

GRAFIK T™

Installation Instructions

Please Read Before Installing

English

P/N 0301815
Rev A

120 V~ 50/60 Hz

Model Numbers

Hybrid Keypad ^{1,2,3}	LED	Incandescent/Halogen	MLV ^{4,5,6,7} Halogen	Dimmable Electronic Ballast or Driver ^{8,9,10}
RRT-GH2B RRT-GH4B RRT-GH5B RRT-GH6B HQRT-GH2B HQRT-GH4B HQRT-GH5B HQRT-GH6B	250 W	600 W (Not ganged) 500 W (End of gang) 400 W (Middle of gang)	400 VA (300 W)	3.3 A (400 VA)

Companion devices	
RT-GRDW	For use with RRT- hybrid keypads, dimmers and switches (0.1 A)
HQT-GRDW	For use with HQRT- hybrid keypads, dimmers and switches (0.1 A)

¹ GRAFIK T™ -GH2B, -GH4B, -GH5B, and -GH6B models can control power boosters/load interfaces if neutral is used. See Lutron® P/N 369971 and 369985, *Compatible Power Boosters and Load Interfaces*.
² RRT- models are RadioRA® 2 compatible and HQRT- models are HomeWorks® QS compatible.
³ Not for use with receptacles or appliances (e.g., garbage disposals). See Lutron® Application Note #109 for compatibility with dimmed receptacles.
⁴ Magnetic Low-Voltage Applications: Use with halogen-based lamps only.
⁵ UL® listed for use with dimmable ELV transformers, but not recommended because Lutron does not do system performance testing.
⁶ Operation of a low-voltage circuit with lamps inoperative or removed may result in transformer overheating and premature 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 fused transformer primary windings to prevent transformer failure due to overcurrent.
⁷ When using the hybrid keypad to control MLV halogen-based 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 hybrid keypad.
⁸ Ten (10) driver maximum.
⁹ Includes Lutron® Hi-lume® 1% 2-wire LED drivers, Mark X™, Tu-Wire®, and POWERSENSE®.
¹⁰ Neutral is required for Mark X™, Tu-Wire®, and POWERSENSE®.

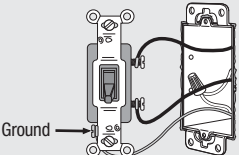
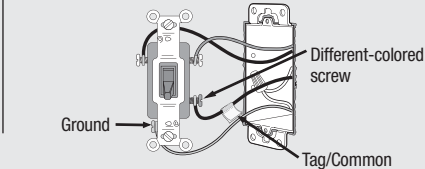
Recommended LEDs

If dimming LED bulbs, they must be Lutron® compatible! For current compatibility and performance information visit www.lutron.com/LED.

Important Notes

- CAUTION: To avoid overheating and possible damage to other equipment, do not use hybrid keypads to control receptacles or motor-operated appliances.**
- Install in accordance with all national and local electrical codes.
- When no “grounding means” exist in wallbox, the NEC® allows control without a grounding connection to be installed as a replacement if 1) a non-metallic, noncombustible faceplate is used with nonmetallic attachment screws or 2) the circuit is protected by a ground fault circuit interrupter (GFCI). For this type of installation, cap or remove the green ground wire on the hybrid keypad, and only use a Lutron® GRAFIK T™ wallplate.
- GRAFIK T™ controls are not compatible with standard 3-way switches. Use only with GRAFIK T™ companion devices.
- GRAFIK T™ Companion devices cannot be used individually but must be used in conjunction with a GRAFIK T™ hybrid keypad in a multi-location application.
- In any multi-location circuit, use only one GRAFIK T™ hybrid keypad with up to four GRAFIK T™ companion devices.
- Neutral wire connection is optional for GRAFIK T™ hybrid keypad; however, the best dimming performance will be obtained when the neutral wire is connected. Always cap the white wire if a neutral wire is not present in wallbox.
- Return to Factory Settings (Note: Returning a control to the factory settings will remove it from the system and erase all programming).
 Step 1: Triple tap any button on a control. DO NOT release after the third tap.
 Step 2: Keep the button pressed on the third tap (for approximately 3 seconds) until the LEDs on the control start to scroll up and down quickly.
 Step 3: Release the button and immediately triple tap the button again. The LEDs on the control will scroll up and down slowly. Factory settings have been restored.

Installation

- Turn OFF power at circuit breaker.
WARNING! Shock Hazard. May result in serious injury or death. Turn off power at circuit breaker before installing the unit.
- Remove wallplate and the switch mounting screws. Leaving all wires attached, carefully pull the switch out from the wall.
- Identify switch type.
Single-pole – The switch will have insulated wires connected to two screws of the same color plus a green ground screw.
Multi-location – 3-way switches will have insulated wires connected to three screws plus a green ground screw. One of the wires is connected to a screw of a different color (not green) or labeled COMMON. Tag this wire.


- The switch may have two wires attached to the same screw. Tape these two wires together before disconnecting. Proceed to disconnect the wires from the switch.

- Remove wallplate from the GRAFIK T™ hybrid keypad and any companion device but leave wallplate adapter connected.

- Install GRAFIK T™ control.

IMPORTANT Wire connectors provided are for copper wires only. For aluminum wires, consult an electrician.

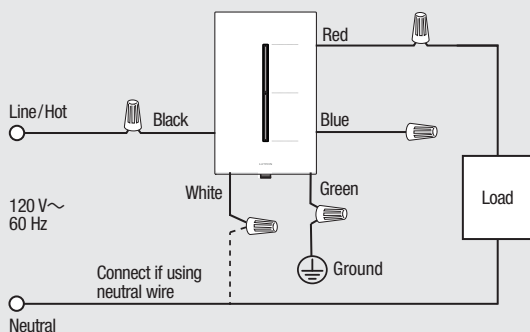
- 6a Single-pole** – Switch will be replaced by a GRAFIK T™ hybrid keypad.

Connect the **Green** ground wire on the hybrid keypad to the **Green** or bare ground wire in the wallbox (See *Important Notes*, number 3).

Connect the **Black** wire on the hybrid keypad to one of the wires removed from the switch. If you had taped together two wires (see step 4), connect both wires to the **Black** wire on the hybrid keypad and remove the tape.

Connect the **Red** wire on the hybrid keypad to the other wire removed from the switch.

Connect the **White** wire on the hybrid keypad to the neutral wire in the wallbox (See *Important Notes*, number 7).



IMPORTANT Cut the blue wire at the insulation and cap with the yellow connector.

- 6b Multi-location** – Lamps can be controlled from multiple locations.

One location will be replaced by a GRAFIK T™ hybrid keypad and the other location(s) by a GRAFIK T™ companion device. If the neutral wire is not being used, the hybrid keypad can be wired on the line-side or the load-side. If using the neutral wire, the hybrid keypad must be wired on the line-side.

Hybrid Keypad

Connect the **Green** ground wire on the hybrid keypad to the **Green** or bare ground wire in the wallbox (See *Important Notes*, number 3).

Connect the **Black** wire on the hybrid keypad to the tagged wire removed from the switch.

Connect the **Red** wire on the hybrid keypad to one of the remaining wires.

Connect the **Blue** wire on the hybrid keypad to the remaining wire.

Connect the **White** wire on the hybrid keypad to the neutral wire in the wallbox

(See *Important Notes*, number 7).

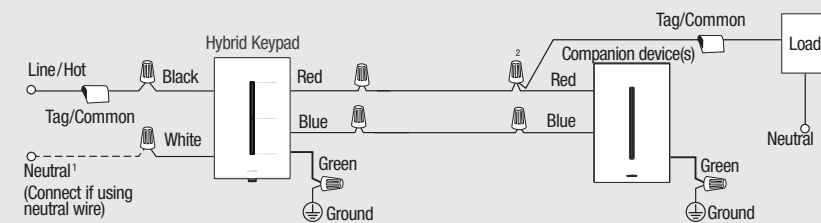
Companion Device

Connect the **Green** wire on the companion device to the **Green** or bare ground wire in the wallbox (See *Important Notes*, number 3).

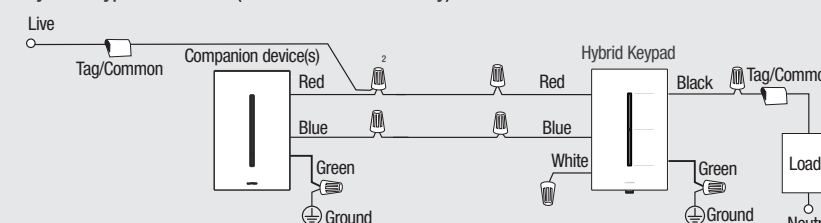
Connect the **Red** wire on the companion device to the tagged wire and to the same color wire connected to the **Red** wire on the hybrid keypad.

Connect the **Blue** wire on the companion device to the remaining wire.

Hybrid Keypad Line-Side (with or without neutral wire)¹



Hybrid Keypad Load-Side (without neutral wire only)¹



¹ Neutral wire connection is optional for GRAFIK T™ hybrid keypads; however, the best dimming performance will be obtained when neutral wire is connected.
² The companion device is wired differently than a standard 3-way switch. Both the Red wire and the tagged wire are connected to the same traveler wire.

- 7 Carefully push wires into the wallbox. Install controls and snap on wallplate.

- 8 Turn ON power at circuit breaker.

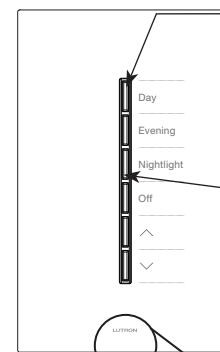
- 9 If desired, consider adjusting low-end and high-end trim by using the RadioRA® 2 or HomeWorks® QS GUI software.

Minimum Load:

Application	Number of Companion Devices	Load Type	
		LED ^{1,2}	Incandescent/Halogen ³
Single-pole	0	3 LED lamps	80 W
	1	4 LED lamps	120 W
Multi-location	2	5 LED lamps	160 W
	3	6 LED lamps	200 W
	4	7 LED lamps	240 W

¹ See **Recommended LEDs**.
² If using neutral wire, the minimum load required is one LED lamp or Lutron® Hi-lume® 1% 2-wire LED driver.
³ If using neutral wire, the minimum incandescent/halogen load required is 5 W.

Operation



Uncommissioned Behavior

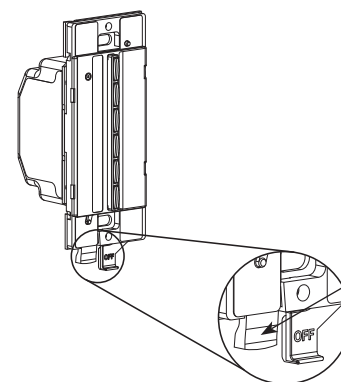
- Top button toggles local load On/Off
- All other buttons flutter to indicate uncommissioned status

Flexible Control

- Press to activate a scene or zone
- Buttons provide scene/zone status
- Buttons are fully programmable

FASS™: Front Accessible Service Switch
Note: FASS™ is not available on companion devices.

IMPORTANT NOTICE: FASS™ – Front Accessible Service Switch
 To replace lamp(s), power may be conveniently removed by pulling the FASS™ down on the hybrid keypad. After replacing lamp(s), push the FASS™ back up fully to restore power to the hybrid keypad. **For any procedure, other than routine lamp replacement, power must be turned OFF at the main electrical panel.**



DBM: Dynamic Backlight Management Sensor
Note: DBM should be mounted with an unobstructed, clear view of the floor. DO NOT paint or plaster over sensor.

Troubleshooting

Symptom	Possible Solutions
1. Lamp and light bar LEDs do not turn on.	<ul style="list-style-type: none"> • Push FASS™ up to restore power. • Turn ON breaker. • Replace burned out lamp(s). • Check hybrid keypad wiring (See Installation). • Cycle power to unit by pulling the FASS™ down and back up to fully restore power. If unit beeps see Symptom 2.
2. Unit beeps after power cycle.	<ul style="list-style-type: none"> • Check wiring. If neutral wire is connected, ensure that the Black wire is connected to Live and the Red wire is connected to Load. • Check wiring. Ensure that the Blue and Red wires are connected as specified in Installation.
3. Lamps turn On and hybrid keypad works but companion device does not work.	<ul style="list-style-type: none"> • Ensure that the wire connected to the Blue (or Red) wire on the hybrid keypad is the same as that connected to the Blue (or Red) wire on the companion device (See Installation Step 6b).
4. Lamps repeatedly turn On and Off.	<ul style="list-style-type: none"> • See Minimum Load and ensure the acceptable minimum load is met.
5. Lamps flicker or exhibit poor dimming range.	<ul style="list-style-type: none"> • Set low-end trim. See Installation Step 9 for details. • See Recommended LEDs.
6. Wallplate is warm.	<ul style="list-style-type: none"> • Solid-state hybrid keypads internally dissipate about 1% of the total connected load. It is normal for hybrid keypads to feel warm to the touch during operation.
8. Lamps don't turn On/Off from a keypad.	<ul style="list-style-type: none"> • Improper programming. Programming must be done through the system software. • Out of RF range. Reposition to be within 30 ft (9 m) of an RF signal repeater. • Wires shorted. Make sure the blue terminal is not grounded or shorted to any other wires. • Wiring error. Ensure wiring matches installation instructions and appropriate wiring diagram.
9. All LEDs on the hybrid keypad flash when any button is pressed.	<ul style="list-style-type: none"> • The hybrid keypad is in factory settings mode and has not been configured to work in a system. Follow the steps in the System Setup Guide to program.

LUTRON.

Lutron Electronics Co., Inc.
 7200 Suter Road, Coopersburg, PA 18036-1299 USA

Customer Assistance: www.lutron.com U.S.A. | Canada | Caribbean: 1.844.LUTRON1 | Mexico: +1.888.235.2910 | Others: +1.610.282.3800 • For warranty details, please visit: www.lutron.com/TechnicalDocumentLibrary/warranty.pdf | For FCC/IC information, please visit: www.lutron.com/fcc-ic
 Lutron, C•L, Hi-lume, and Tu-Wire are registered trademarks and FASS, and GRAFIK T are trademarks of Lutron Electronics Co., Inc. NEC is a registered trademark of the National Fire Protection Association, Quincy, Massachusetts. POWERSENSE is a registered trademark of Osram Sylvania, Inc. Mark X is a registered trademark of Philips Lighting Electronics N.A., Inc. © 2014-2015 Lutron Electronics Co., Inc.