TCCP12144

Ultra compact bi-telecentric lens for matrix detectors up to 1/1.8", magnification 0.044x

SPECIFICATIONS

Magnification	(×)	0.044
Image rectangle (1)	(mm)	7.48 x 5.60

Object field of view

with 1/3" detector (4.8 x 3.6 mm)	(mm × mm)	109.1 x 81.8
with 1/2.5" detector (5.70 x 4.28 mm)	(mm × mm)	129.5 x 97.3
with 1/2" detector (6.4 x 4.8 mm)	(mm × mm)	145.4 x 109.1
with 1/1.8" detector (7.13 x 5.37 mm)	(mm × mm)	162.0 x 121.1
with 2/3" - 5 MP detector (8.45 x 7.07 mm)	(mm × mm)	

Optical specifications

Working distance (2)	(mm)	217.4
wF/# (3)		8
Telecentricity typical (max) (4)	(deg)	< 0.06 (0.1)
Distortion typical (max) (5)	(%)	< 0.8
Residual distortion (6)		< 0.01
Field depth (7)	(mm)	214
CTF @ 70 lp/mm	(%)	> 45

Mechanical specifications

Mount		C
Phase Adjustment (8)		Yes

Dimensions

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A (9)	(mm)	332.0
B	(mm)	302.5
C (10)	(mm)	299.4
Mass	(g)	5900

NOTES

1. Since the square shape of the front window the lens forms a rectangular image.

2. Working distance: distance between the front end of the mechanics and the object. Set this distance within +/- 5% of the nominal value for maximum resolution and minimum distortion.

3. 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.

4. Maximum slope of chief rays inside the lens: when converted to milliradians, it gives the maximum measurement error for any millimeter of object displacement. Maximum (guaranteed) values are listed.

5. Percent deviation of the real image compared to an ideal, undistorted image: maximum (guaranteed) values of the uncorrected image are listed.

6. Residual distortion after calibration with TCLIB Suite software library, using a PTCP calibrations pattern and a fully GenICam compliant camera. For setup information see related table

7. At the borders of the field depth the image can be still used for measurement but, to get a very sharp image, only half of the nominal field depth should be considered. Pixel size used for calculation is 3.45 µm.

8. Indicates the availability of an integrated camera phase adjustment feature.

9. Maximum dimension of the clamping flange.

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

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.

COE-U series
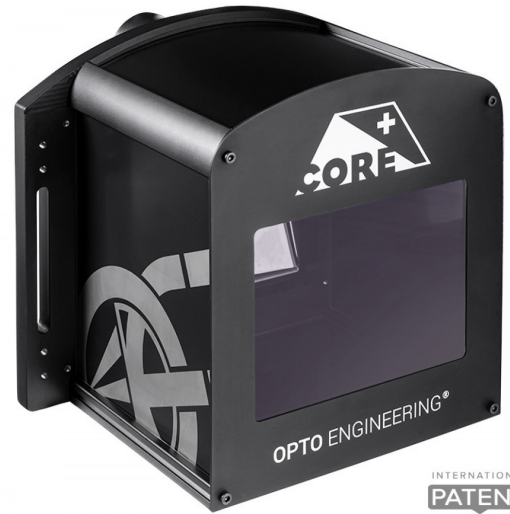
USB 3.0 GenICam® cameras

COE-050-M-USB-023-IR-C	Area Scan camera AR0521, CMOS, Rolling shutter, 2592 x 1944, 5 MP, 2.2 pix, 1/2.5", Gray, 31 fps, USB 3.0, C - mount, Glass filter
COE-050-C-USB-023-IR-C	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
COE-013-M-USB-030-IR-C	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
COE-013-C-USB-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, USB 3.0, C - mount, Infrared cut filter
COE-063-M-USB-040-IR-C	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
COE-063-C-USB-040-IR-C	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

LTCLHP series

High-performance telecentric illuminators

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

LTBP series

High-power strobed LED backlights

LTBP192144-R	High power strobed LED backlight, 192 x 144 mm lighting area, red
LTBP192144-G	High power strobed LED backlight, 192 x 144 mm lighting area, green
LTBP192144-B	High power strobed LED backlight, 192 x 144 mm lighting area, blue
LTBP192144-W	High power strobed LED backlight, 192 x 144 mm lighting area, white

LTBC series

Continuos LED backlight

LTBC174174-W	Continuos LED backlight, 174x174 illumination area, white
LTBC174174-G	Continuos LED backlight, 174x174 illumination area, green
LTBC234234-W	Continuos LED backlight, 234x234 illumination area, white
LTBC234234-G	Continuos LED backlight, 234x234 illumination area, green

LT2BC series

High uniformity continuous LED backlights

LT2BC192144-R	High uniformity continuous LED backlights, 192 x 144 mm x mm, red, 625 nm
LT2BC192144-G	High uniformity continuous LED backlights, 192 x 144 mm x mm, green, 525 nm
LT2BC192144-B	High uniformity continuous LED backlights, 192 x 144 mm x mm, blue, 475 nm
LT2BC192144-W	High uniformity continuous LED backlights, 192 x 144 mm x mm, white, 6200 k

PTTC, PTCP series

Accurate calibration patterns for machine vision systems

PTCP-S1-HR1-C	Calibration pattern for telecentric lenses with a certificate of conformity

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-122-M-POE-041-IR-C	Area Scan camera IMX226, CMOS, Rolling shutter, 4024 x 3036, 12.2 MP, 1.85 pix, 1/1.7", Gray, 9.6 fps, GigE, POE, C - mount, Glass filter
COE-122-C-POE-041-IR-C	Area Scan camera IMX226, CMOS, Rolling shutter, 4024 x 3036, 12.2 MP, 1.85 pix, 1/1.7", Color, 9.6 fps, GigE, POE, C - mount, Infrared cut filter

mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

RT-mvBF3-2032a	USB3 Vision camera with Sony Pregius CMOS sensor IMX265
RT-mvBF3-2032	USB3 Vision camera with Sony Pregius CMOS sensor IMX252
RT-mvBF3-2064	Usb3 vision camera with sony pregius cmos sensor imx178

mvBlueCOUGAR series

GigE & Dual GigE Vision cameras

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

TCLIB-01	Software library & stand-alone tools for the optimization of telecentric setups