

MB-DAL

Metaphase Diffused Axial Lights use beam-splitter technology to radiate homogenous, coaxial illumination in line with the camera aperture. Diffused coaxial lighting eliminates dark spots or shadows inherent in other forms of illumination and allows the camera to be placed at a longer working distance. Equipped with multiple tapped holes for mounting, the MB-DAL can be easily integrated into existing vision systems. An advanced thermal management system ensures a long lifetime and cost effectiveness. The MB-DAL is also available with strobe and dimming options.



FEATURES

- Exclusive optical beam splitter and diffuser stack
- Multiple tapped holes for ease of mounting
- Thermal management affords cost effective design
- Optional dust cover protection available
- Very high intensity with $\pm 5\%$ uniformity
- High Density Precision Chip Technology (HDPCT)
- Built-in Constant Current Driver with 0 – 10VDC intensity control
- Compatible with DDC-3 and ILD-35 Dimmers
- Flicker free performance and instant start up with Metaphase analog driver technology

APPLICATIONS

- Sphere inspection for surface flaws
- Defect detection in glass/plastic containers
- Ball-Bearing inspection
- CD/DVD label inspection
- Bottle cap inspection
- Screw/Bolt thread inspection
- Inspection of LCD displays; medical and automotive components etc.
- Ideal for reflective/shiny surfaces

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
RGBW	Red-Green-Blue-White
WIR850	White-IR850

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 (except UV)

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MetaBright™ Diffused Axial Lights (Single Color)									
MODEL	Overall Width and Length Inches (cm)	Height Inches (cm)	Active Area Inches (cm)	Weight lbs (kg)	Cable QTY	Cable Length	AWG/ Conductors	Maximum Current (Amps)	
								Visible	IR, UVS, UVL
MB-DAL105 (1x1)	1.29 x 3.53 (3.28 x 8.95)	1.25 (3.06)	1 x 1 (2.54 x 2.54)	.20 (.09)	1	10ft	24/4	.15	.18
MB-DAL205 (2x2)	2.32 x 4.31 (5.89 x 10.94)	2.36 (6.00)	2 x 2 (5.08 x 5.08)	.81 (.36)				.25	.27
MB-DAL305 (3x3)	3.32 x 5.31 (8.43 x 13.48)	3.36 (8.53)	3 x 3 (7.62 x 7.62)	1.8 (.82)				.43	.45
MB-DAL405 (4x4)	4.31 x 6.30 (10.95 x 16.00)	4.29 (10.90)	4 x 4 (10.16 x 10.16)	2.72 (1.23)			18/4	1.1	1.1
MB-DAL605 (6x6)	6.31 x 9.19 (16.03 x 23.33)	6.17 (15.67)	6 x 6 (15.24 x 15.24)	6.20 (2.81)				2.0	2.2
MB-DAL805 (8x8)	8.38 x 10.56 (21.27 x 26.82)	8.25 (20.95)	8 x 8 (20.32 x 20.32)	12.4 (5.6)				3.1	3.4
MB-DAL1005 (10x10)	10.47 x 12.56 (26.6 x 31.9)	10.33 (26.25)	10 x 10 (25.40 x 25.40)	20.3 (9.2)				4.2	4.5

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

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).

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PART NUMBER KEY													
MODEL	SIZE (inches)	-	WAVELENGTH	-	DRIVER* (most common)	-	DUST COVER	-	IP RATING	-	CABLE LENGTH	-	CONN.** (most Common)
MB-DAL	XXX	-	XXXXX	-	XXX-XXXXXX	-	XXX	-	XXXX	-	XXX	-	XXXX
MB-DAL	2x10 (2x10) 2x14 (2x14) 4x10 (4x10) 105 (1x1) 205 (2x2) 305 (3x3) 405 (4x4) 605 (6x6) 805 (8x8) 1005 (10x10)		W (White 6000K, Nominal) R (Red 630nm) G (Green 530nm) B (Blue 470nm) IR850 (Infrared 850nm) IR880 (Infrared 880nm) IR940 (Infrared 940nm) UV365 (UV Short 365nm) UV395 (UV Long 395nm) RGB (Red-Green-Blue) RGBW WIR850		24Z 24-ILSXXX 24-ILD 24-ILZ 24-ILT U¹ XXX=rate in μs Example: 250		DC2 (2 dust covers) Select or leave blank for 1 dust cover		IP54 Select or leave blank for IP50		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-DAL2x10-R-24Z Example 2: MB-DAL805-W-24Z-DC2-IP54							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)

** (Link to Connector Key)

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Sample Model Number: **MB-DAL605-W-24Z-DC2**

Technical drawing showing top, side, and perspective views of the MB-DAL605-W-24Z-DC2 light fixture. Dimensions are provided in inches and millimeters. Labels include: HEAT SINK, POWER CABLE, (9) MOUNTING HOLES M6X1.0 - 6H \varnothing .25[6.4], DIRECTION OF CAMERA FOCUS, WHITE HIGH LIGHT UNDER DIAGONAL MIRROR, and NON-REFLECTIVE DUST COVER BOTH SIDES.

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	5/9/2013	
B	CHANGED VIEW ON SHEET 3	5/9/2013	
C	ADDED DUST COVER AND ADDITIONAL SCREWS	5/25/2013	
D	ADDED 3 HOLES TO TOP PATTERN UPDATED ADDRESS.	9/25/2014	
E	REVISED TO ACCOMMODATE NEW DRIVER BD	12/28/2015	
F	CHANGED HARDWARE FOR DUST COVER	9/21/2017	

Metaphase Technologies, Inc. 211 Sinclair Road, Suite 100, Bristol, PA. 19007 215-639-8699 Fax 215-639-0977			
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MATERIAL: Per BOM	X .X .XX .XXX (1.78) (1.28) (1.13) ±.010 ±.015 ±.005	TITLE Top Assy.- DAL601 6X6	
FINISH: Black Anodized	ANGLES ±1°	USED ON Per customer	
TREATMENT: N/A		SIZE B DRAWING NUMBER MB-DAL601-1 REV F	
Approval Signature	Date	SCALE 1:3 SHEET 1 OF 1	

SEE SHEET 2 FOR EXPLODED VIEW AND BOM

COMPLIANCE



CONTACT US

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