

# TC12K240

Telecentric lens for 12k and 16k linescan cameras, magnification 0.26 x, M72 x 0.75 mount

## SPECIFICATIONS

Magnification	(x)	0.260
Image circle Ø	(mm)	62.4

### Object field of view

with line - 12k detector 12k x 5.2 µm	(mm)	240.0
with line - 12k detector 12k x 5 µm	(mm)	236.3
with line - 16k detector 16k x 3.5 µm	(mm)	220.5
with line - 8k detector 8k x 7.5 µm	(mm)	220.5

### Optical specifications

Working distance (1)	(mm)	492.8
wF/# (2)		16
Telecentricity typical (max) (3)	(deg)	< 0.06 (0.08)
Distortion typical (max) (4)	(%)	< 0.08 (0.10)
Field depth (5)	(mm)	15.4
CTF@ 70 lp/mm	(%)	> 35

### Mechanical specifications

Length (6)	(mm)	1072.8
Diameter	(mm)	322
Mass	(g)	19000
Mount (7)		M72x0.75 FD6.56

Last update: 2019-06-17

## NOTES

- Working distance: distance between the front lens 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 principal rays inside the lens: when converted to milliradians, it gives the maximum measurement error for any millimeter of object displacement
- 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 7 µm.
- Indicates the availability of an integrated camera phase adjustment feature.
- Measured from the front end of the mechanics to the camera flange.
- 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.

## 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.



LTLNC series

Continuous LED line lights

LTLNC100-W	LED line light 100 mm, white
LTLNC100-R	LED line light 100 mm, red
LTLNC100-G	LED line light 100 mm, green
LTLNC100-B	LED line light 100 mm, blue
LTLNC100-IR850	LED line light 100 mm, IR 850 nm



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.

LTLNC150-W	LED line light 150 mm, white
LTLNC150-R	LED line light 150 mm, red
LTLNC150-G	LED line light 150 mm, green
LTLNC150-B	LED line light 150 mm, blue
LTLNC150-IR850	LED line light 150 mm, IR 850 nm
LTLNC200-W	LED line light 200 mm, white
LTLNC200-R	LED line light 200 mm, red
LTLNC200-G	LED line light 200 mm, green
LTLNC200-B	LED line light 200 mm, blue
LTLNC200-IR850	LED line light 200 mm, IR 850 nm
LTLNC300-W	LED line light 300 mm, white
LTLNC300-R	LED line light 300 mm, red
LTLNC300-G	LED line light 300 mm, green
LTLNC300-B	LED line light 300 mm, white
LTLNC300-IR850	LED line light 300 mm, IR 850 nm



LTLNM series

Flicker free high power focused modular LED line lights

LTLNM-0200-N-FC-W	Modular LED line light, 200mm length, near field focusing, fan cooling, white
LTLNM-0200-N-D-FC-W	Modular LED line light, 200mm length, near field focusing, diffuser, fan cooling, white
LTLNM-0200-F-FC-W	Modular LED line light, 200mm length, far field focusing, fan cooling, white
LTLNM-0200-F-D-FC-W	Modular LED line light, 200mm length, far field focusing, diffuser, fan cooling, white
LTLNM-0200-C-FC-W	Modular LED line light, 200mm length, collimated, fan cooling, white
LTLNM-0200-C-D-FC-W	Modular LED line light, 200mm length, collimated, diffuser, fan cooling, white
LTLNM-0400-N-FC-W	Modular LED line light, 400mm length, near field focusing, fan cooling, white
LTLNM-0400-N-D-FC-W	Modular LED line light, 400mm length, near field focusing, diffuser, fan cooling, white
LTLNM-0400-F-FC-W	Modular LED line light, 400mm length, far field focusing, fan cooling, white
LTLNM-0400-F-D-FC-W	Modular LED line light, 400mm length, far field focusing, diffuser, fan cooling, white
LTLNM-0400-C-FC-W	Modular LED line light, 400mm length, collimated, fan cooling, white
LTLNM-0400-C-D-FC-W	Modular LED line light, 400mm length, collimated, diffuser, fan cooling, white
LTLNM-0600-N-FC-W	Modular LED line light, 600mm length, near field focusing, fan cooling, white
LTLNM-0600-N-D-FC-W	Modular LED line light, 600mm length, near field focusing, diffuser, fan cooling, white
LTLNM-0600-F-FC-W	Modular LED line light, 600mm length, far field focusing, fan cooling, white
LTLNM-0600-F-D-FC-W	Modular LED line light, 600mm length, far field focusing, diffuser, fan cooling, white
LTLNM-0600-C-FC-W	Modular LED line light, 600mm length, collimated, fan cooling, white
LTLNM-0600-C-D-FC-W	Modular LED line light, 600mm length, collimated, diffuser, fan cooling, white
LTLNM-0800-N-FC-W	Modular LED line light, 800mm length, near field focusing, fan cooling, white
LTLNM-0800-N-D-FC-W	Modular LED line light, 800mm length, near field focusing, diffuser, fan cooling, white
LTLNM-0800-F-FC-W	Modular LED line light, 800mm length, far field focusing, fan cooling, white
LTLNM-0800-F-D-FC-W	Modular LED line light, 800mm length, far field focusing, diffuser, fan cooling, white
LTLNM-0800-C-FC-W	Modular LED line light, 800mm length, collimated, fan cooling, white
LTLNM-0800-C-D-FC-W	Modular LED line light, 800mm length, collimated, diffuser, fan cooling, white
LTLNM-1000-N-FC-W	Modular LED line light, 1000mm length, near field focusing, fan cooling, white
LTLNM-1000-N-D-FC-W	Modular LED line light, 1000mm length, near field focusing, diffuser, fan cooling, white
LTLNM-1000-F-FC-W	Modular LED line light, 1000mm length, far field focusing, fan cooling, white
LTLNM-1000-F-D-FC-W	Modular LED line light, 1000mm length, far field focusing, diffuser, fan cooling, white
LTLNM-1000-C-FC-W	Modular LED line light, 1000mm length, collimated, fan cooling, white
LTLNM-1000-C-D-FC-W	Modular LED line light, 1000mm length, collimated, diffuser, fan cooling, white
LTLNM-1200-N-FC-W	Modular LED line light, 1200mm length, near field focusing, fan cooling, white
LTLNM-1200-N-D-FC-W	Modular LED line light, 1200mm length, near field focusing, diffuser, fan cooling, white
LTLNM-1200-F-FC-W	Modular LED line light, 1200mm length, far field focusing, fan cooling, white

LTLNM-1200-F-D-FC-W	Modular LED line light, 1200mm length, far field focusing, diffuser, fan cooling, white
LTLNM-1200-C-FC-W	Modular LED line light, 1200mm length, collimated, fan cooling, white
LTLNM-1200-C-D-FC-W	Modular LED line light, 1200mm length, collimated, diffuser, fan cooling, white
LTLNM-1400-N-FC-W	Modular LED line light, 1400mm length, near field focusing, fan cooling, white
LTLNM-1400-N-D-FC-W	Modular LED line light, 1400mm length, near field focusing, diffuser, fan cooling, white
LTLNM-1400-F-FC-W	Modular LED line light, 1400mm length, far field focusing, fan cooling, white
LTLNM-1400-F-D-FC-W	Modular LED line light, 1400mm length, far field focusing, diffuser, fan cooling, white
LTLNM-1400-C-FC-W	Modular LED line light, 1400mm length, collimated, fan cooling, white
LTLNM-1400-C-D-FC-W	Modular LED line light, 1400mm length, collimated, diffuser, fan cooling, white
LTLNM-1600-N-FC-W	Modular LED line light, 1600mm length, near field focusing, fan cooling, white
LTLNM-1600-N-D-FC-W	Modular LED line light, 1600mm length, near field focusing, diffuser, fan cooling, white
LTLNM-1600-F-FC-W	Modular LED line light, 1600mm length, far field focusing, fan cooling, white
LTLNM-1600-F-D-FC-W	Modular LED line light, 1600mm length, far field focusing, diffuser, fan cooling, white
LTLNM-1600-C-FC-W	Modular LED line light, 1600mm length, collimated, fan cooling, white
LTLNM-1600-C-D-FC-W	Modular LED line light, 1600mm length, collimated, diffuser, fan cooling, white
LTLNM-1800-N-FC-W	Modular LED line light, 1800mm length, near field focusing, fan cooling, white
LTLNM-1800-N-D-FC-W	Modular LED line light, 1800mm length, near field focusing, diffuser, fan cooling, white
LTLNM-1800-F-FC-W	Modular LED line light, 1800mm length, far field focusing, fan cooling, white
LTLNM-1800-F-D-FC-W	Modular LED line light, 1800mm length, far field focusing, diffuser, fan cooling, white
LTLNM-1800-C-FC-W	Modular LED line light, 1800mm length, collimated, fan cooling, white
LTLNM-1800-C-D-FC-W	Modular LED line light, 1800mm length, collimated, diffuser, fan cooling, white
LTLNM-2000-N-FC-W	Modular LED line light, 2000mm length, near field focusing, fan cooling, white
LTLNM-2000-N-D-FC-W	Modular LED line light, 2000mm length, near field focusing, diffuser, fan cooling, white
LTLNM-2000-F-FC-W	Modular LED line light, 2000mm length, far field focusing, fan cooling, white
LTLNM-2000-F-D-FC-W	Modular LED line light, 2000mm length, far field focusing, diffuser, fan cooling, white
LTLNM-2000-C-FC-W	Modular LED line light, 2000mm length, collimated, fan cooling, white
LTLNM-2000-C-D-FC-W	Modular LED line light, 2000mm length, collimated, diffuser, fan cooling, white



LTLNE series

High power enhanced LED line lights

LTLNE-300-N-PC-W	LED line light, direct, 300mm length, near field focusing, passive cooling, white
LTLNE-300-N-FC-W	LED line light, direct, 300mm length, near field focusing, fan cooling, white
LTLNE-300-N-D-PC-W	LED line light, direct, 300mm length, near field focusing, diffuser, passive cooling, white
LTLNE-300-N-D-FC-W	LED line light, direct, 300mm length, near field focusing, diffuser, fan cooling, white
LTLNE-300-F-PC-W	LED line light, direct, 300mm length, far field focusing, passive cooling, white
LTLNE-300-F-FC-W	LED line light, direct, 300mm length, far field focusing, fan cooling, white
LTLNE-300-F-D-PC-W	LED line light, direct, 300mm length, far field focusing, diffuser, passive cooling, white
LTLNE-300-F-D-FC-W	LED line light, direct, 300mm length, far field focusing, diffuser, fan cooling, white
LTLNE-300-C-PC-W	LED line light, direct, 300mm length, collimated, passive cooling, white
LTLNE-300-C-FC-W	LED line light, direct, 300mm length, collimated, fan cooling, white
LTLNE-300-C-D-PC-W	LED line light, direct, 300mm length, collimated, diffuser, passive cooling, white
LTLNE-300-C-D-FC-W	LED line light, direct, 300mm length, collimated, diffuser, fan cooling, white
LTLNE-300-CX-N-PC-W	LED line light, coaxial, 300mm length, near field focusing, passive cooling, white
LTLNE-300-CX-N-FC-W	LED line light, coaxial, 300mm length, near field focusing, fan cooling, white
LTLNE-300-CX-N-D-PC-W	LED line light, coaxial, 300mm length, near field focusing, diffuser, passive cooling, white
LTLNE-300-CX-N-D-FC-W	LED line light, coaxial, 300mm length, near field focusing, diffuser, fan cooling, white

<a href="#">LTLNE-300-CX-F-PC-W</a>	LED line light, coaxial, 300mm length, far field focusing, passive cooling, white
<a href="#">LTLNE-300-CX-F-FC-W</a>	LED line light, coaxial, 300mm length, far field focusing, fan cooling, white
<a href="#">LTLNE-300-CX-F-D-PC-W</a>	LED line light, coaxial, 300mm length, far field focusing, diffuser, passive cooling, white
<a href="#">LTLNE-300-CX-F-D-FC-W</a>	LED line light, coaxial, 300mm length, far field focusing, diffuser, fan cooling, white
<a href="#">LTLNE-300-CX-C-PC-W</a>	LED line light, coaxial, 300mm length, collimated, passive cooling, white
<a href="#">LTLNE-300-CX-C-FC-W</a>	LED line light, coaxial, 300mm length, collimated, fan cooling, white
<a href="#">LTLNE-300-CX-C-D-PC-W</a>	LED line light, coaxial, 300mm length, collimated, diffuser, passive cooling, white
<a href="#">LTLNE-300-CX-C-D-FC-W</a>	LED line light, coaxial, 300mm length, collimated, diffuser, fan cooling, white
<a href="#">LTLNE-300-MR-N-PC-W</a>	LED line light, 45° mirror, 300mm length, near field focusing, passive cooling, white
<a href="#">LTLNE-300-MR-N-FC-W</a>	LED line light, 45° mirror, 300mm length, near field focusing, fan cooling, white
<a href="#">LTLNE-300-MR-N-D-PC-W</a>	LED line light, 45° mirror, 300mm length, near field focusing, diffuser, passive cooling, white
<a href="#">LTLNE-300-MR-F-PC-W</a>	LED line light, 45° mirror, 300mm length, far field focusing, passive cooling, white
<a href="#">LTLNE-300-MR-F-FC-W</a>	LED line light, 45° mirror, 300mm length, far field focusing, fan cooling, white
<a href="#">LTLNE-300-MR-F-D-PC-W</a>	LED line light, 45° mirror, 300mm length, far field focusing, diffuser, passive cooling, white
<a href="#">LTLNE-300-MR-F-D-FC-W</a>	LED line light, 45° mirror, 300mm length, far field focusing, diffuser, fan cooling, white
<a href="#">LTLNE-300-MR-C-PC-W</a>	LED line light, 45° mirror, 300mm length, collimated, passive cooling, white
<a href="#">LTLNE-300-MR-C-FC-W</a>	LED line light, 45° mirror, 300mm length, collimated, fan cooling, white
<a href="#">LTLNE-300-MR-C-D-PC-W</a>	LED line light, 45° mirror, 300mm length, collimated, diffuser, passive cooling, white
<a href="#">LTLNE-300-MR-C-D-FC-W</a>	LED line light, 45° mirror, 300mm length, collimated, diffuser, fan cooling, white



CMHO series

Clamping mechanics

[CMHO240R](#) Clamping mechanics rotation for TCxx240 lenses and LTCLHP240-X illuminators rotation type



COE HR LS series

57.3 mm line scan CMOS sensors for high-speed scanning

[COE8KLSMCL-G](#) Camera CMOS, Camera Link, 8192 x 1, monochrome, 77kfp, G mount

[COE16KLSMCL-G](#) Camera CMOS, Camera Link, 16384 x 1, monochrome, 55kfp, G mount