

RF Maestro® Local Controls

Wireless Series
Local Controls
RF Dimmer Link-8.1
Designer-Style

LOCAL CONTROLS

RF *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. RF *Maestro* dimmers incorporate advanced features such as fade-on/fade-off, long fade-off, and rapid full-on. In addition, the local controls may be programmed similar to a keypad button press with single and double tap functions, turning multiple lights on or off. RF *Maestro* local controls include a Front Accessible Service Switch (FASS™) for safe lamp replacement. HomeWorks® RF *Maestro* local controls install in single-pole, 3-way, or 4-way applications.

ACCESSORY CONTROL

Remote dimmers (HD-RD) and remote switches (HD-RS) are used in conjunction with a RF *Maestro* local control to provide 3-way and 4-way control. Use up to nine HD-RD with a single RF *Maestro* dimmer/fan-speed control for dimming/speed control from up to ten locations. Use up to nine HD-RS with a single RF *Maestro* switch for switching from up to ten locations. See pg. 77.

FINISHES AND COLORS

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

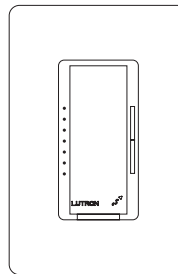
GANGING MAESTRO CONTROLS

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. 76.

INSTALLATION NOTE

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

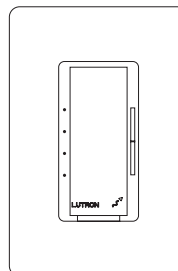


DIMMING CONTROL LOAD RATINGS

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

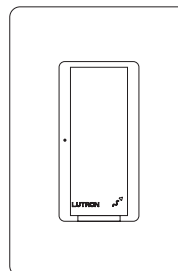
HRD-10D and HRD-10ND dim a single incandescent or magnetic low-voltage circuit up to 1000 W/VA from one location. HRD-10ND requires a neutral wire connection.

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



FAN-SPEED CONTROL LOAD RATINGS

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



SWITCHING CONTROL LOAD RATINGS

HRD-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. HRD-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 (HRD-6ND) and a power booster or interface is required. See pg. 107 for more information.

COMMUNICATION TO PROCESSOR

All RF *Maestro* local lighting controls must be located within 30 feet (9 m) of an RF processor or a hybrid RF/wired repeater. Each HomeWorks RF-capable processor can control up to 64 RF local controls.

RF Maestro® Local Controls (cont.)

All HomeWorks® RF Maestro Local Controls

Model Numbers	HRD-6D: 600 W/VA Incandescent/MLV Dimming Control. HRD-6ND: 600 W/VA Incandescent/MLV Dimming Control with Neutral Wire. HRD-10D: 1000 W/VA Incandescent/MLV Dimming Control. HRD-10ND: 1000 W/VA Incandescent/MLV Dimming Control with Neutral Wire. HRD-5NE: 500 W ELV Dimming Control with Neutral Wire. HRD-2ANF: 2 A Fan Speed Control with Neutral Wire. HRD-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, FCC, IC
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.
Air Gap	FASS™ (Front Accessible Service Switch). See Fig. 2, pg. 75.
Addressing	Via the HomeWorks software, using unique device serial numbers. Units must be installed prior to addressing. Counts as 1 of the 64 dimmer addresses on the RF dimmer link.
ESD Protection	Meets or exceeds the IEC 61000-4-2 standard.
Surge Protection	Meets or exceeds ANSI/IEEE standard c62.41.
Fail-Safe Operation	In the unlikely event that communication with the processor is interrupted, all Maestro local controls will still operate, offering local control.
Dimensions	See Fig. 1, pg. 75.
Mounting	Controls mount in standard US wallboxes. For easier installation, Lutron recommends using 3½" (89 mm) deep wallboxes. If mounting one control above another, leave at least 4½" (11.4 cm) vertical spacing between them. Unit must be placed within 30 feet (9 m) of a hybrid RF/wired repeater or an RF processor.
Ganging	When ganging RF Maestro local controls, it is necessary to derate the control. See Table 1, pg. 76 for specific derating information.
Auxiliary Controls	Use only Maestro remote dimmers or switches (HD-RD or HD-RS); mechanical 3- or 4-way switches will not work. Up to nine Maestro remote dimmers or switches may be used with one Maestro local dimming/fan speed or switching control. See pg. 77.
Shipping Weight	0.6 lb. (0.3 kg)

RF Maestro® Local Controls (cont.)

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

Load Types ¹	Incandescent, magnetic low-voltage ^{2,3} , and 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. 5, 7, pg. 77. Standard single-pole, 3-way, and 4-way wiring.

HRD-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), 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. 6, 8, pg. 77. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

HRD-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. 5, 7, pg. 77. Standard single-pole, 3-way, and 4-way wiring.

RF Maestro® Local Controls (cont.)

HRD-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), 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 <i>Lutron</i> NGRX-PB-WH and <i>Hi-Power 2•4•6</i> Power Boosters for applications up to 30,000 W. See pg. 107.
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. 6, 8, pg. 77. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

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

Load Types ¹	Single ceiling paddle fan.
Maximum Load	single-gang: 2 A end gang: 2 A middle gang: 2 A
Minimum Load	0.083 A
Line-Voltage Wiring	See Figs. 6, 8, pg. 77. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

HRD-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. 6, 8, pg. 77. Single-pole, 3-way, and 4-way wiring. Requires a neutral wire connection in the wallbox.

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

Load Types ¹	Incandescent, magnetic low-voltage ² , electronic low-voltage, fluorescent ³ , and motors.
Maximum Load	single-gang: lighting 8 A motor 5.8 A (1/4 HP) end gang: lighting 6.5 A motor 5.8 A middle gang: lighting 5 A motor 5 A
Minimum Load	lighting 10 W/VA motor 0.083 A
Line-Voltage Wiring	See Figs. 6, 8, pg. 77. Requires a neutral wire connection in the wallbox.

RF Maestro® Local Controls (cont.)

HD-RD • 3- or 4-way Remote Dimmer

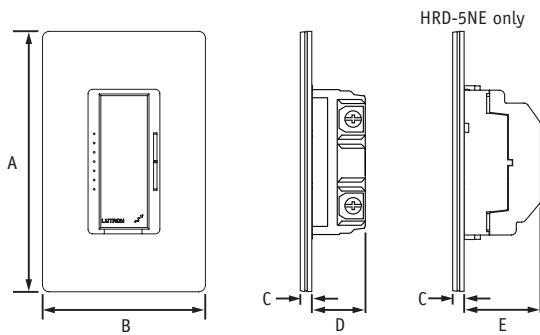
Compatible Controls	HRD-6D, HRD-6ND, HRD-10D, HRD-5NE, HRD-2ANF and HRD-10ND.
Maximum Load	See local control.
Minimum Load	See local control.
Line-Voltage Wiring	See Figs. 7, 8, pg. 77. Standard single-pole, 3-way, and 4-way wiring.

HD-RS • 3- or 4-way Remote Switch

Compatible Controls	HRD-8ANS
Maximum Load	See local control.
Minimum Load	See local control.
Line-Voltage Wiring	See Fig. 8, pg. 77. Standard single-pole, 3-way, and 4-way wiring.

- (1) To reduce the risk of overheating and possibly damaging other equipment, do not install HRD-6D, HRD-6ND, HRD-10D, or HRD-10ND to control receptacles, motor-operated appliances, fluorescent lighting, or electronic low-voltage transformer loads. Do not install HRD-8ANS to control receptacles. Do not install HRD-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 HRD-6D, HRD-6ND, HRD-10D or HRD-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.

RF Maestro® Local Controls (cont.)



	Inches	mm
A	4 ¹¹ / ₁₆	119
B	2 ¹⁵ / ₁₆	75
C	5 ⁷ / ₁₆	7.6
D	1 ¹ / ₈	35
E	1 ³ / ₈	34.8

Figure 1 – Dimensions

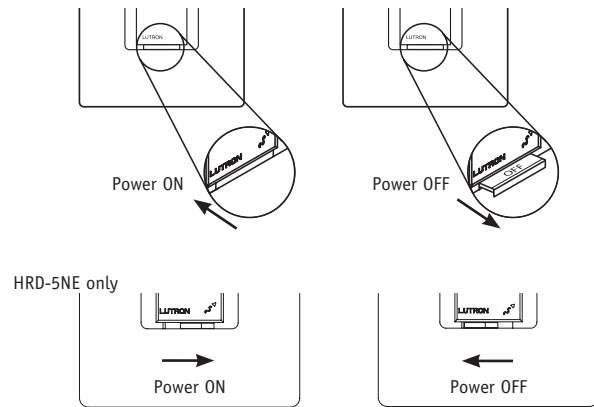


Figure 2 – FASS™ (Front-Accessible Service Switch)

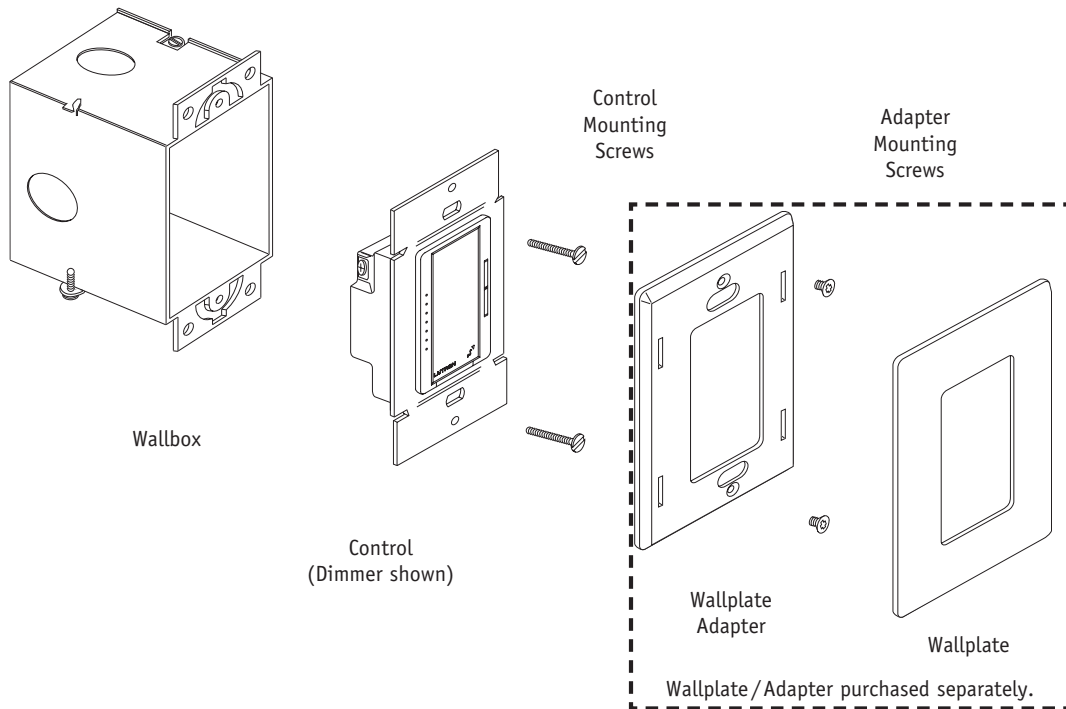


Figure 3 – Mounting and Parts Identification

FRONT ROOM

RF Maestro® Local Controls (cont.)

Control	Load Type	Minimum Load	Maximum Load		
		All Cases	Single-Gang	End of Gang	Middle of Gang
HRD-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
HRD-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
HRD-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
HRD-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
HRD-5NE	Electronic Low Voltage	40 W	500 W	450 W	400 W
HRD-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
HRD-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

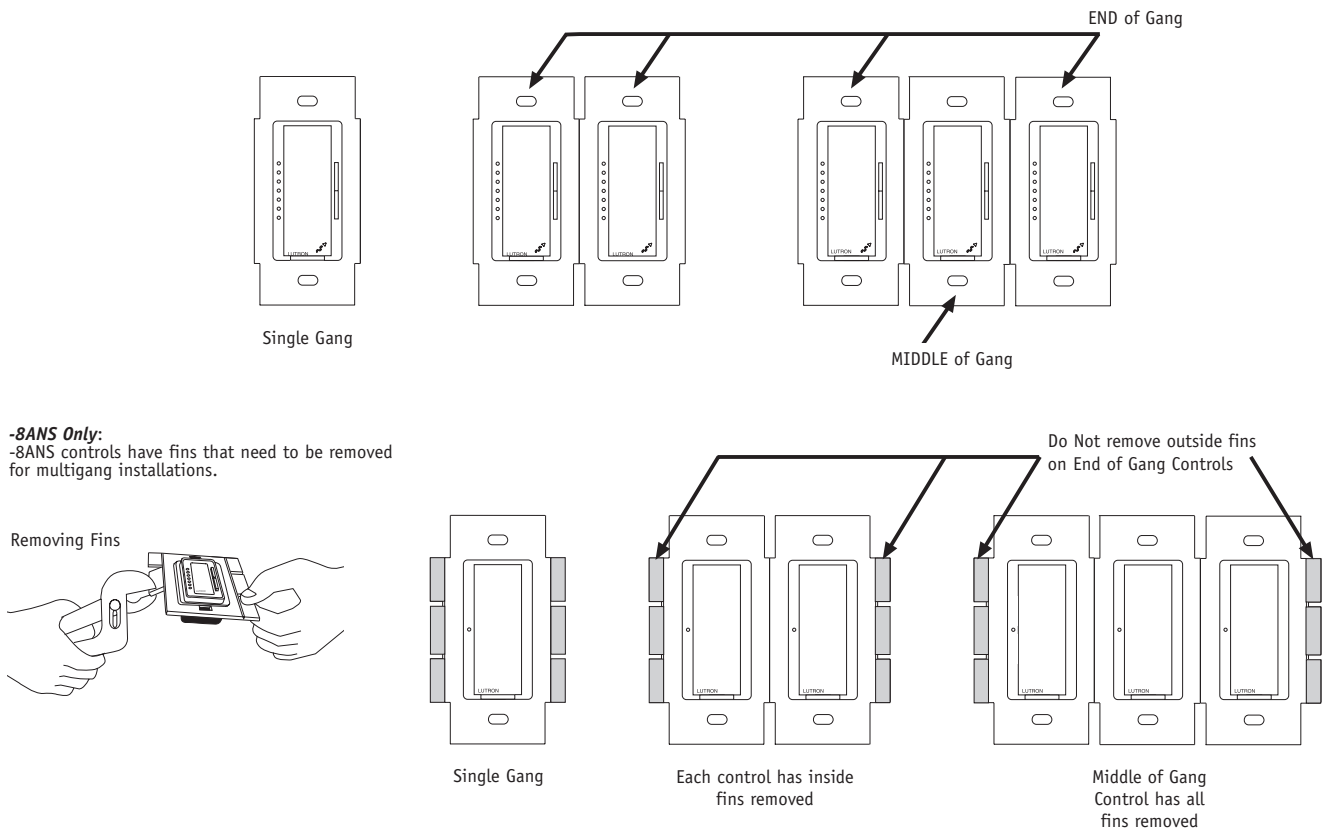


Figure 4 – Ganging Configuration and Derating Information

RF Maestro® Local Controls (cont.)

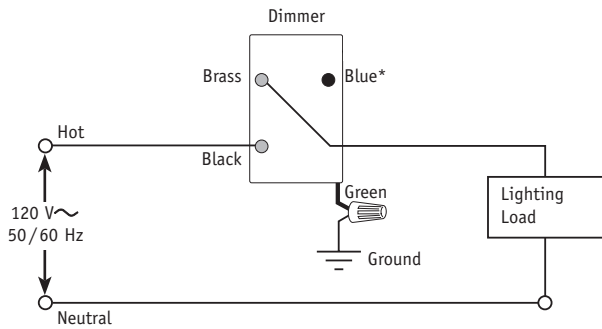


Figure 5 – HRD-6D and HRD-10D Single-Location Wiring Diagram

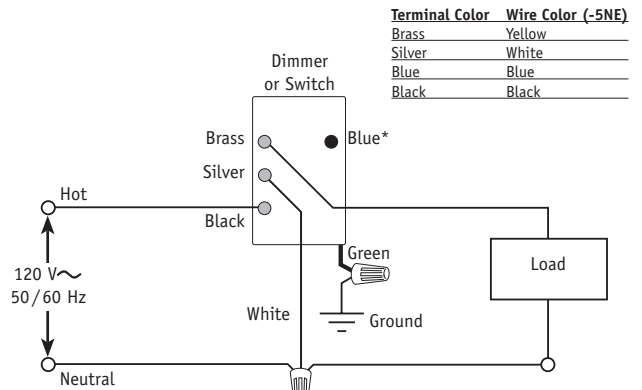


Figure 6 – HRD-2ANF, HRD-6ND, HRD-10ND, HRD-5NE, and HRD-8ANS Single-Location with Neutral Wiring Diagram

* 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.

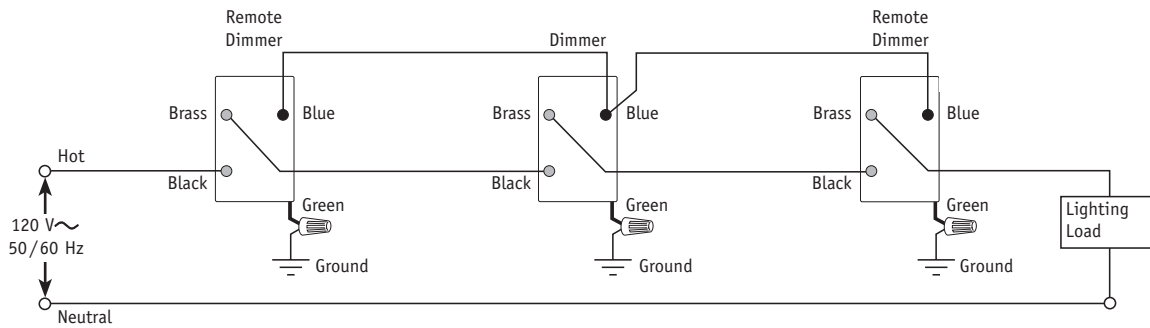


Figure 7 – HRD-6D and HRD-10D Multi-Location Installation¹

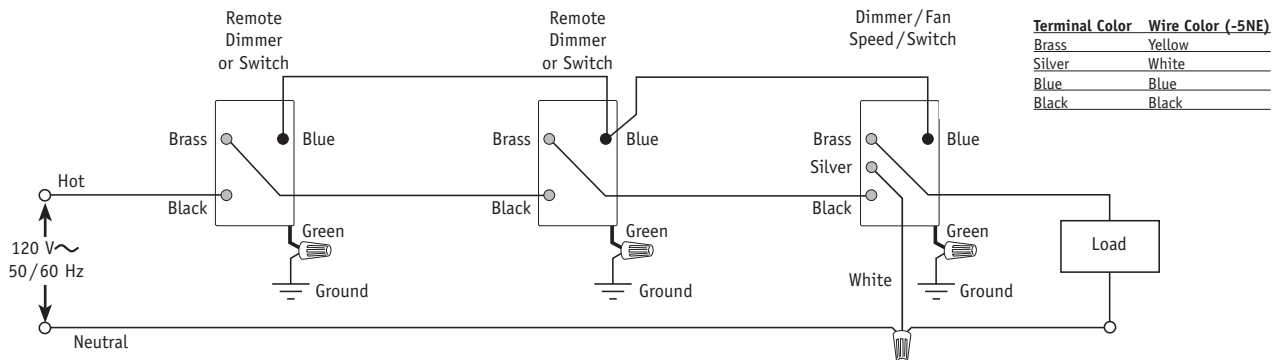


Figure 8 – HRD-2ANF, HRD-6ND, HRD-10ND, HRD-5NE, and HRD-8ANS Multi-Location Installation with Neutral^{1, 2}

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

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

RF Lamp Dimmer

Wireless Series
Local Lighting Controls
RF Dimmer Link-8.1
Tabletop

RF LAMP DIMMER **(MODEL # HRT-3LD-XX)**

HomeWorks® RF lamp dimmers allow table and floor lamps to be included in the *HomeWorks* lighting control system. Each RF lamp dimmer controls one table or floor lamp with simple and intuitive buttons for on/off and raise/lower. Simple to install, RF lamp dimmers are plugged into any standard wall outlet. Built-in intelligence allows each RF lamp dimmer to be controlled from the *HomeWorks* keypad in the home, as well as from touchscreens, universal remotes, and home automation controls.

RF lamp 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. RF lamp dimmers may be used in any system design with RF capability.

FINISHES AND COLORS

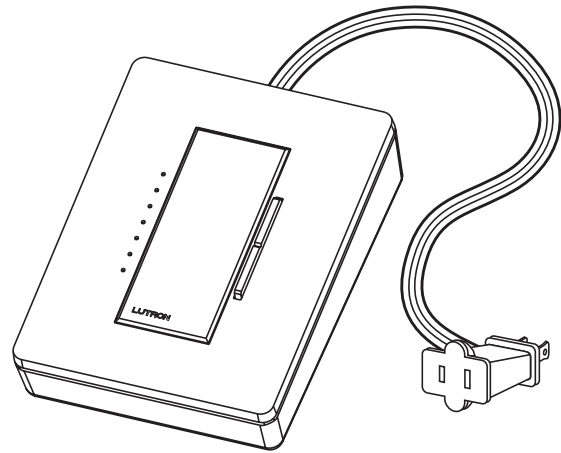
RF lamp dimmers are available in Snow (SW) and Midnight (MN).

DIMMING CONTROL LOAD RATINGS

HRT-3LD dims a single incandescent or magnetic low-voltage circuit up to 300 W/VA.

COMMUNICATION TO PROCESSOR

The RF lamp dimmers must be located within 30 feet (9 m) of an RF processor or a hybrid repeater. Each *HomeWorks* processor can control up to 64 RF local controls.



**RF Lamp Dimmer
(HRT-3LD)**

RF Lamp Dimmer (cont.)

Model Number	HRT-3LD: Lamp dimming control.
Input Voltage	120 V \sim 50/60 Hz
Regulatory Approvals	UL, CSA, NOM, FCC, IC
Load Types	Incandescent, magnetic low-voltage ^{1,2} , tungsten halogen.
Maximum Load	300 W/VA
Minimum Load	10 W/VA
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.
Addressing	Via the HomeWorks® software, using unique device serial numbers. Units must be installed prior to addressing. Counts as 1 of the 64 dimmer addresses on the RF link.
Diagnostics	LEDs provide diagnostics for troubleshooting.
ESD Protection	Meets or exceeds the IEC 61000-4-2 standard.
Surge Protection	Meets or exceeds ANSI/IEEE standard c62.41.
Fail-Safe Operation	In the unlikely event that communication with the processor is interrupted, all Maestro® local controls will still operate, offering local control.
Dimensions	2 ¹⁵ / ₁₆ in (75 mm) x 4 ¹¹ / ₁₆ in (119 mm) x 1 ⁵ / ₁₆ in (24 mm) See Fig. 1 below.
Shipping Weight	0.75 lbs. (0.34 kg)

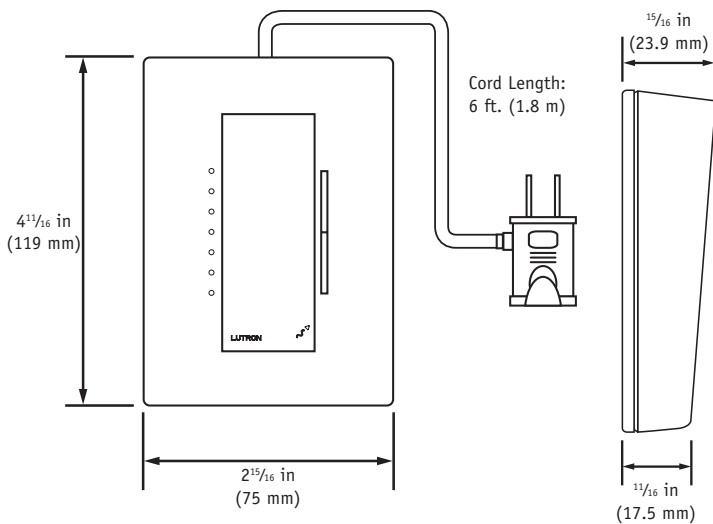


Figure 1 – Dimensions

Plug lamp cord into back of RF Lamp dimmer plug. Plug RF lamp dimmer plug into any standard wall outlet.

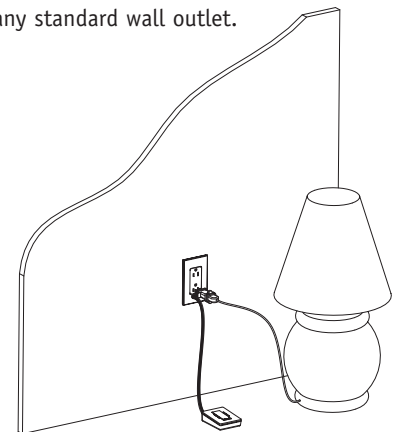


Figure 2 – Installation

- (1) 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, which have a built-in safety margin.
- (2) For low-voltage applications using the HRT-3LD 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.