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.

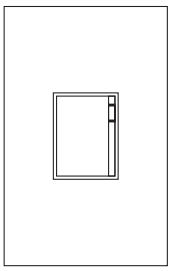
COLORS AND FINISHES

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.

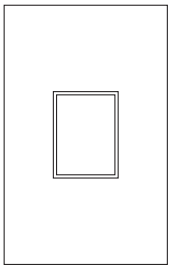


DIMMING CONTROL LOAD RATINGS

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 mm^2 to 0.5 mm^2) 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~, 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). *See Fig. 5, pg. 53*.
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. *See Fig. 1, pg. 52*.
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). *See Fig. 4, pg. 53*.
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	*See Fig. 2, pg. 53*.
Mounting	Controls mount in standard US wallboxes. For easier installation, Lutron recommends using 3½ in. (89 mm) deep wallboxes. *See Fig. 6, pg. 53*.
Ganging	When ganging *Vareo* Local Lighting Controls, it is necessary to remove side fins and to derate the control. *See Table 1, pg. 54* 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[4]	Lutron® Hi-lume® and ECO-10® Fluorescent Dimming Ballasts.
Maximum Load[5]	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:
- *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.

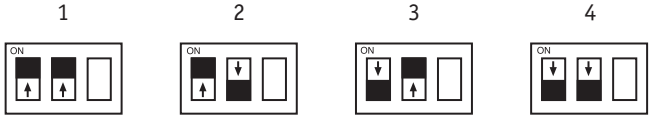
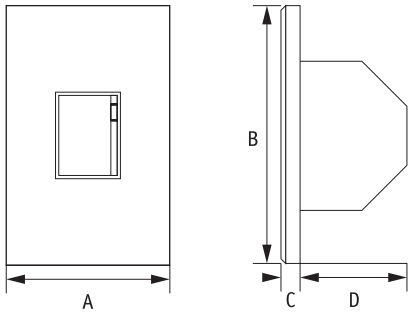


***Figure 1* – DIP Switch Settings**

Wired Vareo® Local Lighting Controls (cont.)



	Inches	mm
A	2¾	70
B	4½	114
C	5/16	7.6
D	1 5/16	32.7

***Figure 2* – Dimensions**

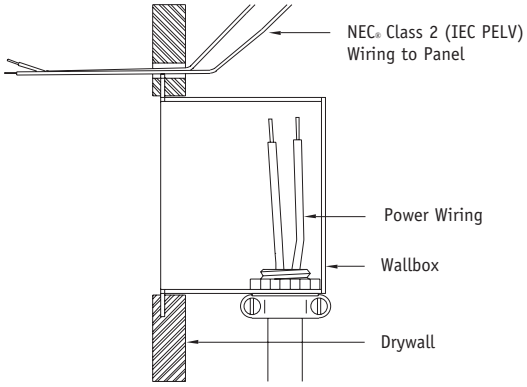


Figure 3* – Wire Installation

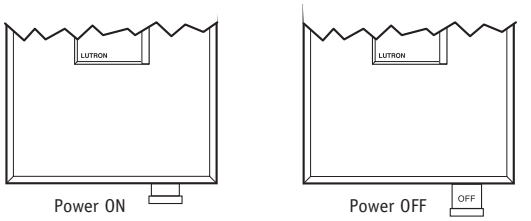


***Figure 4* – FASS™ (Front-Accessible Service Switch)**

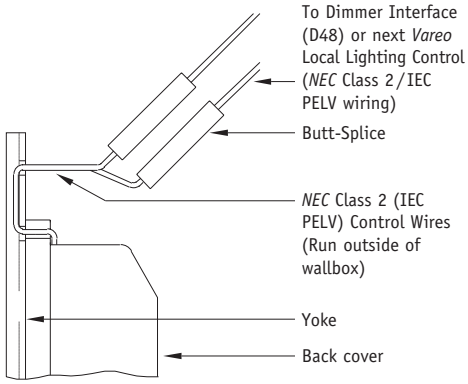


Figure 5* – Class 2 Wire Connection

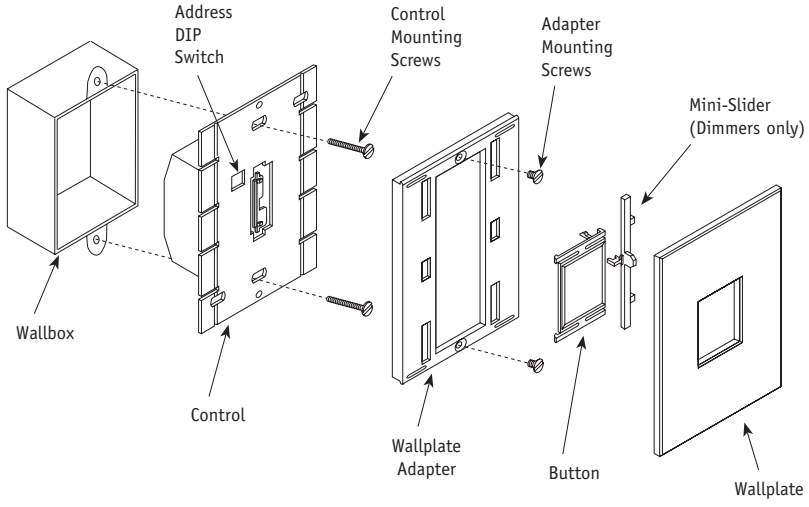


***Figure 6* – Mounting and Parts Identification**

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

Wired Vareo® Local Lighting Controls (cont.)

		Minimum Load	Maximum Load		
Control	**Load Type**	**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**

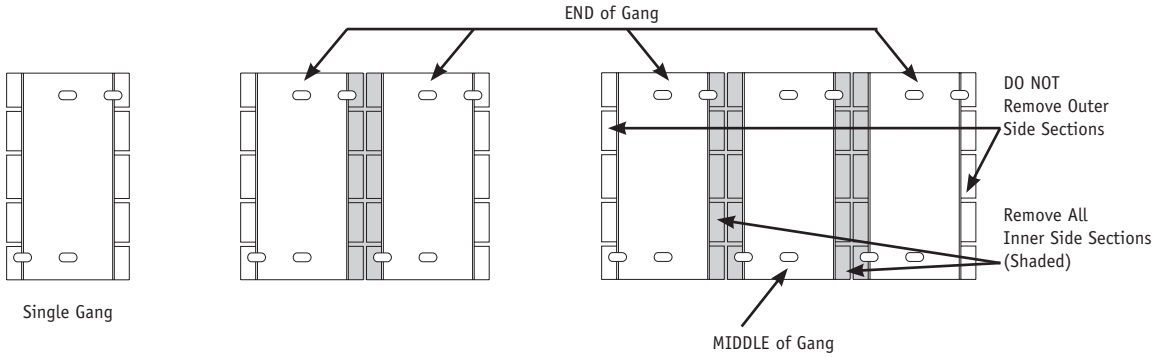


***Figure 7* – Ganging Configuration and Derating Information**

Wired Vareo® Local Lighting Controls (cont.)

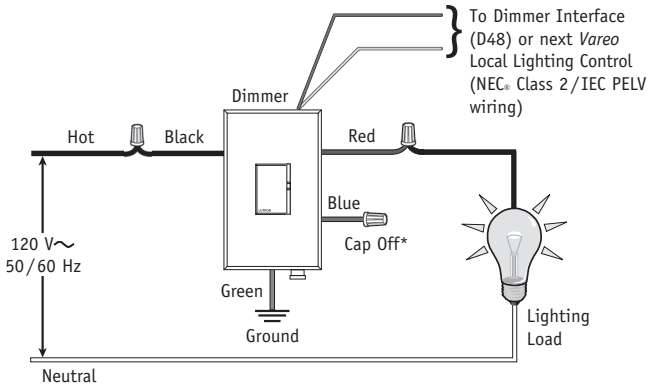


***Figure 10* – HWV-600D and HWV-1000D Single-Location Wiring Diagram**

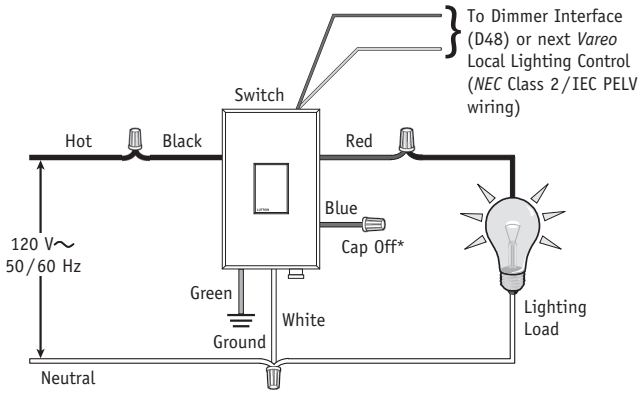


***Figure 11* – HWV-1000NS Single-Location with Neutral Wiring Diagram**

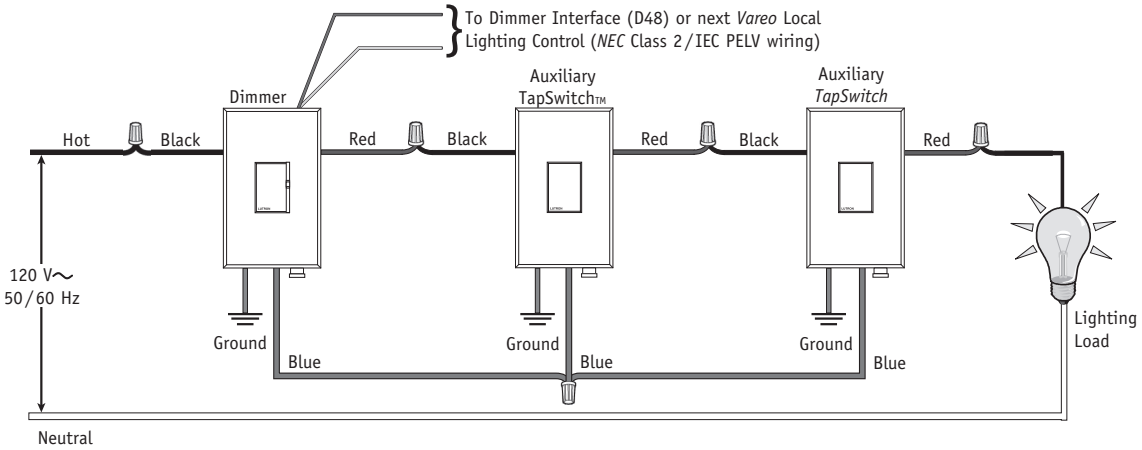


***Figure 12* – HWV-600D and HWV-1000D Multi-Location Wiring Diagram (Control Line Side)**

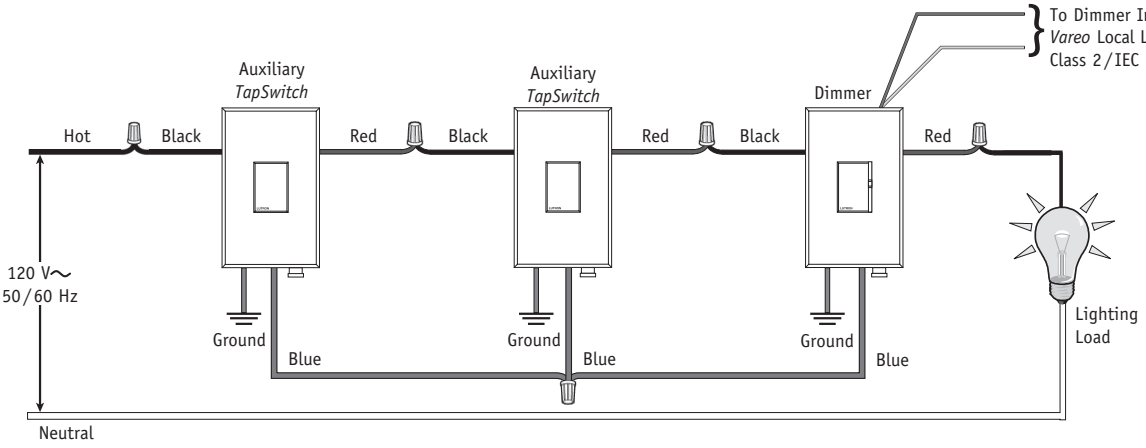


***Figure 13* – HWV-600D and HWV-1000D Multi-Location Wiring Diagram (Control Load Side)**

* 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.

Wired Vareo® Local Lighting Controls (cont.)

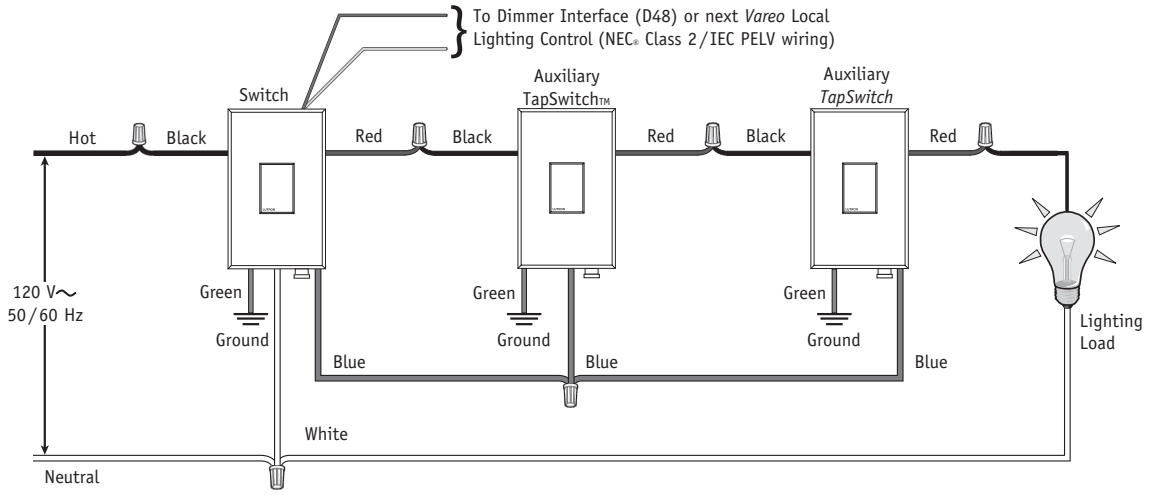


***Figure 14* – HWV-1000NS Multi-Location with Neutral Wiring Diagram (Control Line Side)**

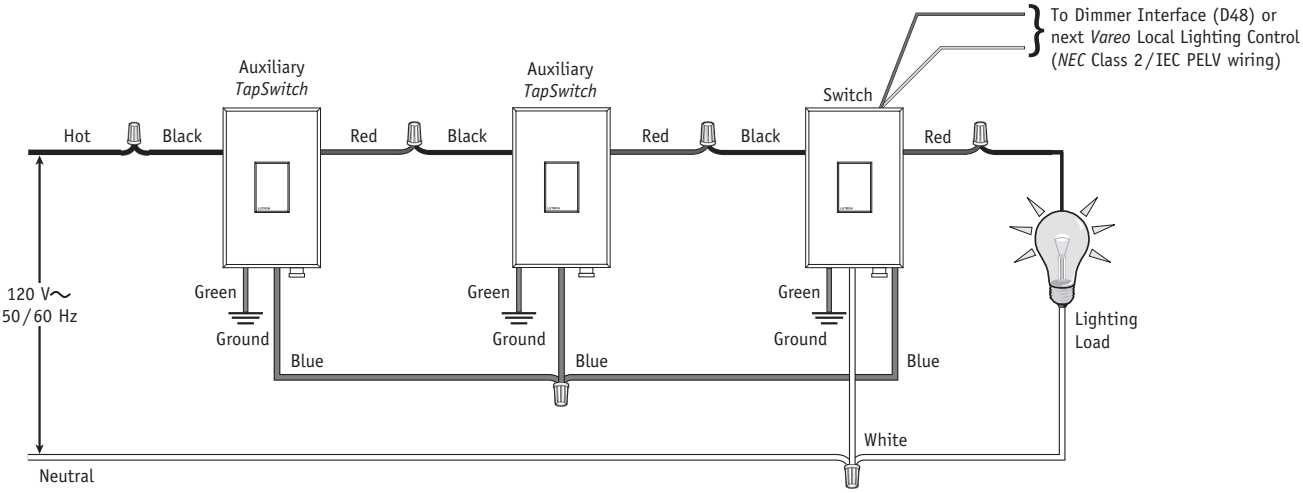


***Figure 15* – HWV-1000NS Multi-Location with Neutral Wiring Diagram (Control Load Side)**

Wired Vareo® Local Lighting Controls (cont.)

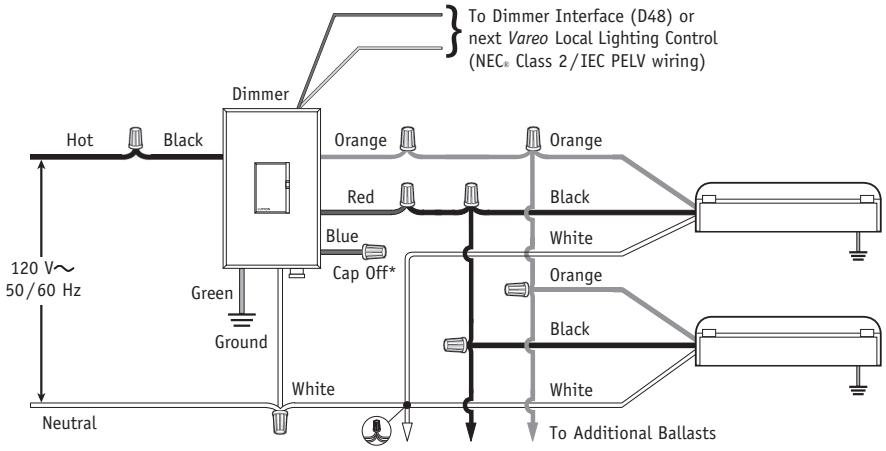


***Figure 16* – HWV-FDB-8A Single-Location Wiring Diagram**

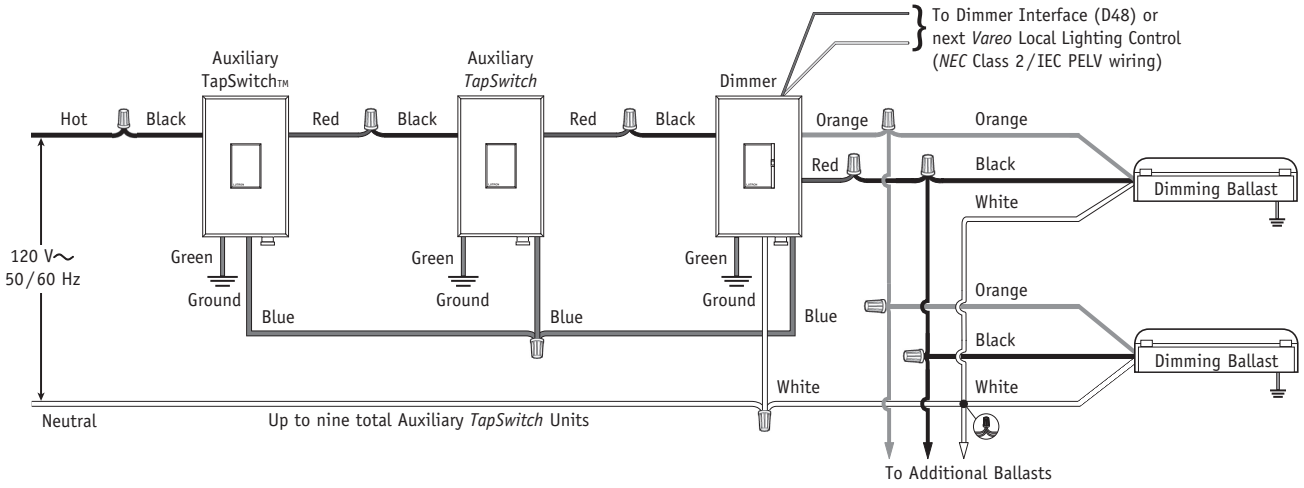


***Figure 17* – HWV-FDB-8A Multi-Location Wiring Diagram**

FRONT ROOM

* 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.