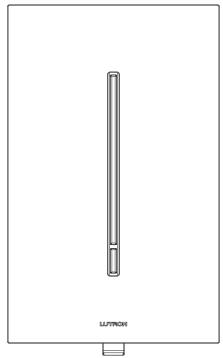
RadioRA® 2 architectural RF GRAFIK T<sub>TM</sub> local controls function much like standard dimmers or switches, but can be operated as part of a lighting control system. GRAFIK T<sub>TM</sub> controls are useful in locations where single circuits of lighting need to be dimmed or switched.

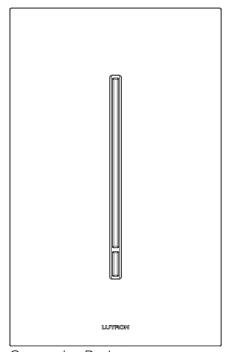
#### **Features**

- Controls include dimmers, switches, and companion devices.
- Simple touch control.
- Distinctive architectural aesthetic.
- Softly lit white LEDs indicate light level and coordinate with any décor.
- Advanced microprocessor dimming technology for control of dimmable LED lamps. 1
- Low-end and high-end trim are available for improved LED dimming performance (dimmer only).
- Optional neutral connection available for superior LED dimming performance (C•L® dimmer only).2
- Phase selectable technology allows forward or reverse phase dimming for compatibility with more load types.
- Installs in single-pole or multi-location applications. Companion devices are available for multi-location control with dimmers and switches (maximum 4 companion devices per dimmer or switch, 1 main control per circuit).
- Use Lutron® GRAFIK T™ wallplates (sold separately). See the Colors and Finishes on page 3 for details.
- Lutron® GRAFIK T<sub>TM</sub> wallplates snap on with no visible means of attachment.



Dimmer/Switch

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Companion Device

www.lutron.com/help

<sup>1</sup> If using LED bulbs, they must be Lutrono compatible! For compatibility and performance information, visit our website at www.lutron.com/led, which is constantly being updated.

<sup>&</sup>lt;sup>2</sup> GRAFIK T<sub>™</sub> switch and Phase Selectable dimmer requires neutral connection.

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# RadioRA® 2 Architectural RF GRAFIK TTM Local Controls

# **Model Numbers**

C•L <sub>®</sub> Dimmers				
RRT-G25LW	Clear Connect® RF Technology 250 W Dimmable LED <sup>1</sup> 600 W Incandescent / Halogen 400 VA (300 W) Magnetic Low-Voltage with Halogen based lamps 3.3 A (400 VA) Dimmable Fluorescent <sup>2</sup> 3.3 A (400 W) Hi-lume® 1% 2-wire LED driver (10 driver maximum) Neutral connection available Multi-location dimmer			
Phase Selectable Dir	nmers			
RRT-G5NEW	Clear Connect® RF Technology 500 W Electronic Low-Voltage 250 W Dimmable LED¹ 500 W Incandescent / Halogen 400 VA (300 W) Magnetic Low-Voltage with Halogen based lamps 3.3 A (400 VA) Dimmable Fluorescent² 3.3 A (400 W) Hi-lume® 1% 2-wire LED driver (10 driver maximum) Neutral connection required Multi-location dimmer			
Switches				
RRT-G5ANSW <sup>3</sup>	Clear Connect® RF Technology 5 A Incandescent/Halogen/Fluorescent/LED/MLV/ELV/HID/Relay 3 A Fan 1/10 HP Motor Neutral connection required Multi-location switch			
Companion Device				
RT-GRDW	Companion device (works with dimmer or switch)			

<sup>1</sup> If using LED bulbs, they must be Lutrone compatible! For compatibility and performance information, visit our website at www.lutron.com/led, which is constantly being updated.

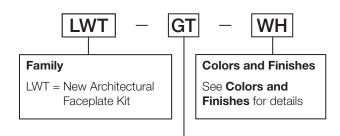
<sup>&</sup>lt;sup>2</sup> Includes Mark X<sub>®</sub>, Tu-Wire<sub>®</sub>, and POWERSENSE<sub>®</sub>.

<sup>&</sup>lt;sup>3</sup> Not for use with receptacles or appliances (e.g., garbage disposals). See Application Note #109 for compatibility with dimmable receptacles.



# How to Build a Faceplate Kit Model Number

### Ganging with GRAFIK T™ controls.



### **Gangs and Openings** G = GRAFIK T<sub>™</sub> opening <sup>1,3,4</sup> T = New Architectural opening<sup>2</sup>

Available Combinations						
1-Gang	2-Gang	3-Gang	4-Gang			
G	GG	GGG	GGGG			
	GT	GGT	GGGT			
	TG	GTT	GGTT			
		TGG	GTTT			
		TTG	TGGG			
			TTGG			
			TTTG			

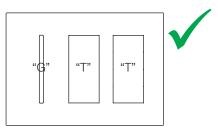
### Colors and Finishes

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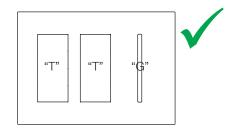


- Due to printing limitations, colors and finishes shown cannot be guaranteed to perfectly match actual product colors.
- · Color chip keychains are available for more precise color matching:
  - Architectural Matte Finishes: AM-CK-1 - Architectural Metal Finishes: AMTL-CK-1

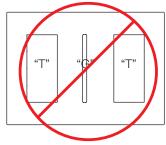
# Correct (LWT-GTT-XXX<sup>5</sup>)



#### Correct (LWT-TTG-XXX<sup>5</sup>)



#### Incorrect



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<sup>&</sup>lt;sup>1</sup> GRAFIK T<sub>™</sub> controls will only fit into "G" openings.

 $<sup>^2</sup>$  New Architectural accessories will fit into "T" openings when ganging with GRAFIK  $T_{\text{\tiny TM}}$  controls.

<sup>&</sup>lt;sup>3</sup> GRAFIK T<sub>™</sub> controls cannot be ganged with Vierti<sub>®</sub> controls or wallplates.

<sup>4</sup> GRAFIK T<sub>™</sub> controls cannot be ganged with Palladiom<sub>™</sub> controls ("P" openings)

<sup>&</sup>lt;sup>5</sup> "XXX" in the model number represents color/finish code. See **Colors and Finishes** on page 3 for details.

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# RadioRA® 2 Architectural RF GRAFIK TTM Local Controls

# **Specifications**

Model Numbers	Dimmers: RRT-G25LW, RRT-G5NEW
	Switch: RRT-G5ANSW
	Companion Device: RT-GRDW
	Wallplate: LWT-G-XXX <sup>1</sup> , LWT-GG-XXX <sup>1</sup> , LWT-GGG-XXX <sup>1</sup>
	LWT-GT-XXX <sup>1</sup> , LWT-GGT-XXX <sup>1</sup> , LWT-GGGT-XXX <sup>1</sup> , LWT-TG-XXX <sup>1</sup>
	LWT-GTT-XXX <sup>1</sup> , LWT-GGTT-XXX <sup>1</sup> , LWT-TGG-XXX <sup>1</sup> , LWT-GTTT-XXX <sup>1</sup>
	LWT-TTG-XXX <sup>1</sup> , LWT-TGGG-XXX <sup>1</sup> , LWT-TTTG-XXX <sup>1</sup>
	LWT-TTGG-XXX <sup>1</sup>
Power	120 V∼ 50/60 Hz
Typical Power	Dimmer/Switch: 0.20 W
Consumption	Companion Device: 0.10 W
	Test conditions: load is off
Regulatory	UL®, cUL® , NOM, FCC, IC, IFTEL
Approvals	
Environment	Ambient operating temperature: 32 °F to 104 °F (0 °C to 40 °C), 0% to 90%
	humidity, non-condensing. Indoor use only.
Communications	Dimmers/Switches communicate with the RadioRA® 2 system through Radio
	Frequency (RF) and must be located within 30 ft (9 m) of a repeater. Companion
	devices are not required to be within a specific range of a repeater.
ESD Protection	Tested to withstand electrostatic discharge without damage or memory loss.
Surge Protection	Tested to withstand surge voltages without damage or loss of operation, in
	accordance with IEEE C62.41-1991 Recommended Practice on Surge Voltages
	in Low-Voltage AC Power Circuits.
Power Failure	Power failure memory: should power be interrupted, the control will return to its
	previous state when power is restored.
Mounting	Requires a U.S. wallbox. 31/2 in (89 mm) deep recommended, 21/4 in (57 mm)
	deep minimum.
Wiring	Uses conventional 3-way and 4-way wiring. Total multi-location wire length (blue
	wire) between all units must not exceed 150 ft (45 m).
Warranty	www.lutron.com/TechnicalDocumentLibrary/warranty.pdf

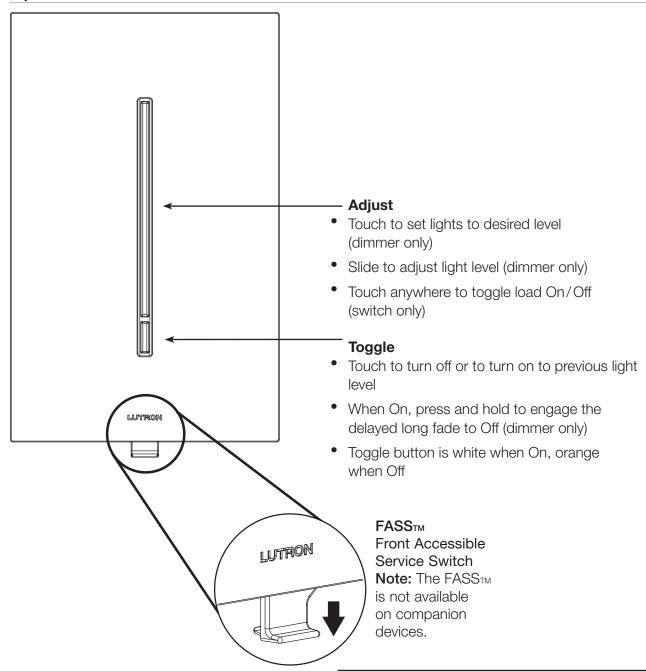
<sup>1 &</sup>quot;XXX" in the model number represents color/finish code. See the Colors and Finishes on page 3 for details.

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# RadioRA® 2 Architectural RF GRAFIK TTM Local Controls

# Operation



#### **IMPORTANT NOTICE:**

FASS™ - Front Accessible Service Switch To replace bulb(s), remove power by pulling the FASS<sub>TM</sub> down fully on all main controlling devices. After replacing bulb(s), push the FASS<sub>TM</sub> back up fully to restore power to the control(s).



# **Advanced Programming Mode**

NOTE: All advanced programming from a local device is disabled once it is addressed in a RadioRA® 2 or HomeWorks® QS system. All advanced features are available from the GUI.

#### All Dimmers, Switches, and Accessories

GRAFIK T<sub>TM</sub> dimmers and switches contain an Advanced Programming Mode (APM) that allows users to customize the control to meet their specific needs. For a detailed description of APM features and uses please refer to Lutron® Application Note #534.

#### Available advanced features include:

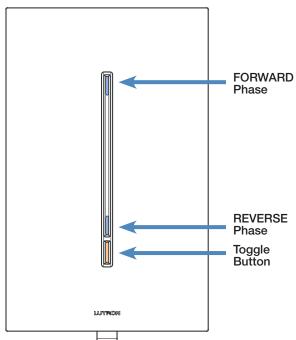
- **High-end Trim:** Adjust the maximum light level of the load.
- **Low-end Trim:** Adjust the minimum light level of the load.
- LED Brightness: Select between high and low brightness of the control LED.
- **Sound On/Off:** Enable or disable audible clicking feedback.
- Delayed Fade-to-Off: Adjust the waiting period upon fade-to-off.
- **Toggle Fade Rate Adjust:** Adjust the fade rate upon toggling.
- Protected Preset Adjust: Select between locked and unlocked presets.

### Phase Selectable Dimmers Only

GRAFIK TTM Phase Selectable dimmers contain an extra menu to allow for the selection of FORWARD and REVERSE dimming phase. The Phase Selectable dimmer default powers up in reverse dimming phase.

#### Instructions for selecting phase:

- 1. Pull the FASS<sub>TM</sub> down to remove power from the dimmer.
- 2. Press and hold the top (high-end) of the light bar.
- 3. Push the FASS™ back up fully to reapply power.
- 4. Hold the top (high-end) of the light bar for 6 seconds until the device beeps, then release.
- 5. Once in "Phase Selection Mode", two lit LEDs show current setting:
  - a. Top LED flashing indicates FORWARD-PHASE had been selected.
  - b. Bottom LED flashing indicates REVERSE-PHASE has been selected.
- 6. Press the top or bottom LED to change the dimming phase.
- 7. Press and hold the toggle button for 6 seconds to exit "Phase Selection Mode".

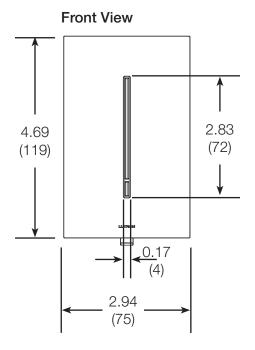


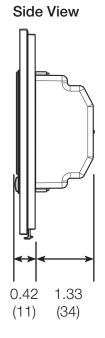
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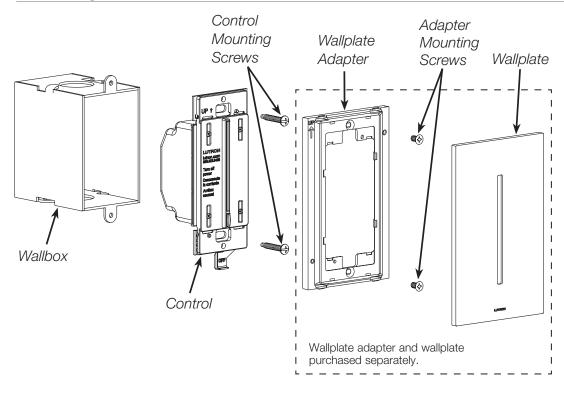
# **Dimensions**

All dimensions are shown as in (mm)





# Mounting and Parts Identification



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(U.S.A./Canada)



# Ganging and Derating

When combining controls in the same wallbox, derating is required. See **Load Type and Capacity**. No derating is required for companion devices.

# **Load Type and Capacity**

Control	Load Type	Not Ganged	End of Gang	Middle of Gang	Neutral Connection	
RRT-G25LW <sup>1,2</sup>	LED	250 W	250 W	250 W		
	MLV Halogen <sup>3,4,5</sup>	400 VA (300 W)	400 VA (300 W)	400 VA (300 W)		
	Incandescent/ Halogen	600 W	500 W	400 W	Optional	
	Lutron <sub>®</sub> Hi-lume <sub>®</sub> 1% 2-wire LED driver <sup>8</sup>	3.3 A (400 W), 10 drivers max	3.3 A (400 W), 10 drivers max	3.3 A (400 W), 10 drivers max		
	Dimmable Fluorescent <sup>6</sup>	3.3 A (400 VA)	3.3 A (400 VA)	3.3 A (400 VA)	Required	
RRT-G5NEW <sup>1,2</sup>	LED	250 W	250 W	250 W	Required	
	MLV Halogen <sup>3,4,5</sup>	400 VA (300 W)	400 VA (300 W)	400 VA (300 W)		
	Incandescent/ Halogen/ELV <sup>4</sup>	500 W	400 W	300 W		
	Lutron <sub>®</sub> Hi-lume <sub>®</sub> 1% 2-wire LED driver <sup>8</sup>	3.3 A (400 W), 10 drivers max	3.3 A (400 W), 10 drivers max	3.3 A (400 W), 10 drivers max		
	Dimmable Fluorescent <sup>6</sup>	3.3 A (400 VA)	3.3 A (400 VA)	3.3 A (400 VA)		
RRT-G5ANSW <sup>2,7</sup>	Lighting	5 A (600 W)	4.1 A (500 W)	3.3 A (400 W)		
	Fan	3 A (360 W)	3 A (360 W)	3 A (360 W)	Required	
	Motor	1/10 HP	1/10 HP	1/10 HP		
	Mixed	3 A (360 W)	3 A (360 W)	3 A (360 W)		

Designed for use with permanently installed LED, incandescent, tungsten halogen, or magnetic low voltage transformers with halogen based lamps.

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(U.S.A./Canada)

Power Boosters/Load Interfaces: can be used to control power boosters/load interfaces. For a list of compatible power boosters/load interfaces see Compatible Power Boosters and Load Interfaces. When using with power boosters/load interfaces, the neutral must be connected.

Low-Voltage Applications: Use only with magnetic (core and coil) low-voltage transformers with halogen based lamps. Not recommended for use with electronic (solid-state) low-voltage transformers but UL® listed for dimmable ELV transformers.

Operation of a low-voltage circuit with lamps inoperative or removed may result in transformer overheating and premature failure. Lutron strongly recommends the following:

<sup>•</sup> Do not operate low-voltage circuits without operative lamps in place.

<sup>•</sup> Replace burned-out lamps as soon as possible.

<sup>•</sup> Use transformers that incorporate thermal protection or fused transformer primary windings to prevent transformer failure due to overcurrent.

When using the dimmer/switch to control MLV halogen fixtures, the maximum lamp wattage is determined by the efficiency of the transformer, with 70%–85% as typical. For actual transformer efficiency, contact either the fixture or transformer manufacturer. The total VA rating of the transformer(s) shall not exceed the VA rating of the dimmer/switch.

Includes Mark Xo., Tu-Wireo, and POWERSENSEo.

Not for use with receptacles or appliances (e.g., garbage disposals). See Application Note #109 for compatibility with dimmed receptacles.

<sup>8</sup> Neutral required for Lutron<sub>®</sub> Hi-lume<sub>®</sub> 1% 2-wire LED driver and fixture.



### Minimum Load

Dimmer		LED¹		Incandescent/ Halogen		MLV Halogen		ELV <sup>2,3</sup>
Application	Number of Companion Devices	With Neutral Connected	With Neutral Disconnected	With Neutral Connected	With Neutral Disconnected	With Neutral Connected	With Neutral Disconnected	With Neutral Connected
Single Pole	0	1 LED lamp <sup>4</sup>	2 LED lamps <sup>4</sup>	5 W	40 W	40 W	40 W	40 W
Multi-location	1	1 LED lamp <sup>4</sup>	3 LED lamps <sup>4</sup>	5 W	80 W	40 W	80 W	40 W
Multi-location	2	1 LED lamp <sup>4</sup>	4 LED lamps <sup>4</sup>	5 W	120 W	40 W	120 W	40 W
Multi-location	3	1 LED lamp <sup>4</sup>	5 LED lamps <sup>4</sup>	5 W	160 W	40 W	160 W	40 W
Multi-location	4	1 LED lamp <sup>4</sup>	6 LED lamps <sup>4</sup>	5 W	200 W	40 W	200 W	40 W

Includes Lutron<sub>®</sub> compatible LED replacement lamps and Hi-lume<sub>®</sub> 1% 2-wire LED drivers.

#### Switch

Minimum load for the switch is 5 W, one Lutron® compatible LED replacement lamp, or one Hi-lume® 1% 2-wire I FD driver.

# Compatible Power Boosters and Load Interfaces

Some local controls can be used to control power boosters or load interfaces. Up to three power boosters or load interfaces can be used with one control. See table below for a list of controls and compatible power boosters and load interfaces. When controlling power boosters/load interfaces, the neutral must be connected.

Control	Phase Adaptive Power Modules (PHPM-PA-120-WH & PHPM-PA-DV-WH) <sup>1</sup>	3-wire Fluorescent Power Modules (PHPM-3F-120-WH & PHPM-3F-DV-WH) <sup>2</sup>	Switched Power Module (PHPM-SW-DV-WH) <sup>3</sup>	0-10 V Interface and Switching Module (GRX-TVI) <sup>4</sup>
RRT-G25LW	✓	✓		✓
RRT-G5NEW	<b>√</b> 5	<b>√</b> 5		✓5
RRT-G5ANSW			<b>√</b>	

<sup>&</sup>lt;sup>1</sup> See Lutron<sub>®</sub> P/N 369356 for wiring diagrams.

 $<sup>^{2}\,</sup>$  Must meet transformer minimum load requirements.

<sup>&</sup>lt;sup>3</sup> ELV loads are only compatible with -G5NEW model

<sup>4</sup> If using LED bulbs, they must be Lutrono compatible! For compatibility and performance information, visit our website at www.lutron.com/led, which is constantly being updated.

<sup>&</sup>lt;sup>2</sup> See Lutron<sub>®</sub> P/N 369355 for wiring diagrams.

<sup>&</sup>lt;sup>3</sup> See Lutron<sub>®</sub> P/N 369357 for wiring diagrams.

<sup>&</sup>lt;sup>4</sup> See Lutron<sub>®</sub> P/N 369247 for wiring diagrams.

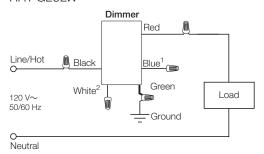
<sup>&</sup>lt;sup>5</sup> When using -G5NEW, dimming phase must be set to forward phase. See **Advanced Programming Mode** for details.



# Wiring Diagrams

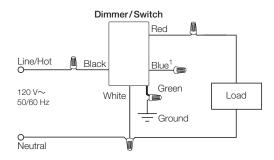
### Wiring Diagram 1

Single Location Installation without Neutral<sup>1,2</sup> RRT-G25LW



### Wiring Diagram 2

Single Location Installation with Neutral<sup>1</sup> RRT-G25LW, RRT-G5NEW, or RRT-G5ANSW



Continued on next page...

<sup>&</sup>lt;sup>1</sup> When using controls in single location installations, cap the blue wire. **Do not** connect the blue wire to any other wiring or to ground.

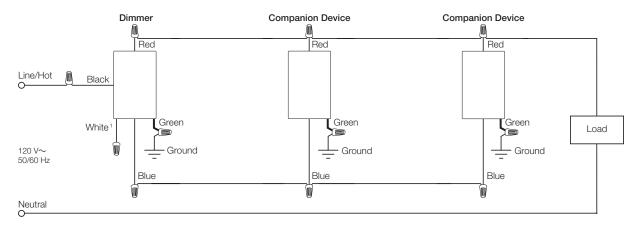
<sup>&</sup>lt;sup>2</sup> When neutral wire connection is unavailable, cap the white wire. **Do not** connect the white wire to any other wiring or to ground.



# Wiring Diagrams (continued)

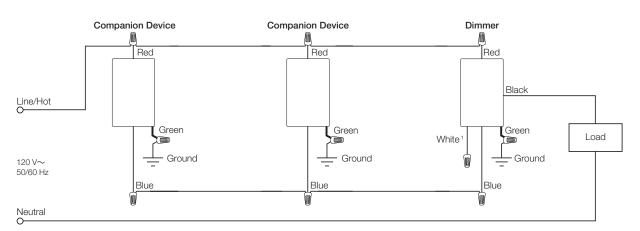
# Wiring Diagram 3

Multi-Location Installation without Neutral 1,2,3 - Dimmer Line Side RRT-G25LW with RT-GRDW



### Wiring Diagram 4

Multi-Location Installation without Neutral 1,2,3 - Dimmer Load Side RRT-G25LW with RT-GRDW



<sup>&</sup>lt;sup>1</sup> When neutral wire connection is unavailable, cap the white wire. **Do not** connect the white wire to any other wiring or to ground.

Continued on next page...

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<sup>&</sup>lt;sup>2</sup> Up to 4 companion devices may be connected to the dimmer. Total blue traveler wire length may be up to 150 ft (45 m).

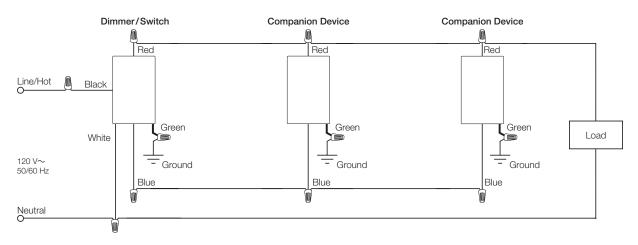
<sup>&</sup>lt;sup>3</sup> Dimmers may be connected on the Line side or Load side of a multi-location installation if neutral is not connected. The dimmer cannot be installed in the middle location of a 4-way installation.



# Wiring Diagrams (continued)

### Wiring Diagram 5

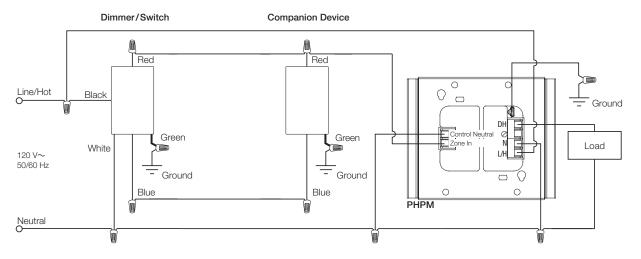
Multi-Location Installation with Neutral 1,2 - Control Line Side RRT-G25LW, RRT-G5NEW, or RRT-G5ANSW with RT-GRDW



<sup>&</sup>lt;sup>1</sup> Up to 4 companion devices may be connected to each dimmer or switch. Total blue traveler wire length may be up to 150 ft (45 m).

### Wiring Diagram 6

#### Multi-Location Installation with PHPM - Neutral Required RRT-G25LW, RRT-G5NEW<sup>1</sup>, or RRT-G5ANSW with RT-GRDW



<sup>1</sup> When using -G5NEW, dimming phase must be set to forward phase. See **Advanced Programming Mode** for details.

<sup>&</sup>lt;sup>2</sup> Control must be installed on line side of circuit if using neutral wire.

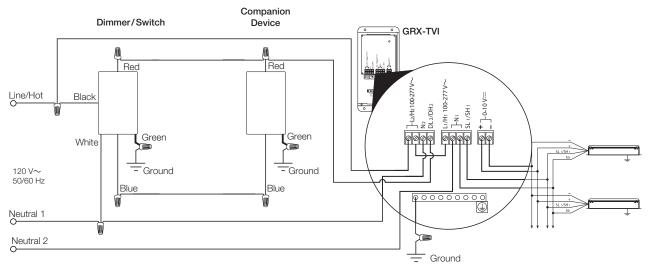


# Wiring Diagrams (continued)

### Wiring Diagram 7

### Multi-Location Installation with GRX-TVI - Neutral Required

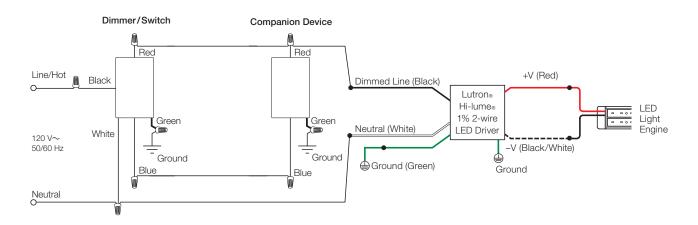
RRT-G25LW, RRT-G5NEW, or RRT-G5ANSW with RT-GRDW



### Wiring Diagram 8

# Multi-Location Installation with Hi-lume<sub>®</sub> 1% 2-wire LED Driver with Neutral

RRT-G25LW, RRT-G5NEW<sup>1</sup>, or RRT-G5ANSW with RT-GRDW



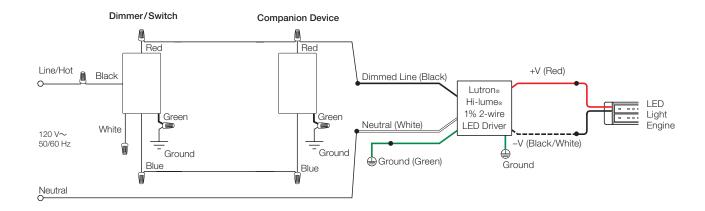
<sup>&</sup>lt;sup>1</sup> When using -G5NEW, dimming phase must be set to forward phase. See **Advanced Programming Mode** for details.



# Wiring Diagrams (continued)

### Wiring Diagram 9

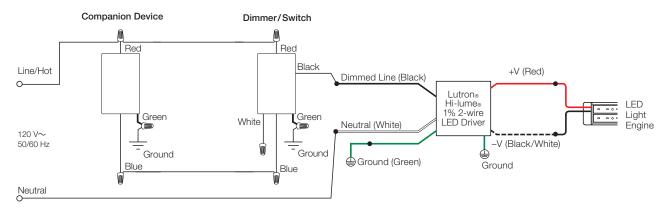
Multi-Location Installation with Hi-lume 1% 2-wire LED Driver without Neutral - Dimmer Line Side RRT-G25LW with RT-GRDW



### Wiring Diagram 10

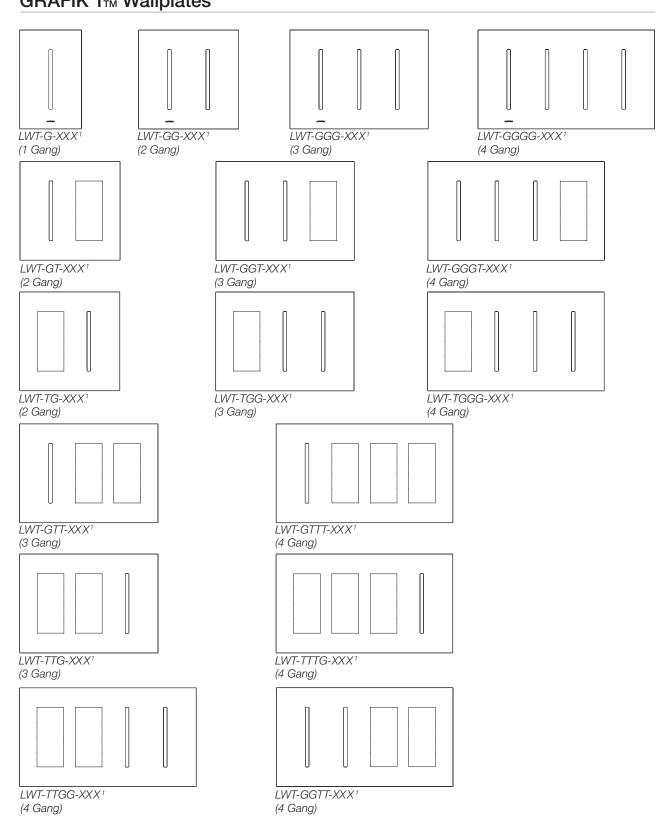
Multi-Location Installation with Hi-lume® 1% 2-wire LED Driver without Neutral -**Dimmer Load Side** 

RRT-G25LW with RT-GRDW



# RadioRA2 product specifications

# RadioRA® 2 Architectural RF GRAFIK TTM Local Controls **GRAFIK TTM Wallplates**



<sup>1 &</sup>quot;XXX" in the model number represents color/finish code. See the Colors and Finishes on page 3 for details.