

# TC13016

Bi-telecentric lens for 1/3" detectors, magnification 0.290 ×, C-mount

## SPECIFICATIONS

Magnification	(×)	0.290
Image circle Ø	(mm)	6.0

### Object field of view (8)

with 1/3" detector (4.8 x 3.6 mm)	(mm × mm)	16.6 x 12.4
with 1/2.5" detector (5.70 x 4.28 mm)	(mm × mm)	Ø = 14.8
with 1/2" detector (6.4 x 4.8 mm)	(mm × mm)	Ø = 16.6
with 1/1.8" detector (7.13 x 5.37 mm) (7)	(mm × mm)	Ø = 18.5
with 2/3" - 5 MP detector (8.45 x 7.07 mm)	(mm × mm)	-

### Optical specifications

Working distance (1)	(mm)	43.1
wF/# (2)		8
Telecentricity typical (max) (3)	(deg)	< 0.08 (0.10)
Distortion typical (max) (4)	(%)	< 0.04 (0.08)
Field depth (5)	(mm)	8
CTF @ 70 lp/mm	(%)	> 40

### Dimensions

Mount		C
Phase Adjustment (9)		
Length (6)	(mm)	80.9
Diameter	(mm)	27.7
Mass	(g)	-



## 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.
9. Indicates the availability of an integrated camera phase adjustment feature. If missing, it can be supplied upon request (except for TC23004, TC23007, TC23009, TC23012).

## COMPATIBLE PRODUCTS



LTCLHP series  
High-performance telecentric illuminators

LTCLHP016-B	Telecentric HP illuminator, beam diameter 20 mm, blue
LTCLHP016-W	Telecentric HP illuminator, beam diameter 20 mm, white

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-EXT-24V-F-3M 3 meters cable included.
RT-LLA-75-130-3-R-24V-FL	Continuous LED low angle direct ringlights, inner diameter 94 mm, 75°, red, RT-EXT-24V-F-3M 3 meters cable included.
RT-LLA-75-130-3-G-24V-FL	Continuous LED low angle direct ringlights, inner diameter 94 mm, 75°, green, RT-EXT-24V-F-3M 3 meters cable included.
RT-LLA-75-130-3-B-24V-FL	Continuous LED low angle direct ringlights, inner diameter 94 mm, 75°, blue, RT-EXT-24V-F-3M 3 meters cable included.



LTRNST series  
LED ring illuminators - straight type

LTRN016RD	Ring LED illuminator, inner diameter 37 mm, straight type, red 630 nm
LTRN016GR	Ring LED illuminator, inner diameter 37 mm, straight type, green 525 nm
LTRN016BL	Ring LED illuminator, inner diameter 37 mm, straight type, blue 470 nm
LTRN016NW	Ring LED illuminator, inner diameter 37 mm, straight type, white

LTRNDC series  
Continuous LED direct ringlights

RT-LSW-15-050-2-W-24V-FL	Continuous LED direct ringlight, inner diameter 28 mm, 15°, white, RT-EXT-24V-F-3M 3 meters cable included.
RT-LSW-15-050-2-R-24V-FL	Continuous LED direct ringlight, inner diameter 28 mm, 15°, red, RT-EXT-24V-F-3M 3 meters cable included.
RT-LSW-15-050-2-G-24V-FL	Continuous LED direct ringlight, inner diameter 28 mm, 15°, green, RT-EXT-24V-F-3M 3 meters cable included.
RT-LSW-15-050-2-B-24V-FL	Continuous LED direct ringlight, inner diameter 28 mm, 15°, blue, RT-EXT-24V-F-3M 3 meters cable included.
RT-LSW-45-070-3-W-24V-FL	Continuous LED direct ringlight, inner diameter 35 mm, 45°, white, RT-EXT-24V-F-3M 3 meters cable included.
RT-LSW-45-070-3-R-24V-FL	Continuous LED direct ringlight, inner diameter 35 mm, 45°, red, RT-EXT-24V-F-3M 3 meters cable included.
RT-LSW-45-070-3-G-24V-FL	Continuous LED direct ringlight, inner diameter 35 mm, 45°, green, RT-EXT-24V-F-3M 3 meters cable included.
RT-LSW-45-070-3-B-24V-FL	Continuous LED direct ringlight, inner diameter 35 mm, 45°, blue, RT-EXT-24V-F-3M 3 meters cable included.



LTBC series  
Continuous LED backlight

LTBC054054-W	Continuous LED backlight, 54x54 illumination area, white
LTBC054054-G	Continuous LED backlight, 54x54 illumination area, green

LTBFC series  
Continuous flat side-emitting LED backlights

RT-BHDS-25X36-1-W-24V-FL	Continuous flat side-emitting LED backlight, one side edge to edge type, 36X25 illumination area, white, RT-EXT-24V-F-3M 3 meters cable included.
RT-BHDS-25X36-1-R-24V-FL	Continuous flat side-emitting LED backlight, one side edge to edge type, 36X25 illumination area, red, RT-EXT-24V-F-3M 3 meters cable included.
RT-BHDS-25X36-1-G-24V-FL	Continuous flat side-emitting LED backlight, one side edge to edge type, 36X25 illumination area, green, RT-EXT-24V-F-3M 3 meters cable included.
RT-BHDS-25X36-1-B-24V-FL	Continuous flat side-emitting LED backlight, one side edge to edge type, 36X25 illumination area, blue, RT-EXT-24V-F-3M 3 meters cable included.

LTBRDC series  
Continuous LED bar lights

RT-LBRX-00-040-6-W-24V-FL	Continuous LED bar light, 40X26.3 illumination area, white, RT-EXT-24V-F-3M 3 meters cable included.
RT-LBRX-00-040-6-R-24V-FL	Continuous LED bar light, 40X26.3 illumination area, red, RT-EXT-24V-F-3M 3 meters cable included.
RT-LBRX-00-040-6-G-24V-FL	Continuous LED bar light, 40X26.3 illumination area, green, RT-EXT-24V-F-3M 3 meters cable included.
RT-LBRX-00-040-6-B-24V-FL	Continuous LED bar light, 40X26.3 illumination area, blue, RT-EXT-24V-F-3M 3 meters cable included.

LTOXC series  
Continuous LED coaxial lights

RT-CAS2-00-025-X-W-24V-FL	Continuous LED coaxial light, 27x27 active area, white, RT-EXT-24V-F-3M 3 meters cable included.
RT-CAS2-00-025-X-R-24V-FL	Continuous LED coaxial light, 27x27 active area, red, RT-EXT-24V-F-3M 3 meters cable included.

RT-CAS2-00-025-X-G-24V-FL Continuous LED coaxial light, 27x27 active area, green, RT-EXT-24V-F-3M 3 meters cable included.

---

RT-CAS2-00-025-X-B-24V-FL Continuous LED coaxial light, 27x27 active area, blue, RT-EXT-24V-F-3M 3 meters cable included.

---



CMHO series  
Clamping mechanics

---

CMHO016 Clamping mechanics for TCxx016 lenses and LTCLHP016-X illuminators

---



Calibration patterns  
Accurate calibration of machine vision systems

---

PT016-024 Calibration pattern

---