

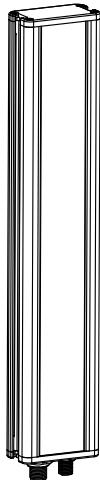
# Linear Array with Intensity Adjustment



## Datasheet

### 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, see [www.bannerengineering.com](http://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  $\pm 6.5^\circ$  on visible and IR models, lens angle of  $\pm 5^\circ$  on UV 395 nm models, reflector cup angle of  $\pm 15^\circ$  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:** Lea el siguiente instructivo antes de operar el luminario. Por favor descargue desde [www.bannerengineering.com](http://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.

## Model Key

Light Source	LED Color	Linear Array	Array Length	Housing	Window Material <sup>1</sup>	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 = IR UV365 = UV365 nm UV395 = UV395 nm		290 mm 435 mm 580 mm 870 mm 1160 mm	X = IP50	P=Clear Plastic G = Glass D = Diffuse Plastic		P = Pot & analog wire	L = Low H = High	Q = QD

The following caution applies to UV365 nm models:



**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

<sup>1</sup> UV365 is only available in models with a glass window.



## 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). The potentiometer set to full counter-clockwise is equivalent to 10 V DC; set to full clockwise it is equivalent to 0 V DC. Generally, users will control the intensity using either the potentiometer or the analog (gray) wire independently. If using the potentiometer to control intensity, apply 0 V DC to the analog (gray) wire; if using the analog (gray) wire to control intensity, set the potentiometer to maximum intensity in its full clockwise position.

If using the potentiometer and analog (gray) wire together to control 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, assume 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 counter-clockwise)	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 counter-clockwise to full counter-clockwise



**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 <sup>2</sup>	Wire Connections	PresencePLUS Pro Controller Terminal Block
<b>Power Wires</b>	Brown (1)	+24 V DC	Pin 01 <sup>3</sup>
	Blue (3)	common	Pin 02
<b>Intensity</b>	Gray (5)	0 V DC to 10 V DC Intensity Control	N/A
<b>Strobe Voltage Wires</b>	White (2)	<b>Active Low:</b> 0 V DC = ON <b>Active High:</b> 0 V DC = OFF	+5 V DC to 24 V DC = OFF +5 V DC to 24 V DC = ON
	Black (4)	Strobe common	Pin 02

Figure 1. Pinouts for Mating Cable



**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

### Operating Conditions

0 °C to +50 °C (+32 °F to +122 °F)

### Connections

Integral 5-pin M12/Euro-style male quick disconnect, 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

IEC IP50

### Certification



<sup>2</sup> For Banner-supplied wire.

<sup>3</sup> When connecting the light to a PresencePLUS Pro controller terminal block, the controller supply must be 24 V DC ± 10%.

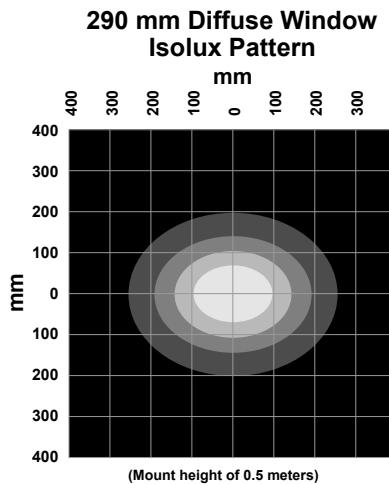
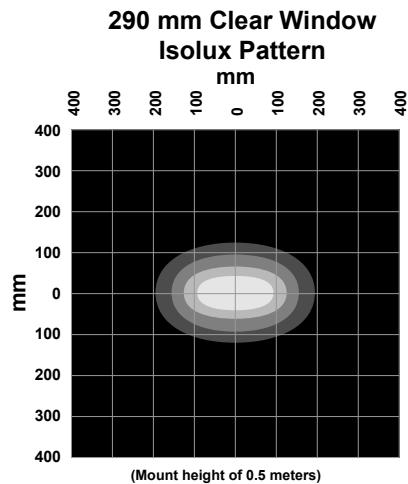
## Optical Data

### 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 <sup>4</sup>
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

290 mm Models



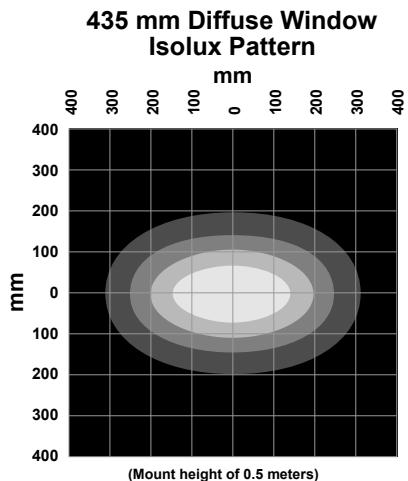
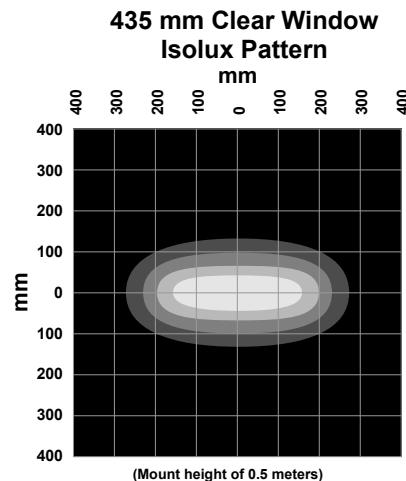
Lux and irradiance values shown are typical at 25 °C and with clear windows; light intensity lowered by 40% on diffuse window models.

Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m <sup>2</sup> )			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365 <sup>5</sup>	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
0.50	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1.00	8,930	6,851	4,234	3,156	13,780	17,937	9,392	0.24	0.38

<sup>4</sup> Only available in models with a glass window.

<sup>5</sup> Only available in models with a glass window.

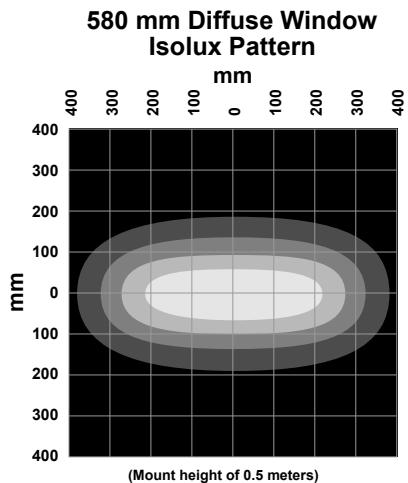
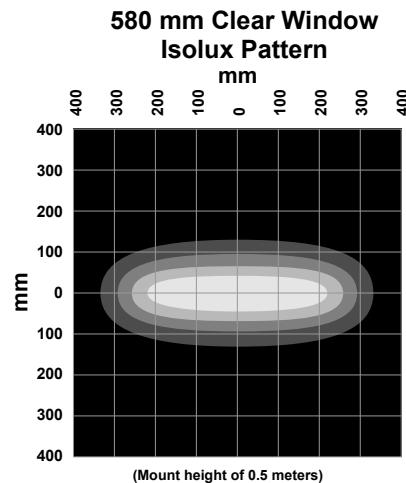
## 435 mm Models



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/m <sup>2</sup> )			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV385 <sup>6</sup>	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
0.50	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1.00	9,740	7,473	4,618	3,443	15,030	19,564	10,244	0.24	0.38

## 580 mm Models

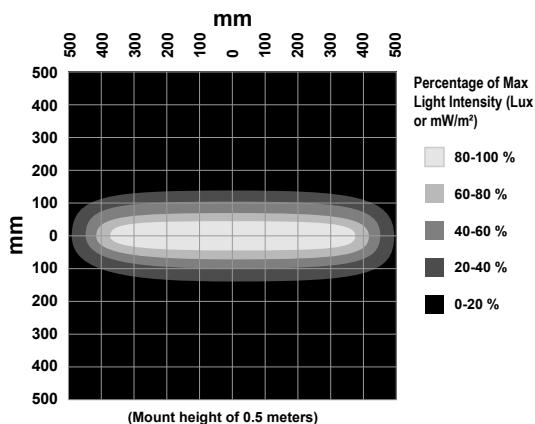
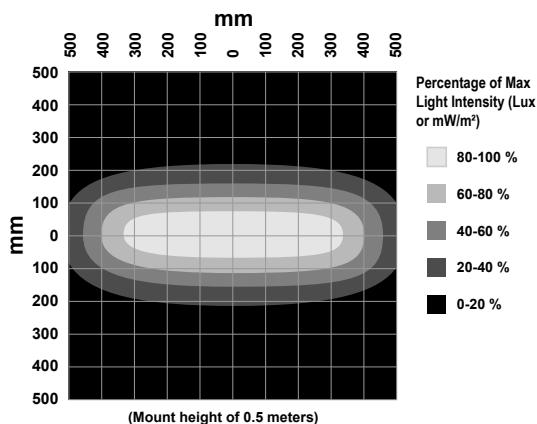


Lux and irradiance values shown are typical at 25 °C and with clear windows; light intensity lowered by 40% on diffuse window models.

Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m <sup>2</sup> )			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV385 <sup>7</sup>	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
0.50	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1.00	11,550	8,862	5,476	4,082	17,823	23,200	12,147	0.24	0.38

<sup>6</sup> Only available in models with a glass window.  
<sup>7</sup> Only available in models with a glass window.

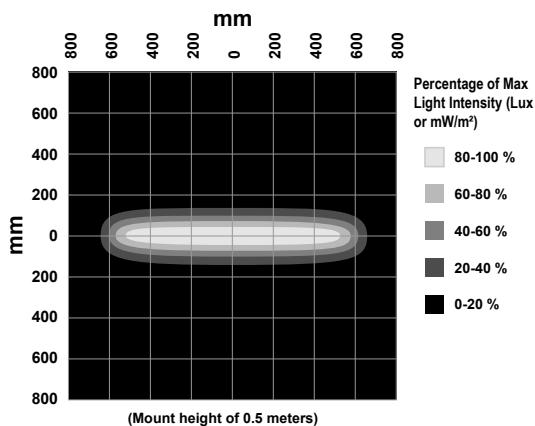
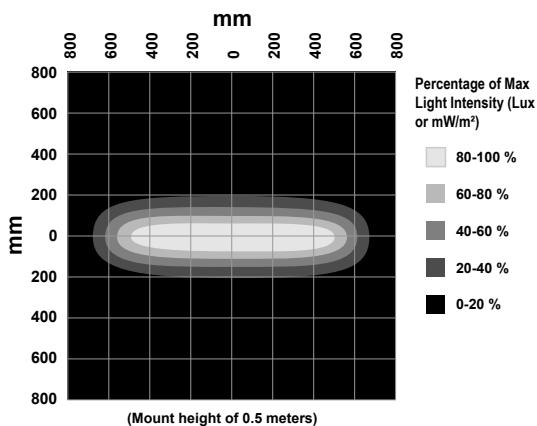
## 870 mm Models

**870 mm Clear Window Isolux Pattern****870 mm Diffuse Window Isolux Pattern**

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/m <sup>2</sup> )			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365 <sup>8</sup>	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
0.50	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1.00	11,800	9,053	5,595	4,171	18,209	23,702	12,410	0.24	0.38

## 1160 mm Models

**1160 mm Clear Window Isolux Pattern****1160 mm Diffuse Window Isolux Pattern**

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

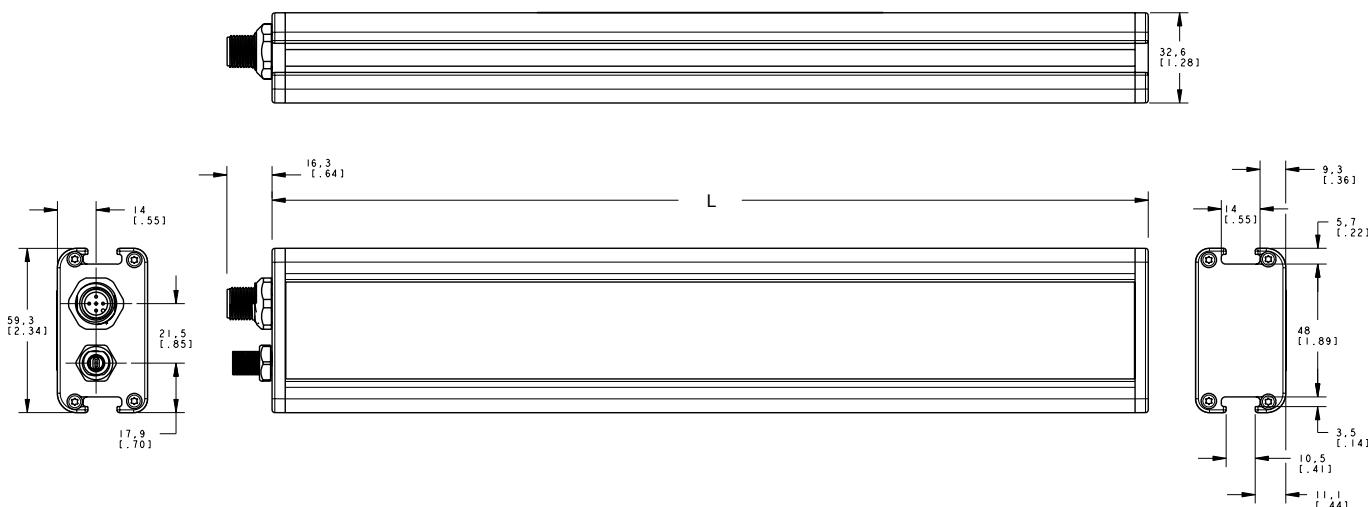
Distance (m)	Max Center Beam Lux (lux)				Max Center Beam Irradiance (mW/m <sup>2</sup> )			Beam Width (m)	
	Cool White	Green	Red	Blue	IR	UV395	UV365 <sup>9</sup>	Vertical (Spread 13.8°)	Horizontal (Spread 21.4°)
0.25	45,220	34,695	21,441	15,983	69,779	90,830	47,559	0.06	0.09
0.50	23,420	17,969	11,104	8,278	36,139	47,042	24,631	0.12	0.19
1.00	12,330	9,460	5,846	4,358	19,026	24,766	12,968	0.24	0.38

<sup>8</sup> Only available in models with a glass window.

<sup>9</sup> Only available in models with a glass window.

## Dimensions

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



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)

## Accessories

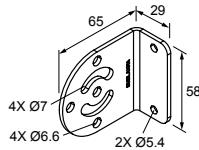
### Cordsets

5-Pin Threaded M12/Euro-Style Cordsets—Single Ended				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC20-506	1.83 m (6 ft)			
MQDC20-515	4.57 m (15 ft)			
MQDC20-530	9.14 m (30 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray

## Accessory Brackets

### SMBLAXRA

- Right-angle stainless steel bracket
- May be used individually or in combination with **SMBLAXU** to provide swivel adjustment

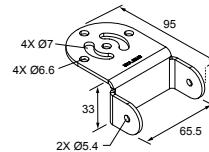


#### Includes:

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

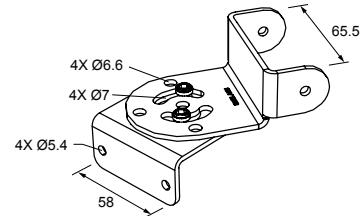
### SMBLAXU

- U-shaped stainless steel bracket
- For use with **SMBLAXRA** to provide swivel adjustment



#### Includes:

- 2 Brackets
- 4 M5 screws (socket-drive, button head)
- 4 M5 T-nuts
- Four each stainless steel 1/4-20 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

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David Alfaro Siqueiros 103 Piso 2 Valle oriente  
San Pedro Garza García Nuevo León, C. P. 66269

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