

GRX-TVI Ten Volt Interface

Features

- 100–277 V \sim forward, reverse, and center phase control input capability
- Provides 0–10 V \equiv control and switching capabilities to switch and dim current sourcing fluorescent ballasts and LED drivers.
- Switches and dims current sourcing 0–10 V \equiv electronic dimming ballasts/drivers powered by 100–277 V \sim . Switches up to 16 A of electronic capacitive ballasts/drivers.
- Switches motors up to 1/2 HP @ 100–120 V \sim , 1 1/2 HP @ 200–277 V \sim and 5 A @ 230 V \sim 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 \sim power to loads.
- Requires 100–277 V \sim power for internal operations.

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
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 *.



Note: 277 V \sim 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 \sim for the **control input**. Prior revisions of the unit had (2) L2/H2 terminals (one for 120 V \sim and one for 240 V \sim). The current design of the unit accepts a universal voltage (100–277 V \sim), so either of these terminals can be used for the control feed. They are internally tied together.

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 \equiv output since they cannot reach the 1 V \equiv minimum.

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Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Specifications

Regulatory Approvals

- cUL® Listed in US and Canada
- CE
- NOM (Mexico)
- Complies with requirements for use in other spaces used for environmental air (plenums) per NEC® 2014 300.22(C)(3)
- Meets the Canadian National Building Code plenum requirements for a concealed space used as a plenum within a floor or roof assembly

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
- Works with all ballasts and drivers that provide a current source that is compliant to IEC 60629 Annex E.2, and whose inrush current does not exceed NEMA410 standards for electronic ballast/driver

0-10 V_{DC} Dimming Control

- Output rating: 10 μ A–300 mA. Sinks current only (ballast/driver must source/provide 10 V_{DC} supply). <1 V_{DC} minimum, >10 V_{DC} 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_{DC} 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 mm²) conductors

Physical Design

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

Environment

- Temperature: 32 °F to 104 °F (0 °C to 40 °C)
- 0 to 90% humidity, non-condensing

Switching Load Types and Capacities

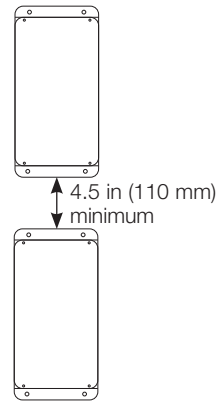
Source/Load Type	100–277 V~*	230 V~ (CE)
Fluorescent		
• Electronic Capacitive Non-Dim	16 A	10 A
• Other manufacturers' 0–10 V _{DC} ballasts/drivers	16 A	10 A
LED	16 A	10 A
Incandescent	16 A	10 A
Low-voltage	16 A	10 A
Metal Halide	16 A	10 A
Neon/Cold Cathode	16 A	10 A
Motor	1/2 HP @ 100–120 V~ 1½ HP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

* Not if product requires CE certification

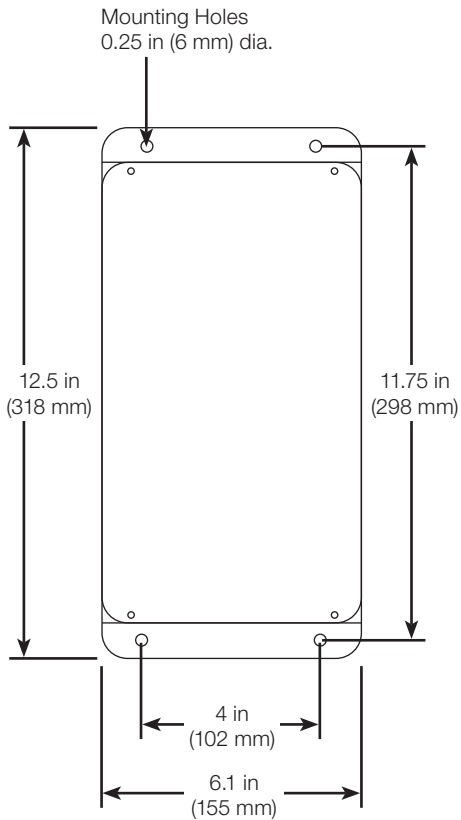
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Job Number: <input style="width: 150px; height: 20px;" type="text"/>	<input style="width: 95%; height: 20px;" type="text"/>

Dimensions and Mounting

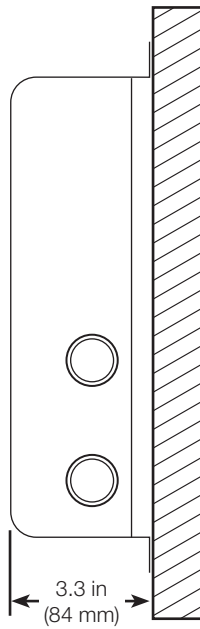
- Mount only where ambient temperature is 32 °F to 104 °F (0 °C to 40 °C)
- Allow 4.5 in (114 mm) between Interfaces when mounting several in a vertical layout
- Mount so that line (mains) voltage wiring is at least 6 ft (1.8 m) from sound or electronic equipment and associated wiring
- Mount within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



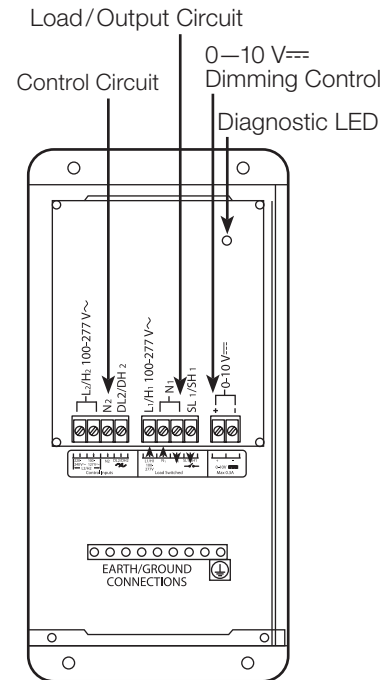
Front View
(cover closed)



Side View



Front View
(cover open)

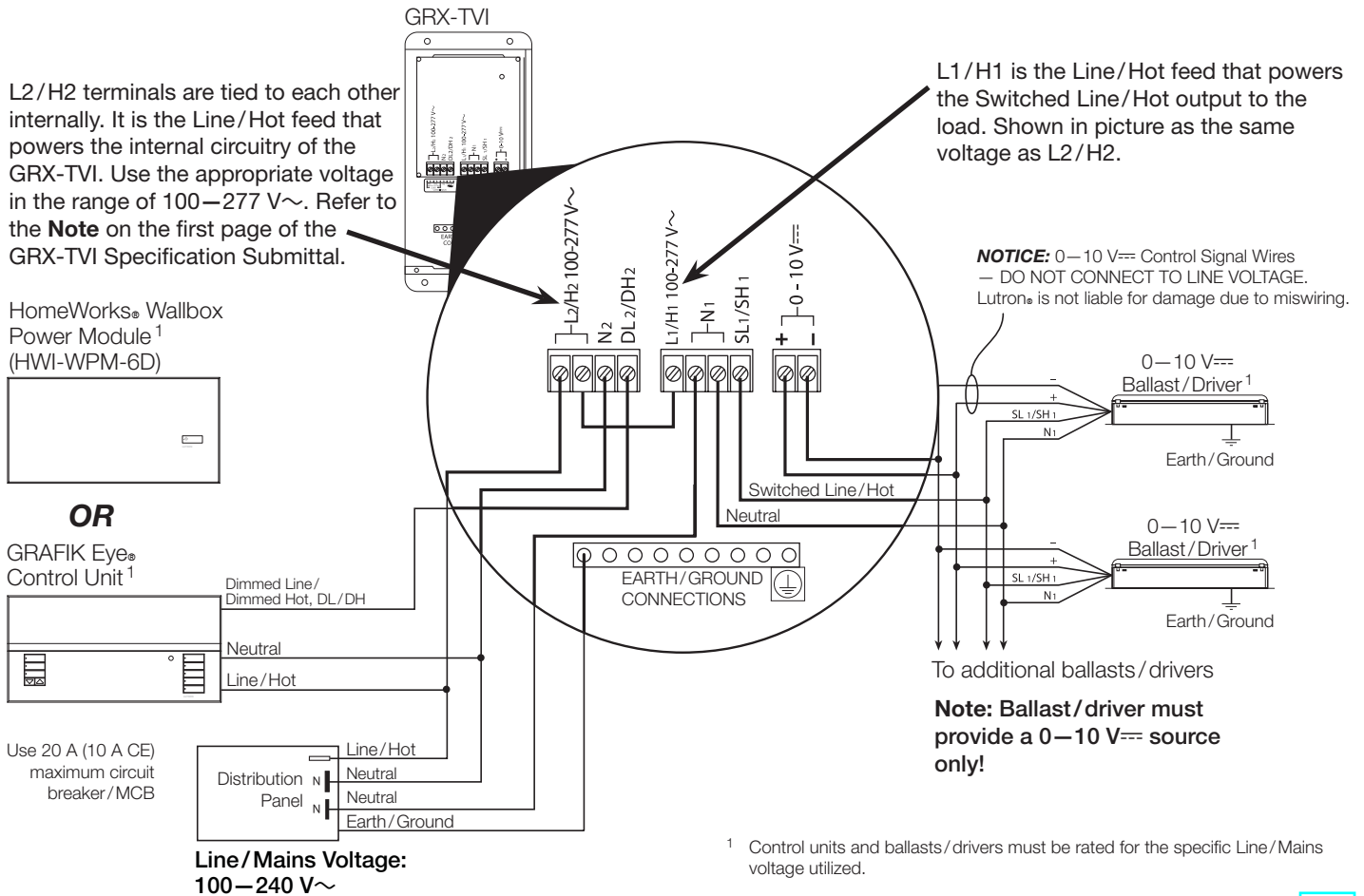


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Wiring Diagrams

- 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_{DC} 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_{DC} 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.

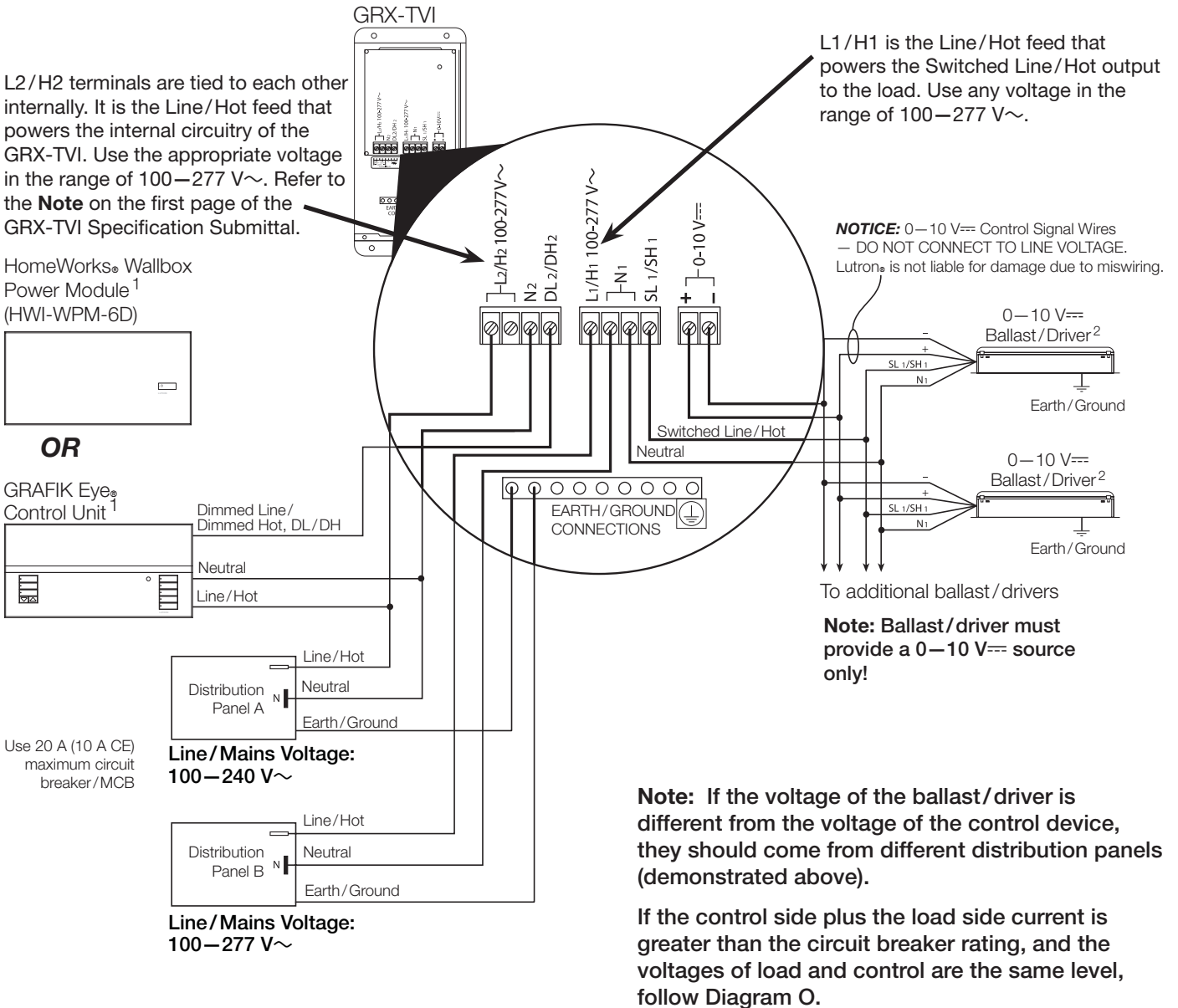
Wiring Diagram A: HomeWorks® Wallbox Power Module/ GRAFIK Eye® Control Unit — 1 Distribution Panel/1 Feed



Job Name:	Model Numbers:
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Job Number:	<input type="text"/>

Wiring Diagrams (continued)

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



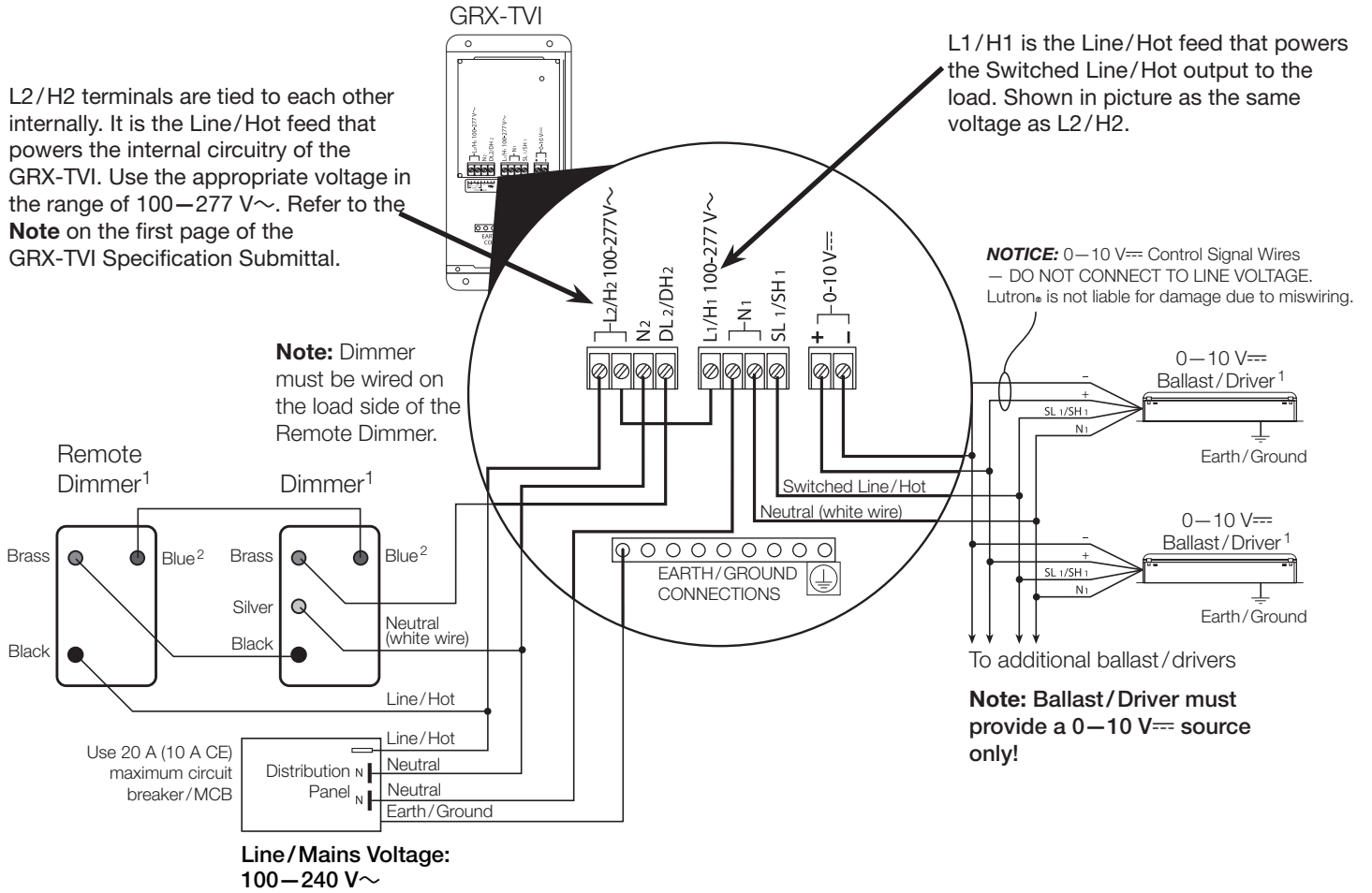
¹ Control units must be rated for the Distribution Panel A Line/Mains voltage utilized.

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

Job Name:	Model Numbers:	
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Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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



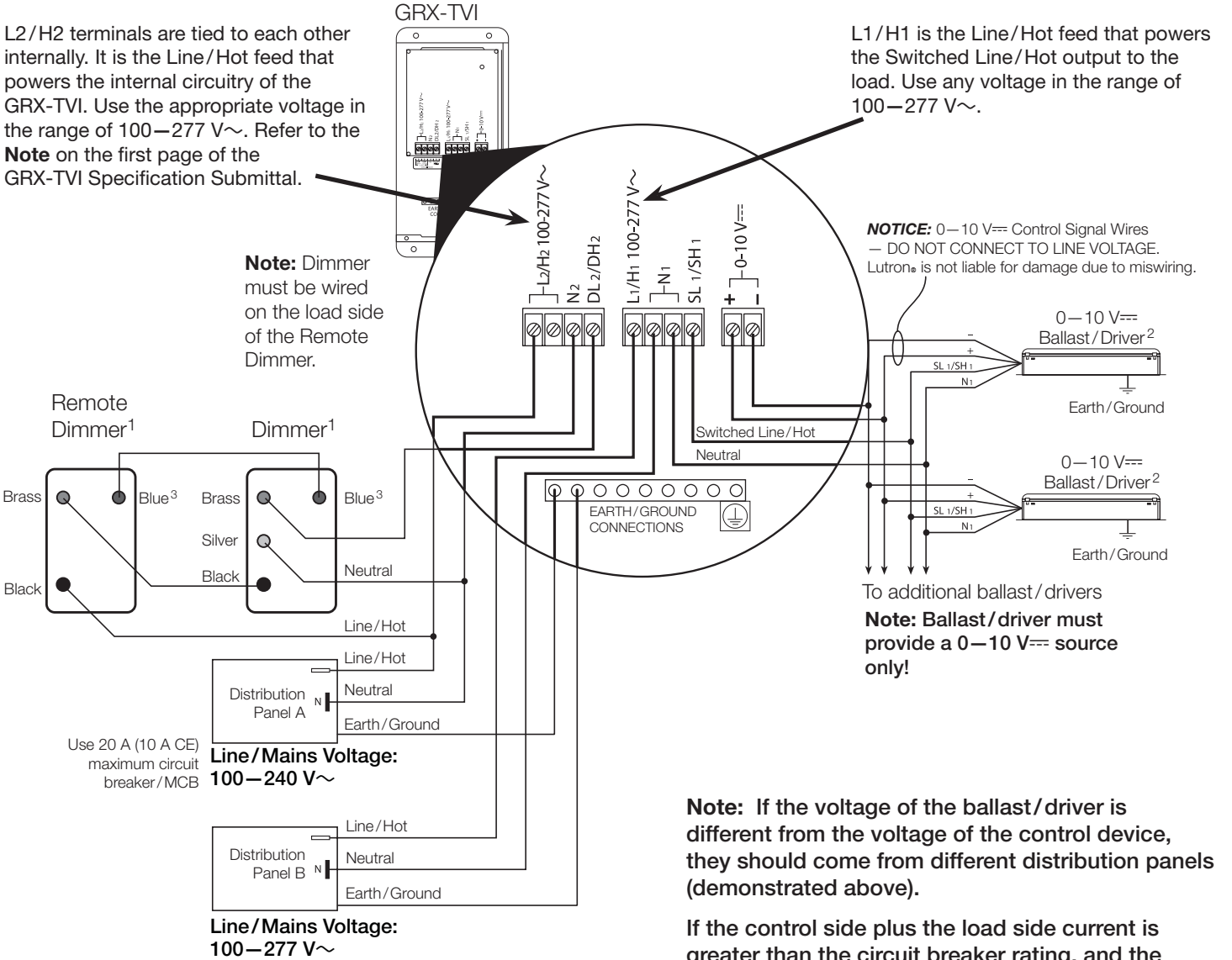
¹ Dimmers and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

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:	
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Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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

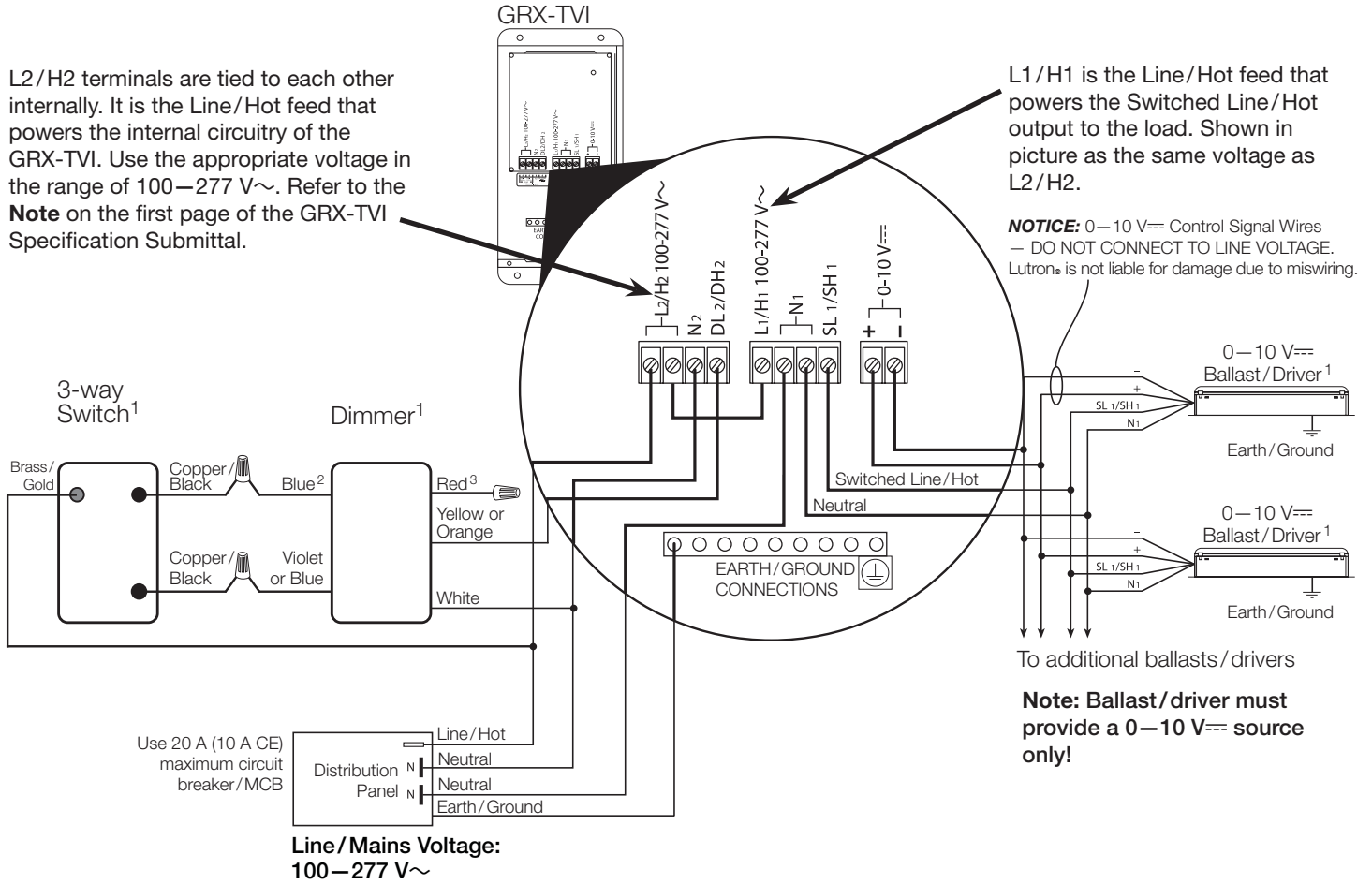


¹ Dimmers must be rated for the Distribution Panel A Line/Mains voltage utilized.
² Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.
³ When used as a single-pole dimmer, the blue screw terminal is not used. Tighten the blue screw terminal—do not connect the blue screw terminal to ground or to any other wiring.

Job Name:	Model Numbers:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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

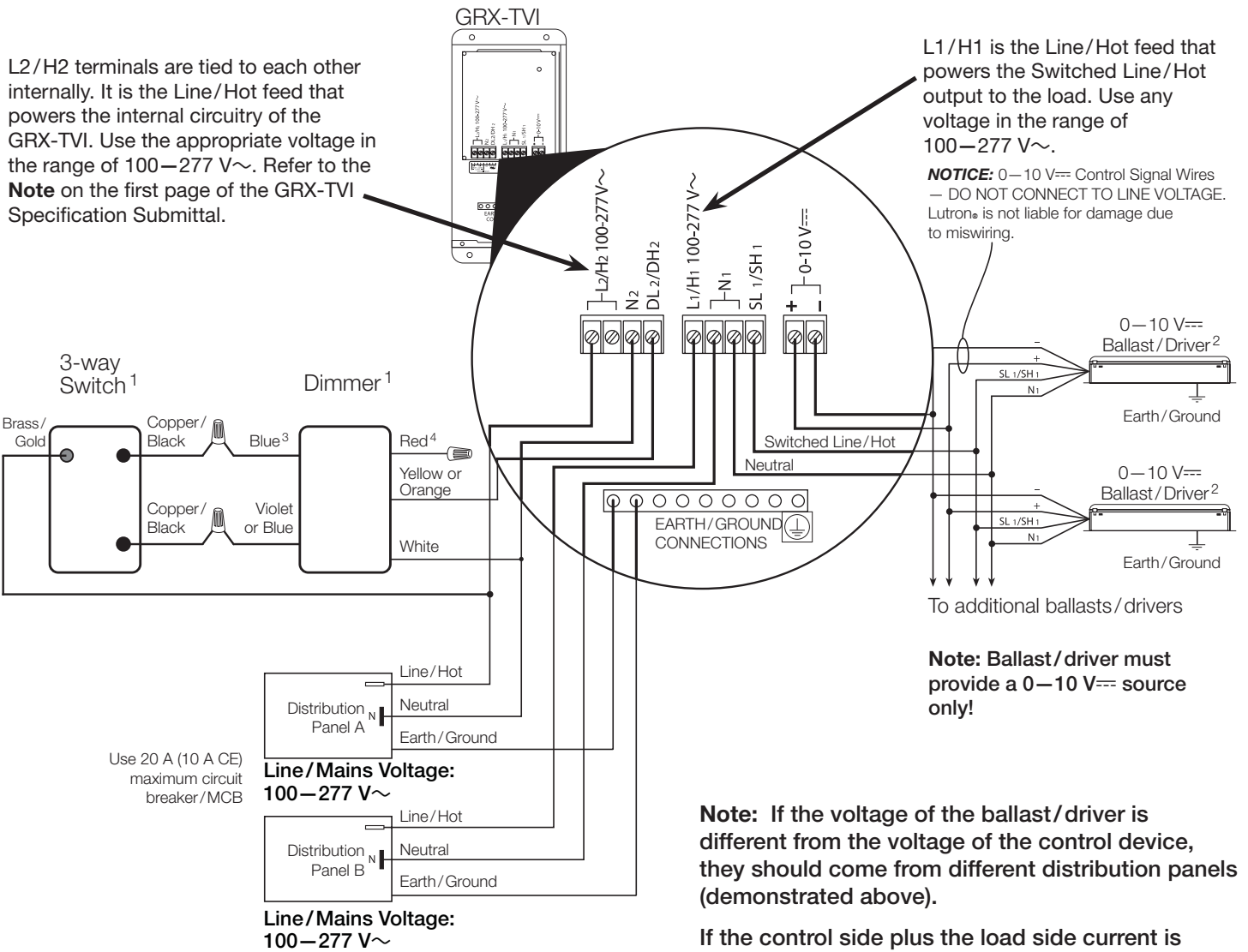


- ¹ Switches, dimmers, and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.
- ² Single pole dimmers use black for the line/hot wire. Refer to the single-pole dimmer's installation instructions to identify the line/hot wire for that product.
- ³ The red wire is not used. Cap 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:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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

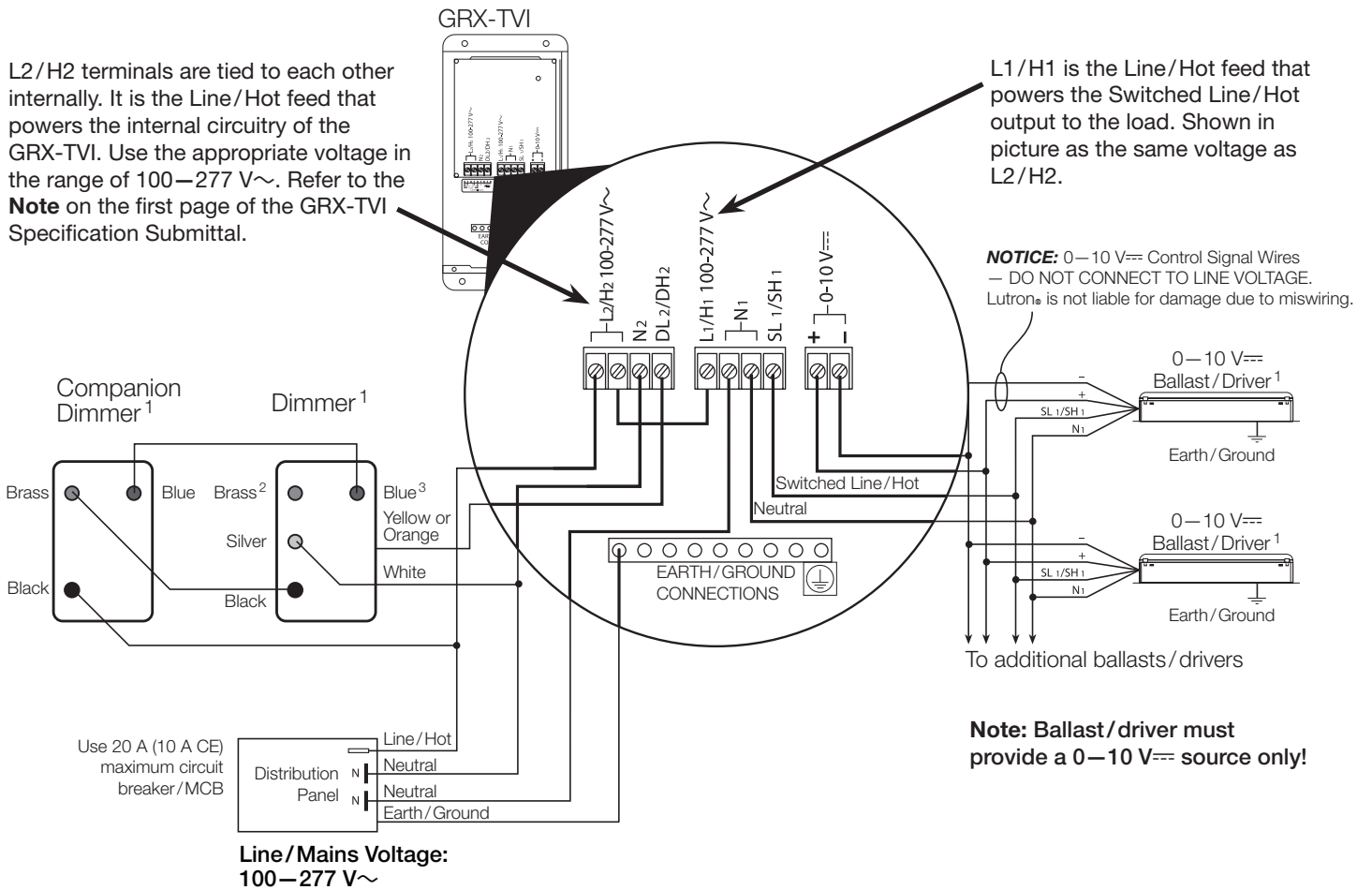


1 Switches and dimmers must be rated for the Distribution Panel A Line/Mains voltage utilized.
 2 Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.
 3 Single pole dimmers use black for the line/hot wire. Refer to the single-pole dimmer's installation instructions 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:	
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Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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

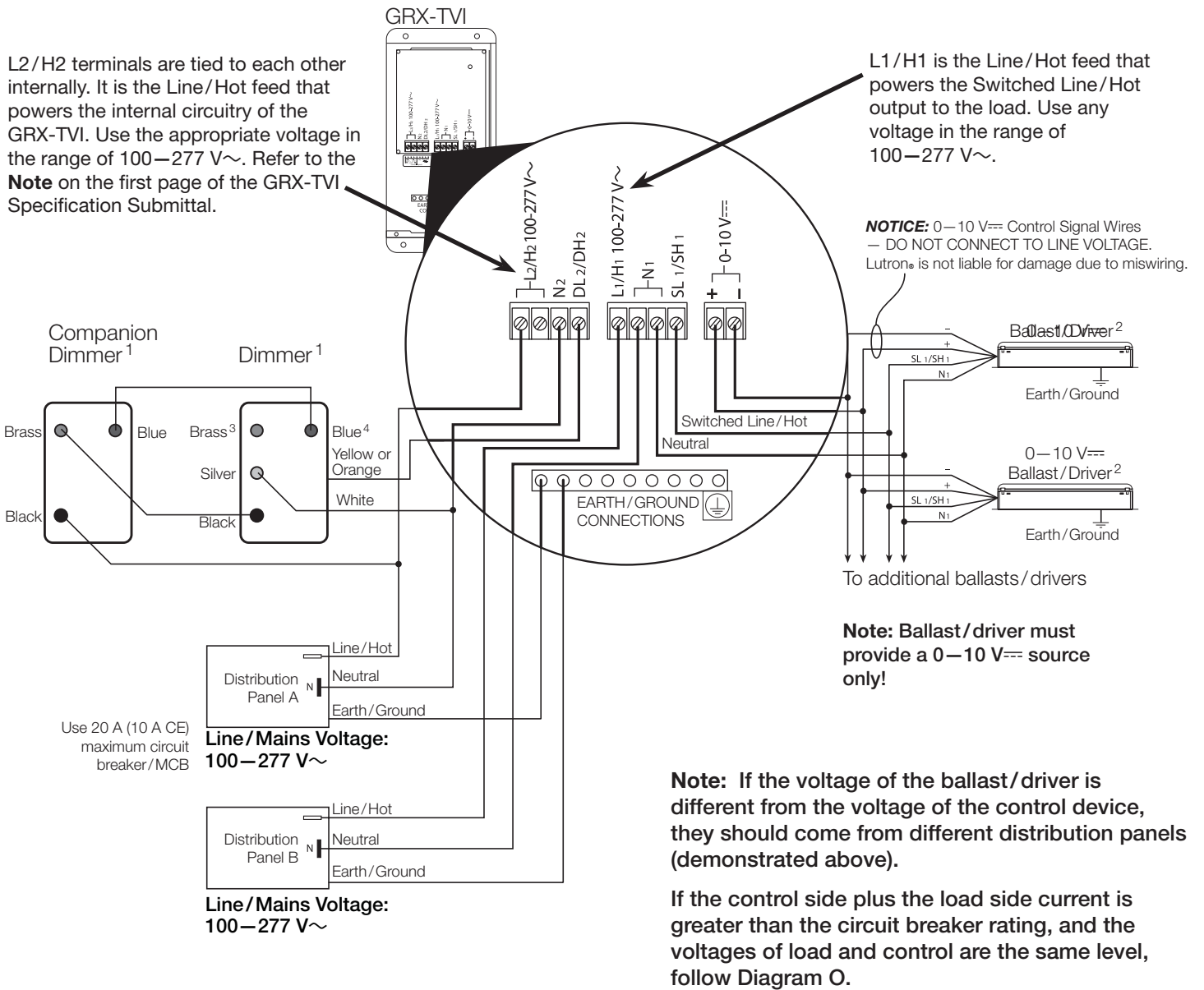


- ¹ Dimmers, companion dimmers, and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.
- ² The brass screw terminal is not used. Tighten the brass screw terminal. Do not connect the brass screw terminal to ground or to any other wiring.
- ³ When used as a single-pole dimmer, 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:	
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Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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

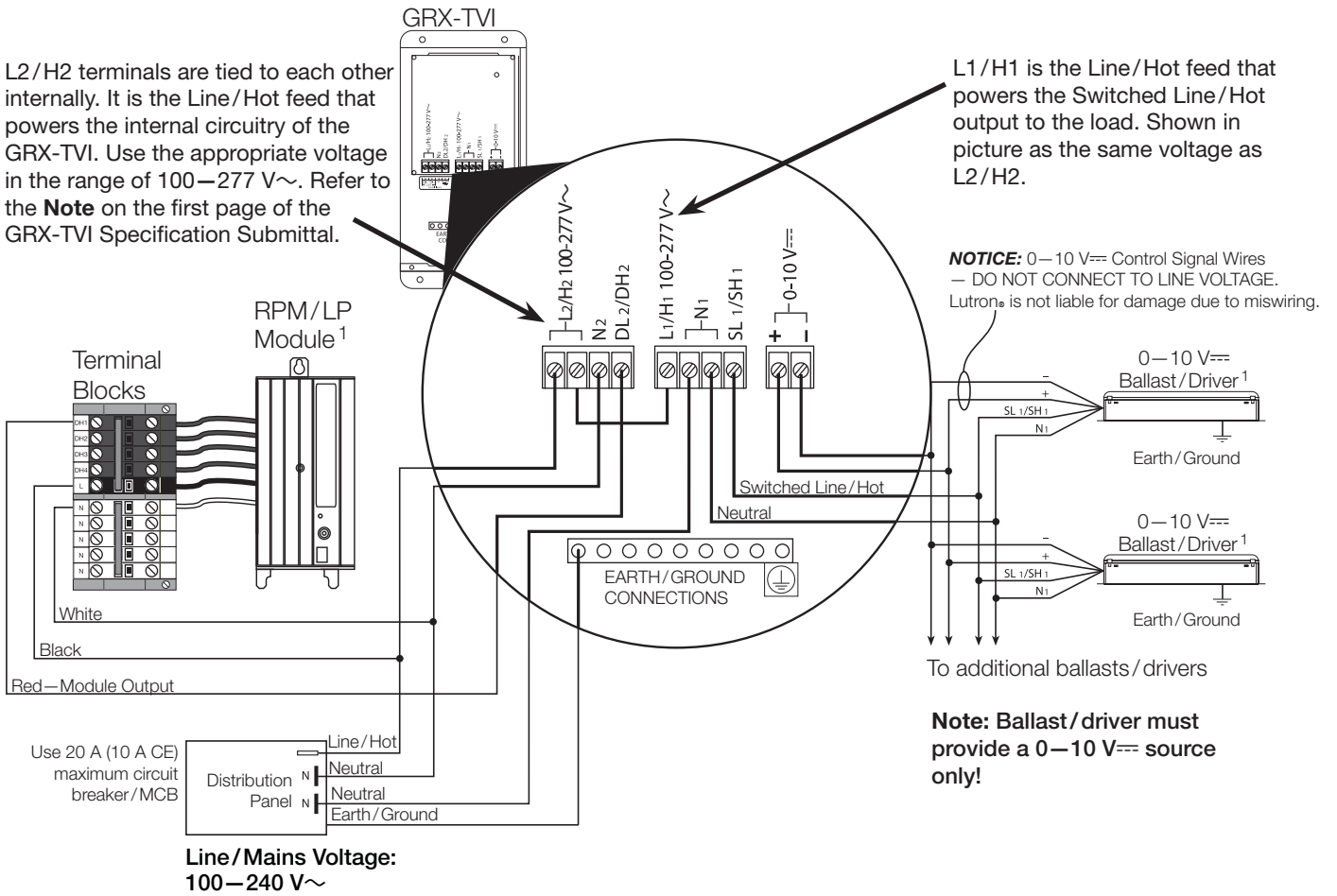


¹ Dimmers and companion dimmers must be rated for the Distribution Panel A Line/Mains voltage utilized.
² Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.
³ The brass screw terminal is not used. Tighten the brass screw terminal. Do not connect the brass screw terminal 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:	
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Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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

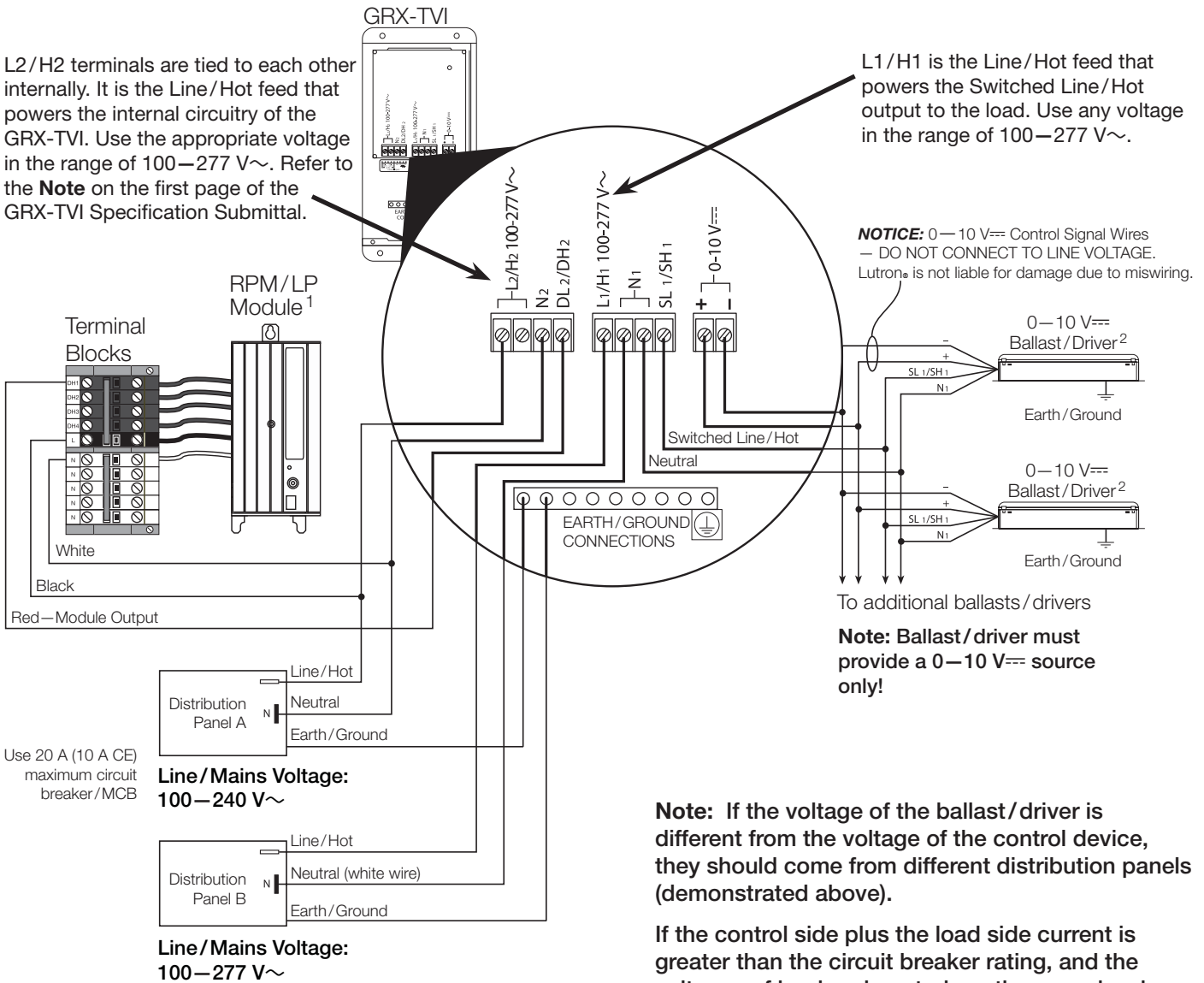


¹ Remote Power Modules and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

Job Name:	Model Numbers:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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



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.

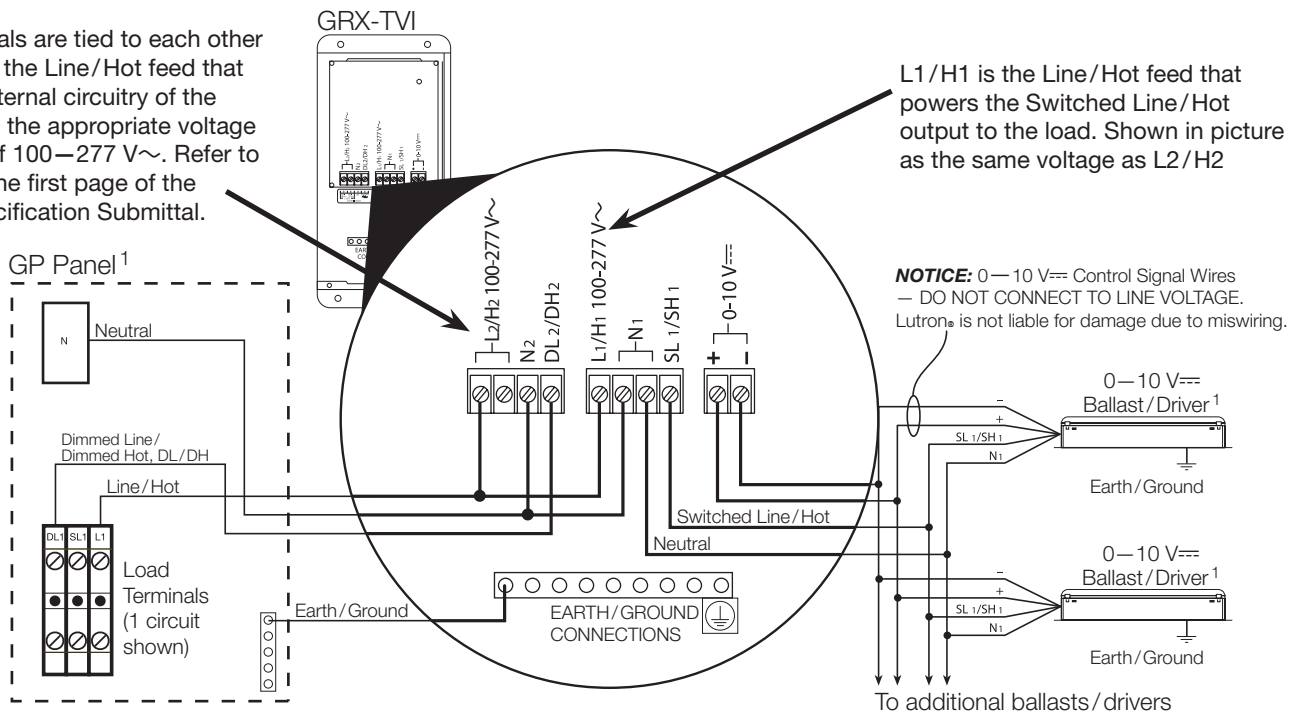
Job Name:	Model Numbers:	
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Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagrams (continued)

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



NOTICE: 0–10 VDC Control Signal Wires – DO NOT CONNECT TO LINE VOLTAGE. Lutron® is not liable for damage due to miswiring.

Note: Ballast/driver must provide a 0–10 VDC source only!

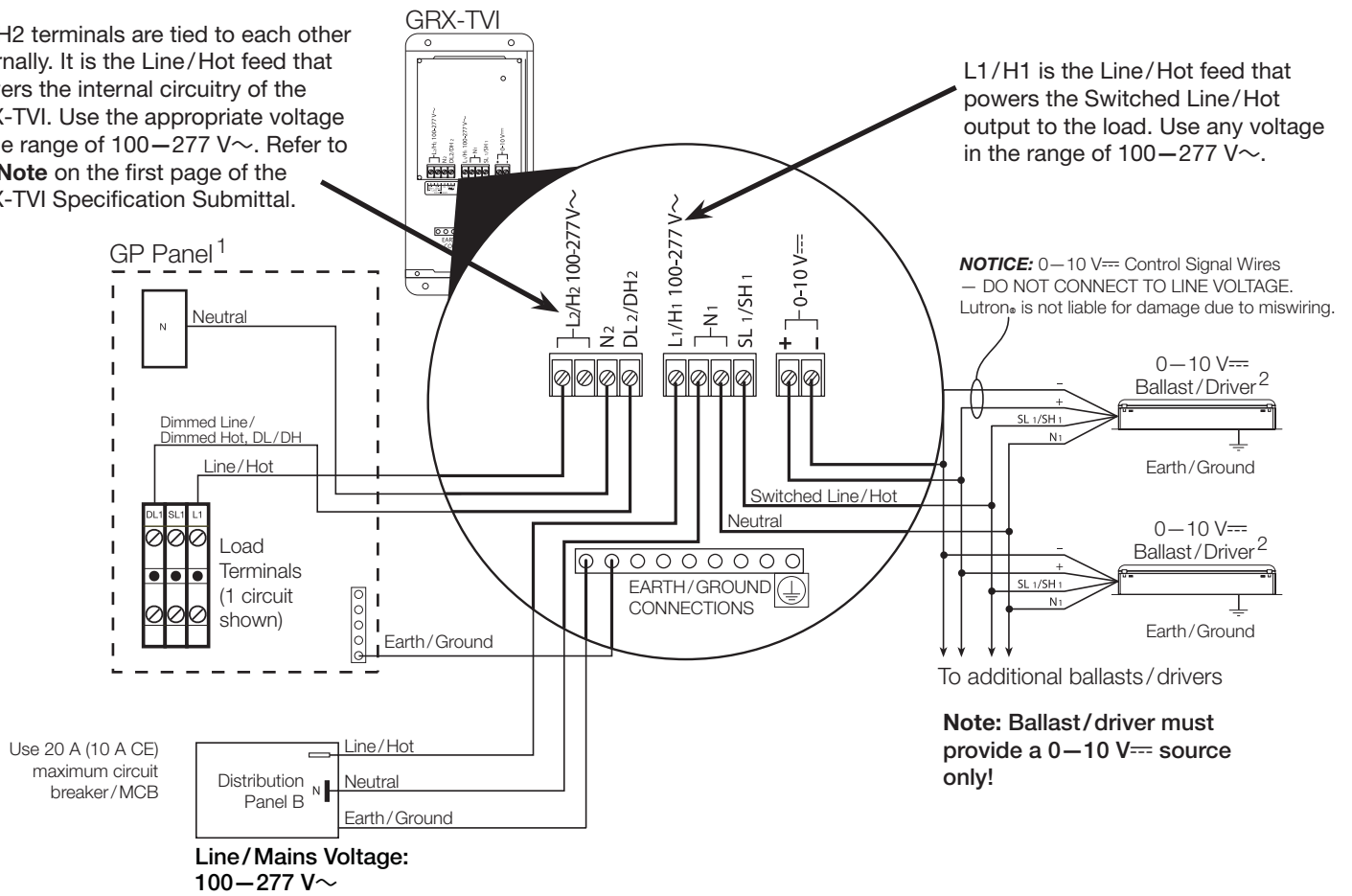
¹ GP Panel and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

Job Name:	Model Numbers:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>

Wiring Diagram L: GP Panel — 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.

L1/H1 is the Line/Hot feed that powers the Switched Line/Hot output to the load. Use any voltage in the range of 100–277 V~.

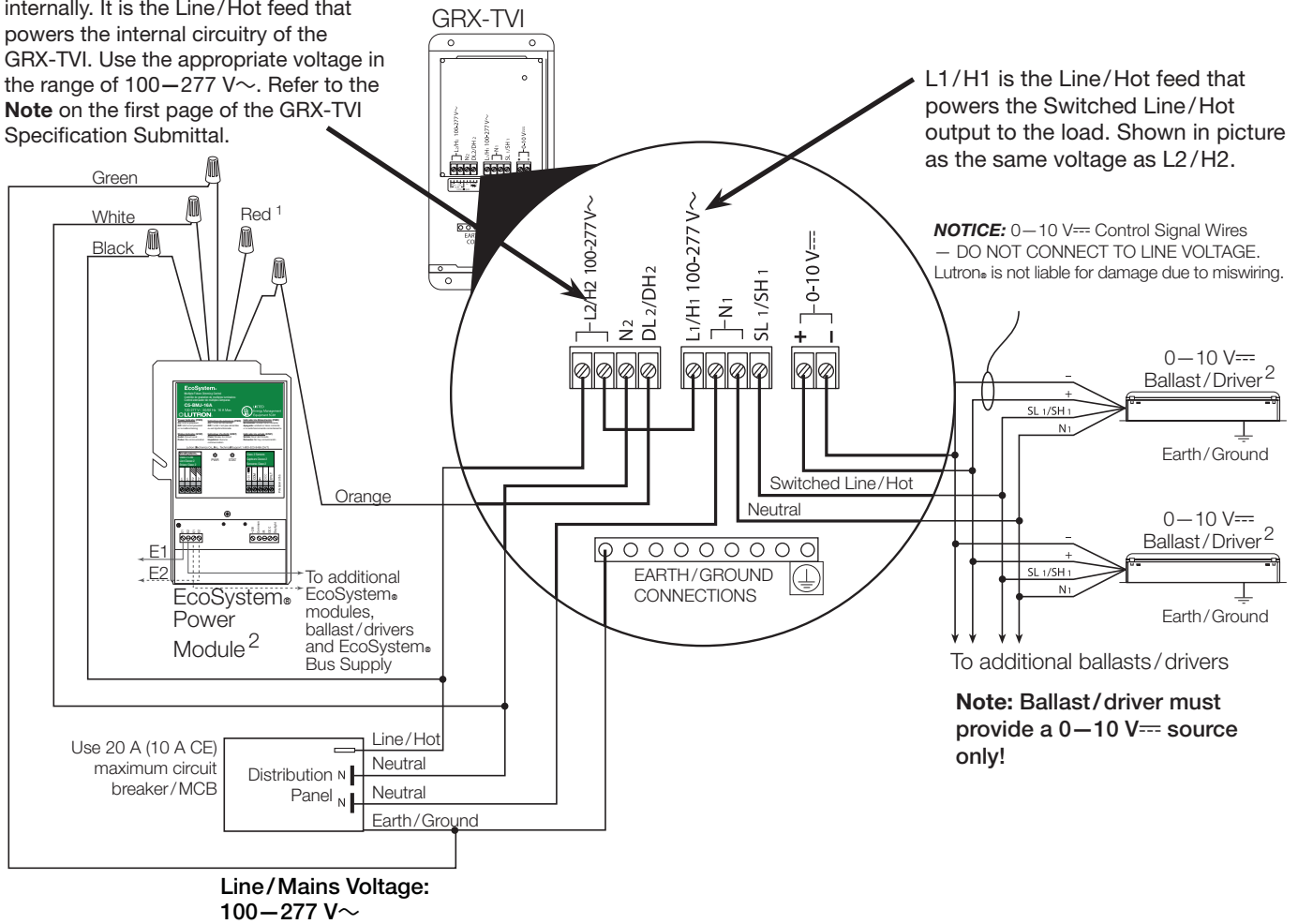


¹ GP Panel must be rated for the for the specific Line/Mains voltage utilized.
² Ballasts/drivers must be rated for the Distribution Panel B Line/Mains voltage utilized.

Job Name:	Model Numbers:	
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Job Number:	<input type="text"/>	<input type="text"/>

**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.

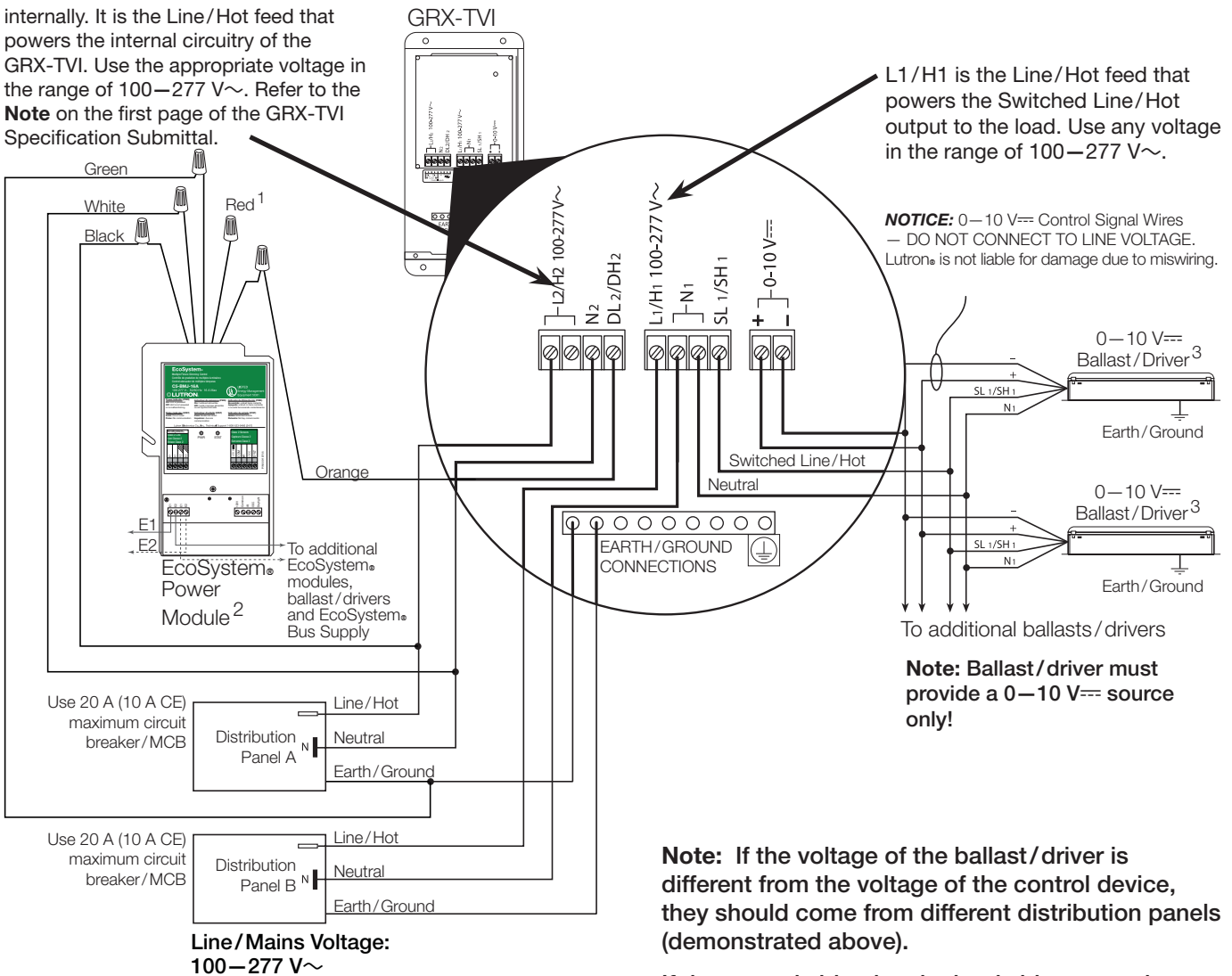


- 1 The red wire is not used. Cap off the red wire using a wire connector. Do not wire the red wire to ground or to any other wiring.
- 2 The EcoSystem® Power Module and ballasts/drivers must be rated for the specific Line/Mains voltage utilized.

Job Name:	Model Numbers:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>

**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.



- 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.

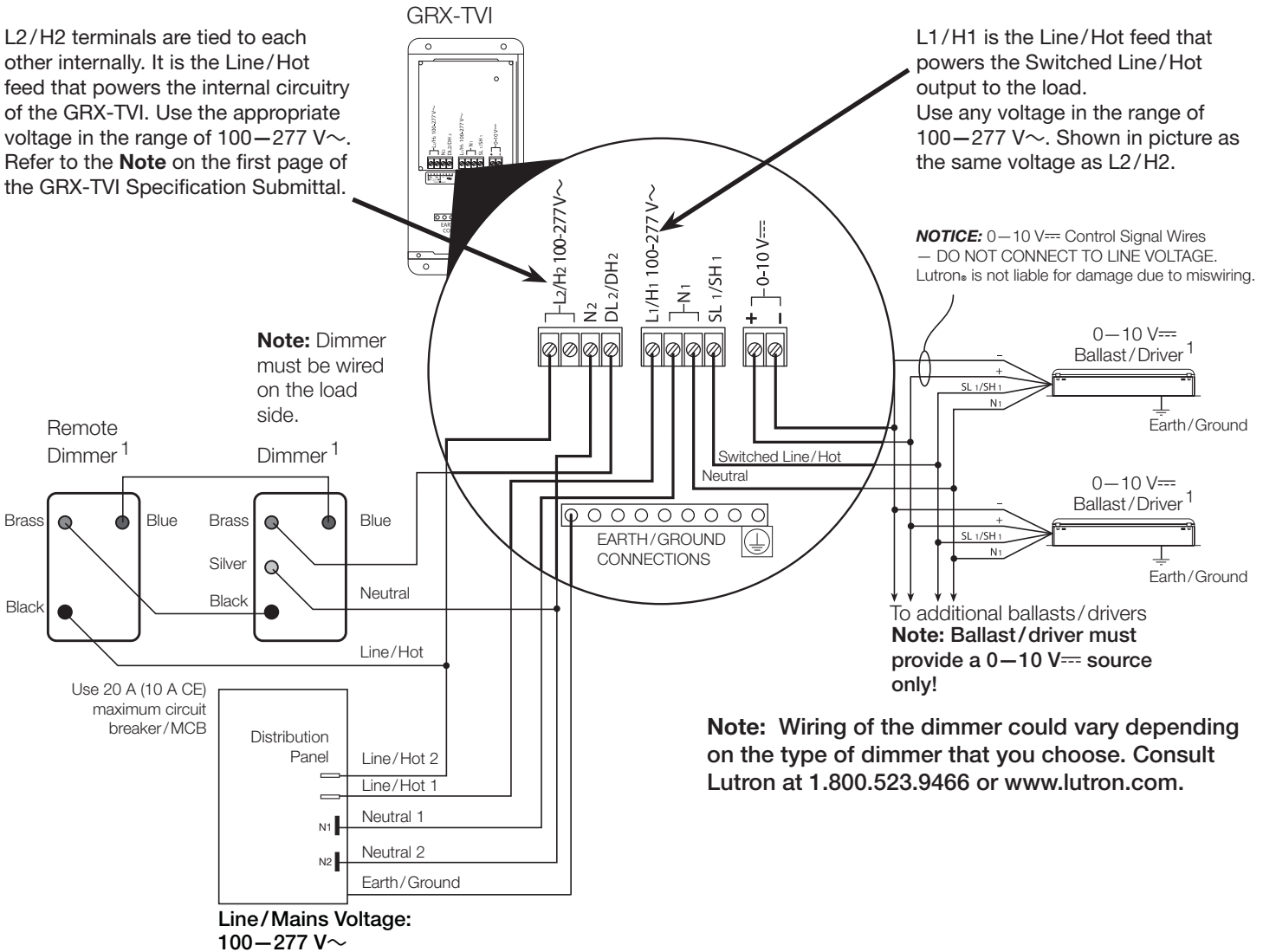
Job Name: <input type="text"/>	Model Numbers: <input type="text"/>	<input type="text"/>
Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Wiring Diagram O: 1 Distribution Panel with 2 Separate 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.

L1/H1 is the Line/Hot feed that powers the Switched Line/Hot output to the load. Use any voltage in the range of 100–277 V~. Shown in picture as the same voltage as L2/H2.

NOTICE: 0–10 V== Control Signal Wires
 – DO NOT CONNECT TO LINE VOLTAGE.
 Lutron® is not liable for damage due to miswiring.



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

Job Name:	Model Numbers:	
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Job Number:	<input type="text"/>	<input type="text"/>