

# TC4MHR096-F

High resolution bi-telecentric lens for 1.2" detectors, magnification 0.186x, F-mount

## SPECIFICATIONS

Magnification	(x)	0.186
Image circle Ø	(mm)	21.6

### Object field of view 8

with KAI-2020 14.8 mm diagonal w x h 11.84 x 8.88	(mm x mm)	63.5 x 47.6
with KAI-04050 16 mm diagonal w x h 12.8 x 9.6	(mm x mm)	68.7 x 51.5
with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2	(mm x mm)	81.6 x 81.6
with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6(7)	(mm x mm)	97.1 x 73.0

### Optical specifications

Working distance (1)	(mm)	278.62
f/# (2)		16
Telecentricity typical (max) (3)	(deg)	< 0.05 (0.10)
Distortion typical (max) (4)	(%)	< 0.04 (0.10)
Field depth (5)	(mm)	34.2
CTF@ 50 lp/mm	(%)	> 35

### Mechanical specifications

Mount		F
Length (6)	(mm)	363.8
Diameter	(mm)	143
Mass	(g)	2473



## 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: 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 µm.
- Measured from the front end of the mechanics to the camera flange.
- With KAI-08050 (22.6 mm diagonal) detectors, the FOV of TC4MHR yyy lenses may show some vignetting at the image corners, as these lenses are optimized for 1.2" detectors (21.5 mm diagonal).
- For the fields with the indication "Ø =", the image of a circular object of such diameter is fully inscribed into the detector.

## COMPATIBLE PRODUCTS



LTCLHP096-G  
Telecentric HP illuminator, beam diameter 120 mm, green



CMHO096  
Clamping mechanics for TCxx085, TCxx096 lenses and LTCLHP096-X illuminators



LTRN096NW  
Ring LED illuminator, white