

TC2MHR024-C

High resolution telecentric lens for 1" detectors, magnification 0.508x, C-mount

SPECIFICATIONS

| | | |
|--|----------------|---------------|
| Magnification | (x) | 0.508 |
| Image circle Ø | (mm) | 16.9 |
| Object field of view⁸ | | |
| | (mm x mm or Ø) | |
| with IMX174/IMX249 13.3 mm diag w x h 11.35 x 7.13 | | 22.33 x 14.03 |
| with IMX255/IMX267 16.1 mm diag w x h 14.19 x 7.51 | | 27.93 x 14.78 |
| with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37 | | Ø = 20.42 |
| with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2 | | Ø = 29.83 |
| with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6 ⁽⁷⁾ | | Ø = 26.76 |

Optical specifications

| | | |
|---|-------|--------------|
| Working distance ⁽¹⁾ | (mm) | 67.2 |
| wF/# ⁽²⁾ | | 16 |
| Telecentricity typical (max) ⁽³⁾ | (deg) | <0.08 (0.10) |
| Distortion typical (max) ⁽⁴⁾ | (%) | <0.04 (0.10) |
| Field depth ⁽⁵⁾ | (mm) | 4.7 |
| CTF@ 50 lp/mm | (%) | > 40 |

Mechanical specifications

| | | |
|---------------------------------|------|-------|
| Mount | | C |
| Phase adjustment ⁽⁹⁾ | | Yes |
| Length ⁽⁶⁾ | (mm) | 170.4 |
| Diameter | (mm) | 45 |
| Mass | (g) | 448 |

Last update: 2018-06-12

NOTES

- Working distance: distance between the front end of the mechanics and the object. Set this distance within +/- 3% of the nominal value for maximum resolution and minimum distortion.
- Working F-number (wF/#): the real F-number of a lens when used as a macro. Lenses with smaller apertures can be supplied on request.
- Maximum slope of chief rays inside the lens: when converted to milliradians, it gives the maximum measurement error for any millimeter of object displacement. Typical (average production) values and maximum (guaranteed) values are listed.
- Percent deviation of the real image compared to an ideal, undistorted image: typical (average production) values and maximum (guaranteed) values are listed.
- At the borders of the field depth the image can be still used for measurement but, to get a perfectly sharp image, only half of the nominal field depth should be considered. Pixel size used for calculation is 5 µm.
- Measured from the front end of the mechanics to the camera flange.
- With KAI-08050 (22.6 mm diagonal) detectors, the FOV of TC4MHRyyy-x lenses may show some vignetting at the image corners.
- For the fields with the indication "Ø =", the image of a circular object of such diameter is fully inscribed into the detector.

COMPATIBLE PRODUCTS

Despite the efforts made to generate an error-free compatibility list, we always recommend to consult the Opto Engineering® technical support department before purchasing a compatible product. Opto Engineering® shall not be liable for any damage or malfunctioning caused by the incorrect selection of a compatible product.



LTCLHP series

High-performance telecentric illuminators

| | |
|-------------|--|
| LTCLHP024-R | Telecentric HP illuminator, beam diameter 30 mm, red |
| LTCLHP024-G | Telecentric HP illuminator, beam diameter 30 mm, green |



All product specifications and data are subject to change without notice to improve reliability, functionality, design or other. Photos and pictures are for illustration purposes only.

| | |
|-------------|--|
| LTCLHP024-B | Telecentric HP illuminator, beam diameter 30 mm, blue |
| LTCLHP024-W | Telecentric HP illuminator, beam diameter 30 mm, white |



LTLA series

High-power strobed LED low angle diffused ringlights

| | |
|----------|---|
| LTLAB2-R | Diffusive strobed low angle ring light illuminator - medium size high power red |
| LTLAB2-G | Diffusive strobed low angle ring light illuminator - medium size high power green |
| LTLAB2-W | Diffusive strobed low angle ring light illuminator - medium size high power white |



LTLAIC series (discontinued models)

Continuous LED low angle diffused ringlights

| | |
|----------------------|--|
| LT2RZF070-60-2-W-24V | LED ringlight, 2 LED rows, 76.2 mm outer diameter, 60°, white, 24V |
| LT2RZF070-60-2-R-24V | LED ringlight, 2 LED rows, 76.2 mm outer diameter, 60°, red, 24V |
| LT2RZF070-60-2-G-24V | LED ringlight, 2 LED rows, 76.2 mm outer diameter, 60°, green, 24V |
| LT2RZF070-60-2-B-24V | LED ringlight, 2 LED rows, 76.2 mm outer diameter, 60°, blue, 24V |



LTLAIC series

Continuous LED low angle diffused ringlights

| | |
|----------------------|---|
| LT3RZF080-60-1-W-24V | LED ringlight, 1 LED row, 81 mm outer diameter, 60°, white, 24V |
| LT3RZF080-60-1-R-24V | LED ringlight, 1 LED row, 81 mm outer diameter, 60°, red, 24V |
| LT3RZF080-60-1-G-24V | LED ringlight, 1 LED row, 81 mm outer diameter, 60°, green, 24V |
| LT3RZF080-60-1-B-24V | LED ringlight, 1 LED row, 81 mm outer diameter, 60°, blue, 24V |



LTLADC series

Continuous LED low angle direct ringlights

| | |
|---------------------|---|
| LTZZO130-75-3-W-24V | LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, white, 24V |
| LTZZO130-75-3-R-24V | LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, red, 24V |
| LTZZO130-75-3-G-24V | LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, green, 24V |
| LTZZO130-75-3-B-24V | LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, blue, 24V |



LTRNST series

LED ring illuminators - straight type

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|-----------|---|
| LTRN024RD | Ring LED illuminator, inner diameter 44 mm, straight type, red 630 nm |
| LTRN024GR | Ring LED illuminator, inner diameter 44 mm, straight type, green 525 nm |
| LTRN024BL | Ring LED illuminator, inner diameter 44 mm, straight type, blue 470 nm |
| LTRN024NW | Ring LED illuminator, inner diameter 44 mm, straight type, white |



LTBC series

Continuous LED backlight

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|--------------|--|
| LTBC054054-W | Continuous LED backlight, 54x54 illumination area, white |
| LTBC054054-G | Continuous LED backlight, 54x54 illumination area, green |



LTBFC series

Continuous flat side-emitting LED backlights

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|----------------------|--|
| LTPVR070-00-1-W-24V | Flat side-emitting LED backlight, 70X70 mm illumination area, white, 24V |
| LTPVR070-00-1-R-24V | Flat side-emitting LED backlight, 70X70 mm illumination area, red, 24V |
| LTPVR070-00-1-G-24V | Flat side-emitting LED backlight, 70X70 mm illumination area, green, 24V |
| LTPVR070-00-1-B-24V | Flat side-emitting LED backlight, 70X70 mm illumination area, blue, 24V |
| LTPVRG070-00-1-W-24V | Flat side-emitting LED backlight, thin borders, 70X70 mm illumination area, white, 24V |
| LTPVRG070-00-1-R-24V | Flat side-emitting LED backlight, thin borders, 70X70 mm illumination area, red, 24V |
| LTPVRG070-00-1-G-24V | Flat side-emitting LED backlight, thin borders, 70X70 mm illumination area, green, 24V |

LTPVRG070-00-1-B-24V Flat side-emitting LED backlight, thin borders, 70X70 mm illumination area, blue, 24V



LTBRDC series

Continuous LED bar lights

LTZPFL040-00-6-W-24V LED bar light, 6 LED rows, 40X26.3 illumination area, white, 24V

LTZPFL040-00-6-R-24V LED bar light, 6 LED rows, 40X26.3 illumination area, red, 24V

LTZPFL040-00-6-G-24V LED bar light, 6 LED rows, 40X26.3 illumination area, green, 24V

LTZPFL040-00-6-B-24V LED bar light, 6 LED rows, 40X26.3 illumination area, blue, 24V



CMHO series

Clamping mechanics

CMHO024 Clamping mechanics for TCxx024 lenses and LTCLHP024-X illuminators



Accessories

Accessories and add-ons to make the most of Opto Engineering lenses.

TCFILTER Filter mount for telecentric lenses



mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

RT-mvBF3-2024a USB3 Vision camera with Sony Pregius CMOS sensor IMX249

RT-mvBF3-2024 USB3 Vision camera with Sony Pregius CMOS sensor IMX174

RT-mvBF3-2089a USB3 Vision camera with Sony Pregius CMOS sensor IMX267

RT-mvBF3-2089 USB3 Vision camera with Sony Pregius CMOS sensor IMX255



mvBlueCOUGAR series

GigE & Dual GigE Vision cameras

RT-mvBC-X104f Camera with interface GigE (1GB/s), sensor size 1/1.2", mpixel 2.35, resolution 1936 x 1216, sensor name IMX249, sensor type CMOS

RT-mvBC-XD104d Camera with interface Dual GigE (2GB/s), sensor size 1/1.2", mpixel 2.35, resolution 1936 x 1214, sensor name IMX174, sensor type CMOS

RT-mvBC-X109b Camera with interface GigE (1GB/s), sensor size 1", mpixel 8.95, resolution 4112 x 2176, sensor name IMX267, sensor type CMOS

RT-mvBC-XD109b Camera with interface Dual GigE (2GB/s), sensor size 1", mpixel 8.95, resolution 4112 X 2176, sensor name IMX267, sensor type CMOS



COE HR AS-X series

20MP, 26MP and 29MP area scan cameras for high-speed applications

COE-200-M-POE-070-IR-C HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 x 3648, 20.4 MP, 2.4 pix, 1", Gray, GigE, 6 fps, POE, C - mount, Glass filter

COE-200-C-POE-070-IR-C HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 x 3648, 20.4 MP, 2.4 pix, 1", Color, GigE, 6 fps, POE, C - mount, Infrared cut filter

COE-200-M-USB-070-IR-C HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 x 3648, 20.4 MP, 2.4 pix, 1", Gray, 14 fps, C - mount, Glass filter

COE-200-C-USB-070-IR-C HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 x 3648, 20.4 MP, 2.4 pix, 1", Color, 14 fps, C - mount, Infrared cut filter