

# TC13048

Bi-telecentric lens for 1/3" detectors, magnification 0.098 x, C-mount

## SPECIFICATIONS

Magnification	(x)	0.098
Image circle Ø	(mm)	6.0

### Object field of view (8)

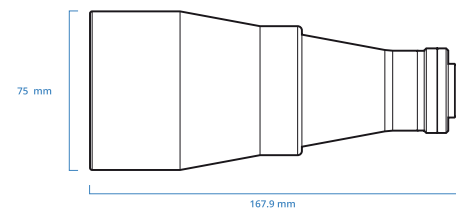
with 1/3" detector (4.8 x 3.6 mm)	(mm x mm)	48.8 x 36.6
with 1/2.5" detector (5.70 x 4.28 mm)	(mm x mm)	Ø = 43.5
with 1/2" detector (6.4 x 4.8 mm)	(mm x mm)	Ø = 48.8
with 1/1.8" detector (7.13 x 5.37 mm) (7)	(mm x mm)	Ø = 54.6
with 2/3" - 5 MP detector (8.45 x 7.07 mm)	(mm x mm)	-

### Optical specifications

Working distance (1)	(mm)	133.4
wF/# (2)		8
Telecentricity typical (max) (3)	(deg)	< 0.08 (0.10)
Distortion typical (max) (4)	(%)	< 0.06 (0.10)
Field depth (5)	(mm)	65
CTF @ 70 lp/mm	(%)	> 40

### Dimensions

Mount		C
Length (6)	(mm)	167.9
Diameter	(mm)	75
Mass	(g)	800



## NOTES

1. 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.
2. 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.
3. Maximum slope of chief rays inside the lens: when converted to millirad, it gives the maximum measurement error for any millimeter of object displacement. Typical (average production) values and maximum (guaranteed) values are listed.
4. Percent deviation of the real image compared to an ideal, undistorted image: typical (average production) values and maximum (guaranteed) values are listed.
5. 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.
6. Measured from the front end of the mechanics to the camera flange.
7. With 1/1.8" (9 mm diagonal) detectors, the FOV of TC12yyy lenses may show some vignetting at the image corners, as these lenses are optimized for 1/2" detectors (8 mm diagonal).
8. For the fields with the indication "Ø =", the image of a circular object of such diameter is fully inscribed into the detector.

## COMPATIBLE PRODUCTS



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



LTCLHP CORE series  
Ultra compact telecentric illuminators

LTCLCR048-R	Telecentric CORE illuminator, beam diameter 45 mm, red
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LTCLCR048-G	Telecentric CORE illuminator, beam diameter 45 mm, green
LTCLCR048-W	Telecentric CORE illuminator, beam diameter 45 mm, white

LTLAIC series  
Continuous LED low angle diffused ringlights

RT-DLR2-60-100-2-W-24V-FL	Continuous LED low angle diffused ringlight, inner diameter 68 mm, 60°, white
RT-DLR2-60-100-2-R-24V-FL	Continuous LED low angle diffused ringlight, inner diameter 68 mm, 60°, red
RT-DLR2-60-100-2-G-24V-FL	Continuous LED low angle diffused ringlight, inner diameter 68 mm, 60°, green
RT-DLR2-60-100-2-B-24V-FL	Continuous LED low angle diffused ringlight, inner diameter 68 mm, 60°, blue

LTLADC series  
Continuous LED low angle direct ringlights

RT-LLA-75-130-3-W-24V-FL	Continuous LED low angle direct ringlights, inner diameter 94 mm, 75°, white
RT-LLA-75-130-3-R-24V-FL	Continuous LED low angle direct ringlights, inner diameter 94 mm, 75°, red
RT-LLA-75-130-3-G-24V-FL	Continuous LED low angle direct ringlights, inner diameter 94 mm, 75°, green
RT-LLA-75-130-3-B-24V-FL	Continuous LED low angle direct ringlights, inner diameter 94 mm, 75°, blue



LTRNST series  
LED ring illuminators - straight type

LTRN048RD	Ring LED illuminator, inner diameter 75 mm, straight type, red 630 nm
LTRN048GR	Ring LED illuminator, inner diameter 75 mm, straight type, green 525 nm
LTRN048BL	Ring LED illuminator, inner diameter 75 mm, straight type, blue 470 nm
LTRN048NW	Ring LED illuminator, inner diameter 75 mm, straight type, white



LTBC series  
Continuous LED backlight

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

LTBFC series  
Continuous flat side-emitting LED backlights

RT-BHD-00-070-1-W-24V-FL	Continuous flat side-emitting LED backlight, 70X70 illumination area, white
RT-BHD-00-070-1-R-24V-FL	Continuous flat side-emitting LED backlight, 70X70 illumination area, red
RT-BHD-00-070-1-G-24V-FL	Continuous flat side-emitting LED backlight, 70X70 illumination area, green
RT-BHD-00-070-1-B-24V-FL	Continuous flat side-emitting LED backlight, 70X70 illumination area, blue
RT-BHDS-00-070-1-W-24V-FL	Continuous flat side-emitting LED backlight, one side edge to edge type, 70X70 illumination area, white
RT-BHDS-00-070-1-R-24V-FL	Continuous flat side-emitting LED backlight, one side edge to edge type, 70X70 illumination area, red
RT-BHDS-00-070-1-G-24V-FL	Continuous flat side-emitting LED backlight, one side edge to edge type, 70X70 illumination area, green
RT-BHDS-00-070-1-B-24V-FL	Continuous flat side-emitting LED backlight, one side edge to edge type, 70X70 illumination area, blue

LTBRDC series  
Continuous LED bar lights

RT-LBRX-00-080-6-W-24V-FL	Continuous LED bar light, 80X26.3 illumination area, white
RT-LBRX-00-080-6-R-24V-FL	Continuous LED bar light, 80X26.3 illumination area, red
RT-LBRX-00-080-6-G-24V-FL	Continuous LED bar light, 80X26.3 illumination area, green
RT-LBRX-00-080-6-B-24V-FL	Continuous LED bar light, 80X26.3 illumination area, blue

LTCXC series  
Continuous LED coaxial lights

RT-CAS2-00-070-X-W-24V-FL	Continuous LED coaxial light, 70x70 active area, white
RT-CAS2-00-070-X-R-24V-FL	Continuous LED coaxial light, 70x70 active area, red
RT-CAS2-00-070-X-G-24V-FL	Continuous LED coaxial light, 70x70 active area, green
RT-CAS2-00-070-X-B-24V-FL	Continuous LED coaxial light, 70x70 active area, blue



CMBS series  
45° beam splitters

CMBS048 45° beam splitter with mount for 75 mm clamping diameter optics

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CMMR series  
45° first surface mirrors

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CMMR048 45° first surface mirror for 75 mm clamping diameter optics

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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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Calibration patterns  
Accurate calibration of machine vision systems

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PT036-056 Calibration pattern

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