CLUSTER
PENDANT LINEAR PARABOLIC
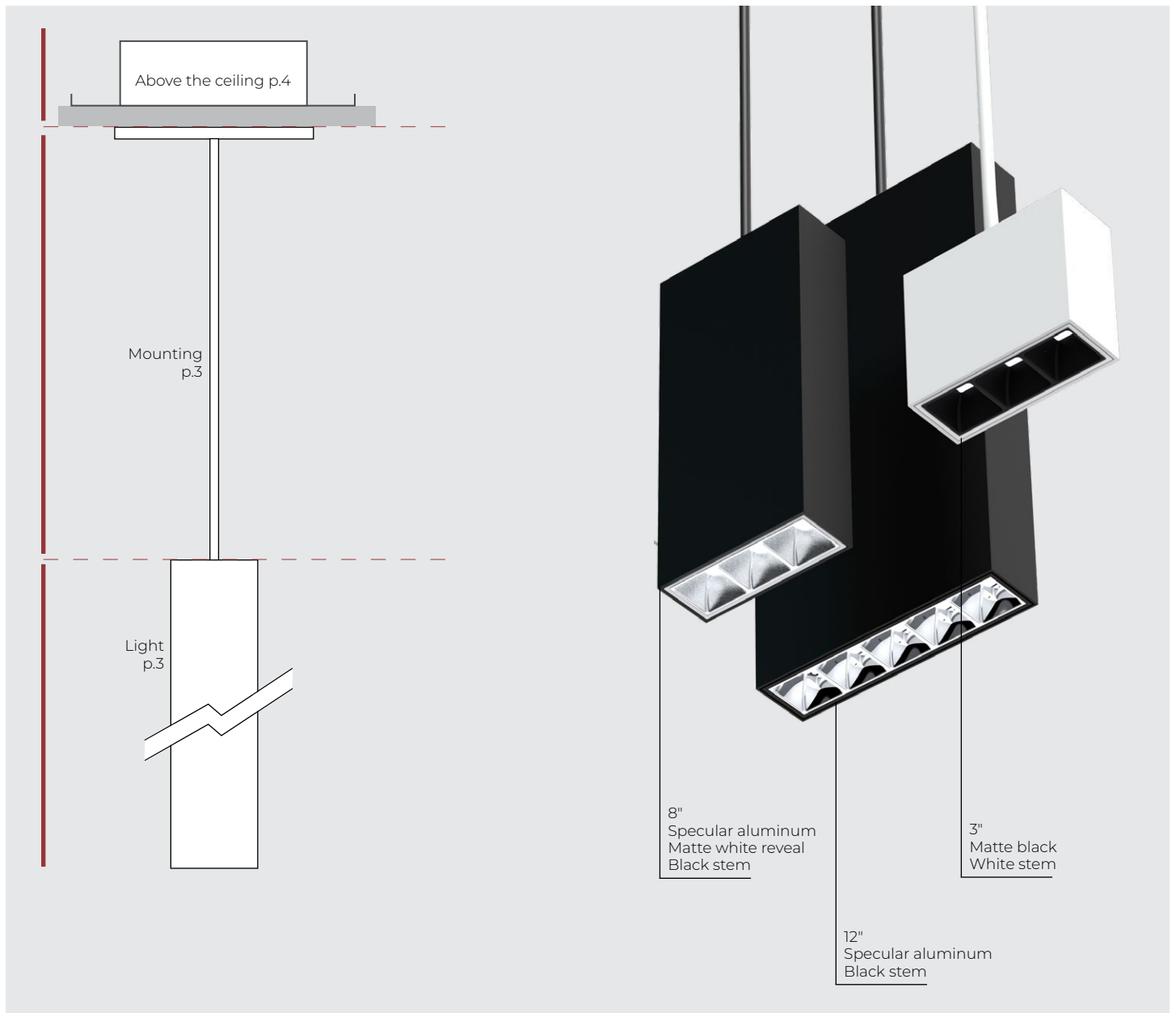
LUMENWERX

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 delivers lighting that is optically sophisticated and aesthetically refined. Cluster pendant parabolic downlights is available in 1 cell, 3 cell and 5 cell configurations, all with precision optics that eliminate multiple shadows, as well as subtle louver treatments. Pendant downlights fit a choice of 3", 8" or 12" deep cuboid enclosures. Nominal light output is 200 lumens per cell. Pendant Cluster can be suspended using stems. A canopy for conduit connection is available. Driver is either integral or remote, which is capable of powering multiple luminaires.

5 YEAR WARRANTY

2019 PROGRESS Report SELECTION

CHROMAWERX

Above the ceiling p.4

Mounting p.3

Light p.3

8"
Specular aluminum
Matte white reveal
Black stem

3"
Matte black
White stem

12"
Specular aluminum
Black stem

CLUSTERS-PENDANT-LINEAR-PARABOLIC-CUBOID-SPEC-REV7

March 21, 2023

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LIGHT + MOUNTING

LUMINAIRE ID	CUBOID HEIGHT	CUBOID FINISH	LOUVER FINISH	REVEAL FINISH
CLUP03 - Cluster Pendant 3x1 **CLUP05** - Cluster Pendant 5x1	**3** - 3" **8** - 8" **12** - 12"	**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#

	PAR	90					
LIGHT SOURCE	**OPTIC**	**CRI**	**COLOR TEMP.** [2]	**DRIVER**	**VOLTAGE**	**LUMEN PACKAGE** [3]	**DIMMING**
SW - Static white **DUO** [1] - Tunable white 2 channel control 65K to 27K **SOLA** [1] - Dim-to-warm single channel control 35K to 22K [1] Available with remote driver only.	**PAR** - Parabolic	**90** - 90 CRI	**27** - 2700K **30** - 3000K **35** - 3500K **40** - 4000K **NA** - Not applicable [2] Specify NA with DUO or SOLA.	**INTEGRAL** **REMOTE**	**120** - 120V **277** - 277V	**578** - 578 lm (CLUP03) **923** - 923 lm (CLUP05) [3] Lumen packages shown at 3500K, with SPL. For other, see lumen output multipliers on page 5. **FOR FULL REMOTE DRIVER SPECIFICATION, SEE "REMOTE DRIVER" SECTION BELOW.**	**D1** - 1% 0-10V **ELV** [4] - ELV 120V **TRI** [4] - TRIAC 120V [4] Available with 120V only.

CANOPY TYPE	CANOPY FINISH	HANGER	
REG [5] - 4" octogonal junction box **INT** [6, 8] - Integral driver on junction box **CD** [7] - Conduit box [5] Available with remote driver only. [6] Available with integral driver only. [7] Available with remote and integral driver. [8] Available with static white only.	**TMW** - Textured matte white **TMB** - Textured matte black **CF#** - Custom finish, specify RAL#	**STEM** [9] **WHS** - Textured white stem **BKS** - Textured black stem [9] Min 18" - max 48".	**LENGTH** **#IN** - Length in inches

REMOTE DRIVER OPTIONAL

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

REMOTE DRIVER [10]	LUM. QTY. [11]	LUM. ID	VOLTAGE	LUMEN PACKAGE [12, 13]	DIMMING [14]
RDB# - Remote driver [10] If multiple driver boxes needed, specify a line number for each driver type used. (e.g. **RDB1-6X-CLUP03-...-RD1** **RDB2-2X-CLUP03-...-RD1** ...)	**#X** - Number of luminaires [11] Specify number of luminaires per remote driver. (e.g. **3X**)	**CLUP03** - Cluster Pendant 3x1 **CLUP05** - Cluster Pendant 5x1	**120** - 120V **277** - 277V **UNV** - 120V-277V	**###** - Low **200** lm - Med **365** lm - High **584** lm (CLUP03) **###** - Low **239** lm - Med **598** lm - High **957** lm (CLUP05) [12] 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. [13] Low and medium lumen packages are not available with RELV and RTRI dimming options.	**STATIC WHITE** **RD1** - 1% 0-10V **RELV** [15] - ELV 120V **RTRI** [15] - TRIAC 120V **RDA** [16] - DALI **RLTEA2W** [15] - Lutron 1% - 2 wire FP 120V **RLDE1** [16] - Lutron Hi-lume 1% Eco [14] For configurations involving different cluster sizes on a remote driver, please consult factory. [15] Available with 120V only. [16] On-site commissioning is required. **DUO** **RDMX** [16] - DMX, to specify see pages 7 to 9 **RDA** [16] - DALI **RDD1** - Dual 0-10V input for CCT/Intensity **SOLA** **RSD1** - Single 0-10V input

EXAMPLE ORDER CODES

WHEN SPECIFYING WITH INTEGRAL DRIVER	
LIGHT + MOUNTING	CLUP03-3-TMW-SPL-TMW-SW-PAR-90-35-INTEGRAL-120-578-D1-REG-TMW-WHS-18IN
REMOTE DRIVER	N/A

WHEN SPECIFYING WITH REMOTE DRIVER [17]	
LIGHT + MOUNTING	CLUP03-3-TMW-SPL-TMW-SW-PAR-90-35-REMOTE-REG-TMW-WHS-18IN
REMOTE DRIVER	RDB1-6X-CLUP03-120-365-RD1
	RDB2-2X-CLUP03-120-365-RD1

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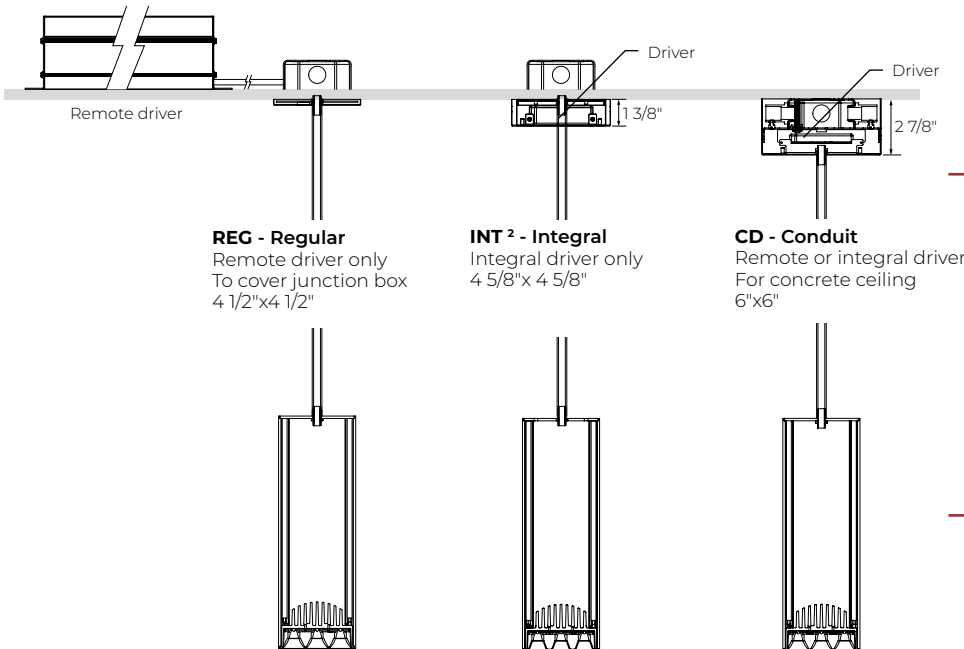
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LIGHT

OPTICS

PAR - Parabolic

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

SPL - Specular aluminum

MPL - Matte aluminum

WPL - Matte white

BPL - Matte black

Suspension Type | Stem
Cuboid
Reveal
Louver

MOUNTING [1]

Remote driver

Driver
1 3/8"

Driver
2 7/8"

REG - Regular
Remote driver only
To cover junction box
4 1/2"x4 1/2"

INT [2] - Integral
Integral driver only
4 5/8"x 4 5/8"

CD - Conduit
Remote or integral driver
For concrete ceiling
6"x6"

Stem
Min 18" - max 48"
#IN specify length [2]
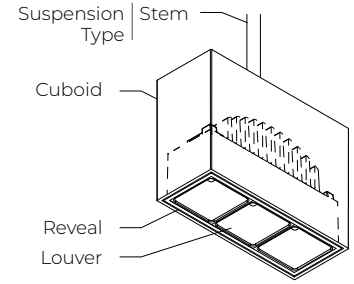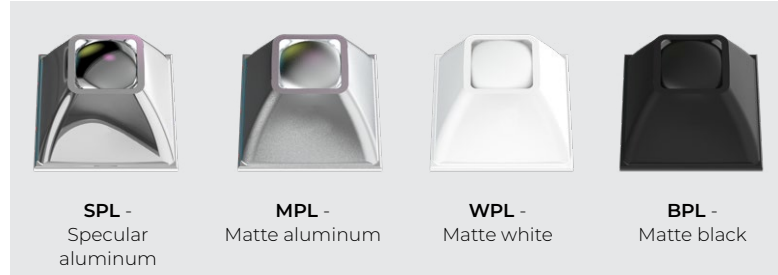
CANOPY

Regular	**REG**
Integral	**INT**
Conduit	**CD**
Finish	
Textured matte white	**TMW**
Textured matte black	**TMB**
Custom finish	**CF#**

HANGER

Stem	
Textured white stem	**WHS**
Textured black stem	**BKS**

[1] Canopies can be specified with any suspension type. Not interchangeable on site.

[2] To specify, replace # with requested length. (e.g. 18IN)

BOTTOM VIEW

CLUP03
1 9/16"
4"

CLUP05
1 9/16"
6 3/8"
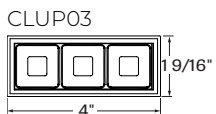
See planar spec sheet for more sizes

CROSS SECTION

CLUP05
3"
8"
12"
6 3/8"

CLUP03
3"
8"
12"
4"

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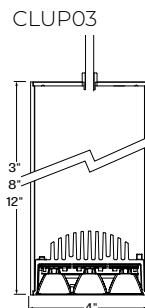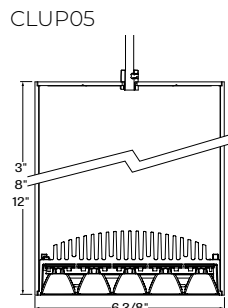
DRIVER

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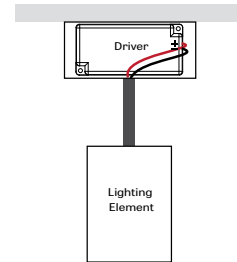
LUMEN PACKAGE (AT 3500K, SPL) - INTEGRAL DRIVER

LUMINAIRE ID	LUMEN OUTPUT	WATTS	EFFICACY LM/W
CLUP03	584 lm	7.3 W	80 lm/W
CLUP05	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	**D1** - 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 PACKAGE [1] (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
CLUP03 CLUP05	**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.	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.				**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	

[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	CLUP03	CLUP05
SW		
D1 - 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

DRIVER — CONNECTION IN PARALLEL

FIXTURES

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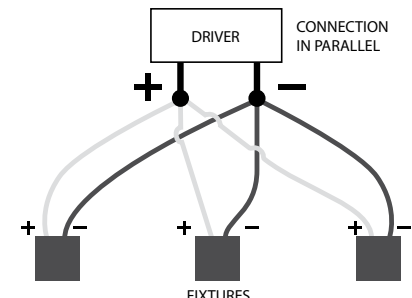
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LUMENWERX

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.

ANSI C78.377-2015
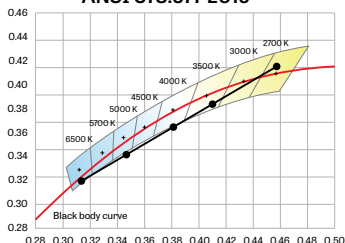
ELECTRICAL
<u>SOLA</u>
SD1

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%.

<u>DUO</u>
DMX

Factory-set adjustable output current electronic driver with 120-277V AC line input. Using DMX wall controls (optionally supplied by Lumenwerx) or an existing DMX control system, both channels of LEDs are independently adjustable. Each DMX driver can be independently addressed using the built-in RDM (Remote Device Management) in the field. Dimming down to 1% is attainable. Rated life (90% survivorship) of 50,000 hours at 50°C maximum ambient temperature. At maximum driver load, efficiency<84%, PF>0.9, THD<20%.

DALI

Factory-set adjustable output current electronic driver with 120-277V AC line 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 down to 1% is attainable. Rated life (90% survivorship) of 50,000 hours at 50°C maximum ambient temperature. At maximum driver load, efficiency<84%, 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.

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WEIGHT

	BODY		CUBOID 3"		CUBOID 8"		CUBOID 12"	
	Lb	Kg	Lb	Kg	Lb	Kg	Lb	Kg
CLUP03	0.70	0.30	0.36	0.16	0.87	0.39	1.27	0.58
CLUP05	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 pendant - 18 gauge aluminum sheet
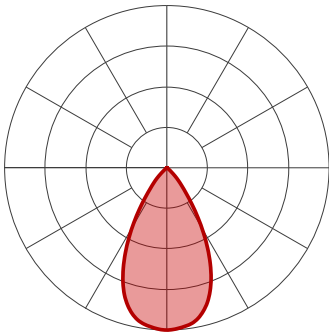**Extension bar** - Galvanized steel

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.
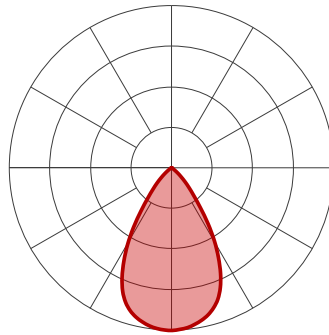
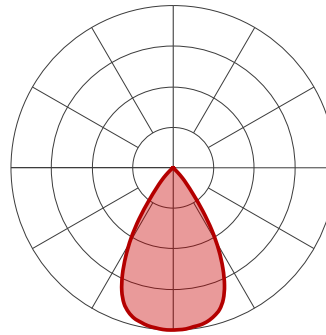## PARABOLIC LOUVERS
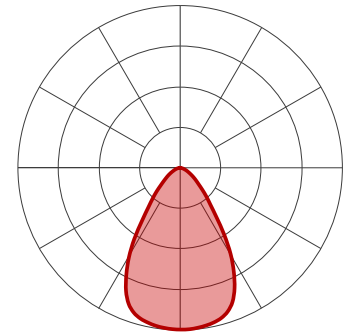

SPL - Specular Parabolic Louver

MPL - Matte Parabolic Louver

BPL - Black Parabolic Louver

WPL - White Parabolic Louver

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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 <u>contact information of your DMX integrator.</u>**

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

DMX controller

Network & control by others

1 Controls J-Box

First DMX enabled remote driver box supplied by Lumenwerx **2**

DMX IN
DMX OUT

DMX

Driver

120/277V

Electrical J-Box

2 Wire + Shield LOW CAP CABLE

1 Controls J-Box

Next DMX enabled remote driver box supplied by Lumenwerx **2**

DMX IN
DMX OUT

DMX

Driver

120/277V

Electrical J-Box

2 Wire + Shield LOW CAP CABLE

Last DMX enabled remote driver box supplied by Lumenwerx **2**

1 Controls J-Box

DMX IN
DMX OUT

DMX

Driver

120/277V

Electrical J-Box

3 120 OHM END OF LINE RESISTOR

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1   J-BOX DMX DAISY CHAIN DETAIL

Low capacitance DMX cable from previous fixture

Shielding foil touches the bare metal drain wire inside

IN

Bare metal drain wire (shield)
MUST **NOT** TOUCH J-BOX

DMX IN

DMX ENABLED REMOTE DRIVER BOX

Controls
J-Box

DMX OUT

Ground

OUT

Bare metal drain wire (shield)
MUST **NOT** TOUCH J-BOX
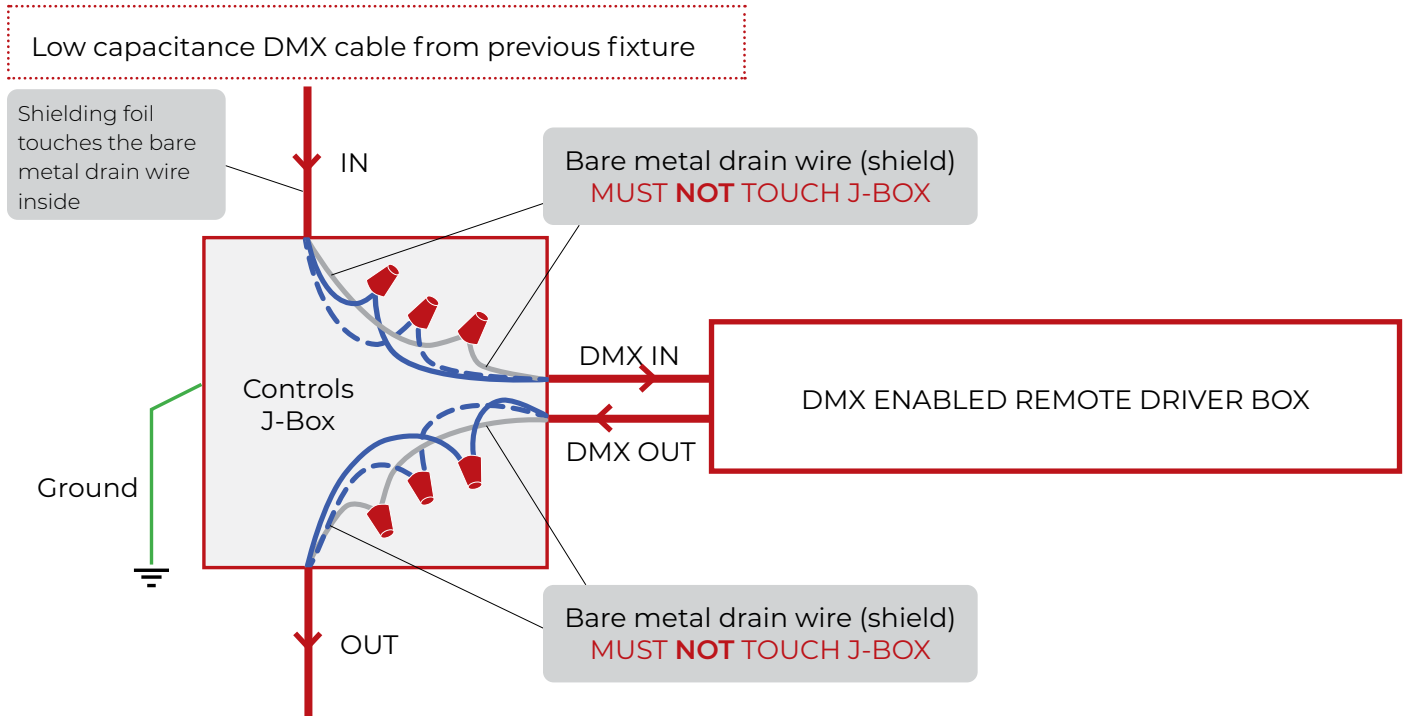
Low capacitance DMX cable to next fixture

2   DMX CONNECTION REMOTE DRIVER

DMX

POWER

IN
Shield
DMX -
DMX +

OUT
Shield
DMX -
DMX +

DMX + = Blue
DMX - = White-Blue
Shield = Bare metal

LINE
VOLTAGE

white
black
green

N   L   G

PWR

LOW VOLTAGE
LED OUTPUT

DMX ENABLED REMOTE DRIVER BOX

DMX

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3 LAST DMX CONNECTION DETAIL

120 OHM
END OF LINE
RESISTOR

CAP
OFF SHIELD

+

–

S

Last DMX OUT

DMX IN
From other fixtures

+

–

S

DMX + = Blue
DMX - = White-Blue
Shield = Bare metal

DMX
Driver

DMX +
DMX -
SHIELD

LAST FIXTURE OF THE DMX NETWORK
MAX 32 DRIVERS PER DMX RUN

LED output

DMX ENABLED FIXTURE

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