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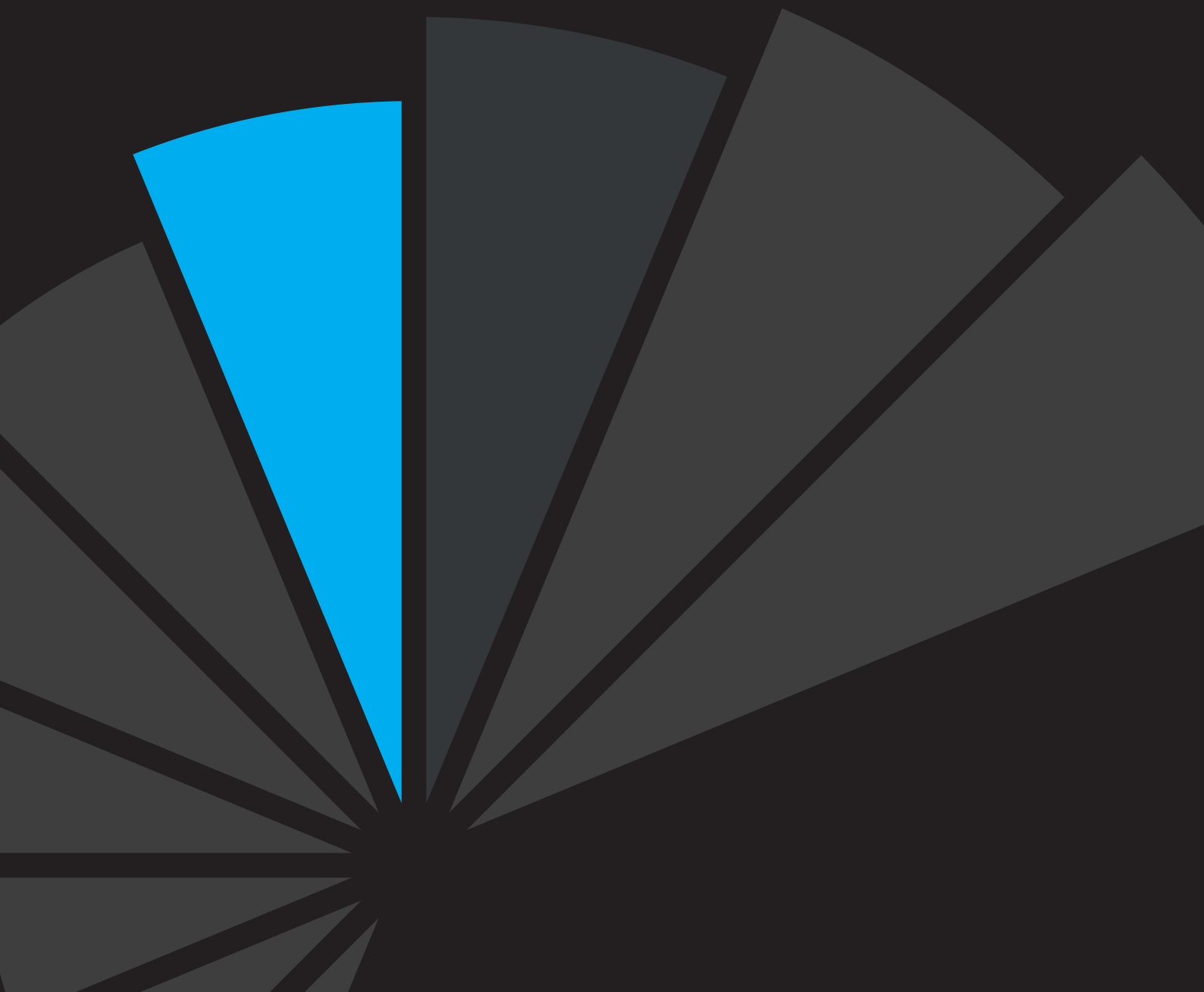
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Landscape Lighting System

2016/1

Lumena





Lumena

The Lumena landscape lighting system is a collection of luminaires designed to provide the ultimate in design freedom and quality of workmanship.

Built for modern landscapes

Modern landscape design demands modern lighting solutions. Lumena is at the forefront of LED lighting technology, delivering advanced luminaires in compact, minimal designs that feature the latest LED chips and custom developed drivers and control technology.

Lumena

The Lumena collection of advanced landscape luminaires is designed for high-performance and long-lasting durability in all outdoor environments.

Constructed from Aerospace-grade aluminium and utilising the latest in LED technology from CREE, the Lumena range is suitable for a wide variety of architectural and landscape lighting projects.

Aerospace-Grade Aluminium & Anodising

The Lumena range is precision CNC machined from extruded profiles of AL6061-T3 Aluminium and then anodised in a selection of colours. Similar materials and processes are utilised in the aerospace, marine and automotive racing industries. Anodised aluminium has superior long-term durability, thermal conductivity and low-maintenance qualities when compared to Stainless Steel, making it an ideal material for LED luminaires.



LEDs

Lumena utilises CREE LED's exclusively in a variety of platforms and packages. By choosing to use only CREE, Lumena is able to demonstrate leading lumen / watt ratios and deliver superior overall efficacy.



Assembled in Australia

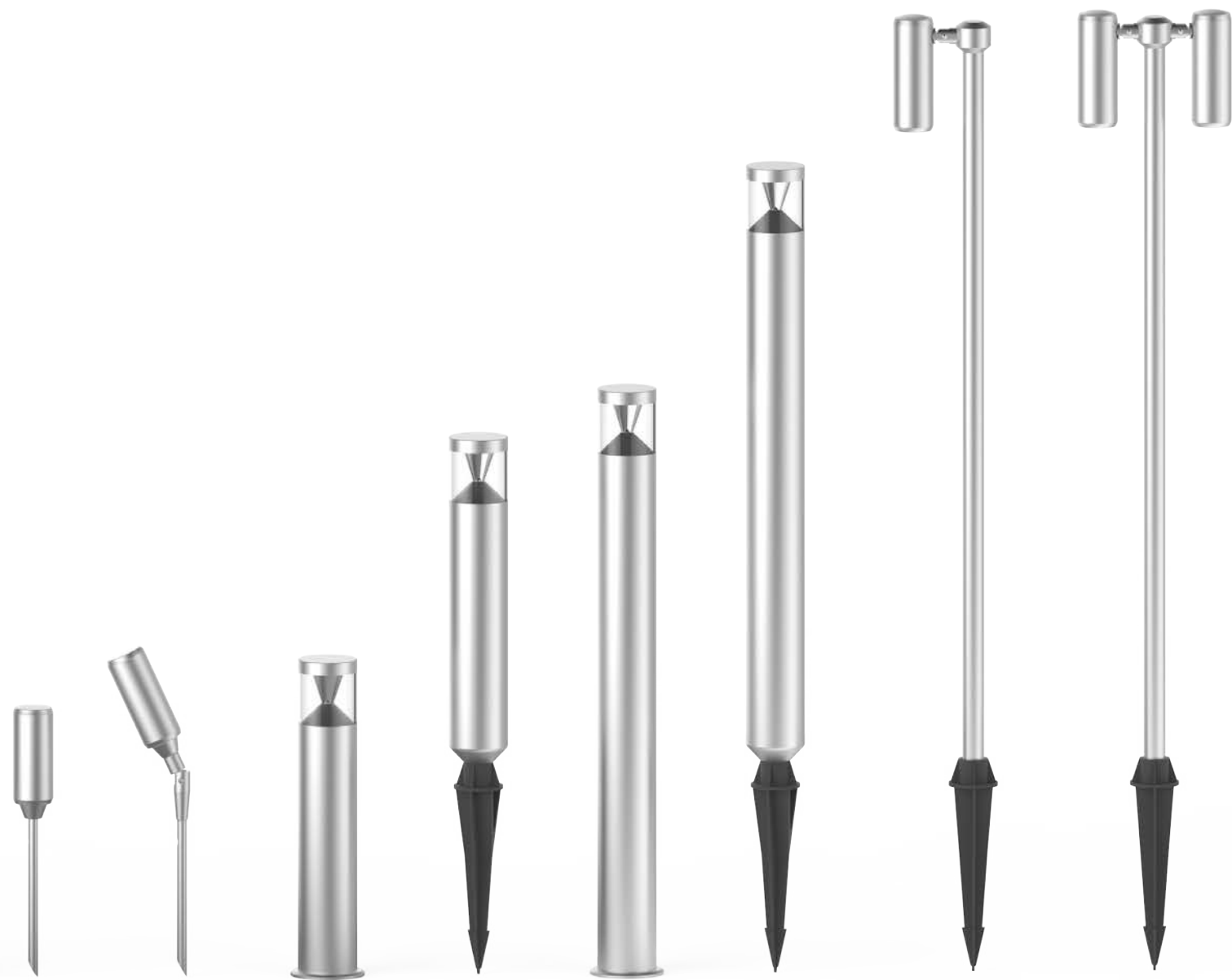
By choosing to retain our full assembly capacity in Sydney, Australia, Aqualux is able to ensure the highest build quality standards are adhered to. From prototype through to mass-production, our assembly team is able to deliver products on time and to the standards our customers expect.



Sustainable Lighting

Our commitment to delivering sustainable products is present throughout our organisation. From our Sydney factory running on 100% Renewable Energy, through to sustainable product design & packaging choices - not to mention the development of lighting products that use 20% of the energy of their previous halogen equivalents!





AQL-105

Inground Spike

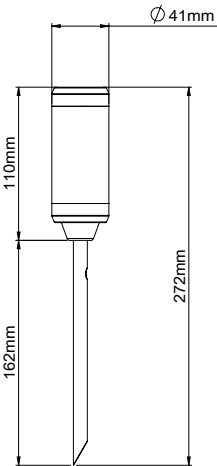


TECHNICAL

Product Code	AQL-105
Product Family	Lumena
Mounting	Inground Spike
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option AqualuxPLUS+

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K/5500K]	X03	3W
	550lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



AQL-115

Adjustable Inground Spike



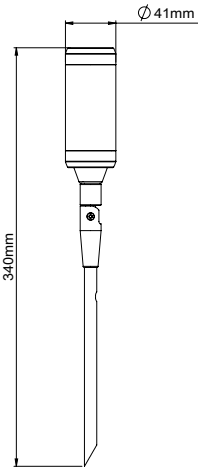
TECHNICAL

Product Code	AQL-115
Product Family	Lumena
Mounting	Adjustable Inground Spike
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option AqualuxPLUS+



CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K/5500K]	X03	3W
	550lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



AQL-120/121

Single
Pathlight

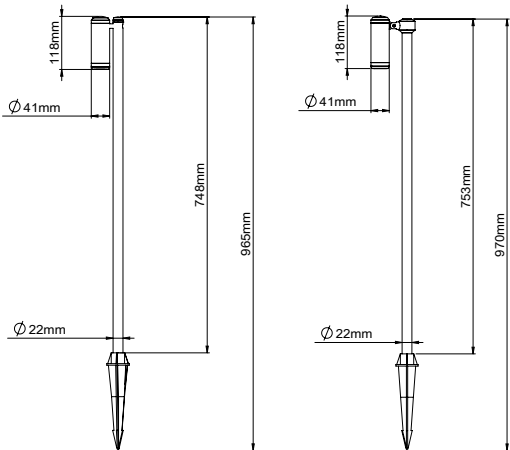


TECHNICAL

Product Code	AQL-120 (Fixed) / AQL-121 (Adjustable)
Product Family	Lumena
Mounting	Spike Pathlight
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
LED Options	300lms [3000K/5500K]	X03	3W
	550lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



AQL-125/126

Twin
Pathlight

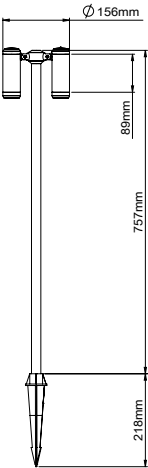


TECHNICAL

Product Code	AQL-125 (Fixed) / AQL-126 (Adjustable)
Product Family	Lumena
Mounting	Twin Spike Pathlight
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
LED Options	300lms [3000K/5500K]	X03	3W
	550lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W







AQL-130/131

GEKKO

Mini-Bollard

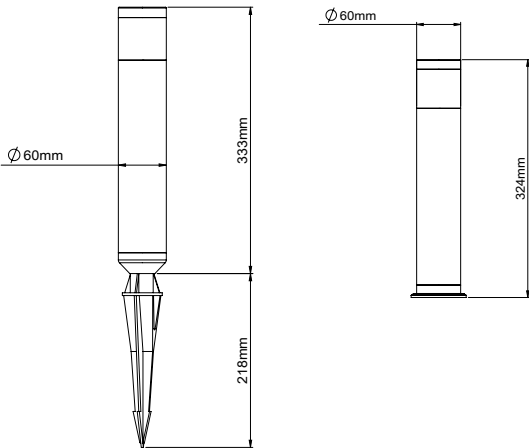


TECHNICAL

Product Code	AQL-130 (Spike) / AQL-131 (Surface Mount)
Product Family	Lumena
Mounting	Spike or Surface
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	AqualuxPLUS+

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
LED Options	320lms [3000K]	X06	4W
Optic	Diffuse	360°	



AQL-132

1400+ lms

GEKKO

Spike Uplight

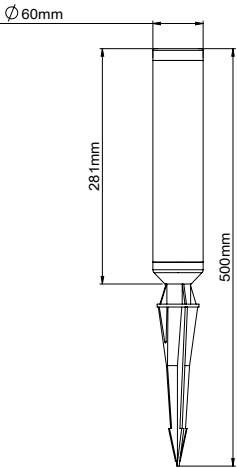


TECHNICAL

Product Code	AQL-132 High Powered Uplight
Product Family	Lumena
Mounting	Spike
Construction	CNC Machined / Anodised 6061
Electrical	SELV - 24V DC
Cable	900mm Aqualux Dual Silicon/ PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	AqualuxPLUS+

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
LED Options	1450lms [3000K]	X15	15W
	Narrow	10 FWHM	N
	Medium	25 FWHM	M
Optic	Wide	40 FWHM	W



AQL-135/136

GEKKO
Mini Bollard

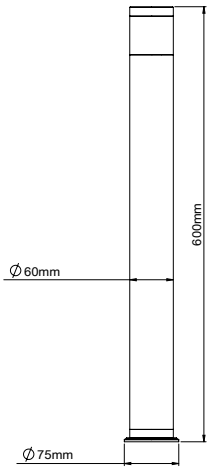
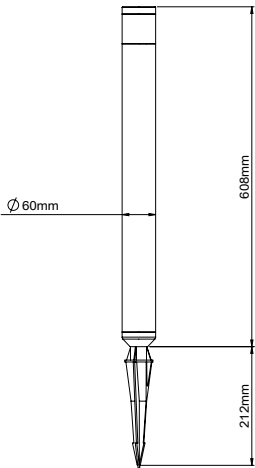


TECHNICAL

Product Code	AQL-135 (Spike) / AQL-136 (Surface Mount)
Product Family	Lumena
Mounting	Mini Bollard
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/ PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	AqualuxPLUS+

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
LED Options	320lms [3000K]	X06	5W
Optic	Diffuse	360°	



AQL-155

Recessed Decklight



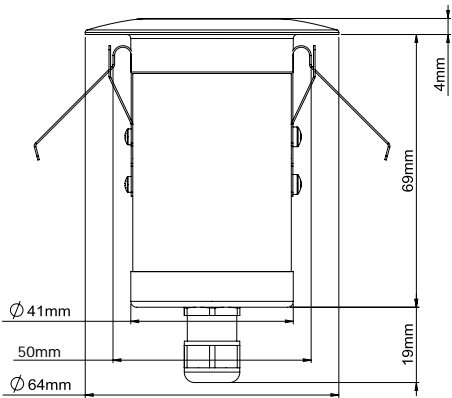
TECHNICAL

Product Code	AQL-155
Product Family	Lumena
Mounting	Recessed Uplight
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option AqualuxPLUS+



CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K/5500K]	X03	3W
	550lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



Core Hole Cutout: 50 ~ 55mm

AQL-165

Runway

Light / 180°

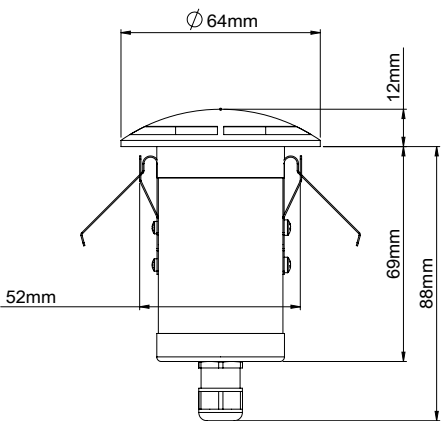


TECHNICAL

Product Code	AQL-165
Product Family	Lumena
Mounting	2-Way Runway Light
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	AqualuxPLUS+

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	150lms [3000K / 5500K]	X12	4.5W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
Optic	Diffuse		



AQL-166

Runway
Light / 360°

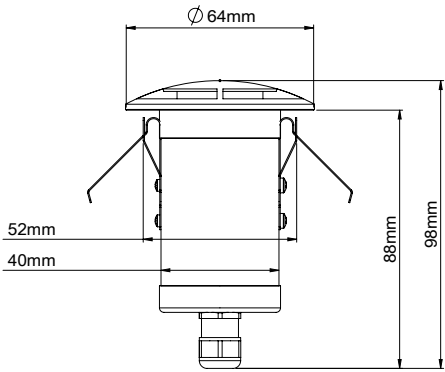


TECHNICAL

Product Code	AQL-166
Product Family	Lumena
Mounting	4-Way Runway Light
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	AqualuxPLUS+

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
Optic	Diffuse	-	



AQL-175
Pucklight

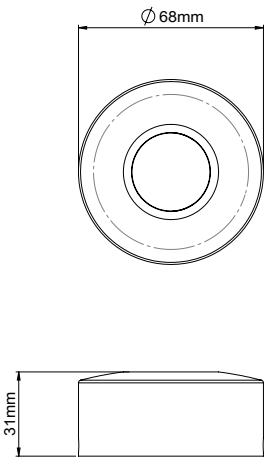


TECHNICAL

Product Code	AQL-175
Product Family	Lumena
Mounting	Surface Mount Light
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available AqualuxPLUS+

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K / 5500K]	X03	3W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



AQL-195

Micro Decklight



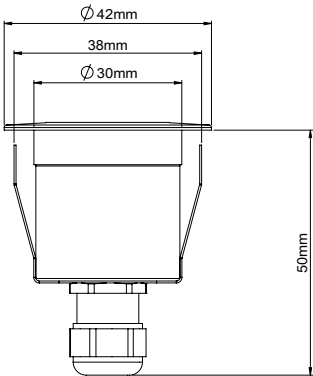
TECHNICAL

Product Code	AQL-195
Product Family	Lumena
Mounting	Micro Uplight
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available AqualuxPLUS+



CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	100lms [3000K / 5500K]	X03	1.5W
	Red / Green / Blue / Amber	R / G / B / A	1.5W
Optic	Diffuse		



Cutout 32~36mm





AQL-205

Fixed Wall Light

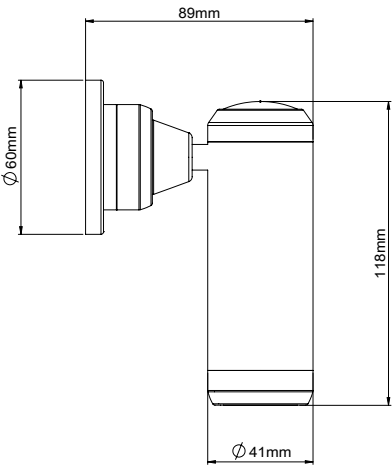


TECHNICAL

Product Code	AQL-205
Product Family	Lumena
Mounting	Fixed Wall Light
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K/5500K]	X03	3W
	550lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



AQL-215

Adjustable Wall Light

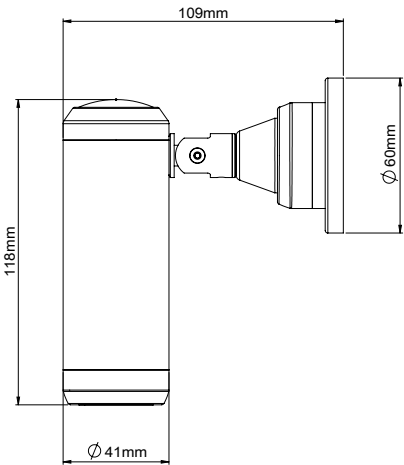


TECHNICAL

Product Code	AQL-215
Product Family	Lumena
Mounting	Adjustable Wall Light
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K/5500K]	X03	3W
	550lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



AQL-220

Surface Mount Light

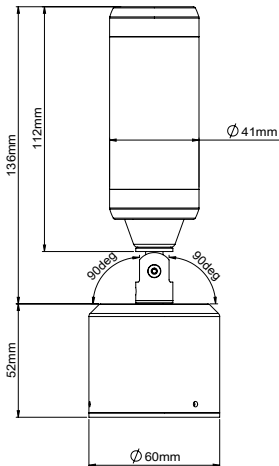


TECHNICAL

Product Code	AQL-220
Product Family	Lumena
Mounting	Surface Mount Spot
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available

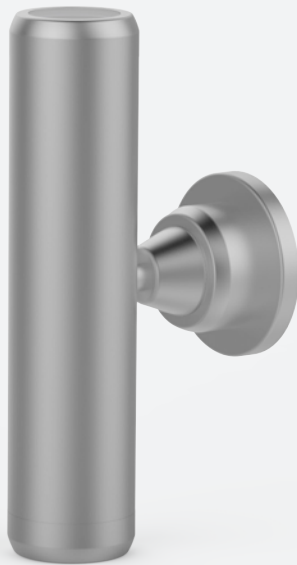
CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K/5500K]	X03	3W
	550lms [3000K / 5500K]	X12	6W
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



AQL-305

Up / Down Wall Light

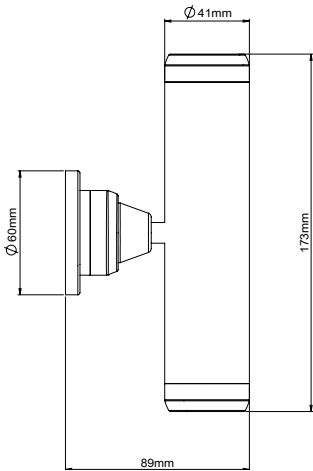


TECHNICAL

Product Code	AQL-305
Product Family	Lumena
Mounting	Up/Down Wall Light
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K/5500K]	X03	6W (total)
	550lms [3000K / 5500K]	X12	12W (total)
	Red / Green / Blue / Amber	R / G / B / A	2.5W
	RGBW	Z	5.0W
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



AQL-306

Up/Down

Wall Light

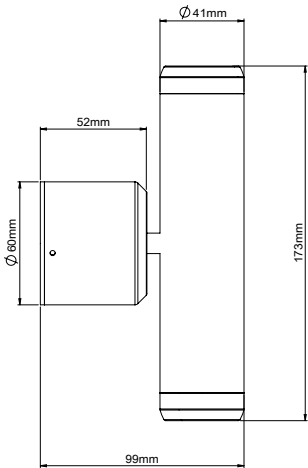


TECHNICAL

Product Code	AQL-306
Product Family	Lumena
Mounting	Up/Down Wall Light
Construction	CNC Machined / Anodised 6061
Electrical	SELV 12 ~ 24V AC / 15 ~ 24V DC
Cable	900mm Aqualux Dual Silicon/PTFE
IP Rating	IP67
Warranty	3 Year Aqualux Warranty
Additional	RGBW Option Available

CONFIGURE

Body Options	Satin Chrome	SC	
	Black	BK	
	Antique Brass	AB	
	Gunmetal Grey	GG	
LED Options	300lms [3000K/5500K]	X03	6W (total)
	550lms [3000K / 5500K]	X12	12W (total)
	Red / Green / Blue / Amber	R / G / B / A	5W (total)
	RGBW	Z	10W (total)
Optic	Narrow	10 FWHM	N
	Medium	25 FWHM	M
	Wide	40 FWHM	W



Lighting Glossary

Luminous Intensity (candela, cd)

1 cd = 1 lm / sr.

Luminous intensity is the light emitted in a given direction by a source. It is measured in candela (cd). The candela is an SI base unit from which other lighting related units are derived. The candela is defined as "the luminous intensity, in a given direction, of a source that emits monochromatic radiation of frequency 540×10^{12} Hz and that has a radiant intensity in that direction of 1/683 W per steradian."

Luminous Flux (lumen, lm)

1 lm = 1 cd . 1 sr

Luminous flux is the total amount of light emitted from a source in all directions. It can be used to approximate the "brightness" of a source, given that it is an average of the visible portion of the spectra emitted by a light source weighted by a function known as 'v-lambda' that describes the human visual systems sensitivity to light of different wavelengths. The lumen is a derived unit defined as 1 candela emitted in 1 unit solid angle, or steradian.

Radiant Flux (W)

The radiant flux of a light source is a measure of the total power emitted by a source across the entire electromagnetic spectrum, including non-visible portions such as UV and IR. In lighting, radiant flux is used in order to determine the luminous efficacy of a light source.

Luminous Efficacy (lm/W)

The luminous efficacy of a light source is determined by dividing the luminous flux by the radiant flux. The resulting fraction or coefficient describes the degree to which a source emits radiation in the visible or 'useful' part of the spectrum for lighting purposes. Energy emitted in wavelengths outside the visible portion of the spectrum reduces the overall luminous efficacy of a light source.

Illuminance (lux, lx)

1 lx = 1 lm/m²

Illuminance is the light incident on the surface of a plane. It is a derivative unit where 1 lux = 1 lumen spread over 1 square meter. Illuminance can be further classified as perpendicular or horizontal illuminance, when needing to differentiate in the analysis of a lit environment. The inverse square law can be used to calculate the lux incident on a plane with a known source intensity and distance.

Luminance (cd/m²)

Luminance is the light emitted from or reflected from a surface and approximates the brightness. It is dependant on the luminance of incident light and the reflectance of the surface. It is also commonly used to measure the brightness of a monitor or display.

Color Rendering

The colour rendering ability of a light source is the degree to which the source alters the appearance of an illuminated object relative to the appearance of the object under a reference illuminant. The most commonly used system for measuring this is the Colour Rendering Index (CRI). A series of coloured patches are evaluated under the source illuminant and an average calculated and indexed to a score (Ra) out of 100. Although in widespread use, there are several issues with the CRI system. An improved alternative to CRI is known as the Colour Quality System (CQS).

Correlated Colour Temperature (CCT)

The colour temperature of a light source is a measure used to describe the appearance of a white-light source. 'Cool' sources are said to have a higher CCT (above 5000K) whilst 'Warm' sources have lower temperatures (below 3000K). It is referred to as correlated colour temperature because the appearance of the light source is being compared to that of an 'ideal' black-body radiator with a similar surface temperature measured in kelvin (K).

Beam Angle (FWHM)

Full Width Half Maximum (FWHM) is an expression often found in the specification of LED optical systems. It refers to the width of the beam where the intensity is 50% of the maximum. This is typically measured by a goniophotometer during standard photometric testing. Some manufacturers may use different systems for specifying optical beam performance.

Voltage Drop

Voltage drop in landscape lighting is the degree to which the starting voltage decreases over a given length of cable as a function of both the current load (A) and the resistance (Ω) of the cable. If the proper cable is not selected, voltage drop can produce faults such as low output or flickering lights. Selecting luminaires with the Aqualux MultiVoltage™ internal driver and using a 24V power supply can mitigate many of these issues, allowing for cheaper and more flexible installation.

Aqualux System Guide

LED

Aqualux utilises a variety of LED chipsets, primarily from CREE. Our internal driver configurations vary based on the luminaire and light output required. Refer to the table below for general wattage / voltage parameters, and to individual product pages for more detail. Call us to confirm for larger installations & project requirements.

	Lumen Output (lm) ¹	Drive Current	Luminaire (Vf)	Wattage (W) ¹	Input Voltage ³
X01	50	150mA	3.5	0.6	11 ~ 28V AC / DC
X03	300	300mA	12	3.6	12 ~ 24V AC / 15 ~ 24V DC
X06	250	300mA	9	2.7	11 ~ 28V AC / DC
X12	550	550mA	12	6.6	12 ~ 24V AC / 15 ~ 24V DC
X15	1450	1500mA	12	15	24V DC
D12	50 ~ 550 ²	150mA ~ 500mA	12	4.5	24V AC / DC

1. Nominal values given for lumen output and wattages will vary based on the particular optical configuration (lens or diffuser choice), LED colour temperature and input voltage.
2. The maximum & minimum output of the dimmable driver will vary based on the exact dimmer selected & power source used. 0% dimming is not currently possible.
3. Check specific luminaire specification before completing system design.

Optical

Aqualux fittings can generally be configured with a choice of optical lenses. The images and photometric charts below show the difference between the standard choices. In some products a diffuse or frosted option is available - this delivers a much broader, non-focussed light.

Narrow

A narrow beam for highlighting taller features or thin trees, where greater penetration is required.



Medium

General purpose beam for most applications, a good all round spread of light for various applications.



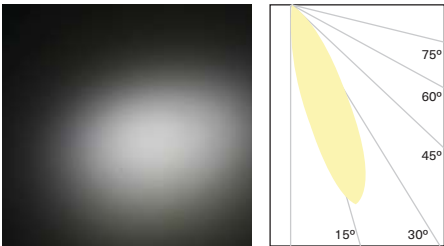
Wide

Broader spread for washing larger flora or wall features where a greater beam coverage is required.

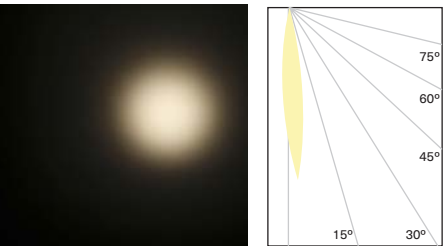


Assymetric

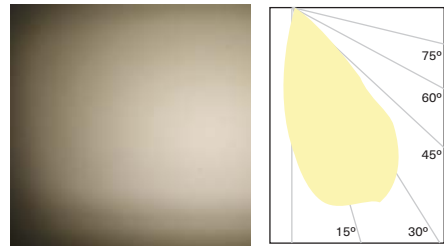
Billie



Emily



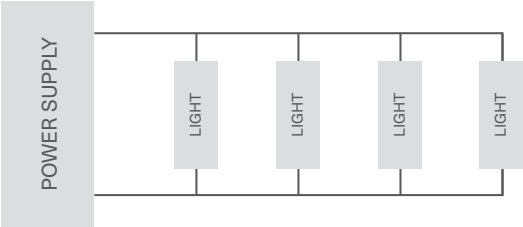
Rita



Aqualux System Guide

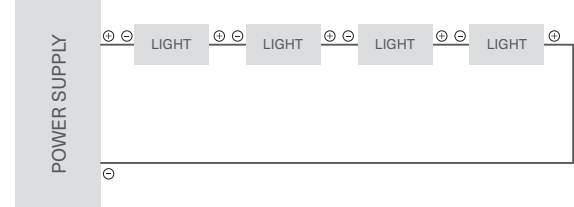
Parallel Wiring

All Aqualux LED luminaires are designed to be wired in parallel. This is the most common electrical wiring approach used for standard residential & commercial installations.



Series Wiring

For systems where internal drivers have been removed in order to provide dimming functionality series wiring is required, alongwith a Constant Current PSU.



Materials

CNC Machined + Anodised Aluminium 6061

Aluminium can be grouped into two different categories with respect to outdoor lighting - Machined or Cast. Machined aluminum, unlike cast aluminium, is a superior alloy and can be effectively anodized, a process which integrates a layer of extra-hard aluminium oxide into the surface of the metal and protects against corrosion. Machined & Anodised aluminium is used in a number of demanding applications, such as yacht masts, window framing and the aerospace industry, to name a few.



Copper

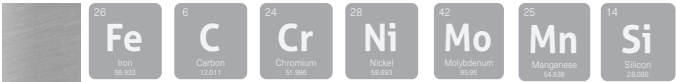
Copper is a popular option for more traditional settings and will naturally oxidize over time, turning a dark green colour as the metal reacts with oxygen in the air, unless it is continuously polished. Copper is one of the most expensive materials used in the construction of light fittings but also one of the most enduring.



Stainless Steel

Stainless Steel is a popular choice for luminaire construction and fits well with many of the contemporary home and garden designs seen today. Featuring resistance to corrosion and a variety of surface finishes possible, Stainless Steel for luminaire construction comes in two common grades, 304 & 316 ("Marine Grade").

Stainless Steel must be maintained in order for it to retain it's "stainless" appearance. Tea staining, dirt, salt and even rust can build up on any type of "Stainless" fitting unless it is properly maintained by wiping it down every few months with a damp cloth.



Brass

An alloy of tin & copper, brass is a material in common use for a wide variety of outdoor light fittings. Highly resistant to corrosion, brass will oxidize lightly over time but will generally not degrade structurally even in highly corrosive environments. Most brass fittings are generally cast and then machined.



Corrosion Control - Galvanic Table

The Galvanic Table lists metals in the order of their relative activity in sea water environment. The list begins with the more active (anodic) metal and proceeds down the to the least active (cathodic) metal of the galvanic series. Galvanic series relationships are useful as a guide for selecting metals to be joined, will help the selection of metals having minimal tendency to interact galvanically, or will indicate the need or degree of protection to be applied to lessen the expected potential interactions. Generally, the closer one metal is to another in the series, the more compatible they will be, i.e., the galvanic effects will be minimal. Conversely, the farther one metal is from another, the greater the corrosion will be.

Active (Anodic)	24. Al 2014-O	48. Brass, Naval, 464	72. Stainless steel 301 (passive)
1. Magnesium	25. Al 2024-T4	49. Yellow Brass	73. Stainless steel 321 (passive)
2. Mg alloy AZ-31B	26. Al 5052-H16	50. Muntz Metal 280	74. Stainless steel 201 (passive)
3. Mg alloy HK31A	27. Tin (plated)	51. Brass (plated)	75. Stainless steel 286 (passive)
4. Zinc (hot-dip, die cast, or plated)	28. Stainless steel 430 (active)	52. Nickel-silver (18% Ni)	76. Stainless steel 316L (passive)
5. Beryllium (hot pressed)	29. Lead	53. Stainless steel 316L (active)	77. AM355 (active)
6. Al 7072 clad on 7075	30. Steel 1010	54. Bronze 220	78. Stainless steel 202 (passive)
7. Al 2014-T3	31. Iron (cast)	55. Copper 110	79. Carpenter 20 (passive)
8. Al 1160-H14	32. Stainless steel 410 (active)	56. Red Brass	80. AM355 (passive)
9. Al 7079-T6	33. Copper (plated, cast, or wrought)	57. Stainless steel 347 (active)	81. A286 (passive)
10. Cadmium (plated)	34. Nickel (plated)	58. Molybdenum, Commercial pure	82. Titanium 5Al, 2.5 Sn
11. Uranium	35. Chromium (Plated)	59. Copper-nickel 715	83. Titanium 13V, 11Cr, 3Al (annealed)
12. Al 218 (die cast)	36. Tantalum	60. Admiralty brass	84. Titanium 6Al, 4V (solution treated and aged)
13. Al 5052-O	37. AM350 (active)	61. Stainless steel 202 (active)	85. Titanium 6Al, 4V (anneal)
14. Al 5052-H12	38. Stainless steel 310 (active)	62. Bronze, Phosphor 534 (B-1)	86. Titanium 8Mn
15. Al 5456-O, H353	39. Stainless steel 301 (active)	63. Monel 400	87. Titanium 13V, 11Cr, 3Al (solution heat treated and aged)
16. Al 5052-H32	40. Stainless steel 304 (active)	64. Stainless steel 201 (active)	88. Titanium 75A
17. Al 1100-O	41. Stainless steel 430 (active)	65. Carpenter 20 (active)	89. AM350 (passive)
18. Al 3003-H25	42. Stainless steel 410 (active)	66. Stainless steel 321 (active)	90. Silver
19. Al 6061-T6	43. Stainless steel 17-7PH (active)	67. Stainless steel 316 (active)	91. Gold
20. Al A360 (die cast)	44. Tungsten	68. Stainless steel 309 (active)	92. Graphite
21. Al 7075-T6	45. Niobium (columbium) 1% Zr	69. Stainless steel 17-7PH (passive)	End - Noble (Less Active, Cathodic)
22. Al 6061-O	46. Brass, Yellow, 268	70. Silicone Bronze 655	
23. Indium	47. Uranium 8% Mo.	71. Stainless steel 304 (passive)	

IP, IK Rating & CCT Information

IP Ratings

The IP (Ingress Protection) rating system provides a means of classifying the degrees of protection from foreign bodies and liquids afforded by electrical equipment and enclosures. The degrees of protection against the ingress of foreign bodies and liquids are indicated by the first two numerals as detailed in the table below.

	Digit	Protection
1st	0	No Protection
	1	Protected against ingress of objects => 50mm in diameter.
	2	Protected against ingress of objects => 12.5mm in diameter.
	3	Protected against ingress of objects => 2.5mm in diameter.
	4	Protected against ingress of objects => 1mm in diameter.
	5	Dust Protected
	6	Dust Tight
2nd	0	No Protection
	1	Protected against vertically falling drops of water.
	2	Protected against falling drops of water, when enclosure tilted 15 degrees.
	3	Protected against spraying water.
	4	Protected against splashing water.
	5	Protected against water jets.
	6	Protected against powerful water jets.
	7	Protected against the effects of temporary immersion in water.
	8	Protected against the effects of continous immersion in water.

IK Ratings

The IK rating system was introduced in October 1995 as EN62262. It describes the degree to which an electrical enclosure can protect the internal equipment from the effects of mechanical impact.

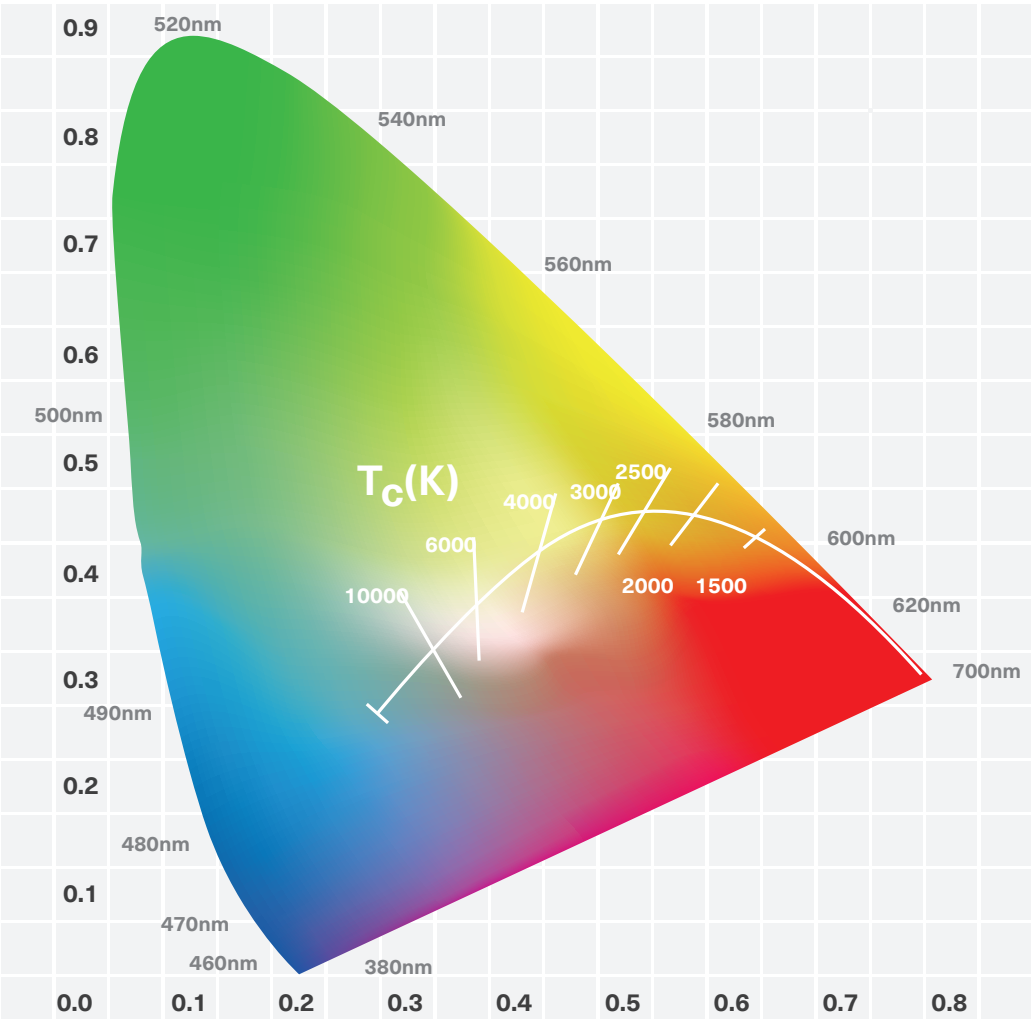
IK00	Not protected
IK01	Protected against 0.14 joules impact. Equivalent to impact of 0.25 kg mass dropped from 56 mm above impacted surface.
IK02	Protected against 0.2 joules impact. Equivalent to impact of 0.25 kg mass dropped from 80 mm above impacted surface.
IK03	Protected against 0.35 joules impact. Equivalent to impact of 0.25 kg mass dropped from 140 mm above impacted surface.
IK04	Protected against 0.5 joules impact. Equivalent to impact of 0.25 kg mass dropped from 200 mm above impacted surface.
IK05	Protected against 0.7 joules impact. Equivalent to impact of 0.25 kg mass dropped from 280 mm above impacted surface.
IK06	Protected against 1 joules impact. Equivalent to impact of 0.25 kg mass dropped from 400 mm above impacted surface.
IK07	Protected against 2 joules impact. Equivalent to impact of 0.5 kg mass dropped from 400 mm above impacted surface.
IK08	Protected against 5 joules impact. Equivalent to impact of 1.7 kg mass dropped from 300 mm above impacted surface.
IK09	Protected against 10 joules impact. Equivalent to impact of 5 kg mass dropped from 200 mm above impacted surface.
IK10	Protected against 20 joules impact. Equivalent to impact of 5 kg mass dropped from 400 mm above impacted surface.

CCT

Correlated Colour Temperature.

Color Temperature is the chromacity of a light source as determined by it's position on an imaginary line drawn through a colour space. This line is often referred to as a 'blackbody locus', as it is the locus (line) resulting from graphing the chromacity of a perfect blackbody radiator as it changes temperature. In general, "hotter" CCT's appear "cooler/bluer" whilst "colder" CCT's appear "warmer/more red"

CCT	Example
2000°	Gaslight
2470°	15 watt incandescent bulb
2565°	60 watt incandescent bulb
2665°	100 watt incandescent bulb
2755°	500 watt incandescent bulb
2900°	500 watt Krypton bulb
3100°	Projector type filament bulb
3250°	Photo Flood
3400°	Halogen
3900°	Carbon arc
4200°	Moonlight
4700°	Industrial smog
5100°	Hazy weather
5500°	Sun 30° above horizon
6100°	Sun 50° above horizon
6700°	Electronic Flash
7400°	Overcast sky
8300°	Foggy weather
30,000°	Blue sky



Blackbody locus drawn through the CIE 1931 x,y

Warranty Information

Aqualux Limited Warranty Certificate & Information / 2016-1

Aqualux designs and manufactures advanced landscape lighting of many different varieties. We utilise the highest grade components sourced from around the globe and assembled in our quality-controlled Sydney, Australia facility. From time-to-time, for a number of possible reasons, our products may experience an issue after installation. This warranty guide details the various warranties our products carry, the causes of product failure that we have experienced over time and the steps necessary to make a warranty claim should that be necessary.

Fit-for-Purpose & Installation Requirements

All warranties offered in addition to the statutory requirement of 1 Year are done so on the condition that Aqualux lighting products are fit-for-purpose and installed professionally or by similarly qualified persons and that all guidelines and requirements are followed. Fit-for-purpose in this context refers to the intended application our products are designed for which is residential and commercial garden & landscaping environments. Products not specifically designated IP68 are not fit for submersion, either intended or accidental.

Remote, Difficult & Unusual Installations

Where Aqualux products are installed in unusual, remote or difficult to access locations and environments, this is done so at the end-users risk. Where warranty issues arise, Aqualux is limited in it's liability to the cost of repairing or replacing the product only.

Examples of remote & unusual installations include (but are not limited to) jobs which require scissor lifts, traffic management, significant labor or the removal of paneling or other secondary installation materials. If you are uncertain please contact us to discuss: 1300-662-644.

AQS-Series Strip Lighting

Please pay particular attention to our fit-for-purpose and unusual installation warranty notes when designing with AQS LED Strip Lighting. Whilst LED strip lighting allows for very unique and previously impossible lighting effects to be achieved, it is still a sensitive electronic device that is potentially subject to failure through a variety of modes including improper handling during installation. Aqualux is not liable for any costs associated with accessing or replacing AQS-Series strip.

Warranty Claims Procedure

To make a claim for service to repair or replace under an Aqualux warranty. Contact the original reseller and/or installer of the product. They will generally be able to process the claim on your behalf.

If your original reseller is no longer in business or you are not sure who it may have been, please contact us directly with a photo of your product and a summary of the issue.

Warranty Period

Family	Mechanical	Electrical	AqualuxPLUS+
Lumena	3 Year	3 Year	6 Year Total
Phoenix	3 Year	3 Year	6 Year Total
Artisan	10 Year	3 Year	N/A
Hydra	2 Year	2 Year	6 Year Total
Elements	2 Year	2 Year	N/A
Aquatran	10 Year	10 Year	N/A
Orion / Polaris	3 Year	3 Year	N/A
AQS Strip Lighting	2 Year	2 Year	N/A
AGL LED Globes	2 Year	2 Year	N/A

Cable Termination Requirements

Cable terminations and joins MUST be IP68 rated for this warranty to apply. Joins and connections that are not fit-for-purpose or that are manifestly unsuitable will NOT be serviced by Aqualux and any product failure arising from such terminations will void any warranty available from Aqualux.

Examples of inadequate joining methods:

- 1) Terminal block + electrical tape
- 2) Twisted wires (no solder) + electrical tape.
- 3) Multiple conductor bundles & terminations that are not IP rated.

Aqualux PLUS+

The Aqualux PLUS+ warranty program is an option available on select models to enhance the warranty we are able to offer. Unlike other extended-warranty schemes, Aqualux PLUS+ includes an additional cable adapter designed to both prevent moisture siphoning into the fitting as well as facilitated rapid replacement should there be a problem in the field.

1. AqualuxPLUS+ Warranty is offered in addition to our basic warranty and extends the time period during which we will continue to honor our basic warranty obligations.

2. In the event of a product failure and that product is covered by the AqualuxPLUS+ scheme, we will ship a replacement product to the site and include a return postage option for the failed product to be shipped back at our cost. The actual replacement of AqualuxPLUS+ products is to be performed by the customer or end-user.

3. AqualuxPLUS+ does not extend our liability for incidental or consequential damages including but not limited to any additional installation costs.

4. AqualuxPLUS+ fees may vary from time to time. AqualuxPLUS+ warranty options cannot be renewed.

The Fine Print

Aqualux Lighting is a brand wholly owned by Telectran International. Telectran International Pty. Ltd. ("Telectran") warrants to the purchaser of products described herein to be free from defects in material and workmanship for a period commencing at the date of purchase and expiring at the end of the period specified (the "warranty period"). No other warranty, whether express or implied, including any warranty of merchantability or fitness for a particular purpose, shall exist in connection with the sale or use of such products.

Warranty is subject to the following limitations:

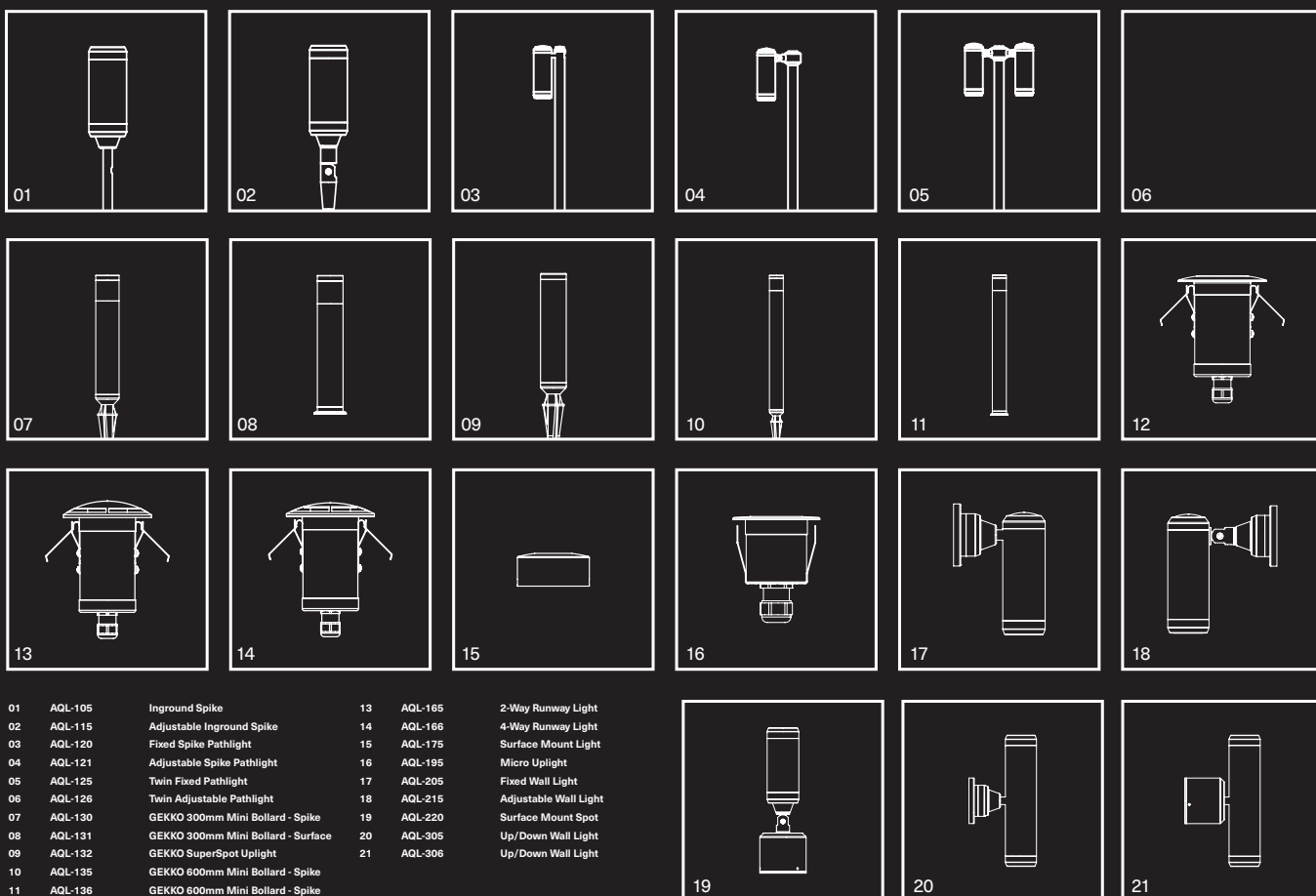
1. Defects that are, in the sole judgment of Telectran, the result of accident, misuse, abuse, neglect, mishandling, misapplication, faulty installation, unauthorized repair, modification, or acts of God will not be covered by this warranty.

2. Telectran shall not be liable for incidental or consequential damages, including but not limited to labor costs or lost profits resulting from the use of or inability to use the goods or from the goods being incorporated in or becoming a component of any other product. Without limiting the generality of the foregoing,

Telectran will not be responsible for labor costs involved in the removal of goods or the installation of replacement goods.

3. If a problem develops with a product during the warranty period call or write us. We may be able to help you identify specific problems and possibly solve them before the unit is returned to us for repair or replacement. In any case, DO NOT RETURN ANY GOODS WITHOUT OBTAINING A RETURN AUTHORIZATION NUMBER and instructions from us. Telectran cannot be responsible for damage due to shipping or improper packaging when returning goods. Please see our returns policy for further information.

4. All claims under this warranty must be made in writing. Upon receipt of claim, the Company shall inspect the part or parts claimed to be defective, and the Company shall repair, or at it's option, replace, free of charge, any part or parts which the Company determines to have been defective at the time of shipment from the factory; provided, however, that if circumstances are such as to preclude the remedying of warranted defect by repair or replacement, the Company shall, upon return of the products, refund to buyer any part of the purchase price of the products theretofore paid to the Company. Inspection shall, at the Company's option, be performed at the Company's plant, or at such other place as may be designated by the Company.



aqualuxlighting.com

