

MB-FL

MetaBright™ Front Lights feature high density LED array placement and proprietary *Metaphase* thermal management technology to assure maximum LED lifetime and lowest cost of ownership. Our Front Lights are designed for longer working distances and feature rugged housings such as those found in industrial robotics work envelopes.

Familiar four-hole mounting pattern makes it easy to replace older style robotic LED lights without having to rework your existing tooling or end-effectors. Patented optics and thermal control system assures a lifetime of cost effective illumination. Lightweight one-piece machined aluminum housing and Stainless-Steel waterproof versions are now available.



FEATURES

- Homogenous light output that provides high intensity illumination
- Shock and vibration resistant
- LED thermal management for stable performance
- Industry proven for virtually any lighting application
- Flicker free performance and instant start up with Metaphase analog driver technology
- Economical, low cost
- An ideal light for many applications
- Built-in Constant Current Driver with 0-10VDC intensity control, compatible with DDC-3 and ILD-35 Dimmers

WAVELENGTHS

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

GENERAL SPECIFICATIONS

Power Source:	24VDC ±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)

Front Lights

MB-FL

Front Lights							
MODEL	Dimensions W x L x H Inches (cm)	Active Area Inches (cm)	Weight lbs (grams)	Cable QTY	Cable Length	Cable AWG/ Conductors	Max Input Current @24VDC
Heritage Designs							
FL201	1.70 x 3.40 x 1.0 (4.32 x 8.64 x 2.54)	1.45 x 2.90 (3.68 x 7.37)	.30 (136)	1	10ft	24/4	.21A
FL301	3.4 x 4.1 x 1.0 (8.64 x 10.3 x 2.54)	1.64 x 3.11 (4.17 x 7.89)	.50 (227)				.26A
FL401	3.4 x 6.6 x 1.0 (8.64 x 16.8 x 2.54)	3.06 x 5.50 (7.77 x 14.0)	1.10 (500)				1.2A
FL411 (IP65)	3.99 x 7.89 x 1.0 (10.14 x 20.0 x 2.54)	2.90 x 5.40 (7.36 x 13.71)	1.50 (680)			18/4	1.2A

Wiring (4 conductor with Intensity Control)**	
Wire Color	Function
RED	+24VDC
WHITE	0-10VDC INTENSITY CONTROL
BLACK	GROUND (24V RTN)
GREEN	SIGNAL GROUND

Wiring (4 conductor 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).

MB-FL

PART NUMBER KEY													
MODEL	SIZE	-	WAVELENGTH	-	DRIVER* (most common)	-	LENS	-	DIFFUSER	-	CABLE LENGTH	-	CONN.** (most Common)
MB-FL	XXX	-	XXXXX	-	XXXXX	-	XXX	-	XX	-	XXX	-	XXXX
MB-FL	201 (1.3x2.5") 301 (2.5x2.5") 401 (3.0x5.0") 411 (3.0x5.0")		W (White 6000K, Nominal) R (Red 630nm) G (Green 530nm) B (Blue 470nm) IR850 (Infrared 850nm) UV365 (UV Short 365nm) UV395 (UV Long 395nm)		24Z 24Z-TRG 24-ILD 24-ILSXXX 24-BISXXX U¹ XXX=rate in μs Example: 250		L11 (11°) L30 (30°) L34 (34°) Select or leave blank for no lens		CC (Clear Cover) D2 (Single Matte) D3 (TIR/SLK) D4 (Milky White) D5 (Double Matte) Select one		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-FL301-G-24Z-L30-D2 Example 2: MB-FL411-W-24-TRG-L11-CC-M12D								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)

MB-FL

Sample Model Number: **MB-FL301-G-24Z-L30-D2**

Technical drawing of the MB-FL front light assembly. The drawing shows a top view and a side view. Key dimensions include: overall width 4.1 [103.20], mounting hole spacing 3.800 [96.52], mounting hole diameter .650 [16.51], mounting hole offset 1.150 [29.21], mounting hole diameter .275 [6.99], mounting hole offset 3.400 [86.36], mounting hole diameter .950 [24.13], mounting hole offset .650 [16.51], mounting hole diameter .200 [5.08], and mounting hole diameter .400 [10.16]. Components labeled include Diffuser, Strain Relief, Power Cable, and Mounting Holes (#8-32 UNC THRU ALL).

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	8/8/2013	
B	CHANGED COVER SCREW HOLE PATTERN- SEE SHEET 2	8/12/2013	
C	CHANGED DIFFUSER TO STANDARD PART	2/12/2018	

SEE SHEET 2 FOR EXPLODED VIEW AND BOM.

Metaphase Technologies, Inc. 211 Sinclair Road, Suite 100, Bristol, PA. 19007 215-639-8699 Fax 215-639-0977			
QUANTITY: 1 per assy.	TOLERANCE/FINISH UNLESS OTHERWISE SPECIFIED	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.	
MATERIAL: Per BOM	INCHES [MM] 125V RMS [240-250V]	TITLE Top Assembly; 3" Front Light	
FINISH: Black Anodize	X .XX XXX [1.78] [2.28] .010 [1.13] ±.005 ANGLES ±1°	USED ON Per customer	
TREATMENT: N/A		SIZE B	REV C
Approval Signature	Date	SCALE 12	SHEET 1 OF 1

COMPLIANCE



CONTACT US

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