



# TC12M048-F

High resolution telecentric lenses, magnification 0.635, WD 131.1

## SPECIFICATIONS

Magnification	(x)	0.635
Image circle Ø	(mm)	33.5

### Object field of view

with PYTHON 26.07 mm diagonal w x h 18.43 x 18.43	(mm x mm)	29.03 x 29.03
with APS-C CMV12000 28.16 mm diagonal w x h 22.53 x 16.90	(mm x mm)	35.48 x 26.61
with line - 4k detector 4k x 7 µm 28.67	(mm)	45.15
with APS-H PYTHON 32.58 mm diagonal w x h 23.4 x 23.4	(mm x mm)	36.28 x 36.28
with APS-H KAI-16050 32.4 mm diagonal w x h 26.93 x 17.95	(mm x mm)	42.41 x 28.27

### Optical specifications

Working distance (1)	(mm)	131.1
wF/# (2)		12
Telecentricity typical (max) (3)	(deg)	<0.08 (0.10)
Distortion typical (max) (4)	(%)	<0.08 (0.10)
Field depth (5)	(mm)	2.5
CTF@ 50 lp/mm	(%)	> 40

### Mechanical specifications

Mount (6)		F
Phase adjustment		Yes
Length (7)	(mm)	292.7
Diameter	(mm)	75.0
Mass	(g)	925

Last update: 2019-11-13

## 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/#: the real F/# 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 very sharp image, only half of the nominal field depth should be considered. Pixel size used for calculation is 5.5 µm.
- FD stands for Flange Distance (in mm), defined as the distance from the mounting flange (the "metal ring" in rear part of the lens) to the camera detector plane.
- Measured from the front end of the mechanics to the camera flange.

## COMPATIBLE PRODUCTS

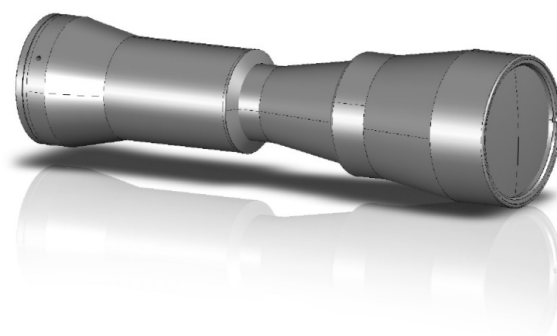
Despite the efforts made to generate an error-free compatibility list, we always recommend to consult the Opto Engineering® technical support department before purchasing a compatible product. Opto Engineering® shall not be liable for any damage or malfunctioning caused by the incorrect selection of a compatible product.



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



3D preview

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.

LTCLHP048-W Telecentric HP illuminator, beam diameter 60 mm, white

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LTCLHP CORE series

Ultra compact telecentric illuminators

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LTCLCR048-R Telecentric CORE illuminator, beam dimensions  $\varnothing = 56$ ;  $x = 50$ , red

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

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

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LTLA series

High-power strobed LED low angle diffused ringlights

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LTLAC1-W Diffusive strobed low angle ring light illuminator - large size medium power white

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LTLAC2-R Diffusive strobed low angle ring light illuminator - large size high power red

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LTLAC2-G Diffusive strobed low angle ring light illuminator - large size high power green

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LTLAC2-W Diffusive strobed low angle ring light illuminator - large size high power white

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LTRNST series

LED ring illuminators - straight type

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LTRN048RD Ring LED illuminator, inner diameter 75 mm, straight type, red 630 nm

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LTRN048GR Ring LED illuminator, inner diameter 75 mm, straight type, green 525 nm

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LTRN048BL Ring LED illuminator, inner diameter 75 mm, straight type, blue 470 nm

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LTRN048NW Ring LED illuminator, inner diameter 75 mm, straight type, white

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LTBC series

Continuous LED backlight

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

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

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WI series

Protective windows

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WI048 Protective window for 75 mm clamping diameter optics

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CMHO series

Clamping mechanics

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CMHO048 Clamping mechanics for TCxx048 lenses and LTCLHP048-X illuminators

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