FL

Metaphase 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 assure a lifetime of cost-effective illumination.

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

WAVELENGTHS	
Order ID	Description / nanometers
W	White (6000K), Nominal
R	Red / 630nm
G	Green / 530nm
B	Blue / 470nm
IR880	Infrared / 880nm
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)

METAPHASE
215-639-8699

www.metaphase-tech.com

METAPHASE LIGHTING TECHNOLOGIES

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

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).

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PART NUMBER KEY											
MODEL	SIZE	-	WAVELENGTH	-	DRIVER* (most common)	-	DIFFUSER	-	CABLE LENGTH	-	CONN.** (most Common)
FL	XXX	-	XXXXX	-	XXXXX	-	XX	-	XXX	-	XXXX
FL	**201** (1.3x2.5") **301** (2.5x2.5") **401** (3.0x5.0")		**W** (White 6000K, Nominal) **R** (Red 630nm) **G** (Green 530nm) **B** (Blue 470nm) **IR880** (Infrared 880nm) **UV365** (UV Short 365nm) **UV395** (UV Long 395nm)		**24CV** **24-ILSXXX** **24-ILD** **U**[1] XXX=rate in μs Example: 250		**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: **FL301-G-24CV-D2**
Example 2: **FL401-W-24-ILD-D4-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.

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Sample Model Number: **FL301-G-24CV-D2**

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	
D	ECO 100067	9/16/2019	

STRAIN RELIEF

POWER CABLE
24 AWG Stranded; 4 conductor
w/ flying leadwire ends; 10' Lg. -.19" OD

4.1 [103.20]
3.800 [96.52]
.650 [16.51]
1.150 [29.21]
.200 [5.08]
MOUNTING HOLES
#8-32 UNC THRU ALL

3.400 [86.36]
.950 [24.13]
.650 [16.51]
.275 [6.99]
MOUNTING HOLES
#8-32 UNC ▽ .400 [10.16]

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.
MATERIAL:	Per BOM
FINISH:	Black Anodize
TREATMENT:	N/A

TOLERANCE/FINISH
UNLESS OTHERWISE SPECIFIED
INCHES [MM]

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Approval Signature / Date

TITLE: Top Assembly; 3" Front Light
USED ON: Per customer
SIZE: B
DRAWING NUMBER: FL301-1
REV: D
SCALE 1:2   SHEET 1 OF 1

CONTACT US

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