ARRO 4 ACOUSTIX

LUMENWERX

PENDANT
STATIC WHITE, FULL SPECTRUM

5 YEAR WARRANTY
5

Visual interest and versatility come together in Arro, our family of pendants easily recognizable by their triangular prism form. Arro 4 Acoustix delivers the same great performance as Arro 4 but is fitted with superb acoustic dampening technology. Offered in 4', 6', 8', 10', and 12' lengths with 10 standard and 20 premium color options. Arro 4 Acoustix features an elegant end cap detail, with sides extending beyond the inset end piece. You can coordinate and match the sides to the ends or choose a different color.

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ARRO4-ACOUSTIX-PENDANT-SPEC-REV2   February 22, 2023

PoE
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Project: _____

Type: _____

Order Guide

LUMINAIRE ID	DISTRIBUTION	DIRECT OPTIC	INDIRECT OPTIC Specify NA for Direct fixture	LIGHT SOURCE [1]
ARR4ACOP		**HLO**		
ARR4ACOP - Arro 4" Acoustix Pendant	**DI -** Direct/Indirect **D -** Direct	**HLO -** High-Efficiency Lambertian Optic	**WIO2 -** Widespread Indirect Optic **NA -** Not applicable	**SW -** Static white **FS -** Full spectrum [1] Chromawerx SOLA and DUO also available. Consult factory for details.

CRI	DIRECT LUMEN PACKAGE	INDIRECT LUMEN PACKAGE Specify NA for Direct fixture	COLOR TEMPERATURE	LUMINAIRE LENGTH
80CRI [2] **-** 80 CRI **90CRI** [2] **-** 90 CRI **95CRI -** 95 CRI [2] Not available with full spectrum.	**350LMF -** Eco low output 350 lm/ft **500LMF -** Low output 500 lm/ft **750LMF -** Medium output 750 lm/ft **1000LMF** [3] **-** High output 1000 lm/ft [3] Not available with full spectrum.	**350LMF -** Low output 350 lm/ft **500LMF -** Medium output 500 lm/ft **750LMF** [4] **-** High output 750 lm/ft **NA -** Not applicable [4] Not available with full spectrum.	**27K -** 2700K **30K -** 3000K **35K -** 3500K **40K -** 4000K	**4FT -** 4' **6FT -** 6' **8FT -** 8' **10FT -** 10' **12FT -** 12'

VOLTAGE	DRIVER [6]	ELECTRICAL		ELECTRICAL SECTIONS (optional) [13, 14]
120V - 120V **277V -** 277V **UNV -** 120V-277V **347V** [5] **-** 347V [5] Available with D1 only.	**D1 -** 1% 0-10V **DA** [7] **-** DALI **LTEA2W** [8] **-** Lutron 1% - 2 wire FP 120V **LDE1** [7] **-** Lutron Hi-lume 1% Eco **ELD1 -** eldoLED 1% ECOdrive 0-10V **ELD0 -** eldoLED 0.1% SOLOdrive 0-10V [6] PoE (Power-over-Ethernet) compatible. Consult factory for details. [7] On-site commissioning is required. [8] Available with 120V only.	**1C -** 1 circuit **2C** [9] **-** 2 circuits **#MC** [10] **-** Multi circuit **EC -** Emergency fixture **NL -** Night light fixture **DL -** Daylight fixture **GTD** [11, 12] **-** Generator transfer device fixture [9] Available for Direct/Indirect only. Separate direct and indirect circuits. [10] Specify total number of circuits (#), including any circuits required for electrical section options. Provide drawing or layout specifications. Minimum 4' section per circuit. [11] Minimum 4' fixture. [12] Not available with 347V.		**#EC##** [15] **-** Emergency-powered section **#NL##** [15] **-** Night light section **#DL##** [15] **-** Daylight section **#GTD##** [15, 16, 17] **-** Generator transfer device section **#EMB** [17, 18] **-** Emergency battery **NA -** None [13] Specify with multi circuit (#MC) electrical option only. [14] Provide drawing or layout specifications. Consult factory for other configurations. Default section length is 4'. [15] Specify quantity (#), and section length in inches (##). [16] Minimum 4' section. [17] Not available with 347V. [18] Specify quantity (#). Each battery powers a 4' section. For Direct/Indirect, minimum 8' fixture.

MOUNTING [19]	FIXTURE FINISH	FELT COLOR [20]		OPTIONS
		BODY:	END CAP:	
ACS - Aircraft cable, standard **ACC( ) -** Aircraft cable, custom [19] See page 5 for ordering details.	**W -** Matte white **AL -** Aluminum **B -** Matte black **CF# -** Custom finish, specify RAL#	**STANDARD COLORS** FWN, FON, ION, TBN, MDN LVN, LEN, CYN, PMN, FGN	**PREMIUM COLORS** [21, 22] PKN, OGN, LNN, LMN, EGN CDN, LCN, SYN, BLN, NVN IVN, SLN, CNN, GHN, CLN BHN, CFN, GRN, MON, ESN	**FU120 -** Fuse 120V **FU277 -** Fuse 277V **CTB9 -** T-bar caddy clip, 9/16" **CTB15 -** T-bar caddy clip, 15/16" **CTG9 -** Tegular caddy clip, 9/16" **CTG15 -** Tegular caddy clip, 15/16" **CST -** Screw slot caddy clip **NA -** None

[20] Specify a felt color for both the body and the end cap, even if they are the same color.
[21] Please consult factory for more color options.
[22] Lead time may vary.

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Standard Color Options
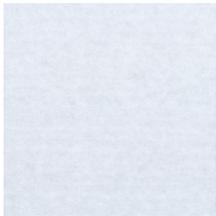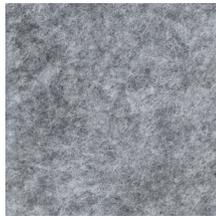
FWN - FROST WHITE	**FON** - FOG	**ION** - IRON	**TBN** - TRUE BLACK	**MDN** - MIDNIGHT BLUE
LVN - LAVENDER	**LEN** - LATTE	**CYN** - CHERRY	**PMN** - PLUM	**FGN** - FOREST GREEN

Premium Color Options [1]

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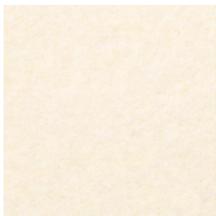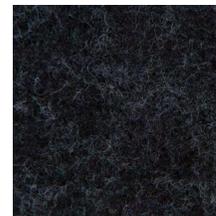
*Please consult factory for more color options.
*Lead time may vary.

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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%

LENGTH	DISTRIBUTION	Room Dimensions Under 300 SQ FT			Room Dimensions Over 300 SQ FT		
		GOOD ☺	BETTER ☺☺	BEST ☺☺☺	GOOD ☺	BETTER ☺☺	BEST ☺☺☺
4 Feet	Direct	22	10	7	33	17	11
	Direct/Indirect	20	10	6	31	16	11
6 Feet	Direct	32	15	10	49	26	17
	Direct/Indirect	30	14	10	46	24	16
8 Feet	Direct	43	20	14	66	34	23
	Direct/Indirect	40	19	13	62	32	21
10 Feet	Direct	53	25	17	81	42	28
	Direct/Indirect	50	24	16	76	39	26
12 Feet	Direct	64	30	20	98	51	34
	Direct/Indirect	60	28	19	91	47	32

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

Square feet ÷ Value = Number of luminaires

Example:

Luminaires: Arro 4 Acoustix Direct/Indirect, 8 ft long
Room square feet: L: 20 ft x W: 18 ft = 360 sq ft
Desired acoustical improvement: Better = 32
Number of luminaires needed in the room: 360 ÷ 32 = **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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Dimensions

Direct/Indirect

Direct
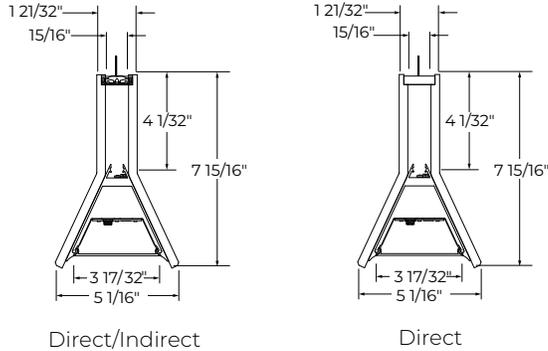
Pendant Mounting Code

Aircraft Cable

Standard

ACS - Aircraft cable, standard

Ø5" for power canopy
Ø3" for non-power
Canopies are white
Power cord is white for all fixture finishes
(except black fixture is black power cord)
Aircraft cable length is 36"

Custom

For a custom mounting, specify the options in the parantheses.

ACC( )				
NON-POWER CANOPY SIZE	**AIRCRAFT CABLE LENGTH**	**CANOPY FINISH**	**POWER CORD COLOR**	**OPTIONS**
3NPC - Ø3" non-power canopy **5NPC** - Ø5" non-power canopy	**36IN** - 36" **72IN** - 72" **120IN** - 120" **#IN** [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	**SEM** - Seismic mounting **SLC** - Sloped ceiling for aircraft cable **NA** - None

Photometrics

Values calculated based on a 4 ft fixture at 35K and 80 CRI for all optics.

DIRECT

HLO

LM/FT	W/FT	LPW
350	3.5	101
500	5.1	98
750	8	94
1000	11	91

INDIRECT

WIO2

LM/FT	W/FT	LPW
350	2.4	146
500	3.5	143
750	5.4	137
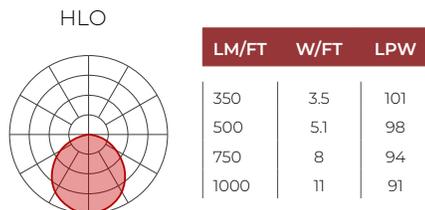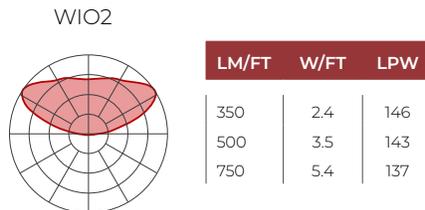
MULTIPLIER TABLES

Use these tables to get results for different color temperatures, and CRI for all Direct and Indirect photometric tables.

CCT (K)	WATTS		LPW	
	CRI 80	**CRI 90**	**CRI 80**	**CRI 90**
2700	1.05	1.27	0.95	0.79
3000	1.02	1.23	0.98	0.81
3500	1.00	1.19	1.00	0.84
4000	1.00	1.19	1.00	0.84

DIRECT/INDIRECT - LPW CALCULATION

For Direct/Indirect performance values, follow the formula.

$$\frac{\left(\text{DIRECT LM/FT} + \text{INDIRECT LM/FT} \right)}{\left(\text{DIRECT W/FT} + \text{INDIRECT W/FT} \right)} = \text{LPW}$$

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Technical Specifications

DIRECT OPTIC
High-Efficiency Lambertian Optic (HLO)
The High-Efficiency Lambertian Optic (HLO) shielding of diffusing 0.075" thick acrylic with up to 88% transmission and good source obscuration is combined with matte white side reflectors to create an efficient optical chamber with uniform luminosity. Luminaire brightness is controlled by the flux-to-shielding area ratio.

INDIRECT OPTIC
Widespread Indirect Optic (WIO2)
A horizontal LED array with a wide-spread indirect micro prismatic optic that offers an impressive 160° spread. WIO2 creates an even illumination for smooth brightness on the ceiling that can achieve uniformity ratios of up to 2:1.

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 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 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 Full Spectrum is selected
- Feature 58 or L07 when 90CRI 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 Mind -This luminaire meets WELL for mind as it is a human centric luminaire offering quality light, excellent color, and smooth optics. 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**

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.

LUMINAIRE LENGTH
Arro is available in standard lengths of 4', 6', 8', 10', and 12'.

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 ECOdriver 0-10V, eldoLED SOLOdriver 0-10V, 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.

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ELECTRICAL SECTION OPTIONS

Electrical section options are available for fixtures specified as multi circuit (#MC). With MC, specify the total number of circuits (#), including any circuits required for optional electrical sections. A drawing is required to specify the layout. Please consult factory for custom configurations.

Electrical sections

Options include emergency-powered (#EC##), night light (#NL##), daylight (#DL##), and generator transfer device (#GTD##) sections. Specify the quantity (#), as well as the section length in inches (##).

Battery

Each emergency battery (#EMB) powers a 4' section. All batteries will be on the same circuit. Specify the number of batteries (#) required.
Factory installed long life, high temperature, maintenance-free Lithium-Ion battery pack with self-test functionality, test switch and charge indicator. Minimum of 90 minutes operation, up to 1000 lumens per 4' (25°C) emergency lighting output and recharge time of 24 hours.

MOUNTING OPTIONS

Fixtures can be pendant-mounted, using aircraft cables. 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".
Caddy clips, if required specify under OPTIONS.
For all other options, see the mounting code on page 5.

FINISH

Interior - 95%, reflective matte powder coated white paint
Exterior - Matte white, matte black, or aluminum powder coating. Custom finishes are also available.

CONSTRUCTION

Housing - Extruded aluminum (0.080" nominal) up to 90% recycled content
Reflector - Cold rolled steel 24 gauge thick
HLO lens - PMMA
WIO2 lens - Clear acrylic
End caps - Die cast aluminum
End cap brackets - Galvanized steel
Hanger - Chromed griplock securely attached in end caps and/or joiners with stainless steel hardware
Aircraft cable suspension - 7x7 braids stainless steel air craft cable 0.05" thick

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.

ENVIRONMENT

Ambient temperature at fixture location shall not exceed 30°C/86°F. For indoor use only.

WEIGHT

Direct/Indirect	Direct
4ft - 19.40 lbs - 8.80 kg	**4ft** - 19.21 lbs - 8.71 kg
6ft - 29.10 bs - 13.20 kg	**6ft** - 28.82 lbs - 13.07 kg
8ft - 38.80 lbs - 17.60 kg	**8ft** - 38.43 lbs - 17.43 kg
10ft - 48.10 lbs - 21.81 kg	**10ft** - 47.72 lbs - 21.64 kg
12ft - 58.20 lbs - 26.40 kg	**12ft** - 57.65 lbs - 26.14 kg

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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