

# CLUSTER

## RECESSED PLANAR PARABOLIC

### DESCRIPTION

Cluster is the precise, and scalable family of downlights, wall washers, and adjustables, available for recessed, pendant, and surface mounting. Based on a fundamental 1.2" square cell, Cluster delivers lighting that is optically sophisticated and aesthetically refined.

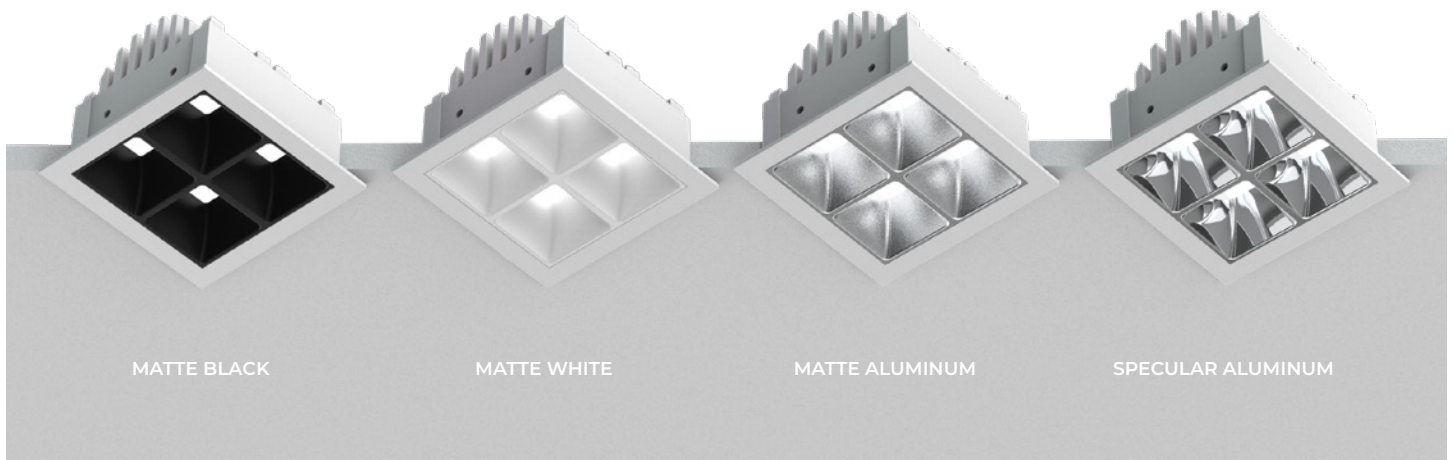
Cluster recessed planar parabolic downlights are available in 2x2 cell configurations, all with precision optics that eliminate multiple shadows, as well as subtle louver treatments. Nominal light output is 200 lumens per cell. With our remote driver, Chromawerx DUO and SOLA are available for tunable white lighting control. All recessed Cluster can install in a variety of ceiling types and materials, with either an integral driver or a remote driver that is capable of powering multiple luminaires.

# LUMENWERX

PROJECT: \_\_\_\_\_

TYPE: \_\_\_\_\_

NOTES: \_\_\_\_\_



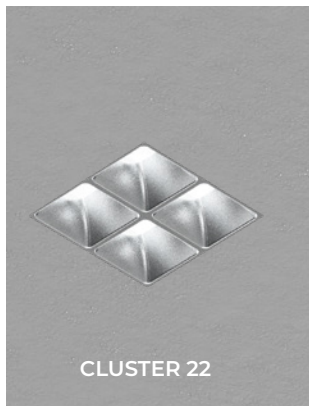
MATTE BLACK

MATTE WHITE

MATTE ALUMINUM

SPECULAR ALUMINUM

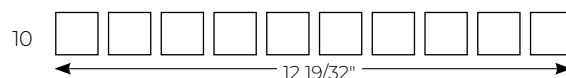
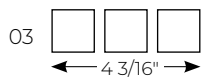
### PLANAR SIZES



CLUSTER 22

### OTHER AVAILABLE LINEAR SIZES

See linear spec sheet



1 - MOUNTING (Example: CLUR22-OF-FMB-TRM-REMOTE)

Consult pages 3-4 for details before specifying

Mounting can be ordered separately.

CLUR22			REMOTE	
LUMINAIRE ID	INSTALLATION TYPE	MOUNTING OPTION <sup>1,2</sup>	TRIM TYPE	DRIVER
CLUR22 - Cluster Recessed 2x2	OF - Open Frame Type Non-IC IC - Type-IC RM - Remodel Type Non-IC CP - Chicago Plenum Type-IC (CCEA)	ASB - Adjustable standard bar hangers FMB - Flush mount bars ACB - Adjustable commercial bar hangers AHC - Adjustable hat channel bars NA - Not applicable  <sup>1</sup> See page 4 for more details. <sup>2</sup> Specify NA for remodel (RM) installation type.	TRM - Flanged trim TLMP - Trimless drywall mudplate TLMW - Trimless millwork	REMOTE - Remote driver  <b>FOR FULL REMOTE DRIVER SPECIFICATION, SEE "REMOTE DRIVER" SECTION BELOW.</b>

2 - LIGHT (Example: CLURL22-TRM-SW-PAR-90-30-TMW-SPL)

Consult page 5 for details before specifying

CLURL22		PAR	90				
LUMINAIRE ID	TRIM TYPE	LIGHT SOURCE	OPTICS	CRI	COLOR TEMP. <sup>3</sup>	TRIM FINISH <sup>4</sup>	LOUVER FINISH
CLURL22 - Cluster Recessed 2x2	TRM - Flanged trim TLMP - Trimless drywall mudplate TLMW - Trimless millwork	SW - Static white DUO - Tunable white 2 channel control 65K to 27K SOLA - Dim-to-warm single channel control 35K to 22K	PAR - Parabolic	90 - 90 CRI	27 - 2700K 30 - 3000K 35 - 3500K 40 - 4000K NA - Not applicable  <sup>3</sup> Specify NA with DUO or SOLA.	TMW - Textured matte white TMB - Textured matte black CF# - Custom finish, specify RAL#  <sup>4</sup> Applicable for trim and trimless. Body finish matches trim finish.	SPL - Specular aluminum louver MPL - Matte aluminum louver WPL - Matte white louver BPL - Matte black louver

3 - REMOTE DRIVER OPTIONAL (Example: RDB1-4X-CLUR22-120-460-RD1) Consult page 6 for details before specifying

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

		CLUR22				
REMOTE DRIVER <sup>5</sup>	LUMINAIRE QTY. <sup>6</sup>	LUM. ID	VOLTAGE	LUMEN PACKAGE <sup>7</sup>	DIMMING <sup>8</sup>	
RDB# - Remote driver  <sup>5</sup> If multiple driver boxes needed, please specify a line number for each driver type used. (e.g. RDB1-4X-CLUR22-...-RD1 RDB2-2X-CLUR22-...-RD1 ...)	#X - Number of luminaires  <sup>6</sup> Please specify number of luminaires per remote driver. (e.g. 3X)	CLUR22 - Cluster Recessed 2x2	120 - 120V 277 - 277V UNV - 120V-277V	### - Low 184 lm - Med 460 lm - High 735 lm (CLUR22)  <sup>7</sup> Watts and lumen per watts will vary based on the number of light units per remote driver as well as on the type of driver selected.	<b>STATIC WHITE</b> RD1 - 1% 0-10V RDA <sup>9</sup> - DALI RLTEA2W <sup>10</sup> - Lutron 1% - 2 wire FP 120V RLDE1 <sup>9</sup> - Lutron Hi-lume 1% Eco  <sup>8</sup> For configurations involving different cluster sizes on a remote driver, please consult factory. <sup>9</sup> On-site commissioning is required. <sup>10</sup> Available with 120V only.  <b>DUO</b> RDMX <sup>9</sup> - DMX, to specify see pages 9 to 11 RDA <sup>9</sup> - DALI RDD1 - Dual 0-10V input for CCT/intensity  <b>SOLA</b> RSD1 - Single 0-10V input	

EXAMPLE ORDER CODES

WHEN SPECIFYING WITH REMOTE DRIVER <sup>11</sup>	
MOUNTING	CLUR22-OF-FMB-TRM-REMOTE
LIGHT	CLURL22-TRM-SW-PAR-90-30-TMW-SPL
REMOTE DRIVER	Remote driver 1: RDB1-4X-CLUR22-120-460-RD1 Remote driver 2: RDB2-2X-CLUR22-120-460-RD1

<sup>11</sup> When specifying with multiple remote driver boxes, each driver used needs to be on a separate line and be numbered for the ordering codes.

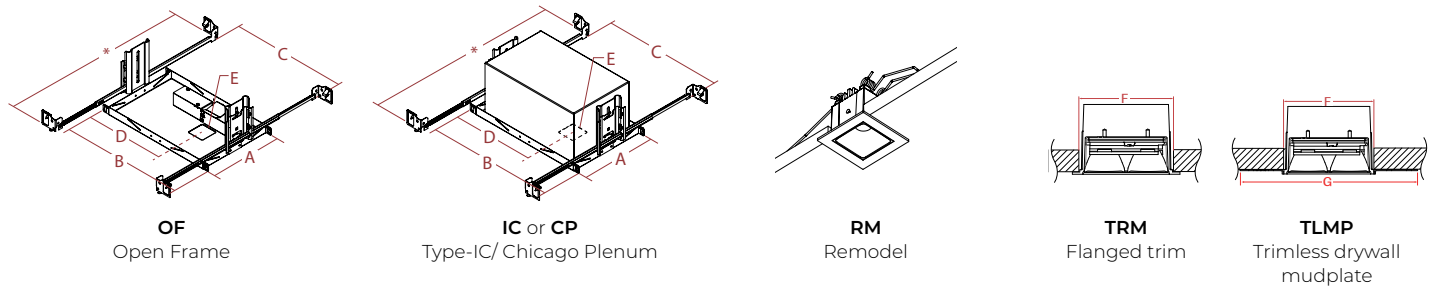


MOUNTING

Cluster can be installed in a wide range of ceiling conditions and with various ceiling trim options. Spring clips clamp the lighting unit to the mounting frame (or directly to the ceiling for remodel). Maximum ceiling thickness is 1.25".

INSTALLATION TYPE	MOUNTING OPTION <sup>1,2</sup>	TRIM TYPE
<b>OF</b> - Open Frame Type Non-IC <b>IC</b> - Type-IC <b>RM</b> - Remodel Type Non-IC <b>CP</b> - Chicago Plenum Type-IC (CCEA)	<b>ASB</b> - Adjustable standard bar hangers <b>FMB</b> - Flush mount bars <b>ACB</b> - Adjustable commercial bar hangers <b>AHC</b> - Adjustable hat channel bars <b>NA</b> - Not applicable  <sup>1</sup> For detailed mounting option dimensions, see page 4. <sup>2</sup> Specify NA for remodel (RM) installation type.	<b>TRM</b> - Flanged trim <b>TLMP</b> - Trimless drywall mudplate <b>TLMW</b> - Trimless millwork

INSTALLATION TYPE <sup>4</sup>



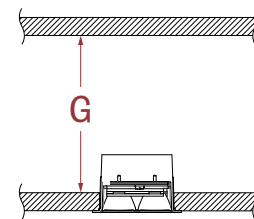
<sup>4</sup> Drawings shown with adjustable standard bar hangers.

	A HOUSING WIDTH	B HOUSING LENGTH	C SPACING BETWEEN BARS	D DISTANCE FROM CUT-OUT
<b>CLUR22</b>	10 3/4"	12 1/16"	12 11/16"	7 15/32"

E CUT-OUT DIMENSIONS	F MUDPLATE DIMENSIONS
2 13/16" x 2 13/16"	5 1/8" x 5 1/8"

PLENUM CLEARANCE DIMENSIONS

	G PLENUM CLEARANCE HEIGHT			
	REMOTE & INTEGRAL		INTEGRAL	REMOTE
	OPEN FRAME	IC / CP	REMODEL	REMODEL
<b>CLUR22</b>	6"	6 1/8"	6"	1 15/16"

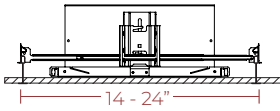


# CLUSTER

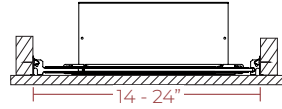
## RECESSED PLANAR PARABOLIC

# LUMENWERX

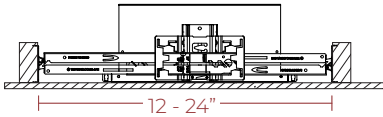
### MOUNTING OPTIONS



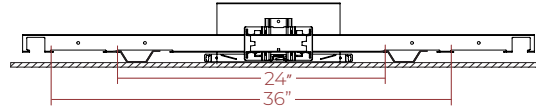
**ASB** - Adjustable standard bar hangers  
Grid ceiling or drywall with variable height  
(Commercial applications)



**FMB** - Flush mount bracket  
Drywall/metal/wood frame mounting  
(Residential applications)



**ACB** - Adjustable commercial bar hangers  
Grid ceiling, drywall, metal, wood, frame mounting  
(Also openings for multiple hanging options such as hat channel, IC channel and metal tubing, supplied by others)



**AHC** - Adjustable hat channel bars  
With adjustable height

### FIXTURE DIMENSIONS

		BODY TYPE	
		TRM Flanged trim	TLMP Trimless drywall mudplate
CLURL22			

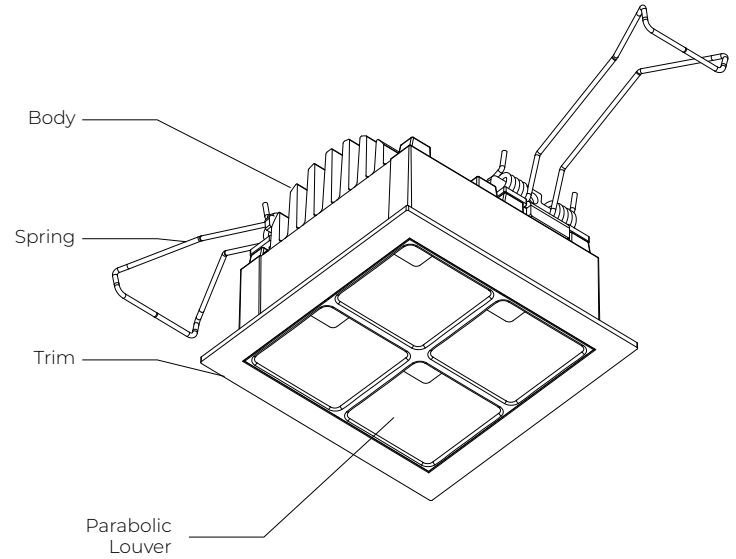
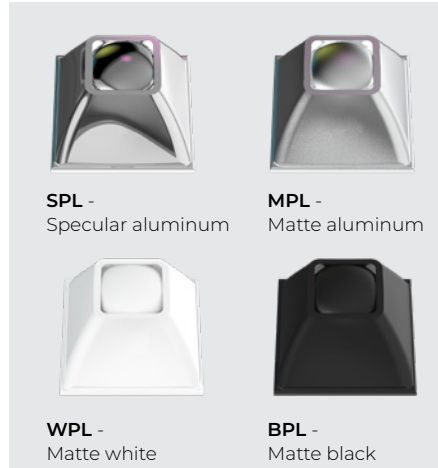
LIGHT

OPTICS



LOUVER FINISH

Louver is injection molded with integral texture and color



DRIVER

REMOTE DRIVER STATIC WHITE, DUO & SOLA

The remote 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. The remote driver and lighting units 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 PACKAGE<sup>1</sup> (AT 3500K, SPL) - REMOTE DRIVER

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

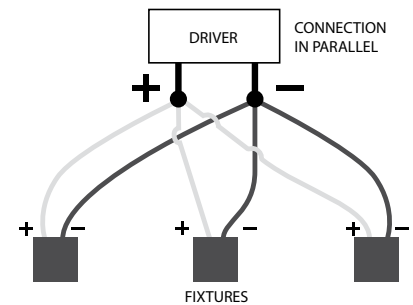
LUMINAIRE ID	LUMEN PACKAGE			VOLTAGE	REMOTE DRIVER	NUMBER OF LIGHTING UNITS PER DRIVER
CLUR22	LOW 184 lm	MEDIUM 460 lm	HIGH 735 lm	120 - 120V 277 - 277V UNV - 120V-277V	<p><b>STATIC WHITE</b>  <b>RDI</b> - 1% 0-10V  <b>RDA</b><sup>2</sup> - DALI  <b>RLTEA2W</b><sup>3</sup> - Lutron 1% - 2 wire FP 120V  <b>RLDE1</b><sup>2</sup> - Lutron Hi-lume 1% Eco</p> <p><sup>2</sup> On-site commissioning is required.  <sup>3</sup> Available with 120V only.</p> <p><b>DUO</b>  <b>RDMX</b><sup>2</sup> - DMX, to specify see pages 9 to 11  <b>RDA</b><sup>2</sup> - DALI  <b>RDD1</b> - Dual 0-10V input for CCT/intensity</p> <p><b>SOLA</b>  <b>RSD1</b> - Single 0-10V input</p>	<p>See table below for maximum and minimum possible number of lighting units per each driver.</p> <p>For configurations involving different cluster sizes, please consult factory.</p>

<sup>1</sup> 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	CLUR22
<b>SW</b>	
<b>DI</b> - 1% 0-10V	1-6
<b>DA</b> - DALI	1-6
<b>LTEA2W</b> - Lutron 1% - 2 wires FP 120V	1-4
<b>LDE1</b> - Lutron Hi-lume 1% Eco	1-6
<b>DUO</b>	
<b>DMX</b> - DMX	2-4
<b>DA</b> - DALI	2-3
<b>DD1</b> - Dual 0-10V input for CCT/Intensity	2-4
<b>SOLA</b>	
<b>SD1</b> - 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

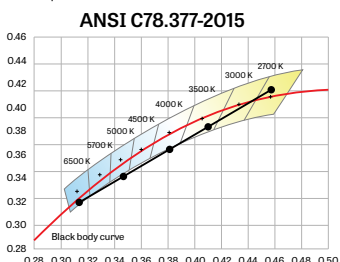
Custom array of mid-flux LEDs mounted onto aluminum-backed circuitry. Available in 2700K, 3000K, 3500K and 4000K with a minimum 90 CRI with elevated R9 value. Color consistency is maintained to within 3 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen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

# CLUSTER

## RECESSED PLANAR PARABOLIC

# LUMENWERX

### WEIGHT

	BODY		OPEN FRAME		TYPE-IC WITH CHICAGO PLENUM	
	Lb	Kg	Lb	Kg	Lb	Kg
<b>CLUR22</b>	0.70	0.30	2.44	1.11	5.97	2.71

### CONSTRUCTION

**Housing** - Die-cast aluminum (0.95" nominal)

**Optics** - Polycarbonate

**Mounting frame** - 22 gauge galvanized sheet metal

**Driver housing** - 18 gauge galvanized sheet

**Mounting clips** - Ø1.0-1.4mm spring clips

### CERTIFICATIONS

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

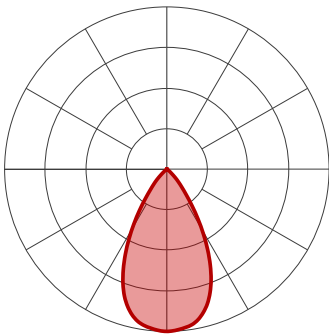
**Chicago plenum** - City of Chicago approved (CCEA) when specified with CP installation type option.

**IC rated** - Suitable for direct contact with insulation when specified with IC or CP installation type options.

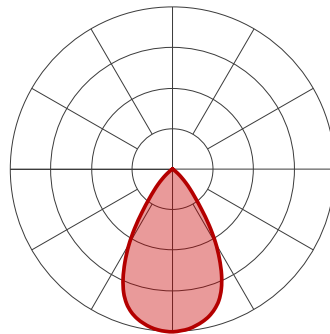
### WARRANTY

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.

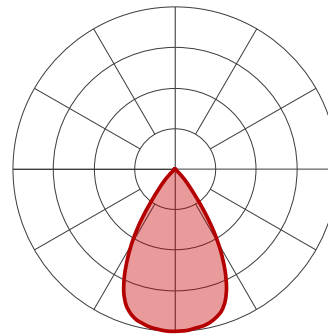
### PARABOLIC LOUVERS



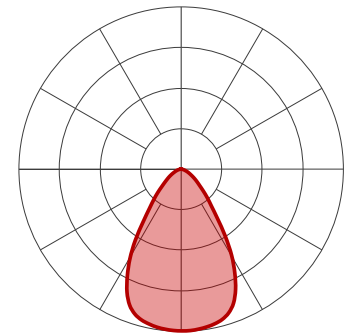
**SPL** - Specular parabolic louver



**MPL** - Matte parabolic louver



**BPL** - Black parabolic louver

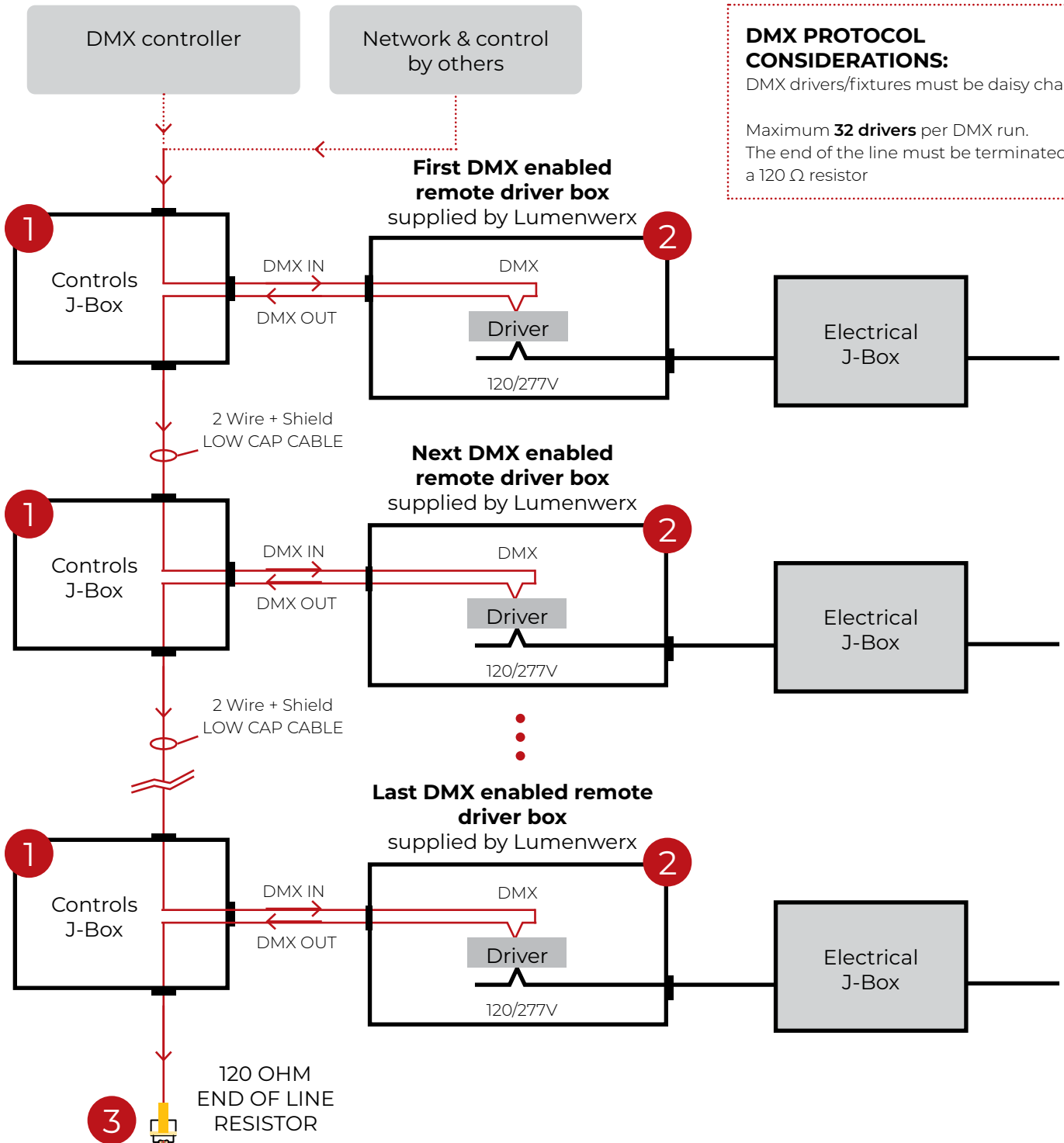


**WPL** - White parabolic louver



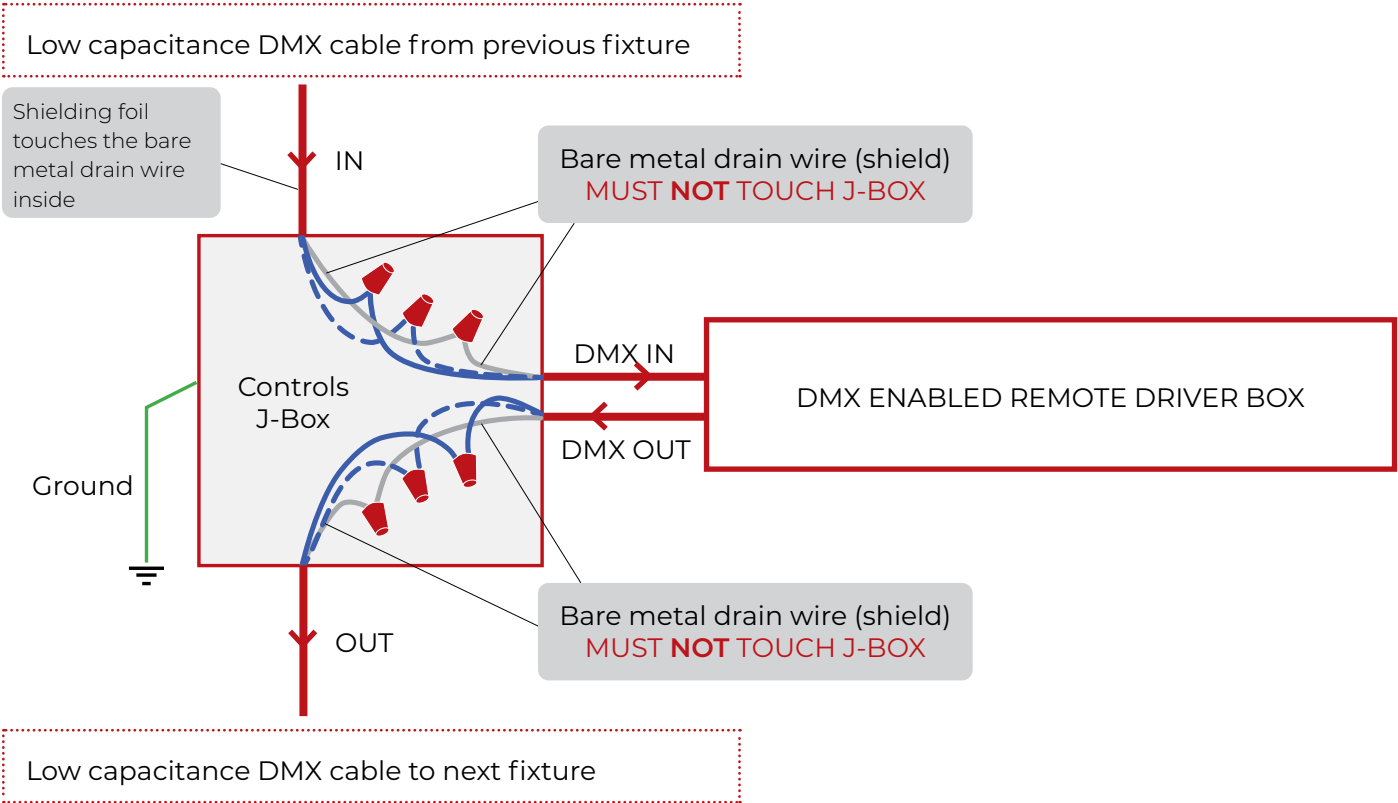
**DUO** GENERIC DMX NETWORK ARCHITECTURE

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.**

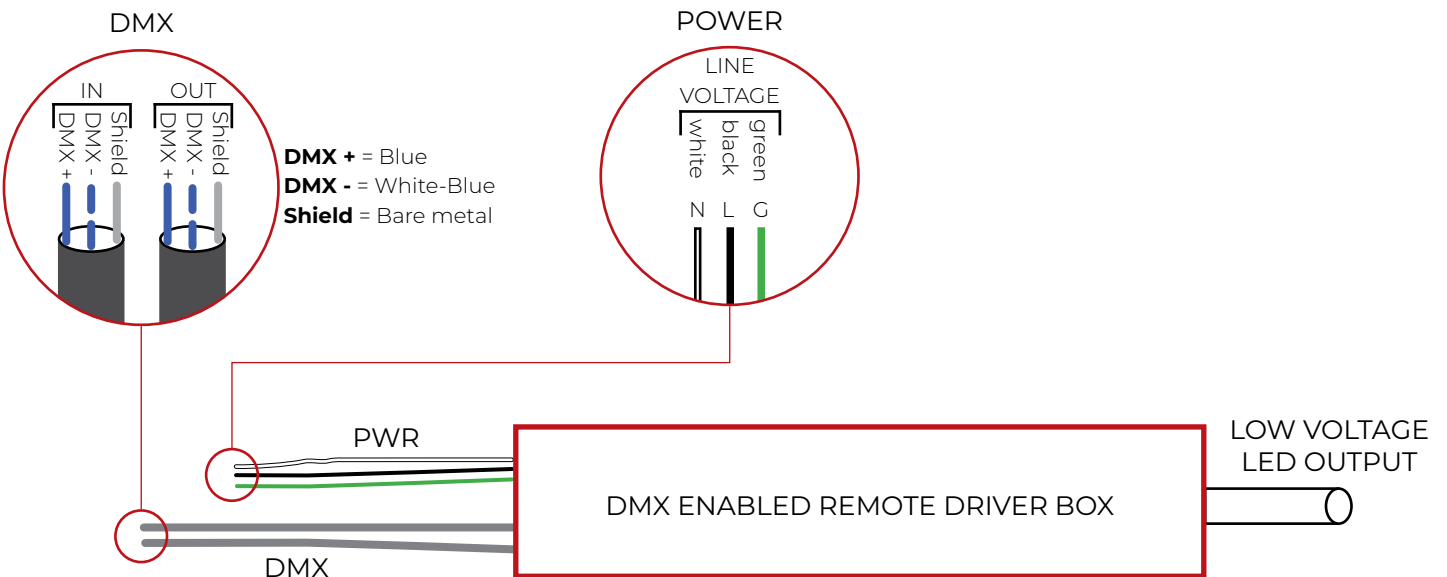


**DMX PROTOCOL CONSIDERATIONS:**  
DMX drivers/fixtures must be daisy chained.  
  
Maximum **32 drivers** per DMX run.  
The end of the line must be terminated by a 120 Ω resistor

**1** J-BOX DMX DAISY CHAIN DETAIL



**2** DMX CONNECTION REMOTE DRIVER



3 LAST DMX CONNECTION DETAIL

