

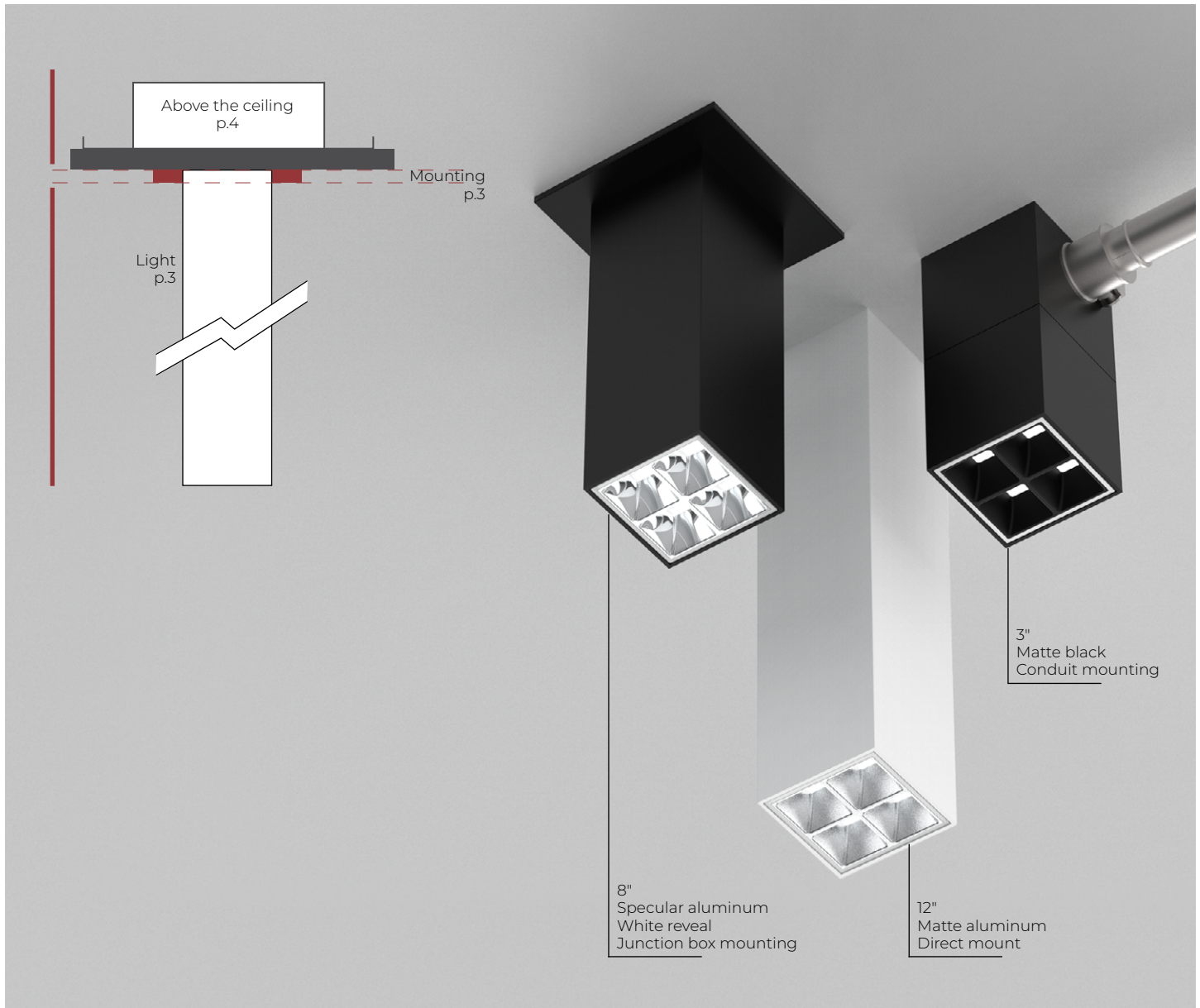
CLUSTER

SURFACE PLANAR PARABOLIC

LUMENWERX

DESCRIPTION

Cluster is the precise, and scalable family of downlights, wall washers, and adjustables, available in both linear and planar configurations and for recessed, pendant, and surface mounting. Based on a fundamental 1.2" square cell, Cluster deliver lighting that is optically sophisticated and aesthetically refined. Cluster surface planar parabolic downlights are available in 2x2 cell configurations, all with precision optics that eliminate multiple shadows, as well as subtle louver treatments. Surface downlights fit a choice of 3", 8" or 12" deep cuboid enclosures. Nominal light output is 200 lumens per cell. With our remote driver, ChromaWerx Duo and Sola are available for tunable white lighting control. Surface Cluster mount using a choice of direct mount, junction box with canopy, and conduit feed with splice enclosure. Driver is either integral or remote, which is capable of powering multiple luminaires.



CLUSTER

SURFACE PLANAR PARABOLIC

LUMENWERX

Project: _____

Type: _____

Order Guide

LIGHT

LUMINAIRE ID	CUBOID HEIGHT ¹	CUBOID FINISH	LOUVER FINISH	REVEAL FINISH	LIGHT SOURCE	OPTIC
CLU22SPAR						PAR
CLU22SPAR - Cluster 2x2 Surface Parabolic	3IN - 3" 8IN - 8" 12IN - 12" ¹ Conduit feed canopy option will add 3" to total height.	FTMW - Textured matte white FTMB - Textured matte black CF# - Custom finish, specify RAL#	MWPL - Matte White Parabolic Louver MBPL - Matte Black Parabolic Louver MPL - Matte Parabolic Louver SPL - Specular Parabolic Louver	FTMW - Textured matte white FTMB - Textured matte black CF# - Custom finish, specify RAL#	SW - Static white SOLA - Dim-to-warm single channel control 35K to 22K DUO - Tunable white 2-channel control 65K to 27K	PAR - Parabolic

CRI	COLOR TEMP.	DRIVER	CANOPY TYPE ²	CANOPY FINISH Specify NA for DMRM
90CRI		REMOTE		
90CRI - 90 CRI	27K - 2700K 30K - 3000K 35K - 3500K 40K - 4000K 50K - 5000K SOLA - Dim-to-warm single channel control 35K to 22K DUO - Tunable white 2-channel control 65K to 27K	REMOTE DO NOT SPECIFY FOR REMOTE. SEE "REMOTE DRIVER BOX" SECTION BELOW.	FLS - Flat square canopy, 4" octagonal junction box CDRE - Conduit feed, rectangular canopy DMRM ³ - Direct mount, remodel ² See page 3 for details. ³ Single wiring entry only. No daisy chain connections allowed. May be installed as new construction but without a j-box.	FTMW - Textured matte white FTMB - Textured matte black CF# - Custom finish, specify RAL# NA - Not applicable

REMOTE DRIVER BOX

Ordered separately. Specify each required remote driver box on a separate line.

REMOTE DRIVER ⁴	LUMINAIRE QTY. ⁵	LUMINAIRE ID	VOLTAGE
		CLU22SPAR	
RDB# - Remote driver box ⁴ Specify an RDB number (#) for each required remote driver box.	#X - Number of luminaires ⁵ Specify number (#) of luminaires per remote driver.	CLU22SPAR - Cluster 2x2 Surface Parabolic	120V - 120V 277V - 277V UNV - 120V-277V

LUMEN PACKAGE ⁶	DIMMING ⁷		
	Low	Medium	High
CLU22SPAR	184LM - 184 lm	460LM - 460 lm	735LM - 735 lm
⁶ 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.	RD1 - 1% 0-10V RDA ⁸ - DALI RLDE1 ⁸ - Lutron Hi-Lume 1% Eco ELD1 - eldoLED 1% ECOdrive 0-10V ELDO - eldoLED 0.1% SOLOdrive 0-10V SOLA RSD1 - Single 0-10V input DUO RDMX ^{8,9} - DMX RDDA ⁸ - DALI DT6 RDDA8 ⁸ - DALI DT8 RDD1 - Dual 0-10V input for CCT/Intensity RLD2 ⁸ - Lutron DALI-2 digital ⁷ For configurations involving different cluster sizes on a remote driver, please consult factory. ⁸ On-site commissioning is required. ⁹ To specify see pages 7 to 9.		

EXAMPLE CODE:

REMOTE DRIVER

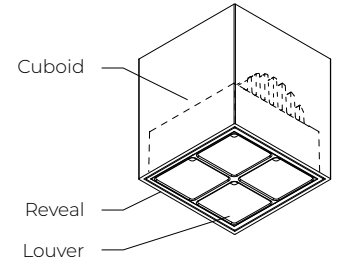
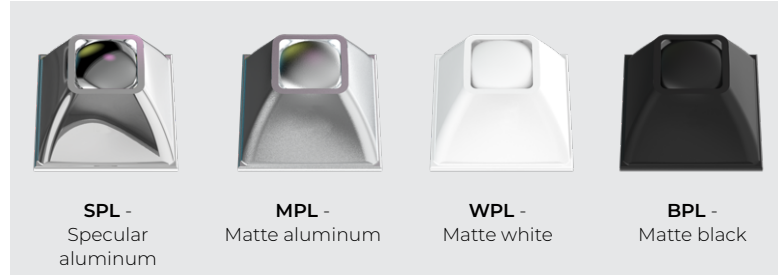
LIGHT	REMOTE DRIVER
CLU22SPAR-3IN-FTMW-SPL-FTMW-SW-PAR-90CRI-35K-REMOTE-DMRM-FTMW	RDB1-6X-CLU22SPAR-120V-460LM-RD1 RDB2-2X-CLU22SPAR-120V-460LM-RD1



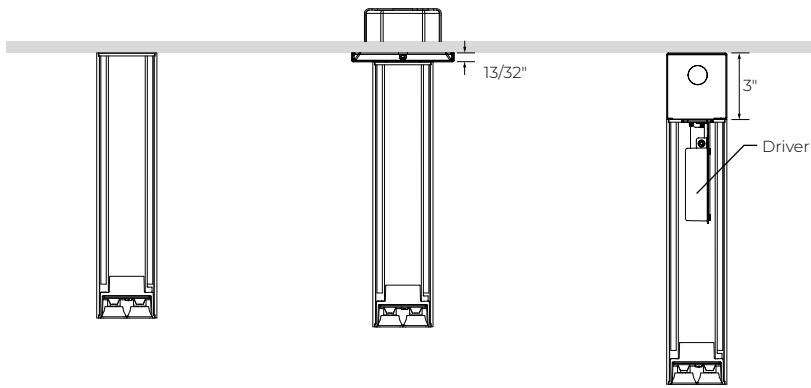
LIGHT

OPTICS

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



MOUNTING



MOUNTING TYPE

Direct mount	DMRM
Flat square	FLS
Conduit	CDRE

JUNCTION BOX PLATE & CONDUIT FINISH

Textured matte white	FTMW
Textured matte black	FTMB
Custom finish	CF#

DMRM - Direct mount

FLS - Flat square
To be attached on a hexagonal junction box

CDRE - Conduit
For concrete ceiling
Add 3" to the cuboid length

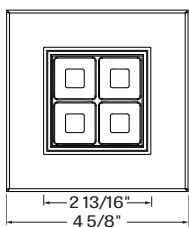
Junction box is covered by the junction box plate

BOTTOM VIEW

CLUS22 - Direct mount

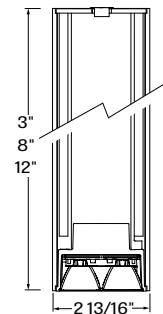


CLUS22 - Junction box



CROSS SECTION

CLUS22



See linear spec sheet for more sizes

DRIVER

REMOTE DRIVER STATIC WHITE, DUO & SOLA

The remote driver can power several lighting elements, depending on their total power. The minimum and maximum number for each lighting element and driver type are shown in the table below and must be observed. The remote driver and lighting elements are wired together through connection boxes, which are furnished pre-wired to the driver enclosure. All wiring is Class 2 with quick-splice connectors. The remote driver requires access from above the ceiling (or an access panel).

OPTIC MULTIPLIER TABLE

SPL	MPL	BPL	WPL
1	0.853	0.606	0.996

LUMEN PACKAGE¹ (AT 3500K, SPL) - REMOTE DRIVER

Use the optic multiplier table to calculate the lumen package for other optics

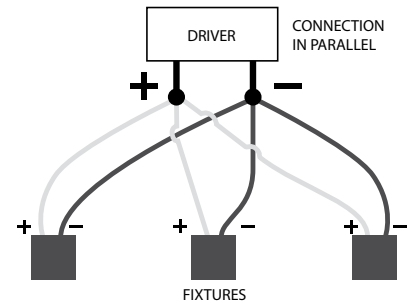
LUMINAIRE ID	LUMEN PACKAGE			VOLTAGE	REMOTE DRIVER	NUMBER OF LIGHTING UNITS PER DRIVER
CLUS22	LOW 184 lm	MEDIUM 460 lm	HIGH 735 lm	120 - 120V 277 - 277V UNV - 120V-277V	<u>STATIC WHITE</u> RDI - 1% 0-10V RDA ² - DALI RLDEI ² - Lutron Hi-lume 1% Eco ² On-site commissioning is required. <u>DUO</u> RDMX ² - DMX, to specify see pages 7 to 9 RDA ² - DALI RDD1 - Dual 0-10V input for CCT/Intensity <u>SOLA</u> RSD1 - Single 0-10V input	See table below for maximum and minimum possible number of lighting units per each driver. For configurations involving different cluster sizes on a remote driver, please consult factory.

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	CLUS22
SW	
DI - 1% 0-10V	1-6
DA - DALI	1-6
LDEI - Lutron Hi-lume 1% Eco	1-6
DUO	
DMX - DMX	2-4
DA - DALI	2-3
DD1 - Dual 0-10V input for CCT/Intensity	2-4
SOLA	
SD1 - Single 0-10V input	2-4

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



Technical Specifications

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

Static White

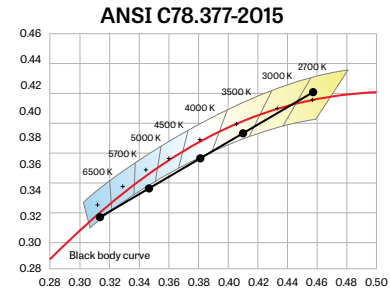
Custom array of mid-flux LEDs mounted onto aluminum-backed circuitry. Available in 2700K, 3000K, 3500K and 4000K with a minimum 90 CRI with elevated R9 value. Color consistency is maintained to within 3 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen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

Chromawerx SOLA

It is a single-channel control that dims output while warming the color temperature in a pre-determined relationship. A simple 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

It is a two-channel control. It uses an analog (0-10V) protocol for separate control of luminaire CCT and intensity or a digital (DMX, DALI and PSQ) 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.



ELECTRICAL

SOLA

SD1

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%.

DUO

DMX

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

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%.

DD1

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 2700K-6500K). 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.

CLUSTER

SURFACE PLANAR PARABOLIC

WEIGHT

	BODY		CUBOID 3"		CUBOID 8"		CUBOID 12"	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg
CLUS22	0.70	0.30	0.38	0.17	0.87	0.40	1.27	0.58

CONSTRUCTION

- Housing** - Die-cast aluminum (0.95" nominal)
- Optics** - Polycarbonate
- Cuboid** - Aluminum extrusion
- Cover surface** - 16 gauge galvanized steel
- Extension bar** - Galvanized steel

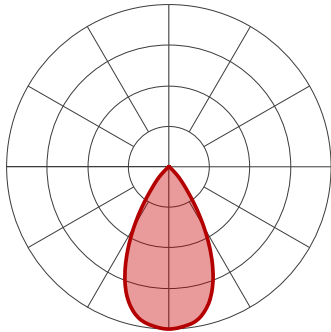
CERTIFICATIONS

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

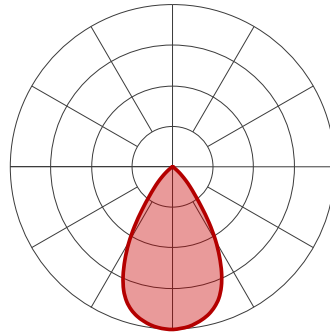
WARRANTY

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.

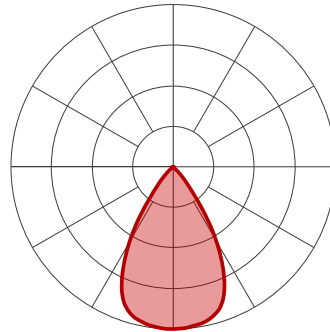
PARABOLIC LOUVERS



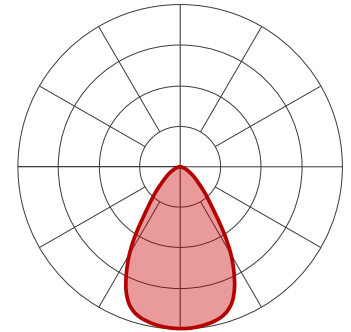
SPL - Specular parabolic louver



MPL - Matte parabolic louver



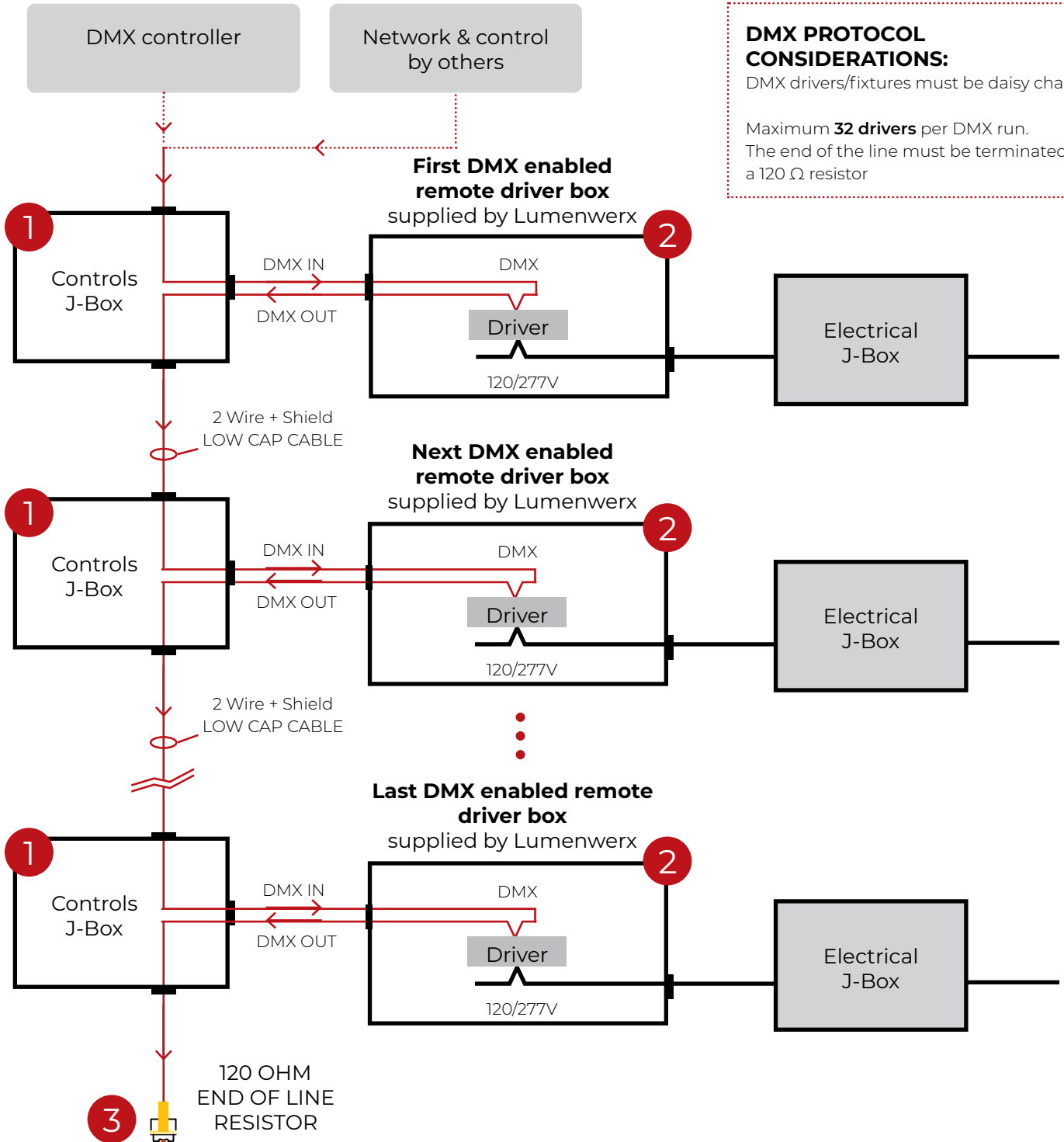
BPL - Black parabolic louver



WPL - White parabolic louver

DUO GENERIC DMX NETWORK ARCHITECTURE

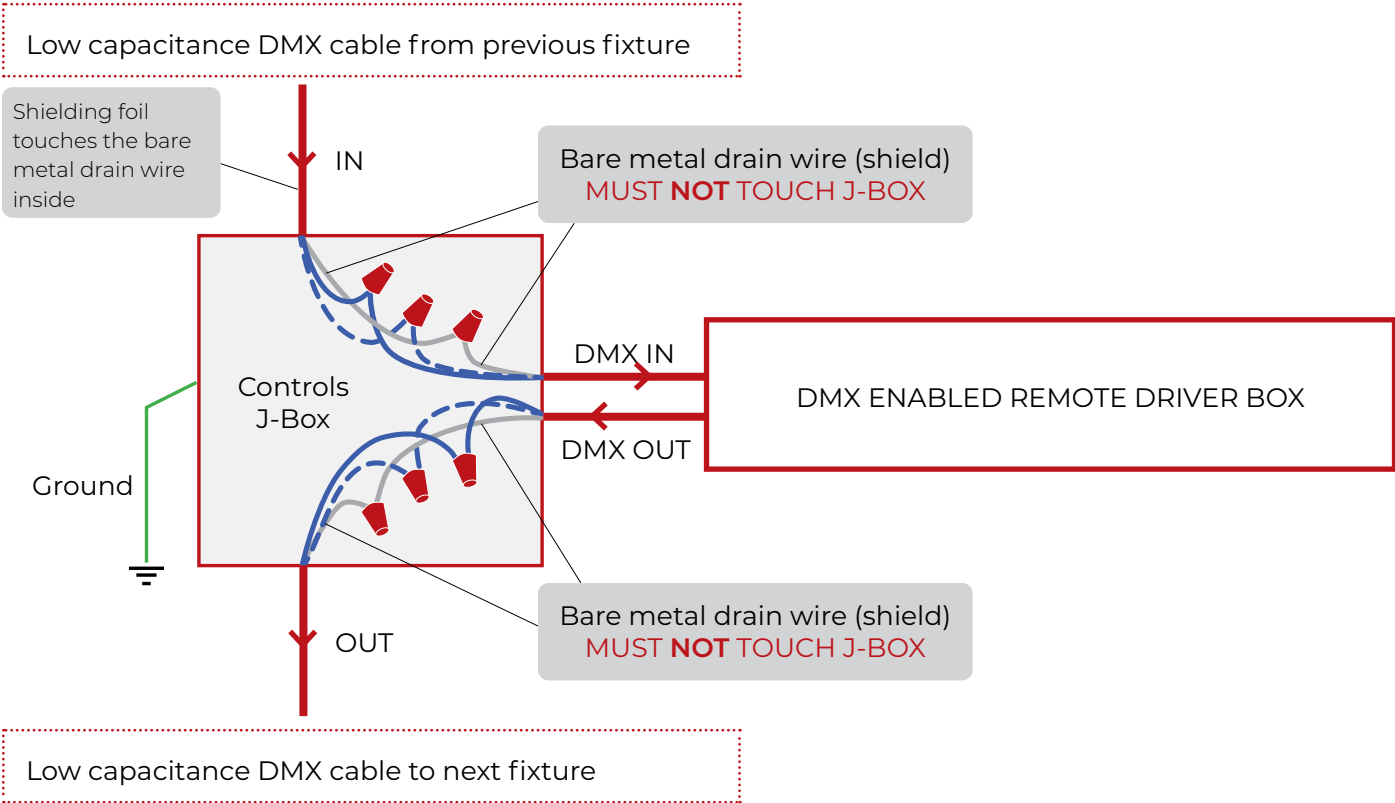
A qualified DMX integrator is required to assure proper installation and commissioning of the DMX network. **When placing the PO, please provide the contact information of your DMX integrator.**



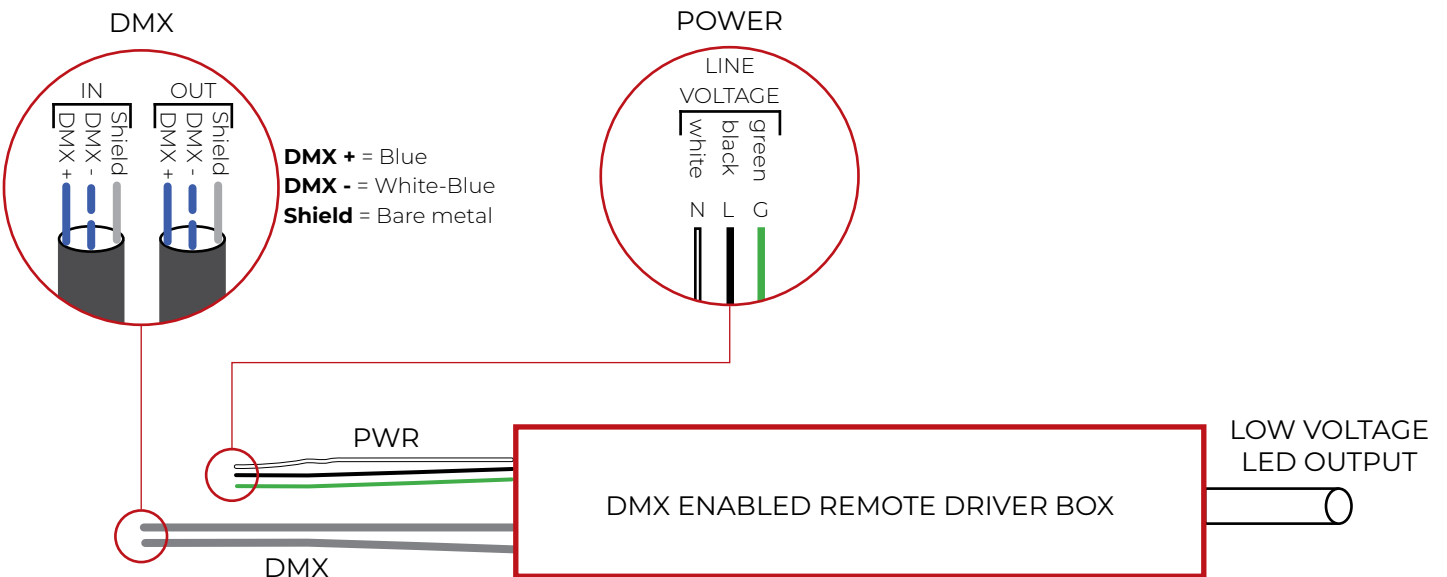
DMX PROTOCOL CONSIDERATIONS:
DMX drivers/fixtures must be daisy chained.

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



3 LAST DMX CONNECTION DETAIL

