

CLUSTER

SURFACE LINEAR PARABOLIC

DESCRIPTION

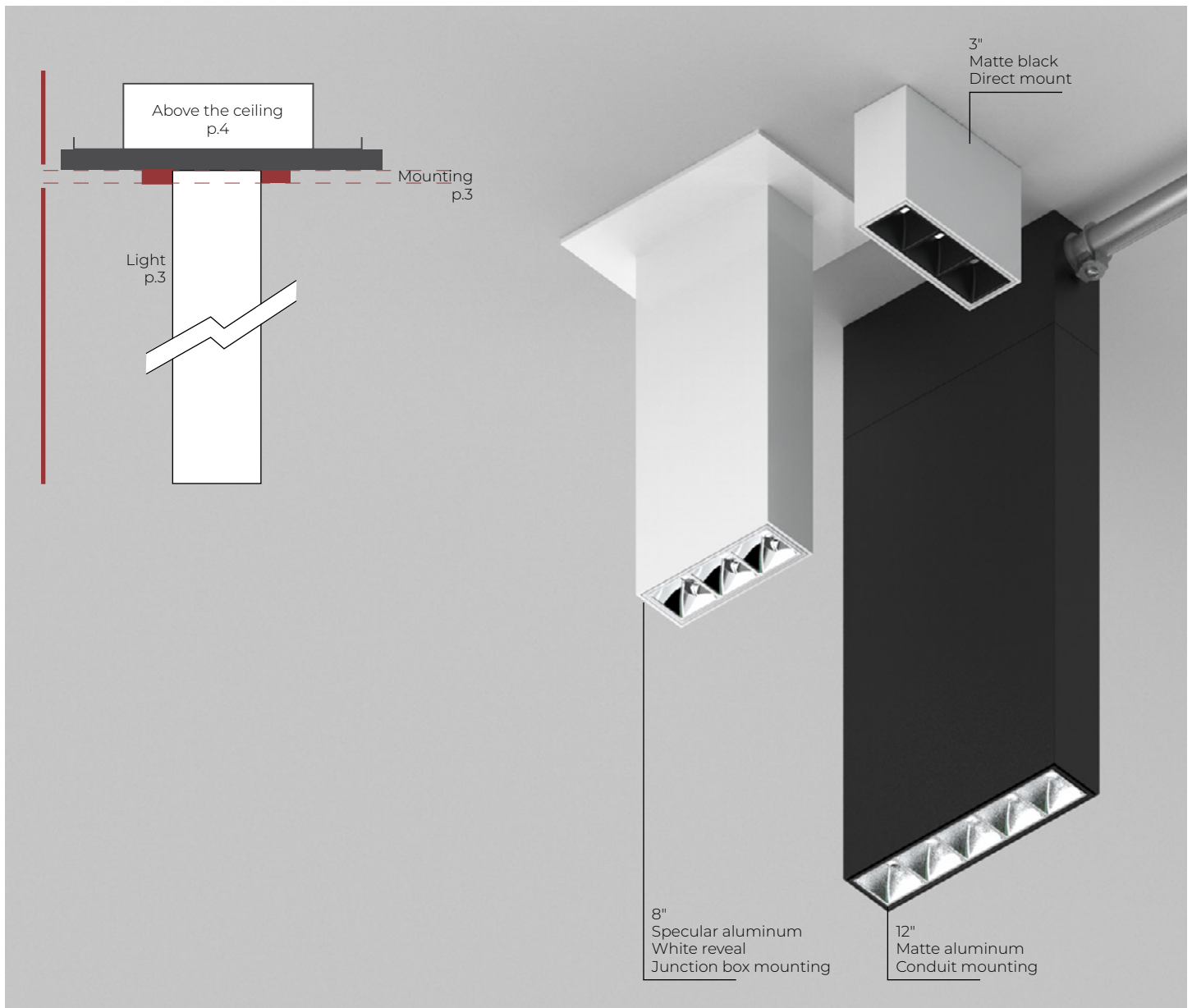
Cluster is the precise, and scalable family of downlights, wall washers, and adjustables, available in both linear and planar configurations and for recessed, pendant, and surface mounting. Based on a fundamental 1.2" square cell, Cluster deliver lighting that is optically sophisticated and aesthetically refined. Cluster surface linear parabolic downlights are available in 3-cell and 5-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.

LUMENWERX

PROJECT: _____

TYPE: _____

NOTES: _____



LIGHT

Consult pages 3-4 for details before specifying

LUMINAIRE ID	CUBOID HEIGHT ¹	CUBOID FINISH	LOUVER FINISH	REVEAL FINISH	LIGHT SOURCE	PAR
CLUS03 - Cluster Surface 3x1 CLUS05 - Cluster Surface 5x1	3 - 3" 8 - 8" 12 - 12" ¹ Conduit mounting option will add 3" to total height.	TMW - Textured matte white TMB - Textured matte black CF# - Custom finish, specify RAL#	SPL - Specular Aluminum Louver MPL - Matte Aluminum Louver WPL - Matte White Louver BPL - Matte Black Louver	TMW - Textured matte white TMB - Textured matte black CF# - Custom finish, specify RAL#	SW - Static white DUO ² - Tunable white 2 channel control 65K to 27K SOLA ² - Dim to warm single channel control 35K to 22K ² Available with remote driver only.	PAR - Parabolic

CRI	COLOR TEMP. ³	DRIVER	VOLTAGE	LUMEN PACKAGE ⁵	DIMMING ^{6,7}	MOUNTING TYPE	J-BOX PLATE & CONDUIT FINISH
90 - 90 CRI	27 - 2700K 30 - 3000K 35 - 3500K 40 - 4000K NA - Not applicable ³ Specify NA with DUO or SOLA.	INTEGRAL ⁴ ⁴ Not available with 3" cuboid height. REMOTE	120 - 120V 277 - 277V	578 - 578 lm (CLUS03) 923 - 923 lm (CLUS05) ⁵ Lumen packages shown at 3500K, with SPL. For other, see lumen output multipliers on page 4.	D1 - 1% 0-10V ELV ⁸ - ELV 120V TRI ⁸ - TRIAC 120V ⁶ Integral drivers (in body) not available for 3". ⁷ Integral drivers (in body) available for 8" and 12" cuboid height only (static white only). ⁸ Available with 120V only.	DM - Direct mount JB - Junction box CD - Conduit box	TMW - Textured matte white TMB - Textured matte black CF# - Custom finish, specify RAL#
			FOR FULL REMOTE DRIVER SPECIFICATION, SEE "REMOTE DRIVER" SECTION BELOW.				

REMOTE DRIVER OPTIONAL

Consult page 4 for details before specifying

Continue here for full remote driver specifications. Remote driver can be ordered separately.

REMOTE DRIVER ⁹	LUM. QTY. ¹⁰	LUM. ID	VOLTAGE	LUMEN PACKAGE ^{11,12}	DIMMING ¹³
RDB# - Remote driver ⁹ If multiple driver boxes needed, specify a line number for each driver type used. (e.g. RDB1-4X-CLUS05-...-RD1 RDB2-2X-CLUS05-...-RD1 ...)	#X - Number of luminaires ¹⁰ Specify number of luminaires per remote driver. (e.g. 3X)	CLUS03 - Cluster Surface 3x1 CLUS05 - Cluster Surface 5x1	120 - 120V 277 - 277V UNV - 120V-277V	### - Low 200 lm - Med 365 lm - High 584 lm (CLUS03) ### - Low 239 lm - Med 598 lm - High 957 lm (CLUS05) ¹¹ 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. ¹² Low and medium lumen packages are not available with RELV and RTRI dimming options.	STATIC WHITE RD1 - 1% 0-10V RELV ¹⁴ - ELV 120V RTRI ¹⁴ - TRIAC 120V RDA ¹⁵ - DALI RLTEA2W ¹⁴ - Lutron 1% - 2 wire FP 120V RLDE1 ¹⁵ - Lutron Hi-Lume 1% Eco ¹³ For configurations involving different cluster sizes on a remote driver, please consult factory. ¹⁴ Available with 120V only. ¹⁵ On-site commissioning is required. DUO RDMX ¹⁵ - DMX, to specify see pages 7 to 9 RDA ¹⁵ - DALI RDD1 - Dual 0-10V input for CCT/Intensity SOLA RSDD1 - Single 0-10V input

EXAMPLE ORDER CODES

WHEN SPECIFYING WITH INTEGRAL DRIVER		WHEN SPECIFYING WITH REMOTE DRIVER ¹⁶	
LIGHT	CLUS03-3-TMW-PAR-SPL-TMW-SW-90-35-INTEGRAL-120-578-D1-DM-TMW	LIGHT	CLUS03-3-TMW-PAR-SPL-TMW-SW-90-35-REMOTE-DM-TMW
REMOTE DRIVER	N/A	REMOTE DRIVER	Remote driver 1: RDB1-6X-CLUS03-120-365-RD1 Remote driver 2: RDB2-2X-CLUS03-120-365-RD1

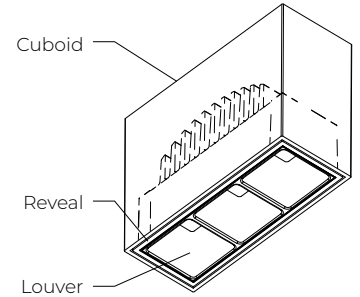
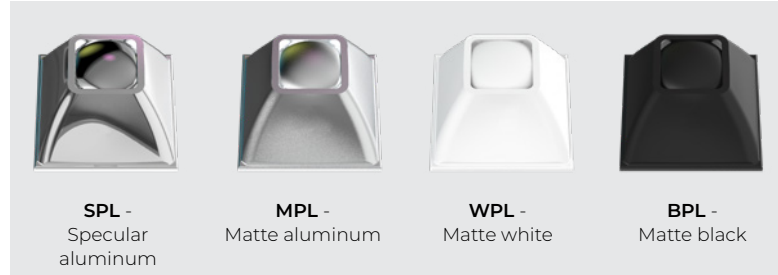
¹⁶ When specifying with multiple remote driver boxes, each driver used needs to be on a separate line and be numbered for the ordering codes.



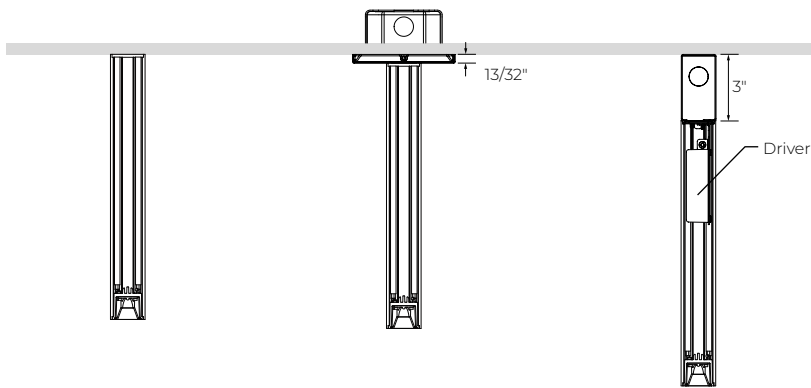
LIGHT

OPTICS

LOUVER FINISH Louver is injection molded with integral texture and color



MOUNTING



MOUNTING TYPE

Direct mount	DM
Junction box	JB
Conduit	CD

JUNCTION BOX PLATE & CONDUIT FINISH

Textured matte white	TMW
Textured matte black	TMB
Custom finish	CF#

DM - Direct Mount

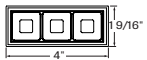
JB - Junction Box
To be attached on a hexagonal junction box

Junction box is covered by the junction box plate

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

BOTTOM VIEW

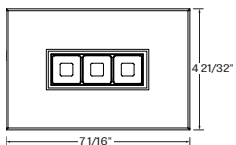
CLUS03 - Direct mount



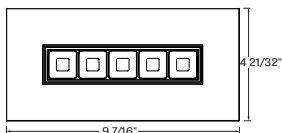
CLUS05 - Direct mount



CLUS03 - Junction box

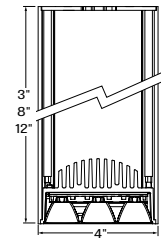


CLUS05 - Junction box

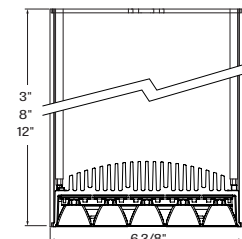


CROSS SECTION

CLUS03



CLUS05



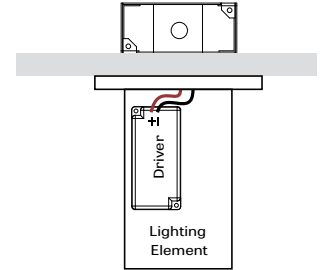
See planar spec sheet for more sizes

See planar spec sheet for more sizes

DRIVER

INTEGRAL DRIVER STATIC WHITE ONLY (8" & 12" CUBOID HEIGHT ONLY)

The integral driver is sized to the lighting element and is connected directly with Class 2 wiring and quick-splice connectors. The driver is accessible for service through the canopy.



MULTIPLIER

LUMEN PACKAGE MULTIPLIER PER OPTIC

2700K				3000K				3500K				4000K			
SPL	MPL	BPL	WPL	SPL	MPL	BPL	WPL	SPL	MPL	BPL	WPL	SPL	MPL	BPL	WPL
0.94	0.81	0.58	0.94	0.97	0.83	0.6	0.97	1	0.86	0.62	1	1.02	0.88	0.63	1.02

LUMEN PACKAGE (AT 3500K, SPL) - INTEGRAL DRIVER

LUMINAIRE ID	LUMEN OUTPUT	WATTS	EFFICACY LM/W
CLUS03	584 lm	7.3 W	80 lm/W
CLUS05	957 lm	11.5 W	83 lm/W

LUMEN PACKAGE	VOLTAGE	INTEGRAL DRIVER
Use the multiplier tables to calculate the lumen package	120 - 120V 277 - 277V	DI ¹ - 1% 0-10V ELV ¹ - ELV 120V TRI ¹ - TRIAC 120V ¹ Available with 120V only.

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.

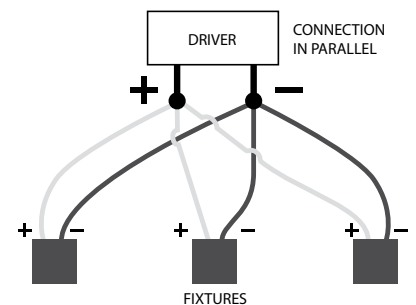
LUMINAIRE ID	LUMEN PACKAGE ²			VOLTAGE	REMOTE DRIVER	NUMBER OF LIGHTING UNITS PER DRIVER
CLUS03 CLUS05	LOW 200 lm ³ 239 lm	MEDIUM 365 lm ³ 598 lm	HIGH 584 lm 957 lm	120 - 120V 277 - 277V UNV - 120V-277V	STATIC WHITE RD1 - 1% 0-10V RELV ⁴ - ELV 120V RTRI ⁴ - TRIAC 120V RDA ⁵ - DALI RLTEA2W ⁴ - Lutron 1% - 2 wire FP 120V RLDE1 ⁵ - Lutron Hi-Lume 1% Eco ⁴ Available with 120V only. ⁵ On-site commissioning is required. DUO RDMX ⁵ - DMX, to specify see pages 7 to 9 RDA ⁵ - DALI RDD1 - Dual 0-10V input for CCT/intensity SOLA 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.
² Low and medium options are not available with RELV and RTRI. ³ Minimum of 3 fixtures per 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	CLUS03	CLUS05
SW		
DI - 1% 0-10V	1-12	1-6
ELV - ELV 120V	1-4	1-2
TRI - TRIAC 120V	1-4	1-2
DA - DALI	2-11	1-6
LTEA2W - Lutron 1% - 2 wires FP 120V	2-5	1-3
LDE1 - Lutron Hi-lume 1% Eco	1-10	1-6
DUO		
DMX - DMX	3-6	2-4
DA - DALI	3-7	2-3
DD1 - Dual 0-10V input for CCT/intensity	3-7	2-4
SOLA		
SD1 - Single 0-10V input	3-7	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

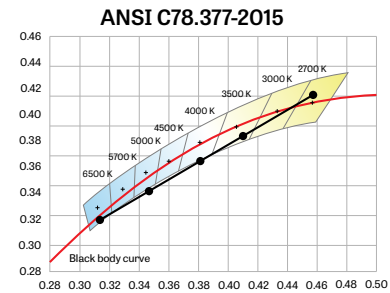
Custom array of mid-flux LEDs mounted onto aluminum-backed circuitry. Available in 2700K, 3000K, 3500K and 4000K with a minimum 90 CRI with elevated R9 value. Color consistency is maintained to within 3 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen 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 warm (2700K) to cool (6500K) 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 LINEAR PARABOLIC

LUMENWERX

WEIGHT

	BODY		CUBOID 3"		CUBOID 8"		CUBOID 12"	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg
CLUS03	0.70	0.30	0.36	0.16	0.87	0.39	1.27	0.58
CLUS05	1.10	0.50	0.85	0.38	2.09	0.95	3.08	1.40

CONSTRUCTION

Housing - Die-cast aluminum (0.95" nominal)

Optics - Polycarbonate

Cuboid - Aluminum extrusion

Cover Surface - Galvanized steel T6GA

Extension bar - Galvanized steel

CERTIFICATIONS

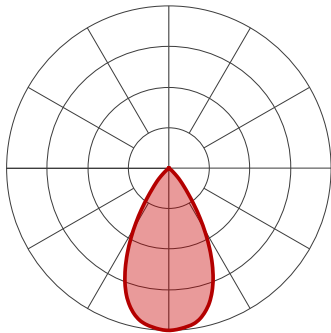
ETL - Rated for indoor dry/damp locations.

Conforms to UL 1598 Standard and certified to CAN/CSA Standard C22.2 No. 250.0

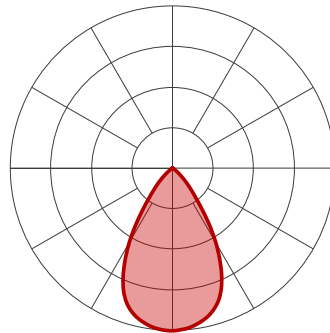
WARRANTY

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.

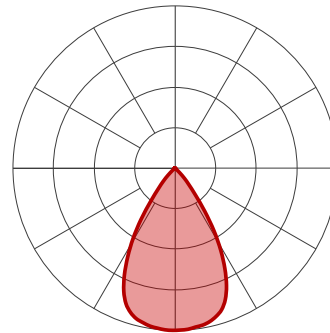
PARABOLIC LOUVERS



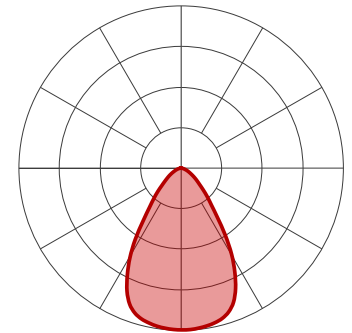
SPL - Specular Parabolic Louver



MPL - Matte Parabolic Louver



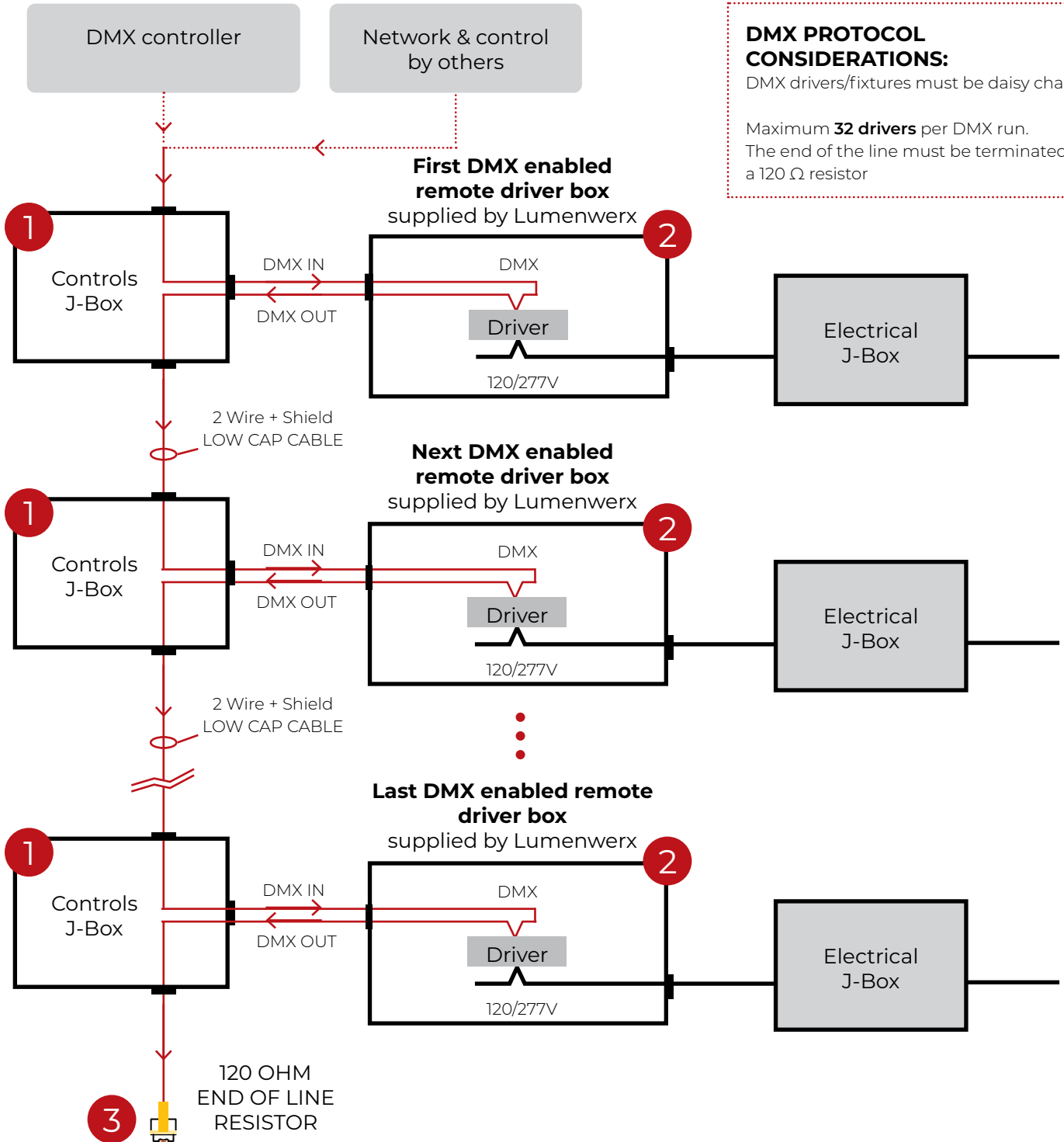
BPL - Black Parabolic Louver



WPL - White Parabolic Louver

DUO GENERIC DMX NETWORK ARCHITECTURE

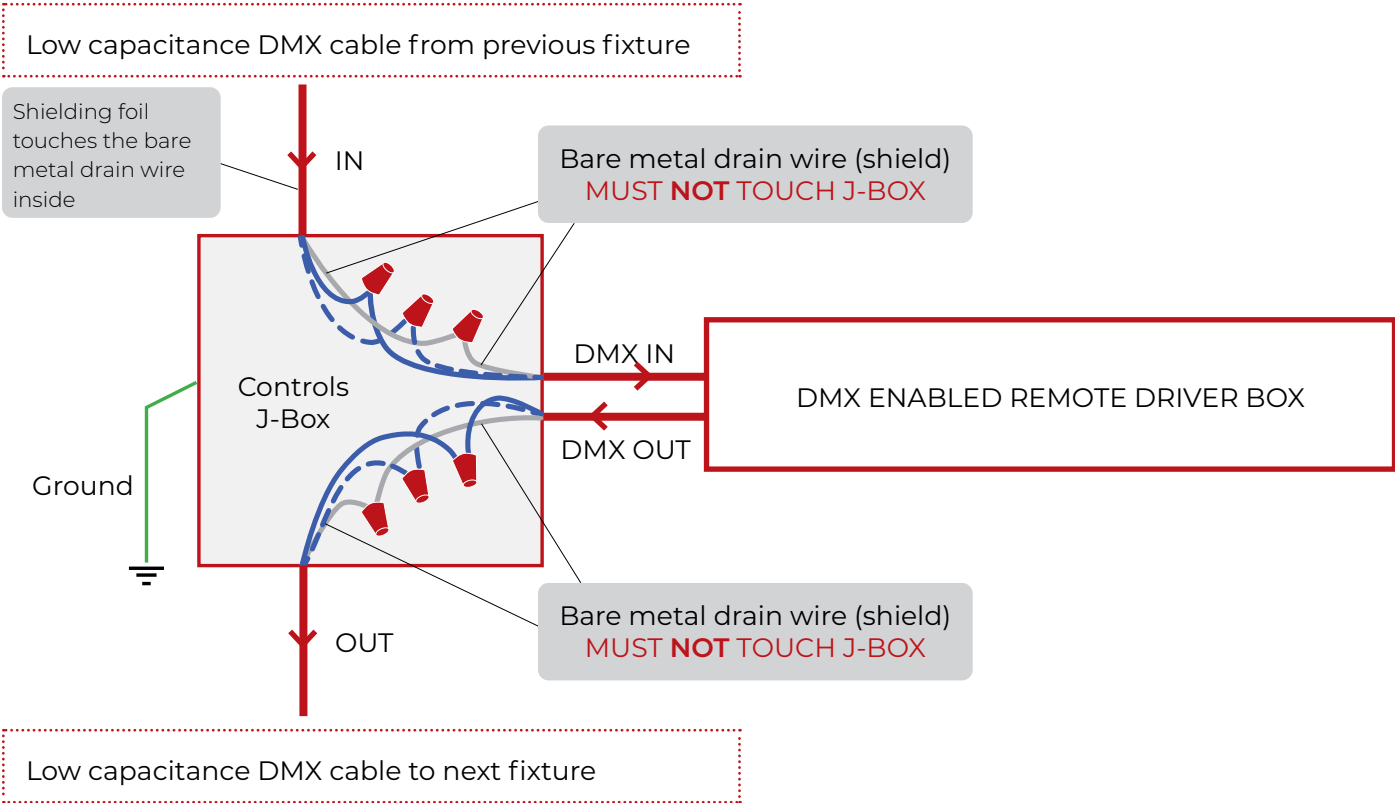
A qualified DMX integrator is required to assure proper installation and commissioning of the DMX network. **When placing the PO, please provide the contact information of your DMX integrator.**



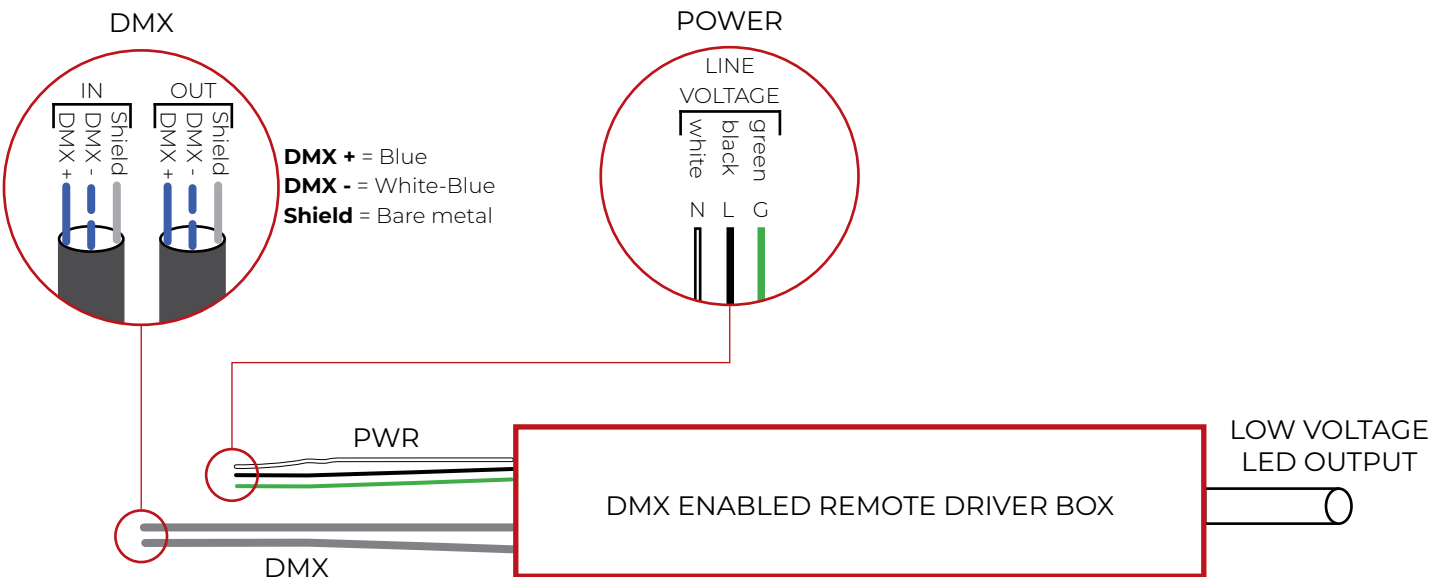
DMX PROTOCOL CONSIDERATIONS:
DMX drivers/fixtures must be daisy chained.

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

