

NEW

OMRON

# LED Lighting System 3Z4S-LT/LE Series Datasheet



## LED NEXT GENERATION



realizing

This document provides information mainly for selecting suitable models. Please read the Instruction Sheet carefully for information that the user must understand and accept before purchase, including information on warranty, limitations of liability, and precautions.

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# Next-generation MG-Wave® LED Illumination Combines with the Vision Sensor to Provide New Solutions

Illumination Devices are essential for finding solutions to many of the image-processing tasks of Vision Sensors. With this in mind, we have now combined advanced MG-Wave® LED Illumination from the broad Moritex range of original and innovative products based on superior illumination technologies with Vision Sensor image-processing technologies and know-how accumulated over the years by OMRON.

This powerful collaboration has yielded a variety of optimal solutions to inspection and measurement needs in automated production applications.

**A wide range of products allows you to select the optimal Illumination Device for each application.**



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# Strobe Controller

3Z4S-LT MLEK-C080E1LS (for F150-S1A, F160-S2 Camera)  
3Z4S-LT MLEK-C100E1TS2 (for FZ Camera)  
3Z4S-LT MLEK-C100E1TSX (for ZFX-S/SC Camera)

Combining good Vision Sensor compatibility and excellent cost-performance.



## Three Main Features

**No need of power supply.**

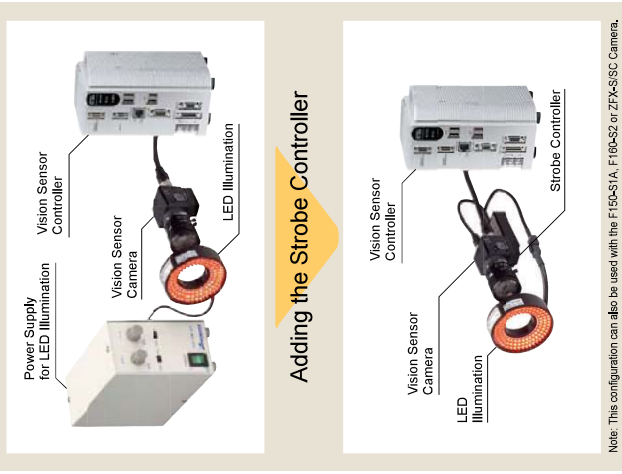
The Strobe Controller operates with power supplied from the Camera Head.

**No need of light-emission control.**

The illumination is turned ON when the Strobe Controller receives a trigger signal from the Camera Head.

**Minimal wiring.**

Simply connect the Camera and Illumination Device with a single cable.



Illumination Devices up to 1 A (Output current: See note) can be connected.



## Ratings and Specifications

• The strobe intensity can be manually adjusted.

| Model                                  | 3Z4S-LT MLEK-C080E1LS (See note 1.)                                                                                         | 3Z4S-LT MLEK-C100E1TS2                                                                                                      | 3Z4S-LT MLEK-C100E1TSX                                                                                                      |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| No. of outputs                         | 1-channel output                                                                                                            | 1-channel output                                                                                                            | 1-channel output                                                                                                            |
| Output current                         | 0.63 A max. (when using 0.8-A illumination) (See note 2.)                                                                   | 1.0 A max. (when using 1.0-A illumination) (See note 2.)                                                                    | 1.0 A max. (when using 1.0-A illumination) (See note 2.)                                                                    |
| Output control method                  | Constant current control                                                                                                    | Constant current control                                                                                                    | Constant current control                                                                                                    |
| Output form                            | Strobe output (synchronized with rising edge trigger)                                                                       | Strobe output (synchronized with rising edge trigger)                                                                       | Strobe output (synchronized with rising edge trigger)                                                                       |
| Output adjustment function             | Manual dial only                                                                                                            | Manual dial only                                                                                                            | Manual dial only                                                                                                            |
| Variable output range                  | 0 to 100%                                                                                                                   | 0 to 100%                                                                                                                   | 0 to 100%                                                                                                                   |
| Strobe emission time                   | 6.3 ms (standard)                                                                                                           | Automatically set by FZ Controller                                                                                          | Automatically set by ZFX Controller                                                                                         |
| Strobe emission delay time             | Ton: 30 $\mu$ s max. (at max. setting)<br>Toff: 10 $\mu$ s max. (at max. setting)                                           | Automatically set by FZ Controller                                                                                          | Automatically set by ZFX Controller                                                                                         |
| Allowable ON duty                      | 100%                                                                                                                        | 100%                                                                                                                        | 100%                                                                                                                        |
| Usage environment                      | Indoor use at a max. altitude of 2,000 m, with no inflammable or corrosive gases present, and no adhesion of foreign matter | Indoor use at a max. altitude of 2,000 m, with no inflammable or corrosive gases present, and no adhesion of foreign matter | Indoor use at a max. altitude of 2,000 m, with no inflammable or corrosive gases present, and no adhesion of foreign matter |
| Ambient temperature and humidity       | 0 to 45°C, 80% up to 31°C and then dropping linearly to 50% at 40°C                                                         | 0 to 45°C, 80% up to 31°C and then dropping linearly to 50% at 40°C                                                         | 0 to 45°C, 80% up to 31°C and then dropping linearly to 50% at 40°C                                                         |
| Storage temperature and humidity       | -20 to 85°C, 20 to 80% humidity (with no condensation)                                                                      | -20 to 85°C, 20 to 80% humidity (with no condensation)                                                                      | -20 to 85°C, 20 to 80% humidity (with no condensation)                                                                      |
| Mounting method                        | Connected and mounted to F150-S/SC or F150-S/SC Camera                                                                      | Connected and mounted to F150-S/SC or F150-S/SC Camera                                                                      | Connected and mounted to ZFX-S/SC Camera                                                                                    |
| Cooling method                         | Natural air cooling                                                                                                         | Natural air cooling                                                                                                         | Natural air cooling                                                                                                         |
| Degree of protection                   | IP30 (IEC 60529)                                                                                                            | IP30 (IEC 60529)                                                                                                            | IP30 (IEC 60529)                                                                                                            |
| Weight                                 | Approx. 80 g                                                                                                                | Approx. 80 g                                                                                                                | Approx. 80 g                                                                                                                |
| Extension Cable (purchased separately) | M4RCB4 (1 L (4-pin Extension Cable) (indicate length in the 2 square boxes (L1, L2): L1=1m, L2=2m, L3=3m)                   | M4RCB4 (1 L (4-pin Extension Cable) (indicate length in the 2 square boxes (L1, L2): L1=1m, L2=2m, L3=3m)                   | M4RCB4 (1 L (4-pin Extension Cable) (indicate length in the 2 square boxes (L1, L2): L1=1m, L2=2m, L3=3m)                   |

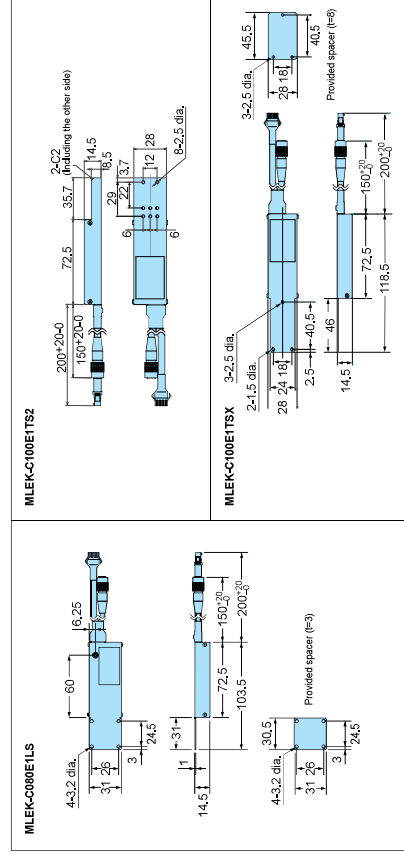
Note 1: Illumination marked "•" in the Connection to Strobe Controller column of the Model Number Legend table can be used.

Note 2: Depends on the illumination used.

Note 3: Strobe intensity adjustment and variable ranges.

## Dimensions

(Unit: mm)



# Direct Ring Light

MDRL Series

## Model Number Legend

3Z4S-LT MDRL-C \* ○ ○ ○  
Luminescent color (Red=R, Green=G, Blue=B, White=W)  
Internal diameter of the ring (mm)



## List of Models

| Model     | Dimension | Luminescent Color | Max. rated current (F/M) (A) | Weight (g) | Power supply | Connection to strobe controller |
|-----------|-----------|-------------------|------------------------------|------------|--------------|---------------------------------|
| MDRL-CR10 | A         | Red               | 0.11                         |            | 080          | ○                               |
| MDRL-CG10 | A         | Green             | 0.17                         |            | 080          | ○                               |
| MDRL-CB10 | A         | Blue              | 0.17                         | 50         | 080          | ○                               |
| MDRL-CW10 | A         | White             | 0.17                         |            | 080          | ○                               |
| MDRL-CR16 | B         | Red               | 0.24                         |            | 080          | ○                               |
| MDRL-CG16 | B         | Green             | 0.37                         | 65         | 080          | ○                               |
| MDRL-CB16 | B         | Blue              | 0.37                         |            | 080          | ○                               |
| MDRL-CW16 | B         | White             | 0.37                         |            | 080          | ○                               |
| MDRL-CR28 | C         | Red               | 0.20                         |            | 080          | ○                               |
| MDRL-CG28 | C         | Green             | 0.31                         | 65         | 080          | ○                               |
| MDRL-CB28 | C         | Blue              | 0.31                         |            | 080          | ○                               |
| MDRL-CW28 | C         | White             | 0.31                         |            | 080          | ○                               |
| MDRL-CR31 | D         | Red               | 0.36                         |            | 080          | ○                               |
| MDRL-CG31 | D         | Green             | 0.55                         | 130        | 080          | ○                               |
| MDRL-CB31 | D         | Blue              | 0.55                         |            | 080          | ○                               |
| MDRL-CW31 | D         | White             | 0.55                         |            | 080          | ○                               |
| MDRL-CR35 | E         | Red               | 0.34                         |            | 080          | ○                               |
| MDRL-CG35 | E         | Green             | 0.52                         | 150        | 080          | ○                               |
| MDRL-CB35 | E         | Blue              | 0.52                         |            | 080          | ○                               |
| MDRL-CW35 | E         | White             | 0.52                         |            | 080          | ○                               |
| MDRL-CR36 | F         | Red               | 0.36                         |            | 080          | ○                               |
| MDRL-CG36 | F         | Green             | 0.55                         | 120        | 080          | ○                               |
| MDRL-CB36 | F         | Blue              | 0.55                         |            | 080          | ○                               |
| MDRL-CW36 | F         | White             | 0.55                         |            | 080          | ○                               |
| MDRL-CR50 | G         | Red               | 0.64                         |            | 080          | ○                               |
| MDRL-CG50 | G         | Green             | 0.96                         | 180        | 230          | ×                               |
| MDRL-CB50 | G         | Blue              | 0.96                         |            | 230          | ×                               |
| MDRL-CW50 | G         | White             | 0.96                         |            | 230          | ×                               |
| MDRL-CR55 | H         | Red               | 1.12                         |            | 230          | ×                               |
| MDRL-CG55 | H         | Green             | 1.55                         | 520        | 230          | ×                               |
| MDRL-CB55 | H         | Blue              | 1.55                         |            | 230          | ×                               |
| MDRL-CW55 | H         | White             | 1.55                         |            | 230          | ×                               |

\* Production by order

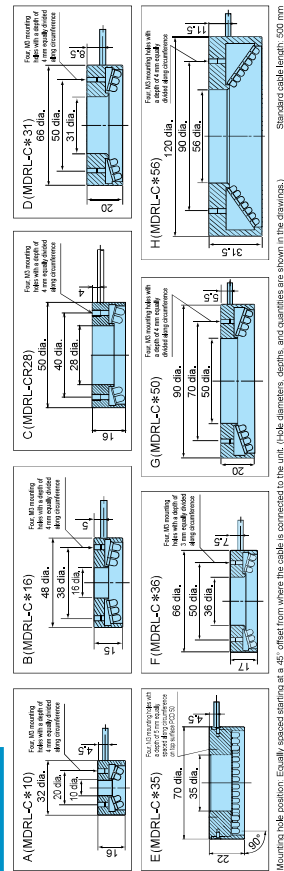
Diffusion and Polarizing plates are available to prevent the vignetting of image.

The recommended working distance is 60 mm or larger, but if a reflective surface is being illuminated, the working distance can be as long as 200 mm.

## Options

For detail, See "Adapter: MAD Series" on page 25.

## Dimensions



Mounting hole position: Equally spaced starting at a 45° offset from where the cable is connected to the unit. (Hole diameters, depths, and quantities are shown in the drawings.) Standard cable length: 500 mm.

# Low Angle Ring Light

MLRL Series

## Model Number Legend

3Z4S-LT MLRL-C \* ○ ○ ○  
Luminescent color (Red=R, Green=G, Blue=B, White=W)  
Internal diameter of the ring (mm)



## List of Models

| Model      | Dimension | Luminescent Color | Max. rated current (F/M) (A) | Weight (g) | Power supply | Connection to strobe controller |
|------------|-----------|-------------------|------------------------------|------------|--------------|---------------------------------|
| MLRL-CR25  | A         | Red               | 0.15                         |            | 080          | ○                               |
| MLRL-CG25  | A         | Green             | 0.24                         |            | 080          | ○                               |
| MLRL-CB25  | A         | Blue              | 0.24                         | 70         | 080          | ○                               |
| MLRL-CW25  | A         | White             | 0.24                         |            | 080          | ○                               |
| MLRL-CR46  | B         | Red               | 0.17                         |            | 080          | ○                               |
| MLRL-CG46  | B         | Green             | 0.27                         | 80         | 080          | ○                               |
| MLRL-CB46  | B         | Blue              | 0.27                         |            | 080          | ○                               |
| MLRL-CW46  | B         | White             | 0.27                         |            | 080          | ○                               |
| MLRL-CR48  | C         | Red               | 0.30                         |            | 080          | ○                               |
| MLRL-CG48  | C         | Green             | 0.47                         | 110        | 080          | ○                               |
| MLRL-CB48  | C         | Blue              | 0.47                         |            | 080          | ○                               |
| MLRL-CW48  | C         | White             | 0.47                         |            | 080          | ○                               |
| MLRL-CR68  | D         | Red               | 0.57                         |            | 080          | ○                               |
| MLRL-CG68  | D         | Green             | 0.61                         | 190        | 080          | ○                               |
| MLRL-CB68  | D         | Blue              | 0.61                         |            | 080          | ○                               |
| MLRL-CW68  | D         | White             | 0.61                         |            | 080          | ○                               |
| MLRL-CR100 | E         | Red               | 0.56                         |            | 230          | ×                               |
| MLRL-CG100 | E         | Green             | 1.03                         | 320        | 230          | ×                               |
| MLRL-CB100 | E         | Blue              | 1.03                         |            | 230          | ×                               |
| MLRL-CW100 | E         | White             | 1.03                         |            | 230          | ×                               |

\* Production by order

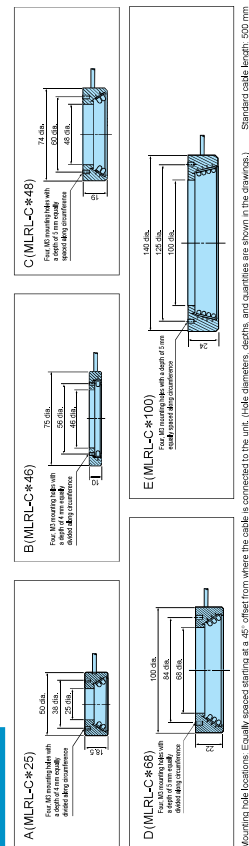
## Options

Good for producing more uniform illumination than with direct lighting and for reducing glare and reflections.

## Diffusion ring



## Dimensions



Mounting hole position: Equally spaced starting at a 45° offset from where the cable is connected to the unit. (Hole diameters, depths, and quantities are shown in the drawings.) Standard cable length: 500 mm.

# Coaxial Light/Simulated Coaxial Episcopic Light

MCEL Series  
MSCL series

## Model Number Legend

**Coaxial**  
3Z4S-LT MCEL-C \* 0 0 0 0 0  
Luminescent color (Red=R, Green=G, Blue=B, White=W)

**Simulated Coaxial**  
3Z4S-LT MSCL-C \* 0 0 0 0 0 - \*  
Luminescent color (Red=R, Green=G, Blue=B, White=W) Box height Revision code



## List of Models

### Lineup of Coaxial Light

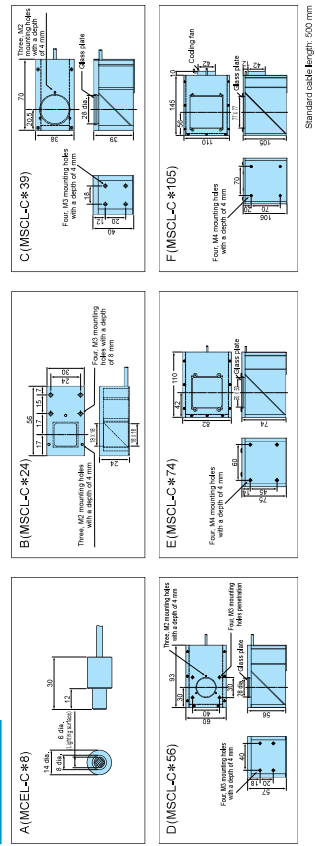
| Model    | Dimension | Luminescent Color | Max. rated current P/M (A) | Weight (g) | Power supply | Connection to strobe controller |
|----------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MCEL-CR8 | A         | Red               | 0.04                       |            | 080          | X                               |
| MCEL-CG8 | A         | Green             | 0.03                       |            | 080          | X                               |
| MCEL-CB8 | A         | Blue              | 0.03                       | 35         | 080          | X                               |
| MCEL-CW8 | A         | White             | 0.03                       |            | 080          | X                               |

### Lineup of Simulated Coaxial Episcopic Light

| Model          | Dimension | Luminescent Color | Max. rated current P/M (A) | Weight (g) | Power supply | Connection to strobe controller |
|----------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MSCL-CR24      | B         | Red               | 0.09                       |            | 080          | C                               |
| * MSCL-CG24    | B         | Green             | 0.20                       |            | 080          | C                               |
| MSCL-CB24      | B         | Blue              | 0.20                       | 110        | 080          | C                               |
| MSCL-CW24      | B         | White             | 0.20                       |            | 080          | C                               |
| MSCL-CR39      | C         | Red               | 0.16                       |            | 080          | C                               |
| * MSCL-CG39    | C         | Green             | 0.31                       |            | 080          | C                               |
| MSCL-CB39      | C         | Blue              | 0.31                       | 160        | 080          | C                               |
| MSCL-CW39      | C         | White             | 0.31                       |            | 080          | C                               |
| MSCL-CR46      | D         | Red               | 0.23                       |            | 080          | C                               |
| * MSCL-CG46    | D         | Green             | 0.66                       |            | 080          | C                               |
| MSCL-CB46      | D         | Blue              | 0.66                       | 320        | 080          | C                               |
| MSCL-CW46      | D         | White             | 0.66                       |            | 080          | C                               |
| MSCL-CR74-B    | E         | Red               | 0.62                       |            | 080          | X                               |
| * MSCL-CG74-B  | E         | Green             | 1.11                       |            | 230          | X                               |
| MSCL-CB74-B    | E         | Blue              | 1.11                       | 520        | 230          | X                               |
| MSCL-CW74-B    | E         | White             | 1.11                       |            | 230          | X                               |
| MSCL-CR105-B   | F         | Red               | 2.14                       |            | 230          | X                               |
| * MSCL-CG105-B | F         | Green             | 2.07                       |            | 230          | X                               |
| MSCL-CB105-B   | F         | Blue              | 2.07                       | 920        | 230          | X                               |
| MSCL-CW105-B   | F         | White             | 2.07                       |            | 230          | X                               |

\*Always run the cooling fan to prevent heat buildup.  
\*The maximum cable length (MSCL2000-L) is required for the hidden fan. This is in addition to the normal Extension Cable. **C: Strobe in sync with AC**  
\* Production by order

## Dimensions



Standard cable length: 500 mm

# Shadowless Light

MSRL Series  
MSLL Series  
MSQL Series

## Model Number Legend

**Shadowless**  
3Z4S-LT MSRL-C \* 0 0 0  
Luminescent color (Red=R, Green=G, Blue=B, White=W)

**Shadowless Low Angle Ring**  
3Z4S-LT MSLL-C \* 0 0 0  
Luminescent color (Red=R, Green=G, Blue=B, White=W)

**Shadowless Low Angle Square**  
3Z4S-LT MSQL-C \* 0 0 0  
Luminescent color (Red=R, Green=G, Blue=B, White=W)



## List of Models

### Line up of Shadowless

| Model       | Dimension | Luminescent Color | Max. rated current P/M (A) | Weight (g) | Power supply | Connection to strobe controller |
|-------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MSRL-CR20   | A         | Red               | 0.32                       |            | 080          | C                               |
| * MSRL-CG20 | A         | Green             | 0.50                       |            | 080          | C                               |
| MSRL-CB20   | A         | Blue              | 0.50                       | 140        | 080          | C                               |
| MSRL-CW20   | A         | White             | 0.50                       |            | 080          | C                               |
| MSRL-CR33   | B         | Red               | 0.45                       |            | 080          | C                               |
| * MSRL-CG33 | B         | Green             | 0.69                       |            | 080          | C                               |
| MSRL-CB33   | B         | Blue              | 0.69                       | 210        | 080          | C                               |
| MSRL-CW33   | B         | White             | 0.69                       |            | 080          | C                               |
| MSRL-CR44   | C         | Red               | 0.57                       |            | 080          | C                               |
| * MSRL-CG44 | C         | Green             | 0.80                       |            | 080          | C                               |
| MSRL-CB44   | C         | Blue              | 0.80                       | 270        | 080          | C                               |
| MSRL-CW44   | C         | White             | 0.80                       |            | 080          | C                               |

### Line up of Shadowless Low Angle Ring

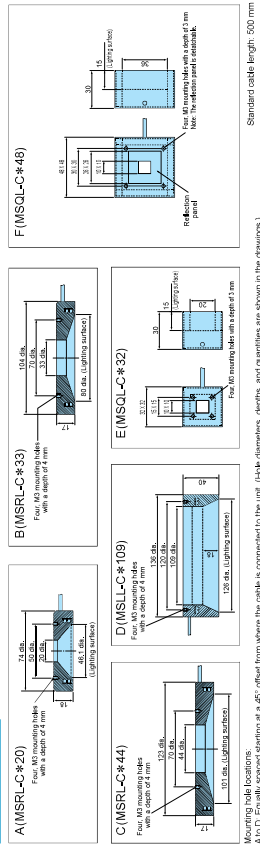
| Model        | Dimension | Luminescent Color | Max. rated current P/M (A) | Weight (g) | Power supply | Connection to strobe controller |
|--------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MSLL-CR109   | D         | Red               | 0.62                       |            | 080          | C                               |
| * MSLL-CG109 | D         | Green             | 1.10                       |            | 230          | X                               |
| MSLL-CB109   | D         | Blue              | 1.10                       | 320        | 230          | X                               |
| MSLL-CW109   | D         | White             | 1.10                       |            | 230          | X                               |

### Line up of Shadowless Low Angle Square

| Model       | Dimension | Luminescent Color | Max. rated current P/M (A) | Weight (g) | Power supply | Connection to strobe controller |
|-------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MSQL-CR32   | E         | Red               | 0.09                       |            | 080          | C                               |
| * MSQL-CG32 | E         | Green             | 0.14                       |            | 080          | C                               |
| MSQL-CB32   | E         | Blue              | 0.14                       | 80         | 080          | C                               |
| MSQL-CW32   | E         | White             | 0.14                       |            | 080          | C                               |
| MSQL-CR46   | F         | Red               | 0.13                       |            | 080          | C                               |
| * MSQL-CG46 | F         | Green             | 0.20                       |            | 080          | C                               |
| MSQL-CB46   | F         | Blue              | 0.20                       | 120        | 080          | C                               |
| MSQL-CW46   | F         | White             | 0.20                       |            | 080          | C                               |

\* Production by order

## Dimensions

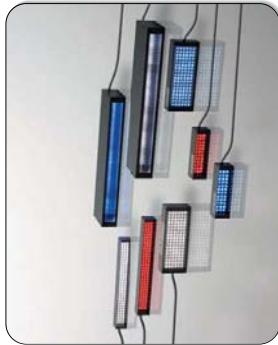
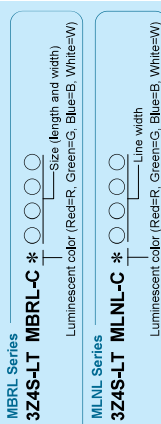


Mounting hole locations:  
A to D Equally spaced starting at a 45° offset from where the cable is connected to the unit. (Hole diameters, depths, and quantities are shown in the drawings.)  
Standard cable length: 500 mm

# Bar Light/Line Light

MBRL Series  
MLNL Series

## Model Number Legend



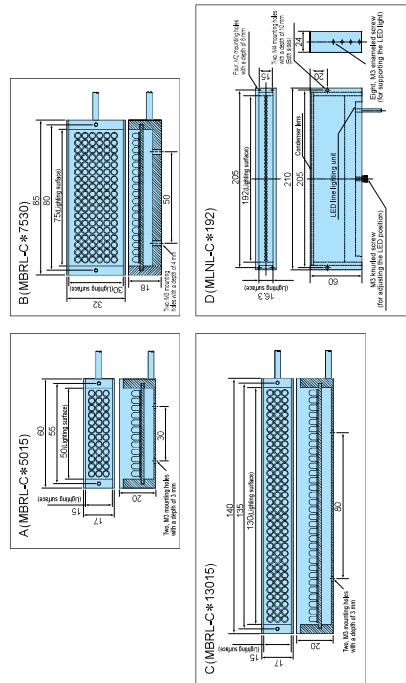
## List of Models

| Model           | Dimension | Luminescent Color | Max. rated current IFM (A) | Weight (g) | Power supply | Connection to strobe controller |
|-----------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MBRL-CRB015     | A         | Red               | 0.13                       | 0          | 000          | ○                               |
| * MBRL-CGB015   | A         | Green             | 0.26                       | 50         | 000          | ○                               |
| MBRL-CBB015     | A         | Blue              | 0.26                       | 0          | 000          | ○                               |
| MBRL-CWB015     | A         | White             | 0.26                       | 0          | 000          | ○                               |
| * MBRL-CGR750   | B         | Red               | 0.36                       | 120        | 000          | ○                               |
| MBRL-CGB750     | B         | Green             | 0.52                       | 0          | 000          | ○                               |
| MBRL-CBB750     | B         | Blue              | 0.52                       | 0          | 000          | ○                               |
| MBRL-CWB750     | B         | White             | 0.52                       | 0          | 000          | ○                               |
| * MBRL-CGR13015 | C         | Red               | 0.32                       | 85         | 000          | ○                               |
| MBRL-CGB13015   | C         | Green             | 0.53                       | 0          | 000          | ○                               |
| MBRL-CBB13015   | C         | Blue              | 0.53                       | 0          | 000          | ○                               |
| MBRL-CWB13015   | C         | White             | 0.53                       | 0          | 000          | ○                               |

## Lineup of Line Light

| Model        | Dimension | Luminescent Color | Max. rated current IFM (A) | Weight (g) | Power supply | Connection to strobe controller |
|--------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MLNL-CR192   | D         | Red               | 0.18                       | 0          | 000          | ○                               |
| * MLNL-CG192 | D         | Green             | 0.36                       | 420        | 000          | ○                               |
| MLNL-CB192   | D         | Blue              | 0.36                       | 0          | 000          | ○                               |
| MLNL-CW192   | D         | White             | 0.36                       | 0          | 000          | ○                               |

## Dimensions



Mounting hole locations:  
A to C: Arranged around the center of the mounting surface.  
D: Arranged around the center of the mounting surface.

Standard cable length: 500 mm

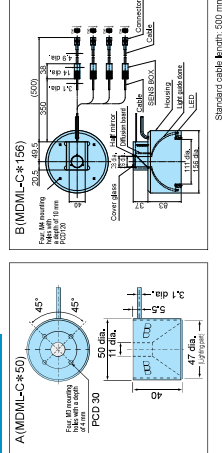
# Dome Light

MDML Series

## Model Number Legend



## Dimensions



## List of Models

| Model       | Dimension | Luminescent Color | Max. rated current IFM (A) | Weight (g) | Power supply | Connection to strobe controller |
|-------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MDML-CR50   | A         | Red               | 0.24                       | 0          | 000          | ○                               |
| * MDML-CG50 | A         | Green             | 0.27                       | 130        | 000          | ○                               |
| MDML-CB50   | A         | Blue              | 0.27                       | 0          | 000          | ○                               |
| MDML-CW50   | A         | White             | 0.27                       | 0          | 000          | ○                               |
| MDML-CR150  | B         | Red               | 1.16                       | 230        | 230          | ×                               |
| MDML-CG150  | B         | Green             | 1.46                       | 1800       | 230          | ×                               |
| MDML-CB150  | B         | Blue              | 1.46                       | 230        | 230          | ×                               |
| MDML-CW150  | B         | White             | 1.46                       | 230        | 230          | ×                               |

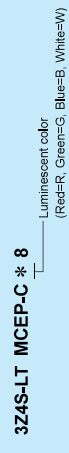
\* Production by order

Standard cable length: 500 mm

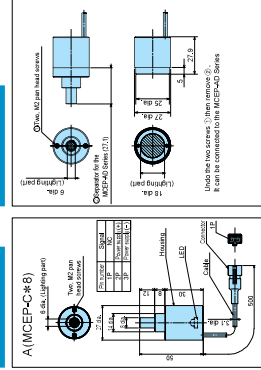
# High-powered Spot LED Light

MCEP Series

## Model Number Legend



## Dimensions



Standard cable length: 500 mm

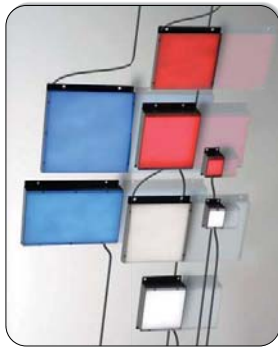
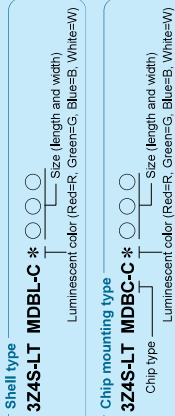
## List of Models

| Model    | Dimension | Luminescent Color | Max. rated current IFM (A) | Weight (g)   | Power supply | Connection to strobe controller |
|----------|-----------|-------------------|----------------------------|--------------|--------------|---------------------------------|
| MCEP-CR8 | A         | Red               | 620.5 ~ 645mm              | 0.35         | 0            | ×                               |
| MCEP-CG8 | A         | Green             | 525 ~ 535mm                | 0.35         | 50           | ×                               |
| MCEP-CB8 | A         | Blue              | 470 ~ 480mm                | 0.35         | 0            | ×                               |
| MCEP-CW8 | A         | White             | All                        | 5000 ~ 6000K | 0.35         | ×                               |

\* The dominant wavelength of visible color according to JIS color coordinates. There are differences in the luminous color for the dominant wavelengths of these LEDs. Color may appear to be different even for the same model number.

# Direct Backlight

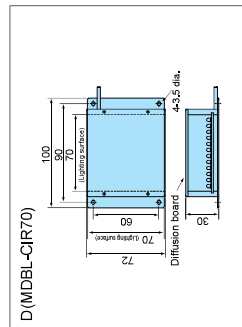
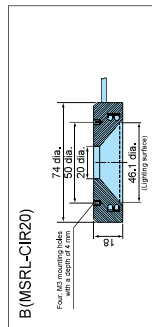
### Model Number Legend



## List of Models

| Lineup of Shell type | Model           | Dimension | Lineupcolor Color | Max. rated current (F/A) (A) | Weight (g) | Power supply | Connection to globe controller |
|----------------------|-----------------|-----------|-------------------|------------------------------|------------|--------------|--------------------------------|
| Lineup of Shell type | MBDL-CR25       | A         | Red               | 0.14                         |            | 090          | ○                              |
|                      | ★ MBDL-CG25     | A         | Green             | 0.27                         |            | 090          | ○                              |
|                      | MBDL-CB25       | A         | Blue              | 0.27                         | 60         | 090          | ○                              |
|                      | MBDL-CW25       | A         | White             | 0.27                         |            | 090          | ○                              |
|                      | MBDL-CR70       | B         | Red               | 0.46                         |            | 090          | ○                              |
|                      | ★ MBDL-CG70     | B         | Green             | 0.96                         | 190        | 230          | ×                              |
|                      | MBDL-CB70       | B         | Blue              | 0.96                         |            | 230          | ×                              |
|                      | MBDL-CW70       | B         | White             | 0.96                         |            | 230          | ×                              |
|                      | MBDL-CR100      | C         | Red               | 1.43                         |            | 230          | ×                              |
|                      | ★ MBDL-CG100    | C         | Green             | 1.55                         |            | 230          | ×                              |
|                      | MBDL-CB100      | C         | Blue              | 1.55                         | 290        | 230          | ×                              |
|                      | MBDL-CW100      | C         | White             | 1.55                         |            | 230          | ×                              |
|                      | MBDL-CR180100   | D         | Red               | 2.30                         |            | 230          | ×                              |
|                      | ★ MBDL-CG180100 | D         | Green             | 2.30                         | 520        | 230          | ×                              |
|                      | MBDL-CB180100   | D         | Blue              | 2.30                         |            | 230          | ×                              |
|                      | MBDL-CW180100   | D         | White             | 2.30                         |            | 230          | ×                              |

|            |   |
|------------|---|
| Model CB70 |   |
| Model CB70 | B |

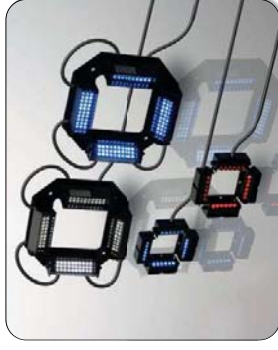


Technical drawing of a cable tray cross-section. The drawing shows a blue tray with a white top surface. Dimensions are indicated: a total width of 601, a top flange width of 40, and two circular holes with a diameter of 4.5. The top surface is labeled 'ion board'. A note on the right states 'Standard cable length: 500 mm'.

# Square Oblique Light

## Model Number Legend

3Z4S-LT MDQL-C \* ○ ○ ○ ○ ○  
 — External size  
 Luminescent color (Red=R, Green=G, Blue=B, White=W)

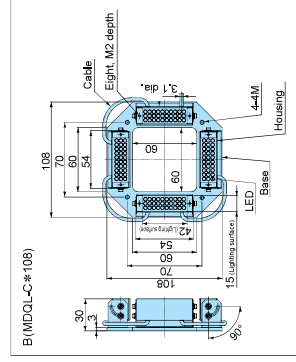
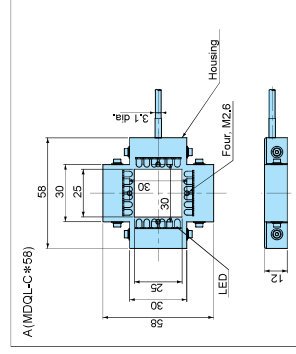


## List of Models

| Model        | Dimension | Luminescent Color | Max. rated current IFM (A) | Weight (g) | Power supply | Connection to strobe controller |
|--------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MDQL-CR58    | A         | Red               | 0.09                       |            | 080          | ○                               |
| * MDQL-CG58  | A         | Green             | 0.17                       | 55         | 080          | ○                               |
| MDQL-CB58    | A         | Blue              | 0.17                       |            | 080          | ○                               |
| MDQL-CW58    | A         | White             | 0.17                       |            | 080          | ○                               |
| MDQL-CR108   | B         | Red               | 0.42                       |            | 080          | ○                               |
| * MDQL-CG108 | B         | Green             | 0.64                       | 210        | 230          | X                               |
| MDQL-CB108   | B         | Blue              | 0.64                       |            | 230          | X                               |
| MDQL-CW108   | B         | White             | 0.64                       |            | 230          | X                               |

\* Production by order

## Dimensions



Standard cable length: 500 mm

# Edge-type Backlight

## Model Number Legend

3Z4S-LT MEBL-C \* ○ ○ ○ ○ ○  
 — Size (length and width)  
 Luminescent color (Red=R, Green=G, Blue=B, White=W)

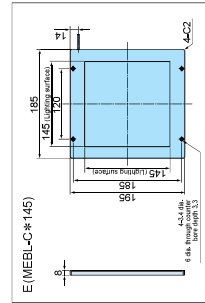
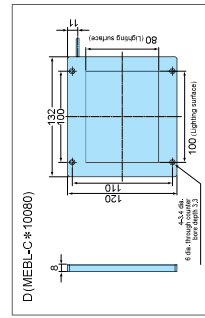
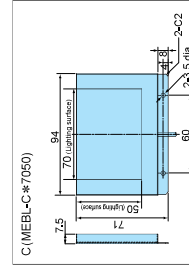
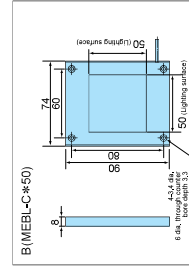
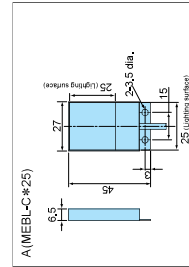


## List of Models

| Model         | Dimension | Luminescent Color | Max. rated current IFM (A) | Weight (g) | Power supply | Connection to strobe controller |
|---------------|-----------|-------------------|----------------------------|------------|--------------|---------------------------------|
| MEBL-CR25     | A         | Red               | 0.03                       |            | 080          | ○                               |
| * MEBL-CG25   | A         | Green             | 0.04                       | 45         | 080          | ○                               |
| MEBL-CB25     | A         | Blue              | 0.04                       |            | 080          | ○                               |
| MEBL-CW25     | A         | White             | 0.04                       |            | 080          | ○                               |
| MEBL-CR50     | B         | Red               | 0.17                       |            | 080          | ○                               |
| * MEBL-CG50   | B         | Green             | 0.29                       | 110        | 080          | ○                               |
| MEBL-CB50     | B         | Blue              | 0.29                       |            | 080          | ○                               |
| MEBL-CW50     | B         | White             | 0.29                       |            | 080          | ○                               |
| MEBL-CR750    | C         | Red               | 0.15                       |            | 080          | ○                               |
| * MEBL-CG750  | C         | Green             | 0.25                       | 140        | 080          | ○                               |
| MEBL-CB750    | C         | Blue              | 0.25                       |            | 080          | ○                               |
| MEBL-CW750    | C         | White             | 0.25                       |            | 080          | ○                               |
| MEBL-CR1000   | D         | Red               | 0.32                       |            | 080          | ○                               |
| * MEBL-CG1000 | D         | Green             | 0.57                       | 230        | 080          | ○                               |
| MEBL-CB1000   | D         | Blue              | 0.57                       |            | 080          | ○                               |
| MEBL-CW1000   | D         | White             | 0.57                       |            | 080          | ○                               |
| MEBL-CR145    | E         | Red               | 0.45                       |            | 080          | ○                               |
| * MEBL-CG145  | E         | Green             | 0.8                        | 460        | 080          | ○                               |
| MEBL-CB145    | E         | Blue              | 0.8                        |            | 080          | ○                               |
| MEBL-CW145    | E         | White             | 0.8                        |            | 080          | ○                               |

\* Production by order

## Dimensions



Standard cable length: 500 mm

# Spot Led Light

## CE Marking)

### Model Number Legend

**3Z4S-LT M** ☐ ☐ ☐ **L** - **CUV** ☐ ☐ ☐ ☐ ☐

See the explanation of each series model.

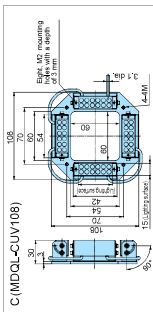
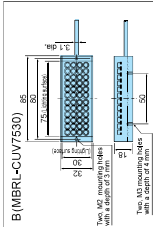
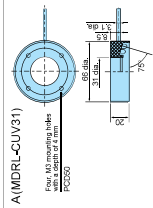
DR=Direct ring  
BR=Bar  
DQ=Square oblique

Luminescent color (Ultra violet=UV)

| Model        | Dimension | Unimetric chip | Max. rated current (F/A) | Weight (g) | Power supply | Consistent stable output |
|--------------|-----------|----------------|--------------------------|------------|--------------|--------------------------|
| MDRL-CUV31   | A         | Ultraviolet    | 0.36                     | 130        | 060          | ○                        |
| MDRL-CUV7530 | B         | Ultraviolet    | 0.36                     | 120        | 060          | ○                        |
| MDQL-CUV108  | C         | Ultraviolet    | 0.36                     | 210        | 060          | ○                        |

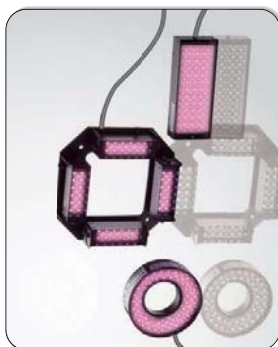
## List of Models

## Dimensions



Mounting hole locations:  
A. Equally spaced starting at a 45° offset from where the  
a. Arranged around the center of the mounting surface.

Standard cable length: 500 mm



### Spot Led Light

### Model Number Legend

3Z4S-LT MSPP-C \* ○ ○ ○  
 \_\_\_\_\_ Effective size (Lighting part)  
 \_\_\_\_\_ Luminescent color (Red=R, White=W)

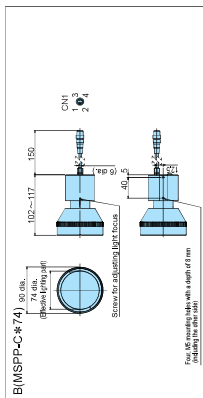
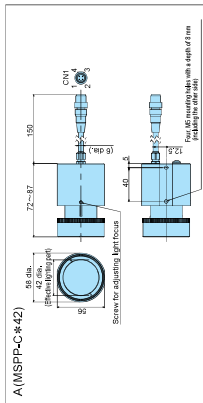
## List of Models

## Vide projection

| Model     | Device | Max. rated current (mA) | Weight (g) | Power supply     | Connects to other cables |
|-----------|--------|-------------------------|------------|------------------|--------------------------|
| MSPP-CW42 | A      | Red                     | 460g       | MLEP-A070 series | ×                        |
| MSPP-CW42 | A      | Red                     | 460g       | MLEP-A070 series | ×                        |
| MSPP-CW42 | A      | White                   | 0.7        | MLEP-A070 series | ×                        |

Always connect a Conversion Cable (3Z4S-LT M-RCB301XS) when connecting the power supply.

## Dimensions



# Parallel Light

**MCBP** Series

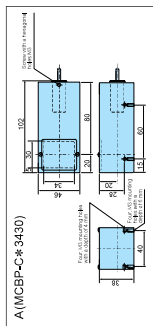
## Model Number Legend

3Z4S-LT MCBP-C\* ○○○○ ○○○○  
Size (length and width)  
luminescent color (Red=R, White=W)

## List of Models

| Model         | Dimension | Luminaire Color | Max. rated current (A) | Weight (g) | Power supply | Connection to stable conductor |
|---------------|-----------|-----------------|------------------------|------------|--------------|--------------------------------|
| ★ MCBP-CG3430 | A         | Green           | 0,07                   | 260        | 080          | ×                              |
| MCBP-CG3430   | A         | Blue            | 0,07                   |            | 080          | ×                              |
| MCBP-CW3430   | A         | White           | 0,07                   |            | 080          | ×                              |

## Dimensions



## Parallel Light

# CCTV Lens

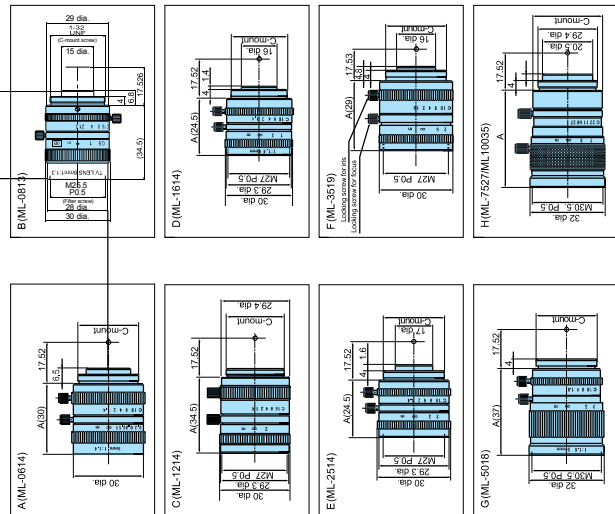
ML Series



## List of Models

| Model            | Dimension | Focal distance (mm) | F-number (F No.) | Field of view (V x H) | Closest distance (m) | Filter screw | Weight (g) | Total length (mm) | Maximum compound CCD | Camera Mount |
|------------------|-----------|---------------------|------------------|-----------------------|----------------------|--------------|------------|-------------------|----------------------|--------------|
| 324S-LE ML-0814  | A         | 8                   | F1.4 - Close     | 42.3° x 34.6°         | 0.2                  | M27 P0.5     | 60         | 30                | 1/2 inch             |              |
| 324S-LE ML-0813  | B         | 8                   | F1.3 - Close     | 45.0° x 37.6°         | 0.3                  | M25.5 P0.5   | 60         | 34.5              | 2/3 inch             |              |
| 324S-LE ML-1214  | C         | 12                  | F1.4 - Close     | 21.9° x 29.0°         | 0.4                  | M27 P0.5     | 40         | 24.5              | 2/3 inch             | C-Mount      |
| 324S-LE ML-1614  | D         | 16                  | F1.4 - Close     | 23.0° x 30.4°         | 0.4                  | M27 P0.5     | 40         | 24.5              | 2/3 inch             |              |
| 324S-LE ML-2514  | E         | 25                  | F1.4 - Close     | 21.6° x 28.5°         | 0.5                  | M27 P0.5     | 45         | 29                | 1 inch               |              |
| 324S-LE ML-3519  | F         | 35                  | F1.8 - Close     | 10.9° x 14.4°         | 1                    | M27 P0.5     | 60         | 37                | 2/3 inch             |              |
| 324S-LE ML-5018  | G         | 50                  | F2.7 - Close     | 7.9° x 10.3°          | 1                    | M27 P0.5     | 65         | 43.5              | 2/3 inch             |              |
| 324S-LE ML-7527  | H         | 75                  | F3.5 - Close     | 4.9° x 6.5°           | 1                    | M27 P0.5     | 65         | 43.5              | 2/3 inch             |              |
| 324S-LE ML-10035 |           | 100                 | F3.5 - Close     | 3.9° x 5.1°           | 1                    | M27 P0.5     | 65         | 43.5              | 2/3 inch             |              |

## Dimensions



# CCTV Lens option

ML Series

## Polarizing Filter

| Model            |
|------------------|
| 324S-LE ML-PL270 |
| 324S-LE ML-PL255 |
| 324S-LE ML-PL305 |

## Close-up Ring

| Model           | Length (mm)                                 |
|-----------------|---------------------------------------------|
| 324S-LE ML-EXR* | *Close-up Ring (0.5, 1, 2.5, 5, 10, 20, 40) |

\*These Close-up Rings are also available individually. Order using the following model number, replacing the box with the desired length: 324S-LE ML-EXR-  
Inquire concerning prices.

## Rear Converter Lens

| Configuration | Model           |
|---------------|-----------------|
| 1             | 324S-LE ML-1.5X |
| 2             | 324S-LE ML-2X   |
| 3             | 324S-LE ML-2.5X |
| 4             | 324S-LE ML-3X   |
| 5             | 324S-LE ML-4X   |

# Non-telecentric Macro Lens

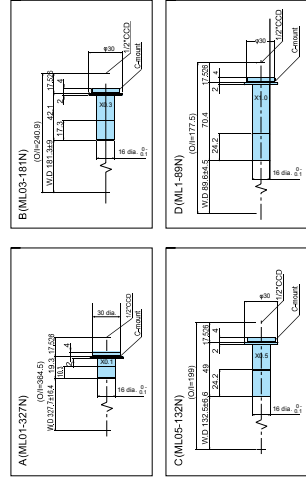
ML-N Series

## List of Models

| Model           | Dimension | Magification | Element No. | Ø (mm) | 90 mm | Depth of field | Resolution | TV distortion |
|-----------------|-----------|--------------|-------------|--------|-------|----------------|------------|---------------|
| 324S-LE ML-N27N | A         | 0.1          | 4.71        | 364.5  | 327.7 | 37.6mm         | 33.9µm     | 0.4% max.     |
| 324S-LE ML-N27N | B         | 0.3          | 5.11        | 240.9  | 191.3 | 5.4mm          | 14.9µm     | 0.2% max.     |
| 324S-LE ML-N27N | C         | 0.5          | 5.08        | 199    | 132.5 | 1.9mm          | 11.7µm     | 0.08% max.    |
| 324S-LE ML-N27N | D         | 1.0          | 5.82        | 177.5  | 89.6  | 0.7mm          | 7.9µm      | 0.04% max.    |

\*The field of depth is calculated based on an image equivalent to 320 horizontal TV lines taken with a 1/2" CCD camera.

## Dimensions



# New Power Supplies for MCEP/MSPP Series

These constant-current power supplies are designed specifically for the MCEP Series of High-power LED Spot Lights and MSPP Series of LED Spot Lights.

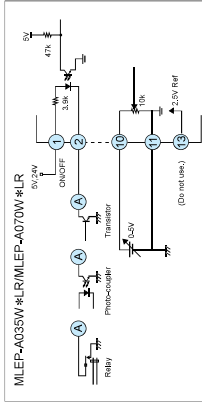
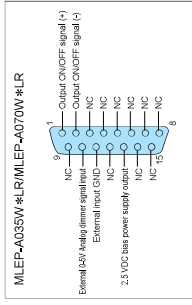
## NEW MLEP Analog Series

Models are available with an analog light adjustment and for either one or three channels. A wide voltage input (100 to 240 VAC) is supported, along with CE Marking.

### Ratings and Specifications

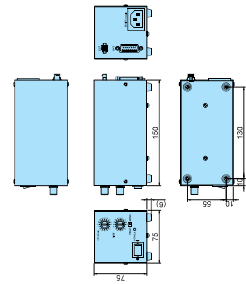
| Model                    | MLEP-A035W1LR-100V                                                       | MLEP-A035W1LR-200V                | MLEP-A070W1LR-100V                | MLEP-A070W1LR-200V                | MLEP-A035W3LR-100V                                                       | MLEP-A035W3LR-200V                            | MLEP-A070W3LR-100V                            | MLEP-A070W3LR-200V                            |
|--------------------------|--------------------------------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| AC Type                  | 100V                                                                     | 200V                              | 100V                              | 200V                              | 100V                                                                     | 200V                                          | 100V                                          | 200V                                          |
| Output                   | Single-channel out put max.350 mA                                        | Single-channel out put max.350 mA | Single-channel out put max.700 mA | Single-channel out put max.700 mA | 3-channel out put for each channel max.350 mA                            | 3-channel out put for each channel max.350 mA | 3-channel out put for each channel max.700 mA | 3-channel out put for each channel max.700 mA |
| Dimension                | A                                                                        |                                   |                                   |                                   | B                                                                        |                                               |                                               |                                               |
| Input voltage            | 100~240V AC 50/60Hz                                                      |                                   |                                   |                                   | 100~240V AC 50/60Hz                                                      |                                               |                                               |                                               |
| Input current            | 0.35 (0.35A) (at AC 100/240V)                                            |                                   |                                   |                                   | 0.35 (0.35A) (at AC 100/240V)                                            |                                               |                                               |                                               |
| Surge current            | 20A or lower (at 100V AC) 40A or lower (at 240V AC)                      |                                   |                                   |                                   | 20A or lower (at 100V AC) 40A or lower (at 240V AC)                      |                                               |                                               |                                               |
| Operating temperature    | 0 to +45°C                                                               |                                   |                                   |                                   | 0 to +45°C                                                               |                                               |                                               |                                               |
| Output system            | Continuous DC output                                                     |                                   |                                   |                                   | Continuous DC output                                                     |                                               |                                               |                                               |
| Output control system    | Constant current control (the current can be changed)                    |                                   |                                   |                                   | Constant current control (the current can be changed)                    |                                               |                                               |                                               |
| External light control   | Supported (0 to 5V)                                                      |                                   |                                   |                                   | Supported (0 to 5V)                                                      |                                               |                                               |                                               |
| Lighting on/off function | Supported (photocoupler insulation)                                      |                                   |                                   |                                   | Supported (photocoupler insulation)                                      |                                               |                                               |                                               |
| Cooling system           | Natural air cooling                                                      |                                   |                                   |                                   | forced air cooling                                                       |                                               |                                               |                                               |
| Installation             | Horizontal installation on the rubber supports at the bottom of the unit |                                   |                                   |                                   | Horizontal installation on the rubber supports at the bottom of the unit |                                               |                                               |                                               |
| Weight                   | Approximately 0.3kg                                                      |                                   |                                   |                                   | Approximately 1.4kg                                                      |                                               |                                               |                                               |

### Connection Specifications

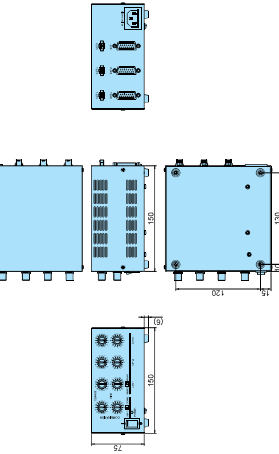


### Dimensions

A (MLEP-A035W1LR/MLEP-A070W1LR)



B (MLEP-A035W3LR/MLEP-A070W3LR)



## NEW MLEP Series



### Model Number Legend

374S-LT MLEP-A \*\*\*W\*LR\* - \*\*\*V

Maximum output current  
AC type  
Output  
Digital type (D)  
channel

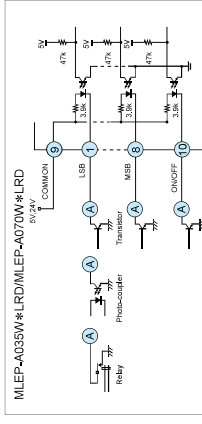
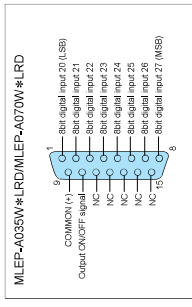
## NEW MLEP Digital Series

Models are available with a digital light adjustment and for either one or three channels. A wide voltage input (100 to 240 VAC) is supported, along with CE Marking.

### Ratings and Specifications

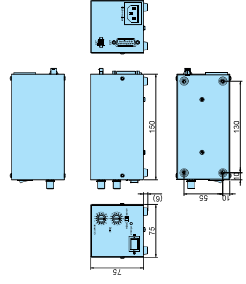
| Model                    | MLEP-A035W1LR-100V                                                       | MLEP-A035W1LR-200V                | MLEP-A070W1LR-100V                | MLEP-A070W1LR-200V                | MLEP-A035W3LR-100V                                                       | MLEP-A035W3LR-200V                            | MLEP-A070W3LR-100V                            | MLEP-A070W3LR-200V                            |
|--------------------------|--------------------------------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| AC Type                  | 100V                                                                     | 200V                              | 100V                              | 200V                              | 100V                                                                     | 200V                                          | 100V                                          | 200V                                          |
| Output                   | Single-channel out put max.350 mA                                        | Single-channel out put max.350 mA | Single-channel out put max.700 mA | Single-channel out put max.700 mA | 3-channel out put for each channel max.350 mA                            | 3-channel out put for each channel max.350 mA | 3-channel out put for each channel max.700 mA | 3-channel out put for each channel max.700 mA |
| Dimension                | A                                                                        |                                   |                                   |                                   | B                                                                        |                                               |                                               |                                               |
| Input voltage            | 100~240V AC 50/60Hz                                                      |                                   |                                   |                                   | 100~240V AC 50/60Hz                                                      |                                               |                                               |                                               |
| Input current            | 0.35 (0.35A) (at AC 100/240V)                                            |                                   |                                   |                                   | 0.35 (0.35A) (at AC 100/240V)                                            |                                               |                                               |                                               |
| Surge current            | 20A or lower (at 100V AC) 40A or lower (at 240V AC)                      |                                   |                                   |                                   | 20A or lower (at 100V AC) 40A or lower (at 240V AC)                      |                                               |                                               |                                               |
| Operating temperature    | 0 to +45°C                                                               |                                   |                                   |                                   | 0 to +45°C                                                               |                                               |                                               |                                               |
| Output system            | Continuous DC output                                                     |                                   |                                   |                                   | Continuous DC output                                                     |                                               |                                               |                                               |
| Output control system    | Constant current control (the current can be changed)                    |                                   |                                   |                                   | Constant current control (the current can be changed)                    |                                               |                                               |                                               |
| External light control   | Supported (8bit digital)                                                 |                                   |                                   |                                   | Supported (for each channel, 8bit digital)                               |                                               |                                               |                                               |
| Lighting on/off function | Supported (photocoupler insulation)                                      |                                   |                                   |                                   | Supported (photocoupler insulation)                                      |                                               |                                               |                                               |
| Cooling system           | Natural air cooling                                                      |                                   |                                   |                                   | forced air cooling                                                       |                                               |                                               |                                               |
| Installation             | Horizontal installation on the rubber supports at the bottom of the unit |                                   |                                   |                                   | Horizontal installation on the rubber supports at the bottom of the unit |                                               |                                               |                                               |
| Weight                   | Approximately 0.3kg                                                      |                                   |                                   |                                   | Approximately 1.4kg                                                      |                                               |                                               |                                               |

### Connection Specifications

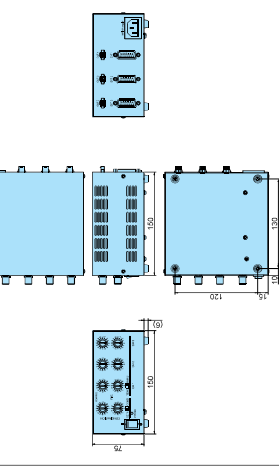


### Dimensions

A (MLEP-A035W1LR/MLEP-A070W1LR)



B (MLEP-A035W3LR/MLEP-A070W3LR)



# New Power Supplies for MG-Wave Series

These new power supplies are designed specifically for MG-Wave Constant-current LED Lights (except for the MCEP Series). Even when combining with an LED Light from the broad lineup and possible applications, you can select the ideal Constant-current Power Supply for the required current consumption. The Power Supplies suppress heat generation and will make the most of the characteristics of any of the LED Light. External output controls and other features are also provided.

## A080/230W Analog Series (Total current: 0.8 A or 2.3 A)

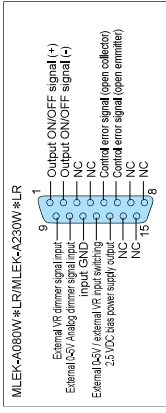
Models are available with an analog light adjustment and for either one or two channels. A wide voltage input (100 to 240 VAC) is supported, along with CE Marking.

### Ratings and Specifications

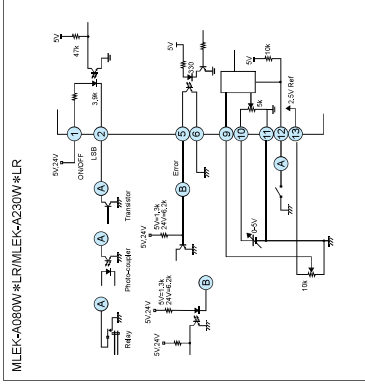
| Model                    | MLEK-A080W1LR-100V                                                                  | MLEK-A080W2LR-100V | MLEK-A080W2LR-200V | MLEK-A080W2LR-200V |
|--------------------------|-------------------------------------------------------------------------------------|--------------------|--------------------|--------------------|
| AC Type                  | 100V                                                                                | 100V               | 200V               | 200V               |
| Output                   | Single-channel output of 0.8A (for connection to all lights except the MCEP Series) |                    |                    |                    |
| Input voltage            | 100 • 240V AC 50/60Hz                                                               |                    |                    |                    |
| Dimension                | A                                                                                   |                    |                    |                    |
| Input current            | 0.3 / 0.15A (at AC 100/240V)                                                        |                    |                    |                    |
| Surge current            | 15A or lower (at 100V AC) 35A or lower (at 240V AC)                                 |                    |                    |                    |
| Operating temperature    | 0 to +45°C                                                                          |                    |                    |                    |
| Output system            | Continuous DC output                                                                |                    |                    |                    |
| Output control system    | Constant current control (the current can be changed)                               |                    |                    |                    |
| External light control   | Supported (0 to 5V)                                                                 |                    |                    |                    |
| Lighting on/off function | Supported (photoresistor insulation)                                                |                    |                    |                    |
| Error output             | Supported (photoresistor insulation, control error)                                 |                    |                    |                    |
| Cooling system           | Natural air cooling                                                                 |                    |                    |                    |
| Installation             | Horizontal installation on the rubber supports at the bottom of the unit            |                    |                    |                    |
| Weight                   | Approximately 1.1kg                                                                 |                    |                    |                    |

| Model                    | MLEK-A230W1LR-100V                                                                  | MLEK-A230W2LR-100V | MLEK-A230W2LR-200V | MLEK-A230W2LR-200V |
|--------------------------|-------------------------------------------------------------------------------------|--------------------|--------------------|--------------------|
| AC Type                  | 100V                                                                                | 100V               | 200V               | 200V               |
| Output                   | Single-channel output of 2.3A (for connection to all lights except the MCEP Series) |                    |                    |                    |
| Input voltage            | 100 • 240V AC 50/60Hz                                                               |                    |                    |                    |
| Dimension                | A                                                                                   |                    |                    |                    |
| Input current            | 0.7 / 0.4A (at AC 100/240V)                                                         |                    |                    |                    |
| Surge current            | 15A or lower (at 100V AC) 35A or lower (at 240V AC)                                 |                    |                    |                    |
| Operating temperature    | 0 to +45°C                                                                          |                    |                    |                    |
| Output system            | Continuous DC output                                                                |                    |                    |                    |
| Output control system    | Constant current control (the current can be changed)                               |                    |                    |                    |
| External light control   | Supported (0 to 5V dimmer signal / External VR input)                               |                    |                    |                    |
| Lighting on/off function | Supported (photoresistor insulation)                                                |                    |                    |                    |
| Error output             | Supported (photoresistor insulation, control error)                                 |                    |                    |                    |
| Cooling system           | Forced air cooling                                                                  |                    |                    |                    |
| Installation             | Horizontal installation on the rubber supports at the bottom of the unit            |                    |                    |                    |
| Weight                   | Approximately 1.1kg                                                                 |                    |                    |                    |

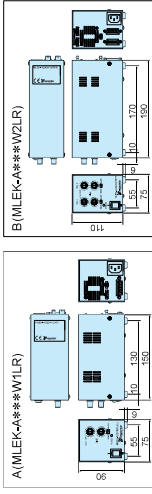
### Connection Specifications



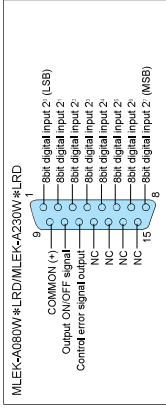
### I/O Circuit Diagrams



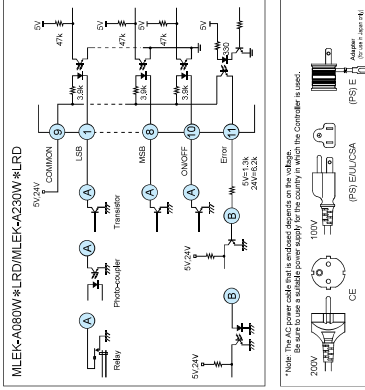
### Dimensions



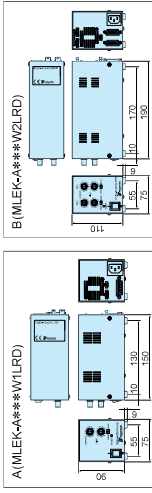
### Connection Specifications



### I/O Circuit Diagrams



### Dimensions



### Model Number Legend

3Z4S-LT MLEK-A \*\*\*W\*LR\* - \*\*\*V

AC type  
Output channel  
Digital type (D)  
Maximum output current

## A080/230W Digital Series (Total current: 0.8 A or 2.3 A)

Models are available with a digital light adjustment and for either one or two channels. A wide voltage input (100 to 240 VAC) is supported, along with CE Marking.

### Ratings and Specifications

| Model                    | MLEK-A080W1LRD-100V                                                                 | MLEK-A080W2LRD-100V | MLEK-A080W2LRD-200V | MLEK-A080W2LRD-200V |
|--------------------------|-------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|
| AC Type                  | 100V                                                                                | 100V                | 200V                | 200V                |
| Output                   | Single-channel output of 0.8A (for connection to all lights except the MCEP Series) |                     |                     |                     |
| Input voltage            | 100 • 240V AC 50/60Hz                                                               |                     |                     |                     |
| Dimension                | A                                                                                   |                     |                     |                     |
| Input current            | 0.3 / 0.15A (at AC 100/240V)                                                        |                     |                     |                     |
| Surge current            | 15A or lower (at 100V AC) 35A or lower (at 240V AC)                                 |                     |                     |                     |
| Operating temperature    | 0 to +45°C                                                                          |                     |                     |                     |
| Output system            | Continuous DC output                                                                |                     |                     |                     |
| Output control system    | Constant current control (the current can be changed)                               |                     |                     |                     |
| External light control   | Supported (8-bit digital)                                                           |                     |                     |                     |
| Lighting on/off function | Supported (photoresistor insulation)                                                |                     |                     |                     |
| Error output             | Supported (photoresistor insulation, control error)                                 |                     |                     |                     |
| Cooling system           | Natural air cooling                                                                 |                     |                     |                     |
| Installation             | Horizontal installation on the rubber supports at the bottom of the unit            |                     |                     |                     |
| Weight                   | Approximately 1.1kg                                                                 |                     |                     |                     |

| Model                    | MLEK-A230W1LRD-100V                                                                 | MLEK-A230W2LRD-100V | MLEK-A230W2LRD-200V | MLEK-A230W2LRD-200V |
|--------------------------|-------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|
| AC Type                  | 100V                                                                                | 100V                | 200V                | 200V                |
| Output                   | Single-channel output of 2.3A (for connection to all lights except the MCEP Series) |                     |                     |                     |
| Input voltage            | 100 • 240V AC 50/60Hz                                                               |                     |                     |                     |
| Dimension                | A                                                                                   |                     |                     |                     |
| Input current            | 0.7 / 0.4A (at AC 100/240V)                                                         |                     |                     |                     |
| Surge current            | 15A or lower (at 100V AC) 35A or lower (at 240V AC)                                 |                     |                     |                     |
| Operating temperature    | 0 to +45°C                                                                          |                     |                     |                     |
| Output system            | Continuous DC output                                                                |                     |                     |                     |
| Output control system    | Constant current control (the current can be changed)                               |                     |                     |                     |
| External light control   | Supported (8-bit digital)                                                           |                     |                     |                     |
| Lighting on/off function | Supported (photoresistor insulation)                                                |                     |                     |                     |
| Error output             | Supported (photoresistor insulation, control error)                                 |                     |                     |                     |
| Cooling system           | Forced air cooling                                                                  |                     |                     |                     |
| Installation             | Horizontal installation on the rubber supports at the bottom of the unit            |                     |                     |                     |
| Weight                   | Approximately 1.1kg                                                                 |                     |                     |                     |

**3Z4S-LT MLEK-D770W4LRD-\*\*\* V**  
AC type

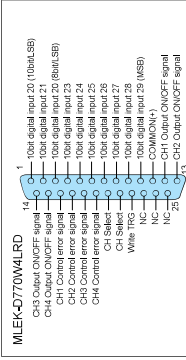
## Multichannel series

Models are available with a digital light adjustment and for four channels. A wide voltage input (100 to 240 VAC) is supported, along with RoHS compliance.  
The digital light adjustment provides the previous 6-bit, 256-step control and a new 10-bit, 1,024-step control.  
\*CE Marking.

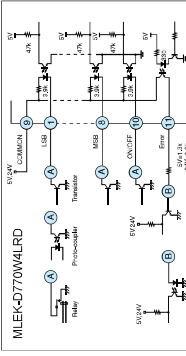
### Ratings and Specifications

| Model                    | MLEK-D770W4LRD-100V                                                      | MLEK-D770W4LRD-200V |
|--------------------------|--------------------------------------------------------------------------|---------------------|
| AC Type                  | 100V                                                                     | 200V                |
| Output                   | 4-channel output Total max. 7.7A CH max. 2.9A CH max. 3.8A               |                     |
| Input voltage            | 100~240V AC 50/60Hz                                                      |                     |
| Dimension                | A                                                                        |                     |
| Input current            | 1.7/0.8 A<br>(at AC)                                                     |                     |
| Surge current            | 18A or lower (at 160V AC)<br>41A or lower (at 230V AC)                   |                     |
| Operating temperature    | 0 to +45°C                                                               |                     |
| Output system            | Continuous DC output                                                     |                     |
| Output control system    | Constant current control (the current can be changed)                    |                     |
| External light control   | Supported (for each channel, bit digital or 10 bit digital)              |                     |
| Lighting on/off function | Supported (photocoupler insulation)                                      |                     |
| Error output             | Supported (photocoupler insulation, control error)                       |                     |
| Cooling system           | forcible air cooling                                                     |                     |
| Installation             | Horizontal installation on the rubber supports at the bottom of the unit |                     |
| Weight                   | Approximately 2kg                                                        |                     |

### Connection Specifications

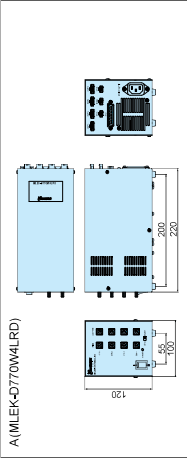


### I/O Circuit Diagrams



### Dimensions

A (MLEK-D770W4LRD)



# Optional Accessories

\*When ordering, provide the specific model number after "3Z4S-LT" (example: 3Z4S-LT MDF-DR10).

## Options for lights

The following optional accessories are available to improve the functionality of the lighting devices.

### Diffusion plate:MDF Series

The MDF series features a diffusion plate that increases the light diffusion and reduces reflection and glare from the element.

| Model       | Product type                             | Compatible light models                 |
|-------------|------------------------------------------|-----------------------------------------|
| MDF-DQ108   | Square oblique light diffusion plate     | MDL-CR (CG CB CW) for 108, 4 pieces/set |
| MDF-DQ10    | Diffusion plate for directing lights     | MDL-CR (CG CB CW) for 10                |
| MDF-DQ16    | Diffusion plate for directing lights     | MDL-CR (CG CB CW) for 16                |
| MDF-DQ28    | Diffusion plate for directing lights     | MDL-CR (CG CB CW) for 28                |
| MDF-DQ31    | Diffusion plate for directing lights     | MDL-CR (CG CB CW) for 31                |
| MDF-DQ50    | Diffusion plate for directing lights     | MDL-CR (CG CB CW) for 50                |
| MDF-DQ56    | Diffusion plate for directing lights     | MDL-CR (CG CB CW) for 56                |
| MDF-LR25    | Diffusion plate for kowangle ring lights | MDL-CR (CG CB CW) for 25                |
| MDF-LR48    | Diffusion plate for kowangle ring lights | MDL-CR (CG CB CW) for 48                |
| MDF-LR68    | Diffusion plate for kowangle ring lights | MDL-CR (CG CB CW) for 68                |
| MDF-LR100   | Diffusion plate for kowangle ring lights | MDL-CR (CG CB CW) for 100               |
| MDF-LR5016  | Diffusion plate for bar lights           | MDL-CR (CG CB CW) for 5015              |
| MDF-DR7530  | Diffusion plate for bar lights           | MDL-CR (CG CB CW) for 7530              |
| MDF-DR13015 | Diffusion plate for bar lights           | MDL-CR (CG CB CW) for 13015             |

An asterisk (\*) in "compatible light model" refers to any LED color (R.G.B or W) of the light.

### Polarizing plate:MPL Series

The MPL series polarizing plates are attached to LEDs in order to reduce unwanted glare and reflection during image processing.

| Model       | Product type                             | Compatible light models                 |
|-------------|------------------------------------------|-----------------------------------------|
| MPL-DQ108   | Square oblique light polarizing plate    | MDL-CR (CG CB CW) for 108, 4 pieces/set |
| MPL-DQ10    | Simulated coaxial light polarizing plate | MDL-CR (CG CB CW) for 10                |
| MPL-DQ16    | Simulated coaxial light polarizing plate | MDL-CR (CG CB CW) for 16                |
| MPL-DQ28    | Simulated coaxial light polarizing plate | MDL-CR (CG CB CW) for 28                |
| MPL-DQ31    | Simulated coaxial light polarizing plate | MDL-CR (CG CB CW) for 31                |
| MPL-DQ50    | Simulated coaxial light polarizing plate | MDL-CR (CG CB CW) for 50                |
| MPL-DQ56    | Simulated coaxial light polarizing plate | MDL-CR (CG CB CW) for 56                |
| MPL-LR25    | Polarizing plate for directing lights    | MDL-CR (CG CB CW) for 25                |
| MPL-LR48    | Polarizing plate for directing lights    | MDL-CR (CG CB CW) for 48                |
| MPL-LR68    | Polarizing plate for directing lights    | MDL-CR (CG CB CW) for 68                |
| MPL-LR100   | Polarizing plate for directing lights    | MDL-CR (CG CB CW) for 100               |
| MPL-LR5016  | Polarizing plate for bar lights          | MDL-CR (CG CB CW) for 5015              |
| MPL-DR7530  | Polarizing plate for bar lights          | MDL-CR (CG CB CW) for 7530              |
| MPL-DR13015 | Polarizing plate for bar lights          | MDL-CR (CG CB CW) for 13015             |

An asterisk (\*) in "compatible light model" refers to any LED color (R.G.B or W) of the light.

### Adapter : MAD Series

The MAD series is essential when a diffusion or polarizing plate is attached to a ring light.

| Model    | Product type                                  | Compatible light models  |
|----------|-----------------------------------------------|--------------------------|
| MAD-DQ10 | Plate attachment adapter for directing lights | MDL-CR (CG CB CW) for 10 |
| MAD-DQ16 | Plate attachment adapter for directing lights | MDL-CR (CG CB CW) for 16 |
| MAD-DQ28 | Plate attachment adapter for directing lights | MDL-CR (CG CB CW) for 28 |
| MAD-DQ31 | Plate attachment adapter for directing lights | MDL-CR (CG CB CW) for 31 |
| MAD-DQ50 | Plate attachment adapter for directing lights | MDL-CR (CG CB CW) for 50 |
| MAD-DQ56 | Plate attachment adapter for directing lights | MDL-CR (CG CB CW) for 56 |

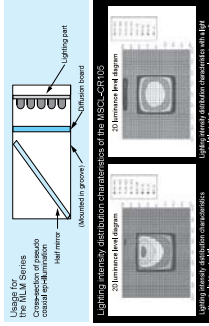
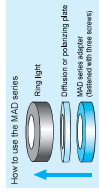
An asterisk (\*) in "compatible light model" refers to any LED color (R.G.B or W) of the light.

### Light control film : MLM Series

The MLM series are resin films that transform diffused light into near-parallel light. Attached to a simulated coaxial light, it makes the light distribution pattern smoother.

| Model    | Product type                                    | Compatible light models  |
|----------|-------------------------------------------------|--------------------------|
| MLM-DQ10 | Light control film for simulated coaxial lights | MDL-CR (CG CB CW) for 10 |
| MLM-DQ16 | Light control film for simulated coaxial lights | MDL-CR (CG CB CW) for 16 |
| MLM-DQ28 | Light control film for simulated coaxial lights | MDL-CR (CG CB CW) for 28 |
| MLM-DQ31 | Light control film for simulated coaxial lights | MDL-CR (CG CB CW) for 31 |
| MLM-DQ50 | Light control film for simulated coaxial lights | MDL-CR (CG CB CW) for 50 |
| MLM-DQ56 | Light control film for simulated coaxial lights | MDL-CR (CG CB CW) for 56 |

An asterisk (\*) in "compatible light model" refers to any LED color (R.G.B or W) of the light.



## Options for bridging lights with lenses

The following optional adapters are designed to be used with Moritex's lenses.

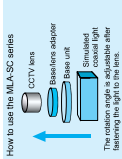
### Simulated Coaxial Light/CCTV Lens Adapter: MLA-SC Series

The MLA-SC Series enables small isolated coaxial lights to be mounted at the end of CCTV lenses.

| Model     | Product type                                   | Compatible light models |
|-----------|------------------------------------------------|-------------------------|
| MLA-SCB5  | Mount base for simulated coaxial lights        | MSCL-C-24/30/35         |
| MLA-SCB15 | Base/lens adapter for simulated coaxial lights | M25.5 P0.5 lens         |
| MLA-SCM25 | Base/lens adapter for simulated coaxial lights | M27 P0.5 lens           |
| MLA-SCM30 | Base/lens adapter for simulated coaxial lights | M30.5 P0.5 lens         |

An asterisk (\*) in "compatible light models" refers to any LED color (R,G,B or W) of the light.

\*Do not apply any unnecessary load to the lens.



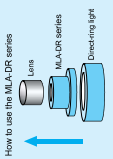
How to use the MLA-SC series  
CCTV lens  
Base/lens adapter  
Coaxial light  
The relation angle is adjustable after inserting the light to the lens.

### MML/CCTV Lens Adapter

The adapter can be easily used in combination with Moritex's lenses.

| Model       | Product type            | Compatible light models         |
|-------------|-------------------------|---------------------------------|
| MLA-DR1616  | Lens attachment adapter | MDRL-C-16 and R-16 mm lenses    |
| MLA-DR1725  | Lens attachment adapter | MDRL-C-17 and R-25 mm lenses    |
| MLA-DR1730  | Lens attachment adapter | MDRL-C-17 and R-30 mm lenses    |
| MLA-DR1M255 | Lens attachment adapter | MDRL-C-17 and M25.5 P0.5 lenses |
| MLA-DR1M270 | Lens attachment adapter | MDRL-C-17 and M27 P0.5 lenses   |
| MLA-DR1M305 | Lens attachment adapter | MDRL-C-17 and M30.5 P0.5 lenses |

An asterisk (\*) in "compatible light models" refers to any LED color (R,G,B or W) of the light.



How to use the MML-DR series  
Lens  
MML-DR series  
CCTV lens  
The relation angle is adjustable after inserting the light to the lens.

### Sharp-cut Filter R64 Series

These Files can be attached to the end of a CCTV lens to prevent light interference when using red light.

| Model     | Product type                                 | Size            |
|-----------|----------------------------------------------|-----------------|
| ML-R64-25 | Sharp-cut filter for mounting to end of lens | M25.5 P0.5 lens |
| ML-R64-27 | Sharp-cut filter for mounting to end of lens | M27 P0.5 lens   |
| ML-R64-30 | Sharp-cut filter for mounting to end of lens | M30.5 P0.5 lens |

### Cables

| Model      | Cable Diagram | Product type                          | Applications                              | Length |
|------------|---------------|---------------------------------------|-------------------------------------------|--------|
| M-RCB401L  | A             | 4-pin type extension cable            | • For all lights (except the MCEP series) | 1m     |
| M-RCB402L  | A             | 4-pin type extension cable            |                                           | 2m     |
| M-RCB403L  | A             | 4-pin type extension cable            |                                           | 3m     |
| M-RCB301L  | B             | 3-pin type extension cable            | • For the MCEP series                     | 1m     |
| M-RCB302L  | B             | 3-pin type extension cable            |                                           | 2m     |
| M-RCB303L  | B             | 3-pin type extension cable            |                                           | 3m     |
| M-XS400C   | C             | Pin type extension cable              | • For the MSPP series                     | 2m     |
| M-XS400C   | C             | Pin type extension cable              |                                           | 5m     |
| M-XS410C   | C             | Pin type extension cable              |                                           | 10m    |
| M-RCB301XS | D             | Pin type MSPP-LEAF conversion cable   | • For the MSPP series and MLEP-A70        | 1m     |
| M-RCB301XS | D             | Pin type MSPP-LEAF conversion cable   |                                           | 2m     |
| M-RCB301XS | D             | Pin type MSPP-LEAF conversion cable   |                                           | 3m     |
| M-RCB302L  | E             | 2-pin type extension cable            | • For power sources for built-in lens     | 1m     |
| M-RCB302L  | E             | 2-pin type extension cable            |                                           | 2m     |
| M-RCB303L  | E             | 2-pin type extension cable            |                                           | 3m     |
| MC-EXC-02  | —             | Cable for DSUB15 pin external control | —                                         | 2m     |
| MC-EXC-07  | —             | Cable for DSUB15 pin external control | —                                         | —      |

#### Cable Diagrams

