

TCCR2M048-E

Telecentric CORE lens for 1" detectors, magnification 0.268 x, M42x1 FD=16

SPECIFICATIONS

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|---------------------------|-----------------------|---------------------------|
| Part number | | TCCR2M048-E |
| Magnification | (x) | 0.268 |
| Image shape dimension (8) | (\emptyset , x mm) | $\emptyset=16.1$, x=13.9 |
| Phase adjustment (7) | | Yes |

Object field of view 7

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|---|-----------|-----------------------|
| with IMX174/IMX249 13.3 mm diag w x h 11.35 x 7.13 | (mm x mm) | 42.2 x 26.5 |
| with KAI-2020 14.8 mm diagonal w x h 11.84 x 8.88 | (mm x mm) | 44.2 x 33.1 |
| with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37 | (mm x mm) | $\emptyset=60$, x=39 |
| with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2 | (mm x mm) | $\emptyset=60$, x=52 |
| with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6 | (mm x mm) | $\emptyset=60$, x=51 |

Optical specifications

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|----------------------------------|-------|---------------|
| Working distance (1) | (mm) | 133.4 |
| wF/# (2) | | 16 |
| Telecentricity typical (max) (3) | (deg) | < 0.08 (0.10) |
| Distortion typical (max) (4) | (%) | < 0.08 (0.10) |
| Field depth (5) | (mm) | 18.4 |
| CTF@ 50 lp/mm | (%) | > 30 |

Mechanical specifications

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|-----------|------|---------------|
| Mount (6) | | M42x1 FD16.00 |
| A | (mm) | 77 |
| B | (mm) | 112 |
| C | (mm) | 170 |
| Mass | (g) | 1267 |

Compatibility

LTCLCR048-x, CMHOCR048, CMPTCR048, LTCLHP048-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.

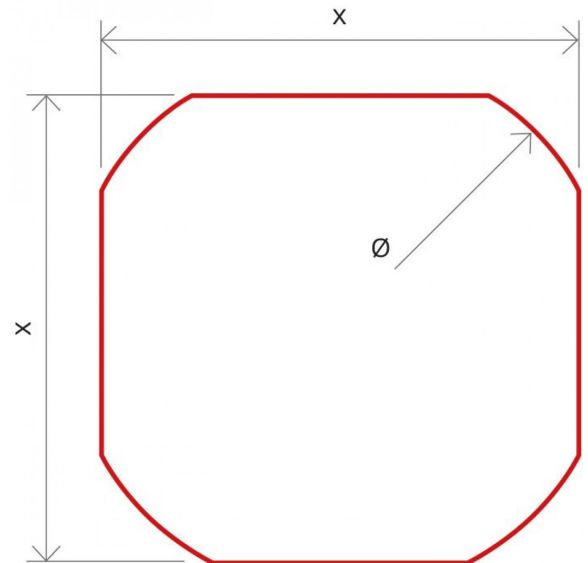


Image shape dimensions (\emptyset , x)

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

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|-------------|--|
| 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

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|-------------|--|
| 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

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|-------------|--|
| LTBC11414-W | Continuous LED backlight, 114x114 illumination area, white |
| LTBC11414-G | Continuous LED backlight, 114x114 illumination area, green |



CMHO series

Clamping mechanics

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|-------------|-----------------------------|
| CMHORBCR048 | Clamping mechanics robotics |
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CMHOCR series

Clamping mechanics CORE series

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

CORE series mounting plates

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| CMPTCR048 | Mechanical components designed for CORE telecentric lenses and illuminators $\varnothing 48$ mm |
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mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

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| 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

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|----------------|--|
| 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



COE HR AS-X series

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

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|--|---|
| 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 |
