

**KELVIN™**

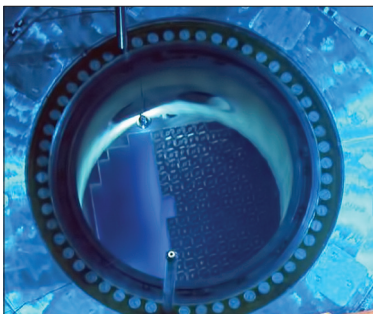
The BIRNS Kelvin™ is a powerful 16,000 lumen tungsten halogen floodlight that is trusted worldwide in major nuclear power stations. This proven system requires no costly radiation-sensitive electronics. It is seismically qualified per IEEE-344, and with its rugged stainless steel housing and a Lexan polycarbonate protector, it enhances safety and performance in a range of demanding nuclear illumination applications.



## **High Performance . . . Under Pressure®**

The BIRNS Kelvin™, BIRNS Model 5801, features a 120V/1,000W lamp with instant on/off and hot-restrike capability. It's specifically designed for underwater use in areas with high levels of radiation and nuclear contamination and includes a powerful underwater subsea-grade connector system designed for depths to 6km. The robust, innovative design allows easy hand gripping when removing the lamp's protective cover, and its strategic design elements provide protection against in-use mechanical impact damage.

The versatile 16,000 lumen system has replaceable lamps, and can be relamped without tools in just 60 seconds. It is easily decontaminated, and comes with a choice of wide, medium or narrow beam lamps. It mounts on a special pan-and-tilt yoke, hangs from a suspension assembly or secures (solo or dual) to a selection of mounting poles. The BIRNS Kelvin requires no heavy ballast to operate, is simple and



cost-efficient. Its housing is free-flooding for high-efficiency water cooling, yet is compatible with all commercial grade Class A GFCIs (ground-fault circuit interrupters).

## **KEY FEATURES**

- Brilliant 16,000 lumen illumination, 2950K natural color
- 60-second tool-free relamping
- Choice of three beam angles
- Complete dimming capability (0-100%)
- Instant on/off and ballast-free operation
- Seismically qualified per IEEE-344
- Rugged, all stainless steel inside-containment construction
- Integral underwater connectors, designed for easy operation
- Option of stainless steel mounting yoke or suspension assembly

## **APPLICATIONS**

Thousands of BIRNS Kelvins are trusted in nuclear power plants worldwide, as they are ideal for long-term illumination of fuel pools and transfer canals, and are extensively used in reactor cavity illumination during fuel movement or other large-scale activities. The system can be mounted for general-purpose area light use, or suspended by its detachable cable.



BIRNS' Quality Management System is  
ISO 9001:2015 Certified;  
NRC 10CFR50, App. B Compliant

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## SPECIFICATIONS

### ORDERING INFORMATION: Model 5801

The BIRNS Kelvin includes stainless steel housing, mounting yoke and hardware; Lexan lamp protector; and 1000W lamp in choice of beam angle.

#### Step 1: Select a beam angle.

Item	Description	Beam Angle
5801-NS	Narrow Spot	20° x 24°
5801-MB	Medium Beam	21° x 44°
5801-WF	Wide Flood	45° x 71°

#### Step 2: Select cable type (Aquaprene or Super Vu-tron®) and length.

Aquaprene	
Item	Length
CEF3S16-33	33 ft. (10m)
CEF3S16-50	50 ft. (15m)
CEF3S16-100	100 ft. (30m)
CEF3S16-150	150 ft. (45m)

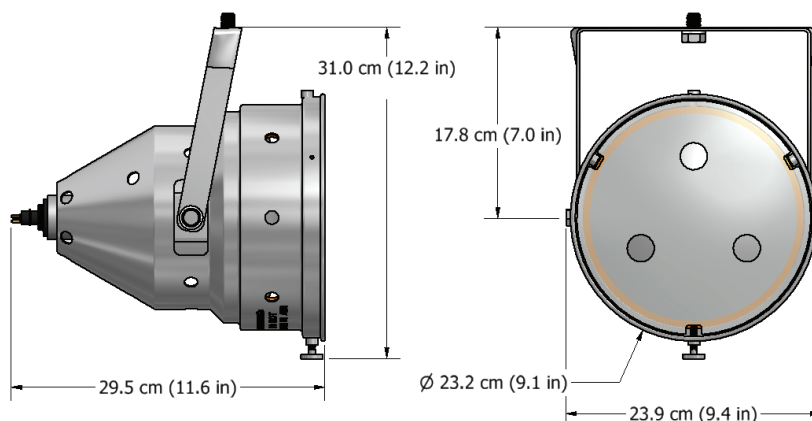
Super Vu-tron®	
Item	Length
CEF3S16-SV-33	33 ft. (10m)
CEF3S16-SV-50	50 ft. (15m)
CEF3S16-SV-100	100 ft. (30m)
CEF3S16-SV-150	150 ft. (45m)

#### Step 3: Select optional mount.

Item	Description
44F-001	Suspension Assembly

#### Step 4: Select optional spares.

Item	Description
62A-004	Lexan Protector
25A-002	Silicone Backing Ring
32D-028	Spare lamp Narrow Spot
32D-029	Spare lamp Medium Beam
32D-030	Spare lamp Wide Flood



#### PHYSICAL

Length:	29.5cm (11.6 in.)
Width:	23.9cm (9.4 in.) with yoke
Height:	31.0cm (12.2 in.) with yoke
Weight in Air:	9.1kg (20.0 lbs.)

#### LIGHTING/PHOTOMETRIC

Lamp Type:	Incandescent Tungsten-Halogen PAR-64 (Parabolic Aluminized Reflector)
Time To Full Brightness:	<1 s after application of power
Operating Position:	Universal (i.e. any position)
Rated Average Lifetime: <sup>1</sup>	4,000 hours <sup>2</sup>
Dimming Range:	0-100%
Rated Light Output:	16,000 Initial Lumens
Correlated Color Temp.:	2950K

#### ENVIRONMENTAL

Protection Level:	IP 68
Depth Rating:	30m (100 FSW) + 50% safety margin
Seismic Qualification:	Per IEEE-344, with 2% OBE and 3% SSE damping
Expected Radiation Tolerance:	4 x 10 <sup>5</sup> Gy (4 x 10 <sup>7</sup> R)

#### ELECTRICAL

Input Voltage: <sup>3</sup>	115 +/- 15 VAC or VDC
Supply Frequency:	60 or 50Hz
Cable Size:	16 AWG type SO, 3 conductor (standard)
Cable Current Rating:	12 Amperes maximum
Cable Voltage Rating:	600 Volts maximum
Nominal Lamp Wattage:	1000 Watts

#### MATERIALS

		Radiation Tolerance
All Housing Parts:	Stainless steel type 304	
Yoke Frame and Base:	Stainless steel type 304	
All Hardware, Ground Wire:	Stainless steel type 18-8	
Lamp Protector:	Polycarbonate (Lexan)	10 <sup>5</sup> Gy
Lamp Cushion/Backing Ring:	Silicone	10 <sup>6</sup> Gy
Connector:	Glass-reinforced epoxy (GRE)	10 <sup>6</sup> Gy
Connector Pins:	Copper alloy, gold-plated per MIL-G-45204	
Aquaprene Cable (standard):	CR (Neoprene) jacket, STR insulation	10 <sup>6</sup> Gy
Super Vu-tron® Cable (optional):	CSPE jacket, EPDM insulation	10 <sup>6</sup> Gy

<sup>1</sup>The time after which 50% of test lamps were no longer operating.

<sup>2</sup>These ratings are determined by the lamp manufacturer based on laboratory tests under controlled conditions. Your own field results may vary.

<sup>3</sup>Substantive input voltage variation will affect lamp performance characteristics, including light output, lamp life, consumed power, color temperature, etc. Generally, higher voltage use will increase light output, power, and color temperature and will lessen lamp life, and lower voltages will have converse effects. However, the relationships are linear only near the rated input voltage value.