

ARRO 4

PENDANT

STATIC WHITE, FULL SPECTRUM



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 LDE1 ⁹ - Lutron Hi-lume 1% Eco ELD1 - eldoLED 1% ECOdrive 0-10V ELDO - eldoLED 0.1% SOLOdrive 0-10V ELV ¹⁰ - ELV 120V TRI ¹⁰ - TRIAC 120V 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 Standard canopies are black for black fixtures, and white for all other finishes. See page 2 for full details on standard and custom options.
FINISH	CONTROL ²²			OPTIONS ²⁸	
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		CONNECTED CONTROLS ²⁷ LU - Lutron AWN ^R - Lutron Athena Wireless Node RF Only AWNS - Lutron Athena Wireless Node Sensor ENC - Encelium WL - Cooper Wavelinx ANA - Acuity nLight Air CA - Casambi LG - Legrand	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	
	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.	²⁸ Separate codes with a "+" if more than one is specified.	

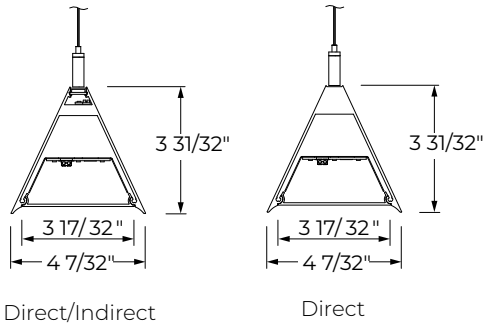
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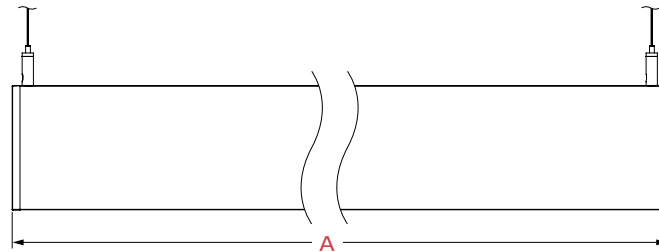


Dimensions



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 Standard

ACS - Aircraft cable, standard

- Ø 5" for power canopy
- Ø 3" for non-power canopy
- Canopies are black for black fixtures, and white for all other fixture finishes
- Power cord is black for black fixtures, and white for all other fixture finishes
- Aircraft cable length is 36"

Custom

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

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

ACC() - Aircraft cable, custom

ACC()	NON-POWER CANOPY SIZE	AIRCRAFT CABLE LENGTH	CANOPY FINISH	POWER CORD COLOR	OPTION
ACC	3NPC - Ø 3" non-power canopy 5NPC - Ø 5" 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 - Matte white AL - Aluminum B - Matte black CF# - Custom finish, specify RAL#	PCW - White PCB - Black	SEM ² - Seismic mounting SLC ² - Sloped ceiling for aircraft cable NA - None ² Not available with the Ø 3" non-power canopy size.

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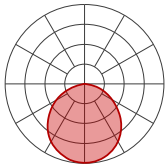


Photometrics

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

DIRECT

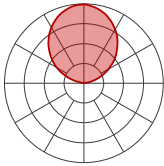
HLO



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.

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

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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 (120-277 VAC) 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% Eco, eldoLED 1% ECOdrive 0-10V, eldoLED 0.1% SOLOdrive 0-10V, ELV, TRIAC, 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.

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.

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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

Pendant fixtures can be mounted with aircraft cable. See page 2 for details.

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, 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.

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.

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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 - Ø 1/16" stainless steel aircraft cable

WEIGHT

Direct/Indirect	Direct
4ft - 9.24 lbs - 4.19 kg	4ft - 9.19 lbs - 4.17 kg
6ft - 13.86 lbs - 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 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.