

TCCR2M056-E

Telecentric CORE lens for 1" detectors, magnification 0.228 x, M42x1 FD=16

SPECIFICATIONS

Part number		TCCR2M056-E
Magnification	(x)	0.228
Image shape dimension (8)	(\emptyset , x mm)	$\emptyset=16.2$, x=13.9
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)	49.6 x 31.1
with KAI-2020 14.8 mm diagonal w x h 11.84 x 8.88	(mm x mm)	51.9 x 38.9
with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37	(mm x mm)	$\emptyset=71$, x=46
with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2	(mm x mm)	$\emptyset=71$, x=61
with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6	(mm x mm)	$\emptyset=71$, x=60

Optical specifications

Working distance (1)	(mm)	157.8
wF/# (2)		16
Telecentricity typical (max) (3)	(deg)	< 0.04 (0.08)
Distortion typical (max) (4)	(%)	< 0.05 (0.10)
Field depth (5)	(mm)	25.4
CTF@ 50 lp/mm	(%)	> 40

Mechanical specifications

Mount (6)		M42x1 FD16.00
A	(mm)	94
B	(mm)	114
C	(mm)	178
Mass	(g)	1888

Compatibility

LTCLCR056-x, CMHOCR056, CMPTCR056, LTCLHP056-x

Last update: 2019-06-17

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 μ 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.

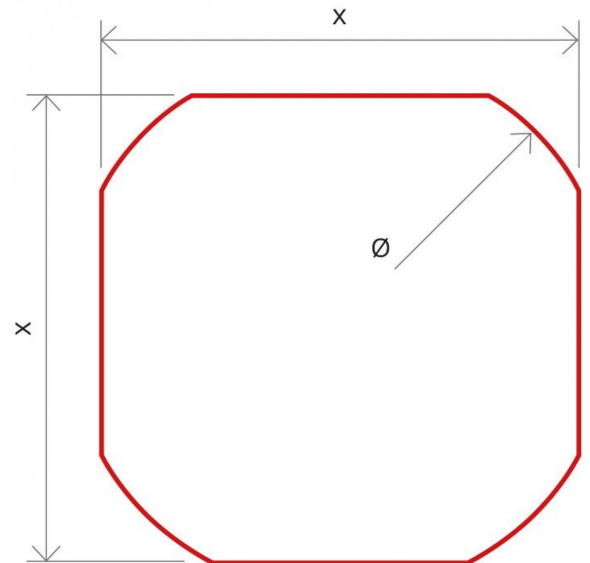


Image shape dimensions (\emptyset , x)

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 series

High-performance telecentric illuminators

LTCLHP056-R	Telecentric HP illuminator, beam diameter 70 mm, red
LTCLHP056-G	Telecentric HP illuminator, beam diameter 70 mm, green
LTCLHP056-B	Telecentric HP illuminator, beam diameter 70 mm, blue
LTCLHP056-W	Telecentric HP illuminator, beam diameter 70 mm, white



LTCLHP CORE series

Ultra compact telecentric illuminators

LTCLCR056-R	Telecentric CORE illuminator, beam dimensions $\varnothing = 74$; x = 66, red
LTCLCR056-G	Telecentric CORE illuminator, beam dimensions $\varnothing = 74$; x = 66, green
LTCLCR056-W	Telecentric CORE illuminator, beam dimensions $\varnothing = 74$; x = 66, white
LTCLCR064-R	Telecentric CORE illuminator, beam dimensions $\varnothing = 86$; x = 67, red
LTCLCR064-G	Telecentric CORE illuminator, beam dimensions $\varnothing = 86$; x = 67, green
LTCLCR064-W	Telecentric CORE illuminator, beam dimensions $\varnothing = 86$; x = 67, white



LTBC series

Continuous LED backlight

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



CMHOCR series

Clamping mechanics CORE series

CMHOCR056	Clamping mechanics for CORE telecentric lenses and illuminators TCCRxx56 and LTCLCR056-x
-----------	--



CMPTCR series

CORE series mounting plates

CMPTCR056	Mechanical components designed for CORE telecentric lenses and illuminators $\varnothing 56$ mm
-----------	---



mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

RT-mvBF3-2024a	USB3 Vision camera with Sony Pregius CMOS sensor IMX249
RT-mvBF3-2024	USB3 Vision camera with Sony Pregius CMOS sensor IMX174
RT-mvBF3-2089a	USB3 Vision camera with Sony Pregius CMOS sensor IMX267
RT-mvBF3-2089	USB3 Vision camera with Sony Pregius CMOS sensor IMX255



mvBlueCOUGAR series

GigE & Dual GigE Vision cameras

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
RT-mvBC-X109b	Camera with interface GigE (1GB/s), sensor size 1", mpixel 8.95, resolution 4112 x 2176, sensor name IMX267, sensor type CMOS
RT-mvBC-XD109b	Camera with interface Dual GigE (2GB/s), sensor size 1", mpixel 8.95, resolution 4112 X 2176, sensor name IMX267, 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
----------	---

COE HR AS-X series



20MP, 26MP and 29MP area scan cameras for high-speed applications

COE-200-M-POE-070-IR-C	HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 × 3648, 20.4 MP, 2.4 pix, 1", Gray, GigE, 6 fps, POE, C - mount, Glass filter
COE-200-C-POE-070-IR-C	HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 × 3648, 20.4 MP, 2.4 pix, 1", Color, GigE, 6 fps, POE, C - mount, Infrared cut filter
COE-200-M-USB-070-IR-C	HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 × 3648, 20.4 MP, 2.4 pix, 1", Gray, 14 fps, C - mount, Glass filter
COE-200-C-USB-070-IR-C	HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 × 3648, 20.4 MP, 2.4 pix, 1", Color, 14 fps, C - mount, Infrared cut filter