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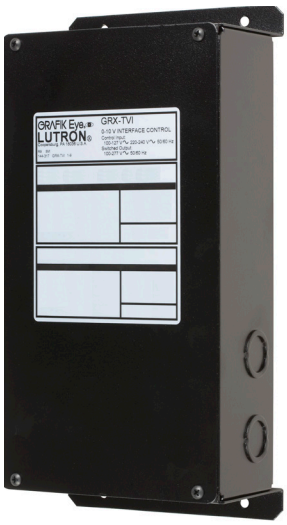
GRX-TVI Ten Volt Interface



Features

- 100-277 V~ forward, reverse, and center phase control input capability
- Provides 0—10 V⎓ control and switching capabilities to switch and dim current sourcing fluorescent ballasts and LED drivers.
- Switches and dims current sourcing 0—10 V⎓ electronic dimming ballasts/drivers powered by 100—277 V~. Switches up to 16 A of electronic capacitive ballasts/drivers.
- Switches motors up to 1/2 HP @ 100-120 V~, 1½ HP @ 200—277 V~ and 5 A @ 230 V~ CE.
- Up to five Ten Volt Interfaces may be connected to one Control Unit zone. This allows one zone to control up to five 16 A circuits of Electronic Dimming Ballasts/Drivers or five motors (This is not true for C5-BMJ-16A).
- Provides 100—277 V~ power to loads.
- Requires 100—277 V~ power for internal operations.

Note: 277 V~ operation on the control terminal was a design feature added September 2013. To check whether your TVI has this feature, please ensure the front label of the TVI shows the acceptable voltage range as 100—277 V~ for the **control input**. Prior revisions of the unit had (2) L2/H2 terminals (one for 120 V~ and one for 240 V~). The current design of the unit accepts a universal voltage (100—277 V~), so either of these terminals can be used for the control feed. They are internally tied together.

Compatible Controls

Family	Product	Wiring Diagram
Residential Systems	HW-RPM-4U	I, J
	HW-RPM-4A	I, J
	HWI-WPM-6D (Wallbox Power Module)	A, B
	HxD-6ND	C, D
	HWV-FDB-8A	E, F
	Rx-6ND*	C, D
	RRD-10ND*	C, D
	GRX-IA	A, B
	RRD-6NA*	C, D
	HQRD-6NA*	C, D
	HWD-5NE*	C, D
Commercial Systems	LP-RPM-4U	I, J
	LP-RPM-4A	I, J
	GRAFIK Eye® Control Unit 3000 Series or QSG	A, B
	GP Panels	K, L
	C5-BMJ-16A**	M, N

All models in this column are set to fluorescent load type except those model numbers followed by a *.

Family	Product	Wiring Diagram
Wallbox Fluorescent 3-wire Dimmers	AYF-103P	E, F
	DVF-103P	E, F
	DVSCF-103P	E, F
	LXF-103PL	E, F
	MAF-6AM**	G, H
	MRF2-F6AN-DV	G, H
	MSCF-6AM**	G, H
	NF-10	E, F
	NF-103P	E, F
	NTF-10	E, F
	NTF-103P	E, F
	SF-10P	E, F
	SF-103P	E, F
	VF-10	E, F
	VTF-6AM	G, H
	MRF2-6ELV-120*	C, D

* The low end trim should be set at 28% and the high end trim at 81% manually to have the output signal set to fluorescent load type.

** These specific controls result in the GRX-TVI not conforming to the IEC929 standard for 0—10 V⎓ output since they cannot reach the 1 V⎓ minimum.

LUTRON® SPECIFICATION SUBMITTAL

Job Name:	Model Numbers:	
Job Number:		

Specifications

Regulatory Approvals

- UL® Listed in US and Canada
- CE
- C-Tick

Power

- Control circuit: 100—277 V~.
- Output/Load circuit: 100—277 V~.
- Control and Load circuits are independent of each other and can have unique phases.

0-10 V⎓ Dimming Control

- Output rating: 10 µA—300 mA. Sinks current only (ballast/driver must source/provide 10 V⎓ supply). <1 V⎓ minimum, >10 V⎓ maximum

Zone Capacity

- Up to five Ten Volt Interfaces per Control Unit zone. (This is not true for C5-BMJ-16A)

Key Design Features

- Complies with UL508 Standard.
- Provides a Class 2 isolated 0—10 V⎓ output signal that conforms to EN60929 and IEC929.
- Accepts a forward, reverse and center phase control signal (100—277 V~ 50/60 Hz).

Terminals

- Each terminal accepts up to two 12 AWG (2.5 mm^2) conductors.

Physical Design

- Wall-mounted. Indoor use only. Type 1 enclosure.
- Weight: 4.25 lbs (2 kg).

Environment

- Temperature: 32 ºF to 104 ºF (0 ºC to 40 ºC)
- 0 to 90% humidity, non-condensing.

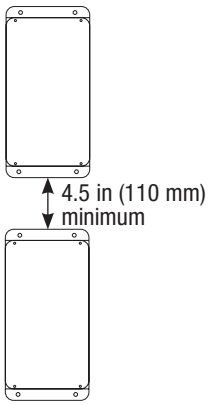
Switching Load Types and Capacities

Source/Load Type	100—277 V~*	230 V~ (CE)
Fluorescent • Electronic Capacitive Non-Dim	16 A	10 A
• Other manufacturers' 0—10 V⎓ ballasts/drivers	16 A	10 A
LED	16 A	10 A
Incandescent	16 A	10 A
Low-voltage	16 A	10 A
Metal Halide	16 A	10 A
Neon/Cold Cathode	16 A	10 A
Motor	1/2 HP @ 100—120 V~ 1½ HP @ 200—277 V~	5 A @ 230 V~ CE

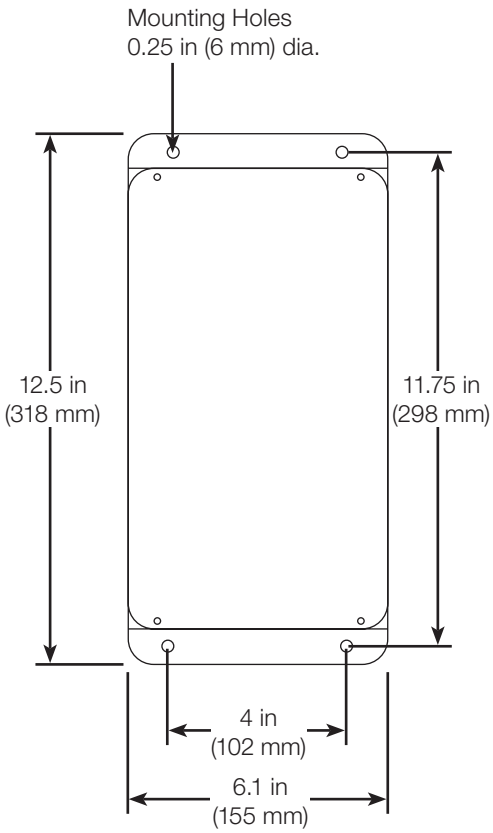
* Not if product requires CE certification

Dimensions and Mounting

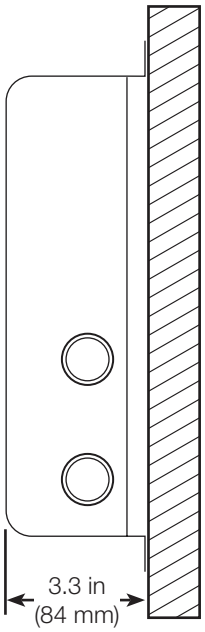
- Mount only where ambient temperature is 32 °F to 104 °F (0 °C to 40 °C).
- Allow 4.5 in (114 mm) between Interfaces when mounting several in a vertical layout.
- Mount so that line (mains) voltage wiring is at least 6 ft (1.8 m) from sound or electronic equipment and associated wiring.
- Mount within 7° of true vertical.



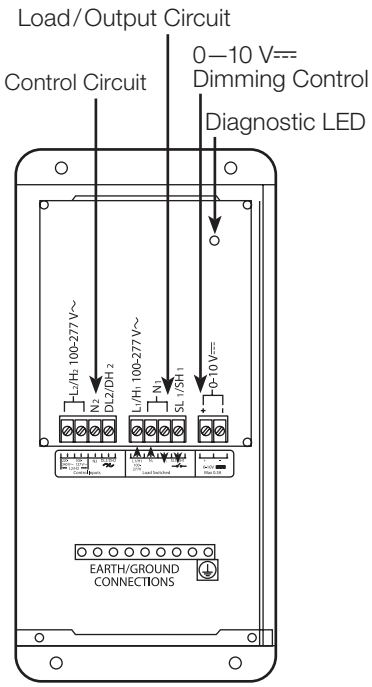
Front View
(cover closed)



Side View



Front View
(cover open)

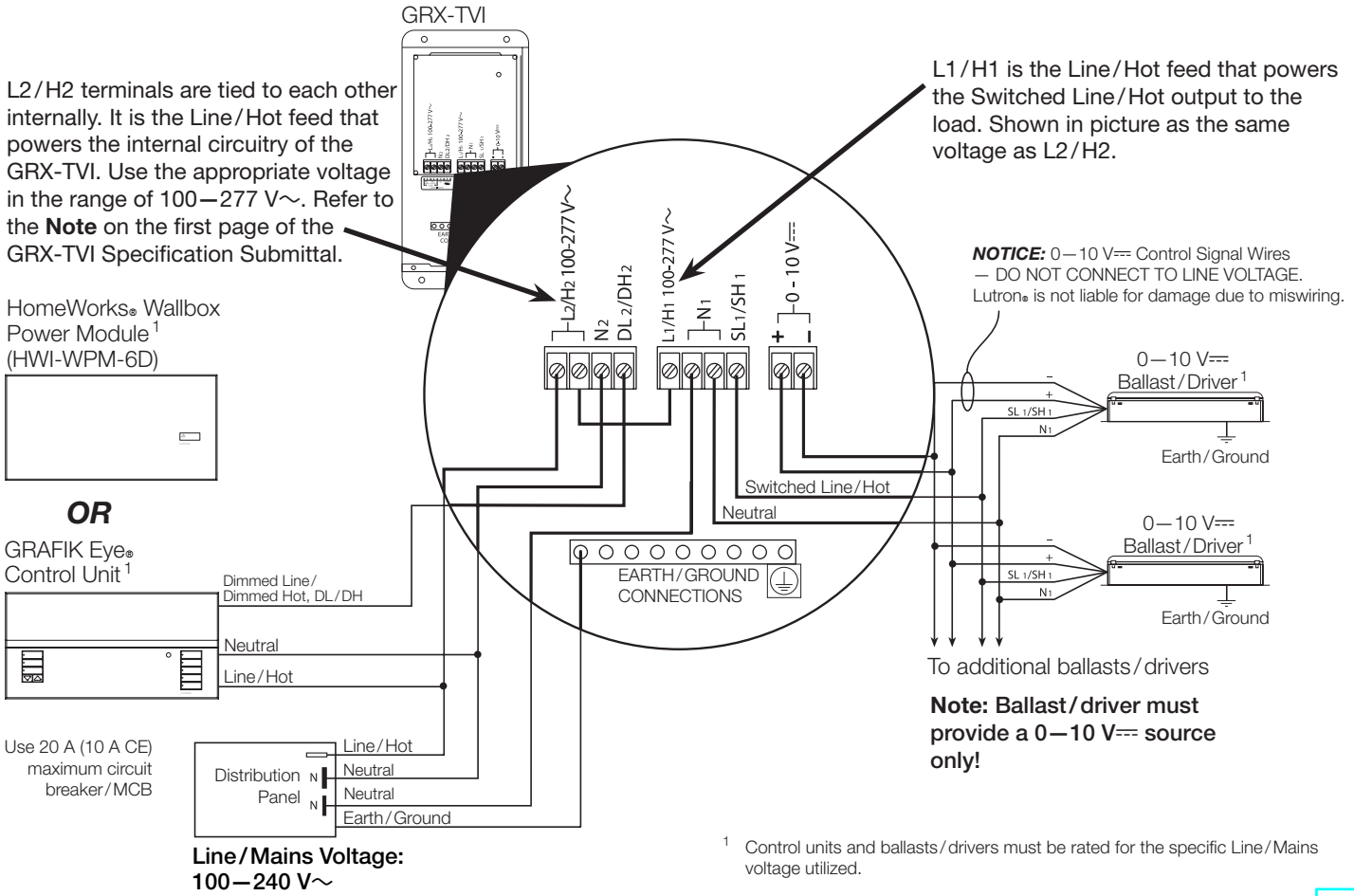


Job Name:	Model Numbers:	
Job Number:		

Wiring Diagrams

- Each terminal can accept up to two 12 AWG (2.5 mm²) conductors.
- L1/H1 is the Line/Hot feed to power the load.
- L2/H2 (on the control circuit terminals) supplies operating power for the Ten Volt Interface.
- Wiring Diagrams A, C, E, G, I, and M show a GRX-TVI wired from one distribution panel. If the power requirement of the complete system is less than an MCB/circuit breaker rating and L1/H1 and L2/H2 are both coming from the same phase, one feed can be jumpered inside the enclosure (as shown).
- Wiring Diagrams B, D, F, H, J, L, and N show a GRX-TVI wired from two separate distribution panels that may be different phases or voltages.
- Wiring Diagram O shows a GRX-TVI wired from one distribution panel with 2 separate feeds.
- Make sure L2/H2 and DL2/DH2 (Dimmed Line/Dimmed Hot) are fed from the same breaker that powers the control unit.
- Run separate neutrals for load circuit and control circuit- no common neutrals.
- NEC® Class 2/IEC PELV, 0—10 V⎓ wiring from a ballast/driver to the GRX-TVI must be separated from the power wiring. Enter the Class 2/PELV wires through the knockout adjacent to the 0—10 V⎓ terminal blocks. The barrier ensures separation and is flexible to allow access to the terminals. The barrier must be in place when installation is complete.

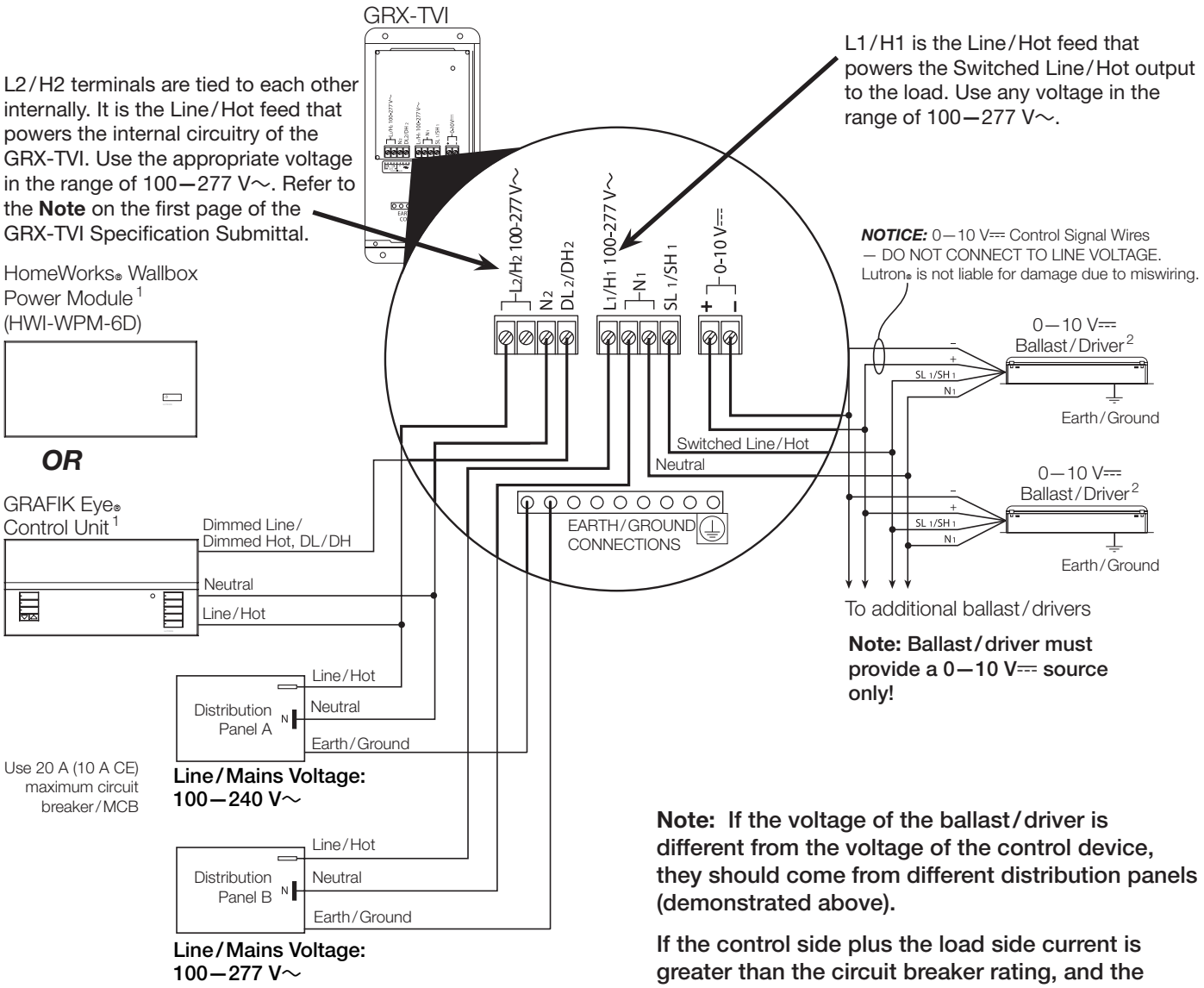
Wiring Diagram A: HomeWorks® Wallbox Power Module/GRAFIK Eye® Control Unit — 1 Distribution Panel/1 Feed



[1] Control units and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram B: HomeWorks® Wallbox Power Module/GRAFIK Eye® Control Unit — 2 Distribution Panels/2 Feeds



Note: If the voltage of the ballast/driver is different from the voltage of the control device, they should come from different distribution panels (demonstrated above).

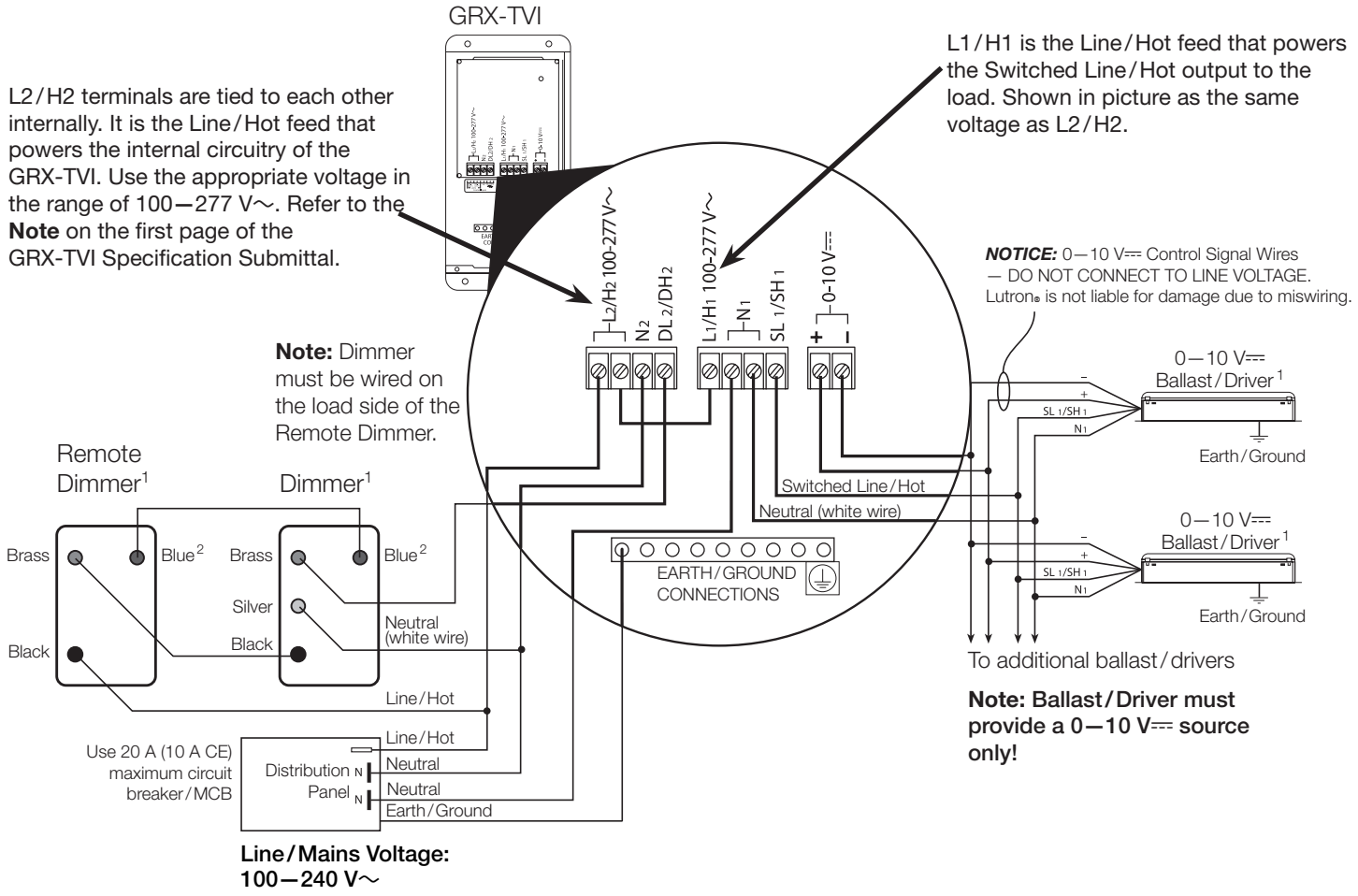
If the control side plus the load side current is greater than the circuit breaker rating, and the voltages of load and control are the same level, follow Diagram O.

[1] Control units must be rated for the Distribution Panel A Line/Mains voltage utilized.

[2] Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram C: HomeWorks® Maestro®/RadioRA®/RadioRA® 2 Dimmers — 1 Distribution Panel/1 Feed

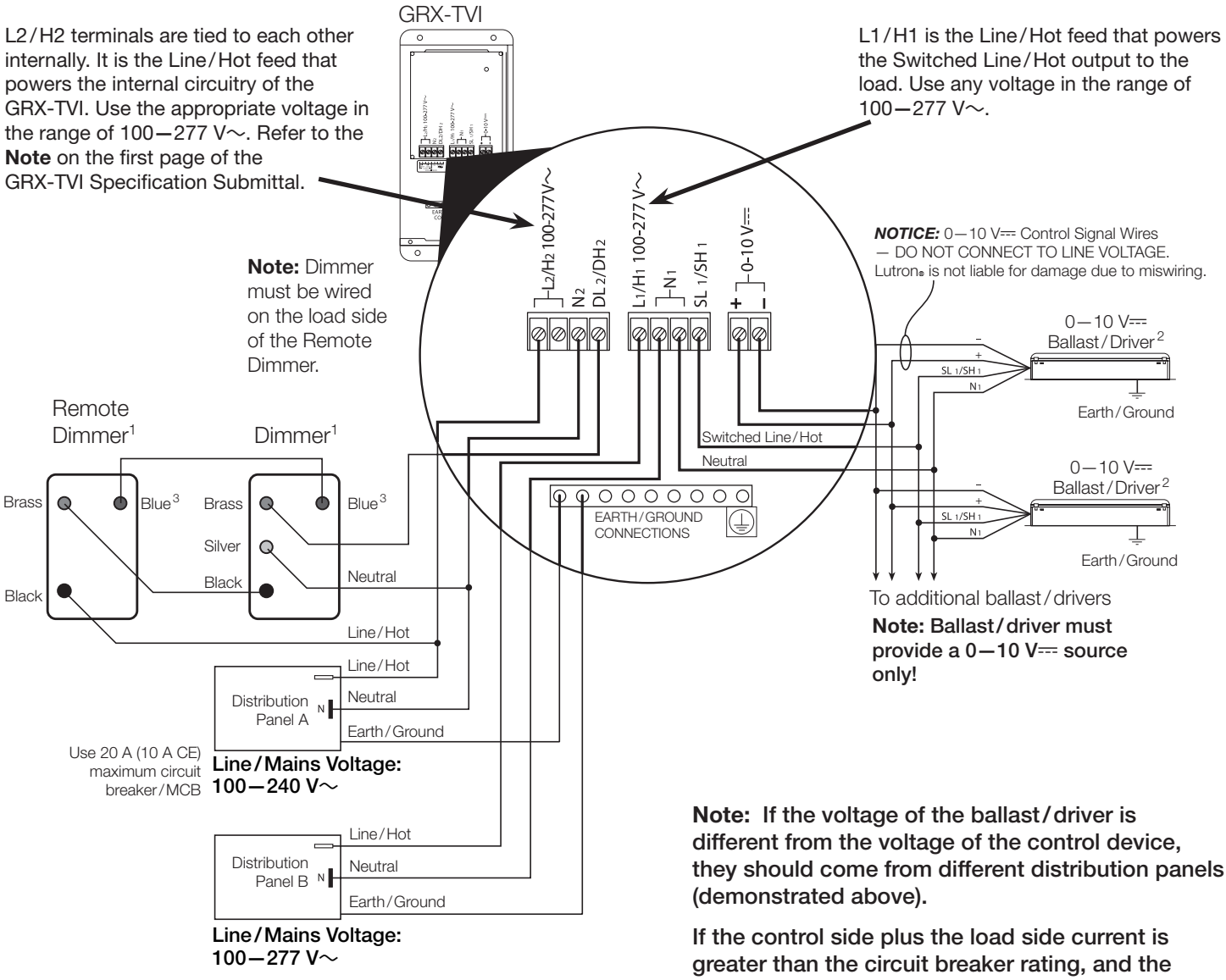


1 Dimmers and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

2 When used as a single-pole dimmer, the blue screw terminal is not used. Tighten the blue screw terminal—do not connect the blue screw terminal to ground or to any other wiring.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram D: HomeWorks® Maestro®/RadioRA®/RadioRA® 2 Dimmers — 2 Distribution Panels/2 Feeds



Note: If the voltage of the ballast/driver is different from the voltage of the control device, they should come from different distribution panels (demonstrated above).

If the control side plus the load side current is greater than the circuit breaker rating, and the voltages of load and control are the same level, follow Diagram O.

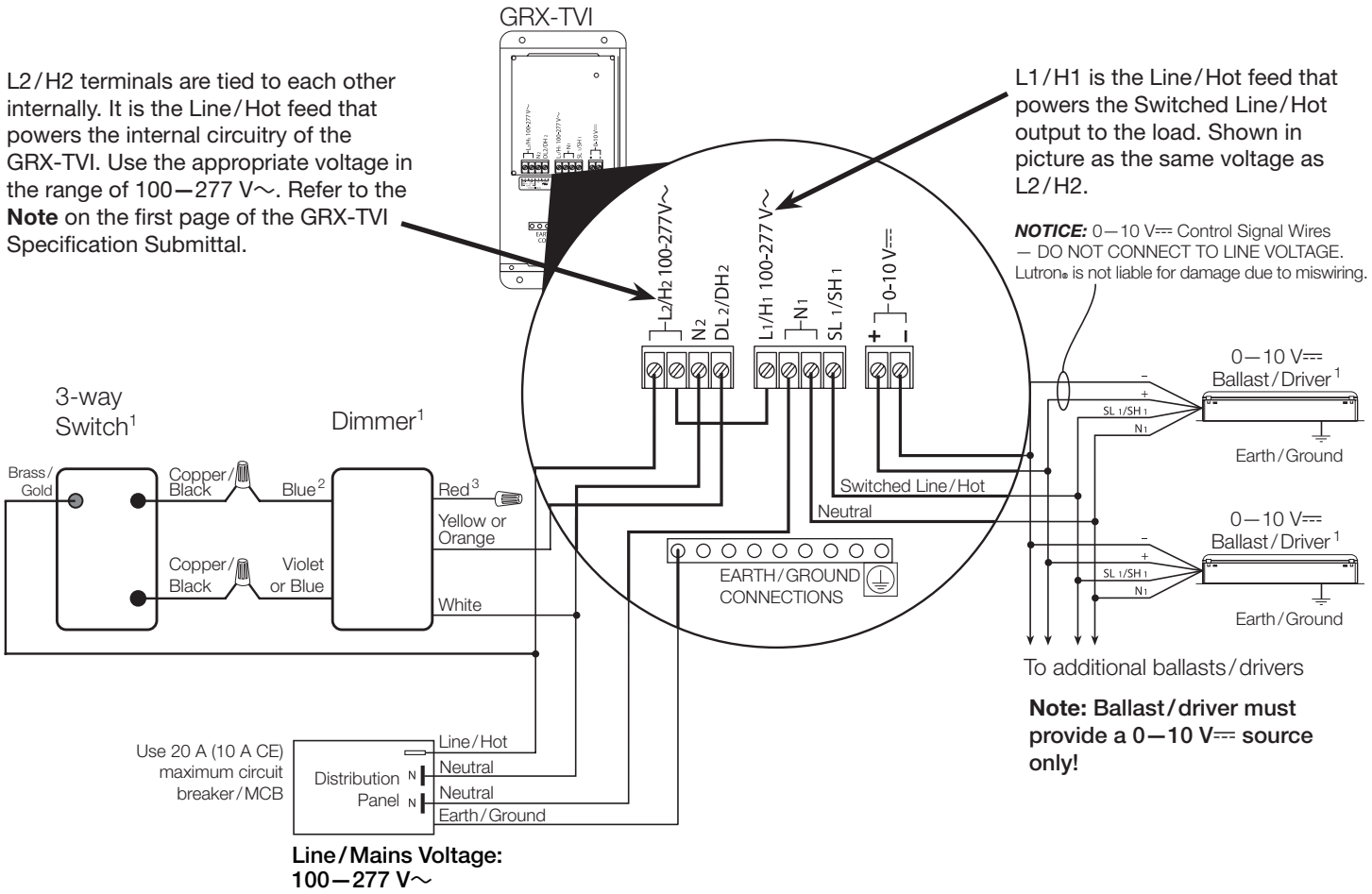
1 Dimmers must be rated for the Distribution Panel A Line/Mains voltage utilized.

2 Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.

3 When used as a single-pole dimmer, the blue screw terminal is not used. Tighten the blue screw terminal—do not connect the blue screw terminal to ground or to any other wiring.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram E: Ariadni®/Diva®/Lyneo®/Skylark®/Nova®/Nova T☆®/Vareo® 3-wire Fluorescent Dimmers — 1 Distribution Panel/1 Feed



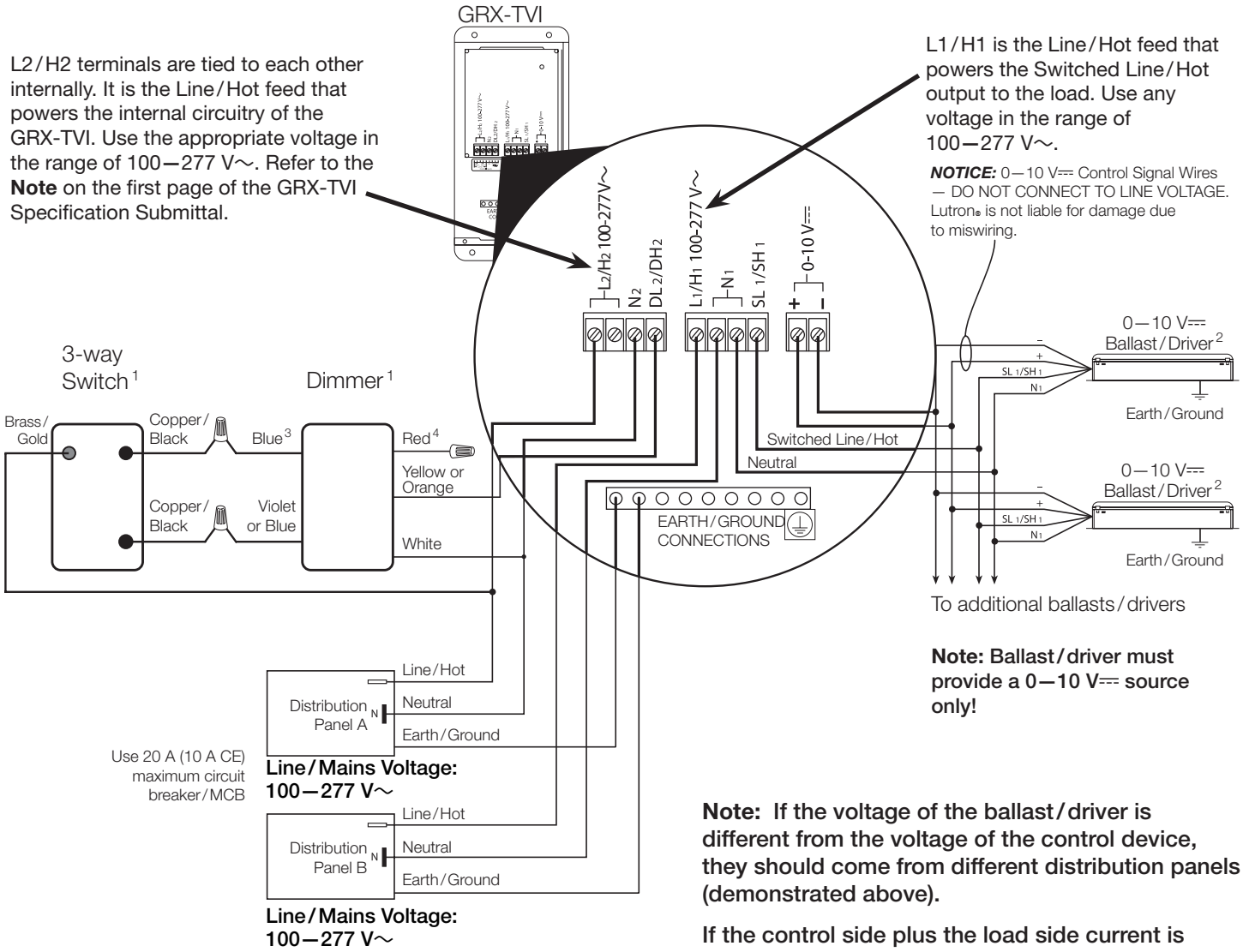
1 Switches, dimmers, and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

2 Single pole dimmers use black for the line/hot wire. Refer to the single-pole dimmer's installation instructions to identify the line/hot wire for that product.

3 The red wire is not used. Cap off the red wire using a wire connector. Do not wire the red wire to ground or to any other wiring.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram F: Ariadni®/Diva®/Lyneo®/Skylark®/Nova®/Nova T☆®/Vareo® 3-wire Fluorescent Dimmers — 2 Distribution Panels/2 Feeds



Note: If the voltage of the ballast/driver is different from the voltage of the control device, they should come from different distribution panels (demonstrated above).

If the control side plus the load side current is greater than the circuit breaker rating, and the voltages of load and control are the same level, follow Diagram O.

1 Switches and dimmers must be rated for the Distribution Panel A Line/Mains voltage utilized.

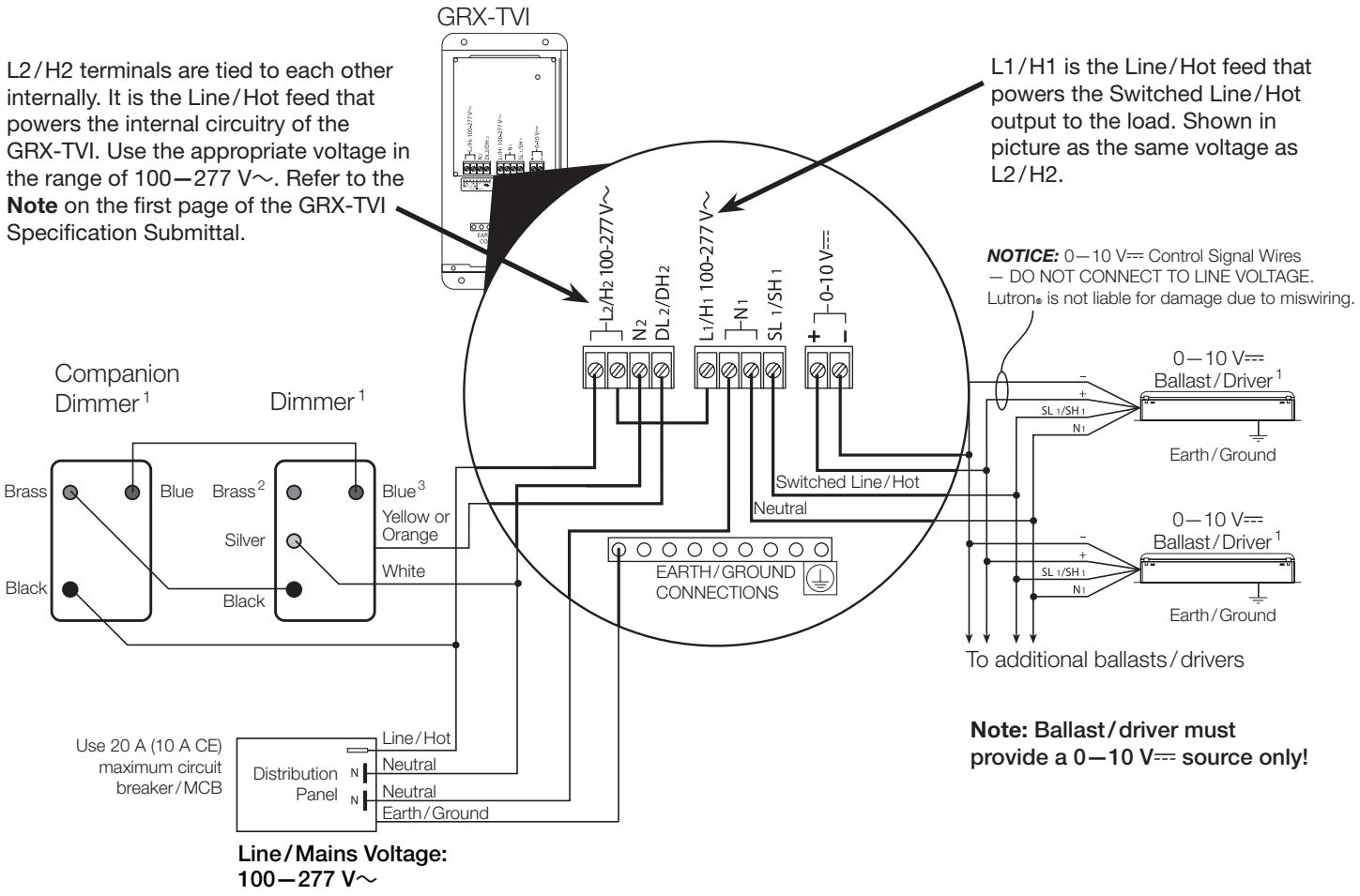
2 Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.

3 Single pole dimmers use black for the line/hot wire. Refer to the single-pole dimmer's installation instructions to identify the line/hot wire for that product.

4 The red wire is not used. Cap off the red wire using a wire connector. Do not wire the red wire to ground or to any other wiring.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram G: Maestro®/Vierti® 3-wire Fluorescent Dimmers — 1 Distribution Panel/1 Feed



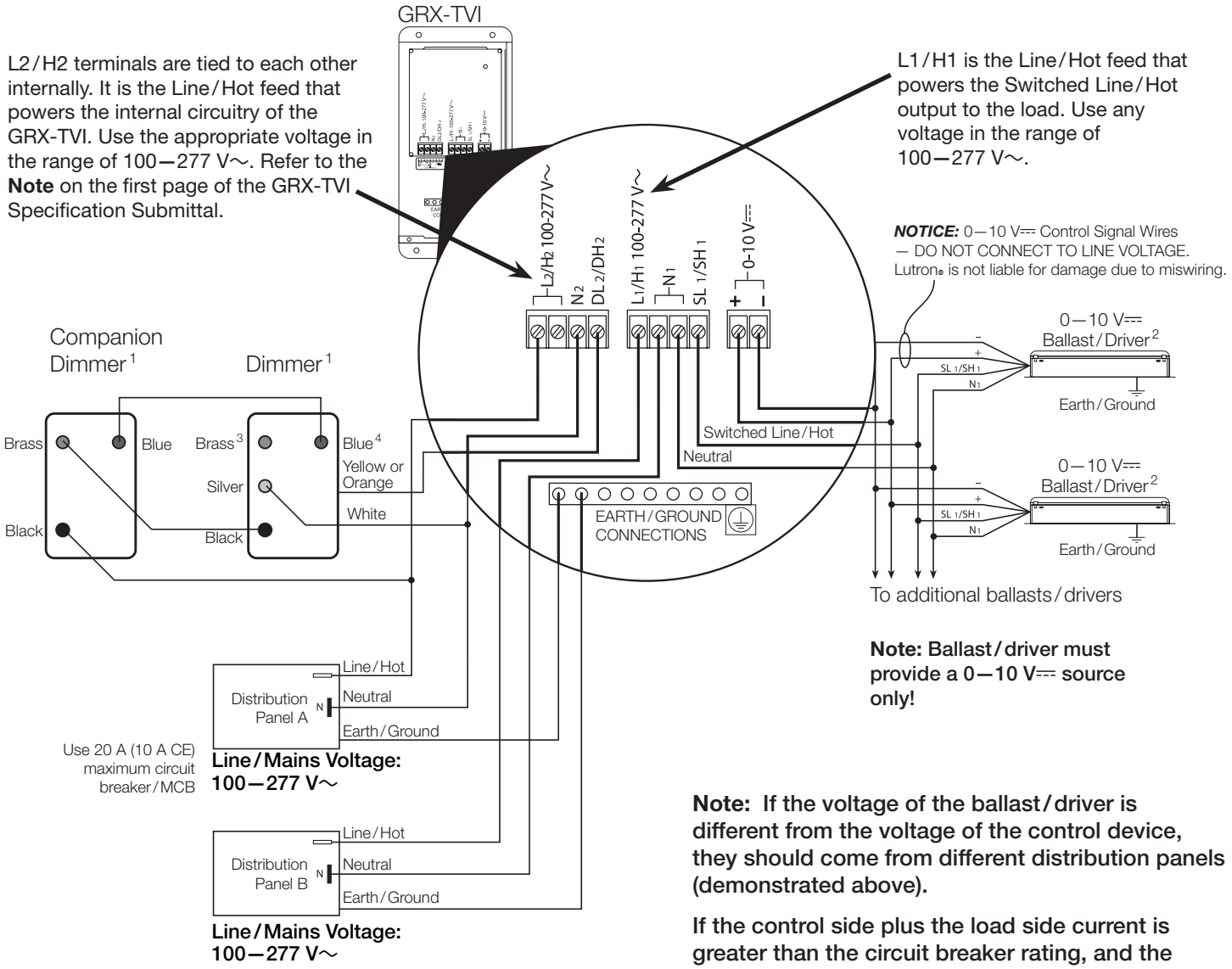
1 Dimmers, companion dimmers, and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

2 The brass screw terminal is not used. Tighten the brass screw terminal. Do not connect the brass screw terminal to ground or to any other wiring.

3 When used as a single-pole dimmer, the blue screw terminal is not used. Tighten the blue screw terminal—do not connect the blue screw terminal to ground or to any other wiring.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram H: Maestro®/Vierti® 3-wire Fluorescent Dimmers — 2 Distribution Panels/2 Feeds



Note: If the voltage of the ballast/driver is different from the voltage of the control device, they should come from different distribution panels (demonstrated above).

If the control side plus the load side current is greater than the circuit breaker rating, and the voltages of load and control are the same level, follow Diagram O.

1 Dimmers and companion dimmers must be rated for the Distribution Panel A Line/Mains voltage utilized.

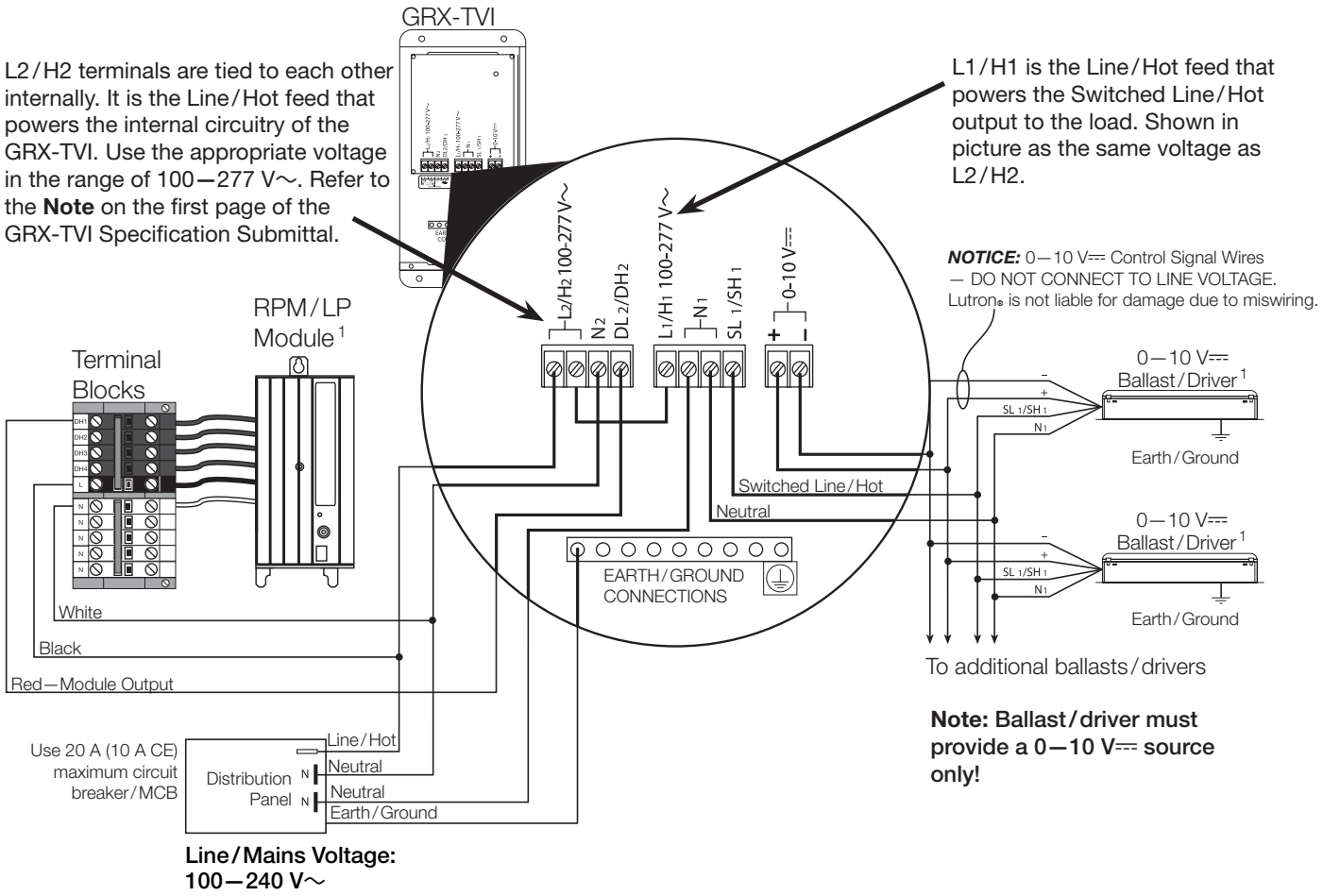
2 Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.

3 The brass screw terminal is not used. Tighten the brass screw terminal. Do not connect the brass screw terminal to ground or to any other wiring.

4 When used as a single-pole dimmer, the blue screw terminal is not used. Tighten the blue screw terminal—do not connect the blue screw terminal to ground or to any other wiring.

Job Name:	Model Numbers:	
Job Number:		

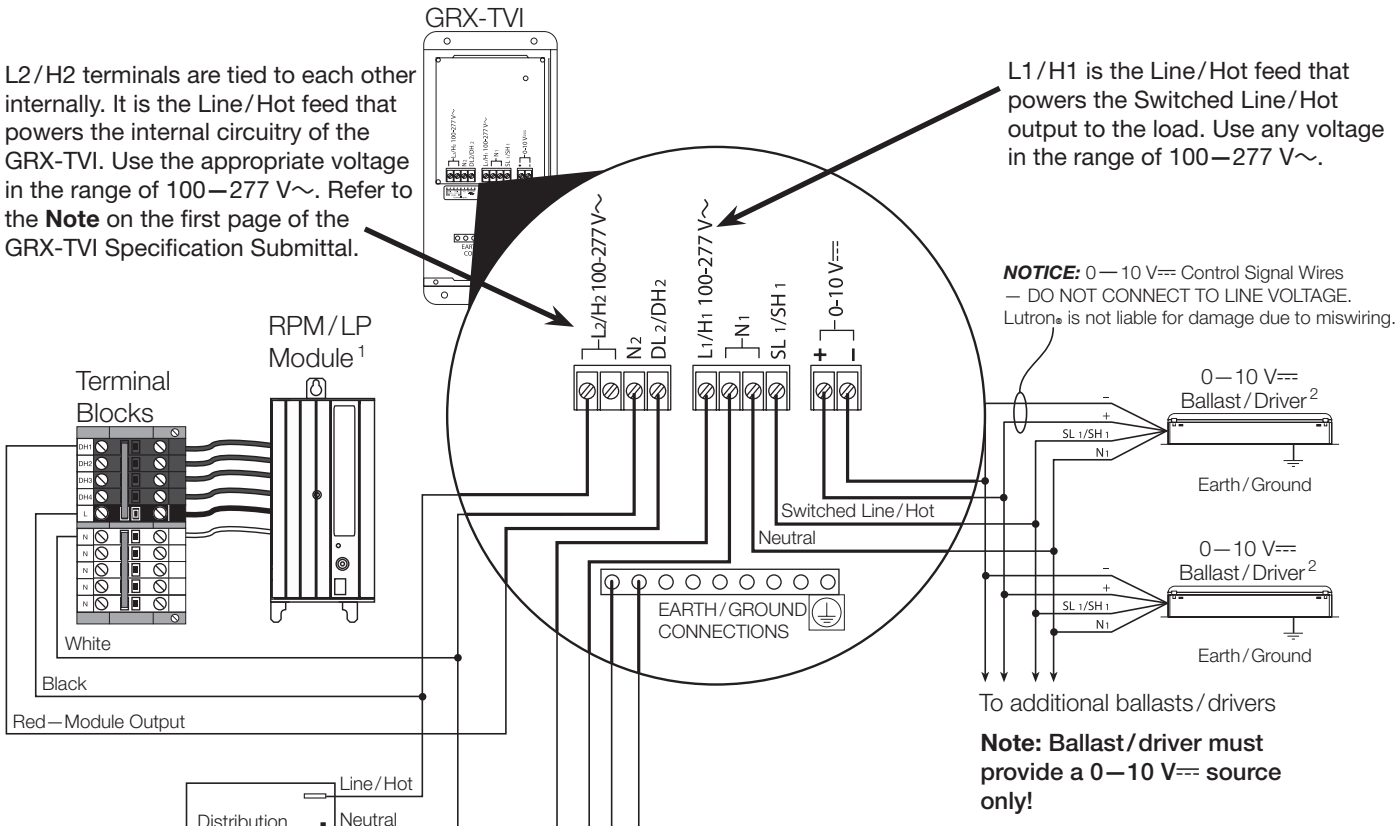
Wiring Diagram I: HomeWorks® Remote Power Module/LP Module — 1 Distribution Panel/1 Feed



[1] Remote Power Modules and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram J: HomeWorks® Remote Power Module/LP Module — 2 Distribution Panels/2 Feeds



Note: If the voltage of the ballast/driver is different from the voltage of the control device, they should come from different distribution panels (demonstrated above).

If the control side plus the load side current is greater than the circuit breaker rating, and the voltages of load and control are the same level, follow Diagram O.

1 Remote Power Module must be rated for the Distribution Panel A Line/Mains voltage utilized.

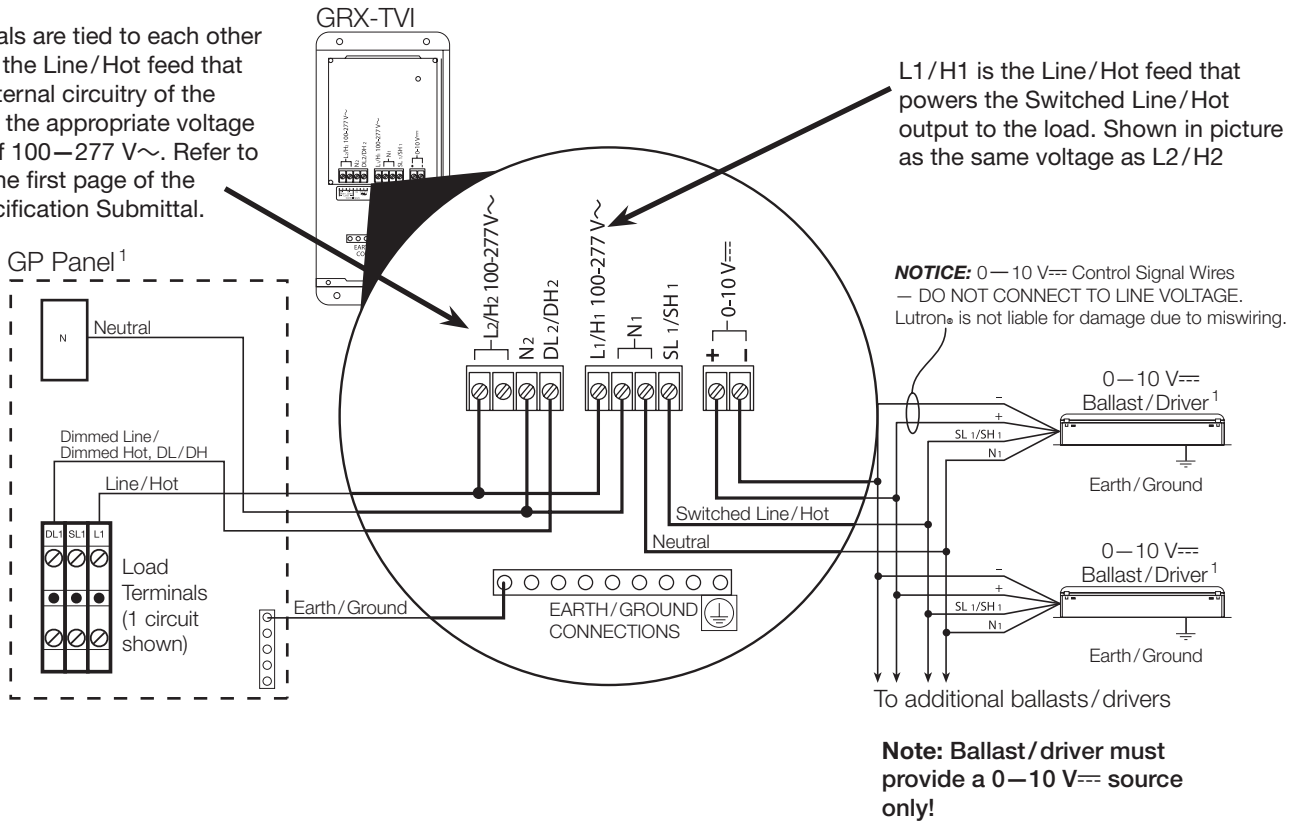
2 Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram K: GP Panel — 1 Distribution Panel/1 Feed

L2/H2 terminals are tied to each other internally. It is the Line/Hot feed that powers the internal circuitry of the GRX-TVI. Use the appropriate voltage in the range of 100—277 V~. Refer to the **Note** on the first page of the GRX-TVI Specification Submittal.

L1/H1 is the Line/Hot feed that powers the Switched Line/Hot output to the load. Shown in picture as the same voltage as L2/H2

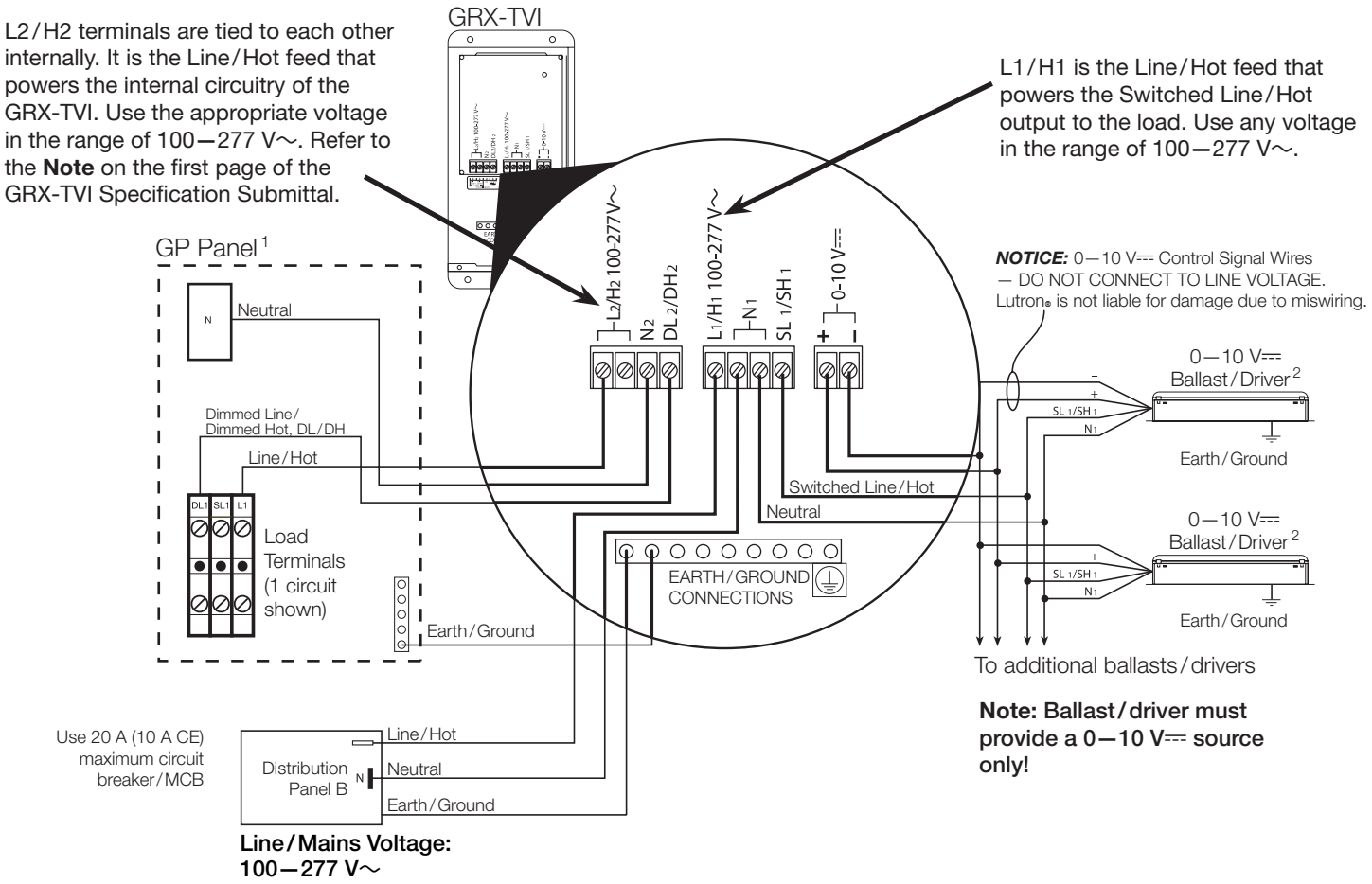


Note: Ballast/driver must provide a 0—10 V⎓ source only!

[1] GP Panel and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram L: GP Panel — 2 Distribution Panels/2 Feeds



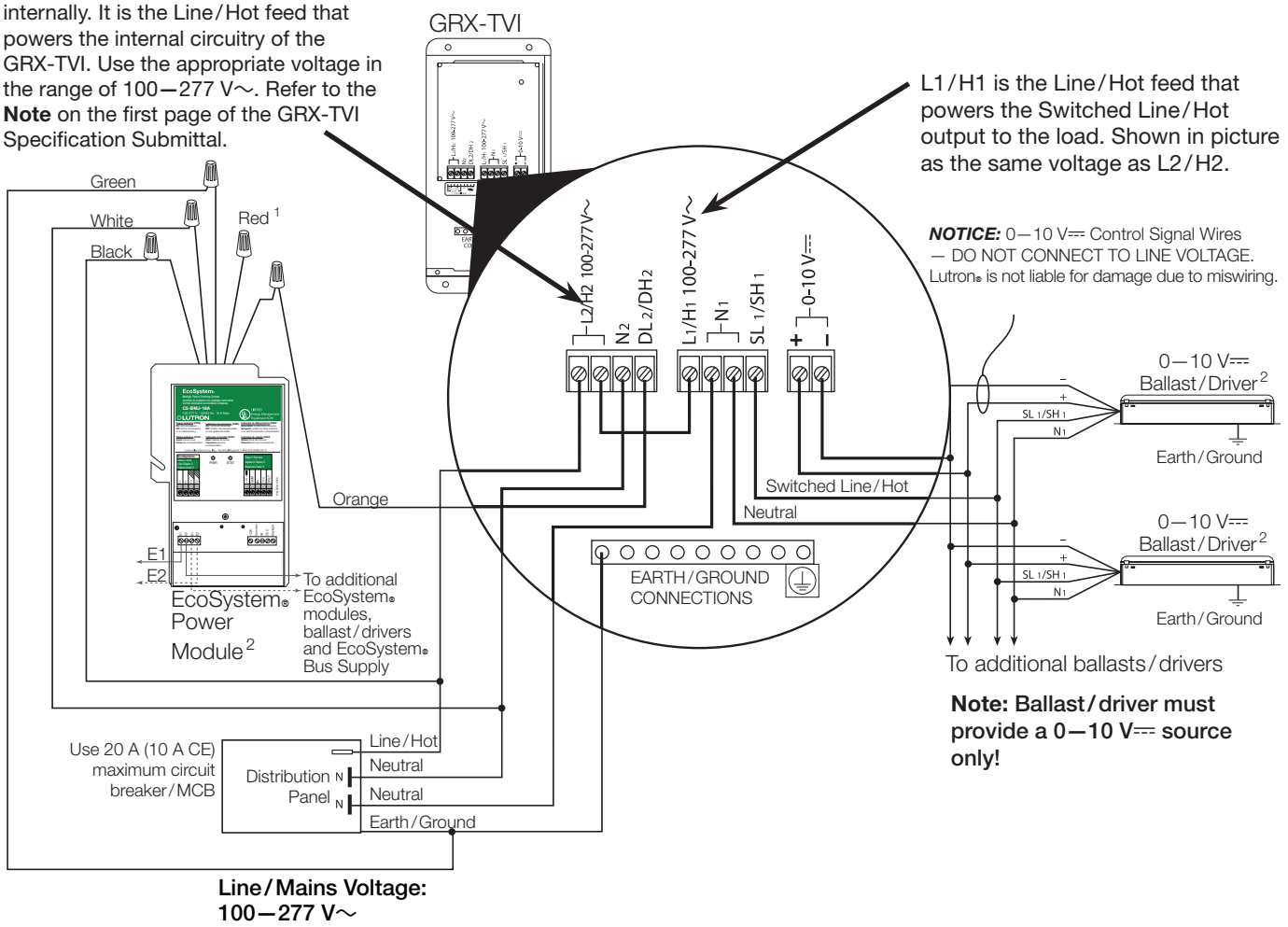
1 GP Panel must be rated for the for the specific Line/Mains voltage utilized.

2 Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram M: EcoSystem® Dimming Power Module for 3-wire Lutron® Dimming Ballast/drivers — 1 Distribution Panel/1 Feed

L2/H2 terminals are tied to each other internally. It is the Line/Hot feed that powers the internal circuitry of the GRX-TVI. Use the appropriate voltage in the range of 100—277 V~. Refer to the **Note** on the first page of the GRX-TVI Specification Submittal.



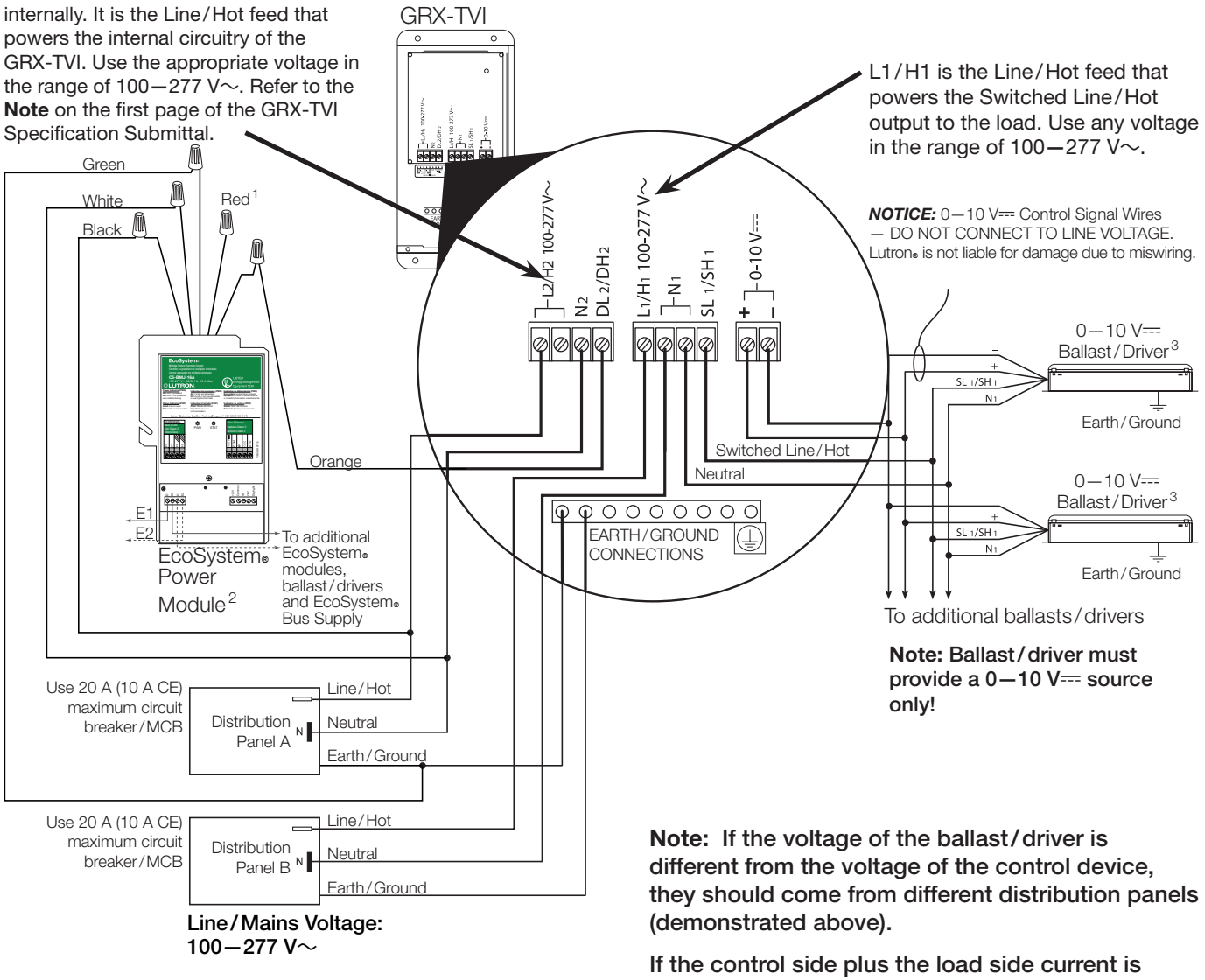
1 The red wire is not used. Cap off the red wire using a wire connector. Do not wire the red wire to ground or to any other wiring.

2 The EcoSytem® Power Module and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram N: EcoSystem® Dimming Power Module for 3-wire Lutron® Dimming Ballast/drivers — 2 Distribution Panels/2 Feeds

L2/H2 terminals are tied to each other internally. It is the Line/Hot feed that powers the internal circuitry of the GRX-TVI. Use the appropriate voltage in the range of 100—277 V~. Refer to the **Note** on the first page of the GRX-TVI Specification Submittal.



Note: If the voltage of the ballast/driver is different from the voltage of the control device, they should come from different distribution panels (demonstrated above).

If the control side plus the load side current is greater than the circuit breaker rating, and the voltages of load and control are the same level, follow Diagram O.

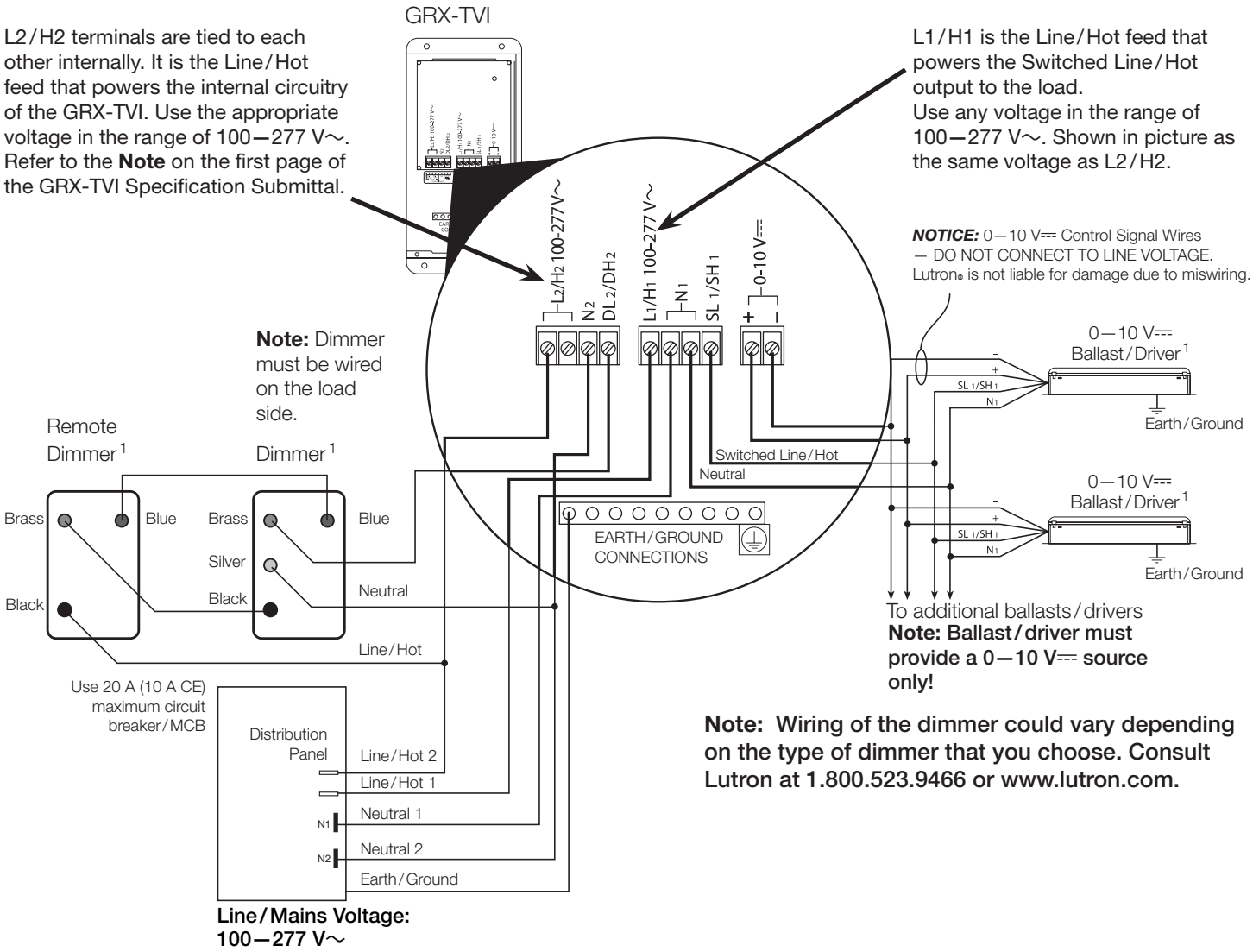
[1] The red wire is not used. Cap off the red wire using a wire connector. Do not wire the red wire to ground or to any other wiring.

[2] The EcoSystem Power Module must be rated for the for the Distribution Panel A Line/Mains voltage utilized.

[3] Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		

Wiring Diagram O: 1 Distribution Panel with 2 Separate Feeds



Note: Wiring of the dimmer could vary depending on the type of dimmer that you choose. Consult Lutron at 1.800.523.9466 or www.lutron.com.

[1] Dimmers and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

Job Name:	Model Numbers:	
Job Number:		