

MB-CBL

The Collimated Backlight Series is a high performance, uniform, and collimated light source for high precision silhouetting and transmissive applications. Using precision optics, these lights are collimated in both the X and Y dimensions. The light exits at a low divergence angle making it perfect for applications requiring high precision measurements when used with a telecentric lens. These lights incorporate a full array LED layout with more LEDs per square inch to provide greater intensity and uniformity. The Collimated Backlight is available with a wide variety of LED colors: White, Red, Green, Blue, IR, UV and RGB with optional independent intensity control.



FEATURES

- High density LED array makes our backlights the brightest and most stable backlights
- Exclusive optical lens provides high uniformity ($\pm 5\%$), shadow-free backlight illumination
- Thermal management design draws heat directly from the die ensuring long life
- Available in large custom sizes and in square and rectangular footprints
- Flicker free performance and instant start up with Metaphase analog driver technology
- Optional Constant Current driver with 0-10VDC intensity control (-Z option)

WAVELENGTHS

Order ID	Description / nanometers
W	White (6000K), Nominal
R	Red / 630nm
G	Green / 530nm
B	Blue / 470nm
IR850	Infrared / 850nm
IR880	Infrared / 880nm
IR940	Infrared / 940nm
UV365	Ultraviolet Short / 365nm
UV395	Ultraviolet Long / 395nm
RGB	Red-Green-Blue

GENERAL SPECIFICATIONS

Power Source:	24VDC $\pm 5\%$
Cable (Standard):	10-foot cable with flying leads
Housing:	Black Anodized Aluminum
Ambient Temp:	-20°C to 40°C
Lifetime Expectancy:	75,000 hours
Glass Cover:	Surface Quality 80/50 scratch/dig or better

For other IR wavelengths, see our SWIR Backlights

MB-CBL

Collimated Backlights									
MODEL*	Width and Length Inches (cm)	Height Inches (cm)	Active Area Inches (cm)	Weight lbs (kg)	Cable QTY	Cable Length	AWG/ Wires	Maximum Input Current (Amps)	
								Visible	IR
BL1x1-CL	2.75 x 2.75 (6.985 x 6.985)	.93 (2.356)	.93 x .93 (2.357 x 2.357)	.22 (.010)	1	10ft	24/4	.15	.20
BL2x2-CL	3.75 x 3.75 (9.525 x 9.525)	.938 (2.383)	2.03 x 2.03 (5.166 x 5.166)	.40 (.181)				.50	.70
BL2x4-CL	3.75 x 5.75 (9.525 x 14.60)	.938 (2.383)	2.02 x 4.02 (5.141 x 10.22)	.70 (.318)				.85	1.1
BL3x3-CL	4.35 x 4.50 (11.05 x 11.43)	.938 (2.383)	3.09 x 3.09 (7.849 x 7.856)	.79 (.358)				.85	1.1
BL3x4-CL	4.50 x 5.35 (11.43 x 13.59)	.938 (2.383)	3.09 x 4.09 (7.856 x 103.9)	.82 (.372)				1.0	1.4
BL4x4-CL	5.41 x 6.38 (12.88 x 12.88)	1.67 (4.24)	4.0 x 4.0 (10.16 x 10.16)	1.3 (.590)				1.2	1.6
BL5x5-CL	6.41 x 7.38 (16.28 x 18.75)	1.67 (4.24)	5.0 x 5.0 (12.70 x 12.70)	2.0 (.907)			18/4	1.4	1.9
BL6x12-CL	7.75 x 13.75 (19.68 x 34.92)	.938 (2.383)	5.91 x 11.91 (15.01 x 30.25)	3.6 (1.63)				2.2	3.4
BL12x12-CL	13.75 x 13.75 (34.92 x 34.92)	.938 (2.383)	11.91 x 11.91 (30.25 x 30.25)	5.0 (2.27)				4.5	6.0
								Unique Configurations	
BL3x3-CL-9D	4.35 x 4.50 (11.05 x 11.43)	.938 (2.383)	3.09 x 3.09 (7.849 x 7.856)	.79 (.358)	D-Sub connector, 9P (male)	.85	1.1		
BL3x3-CL-RGB	4.35 x 4.50 (11.05 x 11.43)	1.410 (3.581)	3.09 x 3.09 (7.849 x 7.856)	.84 (.381)	D-Sub connector, 9P (male)	[RGB] 1.0			

*Custom sizes available

MB-CBL

Wiring (4 conductors, flying leads)**	
Wire Color	Function
RED	+24VDC
WHITE	0-10VDC INTENSITY CONTROL
BLACK	GROUND (24V RTN)
GREEN	SIGNAL GROUND

Wiring (4 conductors, without Intensity Control)	
Wire Color	Function
RED	+24VDC
WHITE	+24VDC
BLACK	GROUND (24V RTN)
GREEN	GROUND (24V RTN)

M12 (5 position male)**	
Pin #	Function
1	+24VDC
2	0-10VDC Intensity Control
3	GROUND (24V RTN)
4	SIGNAL GROUND
5	No Connection

The M12 connector option is not recommended for lights rated more than 4 amps

Wiring with ULC-2	
Wire Color	Function
RED, WHITE (+)	LED INPUT
BLACK, GREEN (-)	

Terminated within a 2 position ULC-2 output connector
(Phoenix Contact P/N: BCP-508-2)

****Note:** The 0-10VDC Intensity Control input can accept voltages from 0-24VDC where the light will operate at full intensity in the 10-24VDC range. The light is proportionally dimmer for any Intensity Control voltage less than 10VDC and the light is OFF at approximately 0V or not connected (floating).

Wiring (9P D-Sub connector) *	
Position #	Function
1	+24VDC
2	+24VDC
3	+24VDC
4	Positive Sense Line
5	Negative Sense Line
6	GROUND (24V RTN)
7	GROUND (24V RTN)
8	GROUND (24V RTN)
9	GROUND (24V RTN)

*Example pin assignment

MB-CBL

PART NUMBER KEY									
MODEL	LENGTH ID (inches)	-	WAVELENGTH	-	DRIVER* (most common)	-	CABLE LENGTH	-	CONN.** (most common)
MB-CBL	XXXX	-	XXXXX	-	XXX-XXXXXX	-	XXX	-	XXXX
MB-CBL	1x1 2x2 2x3 2x4 3x3 4x4 5x5 6x12 12x12		W (White 6000K, Nominal) R (Red 630nm) G (Green 530nm) B (Blue 470nm) IR850 (Infrared 850nm) IR880 (Infrared 880nm) IR940 (Infrared 940nm) UV365 (UV Long 365nm) UV395 (UV Long 395nm)		24CV 24Z 24-ILZ 24-ILSXXX 24-ILD U¹		5M 10M Length can be customized: ex.7M=7meters Select or leave blank for 3 meters		M12D^{1 2} BC^{1 3} Select or leave blank for flying leads
Example 1: MB-CBL2x4-W-24CV Example 2: MB-CBL6x12-R-24Z					¹ Not available in lights exceeding 4A input current ² Default cable length for an M12D connector is 19 inches ³ Default cable length for a Barrel Connector is 10 feet				

Contact Metaphase Technologies or your local representative for options such as custom diffusers, lenses, polarizers, IP-rated enclosures for harsh environments, higher intensity, custom wavelengths, higher uniformity, etc. Not all options are available for all lights.

[Link to *Driver Options Key / **Connector Options Key](#)

MB-CBL

Sample Model Number: **MB-CBL3x3-W-24CV**

REVISIONS

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	10/12/2012	
B	ADDED INSTALLATION INSTRUCTION FOR COLLIMATING FILM, ADDED CLEAR SILICONE TO ASSEMBLY, ADDED MFG. HOLE LOCATIONS DIMENSIONS AND CHANGED QTY. OF COLLIMATING FILM TO 2	11/29/2016	
C	UPDATED TITLE INFO	9/30/2017	

Metaphase Technologies, Inc. 211 Sinclair Road, Suite 100, Bristol, PA. 19007 215-639-8699 Fax 215-639-0977

QUANTITY:	Per order	<small>TOLERANCE/FINISH UNLESS OTHERWISE SPECIFIED</small> <small>INCHES [MM]</small> <small>125V RMS [R&S.2015]</small> <small>±.030 [±.76] ±.010 [±.25] ±.005 [±.13] ANGLES ±1°</small>	<small>THIS DOCUMENT IS THE PROPERTY OF METAPHASE TECHNOLOGIES, INC. WHOM MAY LOAN IT. SUBJECT TO RETURN UPON DEMAND. IT INCLUDES CONFIDENTIAL & PROPRIETARY INFORMATION WHICH MAY NOT BE DISCLOSED TO ANY THIRD PARTY, AND/OR USED FOR ANY PURPOSE CONTRARY TO ITS INTENDED USE, WITHOUT THE EXPRESSED PRIOR WRITTEN CONSENT OF METAPHASE TECHNOLOGIES, INC.</small>
MATERIAL:	Per BOM		
FINISH:	Black Anodize		
TREATMENT:	N/A		

SEE SHEET 2 FOR EXPLODED VIEW AND BOM	Approval Signature	Date	<small>TITLE</small> ASSY, Back Light 3 X 3
			<small>USED ON</small> Per customer
			<small>SIZE</small> B
			<small>DRAWING NUMBER</small> BL3X3-CL-1
			<small>REV</small> C
			<small>SCALE</small> 2:3
			<small>SHEET</small> 1 OF 1

COMPLIANCE



CONTACT US

Contact Metaphase Technologies at **215-639-8699** or your local representative for additional details, options and customizations.