

## Ring Lights

### MB-RL

The Metaphase near axial Ring Lights offer high intensity, shadow-less illumination with five times the lifetime over fluorescents. The MetaBright™ near axial Ring Lights are built with high density LEDs that create bright illumination of surfaces for a wide spectrum of inspection purposes.

These Ring Lights are specially designed to project an even 360° overlapping ring of light from camera to lens. In most front lighting applications, the near axial Ring Light is a simple, low cost solution to camera lighting.

The near axial Ring Light is machined from a solid block of 6061-T6 aluminum and employs Metaphase's proprietary thermal management technology to dissipate internal die temperature.



#### FEATURES

- Homogenous light output that provides high intensity ON-axis illumination
- Rugged design with thermally potted LEDs
- LED thermal management for stable performance
- Ideal for solder joint and electronic component inspection
- Flicker free performance and instant start up with Metaphase analog driver technology
- An ideal light with many applications including, label Identification, part markings, surface inspection etc.
- Built-in Constant Current Driver with 0 – 10VDC intensity control, compatible with DDC-3 and ILD-35 Dimmers

#### WAVELENGTHS

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

#### GENERAL SPECIFICATIONS

|                             |                                 |
|-----------------------------|---------------------------------|
| <b>Power Source:</b>        | 24VDC ±5%                       |
| <b>Cable (Standard):</b>    | 10-foot cable with flying leads |
| <b>Housing:</b>             | Black Anodized Aluminum         |
| <b>Ambient Temp:</b>        | -20°C to 40°C                   |
| <b>Lifetime Expectancy:</b> | 75,000 hours (except UV)        |

**MB-RL**

| MetaBright RING LIGHTS |                             |                              |                    |                       |              |                   |                              |
|------------------------|-----------------------------|------------------------------|--------------------|-----------------------|--------------|-------------------|------------------------------|
| MODEL*                 | Inside Diameter Inches (cm) | Outside Diameter Inches (cm) | Weight lbs (grams) | Cable QTY             | Cable Length | Cable Description | Maximum Input Current @24VDC |
| MB-RL101               | 1.0 (2.5)                   | 3.0 (7.6)                    | .31 (146)          | 1                     | 10ft         | 24 AWG<br>4 Wire  | 0.3A                         |
| MB-RL201               | 2.0 (5.1)                   | 4.0 (10.2)                   | .77 (350)          |                       |              |                   | 0.6A                         |
| MB-RL201M46            | 1.61 (4.1)                  | 5.77 (14.66)                 | 1.2 (544)          |                       |              |                   | 0.75A                        |
| MB-RL207               | 2.0 (5.1)                   | 5.15 (13.09)                 | .83 (376)          |                       |              |                   | 0.75A                        |
| MB-RL301               | 2.56 (6.51)                 | 5.74 (14.58)                 | .92 (417)          |                       |              |                   | 0.75A                        |
| MB-RL307 (IP69K)       | 2.56 (6.51)                 | 5.79 (14.71)                 | 1.0 (455)          | 12 pos bulkhead conn. |              |                   |                              |
| MB-RL20001             | 7.874 (20.0)                | 11.563 (29.37)               |                    | 1                     | 10ft         | 24 AWG<br>4 Wire  |                              |
| MB-RL23001             | 9.055 (23.0)                | 12.744 (32.37)               |                    |                       |              |                   |                              |
| MB-RL30001             | 11.811 (30.0)               | 15.500 (39.37)               |                    |                       |              |                   |                              |

\*Custom sizes and configurations available

| 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).

**MB-RL**

| PART NUMBER KEY  |  |   |   |                  |   |   |  |  |            |                                    |  |   |                       |
|--|--|---|---|------------------|---|---|--|--|------------|------------------------------------|--|---|-----------------------|
| MODEL  | SIZE ID/OD   | -   | WAVELENGTH  | -                | DRIVER* (most common)   | -   | POLARIZER  | -                                      | DIFFUSER   | -                                  | CABLE LENGTH                           | - | CONN.** (most Common) |
| MB-RL  | XXX  | -   | XXXXX   | -                | XXXXX   | -   | XXX  | -                                      | XX         | -                                  | XXX                                    | - | XXXX                  |
| <b>MB-RL</b>   | <b>101</b> (1.0"/3.0")<br><b>201</b> (2.0"/4.0")<br><b>201M46</b> (1.6"/5.77")<br><b>207</b> (2.0"/5.15")<br><b>301</b> (2.5"/5.74")<br><b>307</b> (2.56"/5.79")<br><b>20001</b> (200mm/294mm)<br><b>23001</b> (230mm/324mm)<br><b>30001</b> (300mm/394mm) | <b>W</b> (White 6000K, Nominal)<br><b>R</b> (Red 630nm)<br><b>G</b> (Green 530nm)<br><b>B</b> (Blue 470nm)<br><b>IR850</b> (Infrared 850nm)<br><b>IR940</b> (Infrared 940nm)<br><b>UV365</b> (UV Short 365nm)<br><b>UV395</b> (UV Long 395nm) | <b>24Z</b><br><b>24-ILSXXX</b><br><b>24-ILD</b><br><b>U<sup>1</sup></b> | <b>POLO</b> (0°) | <b>CC</b> (Clear Cover)<br><b>D2</b> (Single Matte)<br><b>D3</b> (TIR/SLK)<br><b>D4</b> (Milky White)<br><b>D5</b> (Double Matte) | <b>5M</b><br><b>10M</b><br><br>Length can be customized:<br>ex.7M=7meters | <b>M12D<sup>1 2</sup></b><br><b>BC<sup>1 3</sup></b>   |  |            |                                    |  |   |                       |
|  |  |   | <b>24-ILD3</b><br><br>XXX=rate in μs<br>Example: 250                    |                  |   |   |  | Select or leave blank for no polarizer | Select one | Select or leave blank for 3 meters | Select or leave blank for flying leads |   |                       |
| Example 1: <b>MB-RL201-W-24Z-D2</b><br>Example 2: <b>MB-RL23001-UV395-24Z-CC</b> |  |   |   |                  |   |   | <sup>1</sup> Not available in lights exceeding 4A input current<br><sup>2</sup> Default cable length for an M12D connector is 19 inches<br><sup>3</sup> 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.

**MB-RL**

Sample Model Number: **MB-RL301-W-24Z-D2**

**REVISIONS**

| REV. | DESCRIPTION | DATE      | APPROVED |
|------|-------------|-----------|----------|
| D    | REDRAWN     | 7/29/2013 |          |

**Labels:** COOLING FINES, CLEAR LENS, MOUNTING HOLES M4X0.7 - 6H THRU, POWER CABLE: 24 AWG Stranded; 2 conductor w/ flying leadwire ends; 10' Lg. -.19" OD, STRAIN RELIEF, MOUNTING HOLES M4X0.7 - 6H THRU 3 HOLES LOCATED 120° APART, VIEW B-B

**Dimensions:**  $\phi 5.740$  [145.80], .125 [3.18], .500 [12.70], 1.069 [27.15], 1.472 [37.39],  $\phi 2.564$  [65.13], 1.443 [36.65]

SEE SHEET 2 FOR EXPLODED VIEW AND BOM.

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|            |           |   |  |
|------------|-----------|---|--|
| QUANTITY:  | Per order | TOLERANCE/FINISH<br>UNLESS OTHERWISE SPECIFIED<br>INCHES [MM] | THIS DOCUMENT IS THE PROPERTY OF<br>METAPHASE TECHNOLOGIES, INC. WHOM MAY<br>LOAN IT. SUBJECT TO RETURN UPON DEMAND.<br>IT INCLUDES CONFIDENTIAL & PROPRIETARY<br>INFORMATION WHICH MAY NOT BE DISCLOSED<br>TO ANY THIRD PARTY, AND/OR USED FOR<br>ANY PURPOSE CONTRARY TO ITS INTENDED<br>USE, WITHOUT THE EXPRESSED PRIOR WRITTEN<br>CONSENT OF METAPHASE TECHNOLOGIES, INC. |
| MATERIAL:  | Per BOM   |   |  |
| FINISH:    | See note  |   |  |
| TREATMENT: | N/A       |   |  |

|                    |     |      |
|--------------------|-----|------|
| Approval Signature | / / | DATE |
|                    |     |      |

TITLE: Top Assy.; 5" Ring Light  
USED ON: Per customer  
SIZE: B  
DRAWING NUMBER: RL301-1  
SCALE: 1:2  
REV: D  
SHEET 1 OF 1

**COMPLIANCE**



**CONTACT US**

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