

MBS-430-W4 Series Maxa Beam Searchlights

rev. 09/24



MBS-430-W4 Series Rail-Mounted Searchlights

Remote-Controlled Xenon Searchlight for vehicle, weapon and surveillance systems featuring a Picatinny rail interface.

Key Features

- 12,000,000 Peak Beam CandlePower Output
- 6.9 km Range (ANSI/NEMA FL1)
- 85 Watt Xenon Short Arc Lamp
- Infrared Illumination Capability (filter sold separately)
- Motorized Beam Width Adjustment
- Strobe Mode
- Control via RS-232 Protocol or Wired Switches
- Connects to any MIL-STD-1913 “Picatinny” Accessory Rail
- 12VDC Input; External DC-DC Converters Available



MBS-430-W4 Series Searchlight Options

- Connector Style – Locking Circular Plastic Connectors or MIL-DTL-38999 Series III Metal Connectors
- Control Method – Wired Remote Switches or RS-232 Serial Interface
- Lens Style – Standard Plastic “Spyder” Lens or Anodized Aluminum Lens

Available Models

Model Number	Connector Style		Control Method		Lens Style		Ingress Protection	Output
	Plastic	Metal	Wired Remote Switches	RS-232 Serial Interface	Standard Spyder Lens	Anodized Aluminum Lens		
MBS-430-W4-P	X		X		X		IP66	12,000,000 CandlePower
MBS-430-W4-RSP	X		X	X	X		IP66	
MBS-430-W4		X	X		X		IP67	
MBS-430-W4-RS		X	X	X	X		IP67	
MBS-430-W4-M		X	X			X	IP67	
MBS-430-W4-RSM		X	X	X		X	IP67	

Typical Applications

- Long Range Illumination (visible/infrared)
- Border Security
- Maritime and Harbor Security
- Surveillance (visible/infrared)
- Shipboard Protection

Maxa Beam Searchlight End-Users Include

- U.S. Armed Forces (all branches)
- U.S. Border Patrol
- U.S. Department of Energy
- U.S. Secret Service
- Federal Law Enforcement (FBI, U.S. Marshals)

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FEATURES

Output	12,000,000 Peak Beam CandlePower (no maximum threshold; -10% minimum threshold)
Range	0.25 lux @ 6,925 meters 1 lux @ 3,500 meters 12 lux @ 1,000 meters <i>Visible ranges per ANSI/NEMA FL1: Flashlight Basic Performance Standard</i>
Lamp	85 Watt Xenon Short Arc, Instant hot/cold start and restrike
Beam Width	1° Spot to 40° Flood, Motorized (<i>Models with Standard Spyder Lens</i>) 1° Spot to 25° Flood, Motorized (<i>Models with Anodized Aluminum Lens</i>)
Beam Intensity	3 Levels: 45W (Regular), 85W (High), 35W (Low; User-Programmable)
Disorienting Strobe Function	Default frequency of 10Hz and default duty cycle of 38%. User-adjustable frequency from 1-31Hz and duty cycle from 3-63%
Mount Interface	Connects to any MIL-STD-1913 “Picatinny” accessory rail (rail not included)



MBA-8406-MMS
Hand Controller
(sold separately)

CONTROL

Control Method	Wired Remote Switches (Hand Controller) RS-232 Protocol (Serial Communication); <i>select models only, see table on page 1</i>
Controllable Functions	On/Off, Beam Intensity, Beam Width, Strobe, Customized Beam Settings
Customizable Settings	Start-Up Beam Mode and Beam Width, Spot Limit, Flood Limit, Strobe Frequency and Duration
<i>RS-232-Enabled Models Only:</i>	
Control Command Set	Interface Control Document (ICD) available upon request
Control Software	Maxa Beam Searchlight Control Panel (included)

ENVIRONMENTAL

Ingress Protection	IP66 or IP67 per CEI/IEC 60529:2001 (<i>as indicated on Page 1</i>)
Operating Temperature	-15°C to +60°C
Housing	Polyester Powder-Coated Aluminum with Corrosion-Resistant Conversion Coating

MAINTENANCE

Lamp	Replacement Kit # MBA-2400 (<i>Models with Standard Spyder Lens</i>) Replacement Kit # MBA-2400-M (<i>Models with Anodized Aluminum Lens</i>)
MTBF	1500 hours (lamp); maintenance/replacement recommended at 1000 hours
Warranty	90 days (lamp); 1 year (all other components)

INCLUDED WITH THIS PRODUCT

All MBS-430-W4 Series Searchlights ship with an Operation Manual and Focus Adjustment Tool.

MBS-430-W4 Series Searchlights with RS-232 control also ship with the Interface Control Document (ICD) and an installation CD for the searchlight’s Windows-compatible Maxa Beam Control Software (MBA-GUI).

MBS-430-W4 Series Searchlights do not include mating connectors. Mating connector kits and off-the-shelf cables are sold separately; please inquire for details.

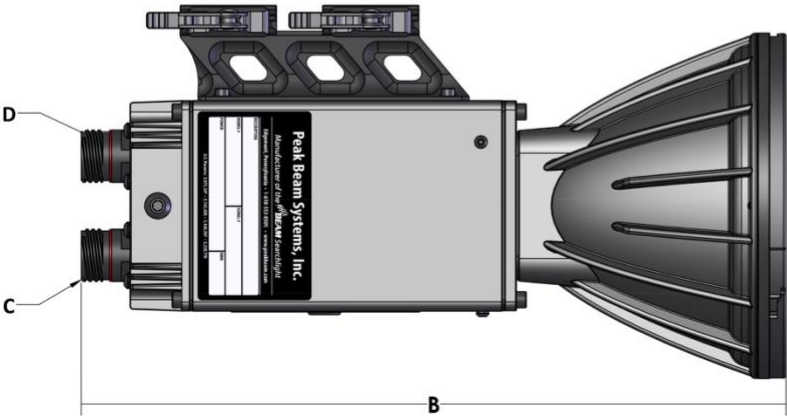
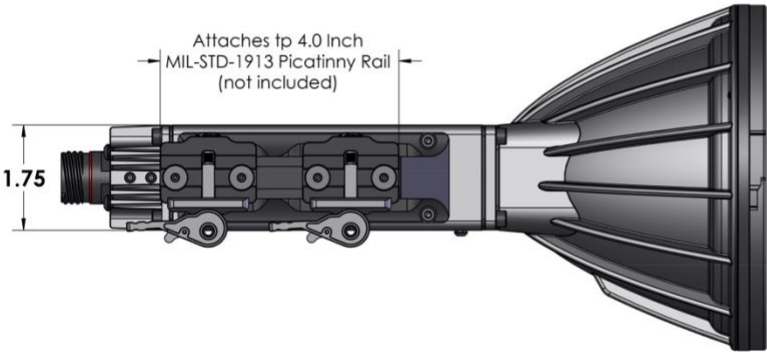
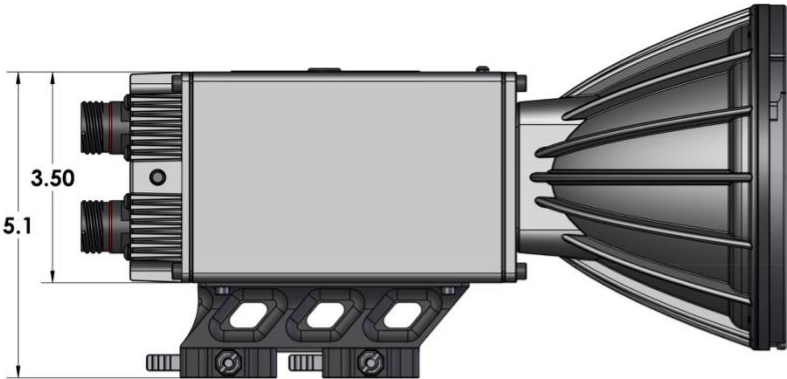
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PHYSICAL CHARACTERISTICS

Model Number	Dimensions		Connectors			Mating Connectors			Weight (lbs.)
	Diameter (in.) (A)	Length (in.) (B)	Type	Power (C)	Control (D)	Power	Control	Included?	
MBS-430-W4-P	Ø 5.74	11.1	Plastic	CN-004M1	CN-014	MBA-2435	MBA-2445	No	3.5 ±0.1
MBS-430-W4-RSP	Ø 5.74	11.1			CN-117		MBA-2445-RS		3.6 ±0.1
MBS-430-W4	Ø 5.74	11.5	Metal	D38999/ 20ZC4PA	D38999/ 20ZC98PN	D38999/ 26ZC4SA (MBA-2435-M)	D38999/ 26ZC98SN (MBA-2445-M)		3.5 ±0.1
MBS-430-W4-RS	Ø 5.74	11.5							3.6 ±0.1
MBS-430-W4-M	Ø 5.75	11.7							3.6 ±0.1
MBS-430-W4-RSM	Ø 5.75	11.7							3.7 ±0.1



Model MBS-430-W4-M shown.
Dimensions are in inches.



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INPUT POWER REQUIREMENTS

Parameter	Value	Unit	Notes
Operating Voltage	10.0-13.5	Volts	Over Voltage/Reverse Polarity Protected to $\pm 36V$
Lamp Off, Standard Lights	<1	μAmp	25°C, 12VDC Input
Lamp Off, RS-232 Lights	0.077 ± 0.01	Amps	25°C, 12VDC Input
Low Beam Mode	3.35 ± 0.07	Amps	25°C, 12VDC Input
Normal Beam Mode	4.29 ± 0.08	Amps	25°C, 12VDC Input
High Beam Mode	8.29 ± 0.09	Amps	25°C, 12VDC Input
Peak Current at Lamp Start	20.5 ± 3.2	Amps	25°C, 12VDC Input
Peak Current Pulse Duration	8.1 ± 1.6	mS	Time spent above high beam mode current draw.

Off-the-shelf power cables and power supplies are available for use with this searchlight series; please inquire for details.

CONNECTOR PIN-OUTS

Function			Pin		
			Plastic		Metal
			CN-014	CN-117	D38999/20ZC98PN
CONTROL	Wired Remote Switches	12VDC Out	1	1	A
		Focus Narrow	5	5	B
		Strobe/Low Beam Mode	7	7	C
		On/Off	3	3	D
		High/Normal Beam	4	4	G
		Focus Wide	6	6	H
		Ground	2	-	F
	RS-232*	RS-232 Signal Ground (DB9 Pin-5 + Drain Wire)	-	2	E
		RS-232 Receive Data (from searchlight to controller) (DB9 Pin-2)	-	8	J
		RS-232 Transmit Data (from controller to searchlight) (DB9 Pin-3)	-	9	K

Function		Pin	
		Plastic	Metal
		CN-004M1	D38999/20ZC4PA
POWER	Positive Supply Voltage	1	A
	Positive Supply Voltage	2	B
	Negative Supply Voltage	3	C
	Negative Supply Voltage	4	D

*Select models only; see table on page 1.

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CONTROL METHOD NOTES

All Rail-Mounted Searchlights can be controlled with wired remote controllers. For details on remote port and switch functionality, consult the Operation Manual. Off-the-shelf controllers are available; contact Peak Beam for more information.

Several searchlight models include an internal RS-232 computer interface. With this capability, the searchlight can be remotely controlled via computer either as a stand-alone illuminator or as part of an integrated computer-controlled surveillance or security system on a pan and tilt device.

RS-232 Searchlights can be controlled using a terminal emulator such as HyperTerminal or Peak Beam’s Graphical User Interface (GUI). Computer-controlled searchlights are also frequently installed with third-party Ethernet-to-Serial servers, allowing multiple searchlights to be linked together on the same network.

SAFETY WARNINGS

ANSI Risk Group 3. Warning.
Visible and infrared radiation emitted from this searchlight.
Permanent eye damage can result. Avoid direct exposure to the beam.

Do not look directly into the searchlight beam. Exposure of the eye to either the direct searchlight beam or a beam reflected from a flat mirror-like surface can cause permanent eye injury to the unprotected eye. Follow the same precaution even when an Infrared Filter is installed on the searchlight.

Nominal Ocular Hazard Distance (NOHD), Visible Light: 10 meters
NOHD, Infrared Light: 30 meters for exposures greater than 10 seconds

Do not operate searchlight if the front lens is damaged or removed. Ultraviolet injury to skin and cornea can occur if the searchlight is operated with a damaged front lens or if the lens is removed.

Do not allow the concentrated beam of light to be focused on flammable materials at close distances for prolonged periods of time.

Do not operate light in an explosive environment.

Do not touch lamp connections during operation as high voltage is present.

Do not touch the quartz envelope of the lamp. If the lamp is accidentally touched, clean with rubbing alcohol and allow it to dry completely before operating the searchlight.

Always wear protective eyewear, long sleeves, and gloves if removing the front lens cover. The lamp is under positive pressure and should be handled with care.

Always disconnect searchlight from power cord when not in use, when placed in storage or when being transported to prevent accidental activation.

REVISION HISTORY

4/2014	MBS-430-W4 Series released.
5/15/2014	Serial Interface V3.5 released; Interface Control Document V3.5 released.
5/2016	Continuous High Beam function added (applicable to switch control only) (G3-26).
8/2017	Phased transition begins for D38999 connectors from military service class W (Cadmium plated) to military service class Z, Zinc-Nickel plated over Aluminum shell.
5/2018	MBS-430-W4 Series Datasheet released. Product details consolidated and corrected. <i>This document replaces MBS-430-W4-P rev.A, MBS-430-W4 rev.A, MBS-430-W4-M rev.A, MBS-430-W4-RSP rev.B, MBS-430-W4-RS rev.E</i>
2/20/2020	Serial Interface V4.0 released; Interface Control Document V4.0 released.
5/18/2022	New reflector coating with improved visible and infrared reflectivity released (G3-26A); rail grabbers updated.
9/1/2024	Searchlight programmable settings updated, including power-up on high beam option (G3-34). Input power requirements updated. Serial Interface V4.2 released; Interface Control Document V4.2 released.



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