Linear Array with Intensity Adjustment

Features

High-Power Lighting with Intensity Adjustment for use with Vision Systems

To view or download the latest technical information about this product, including specifications, dimensions, accessories, and wiring, go to www.bannerengineering.com.



- Four high-intensity, visible wavelengths, plus IR and UV
- The following array lengths are available:
  - 290 mm (11.4 in)
  - 435 mm (17.7 in)
  - 580 mm (22.8 in)
  - 870 mm (34.2 in)
  - 1160 mm (45.6 in)
- Dual intensity control: potentiometer and Analog wire
- High-power, solid-state LED array; continuous or strobed operation is selectable via sensor software (P4 models) or via hookup
- Optically isolated strobe signal
- Active High or Active Low strobe models available
- LEDs directly illuminate target
- Lens angle of ±6.5º on visible and IR models, lens angle of ±5º on UV 395 nm models, reflector cup angle of ±15º on UV 365 nm models
- Three window materials from which to choose: clear acrylic, clear glass, and clear diffusing acrylic
- Maintenance-free, rugged construction
- Built-in constant current regulation
- Very even light pattern as close as 76.2 mm (3 in)

IMPORTANT: Read the following instructions before operating the light. Please download the complete Linear Array with Intensity Adjustment 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 Linear Array with Intensity Adjustment, 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 Linear Array with Intensity Adjustment sur notre site www.bannerengineering.com pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.

Models

Model Key

Light Source	LED Color	Linear Array	Array Length	Housing	Window Material[1]	Relative Intensity	Intensity Control	Strobe Polarity	Connector
LED	R	LA	290	X	P	6 —	P	L	Q
	R = Red W = White B = Blue G = Green I = Infrared (IR) UV365 = Ultraviolet, 365 nm UV395 = Ultraviolet, 395 nm		290 mm 435 mm 580 mm 870 mm 1160 mm	X = IP50	P = Clear plastic G = Glass D = Diffuse plastic		P = Pot and analog wire	L = Low H = High	Q = Integral 5-pin M12 male quick-disconnect connector

Not all models are available. For a list of discontinued models, see Discontinued Models.

The following caution applies to UV365 nm models:

[1] UV365 is only available in models with a glass window.

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150944
p/n: 150944 Rev. J

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

CAUTION:
Risk Group 1: UV Emitted from this product.

Minimize exposure to eyes or skin. Use appropriate shielding and eye protection. Risk Group 1 (RG 1) products are safe for most use applications, except for very prolonged exposures where direct ocular exposures may be expected.

- IEC 62471

The following caution applies to UV395 nm 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

Dual Intensity Control

The LED..LA..X..6-P..Q Series Linear Array Lights have a potentiometer and an analog wire that control the intensity of the light from maximum brightness (0 V DC) to dark (10 V DC). When the potentiometer is set to full counterclockwise, it is equivalent to 10 V DC; when set to full clockwise, it is equivalent to 0 V DC. Generally, users control the intensity using either the potentiometer or the analog (gray) wire independently. If using the potentiometer to control the intensity, apply 0 V DC to the analog (gray) wire; if using the analog (gray) wire to control the intensity, set the potentiometer to maximum intensity in its full clockwise position.

If using the potentiometer and the analog (gray) wire together to control the intensity, it is important to note that either control applying any voltage greater than 0 to the light reduces the maximum achievable intensity. For example, if you want a maximum light intensity of 50%, with further adjustability down to dark:

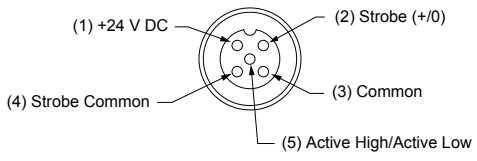
Initial Setting	Available Adjustment for Other Control
Potentiometer sets maximum intensity to 50% (midway point between clockwise and counterclockwise)	Analog (gray) wire can adjust between 5 V DC and 10 V DC
Analog (gray) wire sets maximum intensity to 50% (5 V DC)	Potentiometer can adjust from ½ counterclockwise to full counterclockwise

NOTE: The range of intensity of the light is from 100%, down to just below 10% before the light goes completely dark.

Wiring

Wire Purpose	Cable Wire Color[2]	Wire Connections		*Presence*PLUS Pro Controller Terminal Block
Power Wires	Brown (1)	+24 V DC		Pin 01[3]
	Blue (3)	common		Pin 02
Intensity	Gray (5)	0 V DC to 10 V DC Intensity Control		N/A
Strobe Voltage Wires	White (2)	**Active Low:** 0 V DC = ON	+5 V DC to 24 V DC = OFF	Pin 04
		Active High: 0 V DC = OFF	+5 V DC to 24 V DC = ON	
	Black (4)	Strobe common		Pin 02

Pinouts for Mating Cable



[2] For Banner-supplied wire.
[3] When connecting the light to a *Presence*PLUS Pro controller terminal block, the controller supply must be 24 V DC ± 10%.

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NOTE: Connection to earth ground recommended.

Specifications

Supply Voltage and Current

290 mm Models: 24 V DC ± 10% at 1 A maximum
435 mm Models: 24 V DC ± 10% at 1.5 A maximum
580 mm Models: 24 V DC ± 10% at 2 A maximum
870 mm Models: 24 V DC ± 10% at 3 A maximum
1160 mm Models: 24 V DC ± 10% at 4 A maximum
Strobe Voltage: 5 V DC to 24 V DC
Built-in constant current regulator for LEDs
Use only with a suitable Class 2 power supply (UL) or SELV power supply (CE)
See the electrical characteristics on the product label.

Light Source

LED Color	Wavelength
Infrared	850 nm
Red	620 nm to 630 nm
Blue	465 nm to 485 nm
Green	520 nm to 535 nm
White	5000 K to 8300 K
UV	365 nm
	395 nm

Certification

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

c UL us LISTED

Operating Conditions

0 °C to +50 °C (+32 °F to +122 °F)

Connections

Integral 5-pin M12 male quick-disconnect connector, accessory cordset required

Construction

Housing: black anodized aluminum
Window: acrylic or glass, depending on model

Mounting

4 M5 T-nuts included, brackets available

Useful Life

When operated within specifications, output will decrease less than 30% after 50,000 hours for visible and IR models; 20,000 hours for UV models

Environmental Rating

IP50

Required Overcurrent Protection

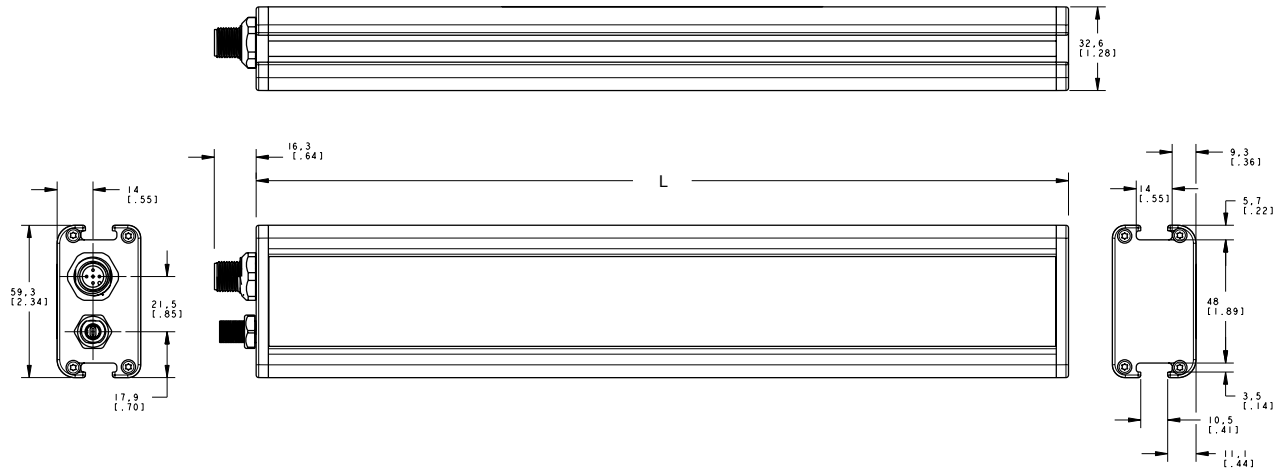
WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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	2.0	30	0.5

Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.



Array Length	Length L
290 mm	316.5 mm (12.46 in)
435 mm	462 mm (18.19 in)
580 mm	607.5 mm (23.92 in)
870 mm	898.5 mm (35.37 in)
1160 mm	1189.5 mm (46.83 in)

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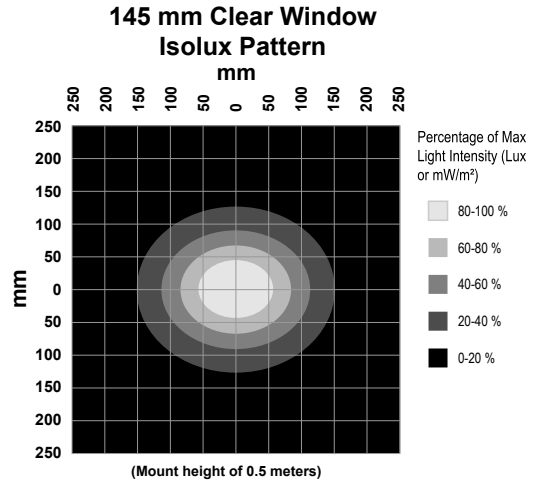
Optical Data

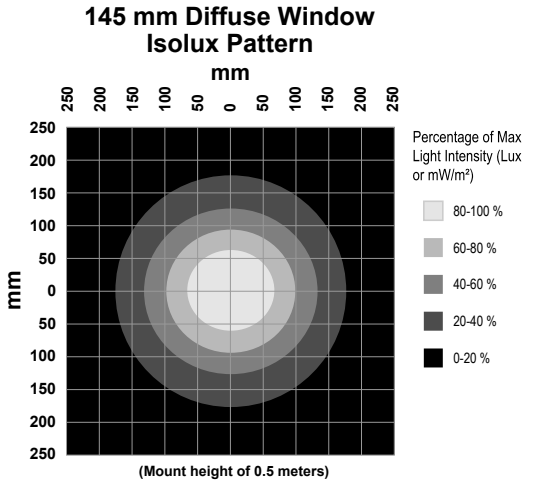
Light Characteristic: Clear and Diffuse Window

Values shown are typical at 25°C.

Lighted Length (mm)	Lumens				mWatts		
	Cool White	Green	Red	Blue	IR	UV395	UV365[4]
145	580	445	275	205	895	1165	610
290	1160	890	550	410	1790	2330	1220
435	1740	1335	825	615	2685	3495	1830
580	2320	1780	1100	820	3580	4660	2440
870	3480	2670	1650	1230	5370	6990	3660
1160	4640	3560	2200	1640	7160	9320	4880

145 mm Models





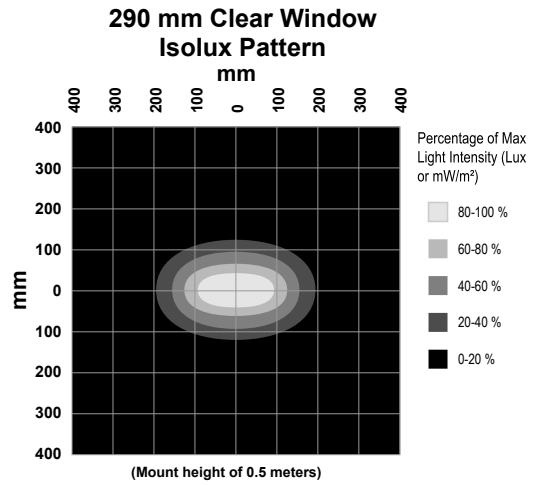
Lux and irradiance values shown are typical at 25 °C and with clear windows; light intensity lowered by 40% on diffuse window models.

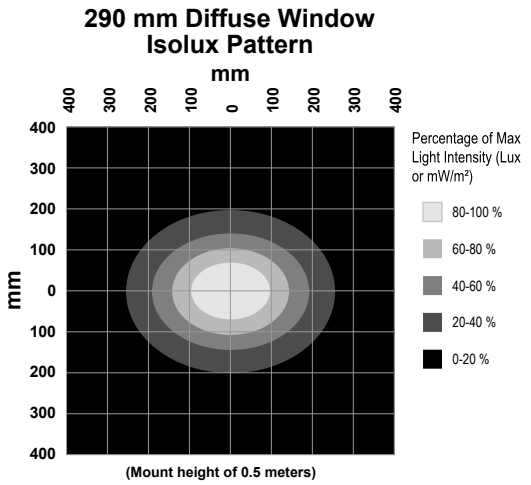
Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m²)			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365[5]	Vertical (Spread 13.8°)	Horizontal (Spread 21.4°)
0.25	41,560	31,887	19,705	14,689	64,131	83,478	43,710	0.06	0.09
0.5	17,020	13,058	8,070	6,016	26,264	34,187	17,900	0.12	0.19
1	5,220	4,005	2,475	1,845	8,055	10,485	5,490	0.24	0.38

[4] Only available in models with a glass window.
[5] Only available in models with a glass window.

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290 mm Models

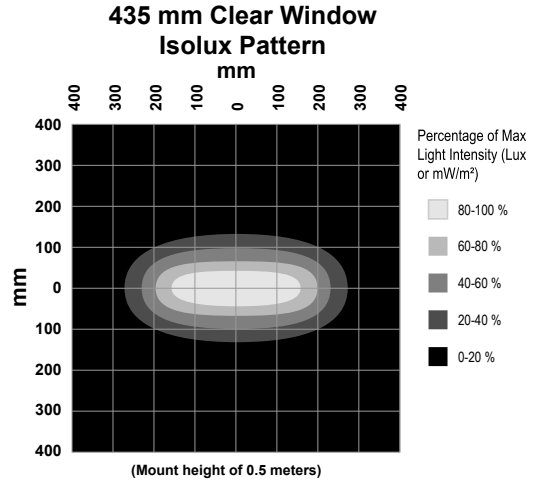


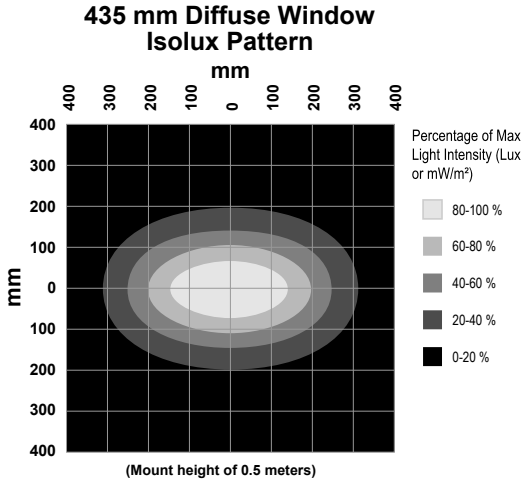


Lux and irradiance values shown are typical at 25 °C and with clear windows; light intensity lowered by 40% on diffuse window models.

Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m²)			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365[6]	Vertical (Spread 13.8°)	Horizontal (Spread 21.4°)
0.25	45,220	34,695	21,441	15,983	69,779	90,830	47,559	0.06	0.09
0.5	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1	8,930	6,851	4,234	3,156	13,780	17,937	9,392	0.24	0.38

435 mm Models





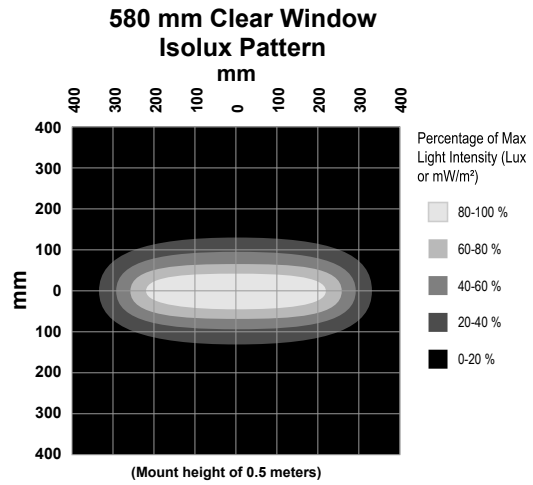
Lux and irradiance values shown are typical at 25 °C and with clear windows; light intensity lowered by 40% on diffuse window models.

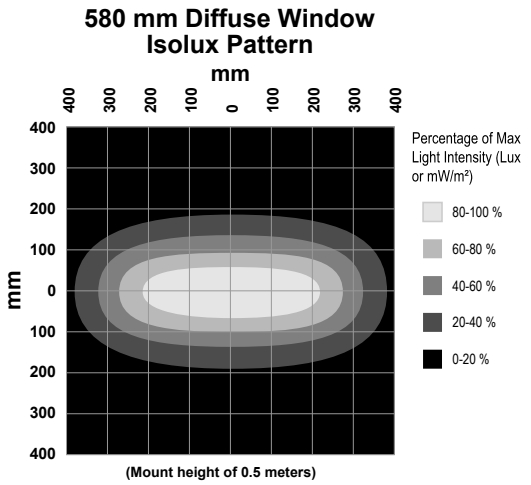
Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m²)			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365[7]	Vertical (Spread 13.8°)	Horizontal (Spread 21.4°)
0.25	45,220	34,695	21,441	15,983	69,779	90,830	47,559	0.06	0.09
0.5	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1	9,740	7,473	4,618	3,443	15,030	19,564	10,244	0.24	0.38

[6] Only available in models with a glass window.
[7] Only available in models with a glass window.

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580 mm Models

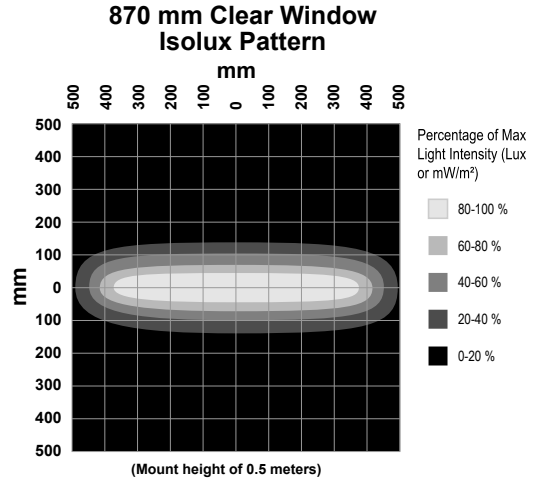


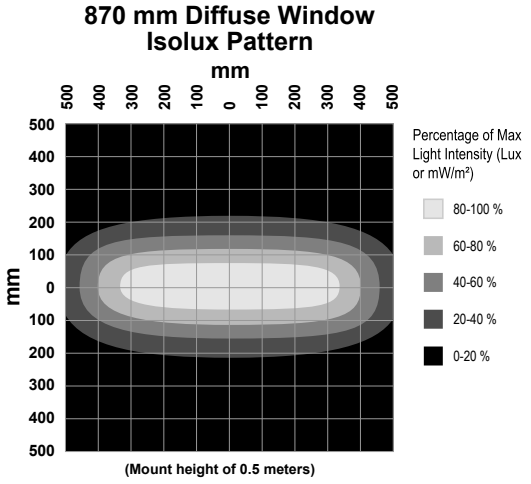


Lux and irradiance values shown are typical at 25 °C and with clear windows; light intensity lowered by 40% on diffuse window models.

Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m²)			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365[8]	Vertical (Spread 13.8°)	Horizontal (Spread 21.4°)
0.25	45,220	34,695	21,441	15,983	69,779	90,830	47,559	0.06	0.09
0.5	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1	11,550	8,862	5,476	4,082	17,823	23,200	12,147	0.24	0.38

870 mm Models





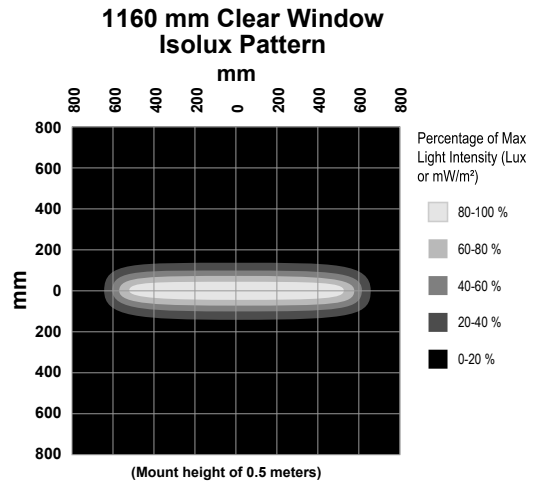
Lux and irradiance values shown are typical at 25 °C and with clear windows; light intensity lowered by 40% on diffuse window models.

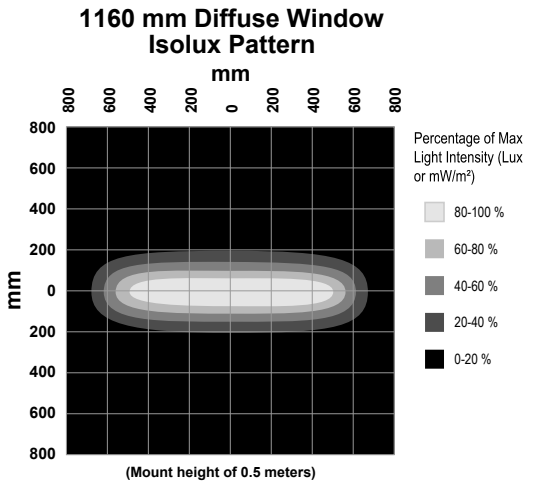
Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m²)			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365[9]	Vertical (Spread 13.8°)	Horizontal (Spread 21.4°)
0.25	45,220	34,695	21,441	15,983	69,779	90,830	47,559	0.06	0.09
0.5	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1	11,800	9,053	5,595	4,171	18,209	23,702	12,410	0.24	0.38

[8] Only available in models with a glass window.
[9] Only available in models with a glass window.

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1160 mm Models



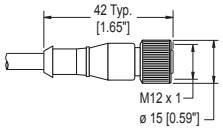
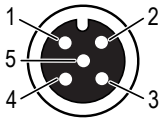


Lux and irradiance values shown are typical at 25 °C and with clear windows; light intensity lowered by 40% on diffuse window models.

Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m²)			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365[10]	Vertical (Spread 13.8°)	Horizontal (Spread 21.4°)
0.25	45,220	34,695	21,441	15,983	69,779	90,830	47,559	0.06	0.09
0.5	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1	12,330	9,460	5,846	4,358	19,026	24,766	12,968	0.24	0.38

Accessories

Cordsets

5-Pin Single-Ended M12 Female Cordsets				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC20-506	2 m (6.56 ft)	Straight		
MQDC20-515	5 m (16.4 ft)			
MQDC20-530	9 m (29.5 ft)			

1 = Brown
2 = White
3 = Blue
4 = Black
5 = Gray

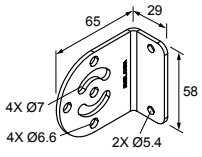
Brackets

SMBLAXRA

- Right-angle stainless steel bracket
- May be used individually or in combination with **SMBLAXU** to provide swivel adjustment
- CAD Files: DXF, PDF, IGS, STP

Includes:

- 2 Brackets
- 4 M5 screws (socket drive, button head)
- 4 M5 T-nuts



[10] Only available in models with a glass window.

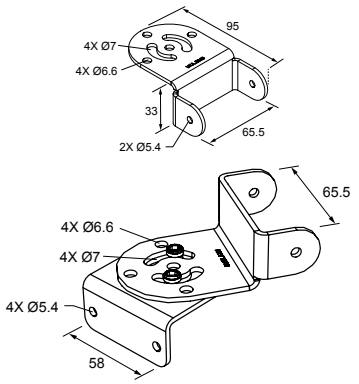
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SMBLAXU

- U-shaped stainless steel bracket
- For use with **SMBLAXRA** to provide swivel adjustment
- CAD Files: DXF, PDF, IGS, STP

Includes:

- 2 Brackets
- 4 M5 screws (socket-drive, button head)
- 4 M5 T-nuts
- Four each stainless steel ¼-20 screws (socket drive, button head), lock nuts, washers



Combination View

Filters (Optional)

Light filters are available in red, white, blue, green, infrared, and other options. Visit http://www.bannerengineering.com to determine which filter is best for your application and Vision system.

Replacement Windows

Array Length	Clear Glass	Clear Acrylic	Diffuse Acrylic	White Diffuse Acrylic
290 mm	**LEDLA290XW-G**	**LEDLA290XW-P**	**LEDLA290XCDW-P**	**LEDLA290XWDW-P**
435 mm	**LEDLA435XW-G**	**LEDLA435XW-P**	**LEDLA435XCDW-P**	**LEDLA435XWDW-P**
580 mm	**LEDLA580XW-G**	**LEDLA580XW-P**	**LEDLA580XCDW-P**	**LEDLA580XWDW-P**
870 mm	**LEDLA870XW-G**	**LEDLA870XW-P**	**LEDLA870XCDW-P**	**LEDLA870XWDW-P**
1160 mm	**LEDLA1160XW-G**	**LEDLA1160XW-P**	**LEDLA1160XCDW-P**	**LEDLA1160XWDW-P**

Product Support and Maintenance

Discontinued Models

The following models are no longer available for order but are still covered by the information in this document.

Red LED Models

- LEDRLA290XP6-PLQ
- LEDRLA290XG6-PLQ
- LEDRLA290XG6-PHQ
- LEDRLA290XD6-PLQ
- LEDRLA290XD6-PHQ
- LEDRLA435XP6-PLQ
- LEDRLA435XP6-PHQ
- LEDRLA435XG6-PLQ
- LEDRLA435XG6-PHQ
- LEDRLA435XD6-PLQ
- LEDRLA435XD6-PHQ
- LEDRLA580XP6-PLQ
- LEDRLA580XP6-PHQ
- LEDRLA580XG6-PLQ
- LEDRLA580XG6-PHQ
- LEDRLA580XD6-PLQ
- LEDRLA870XP6-PLQ
- LEDRLA870XP6-PHQ
- LEDRLA870XG6-PLQ
- LEDRLA870XG6-PHQ
- LEDRLA870XD6-PLQ
- LEDRLA870XD6-PHQ
- LEDRLA1160XP6-PLQ
- LEDRLA1160XP6-PHQ
- LEDRLA1160XG6-PLQ
- LEDRLA1160XG6-PHQ
- LEDRLA1160XD6-PLQ

White LED Models

- LEDWLA290XP6-PLQ
- LEDWLA290XG6-PLQ
- LEDWLA290XG6-PHQ
- LEDWLA435XP6-PLQ
- LEDWLA435XP6-PHQ
- LEDWLA435XG6-PLQ
- LEDWLA435XG6-PHQ
- LEDWLA435XD6-PLQ
- LEDWLA435XD6-PHQ
- LEDWLA580XP6-PHQ
- LEDWLA580XG6-PLQ
- LEDWLA580XG6-PHQ
- LEDWLA580XD6-PLQ
- LEDWLA580XD6-PHQ
- LEDWLA870XP6-PLQ
- LEDWLA870XP6-PHQ
- LEDWLA870XG6-PLQ
- LEDWLA870XG6-PHQ
- LEDWLA870XD6-PHQ
- LEDWLA1160XP6-PLQ
- LEDWLA1160XP6-PHQ
- LEDWLA1160XG6-PLQ
- LEDWLA1160XG6-PHQ
- LEDWLA1160XD6-PLQ
- LEDWLA1160XD6-PHQ

Blue LED Models

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- LEDBLA290XP6-PLQ
- LEDBLA290XG6-PLQ
- LEDBLA290XG6-PHQ
- LEDBLA290XD6-PLQ
- LEDBLA435XP6-PLQ
- LEDBLA435XP6-PHQ
- LEDBLA435XG6-PLQ
- LEDBLA435XG6-PHQ
- LEDBLA435XD6-PLQ
- LEDBLA435XD6-PHQ
- LEDBLA580XP6-PLQ
- LEDBLA580XP6-PHQ
- LEDBLA580XG6-PLQ
- LEDBLA580XG6-PHQ
- LEDBLA580XD6-PLQ
- LEDBLA580XD6-PHQ
- LEDBLA870XP6-PLQ
- LEDBLA870XP6-PHQ
- LEDBLA870XG6-PLQ
- LEDBLA870XG6-PHQ
- LEDBLA870XD6-PLQ
- LEDBLA870XD6-PHQ
- LEDBLA1160XP6-PLQ
- LEDBLA1160XP6-PHQ
- LEDBLA1160XG6-PLQ
- LEDBLA1160XG6-PHQ
- LEDBLA1160XD6-PLQ
- LEDBLA1160XD6-PHQ

Green LED Models

- LEDGLA290XP6-PLQ
- LEDGLA290XP6-PHQ
- LEDGLA290XG6-PLQ
- LEDGLA290XG6-PHQ
- LEDGLA290XD6-PLQ
- LEDGLA290XD6-PHQ
- LEDGLA435XP6-PLQ
- LEDGLA435XP6-PHQ
- LEDGLA435XG6-PLQ
- LEDGLA435XG6-PHQ
- LEDGLA435XD6-PLQ
- LEDGLA435XD6-PHQ
- LEDGLA580XP6-PLQ
- LEDGLA580XP6-PHQ
- LEDGLA580XG6-PLQ
- LEDGLA580XG6-PHQ
- LEDGLA580XD6-PLQ
- LEDGLA580XD6-PHQ
- LEDGLA870XP6-PLQ
- LEDGLA870XP6-PHQ
- LEDGLA870XG6-PLQ
- LEDGLA870XG6-PHQ
- LEDGLA870XD6-PLQ
- LEDGLA870XD6-PHQ
- LEDGLA1160XP6-PLQ
- LEDGLA1160XP6-PHQ
- LEDGLA1160XG6-PLQ
- LEDGLA1160XG6-PHQ
- LEDGLA1160XD6-PLQ
- LEDGLA1160XD6-PHQ

Infrared LED Models

- LEDILA290XP6-PLQ
- LEDILA290XP6-PHQ
- LEDILA290XG6-PLQ
- LEDILA290XG6-PHQ
- LEDILA290XD6-PLQ
- LEDILA435XP6-PLQ
- LEDILA435XP6-PHQ
- LEDILA435XG6-PLQ
- LEDILA435XG6-PHQ
- LEDILA435XD6-PLQ
- LEDILA580XP6-PLQ
- LEDILA580XP6-PHQ
- LEDILA580XG6-PLQ
- LEDILA580XG6-PHQ
- LEDILA580XD6-PLQ
- LEDILA580XD6-PHQ
- LEDILA870XP6-PLQ
- LEDILA870XP6-PHQ
- LEDILA870XG6-PLQ
- LEDILA870XG6-PHQ
- LEDILA870XD6-PLQ
- LEDILA870XD6-PHQ
- LEDILA1160XP6-PLQ
- LEDILA1160XP6-PHQ
- LEDILA1160XG6-PLQ
- LEDILA1160XG6-PHQ
- LEDILA1160XD6-PLQ
- LEDILA1160XD6-PHQ

Ultraviolet (365 nm) LED Models

- LEDUV365LA290XG6-PLQ
- LEDUV365LA290XG6-PHQ
- LEDUV365LA435XG6-PLQ
- LEDUV365LA435XG6-PHQ
- LEDUV365LA580XG6-PLQ
- LEDUV365LA580XG6-PHQ
- LEDUV365LA870XG6-PLQ
- LEDUV365LA870XG6-PHQ
- LEDUV365LA1160XG6-PLQ
- LEDUV365LA1160XG6-PHQ

Ultraviolet (395 nm) LED Models

- LEDUV395LA290XP6-PLQ
- LEDUV395LA290XP6-PHQ
- LEDUV395LA290XG6-PLQ
- LEDUV395LA290XG6-PHQ
- LEDUV395LA290XD6-PLQ
- LEDUV395LA290XD6-PHQ
- LEDUV395LA435XP6-PLQ
- LEDUV395LA435XP6-PHQ
- LEDUV395LA435XG6-PLQ
- LEDUV395LA435XG6-PHQ
- LEDUV395LA435XD6-PLQ
- LEDUV395LA435XD6-PHQ
- LEDUV395LA580XP6-PLQ
- LEDUV395LA580XP6-PHQ
- LEDUV395LA580XG6-PLQ
- LEDUV395LA580XG6-PHQ
- LEDUV395LA580XD6-PLQ
- LEDUV395LA580XD6-PHQ
- LEDUV395LA870XP6-PLQ
- LEDUV395LA870XP6-PHQ
- LEDUV395LA870XG6-PLQ
- LEDUV395LA870XG6-PHQ
- LEDUV395LA870XD6-PLQ
- LEDUV395LA870XD6-PHQ
- LEDUV395LA1160XP6-PLQ
- LEDUV395LA1160XP6-PHQ
- LEDUV395LA1160XG6-PLQ
- LEDUV395LA1160XG6-PHQ
- LEDUV395LA1160XD6-PLQ
- LEDUV395LA1160XD6-PHQ

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