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TC2MHR048-C

High resolution telecentric lens for 1" detectors, magnification 0.268x, C-mount

OPTO ENGINEERING®

SPECIFICATIONS

Magnification	(x)	0.268
Image circle Ø	(mm)	16.9

Object field of view 8	(mm x mm or Ø)
with IMX174/IMX249 13.3 mm diag w x h 11.35 x 7.13	42.33 x 26.59
with IMX255/IMX267 16.1 mm diag w x h 14.19 x 7.51	52.95 x 28.02
with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37	Ø = 38.70
with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2	Ø = 56.55
with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6(7)	Ø = 50.73

Optical specifications		
Working distance (1)	(mm)	133.4
wF/# (2)		16
Telecentricity typical (max) (3)	(deg)	<0.08 (0.10)
Distortion typical (max) (4)	(%)	<0.08 (0.10)
Field depth (5)	(mm)	16.7
CTF@ 50 lp/mm	(%)	> 30

Mechanical specifications		
Mount		C
Phase adjustment(9)		Yes
Length (6)	(mm)	232.8
Diameter	(mm)	75
Mass	(g)	749

Last update: 2018-06-12

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.

REACH COMPLIANT   RoHS

NOTES

1. 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.

2. 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.

3. 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.

4. Percent deviation of the real image compared to an ideal, undistorted image: typical (average production) values and maximum (guaranteed) values are listed.

5. 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.

6. Measured from the front end of the mechanics to the camera flange.

7. With KAI-08050 (22.6 mm diagonal) detectors, the FOV of TC4MHRyyy-x lenses may show some vignetting at the image corners.

8. 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.
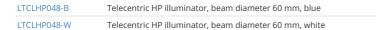
LTCLHP series

High-performance telecentric illuminators

LTCLHP048-R	Telecentric HP illuminator, beam diameter 60 mm, red
LTCLHP048-G	Telecentric HP illuminator, beam diameter 60 mm, green

| LTCLHP048-B | Telecentric HP illuminator, beam diameter 60 mm, blue |
| LTCLHP048-W | Telecentric HP illuminator, beam diameter 60 mm, white |

LTCLHP CORE series

Ultra compact telecentric illuminators

LTCLCR048-R	Telecentric CORE illuminator, beam dimensions Ø = 56; x = 50, red
LTCLCR048-G	Telecentric CORE illuminator, beam dimensions Ø = 56; x = 50, green
LTCLCR048-W	Telecentric CORE illuminator, beam dimensions Ø = 56; x = 50, white

LTLA series

High-power strobed LED low angle diffused ringlights

LTLAC1-W	Diffusive strobed low angle ring light illuminator - large size medium power white
LTLAC2-R	Diffusive strobed low angle ring light illuminator - large size high power red
LTLAC2-G	Diffusive strobed low angle ring light illuminator - large size high power green
LTLAC2-W	Diffusive strobed low angle ring light illuminator - large size high power white

LTLAIC series (discontinued models)

Continuous LED low angle diffused ringlights

LT2RZF100-60-2-W-24V	LED ringlight, 2 LED rows, 100 mm outer diameter, 60°, white, 24V
LT2RZF100-60-2-R-24V	LED ringlight, 2 LED rows, 100 mm outer diameter, 60°, red, 24V
LT2RZF100-60-2-G-24V	LED ringlight, 2 LED rows, 100 mm outer diameter, 60°, green, 24V
LT2RZF100-60-2-B-24V	LED ringlight, 2 LED rows, 100 mm outer diameter, 60°, blue, 24V

LTLAIC series

Continuous LED low angle diffused ringlights

LT3RZF100-60-1-W-24V	LED ringlight, 1 LED row, 105.2 mm outer diameter, 60°, white, 24V
LT3RZF100-60-1-R-24V	LED ringlight, 1 LED row, 105.2 mm outer diameter, 60°, red, 24V
LT3RZF100-60-1-G-24V	LED ringlight, 1 LED row, 105.2 mm outer diameter, 60°, green, 24V
LT3RZF100-60-1-B-24V	LED ringlight, 1 LED row, 105.2 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

LTRN048RD	Ring LED illuminator, inner diameter 75 mm, straight type, red 630 nm
LTRN048GR	Ring LED illuminator, inner diameter 75 mm, straight type, green 525 nm
LTRN048BL	Ring LED illuminator, inner diameter 75 mm, straight type, blue 470 nm
LTRN048NW	Ring LED illuminator, inner diameter 75 mm, straight type, white

LTBC series

Continuos LED backlight

| LTBC114114-W | Continuos LED backlight, 114x114 illumination area, white |
| LTBC114114-G | Continuos LED backlight, 114x114 illumination area, green |

LTBFC series

Continuous flat side-emitting LED backlights

| 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

LTZPFL080-00-6-W-24V	LED bar light, 6 LED rows, 80X26.3 illumination area, white, 24V
LTZPFL080-00-6-R-24V	LED bar light, 6 LED rows, 80X26.3 illumination area, red, 24V
LTZPFL080-00-6-G-24V	LED bar light, 6 LED rows, 80X26.3 illumination area, green, 24V
LTZPFL080-00-6-B-24V	LED bar light, 6 LED rows, 80X26.3 illumination area, blue, 24V

LTCXC series

Continuous LED coaxial lights

LT2QOG070-00-X-W-24V	LED coaxial light, 70x70 mm light emitting area, white, 24V
LT2QOG070-00-X-R-24V	LED coaxial light, 70x70 mm light emitting area, red, 24V
LT2QOG070-00-X-G-24V	LED coaxial light, 70x70 mm light emitting area, green, 24V
LT2QOG070-00-X-B-24V	LED coaxial light, 70x70 mm light emitting area, blue, 24V

CMBS series

45° beam splitters

CMBS048	45° beam splitter with mount for 75 mm clamping diameter optics

CMMR series

45° first surface mirrors

CMMR048	45° first surface mirror for 75 mm clamping diameter optics

WI series

Protective windows

WI048	Protective window for 75 mm clamping diameter optics

CMHO series

Clamping mechanics

CMHO048	Clamping mechanics for TCxx048 lenses and LTCLHP048-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 × 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 × 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 × 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 × 3648, 20.4 MP, 2.4 pix, 1", Color, 14 fps, C - mount, Infrared cut filter