

# TCCR1M096-C

Telecentric CORE lens for 1/1.2" detectors, magnification 0.114 x, mount C, WD=278.6

## SPECIFICATIONS

Part number	TCCR1MHR096-C	
Magnification	(x)	0.114
Image shape dimension (8)	( $\emptyset$ , x mm)	$\emptyset=13.7$ , x=11.3
Phase adjustment (7)	Yes	

### Object field of view 7

with IMX174/IMX249 13.3 mm diag w x h 11.35 x 7.13	(mm x mm)	99.1 x 62.3
with KAI-2020 14.8 mm diagonal w x h 11.84 x 8.88	(mm x mm)	99.1 x 62.3
with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37	(mm x mm)	$\emptyset=120$ , x=91
with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2	(mm x mm)	$\emptyset=120$ , x=99
with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6	(mm x mm)	$\emptyset=120$ , x=99

### Optical specifications

Working distance (1)	(mm)	278.6
wF/# (2)	8	
Telecentricity typical (max) (3)	(deg)	< 0.08 (0.10)
Distortion typical (max) (4)	(%)	< 0.08 (0.10)
Field depth (5)	(mm)	50.8
CTF@ 50 lp/mm	(%)	> 55

### Mechanical specifications

Mount (6)	C	
A	(mm)	139
B	(mm)	172
C	(mm)	198
Mass	(g)	4227

### Compatibility

{compatibility}

Last update: 2019-05-10

## 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 5.5  $\mu$ m.
- In case the of vignetting, FOV dimensions are indicated with " $\emptyset = , x =$ ", where " $\emptyset =$ " stands for diameter and " $x =$ " indicates the nominal FOV height and length (see [Tech Info](#) for related drawing).
- Indicates the availability of an integrated camera phase adjustment feature.
- Indicates the dimensions and shape of image, where " $\emptyset =$ " stands for diameter and " $x =$ " indicates the nominal image height and length (see [Tech Info](#) for related drawing)

## 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.

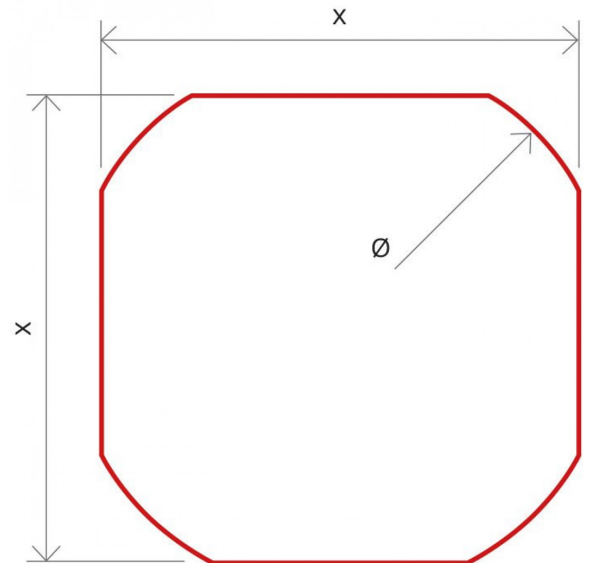


Image shape dimensions ( $\emptyset$ , x)

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.



### LTCLHP CORE series

Ultra compact telecentric illuminators

<a href="#">LTCLCR096-R</a>	Telecentric CORE illuminator, beam dimensions Ø = 120; x = 99, red
<a href="#">LTCLCR096-G</a>	Telecentric CORE illuminator, beam dimensions Ø = 120; x = 99, green
<a href="#">LTCLCR096-W</a>	Telecentric CORE illuminator, beam dimensions Ø = 120; x = 99, white



### CMHOCR series

Clamping mechanics CORE series

<a href="#">CMHOCR096</a>	Clamping mechanics for CORE telecentric lenses and illuminators TCRRxx96 and LTCLCR096-x
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### CMT series

Precision alignment mechanics

<a href="#">CMTHCR096</a>	Precision alignment mechanics for CORE telecentric optics 096
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### COE-G series

GeniCam® PoE cameras

<a href="#">COE-023-M-POE-050-IR-C</a>	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
<a href="#">COE-023-C-POE-050-IR-C</a>	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
<a href="#">COE-050-M-POE-050-IR-C</a>	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
<a href="#">COE-050-C-POE-050-IR-C</a>	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
<a href="#">COE-023-M-POE-060-IR-C</a>	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
<a href="#">COE-023-C-POE-060-IR-C</a>	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

<a href="#">COE-050-M-USB-050-IR-C</a>	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
<a href="#">COE-050-C-USB-050-IR-C</a>	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
<a href="#">COE-023-M-USB-060-IR-C</a>	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
<a href="#">COE-023-C-USB-060-IR-C</a>	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

<a href="#">RT-mvBF3-2051a</a>	USB3 Vision camera with Sony Pregius CMOS sensor IMX264
<a href="#">RT-mvBF3-2051</a>	USB3 Vision camera with Sony Pregius CMOS sensor IMX250
<a href="#">RT-mvBF3-2024a</a>	USB3 Vision camera with Sony Pregius CMOS sensor IMX249
<a href="#">RT-mvBF3-2024</a>	USB3 Vision camera with Sony Pregius CMOS sensor IMX174



### mvBlueCOUGAR series

GigE & Dual GigE Vision cameras

<a href="#">RT-mvBC-X105b</a>	Camera with interface GigE (1GB/s), sensor size 2/3", mpixel 5.07, resolution 2464 x 2056, sensor name IMX264, sensor type CMOS
<a href="#">RT-mvBC-XD105a</a>	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

[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

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TCLIB Suite

Software library & stand-alone tools for the optimization of telecentric setups

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[TCLIB-01](#) Software library & stand-alone tools for the optimization of telecentric setups

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