

# TCCR12048

Bi-telecentric CORE lens for 1/2" detectors, magnification 0.134 x, C-mount

## SPECIFICATIONS

Part number (8)		TCCR12048
Magnification	(x)	0.134
Image shape dimension (9)	( $\emptyset$ , x mm)	$\emptyset=8.0$ , x=7.1
Phase adjustment (7)		Yes

### Object field of view(6)

with 1/3" detector (4.8 x 3.6 mm)	(mm x mm)	35.9 x 26.9
with 1/2.5" detector (5.70 x 4.28 mm)	(mm x mm)	42.5 x 31.9
with 1/2" detector (6.4 x 4.8 mm)	(mm x mm)	47.8 x 35.9
with 1/1.8" detector (7.13 x 5.37 mm)	(mm x mm)	53.0 x 40.1
with 2/3" - 5 MP detector (8.45 x 7.07 mm)	(mm x mm)	$\emptyset=60$ , x=53

### Optical specifications

Working distance (1)	(mm)	132.9
wF/# (2)		8
Telecentricity typical (max) (3)	(deg)	< 0.07 (0.10)
Distortion typical (max) (4)	(%)	< 0.06 (0.10)
Field depth (5)	(mm)	37
CTF @ 70 lp/mm	(%)	> 40

### Dimensions

Mount		C
A	(mm)	77
B	(mm)	106
C	(mm)	115
Mass	(g)	1083

### Compatibility

LTCLCR048-x, CMHOCR048, CMPTR048, LTCLHP048-x

## 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 millirad, 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.
- Due to the special shape of TCCR120xx it might be necessary to check the mechanical compatibility with your camera.
- Indicates the dimensions and shape of image, where " $\emptyset =$ " stands for diameter and " $x =$ " indicates the nominal image height and length ([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.

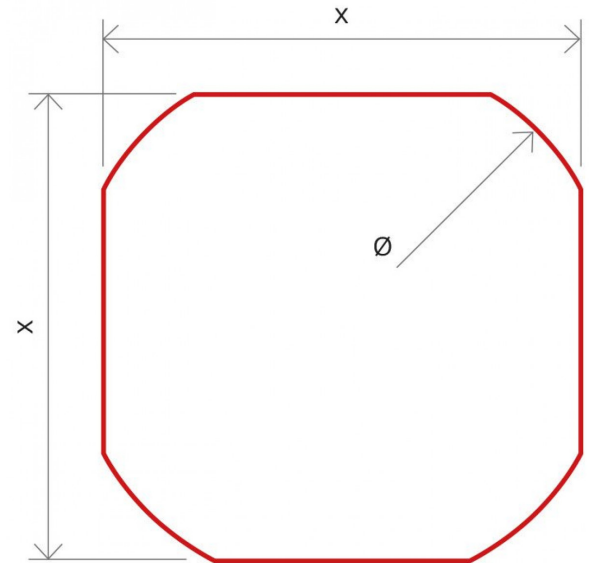
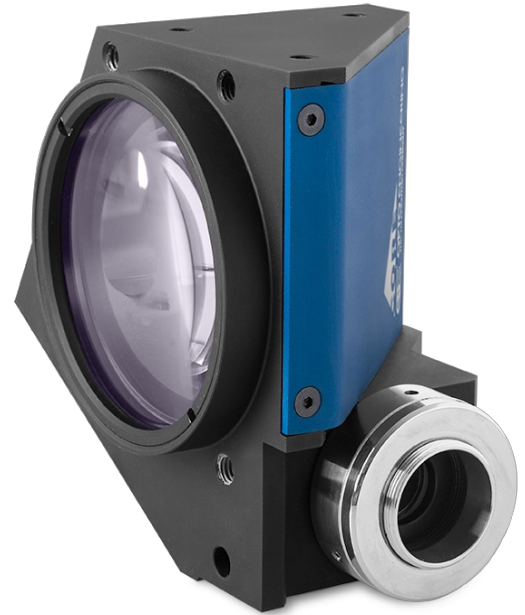


Image shape dimensions ( $\emptyset$ , x )



### 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 $\varnothing = 56$ ; $x = 50$ , red
LTCLCR048-G	Telecentric CORE illuminator, beam dimensions $\varnothing = 56$ ; $x = 50$ , green
LTCLCR048-W	Telecentric CORE illuminator, beam dimensions $\varnothing = 56$ ; $x = 50$ , white



### LTBC series

Continuous LED backlight

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



### CMHO series

Clamping mechanics

CMHORBCR048	Clamping mechanics robotics
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### CMHOCR series

Clamping mechanics CORE series

CMHOCR048	Clamping mechanics for CORE telecentric lenses and illuminators TCCRxx48 and LTCLCR048-x
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### CMPTCR series

CORE series mounting plates

CMPTCR048	Mechanical components designed for CORE telecentric lenses and illuminators $\varnothing 48$ mm
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### COE-G series

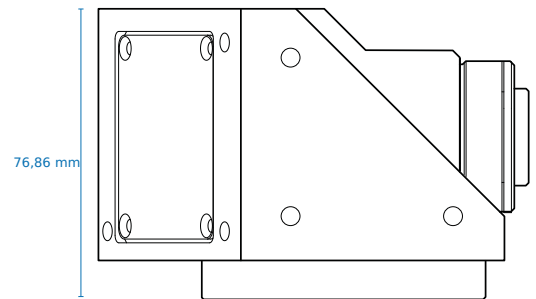
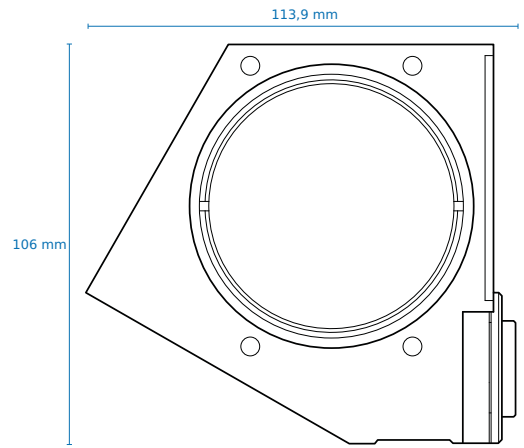
GeniCam® PoE cameras

COE-050-M-POE-023-IR-C	Area Scan camera MT9P031, CMOS, Rolling shutter, 2592 x 1944, 5 MP, 2.2 pix, 1/2.5", Gray, 14 fps, GigE, POE, C - mount, Glass filter
COE-013-M-POE-030-IR-C	Area Scan camera PYTHON 1300, CMOS, Global shutter, 1280 x 1024, 1.3 MP, 4.8 pix, 1/2", Gray, 90 fps, GigE, POE, C - mount, Glass filter
COE-013-C-POE-030-IR-C	Area Scan camera PYTHON 1300, CMOS, Global shutter, 1280 x 1024, 1.3 MP, 4.8 pix, 1/2", Color, 90 fps, GigE, POE, C - mount, Infrared cut filter
COE-106-M-POE-031-IR-C-2	Area Scan camera MT9J003, CMOS, Rolling shutter, 3840 x 2748, 10.6 MP, 1.67 pix, 1/2.3", Gray, 11 fps, GigE, POE, C - mount, Glass filter
COE-106-C-POE-031-IR-C	Area Scan camera MT9J003, CMOS, Global shutter, 3840 x 2748, 10.6 MP, 1.67 pix, 1/2.3", Color, 7 fps, GigE, POE, C - mount, Infrared cut filter
COE-032-M-POE-040-IR-C	Area Scan camera IMX265, CMOS, Global shutter, 2048 x 1536, 3.1 MP, 3.45 pix, 1/1.8", Gray, 37.5 fps, GigE, POE, C - mount, Glass filter
COE-032-C-POE-040-IR-C	Area Scan camera IMX265, CMOS, Global shutter, 2048 x 1536, 3.1 MP, 3.45 pix, 1/1.8", Color, 37.5 fps, GigE, POE, C - mount, Infrared cut filter
COE-063-M-POE-040-IR-C-B	Area Scan camera IMX178, CMOS, Rolling shutter, 3072 x 2048, 6.3 MP, 2.4 pix, 1/1.8", Gray, 17 fps, GigE, POE, C - mount, Glass filter
COE-063-C-POE-040-IR-C	Area Scan camera IMX178, CMOS, Rolling shutter, 3072 x 2048, 6.3 MP, 2.4 pix, 1/1.8", Color, 17 fps, GigE, POE, C - mount, Infrared cut filter



### COE-U series

USB 3.0 GeniCam® cameras



<a href="#">COE-050-C-USB-023-IR-C</a>	Area Scan camera AR0521, CMOS, Rolling shutter, 2592 x 1944, 5 MP, 2.2 pix, 1/2.5", Color, 31 fps, USB 3.0, C - mount, Infrared cut filter
<a href="#">COE-013-M-USB-030-IR-C</a>	Area Scan camera PYTHON 1300, CMOS, Global shutter, 1280 x 1024, 1.3 MP, 4.8 pix, 1/2", Gray, 170 fps, USB 3.0, C - mount, Glass filter
<a href="#">COE-013-C-USB-030-IR-C</a>	Area Scan camera PYTHON 1300, CMOS, Global shutter, 1280 x 1024, 1.3 MP, 4.8 pix, 1/2", Color, 90 fps, USB 3.0, C - mount, Infrared cut filter
<a href="#">COE-063-M-USB-040-IR-C</a>	Area Scan camera IMX178, CMOS, Rolling shutter, 3072 x 2048, 6.3 MP, 2.4 pix, 1/1.8", Gray, 42 fps, USB 3.0, C - mount, Glass filter
<a href="#">COE-063-C-USB-040-IR-C</a>	Area Scan camera IMX178, CMOS, Rolling shutter, 3072 x 2048, 6.3 MP, 2.4 pix, 1/1.8", Color, 42 fps, USB 3.0, C - mount, Infrared cut filter



#### mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

<a href="#">RT-mvBF3-2032a</a>	USB3 Vision camera with Sony Pregius CMOS sensor IMX265
<a href="#">RT-mvBF3-2032</a>	USB3 Vision camera with Sony Pregius CMOS sensor IMX252
<a href="#">RT-mvBF3-2064</a>	Usb3 vision camera with sony pregius cmos sensor imx178



#### mvBlueCOUGAR series

GigE & Dual GigE Vision cameras

<a href="#">RT-mvBC-X105</a>	Camera with interface GigE (1GB/s), sensor size 1/2.5", mpixel 5.04, resolution 2592 x 1944, sensor name MT9P031, sensor type CMOS
<a href="#">RT-mvBC-X1010</a>	Camera with interface GigE (1GB/s), sensor size 1/2.3", mpixel 10.66, resolution 3856 x 2764, sensor name MT9J003, sensor type CMOS
<a href="#">RT-mvBC-X104i</a>	Camera with interface GigE (1GB/s), sensor size 1/1.8", mpixel 3.19, resolution 2064 x 1544, sensor name IMX265, sensor type CMOS
<a href="#">RT-mvBC-XD104h</a>	Camera with interface Dual GigE (2GB/s), sensor size 1/1.8", mpixel 3.19, resolution 2064 x 1544, sensor name IMX252, sensor type CMOS



#### TCLIB Suite

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

<a href="#">TCLIB-01</a>	Software library & stand-alone tools for the optimization of telecentric setups
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#### Accessories

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

<a href="#">RT-mvBC-X104iC</a>	CMOS camera GIGE, 2064 x 1544 color, 1/1.8", 37 Hz, IR cut, C-mount, I/O
<a href="#">RT-mvBC-X105bC</a>	CMOS camera GIGE, 2464 x 2056 Colour sensor, 2/3", 23.5 Hz, IR cut, C-mount, I/O