

The BIRNS Lumena-6[™] is an advanced, brilliant underwater LED floodlight that reduces nuclear fuel handling costs by bringing daylight visibility to reactor cores, fuel transfer canals and storage pools. This 85,000 lumen, low maintenance system provides immense light output, efficiency and quality.



High Performance . . . Under Pressure[®]

KEY FEATURES

The BIRNS Lumena-6 Model 5360 is a powerful LED lighting system, engineered for long term underwater use in areas of high radiation and nuclear contamination. It is meticulously designed with a rugged water cooled power system and detachable deep-submergence BIRNS Millennium[™] 3K power cable assembly.

This advanced lighting system enhances safety, performance and speed in nuclear fuel handling applications. The plug-and-play BIRNS Lumena-6 operates on any mains supply from 90-300 VAC and draws only 600W. Like all BIRNS nuclear lighting systems, it is designed with smooth edges, easily decontaminated, and constructed of all nuclear-compatible materials and captivated parts.

- Brilliant 85,000 lumen output; 5,000K color temp.
- >61,000 hour lamp life*
- Certified for use in water to 70°C without life reduction
- Seismically qualified
- Streamlined integrated power-supply design uses a single power cord
- 90-300 VAC mains input /600W power draw
- Medium or Wide beam options (30° or 70°)
- Robust design; all-captivated parts, anodized aluminum and stainless steel housing
- Rugged UNS S31600 stainless-steel indexed connectors



The BIRNS Lumena-6, shown here with wide flood reflectors. Note the rounded corners and edges.



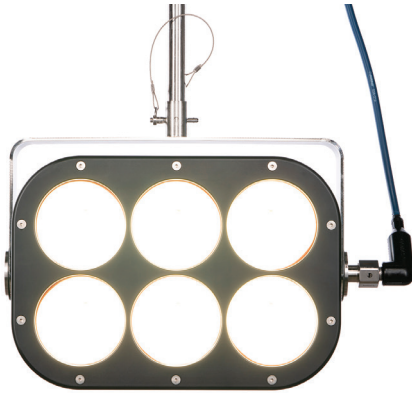
These robust systems are used in nuclear power generating plants, both commercial and research facilities.



Aimed 90°. The unit can be tilted in any angle, without tools, and stays set in position. Note the integrated, water-cooled electronics enclosure.

*This is the point at which the light output is 90% of the original value—not the actual end of life.

**High Performance . . .
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Broad, evenly-distributed "Daylight" illumination, without hotspots or shadows.

The system includes an exclusive BIRNS deep-ocean power cable assembly, crafted with stainless steel and high strength polyurethane, and available in lengths from 3m-30m. This cable is ideal for use in the nuclear environment, as it is radiation-tolerant and easy to decontaminate.



The solid stainless-steel rod securing the unit to the mounting pole is captivated. It cannot be withdrawn without concurrent pressure on the release button.

The light can be easily adjusted in a wide range of angles. Advanced thermal management design allows use in water up to 70°C without lamp life reduction.

The high intensity BIRNS Lumena-6 produces 85,000 lumens, penetrating the depths of any fuel pool or canal. It provides extreme long-term use, including in temperatures up to 70°C.



The BIRNS L1-14A power cord can be detached and reattached, in seconds, without tools. The hexagonal locking collar is easy for workers to grip, even when wet. Inspection ports allow workers to immediately verify proper sealing.

The BIRNS Lumena-6 design obviates the need for cumbersome topside power supplies. All that's needed on the surface is a mains power outlet of any voltage from 90 to 300 VAC.



No topside power supply required. The power cord plugs into any standard mains outlet from 90 to 300 VAC.

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1. To order: first select the Beam Angle and Lens (defaults are Medium Beam and Polycarbonate, respectively). Then choose a Mounting Pole and Power Cable Assembly.

2. Mounting Pole

Mounting poles are 1.5m (5 ft.) long and available in two standard styles. Custom lengths and styles are available on special order.



Bail and T-bar
(44N-002)



Bail, T-bar and hook
(44N-010)

3. Power Cable Assembly

Select the cable length, plug, and plug style.

L1-14A - 10 B B

LENGTH (m)

03: 3m
05: 5m
10: 10m
15: 15m
30: 30m
45: 45m

PLUG STYLE

A: 90-degree
B: Straight
X: No Plug

PLUG TYPE

B: USA 3-prong
C: Europlug
F: Schuko plug
X: No Plug

ELECTRICAL

Mains Input (VAC): 90-305
Frequency (Hz): 47 to 63
Power (W): 600W
Power Factor (%): ≥98 / 115VAC
≥95 / 230VAC
≥93 / 277VAC

LIGHTING/PHOTOMETRIC

Lamp Type: High-power LED
Light output: 85,000 lm
Color Temperature: 5000 K
Average Rated Lamp Life: >61,000-hour
L₉₀ lifetime rating**
Operating Position: Universal
Fixture Type: Flood
Beam Angle/Element: 30° or 70° reflectors available

*We continually upgrade and improve our products; specifications may be subject to change without notice.

**While ANSI/IES LM-21 limits the reporting of lifetimes to six times the actual test duration, the real lifetime is expected to be much longer than 61,000 hours.

LUMENA-6 Data Sheet Rev. B

SPECIFICATIONS

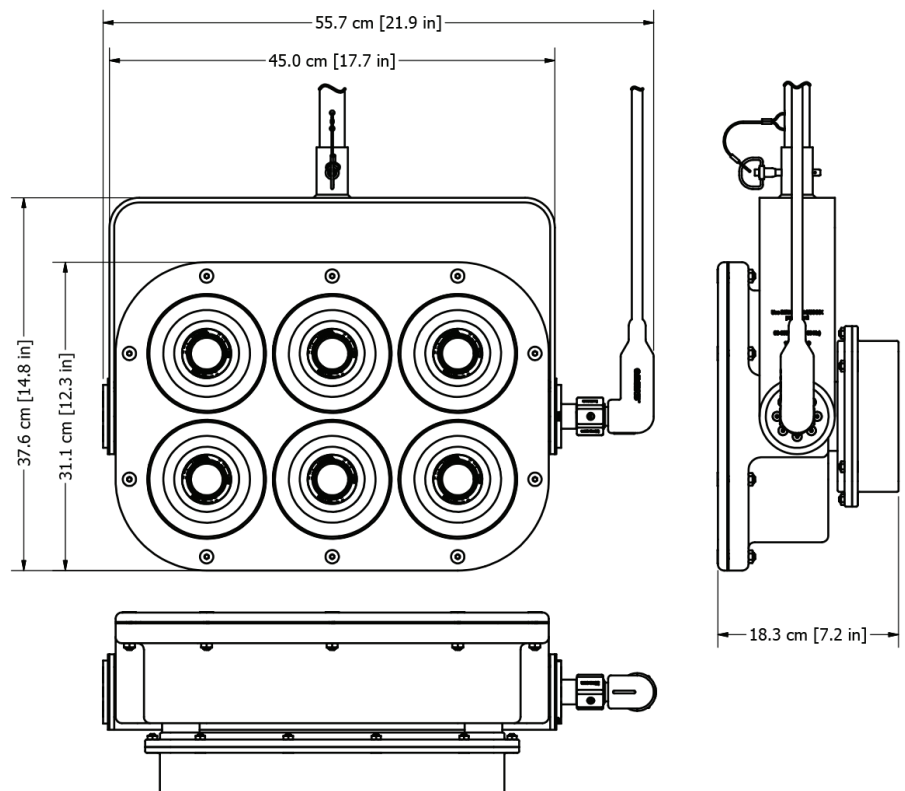
5360-W S

BEAM ANGLE

M: Medium
W: Wide

LENS

P: Polycarbonate
S: Tempered Borosilicate glass
Q: Quartz



MATERIALS

Housing: AL 6061-T6, Hard Black Anodized
Mounting Hardware: 300-series stainless steel
Support Bracket: Type 304 stainless steel
Connectors, coupling ring: Type 316 stainless steel
Cable jacket, overmolding: PUR (Polyurethane)

ENVIRONMENTAL & QUALIFICATIONS

Radiation Tolerance: 2 x 10⁵ Gy
Immersed temperature limit: 70°C
Depth Rating: 30m (100 feet)
IP Rating: IP 68

DIMENSIONS

Length: 55.7 cm (21.9 in)
Height: 37.6 cm (14.8 in)
Width: 18.3 cm (7.2 in)
Weight (in air): 19.5 kg (43 lbs)
Weight (in water): 4.5 kg (10 lbs)