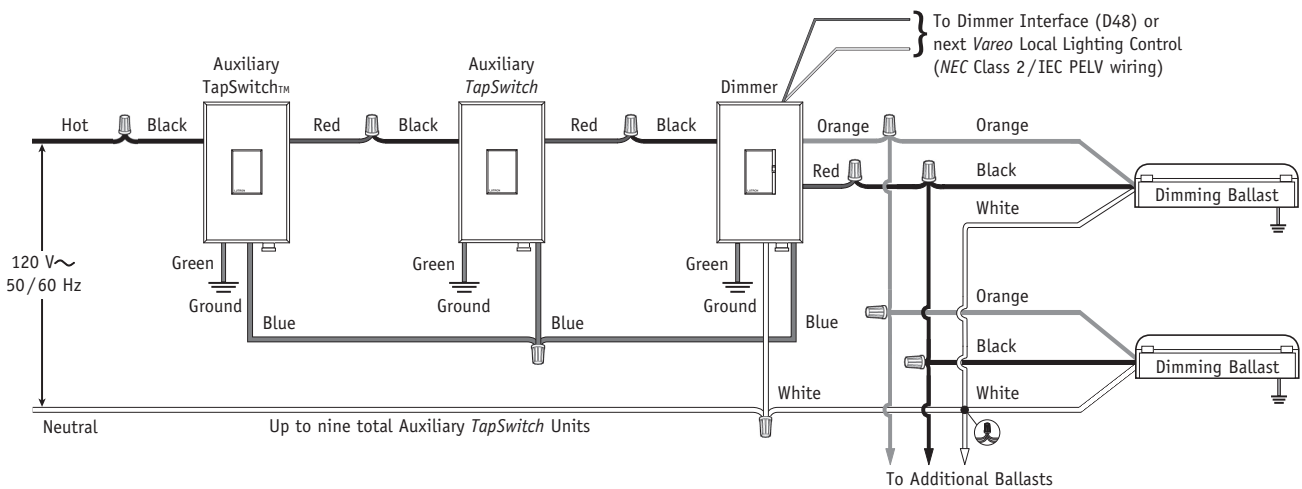


Figure 17 – HWV-FDB-8A Multi-Location Wiring Diagram

* When using controls in single-location installations, cut off the uninsulated portion of the control's multi-location wire (blue wire) and cap off using one of the provided wire connectors. **DO NOT** connect the blue wire to any other wiring or to ground.

Wired Maestro® Local Controls

4 Series / 8 Series
Local Controls
H48 Bus
Designer-Style

LOCAL CONTROLS

Wired *Maestro* local controls function much like standard dimmers and switches, but can be controlled as part of the whole-house lighting control system. Local lighting controls are useful in locations where single circuits of lighting need to be dimmed or switched. Local fan-speed controls are useful in locations where control of a single ceiling paddle fan is needed. Wired *Maestro* dimmers incorporate advanced features such as fade-on/fade-off, long fade-to-off, and rapid full-on. In addition, the local control may be programmed similar to a keypad button press with single and double tap functions, turning multiple lights on or off. Wired *Maestro* local controls include a Front Accessible Safety Switch (FASS™) for safe lamp replacement. HomeWorks® wired *Maestro* local controls install in single-pole, 3-way, or 4-way applications.

ACCESSORY CONTROLS

Remote dimmers (HD-RD) and remote switches (HD-RS) are used in conjunction with a wired *Maestro* local control to provide 3-way and 4-way control. Use up to nine HD-RD with a single wired *Maestro* dimmer/fan-speed control for dimming/speed control from up to ten locations. Use up to nine HD-RS with a single wired *Maestro* switch for switching from up to ten locations.

FINISHES AND COLORS

Maestro local controls are available in Designer Gloss and Satin Colors® matte finishes. See Appendix F: Colors & Finishes.

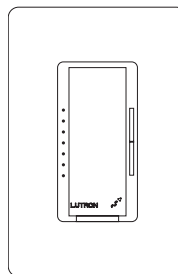
GANGING MAESTRO CONTROLS

Install multiple *Maestro* controls together (mounted side-by-side behind a single faceplate) in a multi-gang wallbox for a cleaner look. The load rating for each control must be derated when ganging with other controls.

For ganging and derating information, see Table 1 pg. 64.

INSTALLATION NOTE

Use 3½ inch (89 mm) deep wallboxes for ease of installation.

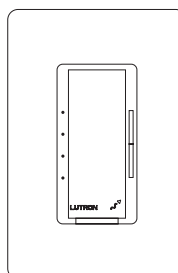


DIMMING CONTROL LOAD RATINGS

HWD-6D and HWD-6ND dim a single incandescent or magnetic low-voltage circuit up to 600 W/VA from one location. HWD-6ND requires a neutral wire connection.

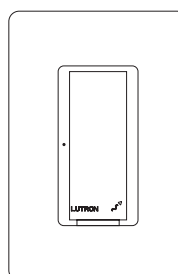
HWD-10D and HWD-10ND dim a single incandescent or magnetic low-voltage circuit up to 1000 W/VA from one location. HWD-10ND requires a neutral wire connection.

HWD-5NE dims a single incandescent or electronic low-voltage circuit up to 500 W from one location. HWD-5NE requires a neutral wire connection.



FAN-SPEED CONTROL (AVAILABLE 3Q08) LOAD RATINGS

HWD-2ANF controls a single ceiling fan up to 2 A from one location. HWD-2ANF requires a neutral wire connection.



SWITCHING CONTROL LOAD RATINGS

HWD-8ANS switches a single circuit of any lighting load type up to 8 A (or a motor load up to 5.8 A [1/4 HP]) from one location. HWD-8ANS requires a neutral wire connection.

Note: For wattages exceeding those listed above or for load types other than those listed, a neutral wire dimmer (HWD-6ND) and a power booster or interface is required. See pg. 107 for more information.

CONNECTION TO H48 DIMMER INTERFACE

All wired *Maestro* local controls must be connected to an H48 dimmer interface. A dimmer interface is available as a stand-alone component (model # HWI-H48) or as an integral part of processors with model numbers containing "H48". Each wired *Maestro* local control communicates with a dimmer interface via a one pair twisted shielded 22 AWG to 18 AWG (0.5 mm² to 1.0 mm²) cable.

Wired Maestro® Local Controls (cont.)

All HomeWorks® Wired Maestro Local Controls

Model Numbers	HWD-6D: 600 W/VA Incandescent/MLV Dimming Control. HWD-6ND: 600 W/VA Incandescent/MLV Dimming Control with Neutral Wire. HWD-10D: 1000 W/VA Incandescent/MLV Dimming Control. HWD-10ND: 1000 W/VA Incandescent/MLV Dimming Control with Neutral Wire. HWD-5NE: 500 W ELV Dimming Control with Neutral Wire. HWD-2ANF: 2 A Fan Speed Control with Neutral Wire. HWD-8ANS: 8 A Switching Control with Neutral Wire. HD-RD: Accessory Control/Remote Dimmer. HD-RS: Accessory Control/Remote Switch.
Input Voltage	120 V \sim 50/60 Hz
Regulatory Approvals	UL, CSA, NOM
Environment	Ambient operating temperature: 0 °C to 40 °C, 32 °F to 104 °F Ambient operating humidity: 0-90% humidity, non-condensing. Indoor use only.
Cooling Method	Passive cooling.
Low-Voltage Wire Type	One pair twisted shielded #18-22 AWG (1.0-0.5 mm ²) NEC® Class 2 (IEC PELV) wiring.
Low-Voltage Wiring Configuration	Daisy-chain, star, T-tap, home run. Link terminator not required. Each <i>Maestro</i> bus may have a max 500 feet (152.5 m) per wire run but may not exceed 1000 feet (305 m) total per bus. Maximum of eight devices per Dimmer Interface bus.
Low-Voltage Connections	Butt-splice (provided). See Fig. 4, pg. 63.
Addressing	Via the <i>HomeWorks</i> software, using unique device serial numbers. Units must be installed prior to addressing. Counts as 1 of 8 addresses on a <i>Maestro</i> bus. The device may be addressed without removing it from the wall.
ESD Protection	Meets or exceeds the IEC 61000-4-2 standard.
Surge Protection	Meets or exceeds ANSI/IEEE standard c62.41.
Air Gap	FASS™ (Front Accessible Service Switch).
Fail-Safe Operation	In the unlikely event that communication with the processor is interrupted, all <i>Maestro</i> Local Controls will still operate, offering local control.
Dimensions	See Fig. 1, pg. 63.
Mounting	Controls mount in standard US wallboxes. For easier installation, Lutron recommends using 3½ in. (89 mm) deep wallboxes.
Ganging	When ganging <i>Maestro</i> Local Controls, it is not necessary to remove side fins. However, the control must still be derated. See Table 1 on pg. 64 for specific derating information. If mounting one control above another, leave at least 4½ in. (11.4 cm) vertical spacing between them.
Auxiliary Controls	Use only Lutron® <i>HomeWorks Maestro</i> Remote Dimmers or Switches (HD-RD or HD-RS); mechanical 3- or 4-way switches will not work. Up to nine <i>HomeWorks Maestro</i> Remote Dimmers or Switches may be connected to the <i>HomeWorks Wired Maestro</i> Dimmer/Switch/Fan Control. Total length of wire used to connect blue terminals (-5NE: blue wire) may be up to 250 feet (76 m).
Shipping Weight	0.6 lb. (.3 kg)

Wired Maestro® Local Controls (cont.)

HWD-6D • 600 W Incandescent/MLV Dimming Control

Load Types ¹	Incandescent, magnetic low-voltage ^{2,3} , tungsten halogen.
Maximum Load	single-gang: 600 W/VA end gang: 500 W/VA middle gang: 400 W/VA
Minimum Load	50 W/VA
Line-Voltage Wiring	See Figs. 7, 9, pg. 65. Standard single-pole, 3-way, and 4-way wiring.

HWD-6ND • 600 W Incandescent/MLV Dimming Control with Neutral Wire

Load Types ¹	Incandescent, magnetic low-voltage ^{2,3} , tungsten halogen, electronic low-voltage ³ (using ELVI-1000 Interface), Lutron® Tu-Wire Fluorescent Dimming Ballasts, and Lutron Hi-Lume® and ECO-10® Fluorescent Dimming Ballasts (using GRX-FDBI-16A-120 or Hi-Power 2•4•6™) ^{4,5} . Output is compatible with Lutron NGRX-PB-WH and Hi-Power 2•4•6 Power Boosters for applications up to 30,000 W.
Maximum Load	single-gang: 600 W/VA end gang: 500 W/VA middle gang: 400 W/VA
Minimum Load	10 W/VA
Line-Voltage Wiring	See Figs. 8, 10, pg. 65. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

HWD-10D • 1000 W Incandescent/MLV Dimming Control

Load Types ¹	Incandescent, magnetic low-voltage ^{2,3} , and tungsten halogen.
Maximum Load	single-gang: 1000 W/VA end gang: 800 W/VA middle gang: 650 W/VA
Minimum Load	50 W/VA
Line-Voltage Wiring	See Figs. 7, 9, pg. 65. Standard single-pole, 3-way, and 4-way wiring.

Wired Maestro® Local Controls (cont.)

HWD-10ND • 1000 W Incandescent/MLV Dimming Control with Neutral Wire

Load Types ¹	Incandescent, magnetic low-voltage ^{2,3} , tungsten halogen, electronic low-voltage ³ (using ELVI-1000 Interface), Lutron® Tu-Wire Fluorescent Dimming Ballasts, and Lutron Hi-Lume® and ECO-10® Fluorescent Dimming Ballasts (using GRX-FDBI-16A-120 or Hi-Power 2•4•6™) ^{4,5} . Output is compatible with Lutron NGRX-PB-WH and Hi-Power 2•4•6 Power Boosters for applications up to 30,000 W.
Maximum Load	single-gang: 1000 W/VA end gang: 800 W/VA middle gang: 650 W/VA
Minimum Load	10 W/VA
Line-Voltage Wiring	See Figs. 8, 10, pg. 65. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

HWD-2ANF • 2 A Fan Speed Control with Neutral Wire

Load Types ¹	Single ceiling paddle fan ⁶ .
Maximum Load	single-gang: 2 A end gang: 2 A middle gang: 2 A
Minimum Load	0.08 A
Line-Voltage Wiring	See Figs. 8, 10, pg. 65. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

HWD-5NE • 500 W ELV Dimming Control with Neutral Wire

Load Types	Incandescent and electronic low-voltage.
Maximum Load	single-gang: 500 W end gang: 450 W middle gang: 400 W
Minimum Load	40 W
Line-Voltage Wiring	See Figs. 8, 10, pg. 65. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

HWD-8ANS • 8 A Switching Control with Neutral Wire

Load Types ¹	All lighting load types, motors.
Maximum Load	single-gang: 8 A lighting, 5.8 A (1/4 HP) motor end gang: 6.5 A lighting, 5.8 A motor middle gang: 5 A lighting, 5 A motor
Minimum Load	10 W/VA
Line-Voltage Wiring	See Figs. 8, 10, pg. 65. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

Wired Maestro® Local Controls (cont.)

HD-RD • 3- or 4-way Remote Dimmer

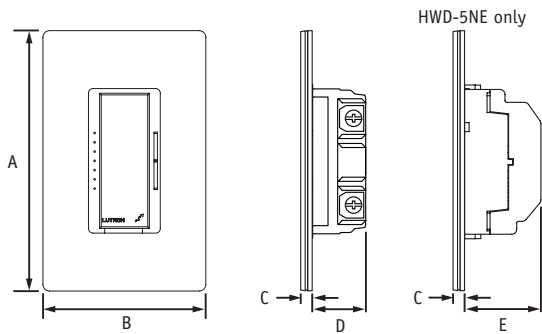
Compatible Controls	HWD-2ANF, HWD-6D, HWD-6ND, HWD-10D, HWD-10ND and HWD-5NE.
Maximum Load	See local control.
Minimum Load	See local control.
Line-Voltage Wiring	See Figs. 9, 10, pg. 65. Standard single-pole, 3-way, and 4-way wiring.

HD-RS • 3- or 4-way Remote Switch

Compatible Controls	HWD-8ANS
Maximum Load	See local lighting control.
Minimum Load	See local lighting control.
Line-Voltage Wiring	See Fig. 10, pg. 65. Standard single-pole, 3-way, and 4-way wiring.

- (1) To reduce the risk of overheating and possibly damaging other equipment, do not install HWD-6D, HWD-6ND, HWD-10D, or HWD-10ND to control receptacles, motor-operated appliances, fluorescent lighting, or electronic low-voltage transformer loads. Do not install HWD-8ANS to control receptacles. Do not install HWD-2ANF to control receptacles, motor-operated appliances (non-ceiling fan), or any type of lighting load.
- (2) Because low-voltage transformers vary widely in efficiency, the input VA of each transformer should be measured directly. If this is not possible, use the maximum lamp wattage figures for the transformer, which have a built-in safety margin.
- (3) For low-voltage applications using the HWD-6D, HWD-6ND, HWD-10D or HWD-10ND, use with core and coil (magnetic) low-voltage transformers only. Do not use any solid-state electronic low-voltage transformers. Operation of a low-voltage circuit with all lamps inoperative or removed may result in current flow in excess of normal levels. To avoid transformer overheating and premature transformer failure, Lutron strongly recommends the following:
 - a) Do not operate low-voltage circuits without operative lamps in place.
 - b) Replace burned-out lamps as soon as possible.
 - c) Use transformers that incorporate thermal protection or fuse transformer primary windings to prevent transformer failure due to overcurrent.
- (4) For proper dimming performance, fluorescent lamps must be operated at full intensity for 100 hours prior to dimming.
- (5) To determine the maximum load, add the line currents listed on each ballast connected to this control. The total line current can not exceed the maximum load capacity rating of the control. Warning: Do not exceed a maximum of 20 ballasts per control.
- (6) Fan Speed Control: Use to control a single paddle-type ceiling fan that has a permanent split-capacitor motor. Do not use to control shaded-pole type motors (i.e. exhaust fans) or lighting.

Wired Maestro® Local Controls (cont.)



	Inches	mm
A	4 ¹¹ / ₁₆	119
B	2 ¹⁵ / ₁₆	75
C	5/ ₁₆	7.6
D	1 ¹ / ₈	29.8
E	1 ³ / ₈	34.8

Figure 1 – Dimensions

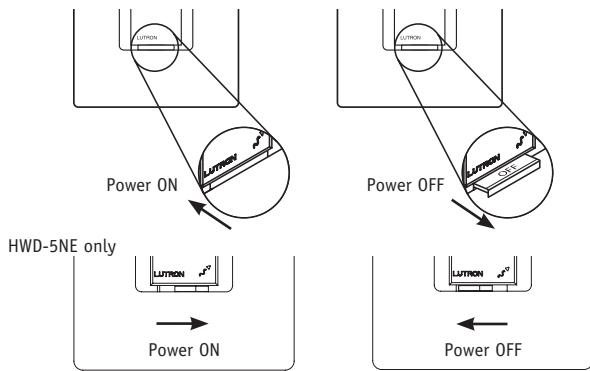


Figure 3 – FASS™ (Front-Accessible Service Switch)

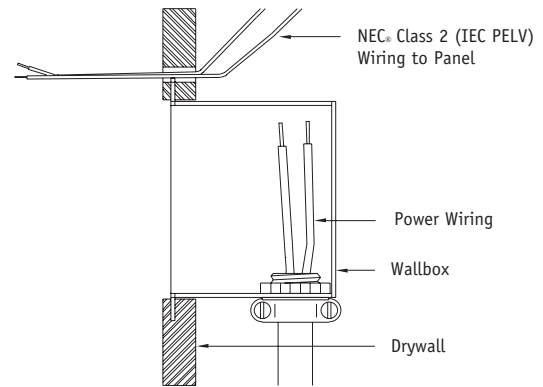


Figure 2 – Wire Installation*

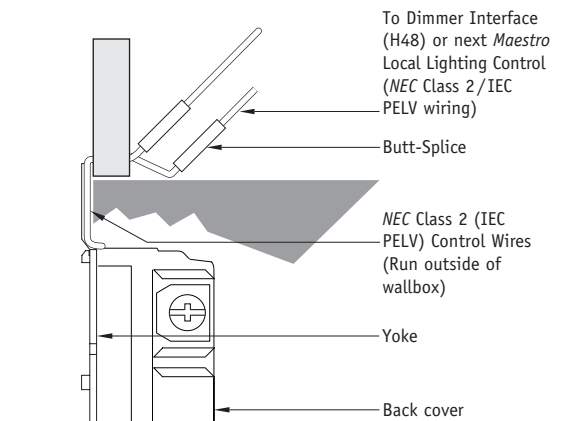


Figure 4 – Class 2 Wire Connection*

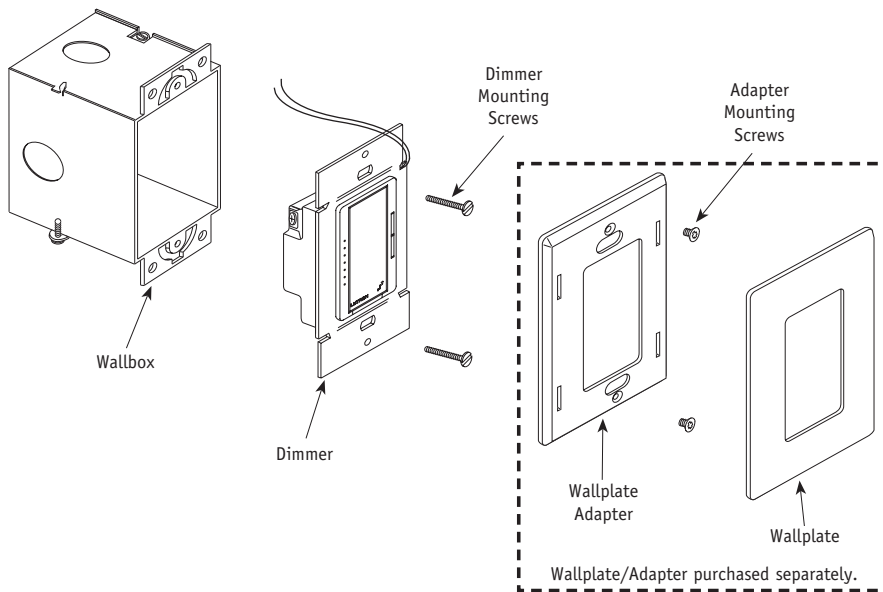


Figure 5 – Mounting and Parts Identification

* Consult HomeWorks Application Note #38 for Alternate wiring methods.

Wired Maestro® Local Controls (cont.)

Control	Load Type	Minimum Load	Maximum Load		
		All Cases	Single-Gang	End of Gang	Middle of Gang
HWD-6D	Incandescent	50 W / VA	600 W	500 W	400 W
	Magnetic Low Voltage	50 W / VA	450 W / 600 VA	400 W / 500 VA	300 W / 400 VA
HWD-6ND	Incandescent	10 W / VA	600 W	500 W	400 W
	Magnetic Low Voltage	10 W / VA	450 W / 600 VA	400 W / 500 VA	300 W / 400 VA
HWD-10D	Incandescent	50 W / VA	1000 W	800 W	650 W
	Magnetic Low Voltage	50 W / VA	800 W / 1000 VA	600 W / 800 VA	500 W / 650 VA
HWD-10ND	Incandescent	10 W / VA	1000 W	800 W	650 W
	Magnetic Low Voltage	10 W / VA	800 W / 1000 VA	600 W / 800 VA	500 W / 650 VA
HWD-5NE	Electronic Low Voltage	40 W	500 W	450 W	400 W
HWD-8ANS	Lighting	10 W / VA	8 A	6.5 A	5 A
	Motor	0.083 A	5.8 A (1/4 HP)	5.8 A	5 A
HWD-2ANF	Ceiling Fan	0.083 A	2 A	2 A	2 A
HD-RD	N/A*	N/A*	N/A*	N/A*	N/A*
HD-RS	N/A*	N/A*	N/A*	N/A*	N/A*

* See local control

Table 1 – Minimum and Maximum Load Ratings

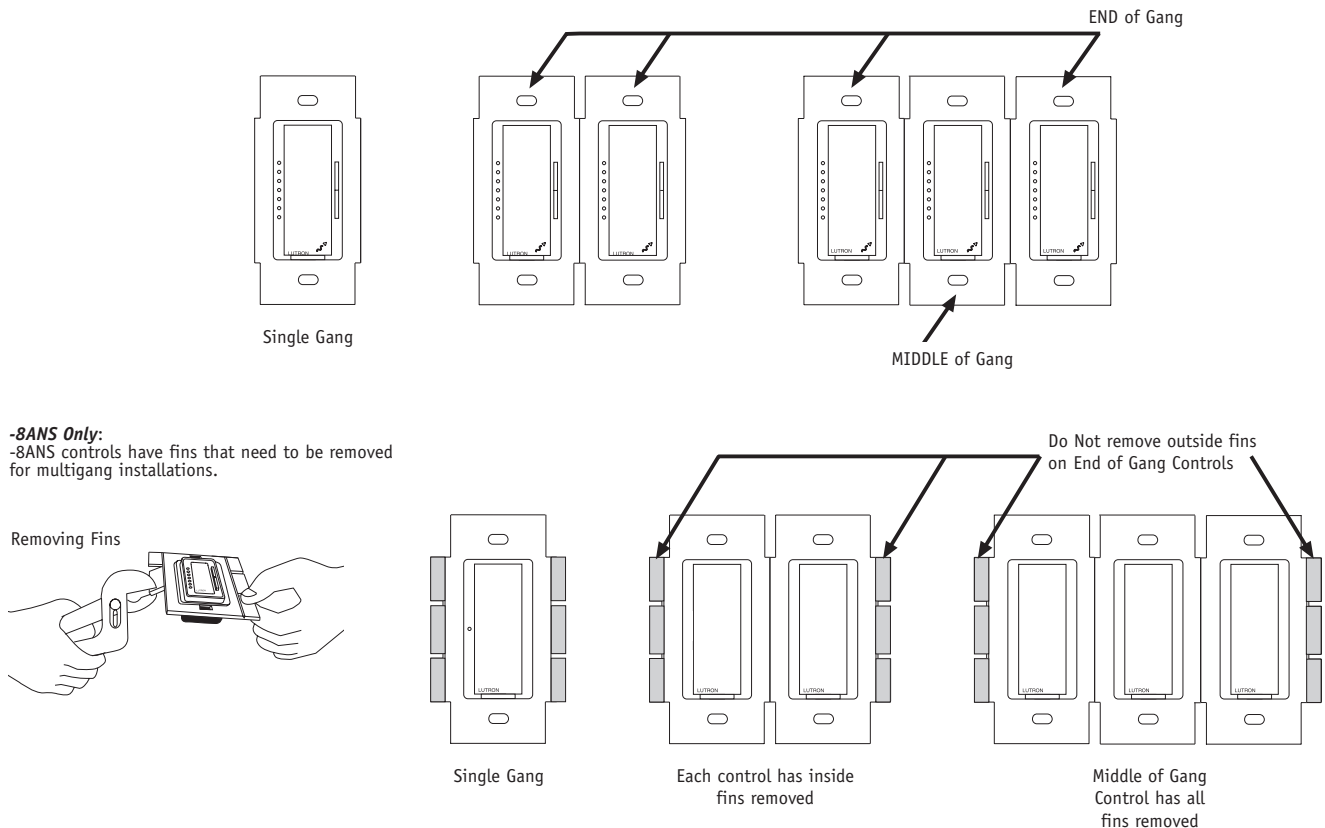


Figure 6 – Ganging Configuration and Derating Information

Wired Maestro® Local Controls (cont.)

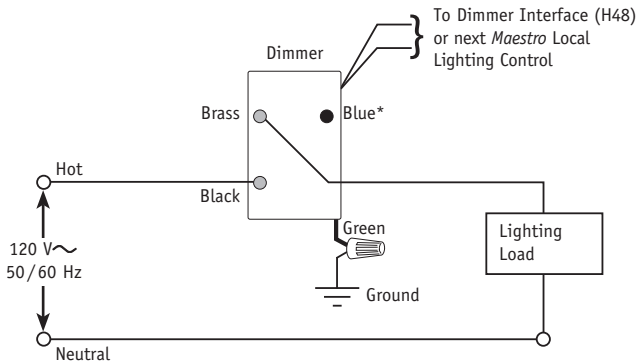


Figure 7 – HWD-6D and HWD-10D Single-Location Wiring Diagram

Terminal Color	Wire Color (-5NE)
Brass	Yellow
Silver	White
Blue	Blue
Black	Black

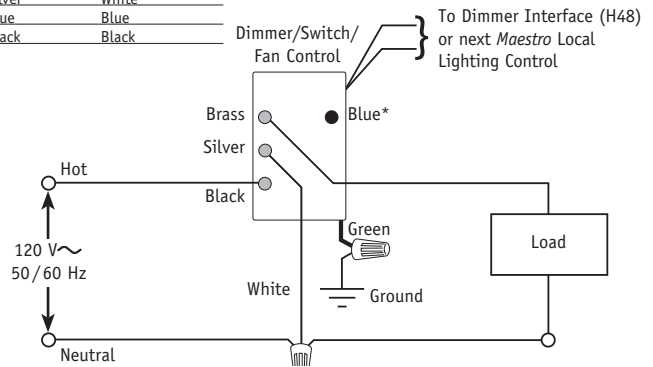


Figure 8 – HWD-2ANF, HWD-6ND, HWD-10ND, HWD-5NE, and HWD-8ANS Single-Location with Neutral Wiring Diagram

* When using controls in single-location installations, tighten the control's blue terminal (-5NE: cap off blue wire). **DO NOT** connect the blue terminal (-5NE: blue wire) to any other wiring or to ground.

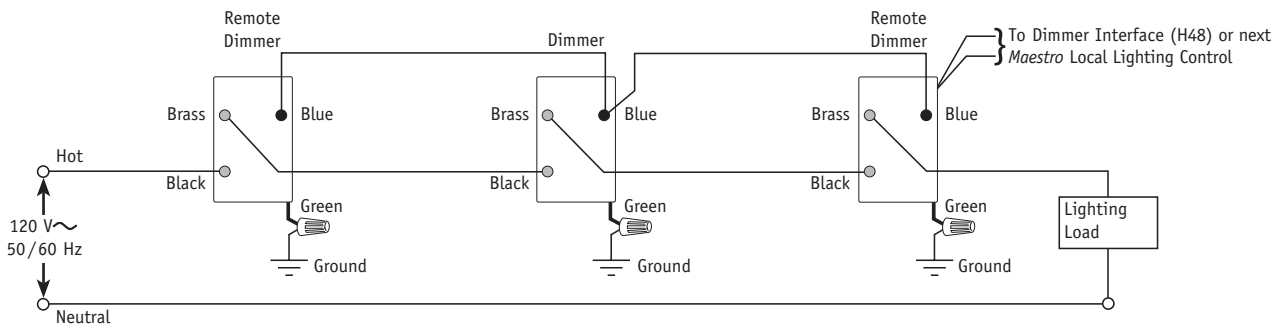


Figure 9 – HWD-6D and HWD-10D Multi-Location Installation¹

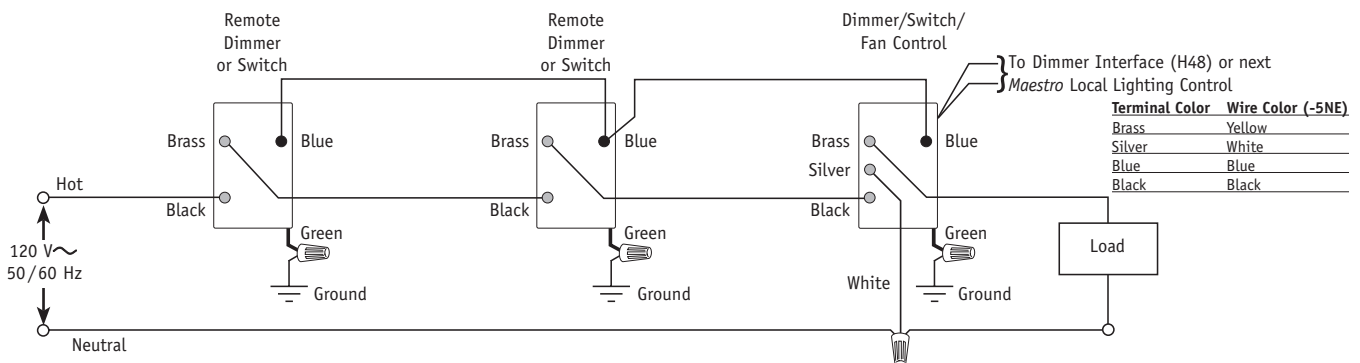


Figure 10 – HWD-2ANF, HWD-6ND, HWD-10ND, HWD-5NE, and HWD-8ANS Multi-Location Installation with Neutral^{1, 2}

¹ Up to nine HomeWorks® Maestro Remote Dimmers or Switches may be connected to the HomeWorks Wired Maestro Dimmer/Switch/Fan Control. Total length of wire used to connect blue terminals (-5NE: blue wire) may be up to 250 feet (76 m).

² Neutral wire Dimmers/Switches/Fan Controls must be connected on the lighting load side of a multi-location installation.

GRAFIK Eye® Multi-Zone Local Lighting Controls

4 Series / 8 Series
Local Lighting Controls
Grafik Eye/WPM Link
Architectural-Style

GRAFIK Eye preset local lighting controls allow you to easily create and recall multiple lighting scenes for the changing activities that occur in a room. Up to 16 preset scenes can be stored in each GRAFIK Eye control, making them ideal for home theaters, living rooms, and dining rooms. GRAFIK Eye preset scenes can be easily adjusted manually at the control at any time. GRAFIK Eye controls are available to dim or switch two, three, four, or six zones of incandescent, magnetic low-voltage, or neon/cold cathode lighting loads.

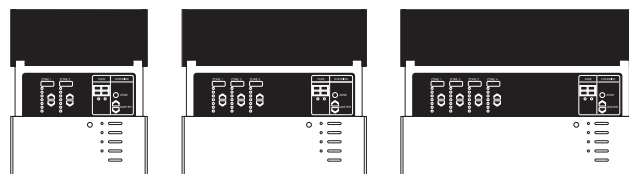
FINISHES AND COLORS

GRAFIK Eye preset local lighting controls are available in Architectural matte finish plastic colors, Architectural metal finishes, Satin Colors®, and select designer gloss colors. Custom paint matching is also available. Please contact Lutron Customer Service or your local Lutron Representative for details and pricing. See Appendix F: Colors & Finishes.

CONNECTION TO WIRED PROCESSOR

HomeWorks® wired processors have configurable links (see pg. 90 for processor details), each capable of controlling up to eight GRAFIK Eye controls or Wallbox Power Modules. This connection requires two pair — one pair #18 AWG (1.0 mm²), one pair #18-22 AWG (1.0-0.5 mm²) twisted shielded — NEC® Class 2 (IEC PELV) wire. Lutron® wire model # GRX-CBL-346S-500 may be used. The maximum cable length is 2000 feet (610 m), and this link must be wired in a daisy-chain configuration.

INSTALLATION NOTES

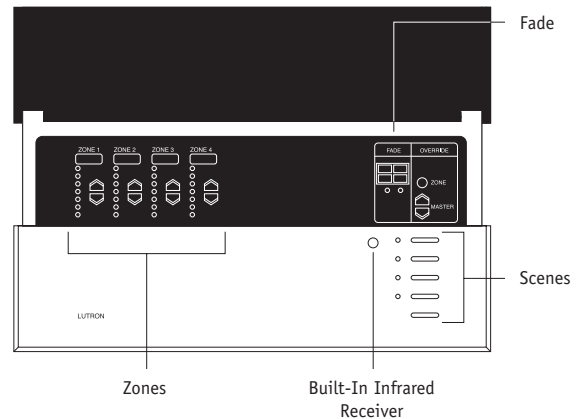


2-Zone
2-gang
US wallbox

3-Zone
3-gang
US wallbox

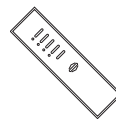
**4-Zone (pictured)
and 6-Zone**
4-gang
US wallbox

Note: Use 3½ inch (89 mm) deep masonry wallboxes for ease of installation of GRAFIK Eye Control Units. See pg. 68.

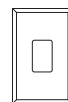


GRAFIK Eye Preset Local Lighting Control (GRX-IA-4 shown)

ACCESSORY CONTROLS



Hand-held Infrared Remote Control Transmitters
GRX-IT-WH, GRX-8IT-WH (White Only)
Controls four (or eight) scenes plus master raise/lower and off. Recalls or fine tunes light levels. Turns lighting on or off.



On/Off Doorway Control
NTGRX-1S
Switches lighting on or off from a remote wall location. Line/main voltage control (functions as 3-way switch).

GRAFIK Eye® Multi-Zone Local Lighting Controls (cont.)

Control Units

Model Numbers	GRX-IA-2, GRX-IA-3, GRX-IA-4, GRX-IA-6: Allows scene and zone control from HomeWorks®. GRX-MR-2, GRX-MR-3, GRX-MR-4, GRX-MR-6: Allows scene control from HomeWorks.
Input Voltage	120 V \sim , 50/60 Hz
Regulatory Approvals	UL, CSA, NOM
Load Types	Incandescent, magnetic low-voltage, neon/cold cathode, Lutron® Tu-Wire Fluorescent Dimming Ballasts, Lutron Hi-Lume® and ECO-10® Fluorescent Dimming Ballasts (requires GRX-FDBI-16A-120 or Hi-Power 2•4•6™), electronic low-voltage (requires ELVI-1000 or Hi-Power 2•4•6). Outputs are compatible with Lutron® NGRX-PB-WH, and Hi-Power 2•4•6 Power Boosters for higher wattage applications.
Maximum Load	2-zone: 1200 W/VA per control unit, 800 W/VA per zone. 3-zone: 1500 W/VA per control unit, 800 W/VA per zone. 4-zone: 1920 W/VA per control unit, 800 W/VA per zone. 6-zone: 1920 W/VA per control unit, 800 W/VA per zone.
Minimum Load	25 W/VA per zone.
Environment	Ambient operating temperature: 0 °C to 40 °C, 32 °F to 104 °F Ambient operating humidity: 0-90% humidity, non-condensing. Indoor use only.
Cooling Method	Passive cooling.
Line-Voltage Connections	See Fig. 4, pg. 69.
Low-Voltage Wire Type	Two pair [one pair #18 AWG (1.0 mm ²), one pair #18-22 AWG (1.0-0.5 mm ²) twisted shielded] NEC® Class 2 (IEC PELV) wire. Lutron wire model # GRX-CBL-346S-500 may be used.
Low-Voltage Configuration	Maximum of 2000 feet (610 m) total. Must be wired in a daisy-chain configuration. See Fig. 5, pg. 69.
Low-Voltage Wiring Connection	One 4-pin removable terminal block. Each of the four terminals will accept up to two #18 AWG (1.0 mm ²) wires. Do not connect Terminal 2 on processor communication link connector.
Addressing	Via 7-segment display. Use 1 of 8 addresses on a GRAFIK Eye/WPM link.
ESD Protection	Meets or exceeds the IEC 61000-4-2 standard.
Surge Protection	Meets or exceeds ANSI/IEEE standard c62.41.
Air Gap	Provided when all circuits are off.
Fail-Safe Operation	In the unlikely event that communication with the processor is interrupted, all GRAFIK Eye Preset Local Lighting Controls will still operate, offering local control.
Dimensions	See Fig. 1, pg. 68.
Mounting	2-zone: 2-gang US wallbox, 3-zone: 3-gang US wallbox, 4-zone: 4-gang US wallbox, 6-zone: 4-gang US wallbox, 2 ³ / ₄ in. (70 mm) deep minimum, 3 ¹ / ₂ in. (89 mm) deep recommended for ease of wiring. If mounting one control above another, leave at least 4 ¹ / ₂ in. (11.4 cm) vertical spacing between them.
Shipping Weight	2 lbs. (0.9 kg)

GRAFIK Eye® Multi-Zone Local Lighting Controls (cont.)

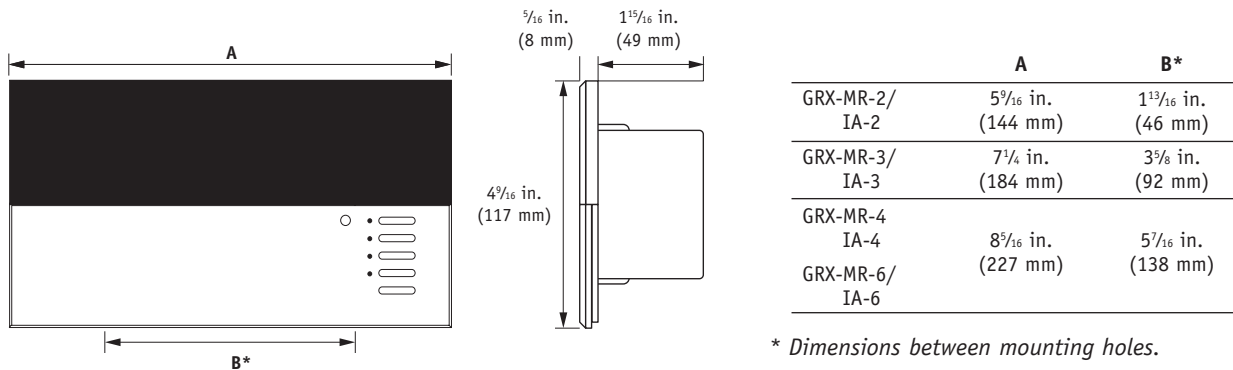


Figure 1 – Front and Side View Dimensions

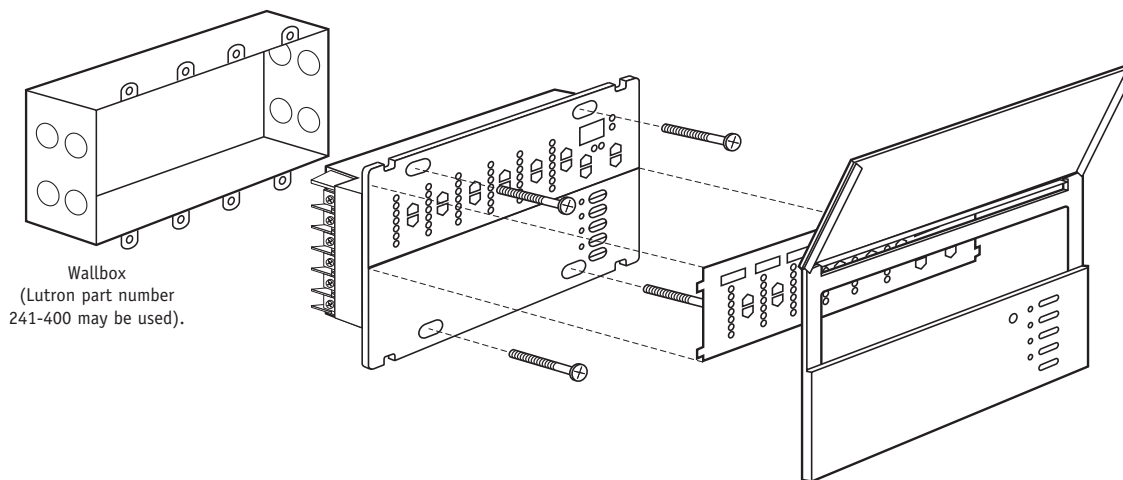


Figure 2 – Mounting

FRONT ROOM

GRAFIK Eye® Multi-Zone Local Lighting Controls (cont.)

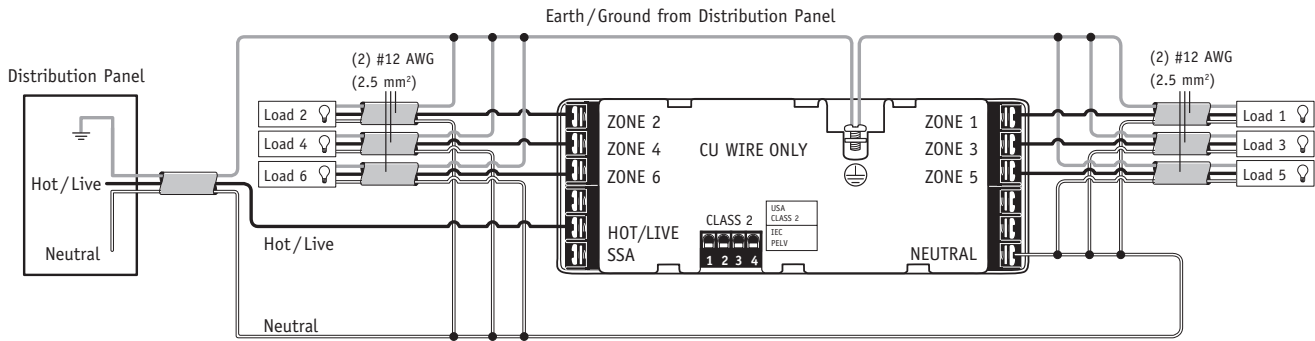
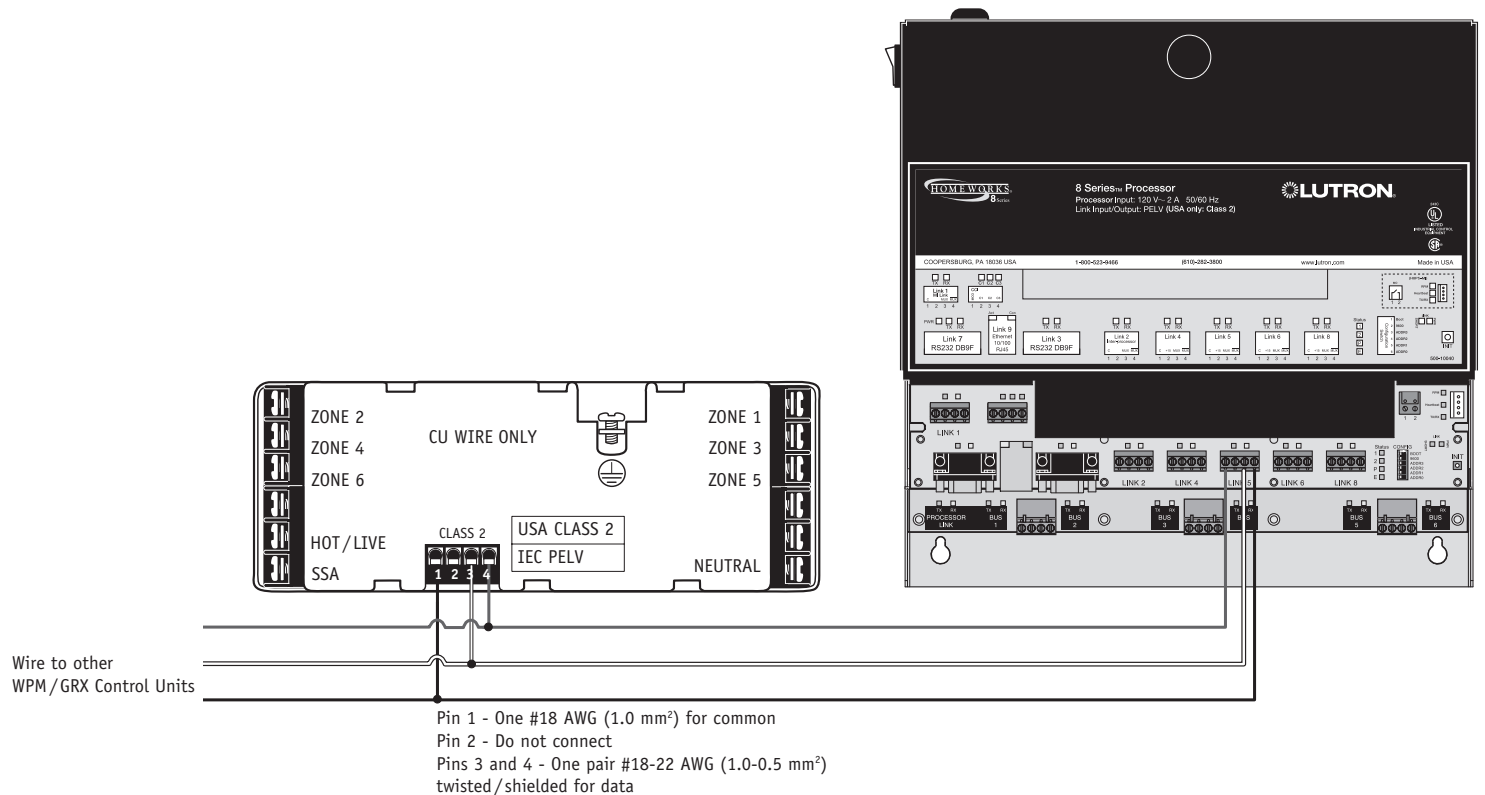


Figure 4 – Line-Voltage Wiring Diagram



NOTE: GRAFIK Eye Control Units can be connected to any of the configurable links.

Figure 5 – Connection to Wired Processor

FRONT ROOM