

CLUSTER

ACOUSTIX PENDANT PLANAR PARABOLIC

LUMENWERX

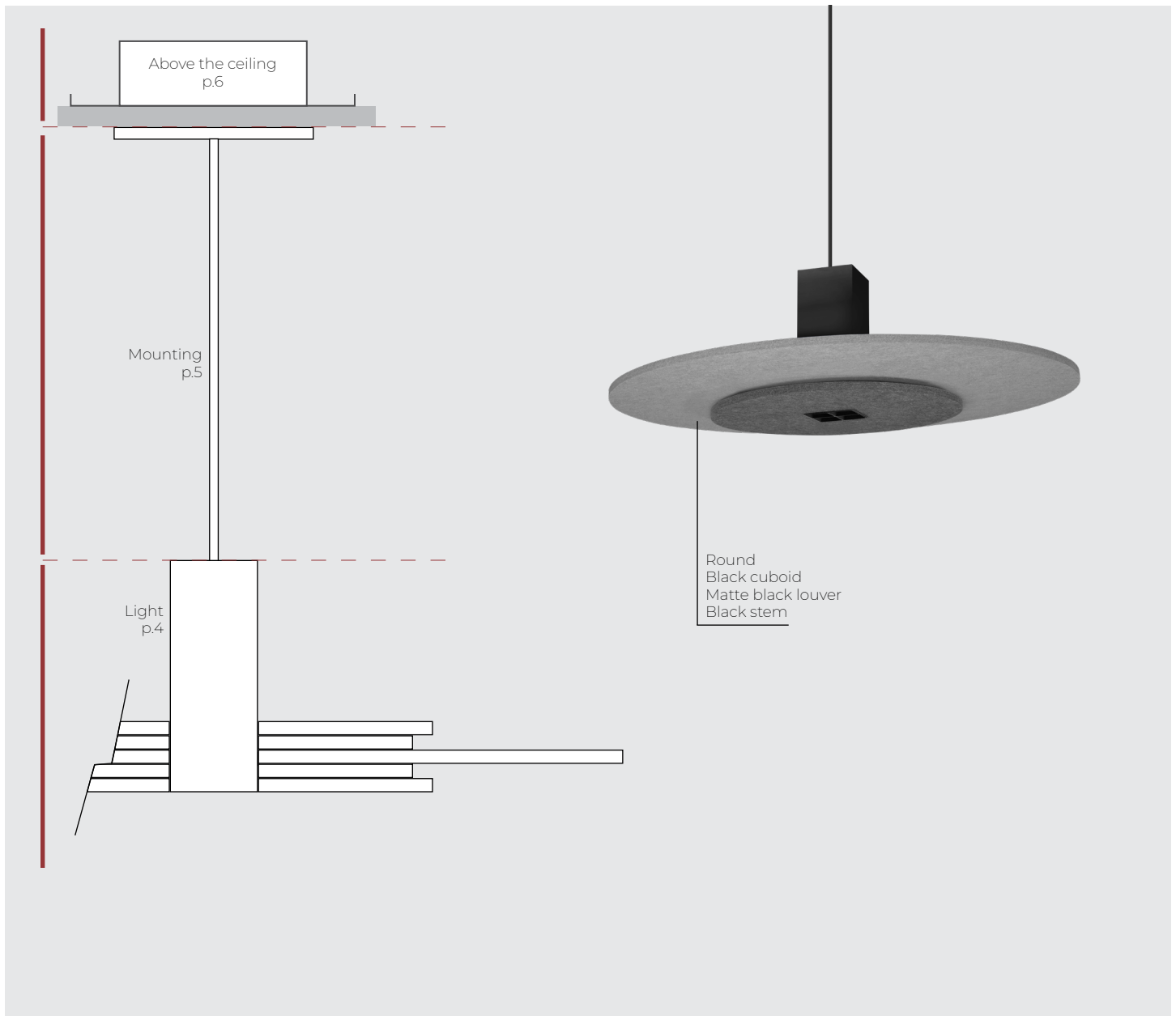


Project: _____

Type: _____

DESCRIPTION

Cluster Acoustix is the precise family of downlights available in both linear and planar configurations for pendant mounting. Complementing the cuboid light engine is a 22 inch stepped three-layer acoustic panel in round or square for excellent sound absorption. Based on a fundamental 1.2" square cell, Cluster Acoustix delivers lighting that is optically sophisticated and aesthetically refined. Cluster Acoustix pendant planar downlights are available in a 4-cell (2x2) configuration, with precision optics that eliminate multiple shadows, as well as subtle louver treatments. Pendant downlights fit a 6" height acoustic cuboid enclosure. Nominal light output is 200 lumens per cell. Pendant Cluster Acoustix can be suspended using stems. Driver is either integral or remote, which is capable of powering multiple luminaires. With our remote driver, Chromawerx DUO and SOLA are available for tunable white lighting control.



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ACOUSTIX PENDANT PLANAR PARABOLIC

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Project: _____

Type: _____

LIGHT + MOUNTING

Consult pages 4 and 5 for details before specifying

CLUP22ACO		22	6			
LUMINAIRE ID	SHAPE	SIZE	CUBOID HEIGHT	CUBOID FINISH	LOUVER FINISH	LIGHT SOURCE
CLUP22ACO - Cluster Acoustix Pendant 2x2	R - Round S - Square	22 - 22"	6 - 6"	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	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 option only.

PAR	90					
OPTICS	CRI	COLOR TEMP ²	DRIVER	VOLTAGE	LUMEN PACKAGE ³	DIMMING
PAR - Parabolic	90 - 90 CRI	27 - 2700K 30 - 3000K 35 - 3500K 40 - 4000K NA - Not applicable	INTEGRAL - Integral driver	120 - 120V 277 - 277V	735 - 735 lm ³ Lumen package shown at 3500K, with SOF-NFL 25°. For other, see lumen output multipliers on page 6.	DI - 1% 0-10V ELV ⁴ - ELV 120V TRI ⁴ - TRIAC 120V ⁴ Available with 120V only.
			REMOTE - Remote driver	FOR FULL REMOTE DRIVER SPECIFICATION, SEE "REMOTE DRIVER" SECTION BELOW.		

REG				IN###	OUT###																																																												
CANOPY TYPE	CANOPY FINISH	HANGER		INSIDE FELT COLOR	OUTSIDE FELT COLOR																																																												
REG - 4" octagonal junction box	TMW - Textured matte white TMB - Textured matte black CF# - Custom finish, specify RAL#	STEM ⁵ WHS - Textured white stem BKS - Textured black stem ⁵ Min 18" - max 48"	LENGTH #IN - Length in inches	Please specify the color for both the inside felt and the outside felt from the list of standard or premium colors below. STANDARD COLORS <table border="0"> <tr> <td></td><td>FWN</td> <td></td><td>LVN</td> </tr> <tr> <td></td><td>FON</td> <td></td><td>LEN</td> </tr> <tr> <td></td><td>ION</td> <td></td><td>CYN</td> </tr> <tr> <td></td><td>TBN</td> <td></td><td>PMN</td> </tr> <tr> <td></td><td>MDN</td> <td></td><td>FGN</td> </tr> </table>		FWN		LVN		FON		LEN		ION		CYN		TBN		PMN		MDN		FGN	PREMIUM COLORS ^{6,7} <table border="0"> <tr> <td></td><td>PKN</td> <td></td><td>CDN</td> <td></td><td>IVN</td> <td></td><td>BHN</td> </tr> <tr> <td></td><td>OGN</td> <td></td><td>LCN</td> <td></td><td>SLN</td> <td></td><td>CFN</td> </tr> <tr> <td></td><td>LNN</td> <td></td><td>SYN</td> <td></td><td>CNN</td> <td></td><td>GRN</td> </tr> <tr> <td></td><td>LMN</td> <td></td><td>BLN</td> <td></td><td>GHN</td> <td></td><td>MON</td> </tr> <tr> <td></td><td>EGN</td> <td></td><td>NVN</td> <td></td><td>CLN</td> <td></td><td>ESN</td> </tr> </table>		PKN		CDN		IVN		BHN		OGN		LCN		SLN		CFN		LNN		SYN		CNN		GRN		LMN		BLN		GHN		MON		EGN		NVN		CLN		ESN
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	EGN		NVN		CLN		ESN																																																										
⁶ Please consult factory for more color options. ⁷ Lead time may vary.																																																																	

REMOTE DRIVER OPTIONAL

Consult page 6 for details before specifying

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

		CLUP22ACO			
REMOTE DRIVER ⁸	LUMINAIRE QTY ⁹	LUMINAIRE ID	VOLTAGE	LUMEN PACKAGE ¹⁰	DIMMING ¹¹
RDB# - Remote driver ⁸ If multiple driver boxes needed, specify a line number for each driver type used. (e.g. RDB1-6X-CLUP05ACO...-RD1 RDB2-2X-CLUP05ACO...-RD1 ...)	#X - Number of luminaires ⁹ Specify number of luminaires per remote driver. (e.g. 3X)	CLUP22ACO - Cluster Acoustix Pendant 2x2	120 - 120V 277 - 277V UNV - 120V-277V	### - Low 184 lm - Med 460 lm -High 735 lm ¹⁰ 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.	STATIC WHITE RDI - 1% 0-10V RDA ¹² - DALI RLTEA2W ¹³ - Lutron 1% - 2 wire FP 120V RLDE1 ¹² - Lutron Hi-lume 1% Eco ¹¹ For configurations involving different cluster sizes on a remote driver, please consult factory. ¹² On-site commissioning is required. ¹³ Available with 120V only.
					DUO RDMX ¹² - DMX, to specify see pages 11 to 13 RDA ¹² - 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	CLUP22ACO-R-22-TMW-SPL-SW-PAR-CRI90-35-INTEGRAL-120-735-DI-REG-TMW-WHS-18IN-INFON-OUTPMN
REMOTE DRIVER	N/A
WHEN SPECIFYING WITH REMOTE DRIVER	
LIGHT + MOUNTING	CLUP22ACO-R-22-TMW-SPL-SW-PAR-CRI90-35-REMOTE-REG-TMW-WHS-18IN-INFON-OUTPMN
REMOTE DRIVER	Remote driver 1: RDB1-6X-CLUP22ACO-120-460-RD1 Remote driver 2: RDB2-2X-CLUP22ACO-120-460-RD1

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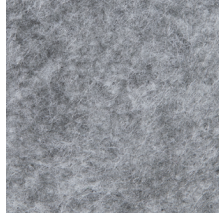
ACOUSTIX PENDANT PLANAR PARABOLIC

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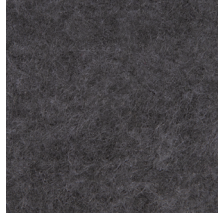
Standard Color Options



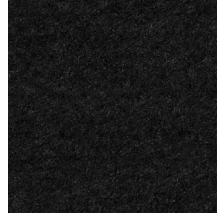
FWN - FROST WHITE



FON - FOG



ION - IRON



TBN - TRUE BLACK



MDN - MIDNIGHT BLUE



LVN - LAVENDER



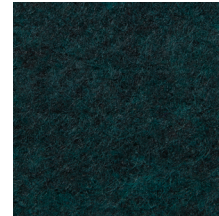
LEN - LATTE



CYN - CHERRY



PMN - PLUM



FGN - FOREST GREEN

Premium Color Options*



PKN - PAPRIKA



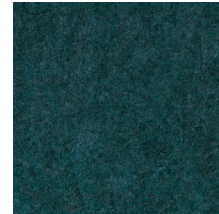
OGN - ORANGE



LNN - LEMON



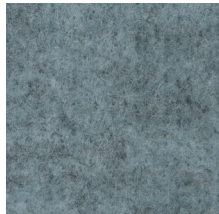
LMN - LIME



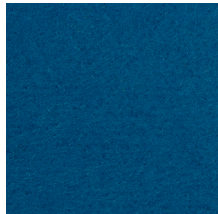
EGN - EVERGREEN



CDN - CLOUDY



LCN - LICHEN



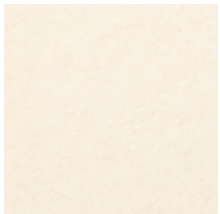
SYN - SKY



BLN - BLUEBERRY



NVN - NAVY



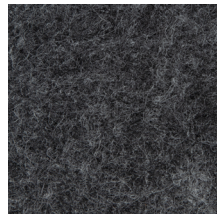
IVN - IVORY



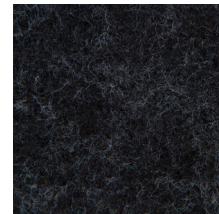
SLN - STEEL



CNN - CARBON



GHN - GRAPHITE



CLN - CHARCOAL



BHN - BLUSH



CFN - CAFÉ



GRN - GREIGE



MON - MOCHA



ESN - ESPRESSO

*Please consult factory for more color options.
*Lead time may vary.

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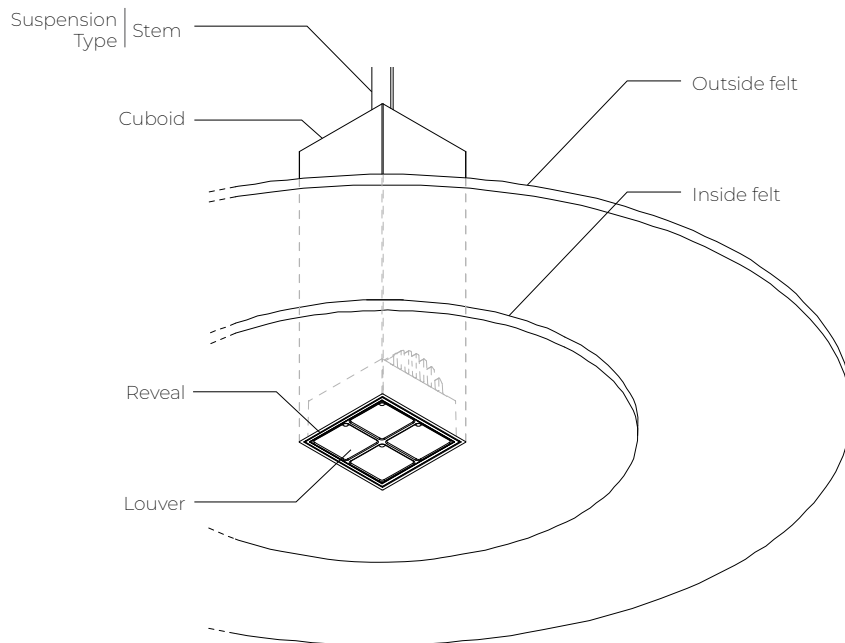
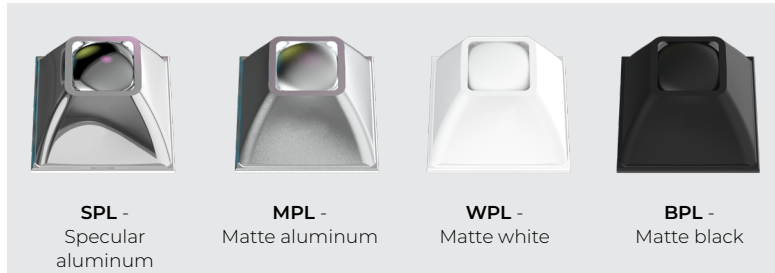
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LIGHT

OPTICS

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

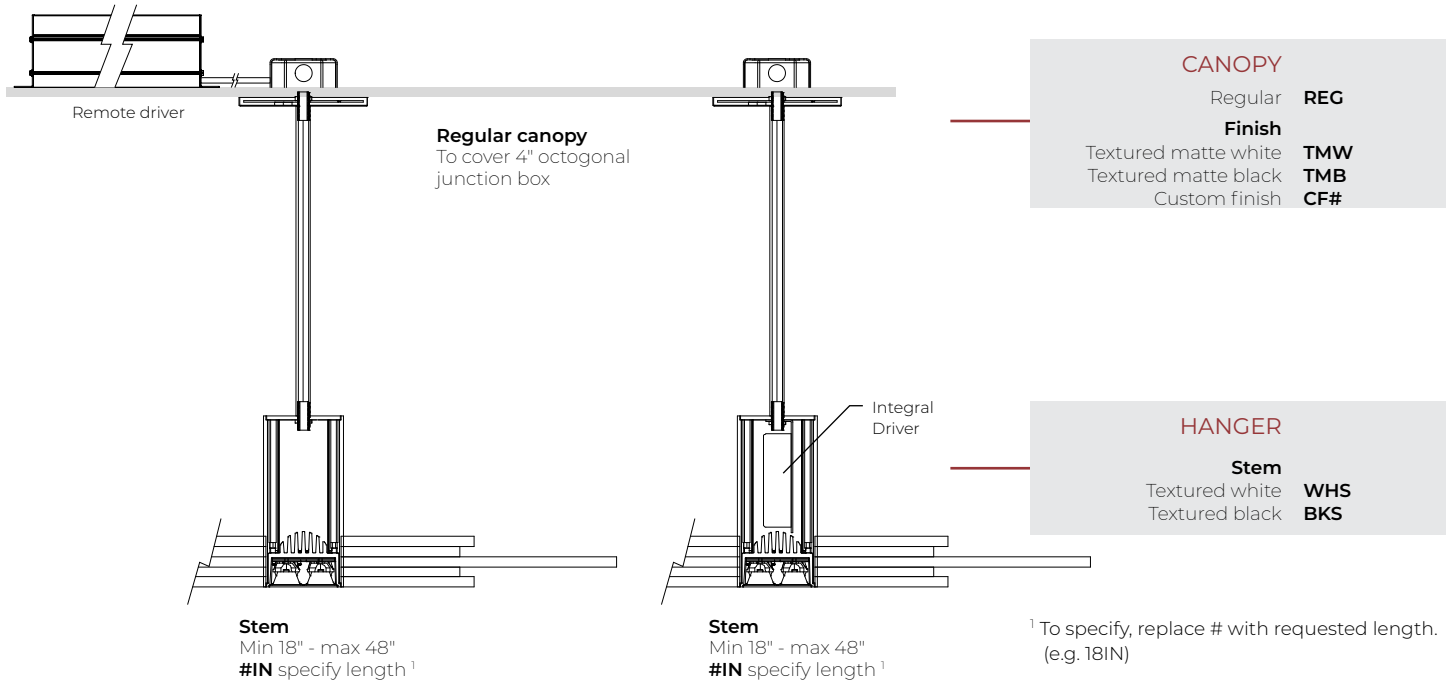


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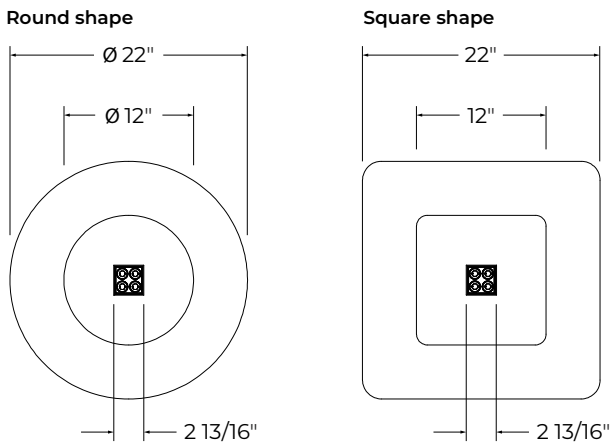
ACOUSTIX PENDANT PLANAR PARABOLIC

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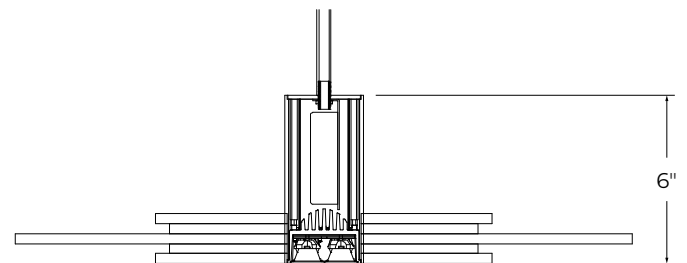
MOUNTING



BOTTOM VIEW



CROSS SECTION



See linear spec sheet for more sizes.

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DRIVER

INTEGRAL 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 body of the fixture.

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
CLUP22ACO	735 lm	9.5 W	78 lm/W

LUMEN PACKAGES	VOLTAGE	INTEGRAL DRIVER
Use the multiplier tables to calculate the lumen package	120 - 120V 277 - 277V	DI - 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

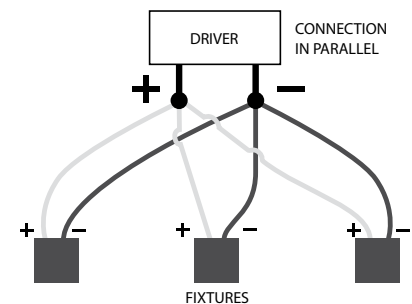
LUMINAIRE ID	LUMEN PACKAGE			VOLTAGE	REMOTE DRIVER	NUMBER OF LIGHTING UNITS PER DRIVER
CLUP22ACO	LOW 184 lm	MEDIUM 460 lm	HIGH 735 lm	120 - 120V 277 - 277V UNV - 120V-277V	STATIC WHITE RD1 - 1% 0-10V RDA ² - DALI RLTEA2W ³ - Lutron 1% - 2 wire FP 120V RLDE1 ² - Lutron Hi-Lume 1% Eco ² On-site commissioning is required. ³ Available with 120V only. DUO RDMX ² - DMX, to specify see pages 7 to 9 RDA ² - DALI RDD1 - Dual 0-10V input for CCT/intensity SOLA SD1 - 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	CLUP22ACO
SW	
DI - 1% 0-10V	1-6
DA - DALI	1-6
LTEA2W - Lutron 1% - 2 wires FP 120V	1-4
LDE1 - 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.



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ACOUSTIC CALCULATOR

Using the Lumenwerx Acoustix Value Calculator table, you can determine the number of acoustic luminaires required in a space by fixture type. We have three levels of recommended sound reduction: good, better, and best. Choosing one of these options will reduce the sound accordingly. The best option indicates the best acoustic improvement. Calculations are based on a standard ceiling height of 9 feet.



① Calculate the square feet of your room (L x W).

② Choose the level of acoustical improvement you are looking for, and find the corresponding value based on your room dimension and luminaire configuration.

% in reduction in reverberation time		
😊	GOOD	25%
😊😊	BETTER	40%
😊😊😊	BEST	50%

SIZE	Room dimensions under 300 sq ft			Room dimensions over 300 sq ft		
	GOOD 😊	BETTER 😊😊	BEST 😊😊😊	GOOD 😊	BETTER 😊😊	BEST 😊😊😊
Round ø22"	30	15	10	48	24	16
Square 22" x 22"	38	19	13	61	30	20

③ Use the Lumenwerx Acoustix Value Formula to determine the number of luminaires needed in the room.

$$\text{Square feet} \div \text{Value} = \text{Number of luminaires}$$

Example:

Luminaires: Cluster Acoustix, Square 22" x 22"
Room square feet: L: 20 ft x W: 18 ft = 360 sq ft
Desired acoustical improvement: Better = 30
Number of luminaires needed in the room: $360 \div 30 = 12$ luminaires

NOTES:

- You can mix lit and blank fixtures.
- Lumenwerx acoustic calculators were developed to act as a guide. For precise acoustic performance in a space, please consult an acoustician.

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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° crosswise.

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

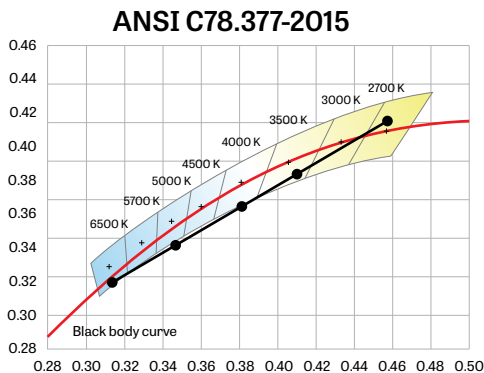
Custom array of mid-flux LEDs mounted onto aluminum-backed circuitry. Available in 2700K, 3000K, 3500K and 4000K with a minimum 90 CRI with elevated R9 value. Color consistency is maintained to within 3 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen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

Chromawerx SOLA

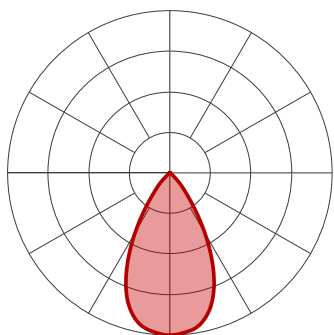
It is single-channel control that dims output while warming the color temperature in a pre-determined relationship. A simple digital or analog control sends a common signal to dual output digital drivers, which are programmed to adjust a specially populated LED array to emulate the effect of dimming 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

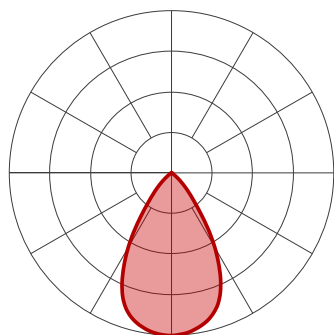
It is two-channel control. It uses an analog (0-10V) protocol for separate control of luminaire CCT and intensity or a digital (DMX, DALI) protocol for synchronous control of both warm and cool LED arrays to enable the user to set color temperature and light output. Commonly called "tunable white", Chromawerx 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.



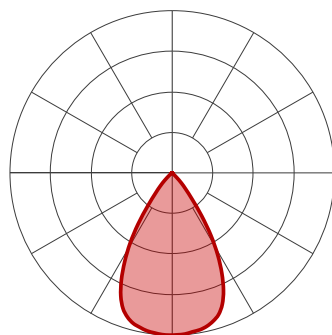
PARABOLIC LOUVERS



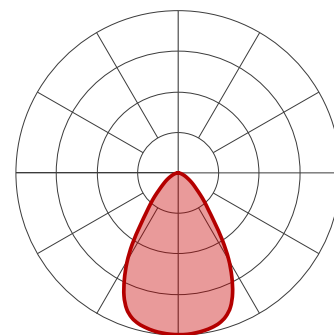
SPL - Specular parabolic louver



MPL - Matte parabolic louver



BPL - Black parabolic louver



WPL - White parabolic louver

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Technical Specifications

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 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 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.

WEIGHT

Cluster Acoustix 2x2: 6.75 lbs - 3 kg

CONSTRUCTION

Housing - Die-cast aluminum (0.95" nominal)

Optics - Polycarbonate

Cuboid - Aluminum extrusion

Cover pendant - 18 gauge aluminum sheet

Extension bar - Galvanized steel

ACOUSTIC FINISH

Material is 100% polyester containing up to 50% of recycled plastic bottles (PET) with an ASTM E-84 Class A fire rating and is moisture resistant.

CARE

Remove dust and debris with a clean, dry, soft, lint-free cloth, or vacuum.

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.

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WELL for Light - The WELL building standard focuses on light quality in several features. There are three categories that are fully attributed to the construction and features of a luminaire. In WELL V1, it's Feature 54 Circadian Lighting, Feature 55 Glare Control, and Feature 58 Color Quality. In WELL V2, it's Feature L03 Circadian Lighting, Feature L04 Glare Control, and Feature L07 Electric Light Quality.

This fixture meets Features:

- Feature 54 or L03 when Duo is selected
- Feature 58 or L07 when 90CRI is selected
- Feature 55 or L04 meets WELL glare category (b-c-d)

All LED drivers used at Lumenwerx are deemed to have a low risk level of flicker, of 5 % or less below 90Hz operational as defined by IEEE standard 1789-2015 LED.



WELL for Sound - This luminaire is recommended for use as an acoustical absorption surface to limit reverberation times (RT) in a given space. This luminaire contributes to noise reduction and vibration dampening to promote focus and concentration. Reverberation needs to be calculated in each space based on the materials used.



WELL for Mind - This luminaire meets WELL for mind as it is a human centric luminaire offering quality light, excellent color, smooth optics, and a sound diminishing element. If any of these features are incorporated in a luminaire, it can improve the ability to focus, concentrate, and persist longer on a given task. This fixture harmoniously operates in a space to assist the mind.

For more information please contact well@lumenwerx.com.

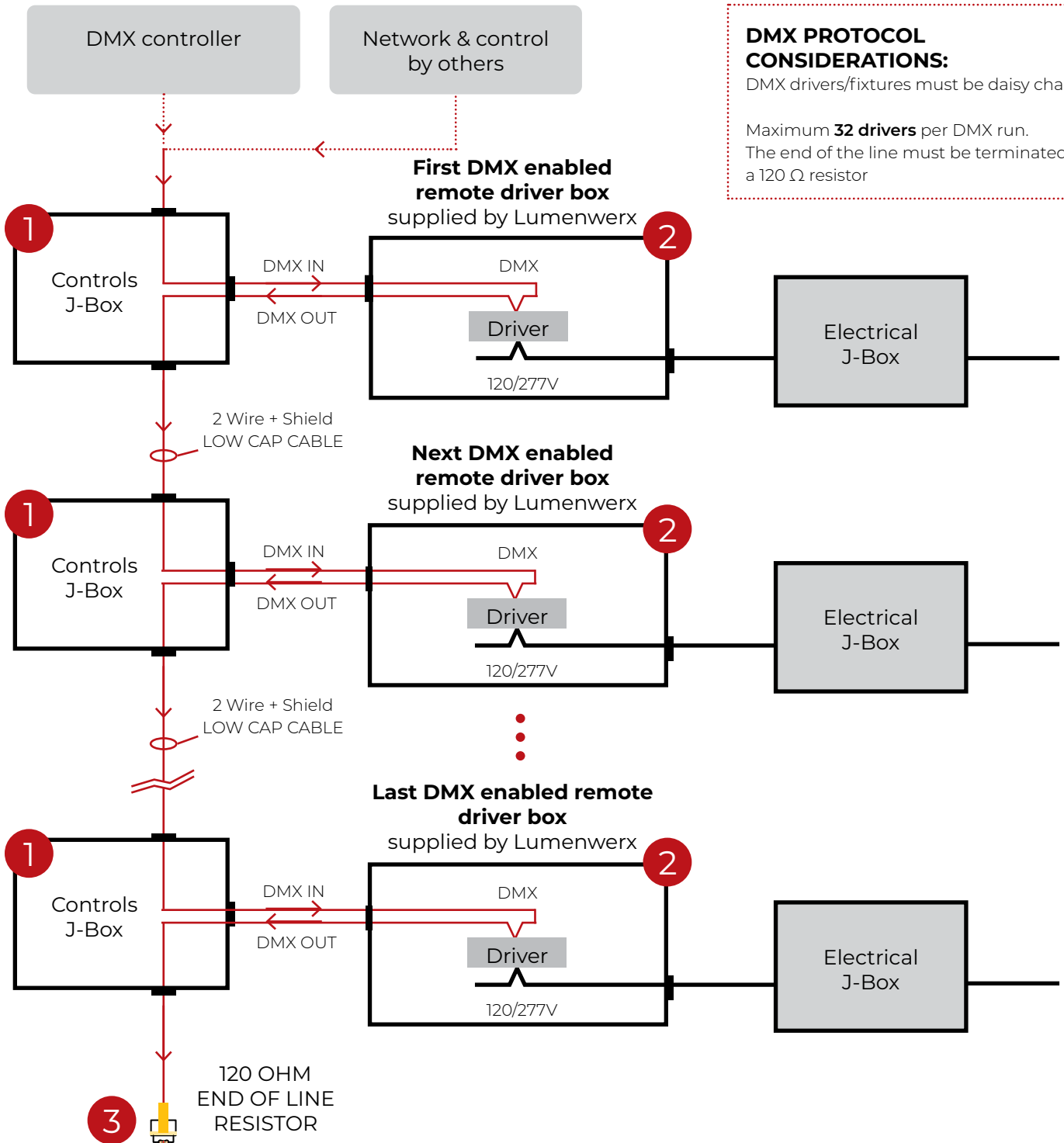
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DUO GENERIC DMX NETWORK ARCHITECTURE

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



DMX PROTOCOL CONSIDERATIONS:

DMX drivers/fixtures must be daisy chained.

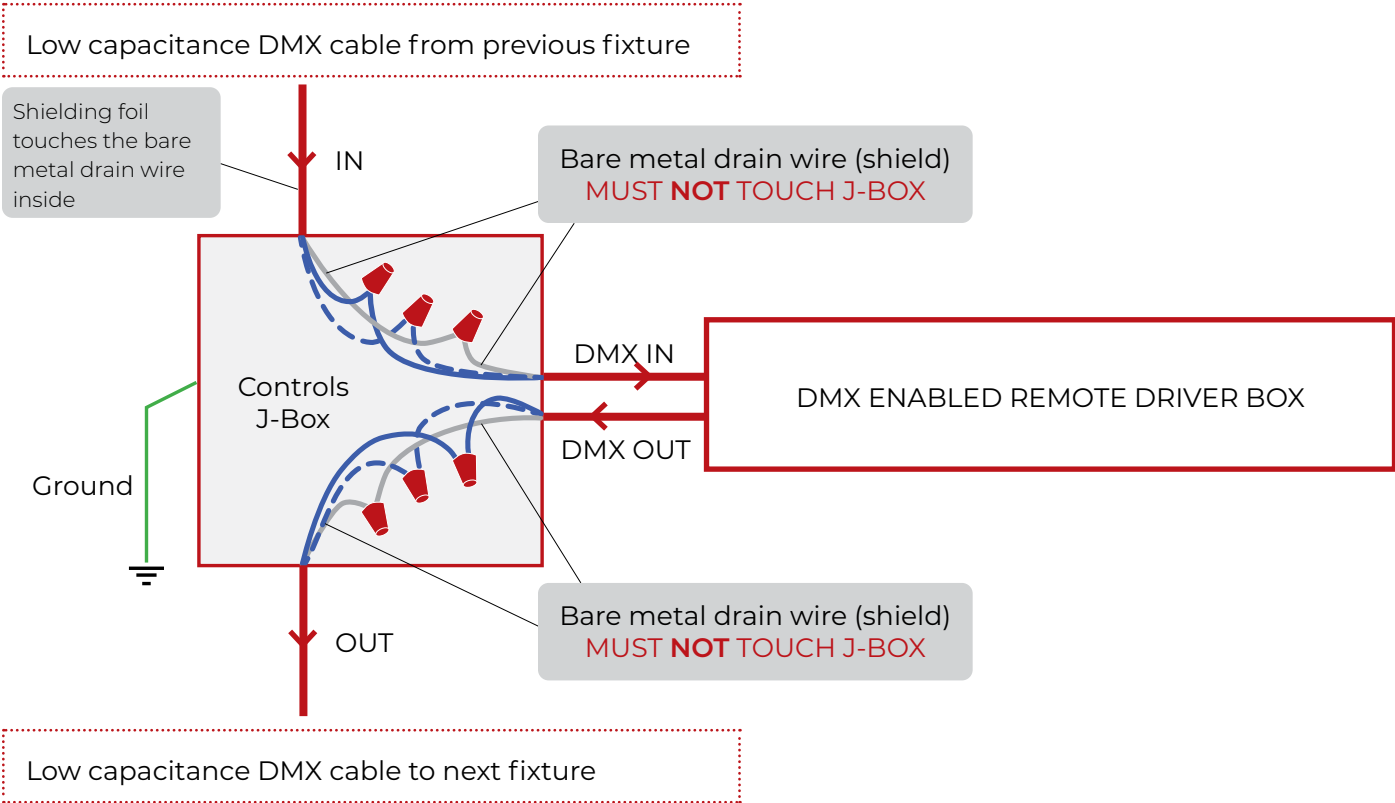
Maximum **32 drivers** per DMX run.
The end of the line must be terminated by a 120 Ω resistor

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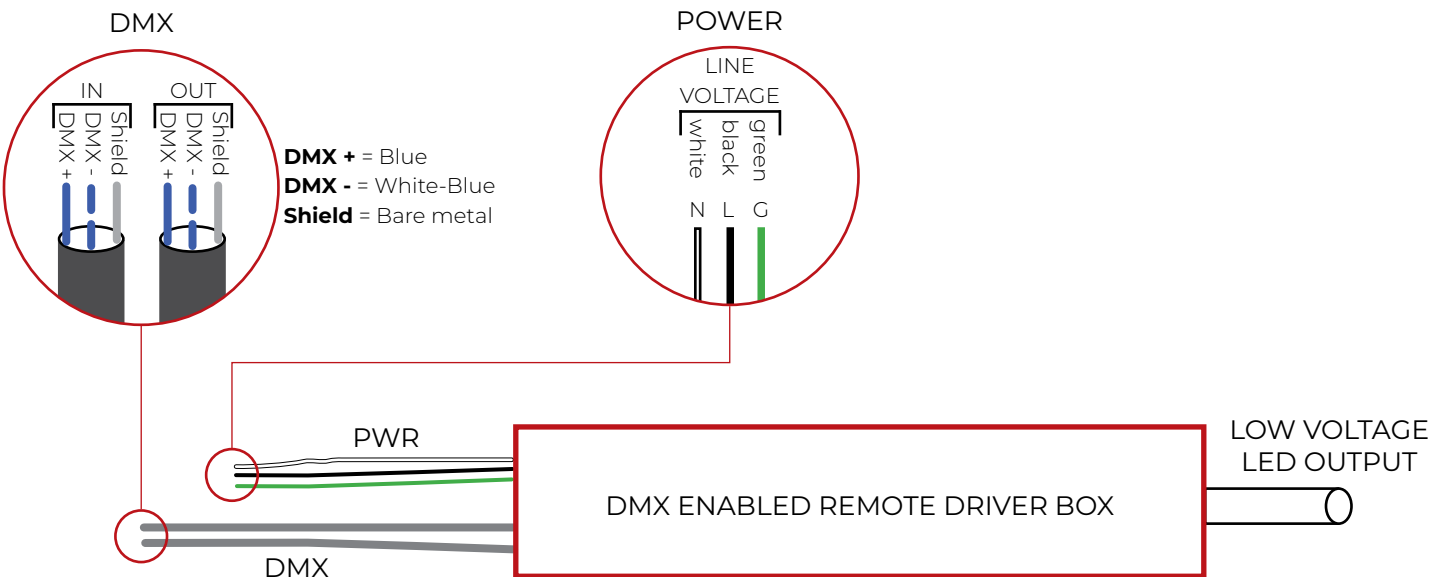
ACOUSTIX PENDANT PLANAR PARABOLIC

LUMENWERX

1 J-BOX DMX DAISY CHAIN DETAIL



2 DMX CONNECTION REMOTE DRIVER



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3 LAST DMX CONNECTION DETAIL

