Nightsun® XPM IR LED

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MIL-SPEC High Intensity Searchlight System

Key Specifications & Characteristics:

- MIL-STD Qualifications
  - MIL-STD 810G ✓
  - MIL-STD 704F ✓
  - MIL-STD 461F ✓
  - MIL-STD 464C ✓
  - RTCA DO-160G ✓
- Instant start lamp ignition
- Bright & broad focusable beam on target at high altitudes
- Instant mode change between visible white light and IR light
- Integrated linking with EO/IR sensors & moving map systems
- Multiple control input options
- Versatile & reliable system
- Additive structure design & technology
- Performance based on 10+ years of flight heritage

Applications

Air, Land and Maritime applications in Law Enforcement, Fire, SAR and EMS operations requiring best in class support, reliability and long range illumination.

System Description:

This MIL-SPEC Qualified 1600 Watt Searchlight is our latest commercial model – with tremendous capabilities in both visible and IR spectrums. The system leverages the aerodynamic and rigid design of the legacy XP model one step further by employing additive-manufactured structures for improved performance and stability. The Nightsun® XPM uses ultra high speed motors for precise maneuverability and position feedback with increased control functionality and integration with popular mission system and camera sensor linking capabilities. Additionally, the Nightsun® XPM offers an optional MIL-SPEC Console Control Panel configuration for cockpit integration. The investment in design for a MIL-SPEC environment, along with the resulting rigorous qualification program has created new and unsurpassed capability for customer missions. The Nightsun® XPM has launched aboard the Boeing Chinook aircraft, which is another testament to the robust design and capability.

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Illumination Specifications

Visible Spectrum	
Lamp Type	1600 Watt Xenon Gas Arc Lamp
Peak Beam Intensity	30 – 40 Million Candle Power
Peak Illuminance	32 (2.9 ft.-cd) @ 1km
Lumens	1.9M
Beam Diameter 10% Peak Illuminance	230 ft. wide @ 3,280 ft. 70 m wide @ 1 km
Focus Range (beam width)	Variable 4° to 20°
Target IR Range	1 Mile (1.6 km)
Non-visible (IR) Spectrum	
Lamp type	21 850nm, 10 Watt High Power LED modules
Peak Illuminance	E-8 W/cm2 @ 1000 m
Focus Modes	14° (narrow) / 40° (wide)
Dimming	0% - 100%
Typical Useful Range	3300 ft., (1 km)
Target ID Range	1 Mile (1.6km)
Start Time	Less than 1 second

Mechanical Characteristics

Searchlight & Gimbal Weight	62.3 lbs.	(28.2 kg)
Junction Box Weight	6.1 lbs.	(2.8 kg)
Control Box Weight	1.5 lbs.	(.07 kg)
Cable Set Weight	10 – 25 lbs.	(4.5 – 11.33 kg)
System Weight	72 lbs. min	(32.65 kg)
Slew Range	AZ: 338°	EL: +3° - 72°

Envelope Specifications

Searchlight & Gimbal Assembly	
Min Height	19.3" (49.0 cm)
Max Height (72° look down)	24.4" (61.8 cm)
Max Depth	20.0" (51.0 cm)
Max Width	13.6" (34.7 cm)
Azimuth Rotation Diameter	12.1" (32.2cm)
Junction Box Assembly	
H x W x D	5.4" x 6.3" x 8.5" (13.7 x 16.0 x 21.5 cm)

MIL-STD Qualifications

MIL-STD 810	Environmental Acceleration Contamination by Fluids Explosive Atmosphere Humidity Icing / Freezing Rain Low Pressure, Altitude Rain, Drip and Blowing Salt Fog Sand and Dust Shock, Crash Hazard Shock, Functional Solar Radiation Temperature, Shock and Storage Vibration
MIL-STD 704	Power Quality LDC101 – 105, 201, 301, 302, 601, 602 Lighting Electrical Bonding, Voltage Spikes Direct /Indirect
MIL-STD 461	EMI CE101 – 102, CS101, CS114 – 116, RE101 – 102, RS101, 103

Electrical / Interface Specifications

Input Voltage	28 Volts DC, Nominal
Input Current	65 Amperes, 70 Amp Max < 3 Amperes in standby
Slew Rate	Variable= 0° - 90° / sec max
Control Interface	• System Aux On/Off • Cooling • Directional Control • Lamp on/off • Two-way focus (zoom +/-) • Home, Cage, Stow • Variable Slew Rate via pressure sensitive joystick • Remote I/O for dual control • RS422/RS232 link protocols for slaving to EO/IR Sensor or Moving Map, and position feedback.

The Spectrolab Nightsun® XPM IR LED complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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