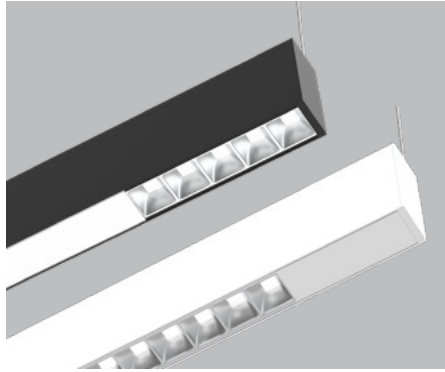


CLUSTERS

PENDANT PARABOLIC COMBINATIONS



DESCRIPTION

Cluster Combinations integrate the Cluster lighting elements into a 1.5" wide x 3.75" high aluminum channel, creating endless possibilities for visually interesting lighting.

Parabolic optics in 3-, 5-, or 10-cell configurations and multiple finishes can be arranged in continuous rows or separated by diffusers for general lighting or by blank covers. All LED's used in the combination have consistent color characteristics.

Channel modules are available from 4' to 12' in 1' increments, can be neatly connected together, and suspend by aircraft cables or stems. All drivers are mounted in the channel. For configurations other than those shown here, please consult the factory.



LUMENWERX

PROJECT: _____

TYPE: _____

NOTES: _____

We require a drawing illustrating the combination you would like to order - anything from a simple line drawing to elaborate architectural drawings.

Enter the required **TOTAL LUMINAIRE LENGTH**, CRI, Lumens, Color Temperature and Voltage.



Consult pages 2-5 for details before specifying

GENERAL SPECIFICATIONS CODE:

Luminaire ID	Total Luminaire Length (MIN 4')		Light Source	CRI	Color Temperature ¹	Voltage
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	90	<input type="text"/>	<input type="text"/>

¹ For SW only. Specify NA for SOLA or DUO.

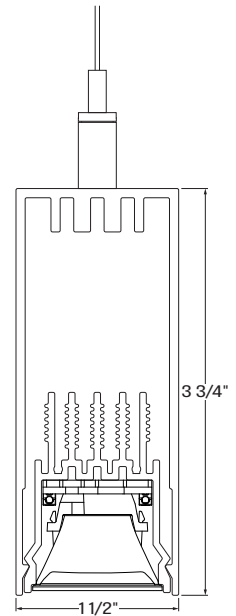
PAR	OPTICS	LOUVER FINISH	LIGHT SOURCE
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
PAR - Parabolic	SPL - Specular Aluminum Louver MPL - Matte Aluminum Louver WPL - Matte White Louver BPL - Matte Black Louver		SW - Static white DUO - Tunable white 2 channel control 65K to 27K SOLA - Dim to warm single channel control 35K to 22K

OPTICS LIST CODE:

CLUSTER OPTIONS	Quantity (for actual clusters size see page 2)	Lumen Package Per Unit			
		LOW	MED	HIGH	
CLU03 - Clusters 1x3	<input type="text"/>	<input type="text"/> Im	200 Im	365 Im	584 Im
CLU05 - Clusters 1x5	<input type="text"/>	<input type="text"/> Im	239 Im	598 Im	957 Im
CLU10 - Clusters 1x10	<input type="text"/>	<input type="text"/> Im	474 Im	1185 Im	1896 Im

CONFIGURATION OPTIONS	Optic Length			Im/ft	350 Im-750 Im
	<input type="text"/>	<input type="text"/>	<input type="text"/>		
*HLO - High-Efficiency Lambertian Optic	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
**BLA - Blank	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	No minimum length

CROSS SECTION



ALL OTHER PARTS OF THE CODE:

DRIVER	ELECTRICAL	MOUNTING ⁴	FINISH		
SW DT - 1% 0-10V DA ² - DALI LTEA2W ³ - Lutron 1% - 2 wire FP 120V LDE1 ² - Lutron Hi-lume 1% Eco	DUO DMX ² - DMX, to specify see pages 7 to 9 DA ² - DALI DDI - Dual 0-10V input for CCT/intensity	SOLA SDI - Single 0-10V input	1 - 1 circuit 2 - 2 circuits +EM - Emergency light circuit +NL - Night light circuit	ACS - Aircraft cable, standard STS - Stem, standard ACC() - Aircraft cable, custom STC() - Stem, custom	W - Matte white B - Matte black CF# - Custom finish, specify RAL#

² On-site commissioning is required.
³ Available with 120V only.
⁴ See page 6 for ordering details.

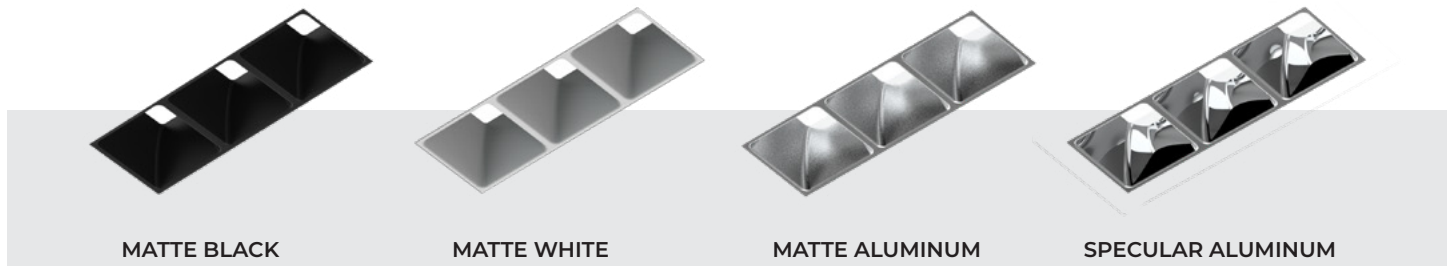


CLUSTERS

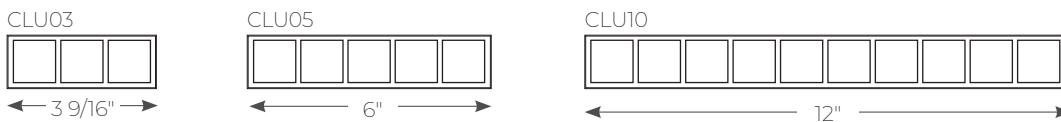
PENDANT PARABOLIC COMBINATIONS

LUMENWERX

LOUVER OPTIONS



AVAILABLE CLUSTER SIZES



CONFIGURATION WITH CLUSTER DOWNLIGHTS (HLO & BLANK)

Configuration A - OPTIC CODE: 2xCLU05 - 1x CLU10 - HLO6FT



Configuration B - OPTIC CODE: 3xCLU05 - BLA4FT



Configuration C - OPTIC CODE: 3xCLU03 - HLO6FT



Configuration D - OPTIC CODE: 3xCLU05 - HLO6FT - BLA4IN

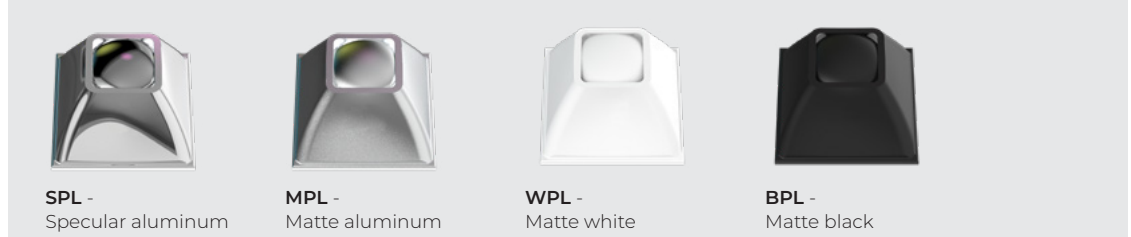


LIGHT

OPTICS



LOUVER FINISH - Louver is injection molded with integral texture and color



OPTICS

Parabolic Louvers (SPL, MPL, WPL, BPL) - Parabolic louver optics provide excellent shielding and a pleasing crisp visual texture. The precisely molded louvers consist of 1" deep blades and side reflectors with shielding of 50° lengthwise and 45° cross wise.

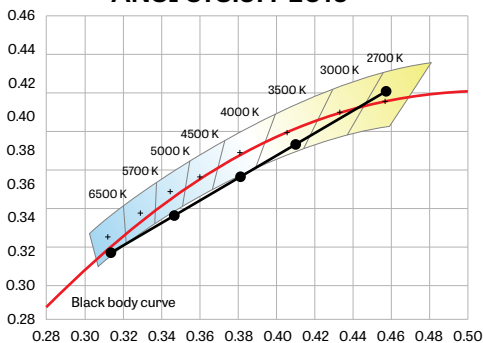
The parabolic contour of the blades and side reflectors direct light into a comfortable downlight distribution with a spacing criterion of 1.1, while minimizing shadows from the LED array above each cell. Four finishes are available. Specular aluminum (SPL) provides higher efficacy, sharper cut-off, and an ultra-quiet appearance at shallow viewing angles. matte aluminum (MPL) offers a softer appearance, a wider beam spread, and gentle brightness transition at cut-off. Matte white (WPL) creates the highest louver brightness, while matte black (BPL) provides a dark appearance with slightly reduced beam spread.

LIGHT SOURCE - SW

Custom array of mid-flux LEDs mounted onto aluminum-backed circuitry. Available in 2700K, 3000K, 3500K and 4000K with a minimum 90 CRI with elevated R9 value. Color consistency is maintained to within 3 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

LIGHT SOURCE - TUNABLE WHITE

ANSI C78.377-2015



CHROMAWERX SOLA is single-channel control that dims output while warming the color temperature in a pre-determined relationship. A simple digital or analog control sends a common signal to dual output digital drivers, which are programmed to adjust a specially populated LED array to emulate the effect of dimming a filament source. Dimming range is programmable but the default option runs from 3500K at 100% of full power to 2200K at 5% of full power. CRI is maintained above 80 throughout the dimming range.

CHROMAWERX DUO is two-channel control. It uses an analog (0-10V) protocol for separate control of luminaire CCT and intensity or a digital (DMX, DALI) protocol for synchronous control of both warm and cool LED arrays to enable the user to set color temperature and light output. Commonly called "tunable white", Chromawerx two-channel control provides the range of cool (6500K) to warm (2700K) color that can be useful for helping to entrain circadian rhythms, stimulate alertness for improved educational and work productivity, and compensate for jet lag, among other applications. The Chromawerx drivers are programmed to limit maximum light output and power usage across all color temperatures. CRI is maintained above 80.

CLUSTERS

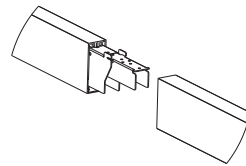
PENDANT PARABOLIC COMBINATIONS

LUMENWERX

LUMINAIRE LENGTH

Cluster Combinations is made up of standard 4, 8 and 12 foot sections that may be joined together to create longer continuous run lengths. Exact run length must be noted in the product code. The minimum individual section available is 4 foot.

All individual sections are joined together onsite using the joiner kits provided. Lumenwerx offers joiner kits that are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.



Joining system

ELECTRICAL

DMX (DUO only)

Factory-set, adjustable output current, multi-channel LED driver with universal (120-277VAC) input. Using DMX wall controls (optionally supplied by Lumenwerx) or an existing DMX control system, two channels of LEDs (warm-white & cool-white) are independently adjustable. Each DMX driver has multiple output channels that can be independently addressed at the factory or on-site using built-in RDM (Remote Device Management) functionality. Dimming range from 100%-0%. At maximum driver load, efficiency<89%, PF>0.9, THD<20%.

DALI (DUO Only)

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Using an existing DALI control system (supplied by others), one control channel adjusts the fixture color temperature, and the other control channel adjusts fixture brightness. Dimming range from 100%-0%. At maximum driver load, efficiency<86%, PF>0.9, THD<20%.

SD1 (SOLA)

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Using a single 0-10V control signal, the light output warms in color temperature as it dims down to 1% and 2200K. At maximum driver load, efficiency<86%, PF>0.9, THD<20%.

DD1 (DUO)

Factory-set adjustable output current LED driver with universal (120-277VAC) input. Controlled via two individual 0-10V signals, one for setting light output down to a minimum of 1% and the other for adjusting the CCT (default range of 6500K-2700K). Rated life of 50,000 hours at 70°C maximum driver case temperature and 100% load conditions. Typical efficiency of 86%, PF>0.9, THD<20% at 100% load conditions.

MOUNTING OPTIONS

Fixtures can be pendant-mounted, using aircraft cables, or stem-mounted. Unless otherwise specified, Lumenwerx provides the following hardware:

Standard aircraft cable option (ACS) - Canopies are white, Ø5" for power canopy, Ø3" for non-power. Power cord is black for black fixtures, and white for all other fixture finishes. Aircraft cable length is 36".

Standard stem option (STS) - Canopies are white, Ø5" for both power and non-power. Stem finish is the same color as fixture. Stem length is 18". Stem is not field adjustable.

CONSTRUCTION

Housing - Extruded aluminum (0.095" nominal) up to 90% recycled content

Interior channel - Extruded aluminum (0.095" nominal) up to 90% recycled content

Joining system - 16 gauge galvanized sheet metal

End caps - Die cast aluminum (0.95" nominal)

Hanger - Chromed griplock securely attached with spring steel hardware in end caps and/or joiners

Aircraft cable suspension - 7x7 braids aluminum aircraft cable 0.06" thick

Stem - 0.5" diameter threaded steel tube matte white or aluminum powder coating. Custom finishes are also available

Louver optics - Polycarbonate

CERTIFICATIONS

ETL - Rated for indoor dry/damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0

WARRANTY

Lumenwerx provides a five-year limited warranty on electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. Lumenwerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

CLUSTERS

PENDANT PARABOLIC COMBINATIONS

DRIVER

Static white, DUO & SOLA

The driver can power several lighting units, depending on their total power. The minimum and maximum number of lighting units and driver type are shown in the table below and must be observed.

OPTIC MULTIPLIER TABLE

SPL	MPL	BPL	WPL
1	0.853	0.606	0.996

LUMEN PACKAGE ¹ (AT 3500K, SPL) Use the optic multiplier table to calculate the lumen package for other optics

LUMINAIRE ID	LUMEN PACKAGE			VOLTAGE	DRIVER	NUMBER OF LIGHTING UNITS PER DRIVER
CLU03SPL CLU05SPL CLU10SPL	LOW 200 lm 239 lm 474 lm	MEDIUM 365 lm 598 lm 1185 lm	HIGH 584 lm 957 lm 1896 lm	120 - 120V 277 - 277V UNV - 120V-277V	STATIC WHITE D1 - 1% 0-10V DA ² - DALI LTEA2W ³ - Lutron 1% - 2 wire FP 120V LDE1 ² - Lutron Hi-lume 1% Eco ² On-site commissioning is required. ³ Available with 120V only. DUO DMX ² - DMX, to specify see pages 7 to 9 DA ² - DALI DD1 - Dual 0-10V input for CCT/Intensity SOLA SD1 - Single 0-10V input	See table below for maximum and minimum possible number of lighting units per each driver.

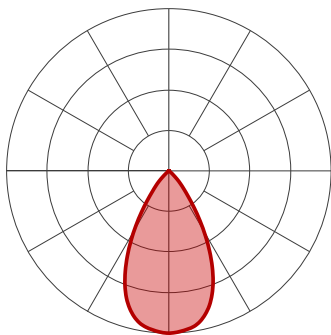
¹ Watts and lumen per watts will vary based on the number of lighting units per remote driver as well as on the type of driver selected

NUMBER OF LIGHTING UNITS PER DRIVER - MINIMUM AND MAXIMUM

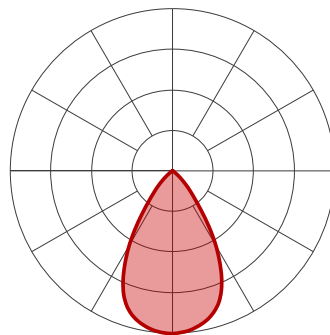
DRIVER TYPE	CLU03	CLU05	CLU10
SW			
D1 - 1% 0-10V	1-12	1-6	1-3
DA - DALI	2-11	1-6	1-3
LTEA2W - Lutron 1% - 2 wires FP 120V	2-5	1-3	1
LDE1 - Lutron Hi-lume 1% Eco	1-10	1-6	1-3
DUO			
DMX - DMX	3-6	2-4	1-2
DA - DALI	3-7	2-3	1
DD1 - Dual 0-10V input for CCT/Intensity	3-7	2-4	1-2
SOLA			
SD1 - Single 0-10V input	3-7	2-4	1-2

For any quantities of lighting units per driver that fall outside the minimum and maximum listed above, please consult factory.

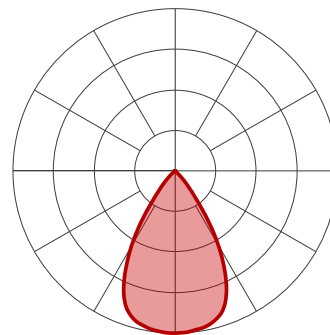
PARABOLIC LOUVERS



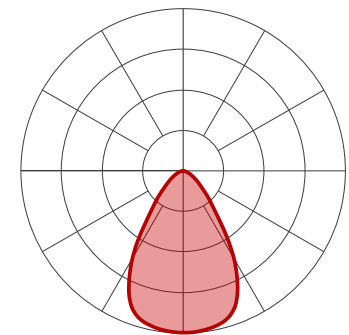
SPL - Specular parabolic louver



MPL - Matte parabolic louver



BPL - Black parabolic louver



WPL - White parabolic louver

Pendant Mounting Code

Standard

For a standard mounting, please refer to the information below.

MOUNTING	
ACS - Aircraft cable, standard	STS - Stem, standard
Ø5" for power canopy Ø3" for non-power Canopies are white Power cord is white for all fixture finishes (except black fixture is black power cord) Aircraft cable length is 36"	Ø5" for power canopy Ø5" for non-power Canopies are white Stem finish is the same color as fixture Stem length is 18" Stem is not field adjustable

Custom

Aircraft Cable

For a custom mounting, specify the options in the parentheses.

Example: ACC(3NPC-72-W-PCB-SLC)

MOUNTING					
ACC()					
	NON-POWER CANOPY SIZE	AIRCRAFT CABLE LENGTH	CANOPY FINISH	POWER CORD COLOR	OPTIONS
ACC	3NPC - Ø3" non-power canopy 5NPC - Ø5" non-power canopy	36 - 36" 72 - 72" 120 - 120" # ¹ - Other lengths, specify in inches ¹ Maximum length is 288". For longer lengths, please consult factory.	W - White AL - Aluminum B - Black CF# - Custom finish, specify RAL#	PCW - White PCB - Black	SEM - Seismic mounting SLC - Sloped ceiling for aircraft cable NA - None

Stem

For a custom mounting, specify the options in the parentheses.

Example: STC(5NPC-36-W-STW-SLS)

MOUNTING					
STC()					
	NON-POWER CANOPY SIZE	STEM LENGTH	CANOPY FINISH	STEM COLOR	OPTIONS
STC	5NPC - Ø5" non-power canopy	18 - 18" 36 - 36" # ² - Specify length in inches ² Minimum length is 6". Maximum length is 72". Stem is not field adjustable.	W - White AL - Aluminum B - Black CF# - Custom finish, specify RAL#	STW - White STAL - Aluminum STB - Black STCF# - Custom finish, specify RAL#	SLS - Sloped ceiling for stem NA - None

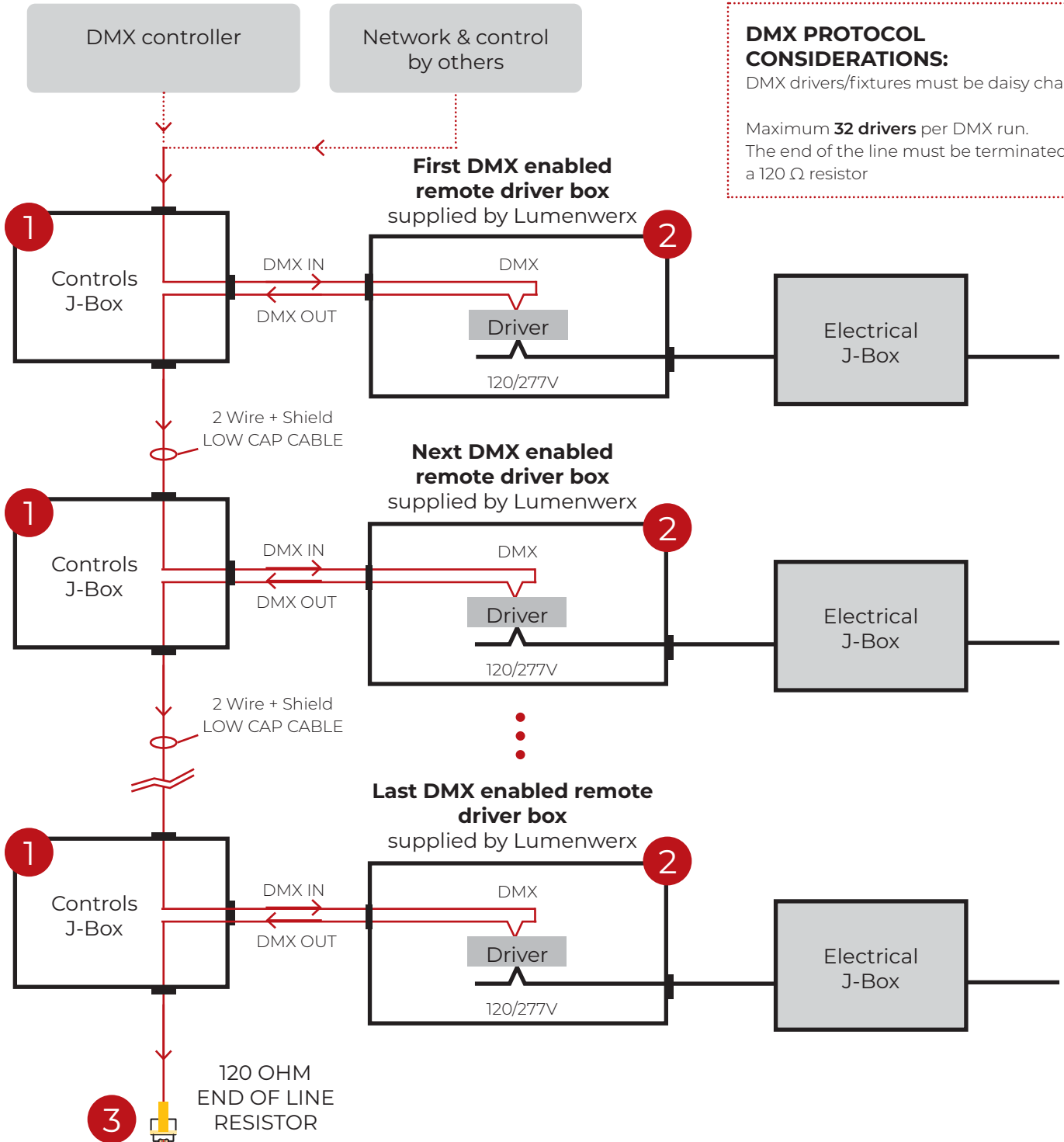
CLUSTERS

PENDANT PARABOLIC COMBINATIONS

LUMENWERX

DUO GENERIC DMX NETWORK ARCHITECTURE

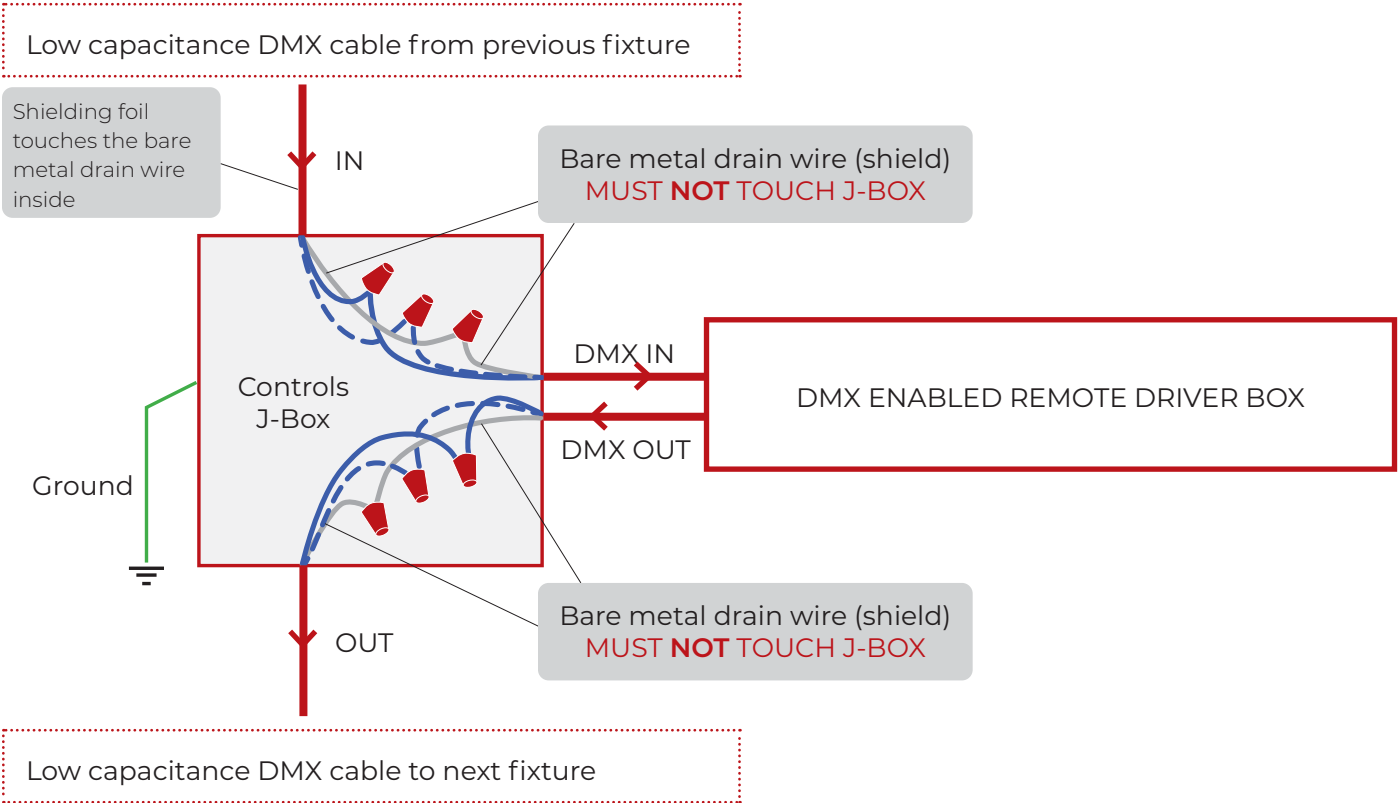
A qualified DMX integrator is required to assure proper installation and commissioning of the DMX network. **When placing the PO, please provide the contact information of your DMX integrator.**



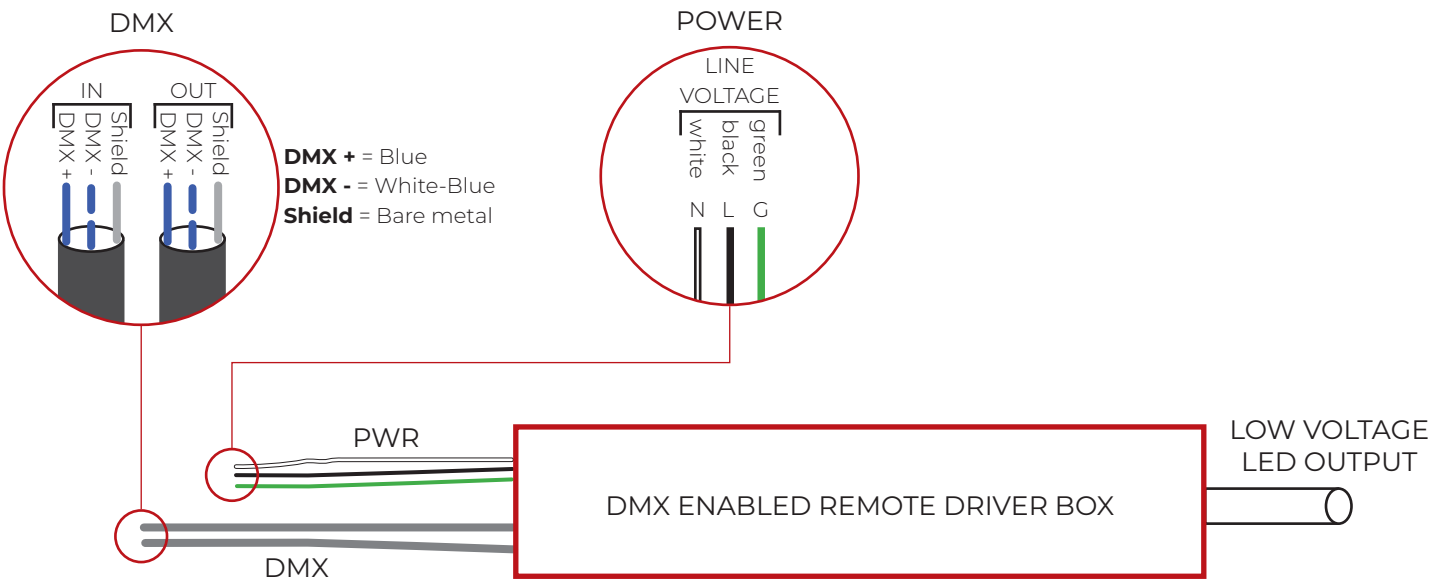
DMX PROTOCOL CONSIDERATIONS:
 DMX drivers/fixtures must be daisy chained.
 Maximum **32 drivers** per DMX run.
 The end of the line must be terminated by a 120 Ω resistor



1 J-BOX DMX DAISY CHAIN DETAIL



2 DMX CONNECTION REMOTE DRIVER



CLUSTERS

PENDANT PARABOLIC COMBINATIONS

LUMENWERX

3 LAST DMX CONNECTION DETAIL

