



DANGER

ISOLATE DEVICE FROM POWER

Failure to isolate power supply before installation or maintenance may result in fire, serious injury, electric shock, death and may damage the luminaire.



Product Warranty is void if product is not installed as per installation instructions and in compliance with the local electrical code.



NO POWER TOOLS



DO NOT USE SILICONE ON OUTSIDE SURFACE



KEEP ELECTRONICS FREE FROM DIRECT AND MOISTURE



DO NOT HOSE OR PRESSURE CLEAN

READ ALL SAFETY INSTRUCTIONS FIRST

- › Follow instructions carefully; failure to do so will void warranty.
- › Ensure installation complies with local laws and applicable standards
- › Only use Lumascape power supply, control equipment and leader cables.
- › Ensure mains input power is surge protected.
- › Never make connections whilst power is connected.
- › Do not make modifications or alter product.
- › Connectors are to be kept clean and dry at all times.
- › Once installed, all connectors are to be mated and a PowerSync™ terminator is required on the last fitting of run.

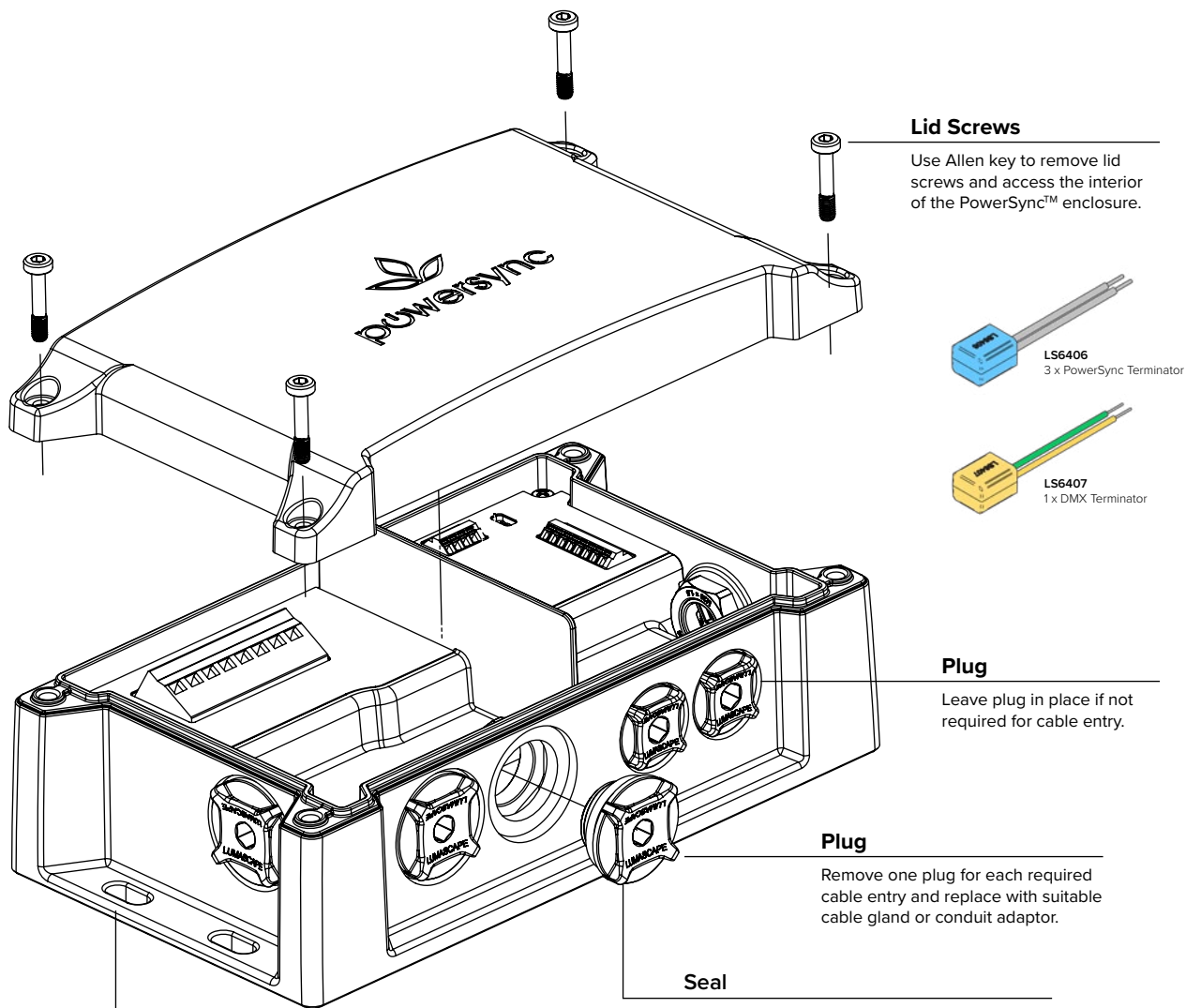
Products and specifications are subject to change without notice.

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Product Overview



Lid Screws
Use Allen key to remove lid screws and access the interior of the PowerSync™ enclosure.


LS6406
3 x PowerSync Terminator

LS6407
1 x DMX Terminator


Plug
Leave plug in place if not required for cable entry.

Plug
Remove one plug for each required cable entry and replace with suitable cable gland or conduit adaptor.

Seal
If required, retain and use seal provided to ensure a water tight seal between cable, gland and enclosure.

 Electronic equipment inside. Failing to seal enclosure properly will void warranty.

Mounting Holes
Use suitable screws (6mm or ¼") and flat washers to attach enclosure to suitable mounting surface.

 Observe orientation diagram in back of enclosure for correct orientation. Enclosure should be mounted in a vertical orientation so that the cable entries do not face upwards.

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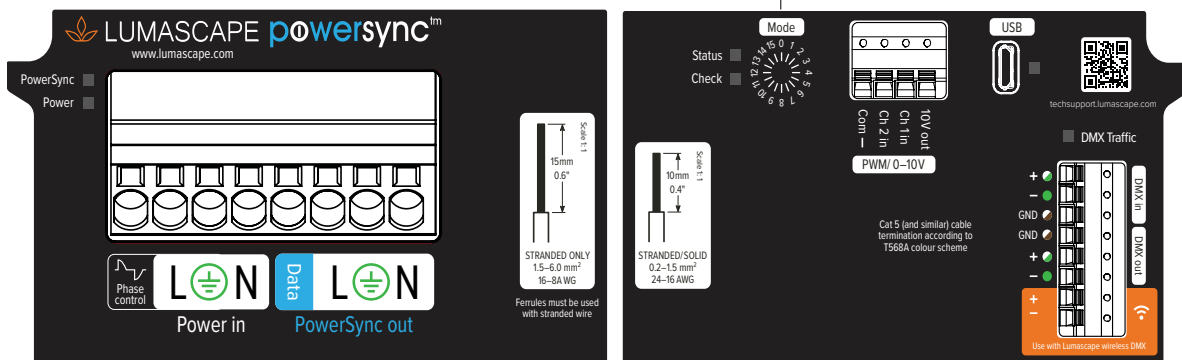
Mode Switch and Indicator Light Descriptions

10 Position Mode Switch

Label	Descriptions
0	DMX/RDM
1	DMX/RDM with SIP
2	Phase Dimming
3	0-10 V Dimming: Sourcing
4	PWM Dimming
5	0-10 V Dimming: Sinking
6	Reserved
7	TEST: Cycle 4 Channels
8	TEST: All channels ON
9	TEST: All channels OFF

16 Position Mode Switch

Label	Descriptions
0	DMX/RDM
1	DMX/RDM with Relay Control
2	TEST: All channels OFF
3	TEST: All channels ON
4	TEST: Cycle 4 Channels
5	0-10 V Dimming: Sourcing / PWM Dimming
6	0-10 V Dimming: Sinking / PWM Dimming: Inverted
7	Phase Dimming
8	USB
9	Reserved
10	DMX/RDM with SIP
11	Reserved
12	Reserved
13	Reserved
14	Erase Parameters
15	Reserved



Indicator Light

LED Indicator	Event	Appearance	Note
Power	Main Input Power	Illuminates	
PowerSync™	PowerSync™ output enabled	Illuminates	
Status	Start Up	3 flashes	
	Normal Operation	1 flash, every 5 seconds	
	Circuit Fault: Over Voltage	2 flashes, every 5 seconds	
	PowerSync™ Fault	4 flashes, every 5 seconds	
	Phase Dimming Calibration	3 flashes on calibration event	See Phase Dimming
Check	Erase Parameters	3 flashes on erase event	See Phase Dimming
	Start Up	On	
	Normal Operation	Off	
USB	Relay Open: Fault Detected	On	
	Relay Open: Manual Override	Flashing	
DMX Traffic	USB Connected	Illuminates / flashes with data	
	DMX Traffic Detected	Flashing with DMX frames	
	Dimming Signal Detected	1-20 Hz flashing proportional to input level	0-10 V, PWM and Phase Dimming
	Phase Dimming Locked	Illuminates	See Phase Dimming

QUESTIONS

Contact us at details below

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Wiring for DMX Controllers (International)

10 Channel Mode Switch Key

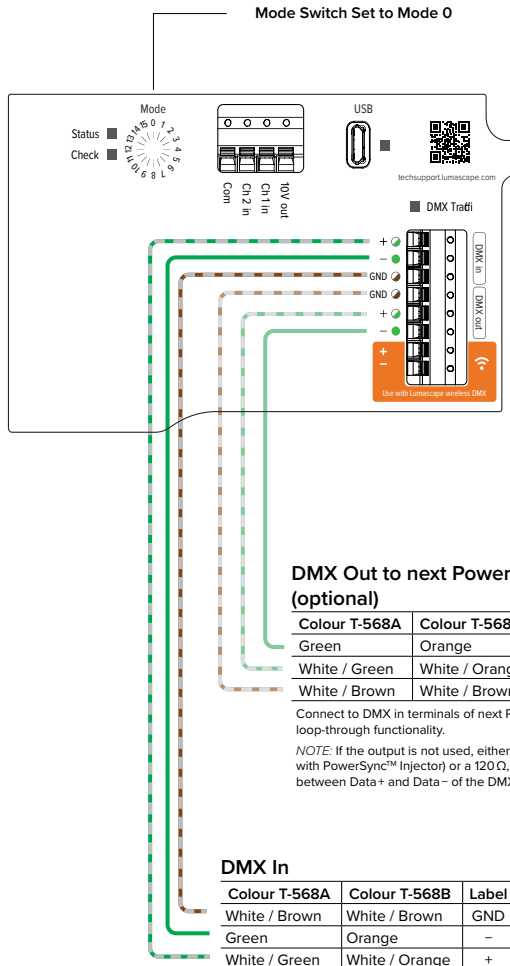
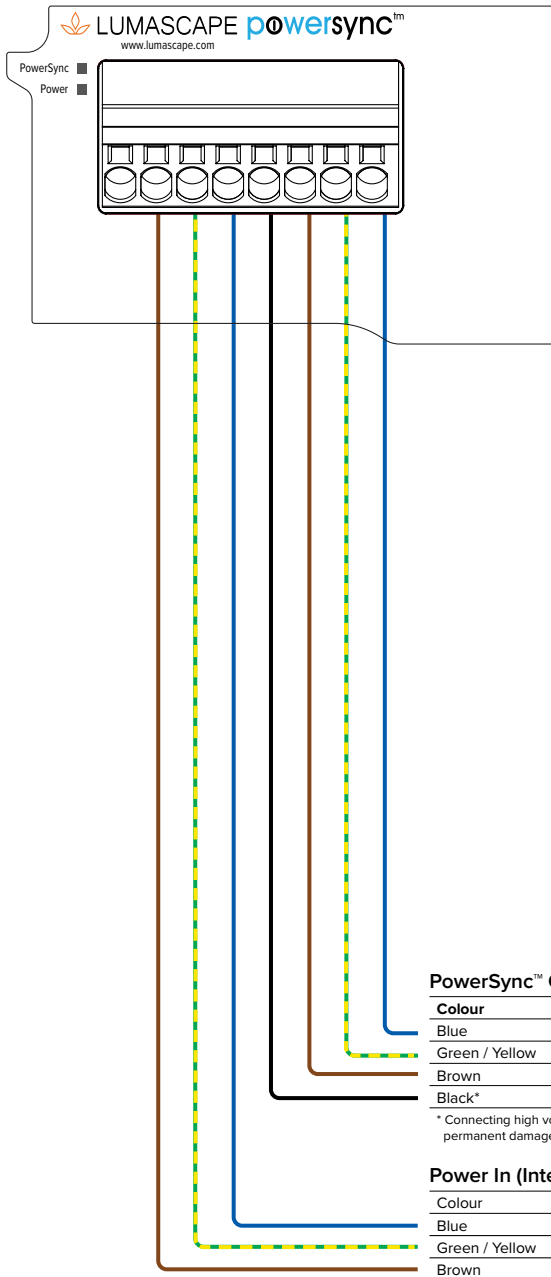
Label	Description
0	DMX/RDM
1	DMX/RDM with Relay Control / Energy Saving
7	TEST: Cycle 4 Channels
8	TEST: All Channels ON
9	TEST: All Channels OFF

16 Channel Mode Switch Key

Label	Description
0	DMX/RDM
1	DMX/RDM with Relay Control / Energy Saving
2	TEST: All Channels OFF
3	TEST: All Channels ON
4	TEST: Cycle 4 Channels
8	USB

MODE 1: DMX / RDM with Relay Control / Energy Saving

When there is no DMX or the DMX level is 0 on all channels for 15 minutes the PowerSync™ will de-energise the outgoing circuit.



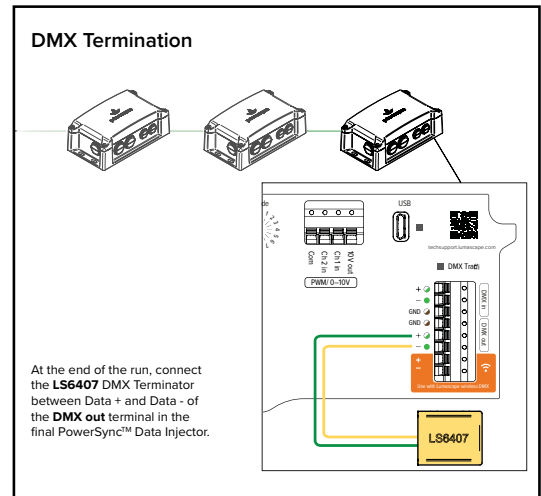
PowerSync™ Out to Luminaires

Colour	Label	Designation
Blue	N	Neutral
Green / Yellow	⊕	Earth
Brown	L	Live (110-240 V)
Black*	Data	PowerSync™ Data

* Connecting high voltage to data terminal will cause permanent damage and void warranty.

Power In (International)

Colour	Label	Designation
Blue	N	Neutral
Green / Yellow	⊕	Earth
Brown	L	Live (110-240 V)



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Wiring for DMX Controllers (North America)

Mode Switch Set to Mode 0

10 Channel Mode Switch Key	
Label	Description
0	DMX/RDM
1	DMX/RDM with Relay Control / Energy Saving
7	TEST: Cycle 4 Channels
8	TEST: All Channels ON
9	TEST: All Channels OFF

16 Channel Mode Switch Key	
Label	Description
0	DMX/RDM
1	DMX/RDM with Relay Control / Energy Saving
2	TEST: All Channels OFF
3	TEST: All Channels ON
4	TEST: Cycle 4 Channels
8	USB

MODE 1: DMX / RDM with Relay Control / Energy Saving

When there is no DMX or the DMX level is 0 on all channels for 15 minutes the PowerSync™ will de-energise the outgoing circuit.

DMX Out to next PowerSync™ Data Injector (optional)

Colour T-568A	Colour T-568B	Label	Designation
Green	Orange	-	Data -
White / Green	White / Orange	+	Data +
White / Brown	White / Brown	GND	Ground

Connect to DMX in terminals of next PowerSync™ Data Injector for DMX loop-through functionality.

NOTE: If the output is not used, either LS6407 DMX Terminator (included with PowerSync™ Injector) or a 120 Ω, 0.125W resistor must be inserted between Data + and Data - of the DMX out terminals.

DMX In

Colour T-568A	Colour T-568B	Label	Designation
White / Brown	White / Brown	GND	Ground
Green	Orange	-	Data -
White / Green	White / Orange	+	Data +

Refer to third party installation instructions for details on dimmer installation.

PowerSync™ Out to Luminaires

Colour	Label	Designation
White	N	Neutral
Green / Yellow	⊕	Earth
Black	L	Live (120-277 V)
Grey*	Data	PowerSync™ Data

* Connecting high voltage to data terminal will cause permanent damage and void warranty.

Power In

Colour	Label	Designation
White	N	Neutral
Green / Yellow	⊕	Earth
Black	L	Live (120-277 V)

DMX Termination

At the end of the run, connect the **LS6407** DMX Terminator between Data + and Data - of the **DMX out** terminal in the final PowerSync™ Data Injector.

Products and specifications are subject to change without notice.

Wiring for 0-10 V Sinking Dimmers (International)

10 Channel Mode Switch Key

Label	Description
3	0-10 V Dimming: Sourcing
5	0-10 V Dimming: Sinking
7	TEST: Cycle 4 Channels
8	TEST: All Channels ON
9	TEST: All Channels OFF

16 Channel Mode Switch Key

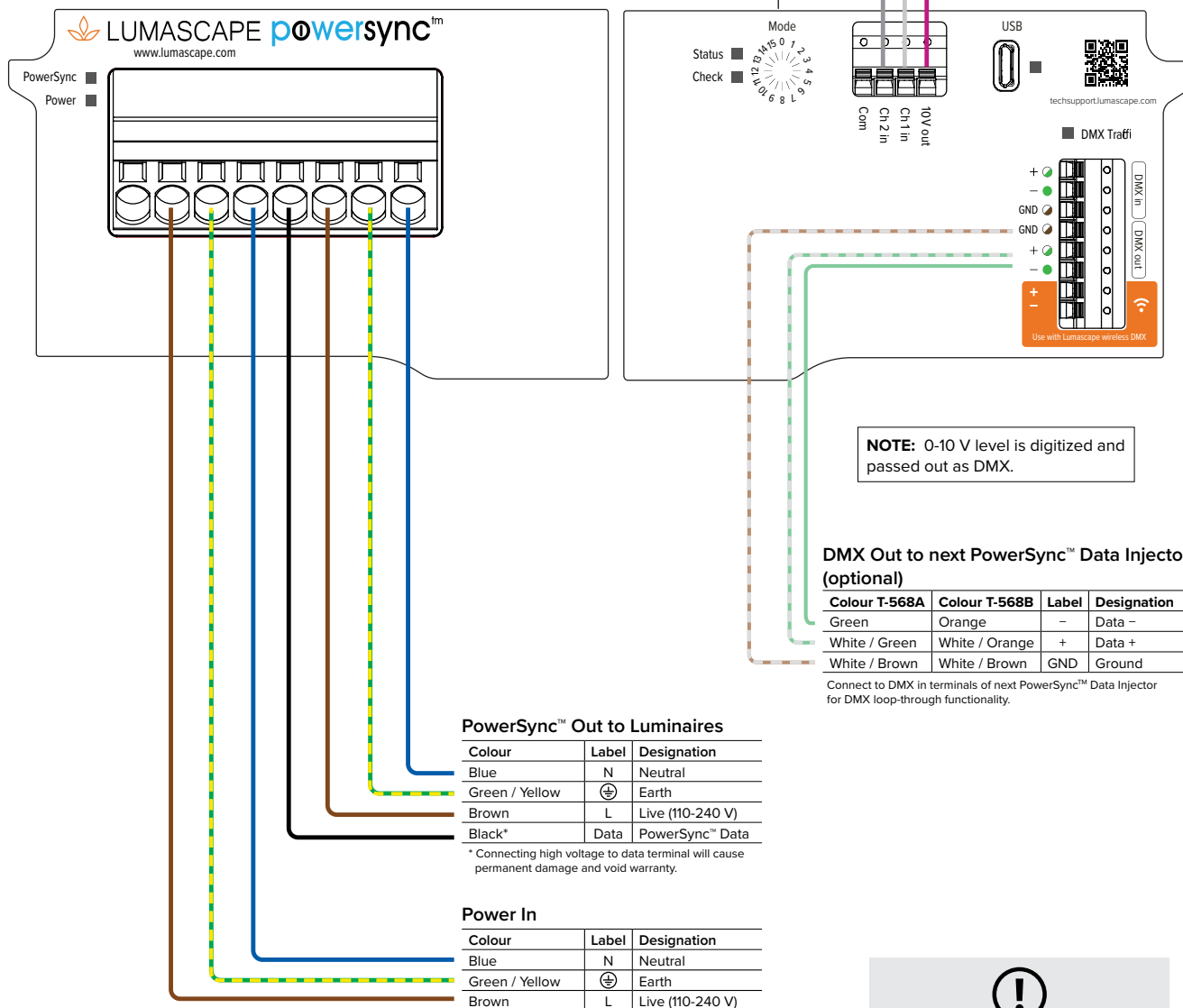
Label	Description
5	0-10 V Dimming: Sourcing/PWM Dimming
6	0-10 V Dimming: Sinking/PWM Dimming: Inverted
2	TEST: All Channels OFF
3	TEST: Cycle 4 Channels
4	TEST: Cycle 4 Channels
8	USB

Mode Switch Set to Mode 6.

0-10 V In from sinking dimmer

Colour	Label	Designation
Grey	Ch 2 In	Channel 2 return (optional)
Grey	Ch 1 In	Channel 1 return
Purple	10 V Out	10 V source

Refer to third party installation instructions for details on dimmer installation.



NOTE: 0-10 V level is digitized and passed out as DMX.

DMX Out to next PowerSync™ Data Injector (optional)

Colour T-568A	Colour T-568B	Label	Designation
Green	Orange	-	Data -
White / Green	White / Orange	+	Data +
White / Brown	White / Brown	GND	Ground

Connect to DMX in terminals of next PowerSync™ Data Injector for DMX loop-through functionality.

PowerSync™ Out to Luminaires

Colour	Label	Designation
Blue	N	Neutral
Green / Yellow	⊕	Earth
Brown	L	Live (110-240 V)
Black*	Data	PowerSync™ Data

* Connecting high voltage to data terminal will cause permanent damage and void warranty.

Power In

Colour	Label	Designation
Blue	N	Neutral
Green / Yellow	⊕	Earth
Brown	L	Live (110-240 V)



Please Note:

Attached luminaires need to be configured as single channel, DMX address (Channel 1 In Only) or Tuneable White (Channel 1 In & Channel 2 In).

Wiring for 0-10 V Sinking Dimmers (North America)

10 Channel Mode Switch Key

Label	Description
3	0-10 V Dimming: Sourcing
5	0-10 V Dimming: Sinking
7	TEST: Cycle 4 Channels
8	TEST: All Channels ON
9	TEST: All Channels OFF

16 Channel Mode Switch Key

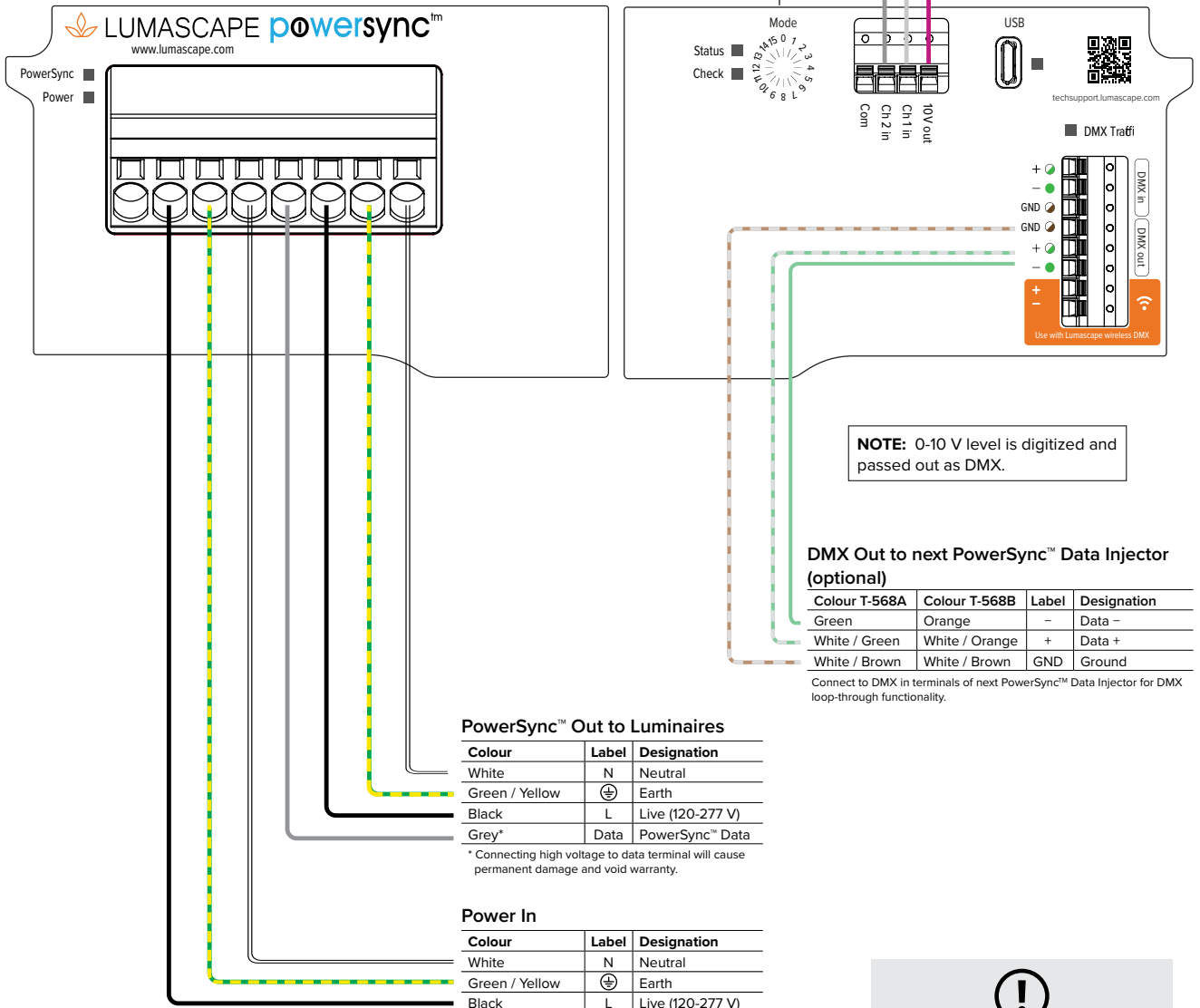
Label	Description
5	0-10 V Dimming: Sourcing/PWM Dimming
6	0-10 V Dimming: Sinking/PWM Dimming: Inverted
2	TEST: All Channels ON
3	TEST: All Channels OFF
4	TEST: Cycle 4 Channels
8	USB

Mode Switch Set to Mode 6.

0-10 V In from sinking dimmer

Colour	Label	Designation
Grey	Ch 2 In	Channel 2 return (optional)
Grey	Ch 1 In	Channel 1 return
Purple	10 V Out	10 V source

Refer to third party installation instructions for details on dimmer installation.



NOTE: 0-10 V level is digitized and passed out as DMX.

DMX Out to next PowerSync™ Data Injector (optional)

Colour T-568A	Colour T-568B	Label	Designation
Green	Orange	-	Data -
White / Green	White / Orange	+	Data +
White / Brown	White / Brown	GND	Ground

Connect to DMX in terminals of next PowerSync™ Data Injector for DMX loop-through functionality.

PowerSync™ Out to Luminaires

Colour	Label	Designation
White	N	Neutral
Green / Yellow	⊕	Earth
Black	L	Live (120-277 V)
Grey*	Data	PowerSync™ Data

* Connecting high voltage to data terminal will cause permanent damage and void warranty.

Power In

Colour	Label	Designation
White	N	Neutral
Green / Yellow	⊕	Earth
Black	L	Live (120-277 V)

! Please Note:
Attached luminaires need to be configured as single channel, DMX address (Channel 1 In Only) or Tuneable White (Channel 1 In & Channel 2 In).

Products and specifications are subject to change without notice.

Wiring for 0-10 V Sourcing Dimmers (International)

10 Channel Mode Switch Key

Label	Description
3	0-10 V Dimming: Sourcing
5	0-10 V Dimming: Sinking
7	TEST: Cycle 4 Channels
8	TEST: All Channels ON
9	TEST: All Channels OFF

16 Channel Mode Switch Key

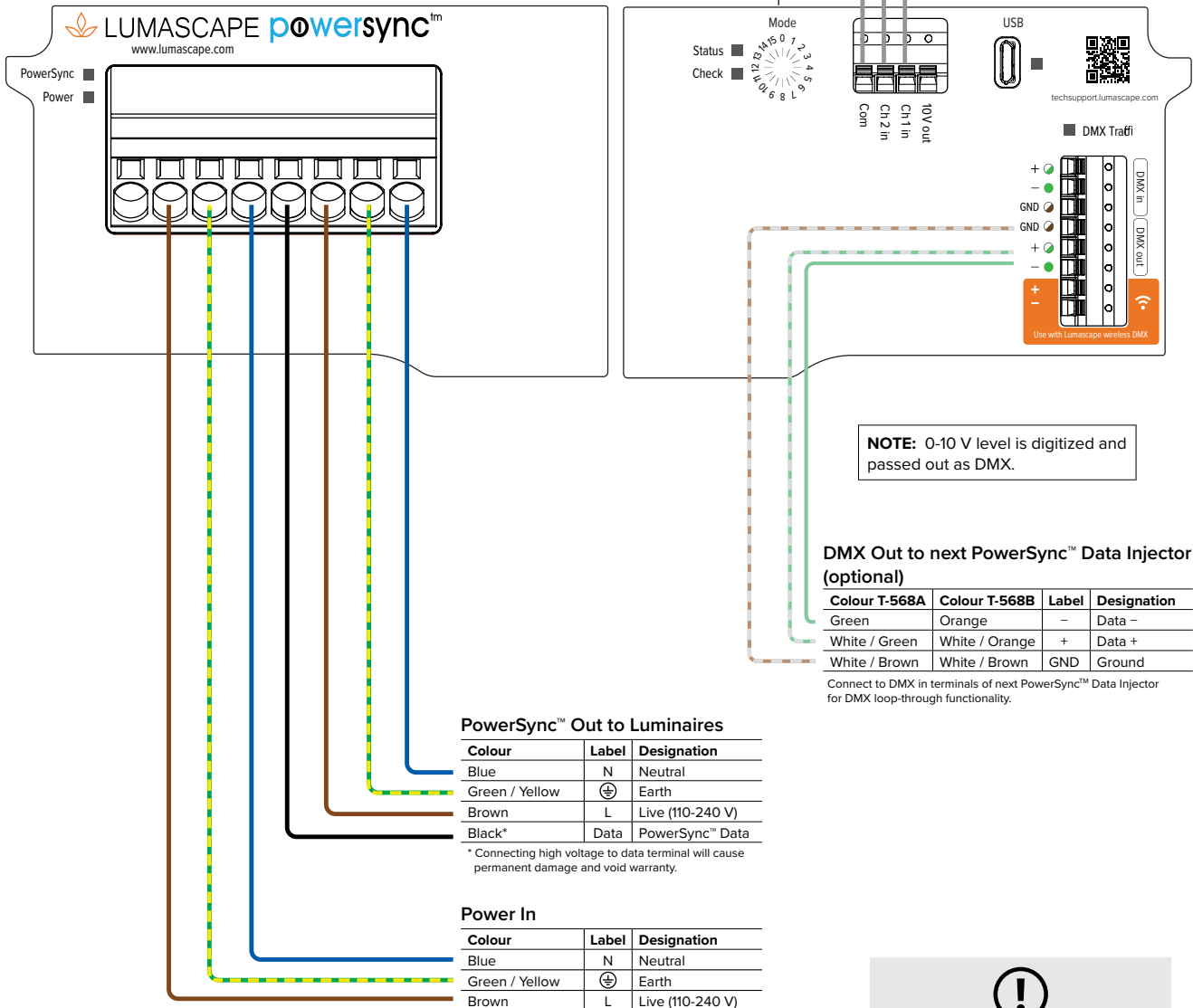
Label	Description
5	0-10 V Dimming: Sourcing/PWM Dimming
6	0-10 V Dimming: Sinking/PWM Dimming: Inverted
2	TEST: All Channels OFF
3	TEST: All Channels ON
4	TEST: Cycle 4 Channels
8	USB

0-10 V In from sourcing dimmer

Label	Designation
Com	Common -
Ch 2 In	Channel 2 + (optional)
Ch 1 In	Channel 1 +

Mode Switch Set to Mode 5.

Refer to third party installation instructions for details on dimmer installation.



NOTE: 0-10 V level is digitized and passed out as DMX.

DMX Out to next PowerSync™ Data Injector (optional)

Colour T-568A	Colour T-568B	Label	Designation
Green	Orange	-	Data -
White / Green	White / Orange	+	Data +
White / Brown	White / Brown	GND	Ground

Connect to DMX in terminals of next PowerSync™ Data Injector for DMX loop-through functionality.

PowerSync™ Out to Luminaires

Colour	Label	Designation
Blue	N	Neutral
Green / Yellow	⊕	Earth
Brown	L	Live (110-240 V)
Black*	Data	PowerSync™ Data

* Connecting high voltage to data terminal will cause permanent damage and void warranty.

Power In

Colour	Label	Designation
Blue	N	Neutral
Green / Yellow	⊕	Earth
Brown	L	Live (110-240 V)



Please Note:

Attached luminaires need to be configured as single channel, DMX address (Channel 1 In Only) or Tuneable White (Channel 1 In & Channel 2 In).

Wiring for 0-10 V Sourcing Dimmers (International)

10 Channel Mode Switch Key

Label	Description
3	0-10 V Dimming: Sourcing
5	0-10 V Dimming: Sinking
7	TEST: Cycle 4 Channels
8	TEST: All Channels ON
9	TEST: All Channels OFF

16 Channel Mode Switch Key

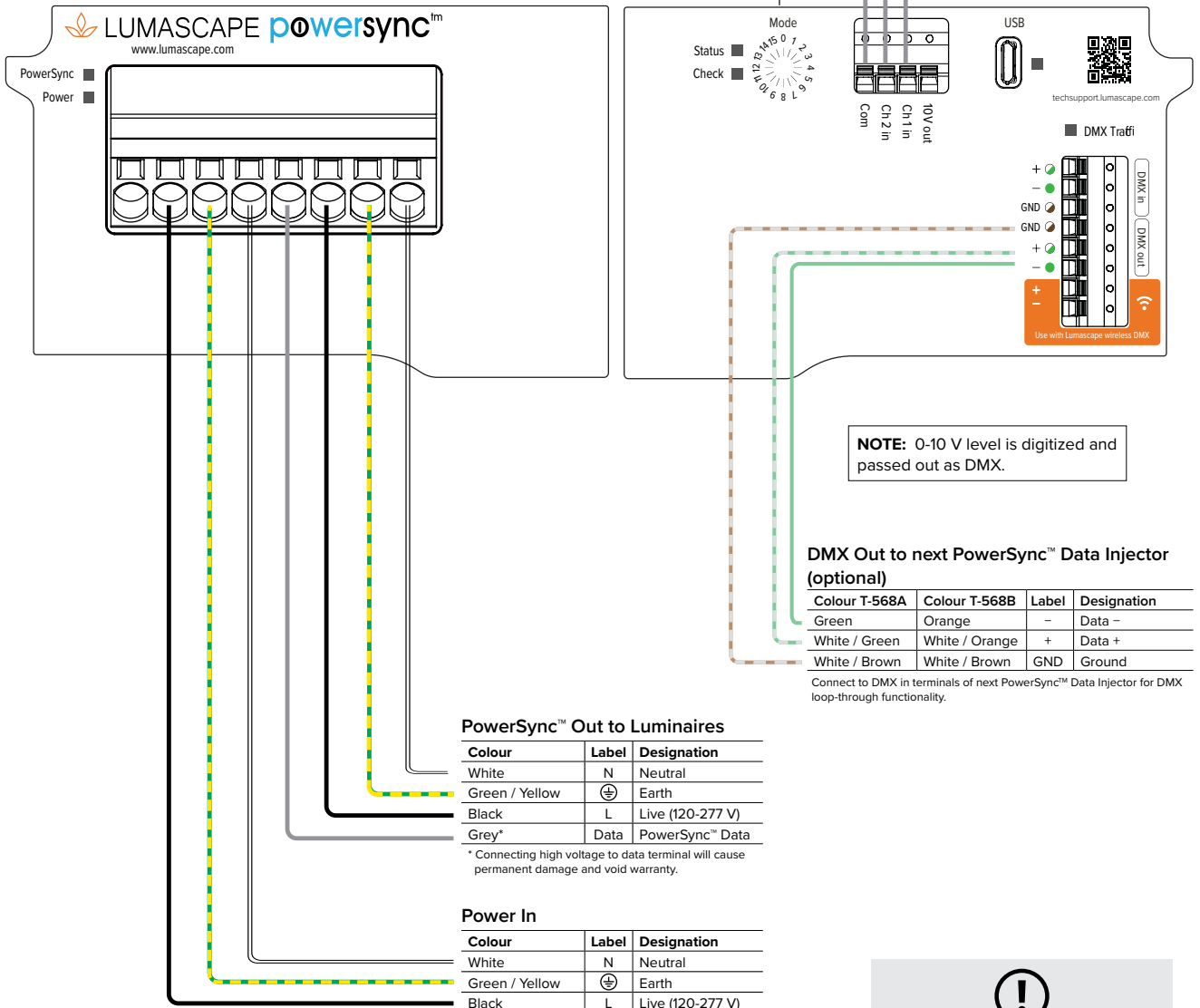
Label	Description
5	0-10 V Dimming: Sourcing/PWM Dimming
6	0-10 V Dimming: Sinking/PWM Dimming: Inverted
2	TEST: All Channels ON
3	TEST: All Channels OFF
4	TEST: Cycle 4 Channels
8	USB

Mode Switch Set to Mode 5.

0-10 V In from sourcing dimmer

Label	Designation
Com	Common -
Ch 2 In	Channel 2 + (optional)
Ch 1 In	Channel 1 +

Refer to third party installation instructions for details on dimmer installation.



NOTE: 0-10 V level is digitized and passed out as DMX.

DMX Out to next PowerSync™ Data Injector (optional)

Colour T-568A	Colour T-568B	Label	Designation
Green	Orange	-	Data -
White / Green	White / Orange	+	Data +
White / Brown	White / Brown	GND	Ground

Connect to DMX in terminals of next PowerSync™ Data Injector for DMX loop-through functionality.

PowerSync™ Out to Luminaires

Colour	Label	Designation
White	N	Neutral
Green / Yellow	⊕	Earth
Black	L	Live (120-277 V)
Grey*	Data	PowerSync™ Data

* Connecting high voltage to data terminal will cause permanent damage and void warranty.

Power In

Colour	Label	Designation
White	N	Neutral
Green / Yellow	⊕	Earth
Black	L	Live (120-277 V)



Please Note:

Attached luminaires need to be configured as single channel, DMX address (Channel 1 In Only) or Tuneable White (Channel 1 In & Channel 2 In).

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Wiring for Trailing Edge Phase Dimmers (International)

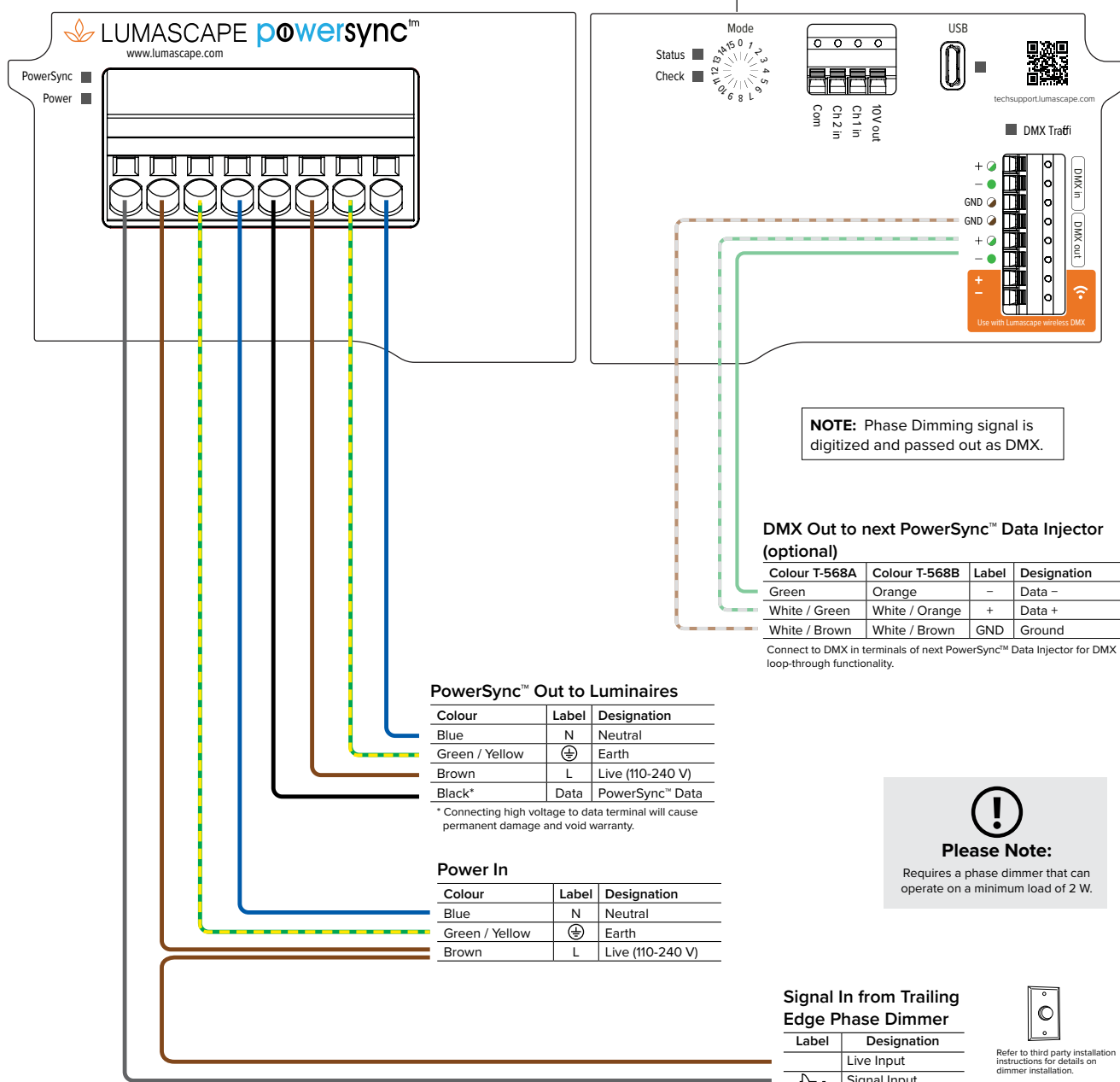
10 Channel Mode Switch Key

Label	Description
2	Phase Dimming
4	Phase Dimming
7	TEST: Cycle 4 Channels
8	TEST: All Channels ON
9	TEST: All Channels OFF

16 Channel Mode Switch Key

Label	Description
7	Phase Dimming
2	TEST: All Channels OFF
3	TEST: All Channels ON
4	TEST: Cycle 4 Channels
8	USB

Mode Switch Set to Mode 7.



Products and specifications are subject to change without notice.

Wiring for Trailing Edge Phase Dimmers (North America)

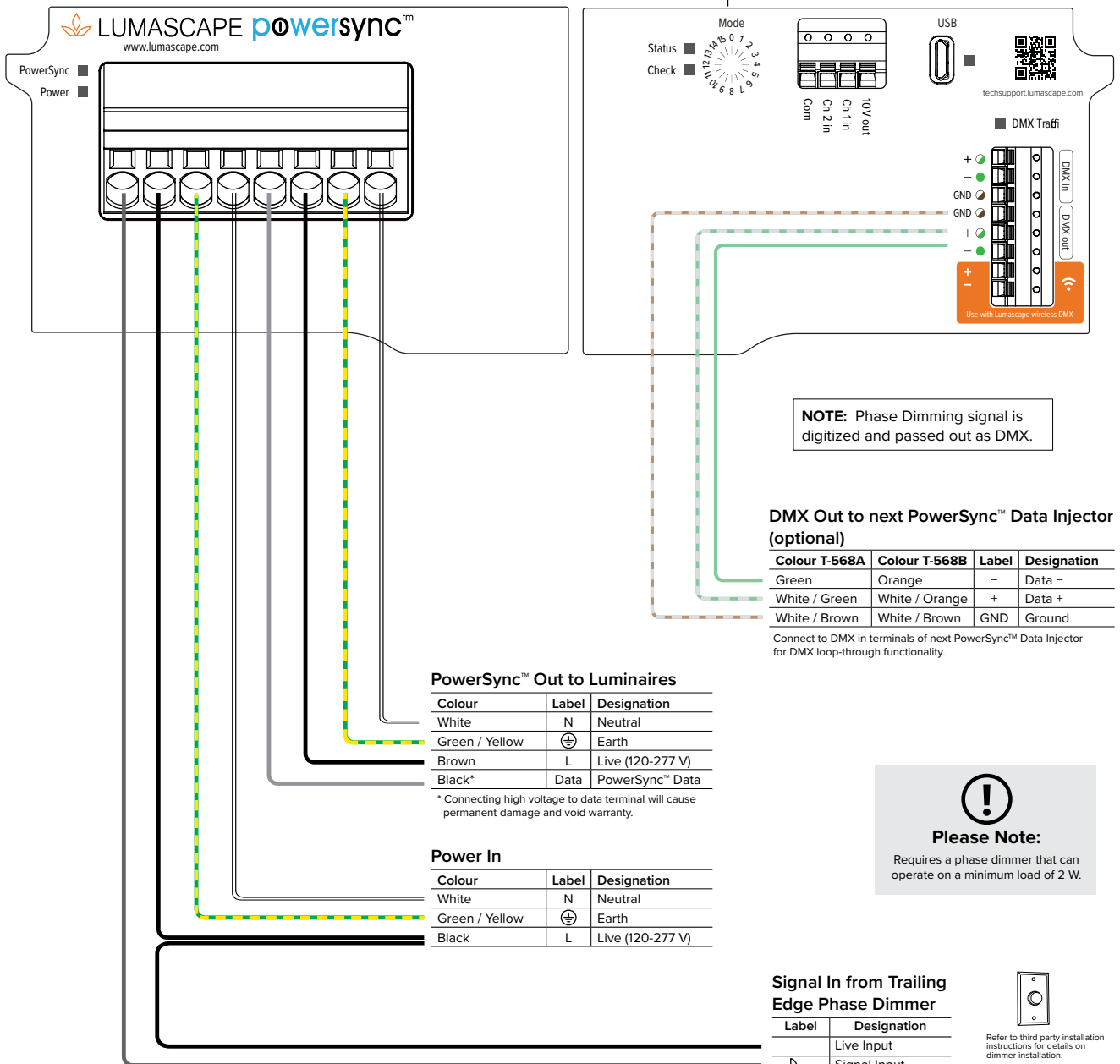
10 Channel Mode Switch Key

Label	Description
2	Phase Dimming
4	Phase Dimming
7	TEST: Cycle 4 Channels
8	TEST: All Channels ON
9	TEST: All Channels OFF

16 Channel Mode Switch Key

Label	Description
7	Phase Dimming
2	TEST: All Channels OFF
3	TEST: All Channels ON
4	TEST: Cycle 4 Channels
8	USB

Mode Switch Set to Mode 7.



Please Note:
Requires a phase dimmer that can operate on a minimum load of 2 W.

Products and specifications are subject to change without notice.

Phase Dimming Calibration Procedure

Only available on units fitted with 16 position Mode Switch

Phase dimming calibration for proper operation

To account for variability across phase dimming controllers, the LS6540 unit is shipped with a low default maximum brightness input level.

When a new phase dimming controller is connected

- Unit automatically calibrates to any new maximum input levels
- Simply set the controller to its maximum setting and leave for 10-15 seconds (whilst in mode switch position 7)

When auto calibration is complete

- “Status” indicator will flash 3 times in quick succession.
- Control is now responsive over entire input range.
- If unit has been previously calibrated and controller needs to be changed the previous auto calibration level can be erased by placing the unit in mode switch position 14 and power cycling the LS6540.

After 30-35 Seconds

- “Status” indicator will flash 3 times in quick succession.
- Previous stored calibration data has now been erased.
- Unit can be re-calibrated with a new controller

Line Voltage Fluctuations

- The LS6540 will enter locked mode after one (1) minute with no change in input level.
- A slighting larger than usual change in controller input is required to change light output.
- As soon as this change is detected, normal operation resumes with fine grained control possible.

DMX Traffic Indicator

- If illuminated but not flashing controller and controller change does not appear to change light output
- Keep adjusting controller until DMX traffic indicator starts flashing and luminaires respond to input changes.

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Testing Functions

To assist with installation, the **LS6540** provides three (3) test modes for PowerSync™ luminaires. These require only connected luminaires and power, and no connected input signal.

If an input signal is connected, the **LS6540** will not respond to this signal in any of the modes below.

NOTE: These test signals apply to the relevant unit's PowerSync™ output only — it will not be passed through on the DMX / RDM connectors if multiple **LS6540** units are connected.

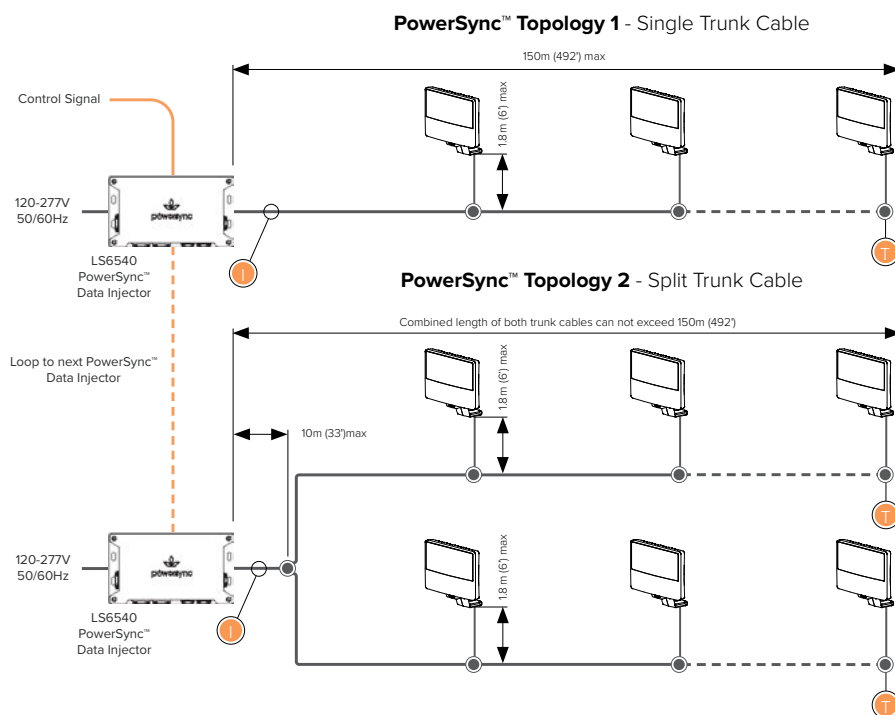
10 Position Mode Switch	Output
7	Cycle channels 1-4 (and multiples thereof) on all connected luminaires at full brightness
8	Turn on all channels on all connected luminaires to full brightness
9	Turn off all channels on all connected luminaires

16 Position Mode Switch	Output
2	Turn off all channels on all connected luminaires
3	Turn on all channels on all connected luminaires to full brightness
4	Cycle channels 1-4 (and multiples thereof) on all connected luminaires at full brightness

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Network Installations

Network Topology - PowerSync™ Dimmable



Up to 45 luminaires per run under the following conditions:

- Max total cable run length 150m (492') in up to two trunk cables
- For run lengths in excess of 30m (100'), the data wire gauge cannot exceed 12-14 AWG (2.5mm²)
- For run lengths up to 30m (100'), the data wire gauge is not governed
- Refer to 'Maximum Circuit Load' table for circuit limitations
- Always observe local electrical codes for branch circuit current limitations

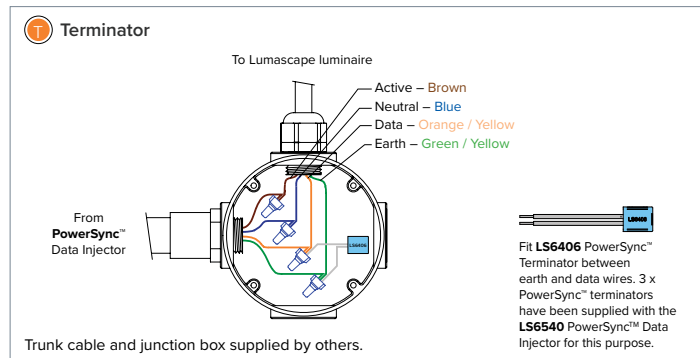
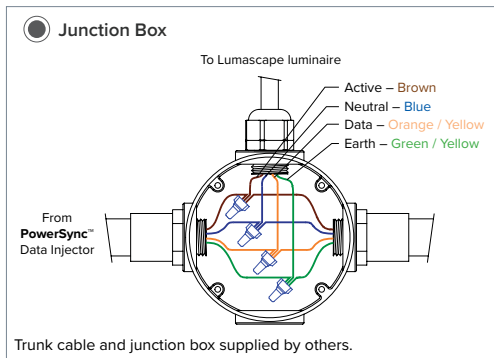
- T** Terminator
Use PowerSync™ terminator, supplied with leader cable to terminate last luminaire in chain.
- I** Maximum Current
≤16.0A through LS6540 Data Injector.
- Connection Type
Circuits can be configured as either connectorised or hardwired. For details consult installation instructions and comply with local electrical codes.

PLEASE CHECK LUMINAIRE DATASHEETS FOR CIRCUIT LOADING AND ELECTRICAL LIMITATIONS.

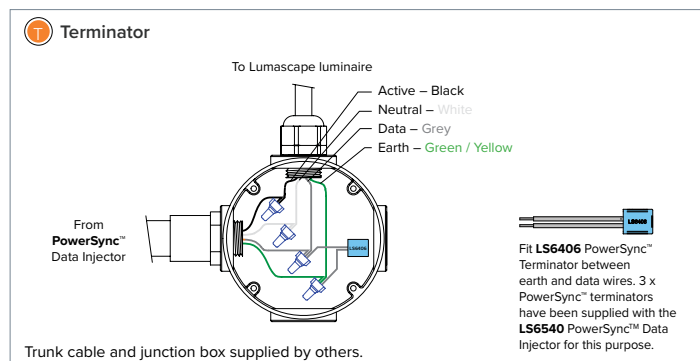
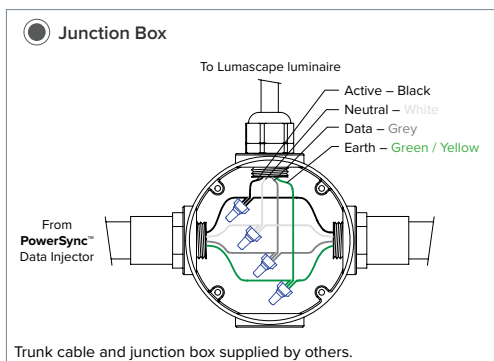
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Network Installations

International



North America



Please Note: The above diagrams are intended to show electrical pathways between luminaires and ancillary device. These diagrams are not intended to show type or colour of cord / wire, luminaire input voltage rating, wire gauge or approved use of the cord / wire supplied with luminaires.

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