ARRO 4

PENDANT

STATIC WHITE, FULL SPECTRUM

LUMENWERX

5 YEAR WARRANTY

Project: _____

Type: _____

DESCRIPTION

Visual interest and versatility come together in Arro, our family of pendants easily recognizable by their triangular prism form. With its 4" base, Arro 4 features Direct and Direct/Indirect distribution options, continuous run capacity with maximum 12" segments, as well as our HLO for smooth illumination.

SENSORS
For latest information on sensors, click here.

Order Guide

LUMINAIRE ID	DISTRIBUTION	DIRECT OPTIC	INDIRECT OPTIC Specify NA for Direct fixture	LIGHT SOURCE [1]	CRI
ARR4P		**HLO**			
ARR4P - Arro 4" Pendant	**DI -** Direct/Indirect **D -** Direct	**HLO -** High-Efficiency Lambertian Optic	**SIO -** Soft Indirect Optic **NA -** Not applicable	**SW -** Static white **FS -** Full spectrum [1] Chromawerx SOLA and DUO also available. Consult factory for details.	**80CRI** [2] **-** 80 CRI **90CRI** [2] **-** 90 CRI **95CRI -** 95 CRI [2] Not available with full spectrum.

DIRECT LUMEN PACKAGE	INDIRECT LUMEN PACKAGE Specify NA for Direct fixture	COLOR TEMP.	LUMINAIRE LENGTH [4]	VOLTAGE
350LMF - Eco low output 350 lm/ft **500LMF -** Low output 500 lm/ft **750LMF -** Medium output 750 lm/ft **1000LMF -** High output 1000 lm/ft **1200LMF** [3] **-** Ultra high output 1200 lm/ft [3] Not available with full spectrum.	**350LMF -** Low output 350 lm/ft **500LMF -** Medium output 500 lm/ft **NA -** Not applicable	**27K -** 2700K **30K -** 3000K **35K -** 3500K **40K -** 4000K	**#FT#IN** - Specify nominal length (#) in 1' and/or 1" increments **Standard nominal lengths:** [5, 6] Single units: 2' - 12' Continuous runs: lengths over 12' [4] Square, Rectangle, Triangle, Y and X Spoke shapes also available. For details, see the Shapes spec sheet. [5] Minimum 2' for Direct fixture. [6] Minimum 3' for Direct/Indirect fixture.	**120V -** 120V **277V -** 277V **UNV -** 120V-277V **347V** [7] **-** 347V [7] Available with D1 only.

DRIVER [8]	ELECTRICAL	ELECTRICAL SECTIONS (optional) [15, 16]	MOUNTING [21]
D1 - 1% 0-10V **DA** [9] **-** DALI **LTEA2W** [10] **-** Lutron 1% - 2 wire FP 120V **LDE1** [9] **-** Lutron Hi-lume 1% Eco **ELD1 -** eldoLED 1% ECOdrive 0-10V **ELD0 -** eldoLED 0.1% SOLOdrive 0-10V [8] PoE (Power-over-Ethernet) compatible. Consult factory for details. [9] On-site commissioning is required. [10] Available with 120V only.	**1C -** 1 circuit **2C** [11] **-** 2 circuits **#MC** [12] - Multi circuit **EC -** Emergency fixture **NL -** Night light fixture **DL -** Daylight fixture **GTD** [13, 14] **-** Generator transfer device fixture [11] Available for Direct/Indirect only. Separate direct and indirect circuits. [12] Specify total number of circuits (#), including any circuits required for electrical section options. Provide drawing or layout specifications. Minimum 4' section per circuit. [13] Minimum 4' fixture. [14] Not available with 347V.	**#EC## [17] -** Emergency-powered section **#NL## [17] -** Night light section **#DL## [17] -** Daylight section **#GTD## [17, 18, 19] -** Generator transfer device section **#EMB [19, 20] -** Emergency battery **NA -** None [15] Specify with multi circuit (#MC) electrical option only. [16] Provide drawing or layout specifications. Consult factory for other configurations. Default section length is 4'. [17] Specify quantity (#), and section length in inches (##). [18] Minimum 4' section. [19] Not available with 347V. [20] Specify quantity (#). Each battery powers a 4' section. For Direct/Indirect, minimum 8' fixture.	**ACS** - Aircraft cable, standard **ACC( )** - Aircraft cable, custom [21] See page 2 for ordering details.

FINISH	CONTROL [22]	OPTIONS
W - Matte white **AL -** Aluminum **B -** Matte black **CF# -** Custom finish, specify RAL#	STANDALONE CONTROLS [23, 24] Specify the quantity (#) of sensors per fixture. **#OMS** [25] - Onboard Occupancy **#OMS##** [26] - Onboard Occupancy with bi-level dimming **#ODS** - Onboard Daylight **#OCS** - Onboard Occupancy & Daylight CONNECTED CONTROLS [27] **LU** - Lutron **EN** - Enlighted **ENC** - Encelium **WL** - Cooper Wavelinx **AN** - Acuity nLight **CA** - Casambi **LG** - Legrand **NA** - None [22] Standalone and connected control options cannot be combined. [23] Available with D1 driver and 1 circuit options only. [24] Minimum 4' per zone. Provide control zone length. [25] Fixture turns off when no occupancy. [26] Fixture dims to specified light level % (##). [27] Consult factory for connected controls	**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

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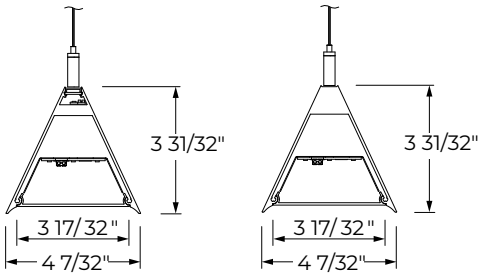
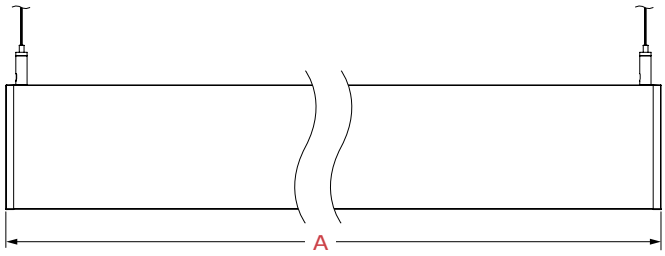
Dimensions



Direct/Indirect Direct

Direct & Direct/Indirect Fixture Lengths

NOMINAL LENGTH	FIXTURE LENGTH A
2'	24 1/2"
3'	36 1/2"
4'	48 1/2"
5'	60 1/2"
6'	72 1/2"
7'	87 1/2"
8'	96 1/2"
9'	108 1/2"
10'	120 1/2"
11'	132 1/2"
12'	144 1/2"



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.

Example: ACC(3NPC-72IN-W-PCB-SLC)

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

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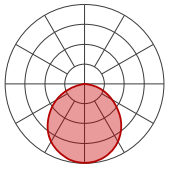
Photometrics

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

DIRECT

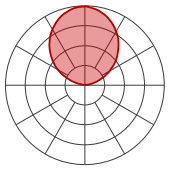
HLO



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

INDIRECT

SIO



LM/FT	W/FT	LPW
350	4.2	83
500	6.3	79

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

Soft Indirect Optic (SIO)

The Soft Indirect Optic (SIO) is a soft acrylic diffuser with good source obscuration. It creates a subtle optical distribution with lower energy densities and increased visual comfort.

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

LUMINAIRE LENGTH

Arro is available in standard lengths of 2' to 12'. Continuous runs are available for run lengths over 12'. Exact run length must be noted in the product code. The minimum length is 2' for Direct fixtures, and 3' for Direct/Indirect fixtures. Lengths can be ordered in 1' and/or 1" increments.

All individual sections are joined together onsite using the joiner kits provided. Lumenwerx offers joiner kits that are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.

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.

Emergency 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 (##).

Example 1: A 32' Direct fixture with two 8' emergency light sections on a second circuit.
Code: 2MC-2EC96

Example 2: A 16' Direct/Indirect fixture with separate circuits for direct and indirect, and with one 4' night light section on the direct side on a third circuit.
Code: 3MC-1NL48

Example 3: A 24' Direct fixture with one 4' generator transfer device section.
Code: 1MC-1GTD48

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 2.

FINISH

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

CONTROLS

Lumenwerx offers several options for integrating occupancy and daylight harvesting controls in our luminaires.
For latest information on sensors, click here.

STANDALONE CONTROLS

An integrated standalone sensor controls the luminaire in which it is installed. Depending on the length, more than one sensor may be necessary and may control the entire luminaire, or just a section of it. These controls operate independently. Unless otherwise agreed, sensor location, blank size, and functionality of the sensor within the luminaire are selected by Lumenwerx. See client drawings for details. Three types are available:

OMS: An integral Passive InfraRed (PIR) sensor turns luminaires on and off automatically with field-adjustable time out period. No wall control is used. Coverage pattern for large motion has a 12' diameter with the sensor mounted 8' above the floor; for small motion, the pattern has an 8' diameter. Typically, one sensor is required for every 10' of a continuous luminaire run.

ODS: An integral, daylight harvesting sensor with closed-loop operation dims the luminaire in which it is installed in order to compensate for available daylight. The sensor measures the combination of daylight and luminaire light reflected from horizontal surfaces below the luminaire. Initial onsite calibration is required via the use of provided remote control.

OCS: Both an occupancy and a daylight sensor are installed in the luminaire.

CONNECTED CONTROLS

With connected controls, sensors or nodes installed in the luminaire form part of a larger control system infrastructure from manufacturers such as: Lutron, Enlighted, Encelium, Cooper Wavelinx, Acuity nLight, Casambi, Legrand, and others. These connected controls allow for a scalable system providing features like occupancy and daylight control, manual control, scheduling and configuration of various zones and scenes. Energy reporting and system monitoring are also possible. Specific capabilities depend on the control system being used.

Lumenwerx installs the components (sensors, nodes, power packs, etc) which may be supplied to us by a third party, or procured directly by Lumenwerx, depending on the control system manufacturer.

Lumenwerx is solely responsible for the installation of specified components; the controls manufacturer is responsible for performance of the control system.

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To indicate a Lumenwerx luminaire with connected controls, identify the specific onsite control system to be integrated into the luminaires using the ordering code. Due to the diversity of components, you must contact factory to assure complete compatibility with intended control system and to fully specify the luminaire.

Complete control specifications, sensor/node/power pack layout, and narrative for the control system are required for Lumenwerx to create shop drawings and submittals.

CONSTRUCTION

Housing - Extruded aluminum (0.080" nominal) up to 90% recycled content
Joiner - Galvanized steel
Reflector - Cold rolled steel 24 gauge thick
HLO lens - PMMA
SIO lens - PMMA
End caps - Die cast aluminum
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

WEIGHT

Direct/Indirect	Direct
4ft - 9.24 lbs - 4.19 kg	**4ft -** 9.19 lbs - 4.17 kg
6ft - 13.86 bs - 6.29 kg	**6ft -** 13.79 lbs - 6.25 kg
8ft - 18.48 lbs - 8.38 kg	**8ft -** 18.38 lbs - 8.34 kg
12ft - 27.72 lbs - 12.57 kg	**12ft -** 27.57 lbs - 12.50 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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