POP ECHOCORE ROUND

PENDANT
STATIC WHITE, FULL SPECTRUM

LUMENWERX

5 YEAR WARRANTY

Project: _____

_____

Type: _____

Pop Echocore Blank - Linear pattern

Pop Echocore Luminaire - Linear pattern

DESCRIPTION

Pop Echocore™ acoustic luminaires not only offer lens brightness uniformity enabled by our Unity Pointed (UP) technology, but they also reduce echo and reverberation in their immediate environment. When sound waves meet the lighting fixture, they pass through its aluminum lattice only to be trapped by its core of layered sound-absorbing material. Available in round and square models with pendant, surface, and recessed mounting options.

Patterns

| Round | Square | Linear | Scallop | Cubic |

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POP-ECHOCORE-ROUND-PENDANT-SPEC-REV1   March 9, 2023

PoE Power over Ethernet

WELL   WELL   WELL

POP ECHOCORE ROUND

PENDANT
STATIC WHITE, FULL SPECTRUM

LUMENWERX

5 YEAR WARRANTY

Project: _____

Type: _____

Luminaire

Blank

Luminaire code

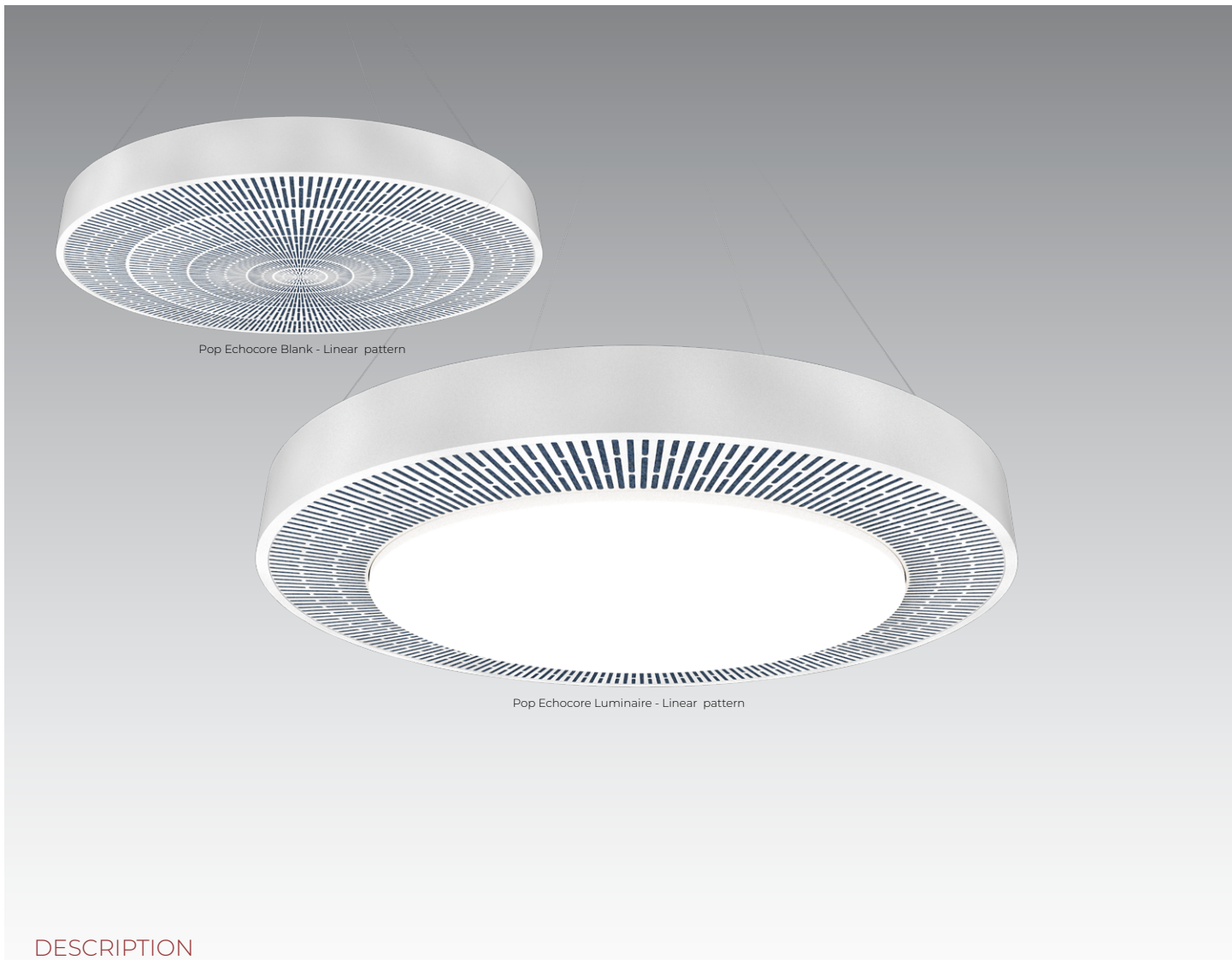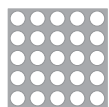| LUMINAIRE ID	SIZE	DISTRIBUTION	OPTIC	LENS POSITION	LIGHT SOURCE [1]
POECHROP			**ULO**		
POECHROP - Pop Echocore Round Pendant	**24** - Ø 2ft **36** - Ø 3ft **48** - Ø 4ft	**DI** [1] - Direct/Indirect **D** - Direct	**ULO** - Uniform Lambertian Optic	**FH** - Flush **0.5D** - 1/2" drop **1D** - 1" drop	**SW** - Static white **FS** - Full spectrum [1] Chromawerx Sola, Duo, and Quadro also available. Consult factory.

CRI	DIRECT LUMEN PACKAGE				INDIRECT LUMEN PACKAGE Specify NA for Direct fixture.				COLOR TEMP.	VOLTAGE	DRIVER [7]	ELECTRICAL
80 [2] - 80 CRI **90** [2] - 90 CRI **95** [3] - 95 CRI [2] Not available with full spectrum. [3] Not available with static white.		Low 24 **750** 36 **2500** 48 **4000**	Med [4] **900** **3500** **5500**	High [4] **1100** **4500** **8000**		Low 24 **750** 36 **2500** 48 **4000**	Med [4] **900** **3500** **5500**	High [4] **1100** **4500** **8000**	**27** - 2700K **30** - 3000K **35** - 3500K **40** - 4000K	**120** - 120V **277** - 277V **UNV** - 120V-277V **347** [5,6] - 347V [5] Available with D1 only. [6] Driver is remote.	**D1** - 1% 0-10V **DA** [8] - DALI **LTEA2W** - Lutron 1% - 2 wire FP 120V **LDE1** [8] - Lutron Hi-lume 1% Eco **ELD1** - eldoLED 1% ECOdrive 0-10V **ELD0** - eldoLED 0.1% SOLOdrive 0-10V [7] PoE (Power-over-Ethernet) compatible. Consult factory for details. [8] On-site commissioning is required.	**1C** - 1 circuit **2C** [9] - 2 circuits [9] Available for Direct/Indirect only. Separate direct and indirect circuits.
					NA - Not applicable							

[4] Not available with full spectrum.

MOUNTING [10]	FIXTURE FINISH	PATTERN	PATTERN FINISH	FELT COLOR		OPTIONS
ACS - Aircraft cable, standard **ACC( )** - Aircraft cable, custom [10] See page 3 for ordering details.	**W** - Matte white **AL** - Aluminum **B** - Matte black **CF#** - Custom finish, specify RAL# See page 4 for more finish options.	Standard **ROU** - Round **SQU** - Square **LIN** - Linear Premium **SCP** - Scallop **CBC** - Cubic	**W** - Matte white **AL** - Aluminum **B** - Matte black **CF#** - Custom finish, specify RAL# See page 4 for more finish options.	**STANDARD COLORS** FWN LVN FON LEN ION CYN TBN PMN MDN FGN	**PREMIUM COLORS** [11] PKN CDN IVN BHN OGN LCN SLN CFN LNN SYN CNN GRN LMN BLN GHN MON EGN NVN CLN ESN [11] Please consult factory for more color options. Lead time may vary.	**FU120** - Fuse 120V **FU277** - Fuse 277V **NA** - None

Blank code

LUMINAIRE ID	SIZE	MOUNTING [12]	FIXTURE FINISH	PATTERN	PATTERN FINISH	FELT COLOR	
POECHROBP							
POECHROBP - Pop Echocore Round Blank Pendant	**24** - Ø 2ft **36** - Ø 3ft **48** - Ø 4ft	**ACNP** - Aircraft cable for non-powered mounting, standard **ACC( )** - Aircraft cable, custom [12] See page 3 for ordering details.	**W** - Matte white **AL** - Aluminum **B** - Matte black **CF#** - Custom finish, specify RAL# See page 4 for more finish options.	Standard **ROU** - Round **SQU** - Square **LIN** - Linear Premium **SCP** - Scallop **CBC** - Cubic	**W** - Matte white **AL** - Aluminum **B** - Matte black **CF#** - Custom finish, specify RAL# See page 4 for more finish options.	**STANDARD COLORS** FWN LVN FON LEN ION CYN TBN PMN MDN FGN	**PREMIUM COLORS** [13] PKN CDN IVN BHN OGN LCN SLN CFN LNN SYN CNN GRN LMN BLN GHN MON EGN NVN CLN ESN [13] Please consult factory for more color options. Lead time may vary.

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PoE Power over Ethernet

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Pendant Mounting Code

Standard

For a standard mounting, please refer to the information below.

MOUNTING	
ACS - Aircraft cable, standard	**ACNP** - Aircraft cable for non-powered mounting, standard
Ø5" for power canopy Canopy is white Power cord is white for all fixture finishes (except black fixture is black power cord) Aircraft cable length is 36"	Ø3" for non-power Canopy is white Aircraft cable length is 36"

Custom

Aircraft Cable

For a custom mounting, specify the options in the parentheses.   Example: ACC(72-W-PCB)

MOUNTING			
ACC( )			

	AIRCRAFT CABLE LENGTH	CANOPY FINISH	POWER CORD COLOR
ACC	**36** - 36" **72** - 72" **120** - 120" **#** [1] - Other lengths, specify in inches [1] Maximum length is 288". For longer lengths, please consult factory.	**W** - White **AL** - Aluminum **B** - Black **CF#** - Custom finish, specify RAL#	**PCW** - White **PCB** - Black **NA** [2] - None [2] For Blank fixture.

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Fixture/Pattern Finishes

Standard
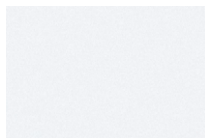
W - Matte White

AL - Aluminum

B - Matte Black

Custom

Neutrals
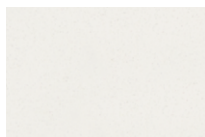
CRM - Cream

GRY - Gray
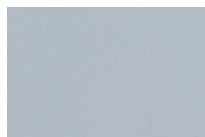
STG - Steel Gray
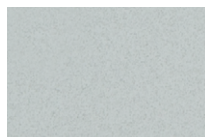
SAG - Sage Gray

MOG - Moss Gray

BLB - Black Blue

Designer
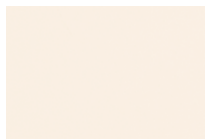
ALM - Almond
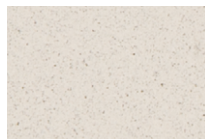
QRZ - Quartzite Texture

RST - Rust Fine Texture
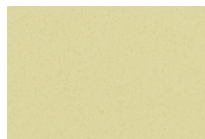
GRB - Green Beige

YLW - Yellow

SLM - Salmon Pink
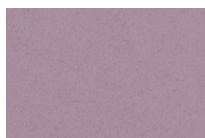
VIO - Pastel Violet

RED - Red

PRR - Purple Red
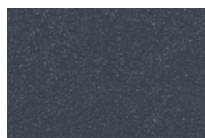
SMB - Storm Blue
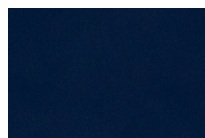
DPB - Deep Blue

OCB - Ocean Blue

BLG - Blue Green

GNS - Green Smoke

MNG - Mint Green

LMG - Lime Green

Metallics

SND - Sand

GLD - Gold
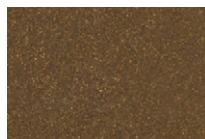
DGD - Dark Gold

IRN - Iron Ore

CNY - Canyon

SBP - Sandblast Copper

SWD - Sandalwood

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STATIC WHITE, FULL SPECTRUM

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Felt Finishes

Standard Color Options
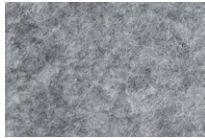
FWN - FROST WHITE	**FON** - FOG	**ION** - IRON	**TBN** - TRUE BLACK	**MDN** - MIDNIGHT BLUE	**LVN** - LAVENDER
LEN - LATTE	**CYN** - CHERRY	**PMN** - PLUM	**FGN** - FOREST GREEN		
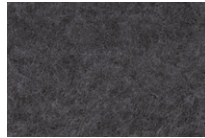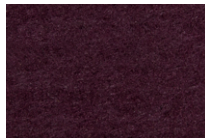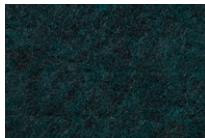
Premium Color Options*
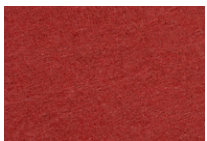
PKN - PAPRIKA	**OGN** - ORANGE	**LNN** - LEMON	**LMN** - LIME	**EGN** - EVERGREEN	**CDN** - CLOUDY
LCN - LICHEN	**SYN** - SKY	**BLN** - BLUEBERRY	**NVN** - NAVY	**IVN** - IVORY	**SLN** - STEEL
CNN - CARBON	**GHN** - GRAPHITE	**CLN** - CHARCOAL	**BHN** - BLUSH	**CFN** - CAFÉ	**GRN** - GREIGE
MON - MOCHA	**ESN** - ESPRESSO				
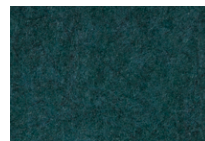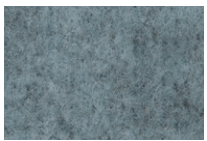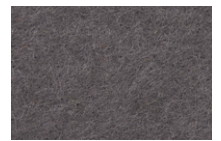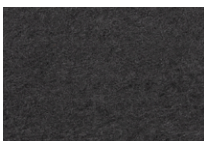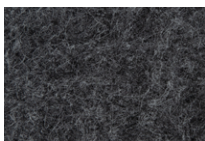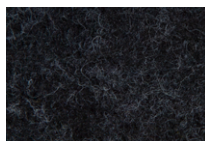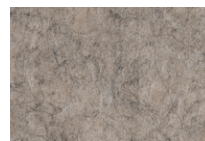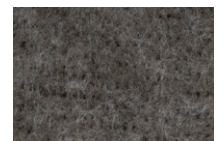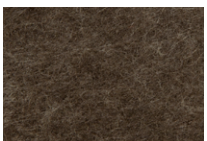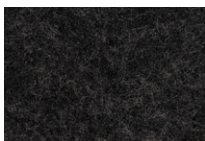
*Please consult factory for more color options.
*Lead time may vary.

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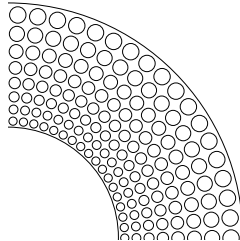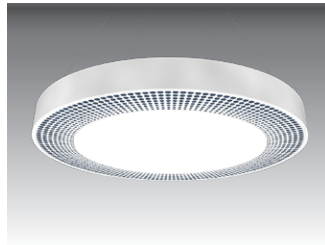PoE Power over Ethernet **WELL**   **WELL**   **WELL**

POP ECHOCORE ROUND

PENDANT
STATIC WHITE, FULL SPECTRUM

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Fixture Patterns

Luminaire	Blank
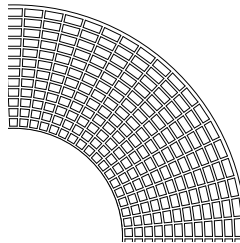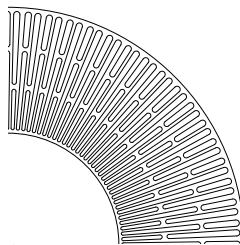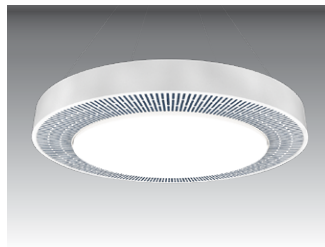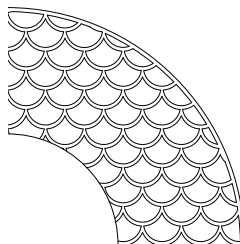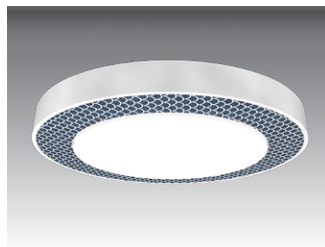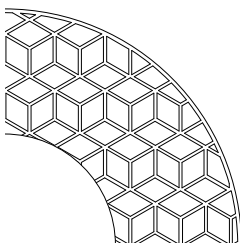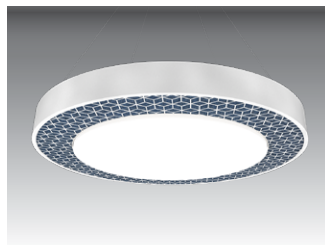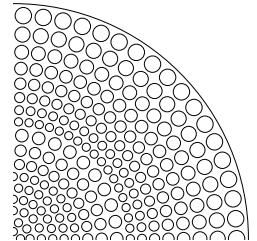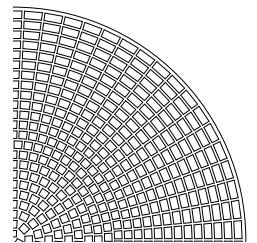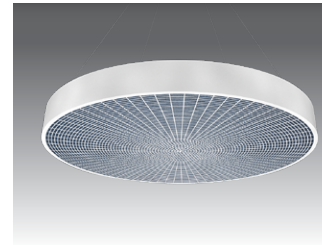
ROU - ROUND

ROU - ROUND

SQU - SQUARE

SQU - SQUARE

LIN - LINEAR

LIN - LINEAR

SCP - SCALLOP

SCP - SCALLOP

CBC - CUBIC

CBC - CUBIC

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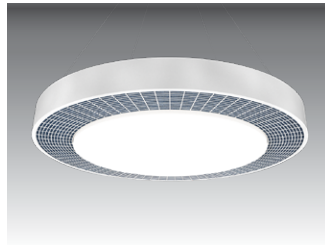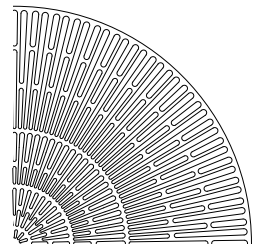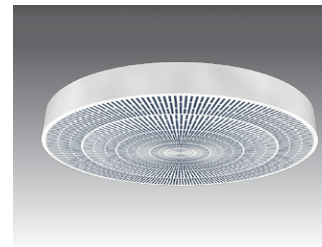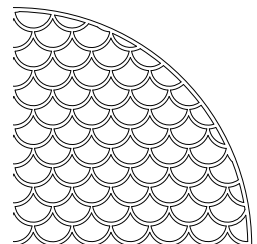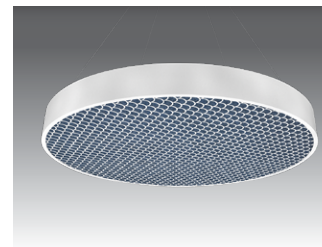
POP ECHOCORE ROUND

PENDANT
STATIC WHITE, FULL SPECTRUM

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Dimensions

Lens position

BLANK	FH - FLUSH	0.5D - 0.5" DROP	1D - 1" DROP

1/2"   1"
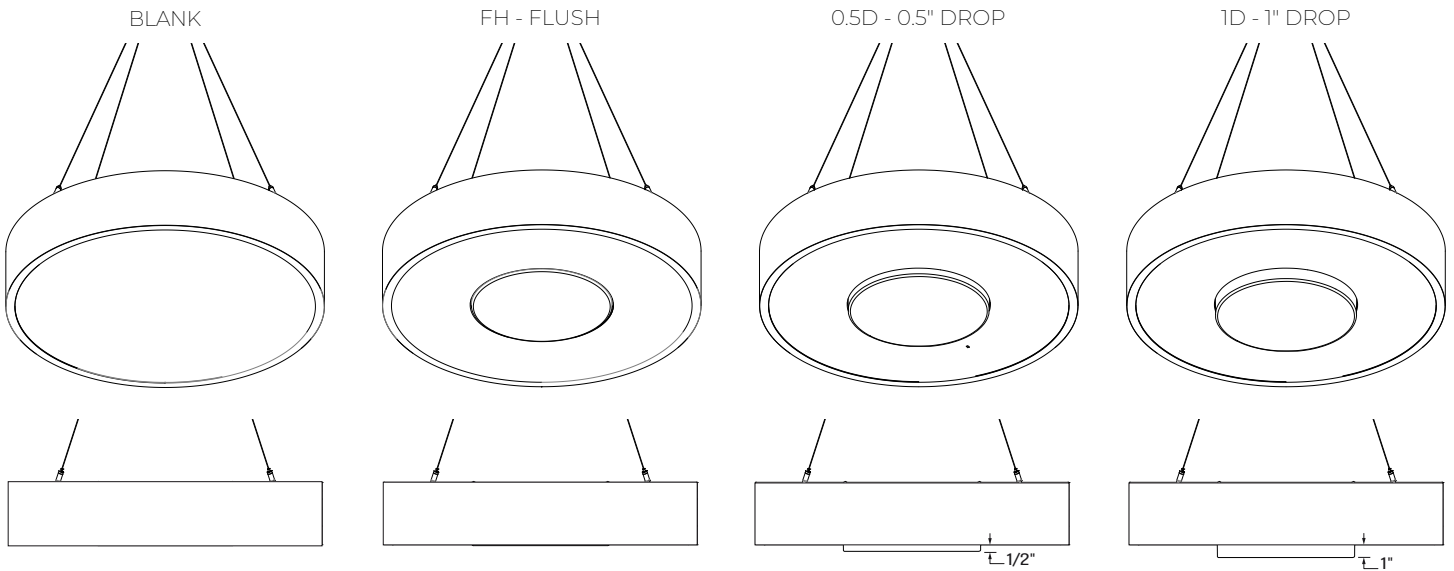
Section view

Fixture Dimensions

FIXTURE SIZE	A BODY HEIGHT	B BODY DIAMETER	C DIRECT LENS DIAMETER
24		24 5/16	10 3/4
36	4 3/4	36 5/16	22 3/4
48		48 5/16	34 3/4

DIRECT

DIRECT / INDIRECT

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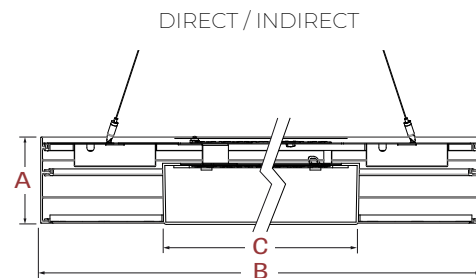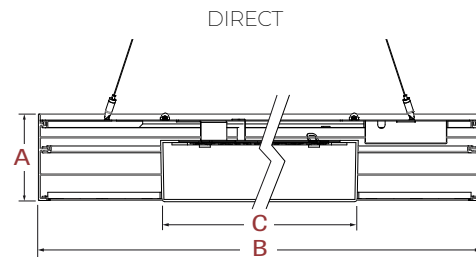
POP ECHOCORE ROUND

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STATIC WHITE, FULL SPECTRUM

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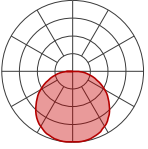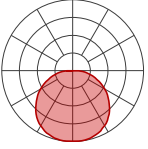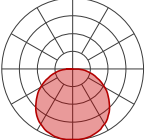
Photometrics

Delivered lumens at 35K at 80 CRI.

DIRECT OPTICS

24"

LUMEN OUTPUT	INPUT WATTS	LPW
750	7.5	98
900	9.5	96
1100	11.5	97

36"

LUMEN OUTPUT	INPUT WATTS	LPW
2500	23.5	106
3500	34.5	102
4500	46	98

48"

LUMEN OUTPUT	INPUT WATTS	LPW
4000	37	108
5500	52	106
8000	78.5	102

INDIRECT OPTICS

24"

LUMEN OUTPUT	INPUT WATTS	LPW
750	5.4	139
900	6.7	135
1100	8.5	130

36"

LUMEN OUTPUT	INPUT WATTS	LPW
2500	17.8	140
3500	26.3	133
4500	35.4	127

48"

LUMEN OUTPUT	INPUT WATTS	LPW
4000	30.8	130
5500	45.5	121
8000	72.1	111

MULTIPLIER

CRI and drop lenses for Direct and Indirect photometric tables.

Multiplier - CCT/CRI

CCT (K)	Watts		LPW	
	CRI80	CRI90	CRI80	CRI90
2700	1.05	1.26	0.95	0.79
3000	1.01	1.23	0.99	0.81
3500	1.00	1.20	1.00	0.84
4000	1.00	1.17	1.00	0.85

Multiplier - Drop Lens

DIRECT LENS	WATTS	LPW
Flush Lens	1.00	1.00
Drop Lens 0.5"	0.86	1.16
Drop Lens 1.0"	0.84	1.19

DIRECT/INDIRECT - LPW CALCULATION EXAMPLE

For Direct/Indirect performance values, follow the below formula.

$$\frac{\left(\begin{array}{c} \text{DIRECT} \\ \text{LUMEN OUTPUT} \end{array} + \begin{array}{c} \text{INDIRECT} \\ \text{LUMEN OUTPUT} \end{array} \right)}{\left(\begin{array}{c} \text{DIRECT} \\ \text{INPUT WATTS} \end{array} + \begin{array}{c} \text{INDIRECT} \\ \text{INPUT WATTS} \end{array} \right)} = \text{LPW}$$

3737 Cote Vertu St-Laurent, Quebec, Canada H4R 2C9
T (514) 225-4304 F (514) 931 -4862
www.lumenwerx.com

POP-ECHOCORE-ROUND-PENDANT-SPEC-REV1   March 9, 2023

PoE WELL WELL WELL

cETLus LISTED Intertek

POP ECHOCORE ROUND

PENDANT
STATIC WHITE, FULL SPECTRUM

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%

	Room dimensions under 300 sq ft			Room dimensions over 300 sq ft		
SIZE	GOOD ☺	BETTER ☺☺	BEST ☺☺☺	GOOD ☺	BETTER ☺☺	BEST ☺☺☺
LUMINAIRE						
24 IN	19	11	8	29	16	13
36 IN	31	18	14	48	27	21
48 IN	44	25	19	68	38	30
BLANK						
24 IN	25	14	11	39	22	17
36 IN	58	32	25	89	50	39
48 IN	105	59	46	163	91	72

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

Square feet ÷ Value = Number of luminaires

Example:

> **Luminaire:** Pop Echocore Round Surface 36 IN
> **Room square feet: L:** 20 ft x W: 18 ft = 360 sq ft
> **Desired acoustical improvement:** Better = 27
> **Number of luminaires needed in the room:** 360 ÷ 27 = **14 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

OPTIC

Uniform Efficiency Lambertian Optic (ULO)
Made of formed impact modified white PMMA, the optic provides an even light distribution with up to 88% transmission. Its unique enclosed shell design protects LEDs against Electrostatic Discharge and dust while its back surface project a soft glow on the mounting surface.

LIGHT SOURCE

Custom array of mid-flux LEDs are mounted directly to the housing for optimal thermal performance. Available in 2700K, 3000K, 3500K and 4000K with a minimum 80 CRI and an option for 90 CRI and, 95 CRI with elevated R9 value. Color consistency maintained to within 3 SDCM. LEDs operated at reduced drive current to optimize efficacy and lumen maintenance.
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. Optional full spectrum LEDs can be incorporated in the fixture to increase Cyanosis Observation Index (COI) and assist in regulating circadian rhythms.

WELL for Light - The WELL building standard focuses on light quality in several features. There are three categories that are fully attributed to the constriction 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 full spectrum is selected
- Feature 55 or L04 meets WELL glare category (c-d)
- Feature 58 or L07 when 90 CRI or above is selected

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.**

ELECTRICAL

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Dimmable from 100% to 1% with 0-10V dimming control. Rated life (90% survivorship) of 50,000 hours at 50°C max. ambient (and 70°C max. case) temperature. At maximum driver load: Efficiency>84%, PF>0.9, THD<20%. Other specifiable options include Lutron Hi-Lume 1% (specify 2-wire, or Ecosystem Dim-to-Off), eldoLED 1% ECOdrive 0-10V, eldoLED 0.1% SOLOdrive 0-10V, and DALI protocol drivers. All of our standard 0-10V drivers are NEMA 410 compliant.

PoE
Depending on the PoE manufacturer selected, Lumenwerx will install the node in factory as either integral to the luminaire or as a remote module. Factory programming of the PoE node may or may not enable the following functionalities: lumen package, Duo (tunable white) emergency battery backup, and sensor integration. These must be addressed and evaluated on a case-by-case basis.

MOUNTING OPTIONS

Fixtures can be pendant-mounted, using aircraft cables, or stem-mounted. Unless otherwise specified, Lumenwerx provides the following hardware:
Standard aircraft cable option (ACS) - Canopies are white, Ø5" for power canopy, Ø3" for non-power. Power cord is black for black fixtures, and white for all other fixture finishes. Aircraft cable length is 36"

FINISH

Interior - 95%, reflective, matte white powder coating
Exterior - Side trim is offered in a range of vibrant color powder coating.

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.

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CONSTRUCTION

Housing - Rolled and seamlessly welded aluminum extrusion 0.125" thick

Interior brackets - Die formed cold rolled sheet steel 18 gauge thick

Reflectors - Cold rolled steel 0.0246" thick precisely die formed, 95% reflective matte white painted

Lens - Uniform Lambertian Optic, thermoformed impact-modified acrylic, completely enclosed

Perforated panel - Die cut aluminum panel (18 gauge aluminum sheet)

Hanger - Chromed Griplock securely attached with spring steel hardware in end caps and/or joiners

Aircraft cable suspension - 7x7 braids aluminum aircraft cable 0.06" thick

WEIGHT

Size	Luminaire	Blank
24 IN	28.66 lbs - 13 kg	24.25 lbs - 11 kg
36 IN	42.99 lbs - 19.5 kg	37.48 lbs - 17 kg
48 IN	57.32 lbs - 26 kg	52.91 lbs - 24 kg

ENVIRONMENT

Ambient temperature at fixture location shall be within 0°C/32°F - 25°C/77°F, indoor dry or damp as well as outdoor damp use (canopies or marquees).

CERTIFICATION

ETL - Rated for Indoor Dry/Damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.

WARRANTY

Lumenwerx provides a five-year limited warranty of 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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