

# TC12K064

Telecentric lens for 12k and 16k linescan cameras, magnification 0.960 x, M72 x 0.75 mount

## SPECIFICATIONS

Magnification	(x)	0.960
Image circle Ø	(mm)	62.4

### Object field of view

with line - 12k detector 12k x 5.2 µm	(mm)	62.40
with line - 12k detector 12k x 5 µm	(mm)	61.44
with line - 16k detector 16k x 3.5 µm	(mm)	57.34
with line - 8k detector 8k x 7.5 µm	(mm)	61.4 mm

### Optical specifications

Working distance (1)	(mm)	162.8
wF/# (2)		16
Telecentricity typical (max) (3)	(deg)	< 0.06 (0.08)
Distortion typical (max) (4)	(%)	< 0.08 (0.10)
Field depth (5)	(mm)	1
CTF@ 70 lp/mm	(%)	> 35

### Mechanical specifications

Length (6)	(mm)	566.7
Diameter	(mm)	100
Mass	(g)	2600
Mount (7)		M72x0.75 FD6.56

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## 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.



LTCLHP series

High-performance telecentric illuminators

LTCLHP064-R	Telecentric HP illuminator, beam diameter 80 mm, red
LTCLHP064-G	Telecentric HP illuminator, beam diameter 80 mm, green
LTCLHP064-B	Telecentric HP illuminator, beam diameter 80 mm, blue
LTCLHP064-W	Telecentric HP illuminator, beam diameter 80 mm, white



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.



### Ultra compact telecentric illuminators

<a href="#">LTCLCR064-R</a>	Telecentric CORE illuminator, beam dimensions Ø = 86; x = 67, red
<a href="#">LTCLCR064-G</a>	Telecentric CORE illuminator, beam dimensions Ø = 86; x = 67, green
<a href="#">LTCLCR064-W</a>	Telecentric CORE illuminator, beam dimensions Ø = 86; x = 67, white



### LTLA series

High-power strobed LED low angle diffused ringlights

<a href="#">LTLAC1-W</a>	Diffusive strobed low angle ring light illuminator - large size medium power white
<a href="#">LTLAC2-R</a>	Diffusive strobed low angle ring light illuminator - large size high power red
<a href="#">LTLAC2-G</a>	Diffusive strobed low angle ring light illuminator - large size high power green
<a href="#">LTLAC2-W</a>	Diffusive strobed low angle ring light illuminator - large size high power white



### LTLAIC series (discontinued models)

Continuous LED low angle diffused ringlights

<a href="#">LT2RZF100-60-2-W-24V</a>	LED ringlight, 2 LED rows, 100 mm outer diameter, 60°, white, 24V
<a href="#">LT2RZF100-60-2-R-24V</a>	LED ringlight, 2 LED rows, 100 mm outer diameter, 60°, red, 24V
<a href="#">LT2RZF100-60-2-G-24V</a>	LED ringlight, 2 LED rows, 100 mm outer diameter, 60°, green, 24V
<a href="#">LT2RZF100-60-2-B-24V</a>	LED ringlight, 2 LED rows, 100 mm outer diameter, 60°, blue, 24V



### LTLAIC series

Continuous LED low angle diffused ringlights

<a href="#">LT3RZF100-60-1-W-24V</a>	LED ringlight, 1 LED row, 105.2 mm outer diameter, 60°, white, 24V
<a href="#">LT3RZF100-60-1-R-24V</a>	LED ringlight, 1 LED row, 105.2 mm outer diameter, 60°, red, 24V
<a href="#">LT3RZF100-60-1-G-24V</a>	LED ringlight, 1 LED row, 105.2 mm outer diameter, 60°, green, 24V
<a href="#">LT3RZF100-60-1-B-24V</a>	LED ringlight, 1 LED row, 105.2 mm outer diameter, 60°, blue, 24V



### LTLADC series

Continuous LED low angle direct ringlights

<a href="#">LTZZO130-75-3-W-24V</a>	LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, white, 24V
<a href="#">LTZZO130-75-3-R-24V</a>	LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, red, 24V
<a href="#">LTZZO130-75-3-G-24V</a>	LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, green, 24V
<a href="#">LTZZO130-75-3-B-24V</a>	LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, blue, 24V



### LTRNST series

LED ring illuminators - straight type

<a href="#">LTRN064RD</a>	Ring LED illuminator, inner diameter 100 mm, straight type, red 630 nm
<a href="#">LTRN064GR</a>	Ring LED illuminator, inner diameter 100 mm, straight type, green 525 nm
<a href="#">LTRN064BL</a>	Ring LED illuminator, inner diameter 100 mm, straight type, blue 470 nm
<a href="#">LTRN064NW</a>	Ring LED illuminator, inner diameter 100 mm, straight type, white



### LTBFC series

Continuous flat side-emitting LED backlights

<a href="#">LTPVR070-00-1-W-24V</a>	Flat side-emitting LED backlight, 70X70 mm illumination area, white, 24V
<a href="#">LTPVR070-00-1-R-24V</a>	Flat side-emitting LED backlight, 70X70 mm illumination area, red, 24V
<a href="#">LTPVR070-00-1-G-24V</a>	Flat side-emitting LED backlight, 70X70 mm illumination area, green, 24V
<a href="#">LTPVR070-00-1-B-24V</a>	Flat side-emitting LED backlight, 70X70 mm illumination area, blue, 24V
<a href="#">LTPVRG070-00-1-W-24V</a>	Flat side-emitting LED backlight, thin borders, 70X70 mm illumination area, white, 24V
<a href="#">LTPVRG070-00-1-R-24V</a>	Flat side-emitting LED backlight, thin borders, 70X70 mm illumination area, red, 24V
<a href="#">LTPVRG070-00-1-G-24V</a>	Flat side-emitting LED backlight, thin borders, 70X70 mm illumination area, green, 24V
<a href="#">LTPVRG070-00-1-B-24V</a>	Flat side-emitting LED backlight, thin borders, 70X70 mm illumination area, blue, 24V



#### LTBRDC series

##### Continuous LED bar lights

<a href="#">LTZPFL080-00-6-W-24V</a>	LED bar light, 6 LED rows, 80X26.3 illumination area, white, 24V
<a href="#">LTZPFL080-00-6-R-24V</a>	LED bar light, 6 LED rows, 80X26.3 illumination area, red, 24V
<a href="#">LTZPFL080-00-6-G-24V</a>	LED bar light, 6 LED rows, 80X26.3 illumination area, green, 24V
<a href="#">LTZPFL080-00-6-B-24V</a>	LED bar light, 6 LED rows, 80X26.3 illumination area, blue, 24V



#### LTLNC series

##### Continuous LED line lights

<a href="#">LTLNC100-W</a>	LED line light 100 mm, white
<a href="#">LTLNC100-R</a>	LED line light 100 mm, red
<a href="#">LTLNC100-G</a>	LED line light 100 mm, green
<a href="#">LTLNC100-B</a>	LED line light 100 mm, blue
<a href="#">LTLNC100-IR850</a>	LED line light 100 mm, IR 850 nm
<a href="#">LTLNC150-W</a>	LED line light 150 mm, white
<a href="#">LTLNC150-R</a>	LED line light 150 mm, red
<a href="#">LTLNC150-G</a>	LED line light 150 mm, green
<a href="#">LTLNC150-B</a>	LED line light 150 mm, blue
<a href="#">LTLNC150-IR850</a>	LED line light 150 mm, IR 850 nm
<a href="#">LTLNC200-W</a>	LED line light 200 mm, white
<a href="#">LTLNC200-R</a>	LED line light 200 mm, red
<a href="#">LTLNC200-G</a>	LED line light 200 mm, green
<a href="#">LTLNC200-B</a>	LED line light 200 mm, blue
<a href="#">LTLNC200-IR850</a>	LED line light 200 mm, IR 850 nm
<a href="#">LTLNC300-W</a>	LED line light 300 mm, white
<a href="#">LTLNC300-R</a>	LED line light 300 mm, red
<a href="#">LTLNC300-G</a>	LED line light 300 mm, green
<a href="#">LTLNC300-B</a>	LED line light 300 mm, white
<a href="#">LTLNC300-IR850</a>	LED line light 300 mm, IR 850 nm



#### LTCXC series

##### Continuous LED coaxial lights

<a href="#">LT2QOG070-00-X-W-24V</a>	LED coaxial light, 70x70 mm light emitting area, white, 24V
<a href="#">LT2QOG070-00-X-R-24V</a>	LED coaxial light, 70x70 mm light emitting area, red, 24V
<a href="#">LT2QOG070-00-X-G-24V</a>	LED coaxial light, 70x70 mm light emitting area, green, 24V
<a href="#">LT2QOG070-00-X-B-24V</a>	LED coaxial light, 70x70 mm light emitting area, blue, 24V



#### LTLNM series

##### Flicker free high power focused modular LED line lights

<a href="#">LTLNM-0200-N-FC-W</a>	Modular LED line light, 200mm length, near field focusing, fan cooling, white
<a href="#">LTLNM-0200-N-D-FC-W</a>	Modular LED line light, 200mm length, near field focusing, diffuser, fan cooling, white
<a href="#">LTLNM-0200-F-FC-W</a>	Modular LED line light, 200mm length, far field focusing, fan cooling, white
<a href="#">LTLNM-0200-F-D-FC-W</a>	Modular LED line light, 200mm length, far field focusing, diffuser, fan cooling, white
<a href="#">LTLNM-0200-C-FC-W</a>	Modular LED line light, 200mm length, collimated, fan cooling, white
<a href="#">LTLNM-0200-C-D-FC-W</a>	Modular LED line light, 200mm length, collimated, diffuser, fan cooling, white
<a href="#">LTLNM-0400-N-FC-W</a>	Modular LED line light, 400mm length, near field focusing, fan cooling, white
<a href="#">LTLNM-0400-N-D-FC-W</a>	Modular LED line light, 400mm length, near field focusing, diffuser, fan cooling, white
<a href="#">LTLNM-0400-F-FC-W</a>	Modular LED line light, 400mm length, far field focusing, fan cooling, white
<a href="#">LTLNM-0400-F-D-FC-W</a>	Modular LED line light, 400mm length, far field focusing, diffuser, fan cooling, white
<a href="#">LTLNM-0400-C-FC-W</a>	Modular LED line light, 400mm length, collimated, fan cooling, white
<a href="#">LTLNM-0400-C-D-FC-W</a>	Modular LED line light, 400mm length, collimated, diffuser, fan cooling, white
<a href="#">LTLNM-0600-N-FC-W</a>	Modular LED line light, 600mm length, near field focusing, fan cooling, white



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



CMBS series

45° beam splitters

CMBS064	45° beam splitter with mount for 100 mm clamping diameter optics
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CMMR series

45° first surface mirrors

[CMMR064](#) 45° first surface mirror for 100 mm clamping diameter optics

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WI series

Protective windows

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[WI064](#) Protective window for 100 mm clamping diameter optics

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CMHO series

Clamping mechanics

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[CMHOTC12K064](#) Clamping mechanics for TC12K064

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COE HR LS series

57.3 mm line scan CMOS sensors for high-speed scanning

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

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

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