

CLUSTERS

RECESSED PARABOLIC COMBINATIONS

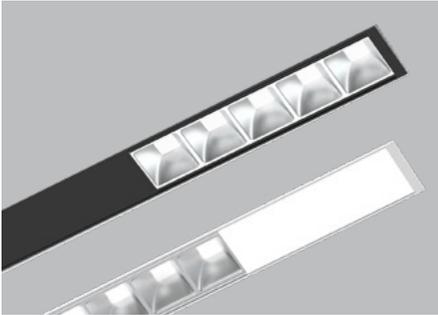


LUMENWERX

PROJECT: _____

TYPE: _____

NOTES: _____



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-, 10-, or 15-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 18' in 1' increments, can be neatly connected together, and install in accessible grid ceilings. All drivers are mounted in the channel. For configurations other than those shown here, please consult the factory.

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 2-6 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"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	FT	IN		90		

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

PAR		
OPTICS	LOUVER FINISH	LIGHT SOURCE
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

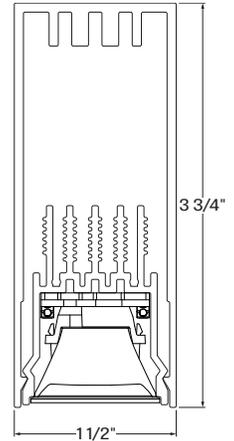
OPTICS LIST CODE:

CLUSTER OPTIONS	Quantity (for actual clusters size see page 2)	Lumen Package Per Unit			
CLU03 - Clusters 1x3	<input type="text"/>	LOW	MED	HIGH	
CLU05 - Clusters 1x5	<input type="text"/>	Im	200 Im	365 Im	584 Im
CLU10 - Clusters 1x10	<input type="text"/>	Im	239 Im	598 Im	957 Im
CLU15 - Clusters 1x15	<input type="text"/>	Im	474 Im	1185 Im	1896 Im
		Im	711 Im	1778 Im	2844 Im
CONFIGURATION OPTIONS	Optic Length		Im/ft	350 Im-750 Im	
*HLO - High-Efficiency Lambertian Optic	<input type="text"/>	FT	<input type="text"/>		
**BLA - Blank	<input type="text"/>	FT	<input type="text"/>	IN	
				No minimum length	

IMPORTANT
*HLO & CLUSTER CONFIGURATIONS
1) Minimum individual section 4'
2) Specify in increments of 1'
3) Minimum distance between Clusters is 3'

****BLANK & CLUSTER CONFIGURATIONS**
1) Minimum individual section 4'
2) Minimum distance between Clusters is 2'

CROSS SECTION



ALL OTHER PARTS OF THE CODE:

DRIVER	ELECTRICAL	MOUNTING	FINISH
SW D1 - 1% 0-10V DA ² - DALI LTEA2W ³ - Lutron 1% - 2 wire FP 120V LDE1 ² - Lutron Hi-lume 1% Eco	SOLA SD1 - Single 0-10V input	1 - 1 circuit 2 - 2 circuits +EM - Emergency light circuit +NL - Night light circuit	TG9 - Tegular 9/16" TG15 - Tegular 15/16" TB9 - T-bar 9/16" TB15 - T-bar 15/16" ST - Screw slot t-bar DTR - Drywall trim DTL - Drywall trimless DMF - Drywall mud flange
	DUO DMX ² - DMX, to specify see pages 7 to 9 DA ² - DALI DD1 - Dual 0-10V input for CCT/intensity		W - Matte white B - Matte black CF# - Custom finish, specify RAL#

² On-site commissioning is required.
³ Available with 120V only.

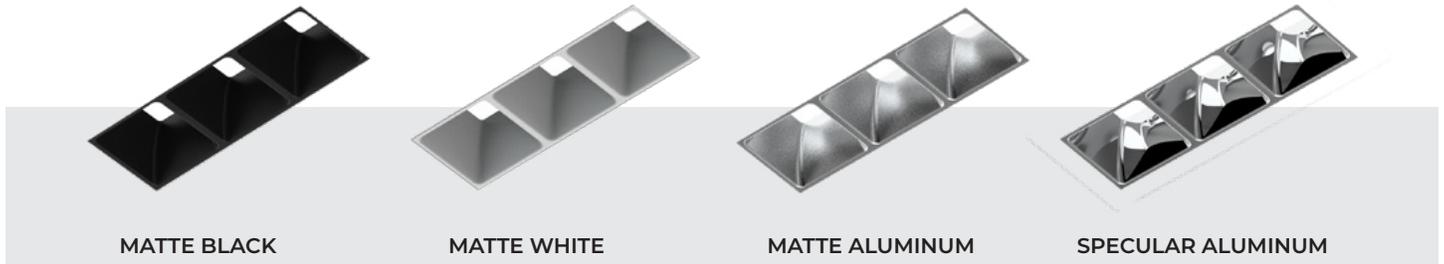


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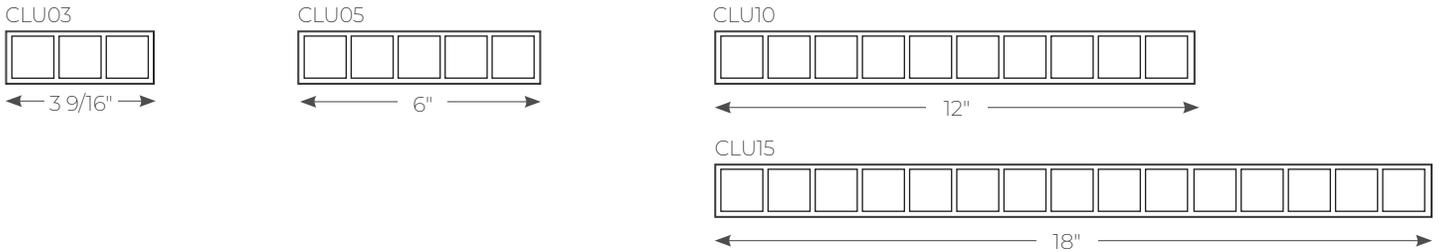
RECESSED PARABOLIC COMBINATIONS

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.

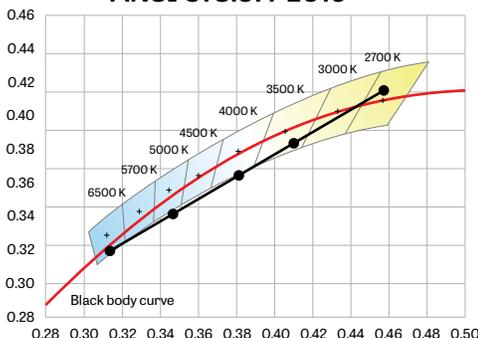
The parabolic contour of the blades and side reflectors direct light into a comfortable downlight distribution with a spacing criterion of 1.1, while minimizing shadows from the LED array above each cell. Four finishes are available. Specular aluminum (SPL) provides higher efficacy, sharper cut-off, 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.

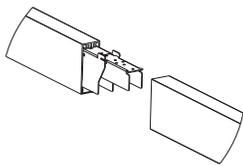
CLUSTERS

RECESSED 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)

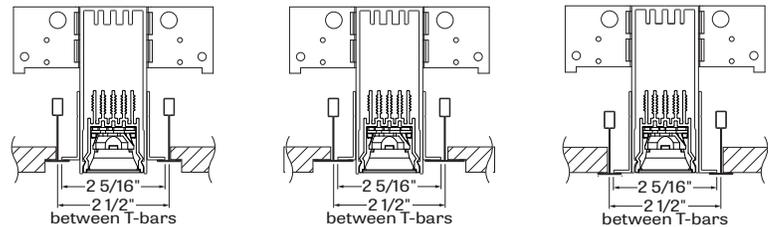
Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Using a single 0-10V control signal, the light output warms in color temperature as it dims down to 1% and 2200K. At maximum driver load, efficiency<86%, PF>0.9, THD<20%.

DD1 (DUO)

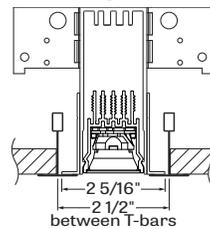
Factory-set adjustable output current LED driver with universal (120-277VAC) input. Controlled via two individual 0-10V signals, one for setting light output down to a minimum of 1% and the other for adjusting the CCT (default range of 6500K-2700K). Rated life of 50,000 hours at 70°C maximum driver case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

MOUNTING OPTIONS

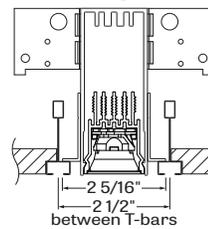
Recessed fixtures can be mounted into exposed or concealed T-Bar or Tegular grid ceiling.



TG9 - Tegular 9/16"



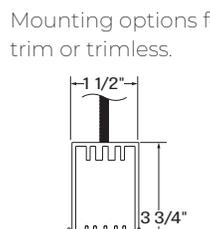
TG15 - Tegular 15/16"



TB9 - T-bar 9/16"

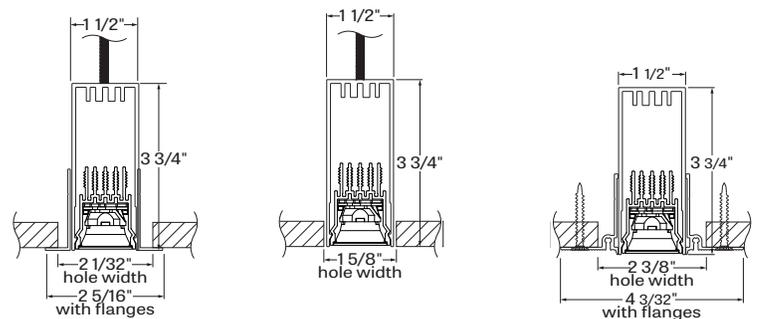


TB15 - T-bar 15/16"



ST - Screw slot T-bar

Mounting options for drywall ceilings are available with visible trim, mud flange trim or trimless.



DTR - Drywall trim

DTL - Drywall trimless

DMF - Drywall mud flange

FINISH

Interior - 95%, reflective matte powder coated white paint

Exterior - Matte white or matte black powder coating

Louver - Reflective white or reflective black

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LUMENWERX

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

Mud flange - Extruded aluminum (0.075" nominal) up to 90% recycled content

Slip-through bracket - Die-formed galvanized sheet 18 gauge

End plate - Die-formed cold rolled sheet steel 18 gauge thick

Louver optics - Polycarbonate

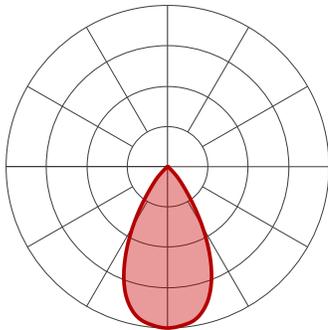
WARRANTY

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.

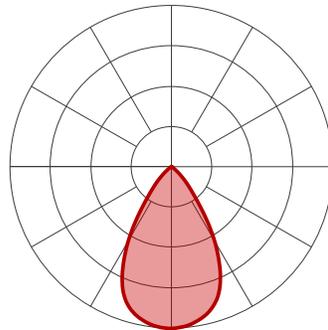
CERTIFICATIONS

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

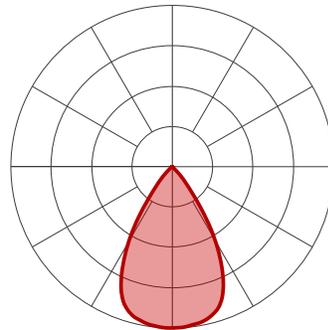
PARABOLIC LOUVERS



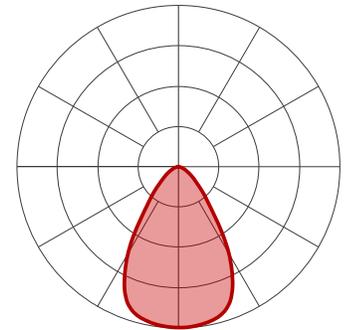
SPL - Specular parabolic louver



MPL - Matte parabolic louver



BPL - Black parabolic louver



WPL - White parabolic louver

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LUMENWERX

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	LOW	MEDIUM	HIGH	120 - 120V	STATIC WHITE	See table below for maximum and minimum possible number of lighting units per each driver.
CLU05SPL	200 lm	365 lm	584 lm	277 - 277V	D1 - 1% 0-10V	
CLU10SPL	239 lm	598 lm	957 lm	UNV - 120V-277V	DA ² - DALI	
CLU15SPL	474 lm	1185 lm	1896 lm		LTEA2W ³ - Lutron 1% - 2 wire FP 120V	
	711 lm	1778 lm	2844 lm		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	

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	CLU15
SW				
D1 - 1% 0-10V	1-12	1-6	1-3	1-2
DA - DALI	2-11	1-6	1-3	1
LTEA2W - Lutron 1% - 2 wires FP 120V	2-5	1-3	1	1
LDE1 - Lutron Hi-lume 1% Eco	1-10	1-6	1-3	1-2
DUO				
DMX - DMX	3-6	2-4	1-2	1
DA - DALI	3-7	2-3	1	1
DD1 - Dual 0-10V input for CCT/Intensity	3-7	2-4	1-2	1
SOLA				
SD1 - Single 0-10V input	3-7	2-4	1-2	1

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

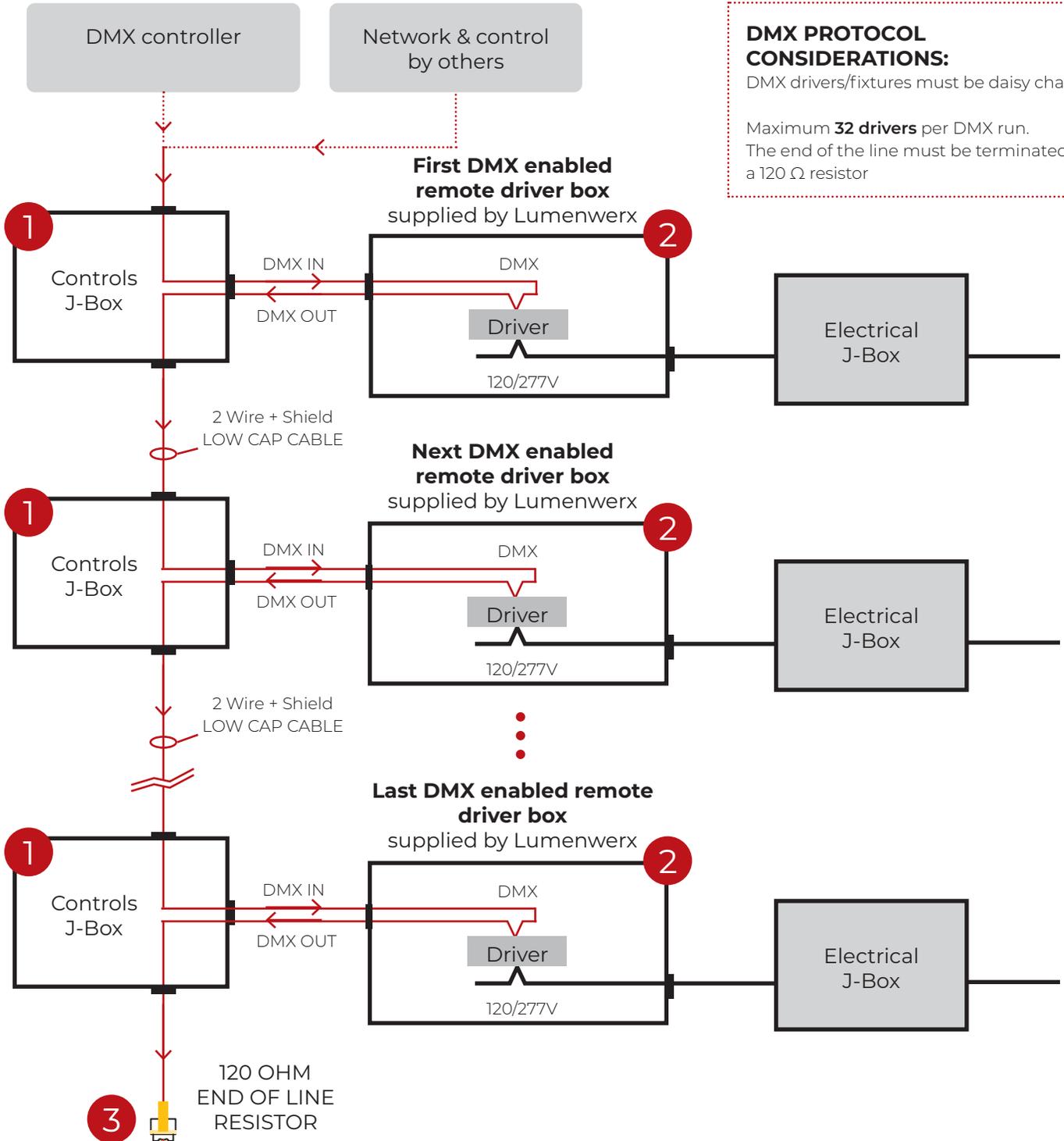
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LUMENWERX

DUO GENERIC DMX NETWORK ARCHITECTURE

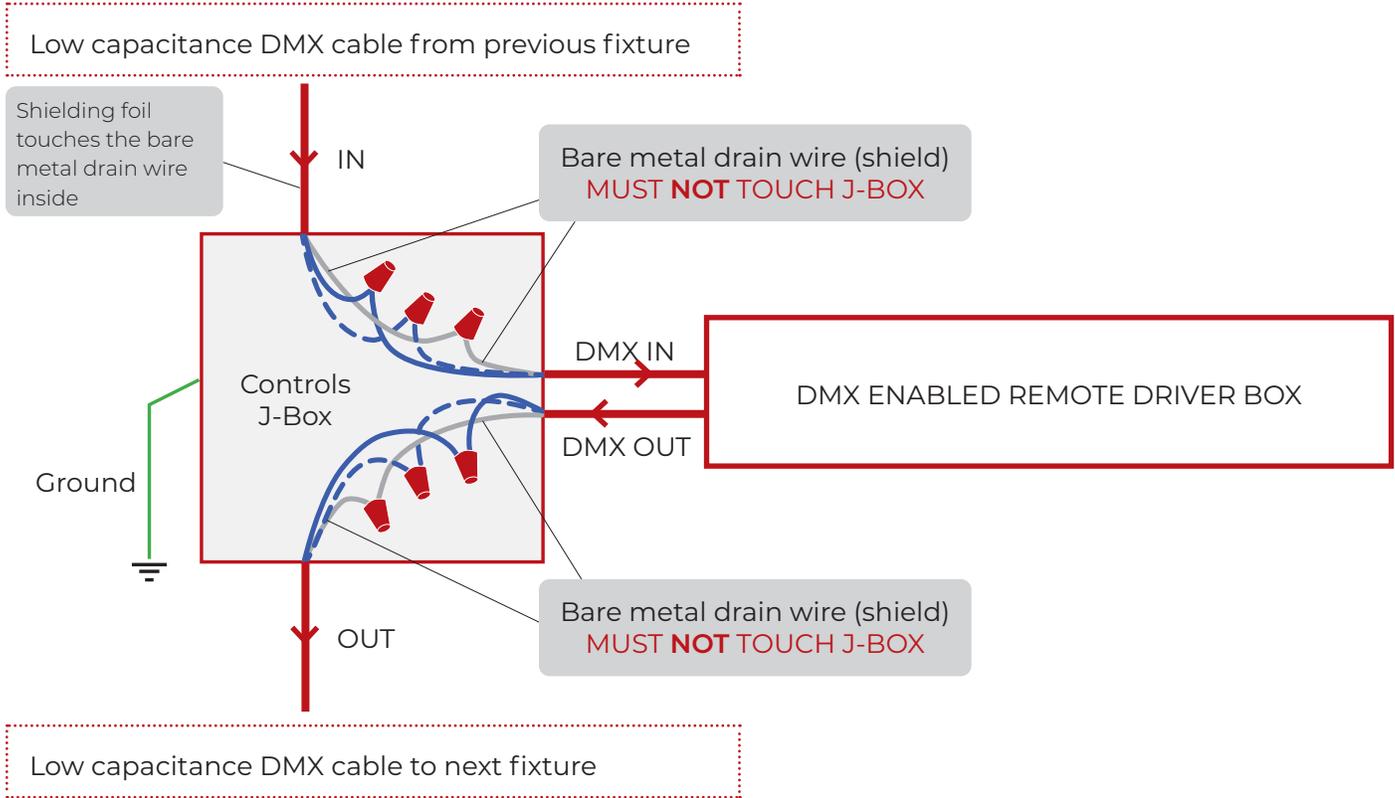
A qualified DMX integrator is required to assure proper installation and commissioning of the DMX network. **When placing the PO, please provide the contact information of your DMX integrator.**



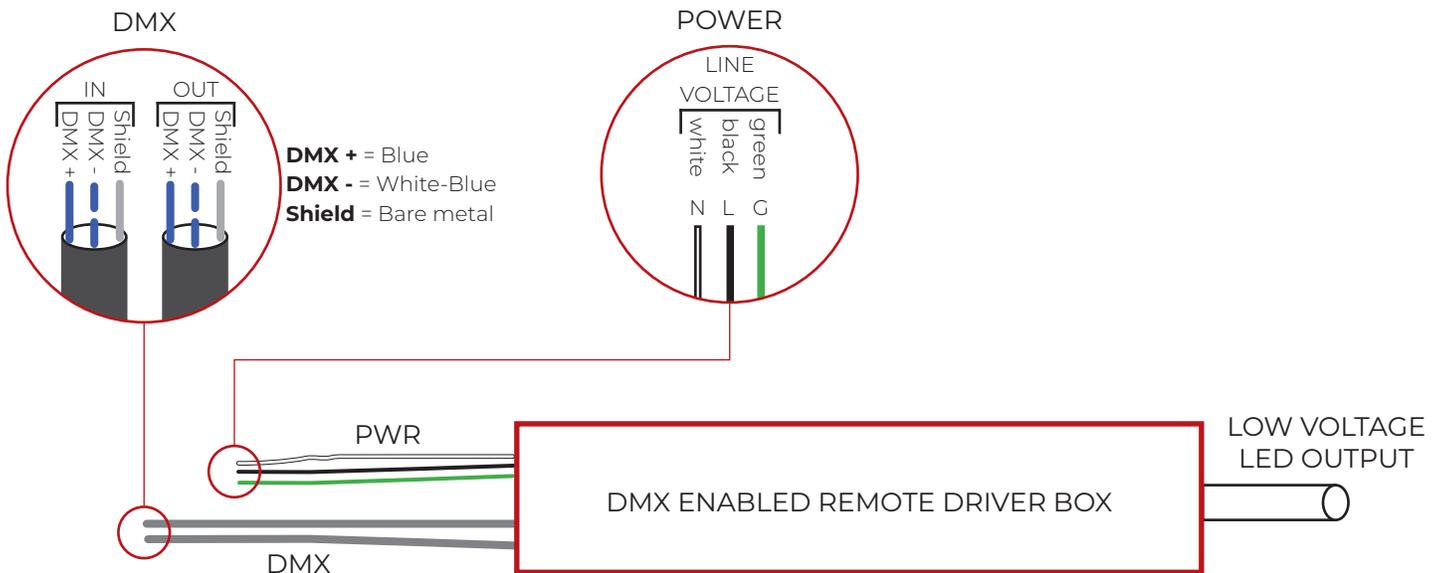
DMX PROTOCOL CONSIDERATIONS:
 DMX drivers/fixtures must be daisy chained.
 Maximum **32 drivers** per DMX run.
 The end of the line must be terminated by a 120 Ω resistor



1 J-BOX DMX DAISY CHAIN DETAIL



2 DMX CONNECTION REMOTE DRIVER



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LUMENWERX

3 LAST DMX CONNECTION DETAIL

