

TC1MHR120-C

High resolution telecentric lens for 1/1.2" detectors, magnification 0.087x, C-mount

SPECIFICATIONS

Magnification	(x)	0.087
Image circle Ø	(mm)	13.3
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		130.40 x 81.91
with IMX255/IMX267 16.1 mm diag w x h 14.19 x 7.51		Ø = 86.32
with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37		Ø = 119.21
with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2		Ø = 152.87
with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6 ⁽⁷⁾		Ø = 152.87

Optical specifications

Working distance ⁽¹⁾	(mm)	334.6
wF/# ⁽²⁾		8
Telecentricity typical (max) ⁽³⁾	(deg)	<0.08 (0.10)
Distortion typical (max) ⁽⁴⁾	(%)	<0.08 (0.10)
Field depth ⁽⁵⁾	(mm)	79.3
CTF@ 50 lp/mm	(%)	> 55

Mechanical specifications

Mount		C
Phase adjustment ⁽⁹⁾		Yes
Length ⁽⁶⁾	(mm)	428.3
Diameter	(mm)	180
Mass	(g)	4707

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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.

LTCLHP120-G	Telecentric HP illuminator, beam diameter 150 mm, green
LTCLHP120-W	Telecentric HP illuminator, beam diameter 150 mm, white



LTCLHP CORE series
Ultra compact telecentric illuminators

LTCLCR120-R	Telecentric CORE illuminator, beam dimensions Ø = 156, x = 130, red, 630 nm
LTCLCR120-G	Telecentric CORE illuminator, beam dimensions Ø = 156, x = 130, green, 520 nm
LTCLCR120-W	Telecentric CORE illuminator, beam dimensions Ø = 156, x = 130, white



LTRNST series
LED ring illuminators - straight type

LTRN120RD	Ring LED illuminator, inner diameter 180 mm, straight type, red 630 nm
LTRN120GR	Ring LED illuminator, inner diameter 180 mm, straight type, green 525 nm
LTRN120BL	Ring LED illuminator, inner diameter 180 mm, straight type, blue 470 nm
LTRN120NW	Ring LED illuminator, inner diameter 180 mm, straight type, white



LTBC series
Continuous LED backlight

LTBC174174-W	Continuous LED backlight, 174x174 illumination area, white
LTBC174174-G	Continuous LED backlight, 174x174 illumination area, green



CMHO series
Clamping mechanics

CMHO120	Clamping mechanics for TCxx110, TCxx120 lenses and LTCLHP120-X illuminators
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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



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

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
