CB Series

Medium Intensity Back-lit Collimated Backlights

Product Highlights

- The CB series of Back-lit Collimated Backlights deliver precision silhouetting for a range of machine vision applications.



General Specifications

Electrical Specifications	Color	24V Current	All Other Controls
	470, 520, 660, 880, WHI	0.03A per sq. inch	0.018A Max per sq. inch
Normal Operating Temperature	0 - 60°C		
Weight	8" X 8" unit - 1292.74g (45.6oz)		
Standard Cable Information	2 m long -0/+150 mm (80" -0/+6") - 105°C rated PVC jacket, foil shield with drain.		
Photobiological Risk Factor	Exempt (No-Risk) Applicable Wavelengths: 880 Group 1 (Low-Risk) Applicable Wavelengths: 470, 520, 660, WHI		
Compliance	CE, RoHS, IEC 62471		
IP Rating	IP50		
Lumen Maintenance	L70 = 50,000 Hours		

Part Number Key

Model	Emitting Length (in)	Emitting Width (in)	-	Peak Wavelength	Connector/ Control	-	Alternative Connector
CB	XX	XX	-	XXX	XX	-	XXX
CB	01" increments from 01" to 16"	01" increments from 01" to 16"		470 (blue)	C1		M8[1]
				520 (green)	C5		M12[1]
				660 (red)	IC		
				880 (IR)	I3		
				WHI (white)	I3S		
					I4		
					24		

Example Part Numbers:
CB0312-470C1
CB0608-660IC-M12

[1]**Available with IC, I3, I3S, I4 and 24 V options only**

Change Notice

PCN No: 170

Date Issued: April 14, 2022

Notice Type: Product Discontinuation

Product Type: BLXXYY and CBXXYY

Change Notification Summary

Advanced Illumination (Ai) will be discontinuing the sale of BLXXYY and CBXXYY Backlights on October 13, 2024, and will be recommending the new BL2-XXYY Series as a replacement. The BL2-XXYY Series provides an improvement in light output, structural rigidity, emitting window uniformity, and efficiency, at no additional cost over the original BLXXYY and CBXXYY designs. However, note that the replacement BL2-XXYY mechanical design is approximately 1/4" larger in length and width for an equivalent emitting window size configuration. This difference in size should be considered during assembly mounting planning for replacements.

Please contact our sales department if you have any questions or concerns.

PCN 170

PCN No: 165

Date Issued: March 18, 2022

Notice Type: Optical Component Update

Product Type: BL, CB and FX

Change Notification Summary

In an effort to improve our products, Advanced illumination (Ai) has upgraded the optical components on the BX, CX, and FX Series. This upgrade only applies to size configurations less than or equal to 8" in non-illuminated length, otherwise known as the power side of the unit. This change will result in a brightness increase of roughly 40% over the previous revision. Pricing for each unit will remain the same. This change has gone into effect on BX, CX, and FX lights with serial numbers greater than 22060XXXX.

Please contact your Ai Sales Representative if you have any questions.

PCN 165

PCN No: 152

Date Issued: June 15, 2020

Notice Type: Product Revision Change

Product Type: BLXXYY, CBXXYY, FDXXYY, BL128, BL193, BL245

Change Notification Summary

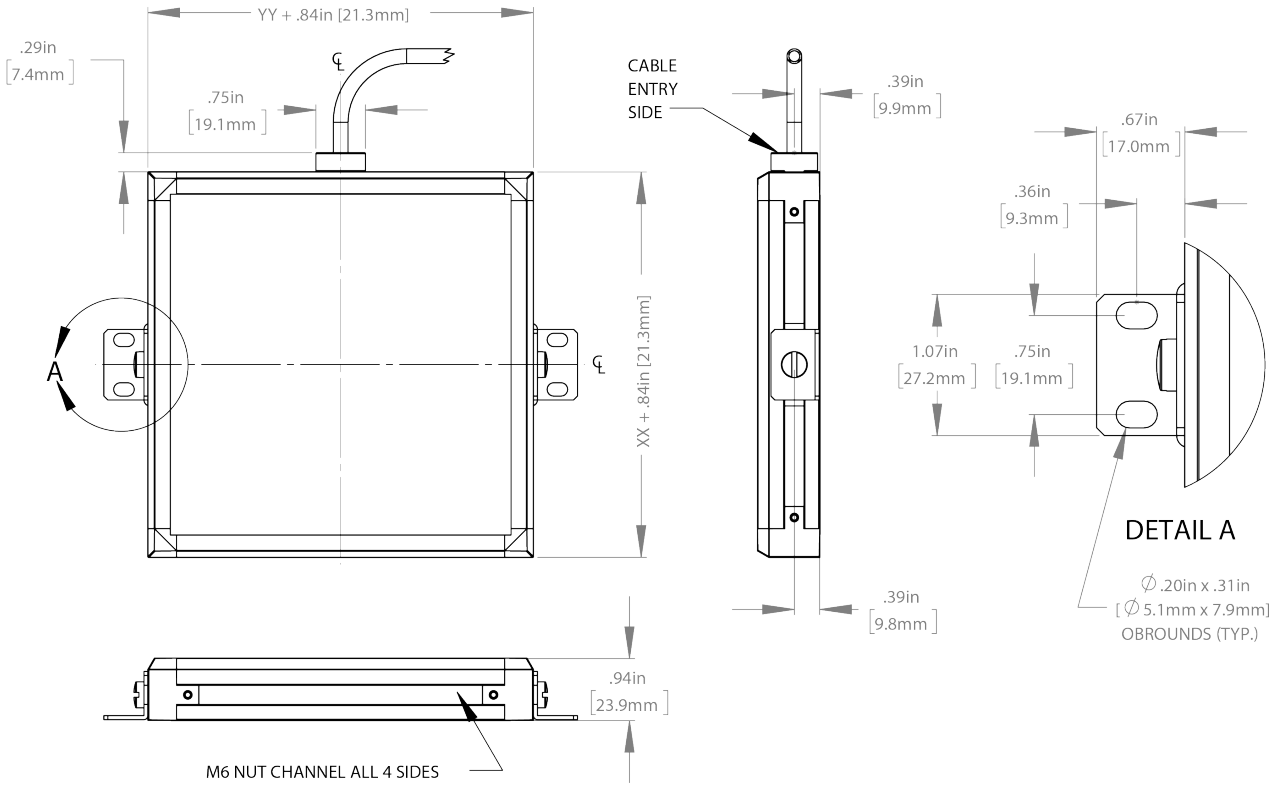
In an effort to improve our products, Advanced illumination (Ai) will be updating the internal drivers and white LEDs used in the BLXXYY, CBXXYY, FDXXYY, BL128, BL193, and BL245. This change will result in white lights seeing a brightness increase of roughly 70% while maintaining equal pricing for small configurations and reduced pricing for large configurations. Excluding the BL128, 24V configured units will experience a current draw shift from 20mA to 30mA per sq. inch for 470nm, 520nm and white units while controller configured units will see a current draw shift from 15mA to 18mA per sq. inch for the same color configurations. Color temperatures will remain unchanged.

The LED upgrade and internal driver update for white color configurations will take place September 15th. The internal driver updates will occur November 9th for 470nm and January 7th for 520nm.

Please contact your Ai Sales Representative if you have any questions.

PCN 152

Mechanical Specs



Optical Specs

Area of Illuminance & Intensity

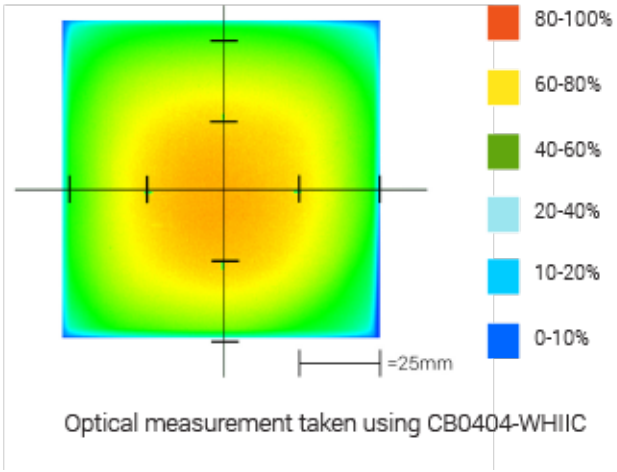
Working Area (FWHM) @ Working Distance

86 X 86 (mm) **@surface**

Light Output

Irradiance (W/M²): Min 40; Typ 47
Illuminance (kLux): Min 12.5 ; Typ 14.7

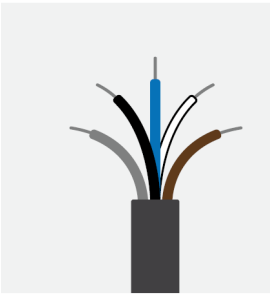
Intensity Distribution



Optical measurement taken using CB0404-WHIIC

Electrical Specs

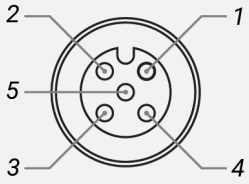
Standard Flying Lead Functions for 24V, IC, I3, I3S, and I4 Control Options



COLOR	24V FUNCTIONS	IC FUNCTIONS	I3/I3S FUNCTIONS	I4 FUNCTIONS
BROWN	24 V DC	24 V DC	24 V DC	24 V DC
WHITE	N/A	0-10 V ANALOG DIMMING	RESERVED	NPN/ACTIVE LOW TRIGGER
BLUE	DC GND	DC GND	DC GND	DC GND
BLACK	N/A	PNP/ACTIVE LOW GATE	PNP/ACTIVE HIGH TRIGGER	PNP/ACTIVE HIGH TRIGGER
GRAY	N/A	N/A	0-10 V ANALOG DIMMING	0-10 V ANALOG DIMMING

The functions listed above are applicable when this product is configured with built-in 24V, IC, I3, I3S, or I4 control, without the optional A-coded 5-position Male M12 or A-coded 4-position Male M8 connector.

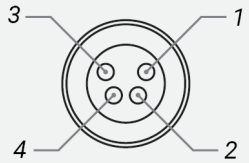
M12 Connector Pinout Functions for 24V, IC, I3, I3S, and I4 Control Options



PIN	24V FUNCTIONS	IC FUNCTIONS	I3/I3S FUNCTIONS	I4 FUNCTIONS
1	24 V DC	24 V DC	24 V DC	24 V DC
2	N/A	0-10 V ANALOG DIMMING	RESERVED	NPN/ACTIVE LOW TRIGGER
3	DC GND	DC GND	DC GND	DC GND
4	N/A	PNP/ACTIVE LOW GATE	PNP/ACTIVE HIGH TRIGGER	PNP/ACTIVE HIGH TRIGGER
5	N/A	N/A	0-10 V ANALOG DIMMING	0-10 V ANALOG DIMMING

The functions listed above are only applicable when this product is configured with built-in 24V, IC, I3, I3S, or I4 control, with an A-coded 5-position Male M12 connector.

M8 Connector Pinout Functions for 24V, IC, I3, I3S, and I4 Control Options



PIN	24V FUNCTIONS	IC FUNCTIONS	I3/I3S FUNCTIONS	I4 FUNCTIONS
1	24 V DC	24 V DC	24 V DC	24 V DC
2	N/A	0-10 V ANALOG DIMMING	0-10 V ANALOG DIMMING	0-10 V ANALOG DIMMING
3	DC GND	DC GND	DC GND	DC GND
4	N/A	PNP/ACTIVE LOW GATE	PNP/ACTIVE HIGH TRIGGER	PNP/ACTIVE HIGH TRIGGER

The functions listed above are only applicable when this product is configured with built-in 24V, IC, I3, I3S, or I4 control, with an A-coded 4-position Male M8 connector.

For details on operating configurations without built-in control (C1, C5, Q1, and Q4 control, when available), please refer to Advanced illumination's controller manuals.

Control Specs

C1 CONNECTOR	C5 CONNECTOR	ICS 2 (IC)	ICS 3
For use with: **DCS Series Controllers** Strobe/Continuous Controllers	For use with: **Pulsar 320** High Power Strobe only Controller	In-line Continuous Controller Powered with: **24V Power Supply**	In-line Strobe/ Continuous Controller Default On Powered with: **24V Power Supply**

ICS 3S (I3S)	I4	24 VOLT
In-line Strobe/ Continuous Controller Default Off Powered with: **24V Power Supply**	In-line Strobe/ Continuous Controller Powered with: **24V Power Supply**	Flying/Tinned Leads Powered with: **24V Power Supply**

Warranty Information

Every Advanced illumination, Inc. (Ai) product is thoroughly inspected and tested before leaving the factory. Products are warranted to be free of defects in workmanship and materials for a period of FIVE YEARS from the original date of purchase. Should a defect develop during this period, customers may return the complete product, freight prepaid, to one of Ai's distributors or to the Ai factory. All product warranty returns require a Return Merchandise Authorization (RMA) number which is obtained from Customer Service. The RMA number must be clearly marked on the outside of the package. Ai will inspect the unit, and if a defect is found will, at our option, repair or replace the product without charge. Ai disclaims liability for any implied warranties, including implied warranties of "merchantability" and "fitness for a specific purpose." For products under warranty that have since been discontinued, Ai will make an effort to replace with equivalent parts; for circumstances that do not allow for equivalent replacement, Ai reserves the right to repair or replace these products with an updated version. Ai cannot be held responsible for the unauthorized or inappropriate use of its products. Any unauthorized repair or modifications will result in a voided warranty.
No Liability for Consequential Damages: In no event shall Ai be liable for any consequential, special, incidental, or indirect damages of any kind arising from the sale or use of the products.

Electromagnetic Compatibility

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) as stated in the product specifications. These requirements and limits are designed to provide reasonable protection against harmful interference only when the product is operated in its intended industrial electromagnetic environment. To minimize the potential for electromagnetic interference or unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Customer Service

For information on existing orders, or to make an order adjustment, contact us Monday through Friday 8:00 am to 5:00 pm ET or send an email to orders@advancedillumination.com.

Company Information

Advanced Illumination

440 State Garage Road, Rochester, VT 05767
Phone: 802.767.3830
Fax: 802.767.2636
Email: info@advancedillumination.com
Web: advancedillumination.com
© 2021 Advanced illumination Inc. All rights reserved