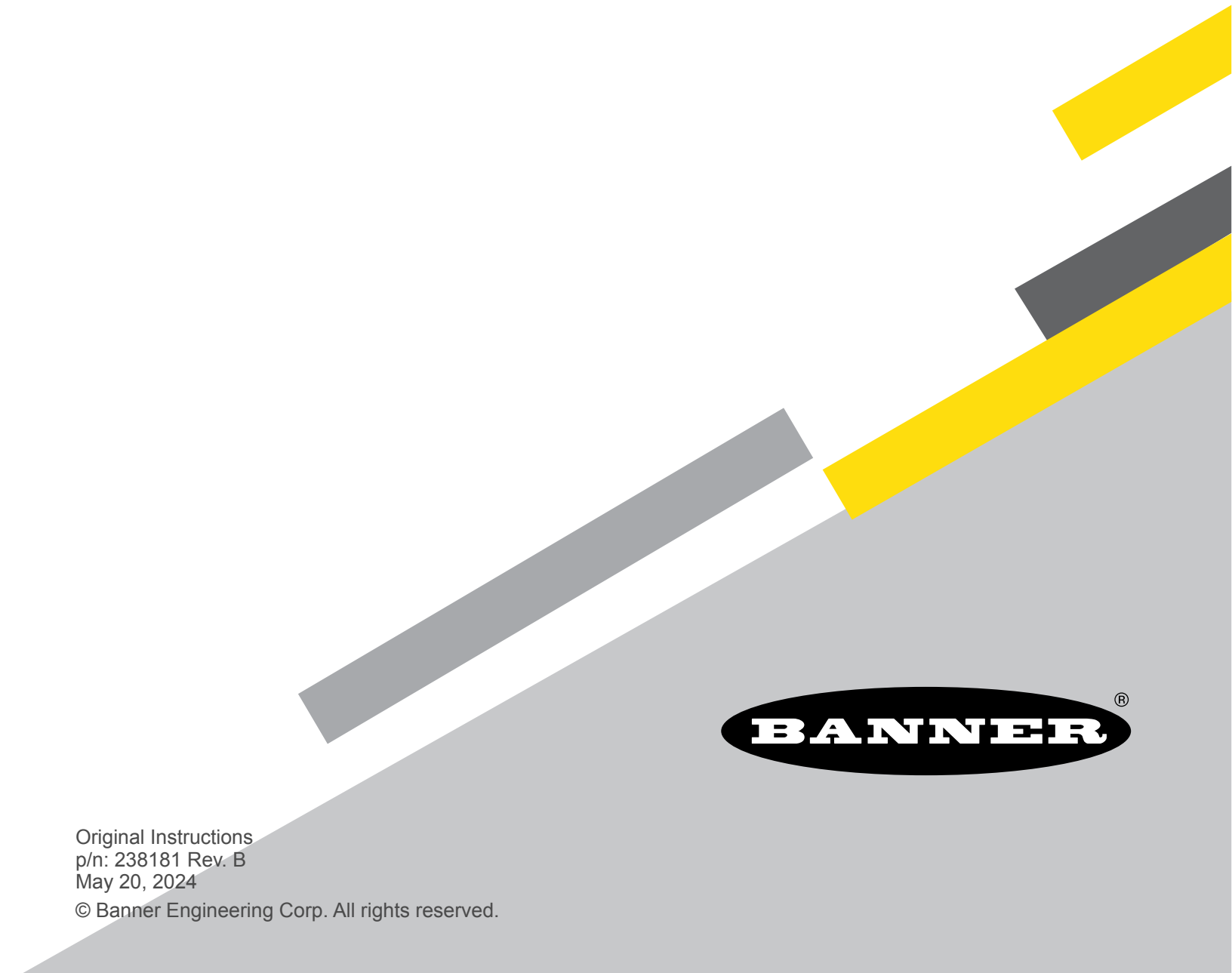
GS60 Guide Spotlight Instruction Manual



Original Instructions
p/n: 238181 Rev. B
May 20, 2024

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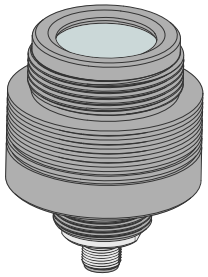
Chapter 1 Features



- Continuous or strobed operation, based on model
- 12 V DC to 30 V DC operation
- 60 mm diameter and 30 mm mounting base
- Rugged sealed housing rated to IP66 and IP67
- Cooling rib design for thermal management when used at the highest output for an extended period of time

IMPORTANT: Read the following instructions before operating the light. Please download the complete GS60 Guide Spotlight technical documentation, available in multiple languages, from www.bannerengineering.com for details on the proper use, applications, Warnings, and installation instructions of this device.

IMPORTANT: Lea el siguiente instructivo antes de operar el luminario. Por favor descargue desde www.bannerengineering.com toda la documentación técnica de los GS60 Guide Spotlight, disponibles en múltiples idiomas, para detalles del uso adecuado, aplicaciones, advertencias, y las instrucciones de instalación de estos dispositivos.

IMPORTANT: Lisez les instructions suivantes avant d'utiliser le luminaire. Veuillez télécharger la documentation technique complète des GS60 Guide Spotlight sur notre site www.bannerengineering.com pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.

Model Key

Housing	Color	Lens Angle	Control	Connection
GS60	**W**	**L4**		**Q**
60 mm diameter Guide Spotlight	W = White R = Red G = Green B = Blue Y = Yellow I = Infrared UV395 = 395 nm Ultraviolet	**Visible and IR models:** L4 = ± 4 degree lens **UV models:** L8 = ± 8 degree lens	Blank = Hi/Low/Off A = Adjustable PWM/Strobe and 1 V to 10 V dimming	Q = Integral 4-pin or 5-pin M12 male quick-disconnect connector(1)

(1) Hi/Low/Off models have 4-pin quick-disconnect connectors. Adjustable models have 5-pin quick-disconnect connectors.

The following caution applies to white LED models and blue LED models:

CAUTION:
Risk Group 2: Possibly hazardous optical radiation emitted from this product.

Do not stare at the operating lamp. May be harmful to the eyes. Risk Group 2 (RG 2) products generally do not pose a realistic optical hazard if aversion responses limit the exposure duration or where lengthy exposures are unrealistic.

- IEC 62471

The following caution applies to ultraviolet models:

CAUTION:
Risk Group 2: UV Emitted from this product.

Eye or skin irritation may result from exposure. Use appropriate shielding and eye protection. Risk Group 2 (RG 2) products generally do not pose a realistic optical hazard if aversion responses limit the exposure duration or where lengthy exposures are unrealistic.

- IEC 62471

The following caution applies to infrared models:

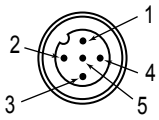
CAUTION:
Risk Group 2: IR Emitted from this product.

Avoid eye exposure. Use appropriate shielding or eye protection. Risk Group 2 (RG 2) products generally do not pose a realistic optical hazard if aversion responses limit the exposure duration or where lengthy exposures are unrealistic.

- IEC 62471

Chapter Contents

Chapter 2 Wiring

Pinout	Pin Number	Wire Color	High/Low/Off Models	1 V to 10 V Analog Dimming and Strobing/PWM Dimming Models
	Pin 1	Brown	12 V DC to 30 V DC	12 V DC to 30 V DC
	Pin 2	White	Not used	NPN PWM/Strobe Input: For maximum intensity, leave the white wire floating, or connect to 12 V DC to 30 V DC. Connecting to DC common causes the LEDs to shut off.
	Pin 3	Blue	DC common	DC common
	Pin 4	Black	Connect to 12 V DC to 30 V DC for 50% maximum intensity. For maximum intensity, leave the black wire floating or connect to common.	PNP PWM/Strobe Input: For maximum intensity, leave the black wire floating, or connect to DC common. Connecting to 12 V DC to 30 V DC causes the LEDs to shut off.
	Pin 5	Gray	Not present	1 V DC to 10 V DC Analog Dimming **NOTE:** Connect to 12 V DC to 30 V DC for maximum intensity, or apply 1 V to 10 V for analog dimming of 10% to 100% intensity.

Chapter Contents

Chapter 3 Specifications

Supply Voltage

12 V DC to 30 V DC

Use only with a suitable Class 2 power supply (UL) or SELV power supply (CE)

See the electrical characteristics on the product label.

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Light Source

One high-intensity LED; see models table for color temperature or wavelengths

Construction

Black anodized aluminum housing

Polycarbonate window

Nickel-plated quick-disconnect connector

Black anodized aluminum mounting nut

Mounting

30 × 1.5 mm thread base mount

Optional M48 knurl nut for front mount; see "Mounting Accessories" on page 12

Connections

Integral 4-pin or 5-pin M12 male quick-disconnect connector

Operating Temperature

–40 °C to +50 °C (–40 °F to +122 °F)

Storage Temperature

–40 °C to +70 °C (–40 °F to +158 °F)

Environmental Rating

IP66, IP67

LED Lifetime

Lumen Maintenance - L_{70}

When operating within specifications, the output decreases less than 30% after the following time periods:

Daylight White: 90,000 hours
Red: 70,000 hours
Green: 70,000 hours
Blue: 50,000 hours
Yellow: 60,000 hours
UV: 35,000 hours

Pulse Width Modulation (PWM)/Strobe Control

Maximum Frequency: 10 kHz

Minimum On Time: 20 µs

Input Delay Time: 5 µs

Input Voltage Threshold:

PNP: > 7 V DC
NPN: < 2 V DC

Input Current Maximum: 5 mA

Analog Control

Intensity Adjustment Range: 10% to 100%

Input Voltage Range: 1 V DC to 10 V DC

Input Current Maximum: 5 mA

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	1.0	30	0.5

Vibration and Mechanical Shock

Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)

Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

LOW VOLTAGE LUMINAIRE
E338626

Supply Current

Color	Max. Current Draw (A) at 12 V DC	Typical Current Draw (A)			
		12 V DC	24 V DC	30 V DC	50% Intensity at 24 V DC
Daylight White	0.45	0.34	0.18	0.15	0.08
Red	0.45	0.33	0.15	0.12	0.06
Green	0.45	0.405	0.18	0.14	0.06
Blue	0.45	0.41	0.18	0.14	0.065
Yellow	0.45	0.36	0.18	0.145	0.07
IR	0.45	0.185	0.09	0.07	0.045
UV	0.45	0.3	0.15	0.13	0.075

FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment.

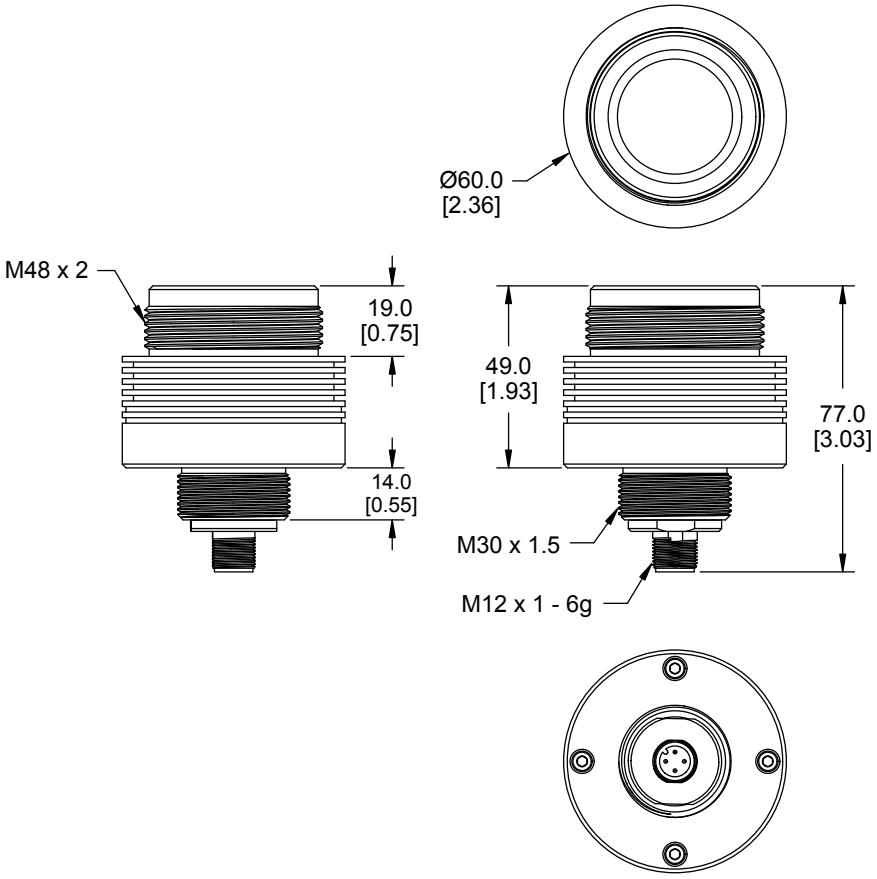
Industry Canada ICES-003(B)

This device complies with CAN ICES-3 (B)/NMB-3(B). 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.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.



Optical Data

Light Characteristics

Values shown are typical at 25°C.

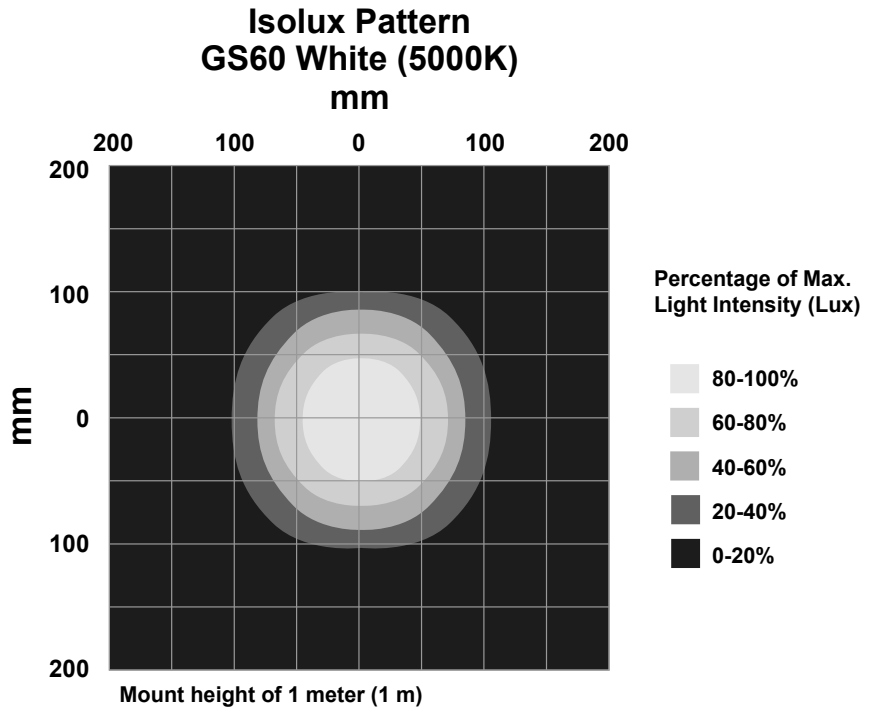
Intensity Setting	Lumens					mWatts	
	White (5000K)	Green (525 nm)	Yellow (590 nm)	Red (625 nm)	Blue (475 nm)	UV395 (395 nm)	IR (850 nm)
High	300	180	155	130	65	440	430
Low	150	90	78	65	33	240	215

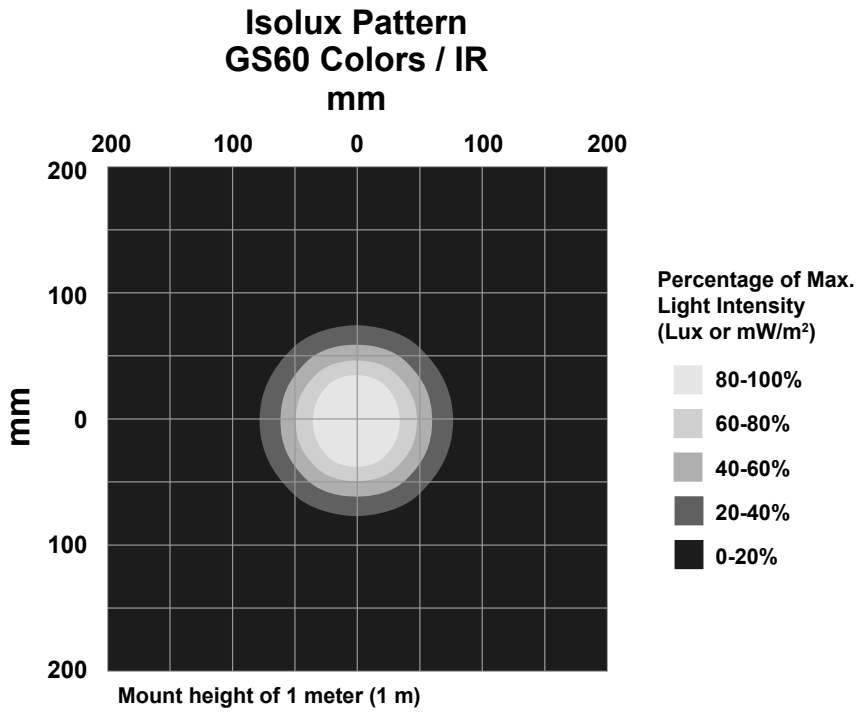
Performance Curves

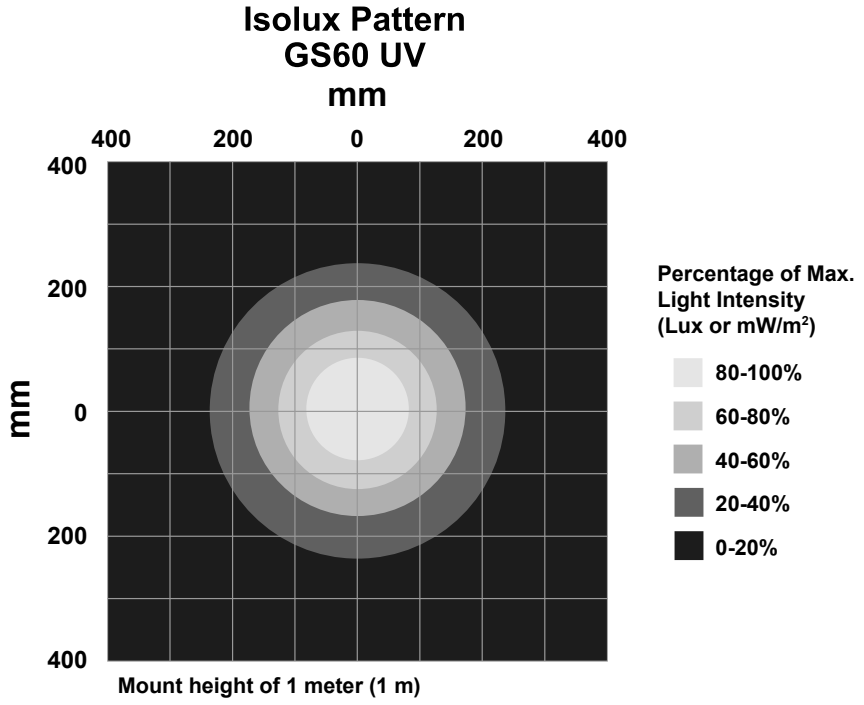
Lux and irradiance values shown are typical at 25 °C.

Distance (m)	Max Center Beam Illuminance (Lux)					Max Center Beam Irradiance (mW/m²)	
	White (5000K)	Green (525 nm)	Yellow (590 nm)	Red (625 nm)	Blue (475 nm)	UV395 (395 nm)	IR (850 nm)
0.17	400,000	680,000	280,000	288,000	260,000	96,000	1,020,000
0.33	85,000	144,500	59,500	61,200	55,200	20,400	216,700
0.5	41,680	70,900	29,200	30,000	27,000	10,000	106,300
0.67	24,370	41,400	17,000	17,500	15,800	5,900	62,100
0.83	16,610	28,200	11,600	12,000	10,800	4,000	42,400
1	11,700	19,900	8,200	8,400	7,600	2,800	30,000

LED Color	Beam Width FWHM (mm)	Beam Angle FWHM (Deg)
White (5000K)	160	9 (± 4.5°)
Colors / IR	100	7 (± 3.5°)
UV395	280	16 (± 8°)







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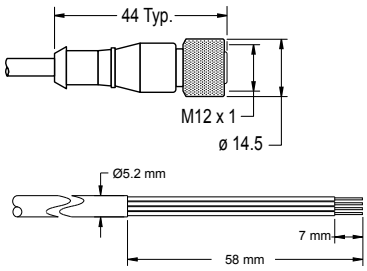
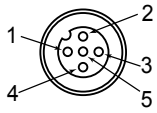
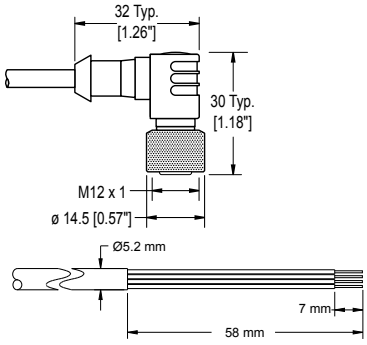
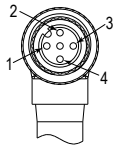
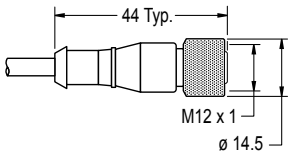
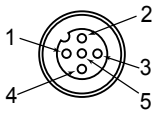
Chapter 4 Accessories

Cordsets

4-Pin Threaded M12 Cordsets—Single Ended					
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**	
MQDC-406	2 m (6.56 ft)	Straight			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused
MQDC-415	5 m (16.4 ft)				
MQDC-430	9 m (29.5 ft)				
MQDC-450	15 m (49.2 ft)				
MQDC-406RA	2 m (6.56 ft)	Right-Angle			
MQDC-415RA	5 m (16.4 ft)				
MQDC-430RA	9 m (29.5 ft)				
MQDC-450RA	15 m (49.2 ft)				

5-Pin Threaded M12 Cordsets—Single Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQDC1-501.5	0.5 m (1.5 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC1-503	0.9 m (2.9 ft)			
MQDC1-506	2 m (6.5 ft)			
MQDC1-515	5 m (16.4 ft)			
MQDC1-530	9 m (29.5 ft)			
MQDC1-560	18 m (59 ft)			
MQDC1-5100	31 m (101.7 ft)			

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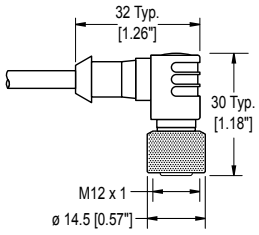
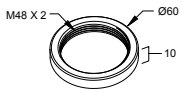
5-Pin Threaded M12 Cordsets—Single Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**
MQDC1-506RA	2 m (6.5 ft)	Right-Angle		
MQDC1-515RA	5 m (16.4 ft)			
MQDC1-530RA	9 m (29.5 ft)			
MQDC1-560RA	19 m (62.3 ft)			

Mounting Accessories

All measurements are in mm.

ACC-GS60 M48 Front Mount

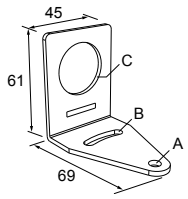
- Black anodized knurl nut for panel sealing
- Included gasket should be against the product to seal the surface
- Through-wall (near-flush) mounting to protect the product behind a wall



SMB30A

- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-gauge stainless steel

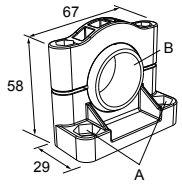
Hole center spacing: A to B=40
Hole size: A=ø 6.3, B= 27.1 × 6.3, C=ø 30.5



SMB30SC

- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included

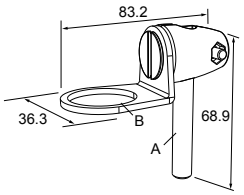
Hole center spacing: A=ø 50.8
Hole size: A=ø 7.0, B=ø 30.0



SMB30FA

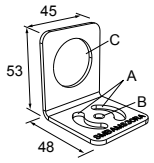
- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available

Bolt thread: SMB30FA, A= 3/8 - 16 × 2 in; SMB30FAM10, A= M10 - 1.5 × 50
Hole size: B= ø 30.1



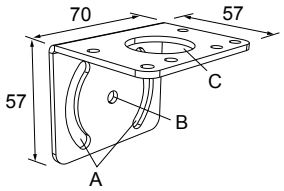
SMBAMS30RA
- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge (2.6 mm) cold-rolled steel

Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0



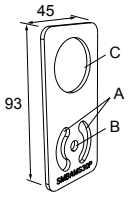
SMB30MM
- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor

Hole center spacing: A = 51, A to B = 25.4
Hole size: A = 42.6 × 7, B = ø 6.4, C = ø 30.1



SMBAMS30P
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel

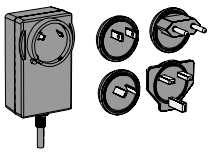
Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0



Power Supplies

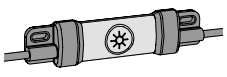
PSW-24-1
- 24 V DC, 1 A Class 2 UL Listed power supply
- 100 V AC to 240 V AC 50/60 Hz input
- 2 m (6.5 ft) PVC cable with M12 quick disconnect
- Includes Type A (US, Canada, Japan, Puerto Rico, Taiwan), Type C (Germany, France, South Korea, Netherlands, Poland, Spain, Turkey), Type G (United Kingdom, Ireland, Singapore, Vietnam), and Type I (China, Australia, New Zealand) AC detachable input plugs

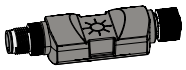
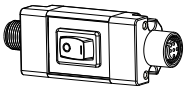
PSW-24-2
- 24 V DC, 2 A Class 2 UL Listed power supply
- 100 V AC to 240 V AC 50/60 Hz input
- 3.5 m (11.5 ft) PVC cable with M12 quick disconnect
- Includes Type A (US, Canada, Japan, Puerto Rico, Taiwan), Type C (Germany, France, South Korea, Netherlands, Poland, Spain, Turkey), Type G (United Kingdom, Ireland, Singapore, Vietnam), and Type I (China, Australia, New Zealand) AC detachable input plugs



Dimmers and Switches

LC15T-127AP1RBGQP
- In-line capacitive touch switch with M12 connectors
- On/Off/Dimming control and illuminated indication
- Rated for up to 30 V DC and 4 A maximum output current
- Rugged and waterproof IP67 housing



LC25T-AP1RGBQ • In-line capacitive touch switch with M12 connectors • Used with 3-wire PWM-controlled devices • Rated for up to 30 V DC and 4 A maximum output current • Low profile, rugged, water-resistant IP67 design	
WLS28-2PBQ • 3-position in-line switch with M12 connectors • Used with 3-wire DC LED lights • Rated for up to 30 V DC and 4 A maximum output current • IP50 housing	

Chapter Contents

Chapter 5 Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

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