

# TC1MHR144-C

High resolution telecentric lens for 1/1.2" detectors, magnification 0.074x, C-mount

## SPECIFICATIONS

Magnification	(x)	0.074
Image circle Ø	(mm)	13.3
Object field of view <sup>8</sup>	(mm x mm or Ø)	
with IMX174/IMX249 13.3 mm diag w x h 11.35 x 7.13		153.31 x 96.30
with IMX255/IMX267 16.1 mm diag w x h 14.19 x 7.51		Ø = 101.49
with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37		Ø = 140.15
with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2		Ø = 179.73
with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6 <sup>(7)</sup>		Ø = 179.73

## Optical specifications

Working distance <sup>(1)</sup>	(mm)	396.0
wF/# <sup>(2)</sup>		8
Telecentricity typical (max) <sup>(3)</sup>	(deg)	<0.08 (0.10)
Distortion typical (max) <sup>(4)</sup>	(%)	<0.08 (0.10)
Field depth <sup>(5)</sup>	(mm)	109.6
CTF@ 50 lp/mm	(%)	> 55

## Mechanical specifications

Mount		C
Phase adjustment <sup>(9)</sup>		Yes
Length <sup>(6)</sup>	(mm)	487.8
Diameter	(mm)	200
Mass	(g)	5839

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 (higher wF/#) 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 5,5 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.
- Indicates the availability of an integrated camera phase adjustment feature

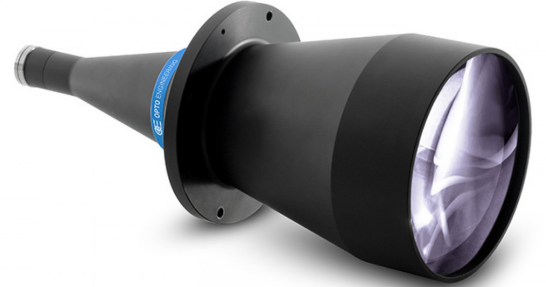
## COMPATIBLE PRODUCTS

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



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.

LTCLHP144-G Telecentric HP illuminator, beam diameter 180 mm, green



LTRNST series

LED ring illuminators - straight type

LTRN144RD Ring LED illuminator, inner diameter 200 mm, straight type, red 630 nm

LTRN144GR Ring LED illuminator, inner diameter 200 mm, straight type, green 525 nm

LTRN144BL Ring LED illuminator, inner diameter 200 mm, straight type, blue 470 nm

LTRN144NW Ring LED illuminator, inner diameter 200 mm, straight type, white



LTBC series

Continuous LED backlight

LTBC234234-W Continuous LED backlight, 234x234 illumination area, white

LTBC234234-G Continuous LED backlight, 234x234 illumination area, green



CMHO series

Clamping mechanics

CMHO144 Clamping mechanics for TCxx130, TCxx144 lenses and LTCLHP144-X illuminators



COE-G series

GeniCam® PoE cameras

COE-023-M-POE-050-IR-C Area Scan camera PYTHON 2000, CMOS, Global shutter, 1920 x 1200, 2.3 MP, 4.8 pix, 2/3", Gray, 51 fps, GigE, POE, C - mount, Glass filter

COE-023-C-POE-050-IR-C Area Scan camera PYTHON 2000, CMOS, Global shutter, 1920 x 1200, 2.3 MP, 4.8 pix, 2/3", Color, 51 fps, GigE, POE, C - mount, Infrared cut filter

COE-050-M-POE-050-IR-C Area Scan camera IMX264, CMOS, Global shutter, 2448 x 2048, 5 MP, 3.45 pix, 2/3", Gray, 23.5 fps, GigE, POE, C - mount, Glass filter

COE-050-C-POE-050-IR-C Area Scan camera IMX264, CMOS, Global shutter, 2448 x 2048, 5 MP, 3.45 pix, 2/3", Color, 23.5 fps, GigE, POE, C - mount, Infrared cut filter

COE-023-M-POE-060-IR-C Area Scan camera IMX249, CMOS, Global shutter, 1920 x 1200, 2.3 MP, 5.86 pix, 1/1.2", Gray, 41 fps, GigE, POE, C - mount, Glass filter

COE-023-C-POE-060-IR-C Area Scan camera IMX249, CMOS, Global shutter, 1920 x 1200, 2.3 MP, 5.86 pix, 1/1.2", Color, 41 fps, GigE, POE, C - mount, Infrared cut filter



COE-U series

USB 3.0 GeniCam® cameras

COE-050-M-USB-050-IR-C Area Scan camera IMX264, CMOS, Global shutter, 2448 x 2048, 5 MP, 3.45 pix, 2/3", Gray, 35 fps, USB 3.0, C - mount, Glass filter

COE-050-C-USB-050-IR-C Area Scan camera IMX264, CMOS, Global shutter, 2448 x 2048, 5 MP, 3.45 pix, 2/3", Color, 35 fps, USB 3.0, C - mount, Infrared cut filter

COE-023-M-USB-060-IR-C Area Scan camera IMX249, CMOS, Global shutter, 1920 x 1200, 2.3 MP, 5.86 pix, 1/1.2", Gray, 41 fps, USB 3.0, C - mount, Glass filter

COE-023-C-USB-060-IR-C Area Scan camera IMX249, CMOS, Global shutter, 1920 x 1200, 2.3 MP, 5.86 pix, 1/1.2", Color, 40 fps, USB 3.0, C - mount, Infrared cut filter



mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

RT-mvBF3-2051a USB3 Vision camera with Sony Pregius CMOS sensor IMX264

RT-mvBF3-2051 USB3 Vision camera with Sony Pregius CMOS sensor IMX250

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

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



mvBlueCOUGAR series

GigE & Dual GigE Vision cameras

RT-mvBC-X105b Camera with interface GigE (1GB/s), sensor size 2/3", mpixel 5.07, resolution 2464 x 2056, sensor name IMX264, sensor type CMOS

RT-mvBC-XD105a Camera with interface Dual GigE (2GB/s), sensor size 2/3", mpixel 5.01, resolution 2448 x 2048, sensor name IMX250, sensor type CMOS

<a href="#">RT-mvBC-X104f</a>	Camera with interface GigE (1GB/s), sensor size 1/1.2", mpixel 2.35, resolution 1936 x 1216, sensor name IMX249, sensor type CMOS
<a href="#">RT-mvBC-XD104d</a>	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