

# Ring Lights

## MB-RL

The Metaphase near axial Ring Lights offer high intensity, shadow-less illumination with five times the lifetime over fluorescents. Ring lights are essential for lighting specular or diffused surfaces. 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.

Metaphase 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. Three ¼-20 tapped holes provide the ability to mount the ring light directly on the camera.



### 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-35-24-L

### WAVELENGTHS

| Order ID       | Description / nanometers |
|----------------|--------------------------|
| W              | White (6000K), Nominal   |
| R              | Red / 630nm              |
| G              | Green / 530nm            |
| B              | Blue / 470nm             |
| IR850 (or IRN) | Infrared / 850nm         |
| IR880 (or IRL) | Infrared / 880nm         |
| IR940          | Infrared / 940nm         |
| UV395 (or UVL) | Ultraviolet Long / 395nm |

### 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)        |

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| MetaBright RING LIGHTS |                                 |                                |                       |           |                 |                      |                                    |
|------------------------|---------------------------------|--------------------------------|-----------------------|-----------|-----------------|----------------------|------------------------------------|
| MODEL*                 | Outside Diameter<br>Inches (cm) | Inside Diameter<br>Inches (cm) | Weight<br>lbs (grams) | Cable QTY | Cable<br>Length | Cable<br>Description | Maximum<br>Input Current<br>@24VDC |
| MB-RL101               | 3.0 (7.6)                       | 1.0 (2.5)                      | .31 (146)             | 1         | 10ft            | 24<br>AWG<br>4 Wire  | 0.3A                               |
| MB-RL201               | 4.0 (10.2)                      | 2.0 (5.1)                      | .77 (350)             |           |                 |                      | 0.6A                               |
| MB-RL301               | 5.74 (14.58)                    | 2.56 (6.51)                    | .92 (417)             |           |                 |                      | 0.75A                              |

\*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 |                           |

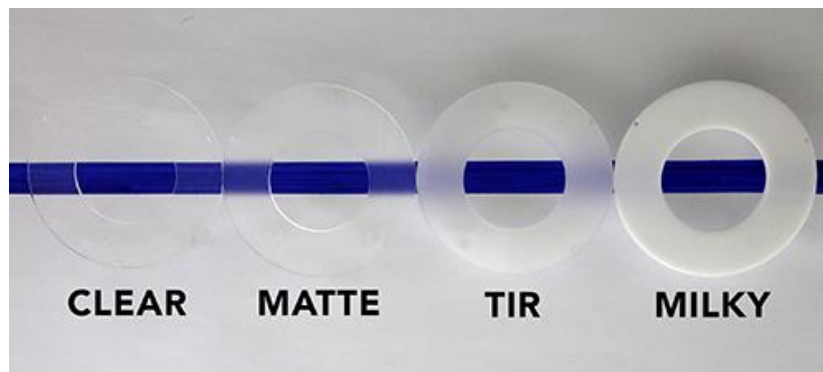
| Wiring with ULC-2   |           |
|---|-----------|
| Wire Color  | Function  |
| RED, WHITE (+)  | LED INPUT |
| BLACK, GREEN (-)  |           |
| Terminated within a 2 position ULC-2 output connector<br>(Phoenix Contact P/N: BCP-508-2) |           |

\*\*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**

| MODEL NUMBER KEY                                      |   |  |   |   |   |  |   |  |
|---|---|--|---|---|---|--|---|--|
| MODEL   | - | WAVELENGTH   | - | VOLTAGE   | - | LENS   | - | OPTION   |
| MB-RLXXX  | - | XXX  | - | XXX   | - | XX   | - | X-XXX  |
| <b>MB-RL101</b><br><b>MB-RL201</b><br><b>MB-RL301</b> | - | <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 (or IRN)</b> (Infrared 850nm)<br><b>IR880 (or IRL)</b> (Infrared 880nm)<br><b>IR940</b> (Infrared 940nm)<br><b>UV395 (or UVL)</b> (UV Long 395nm) | - | <b>24</b> (+24VDC, standard)<br><br><b>U</b> (ULC-2 interface)<br><b>KEY</b> (Keyence Controller)<br><b>ILD</b> (In Line Dimmer)<br><b>ILS</b> (In Line Strobe) | - | <b>CC</b> (Clear Cover)<br><b>D2</b> (Matte)<br><b>D3</b> (TIR)<br><b>D4</b> (Milky White) | - | <b>T</b> (M12 Connector)<br><br><b>XXX</b> (Custom code) |

**Lens/Diffuser Options**



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-24-CC**

**REVISIONS**

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

Labels: COOLING FINS, 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,  $\phi 2.564$  [65.13], 1.443 [36.65], 1.069 [27.15], 1.472 [37.39], .125 [3.18], .500 [12.70], 1.25 [3.18]

SEE SHEET 2 FOR EXPLODED VIEW AND BOM.

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|            |           |   |                                  |  |
|------------|-----------|---|----------------------------------|--|
| QUANTITY:  | Per order | TOLERANCE/FINISH<br>UNLESS OTHERWISE SPECIFIED<br>INCHES (MM) | 125 (V) (R) (D)<br>[3.18] (25.4) | 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  | X .XX .XXX<br>[.25] [.25] [.13]                               | ±.010<br>[.25]                   | ±.005 ANGLES ±1°   |
| 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**

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