

# MC4K075X-F

Macro lens for 4k line scan cameras, magnification 0.75x, F-mount

## SPECIFICATIONS

### Optical specifications

Focusing (1)		near	nominal	far
Magnification	(x)	0.795	0.75	0.704
Image circle Ø	(mm)	28.7		
Working distance (2)	(mm)	131.40	137.30	143.90
Focal length	(mm)	77.1		
f/# (wF/#) (3)		6.3 (11)		
Distortion typical (max) (4)	(%)	< 0.04 (0.08)		
Field depth (5)	(mm)	1.05	1.18	1.33
CTF @ 50 lp/mm	(%)	> 50		
Image side numerical aperture		0.045		
Object side numerical aperture		0.036		

### Object field of view (mm x mm)

with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37	17.86 x 13.08	18.93 x 13.87	20.17 x 14.77
with 2k x 10 µm detector 20.48	25.79	27.33	29.12
with IMX387 21.7 mm diag w x h 18.9 x 10.6	23.75 x 13.38	25.17 x 14.19	26.82 x 15.11
with APS-C IMX342 27.9 mm diagonal w x h 22.36 x 16.77	28.12 x 21.09	29.81 x 22.36	31.76 x 23.82
with 4k x 7 µm detector 28.67	36.10	38.27	40.77

### Mechanical specifications

Length (6)	(mm)	113.6	...	...
Diameter	(mm)	64.0	...	...
Mass	(g)	567	...	...
Phase adjustment		Yes		
Mount		F	...	...

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## NOTES

1. Maximum and minimum magnification changes when focusing.
2. 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.
3. Working F-number: the real F-number of a lens in operating conditions.
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 perfectly sharp image, only half of the nominal field depth should be considered. Pixel size used for calculation is 7 µm.
6. Measured from the front end of the mechanics to the camera flange.

## 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.



LTFB series

Continuous flat side-emitting LED backlights



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.

<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



#### LTDMC series (discontinued models)

Continuous LED domes

<a href="#">LT4WRG200-00-1-W-24V</a>	LED dome light, 232 mm outer diameter, white, 24V
<a href="#">LT4WRG200-00-1-R-24V</a>	LED dome light, 232 mm outer diameter, red, 24V
<a href="#">LT4WRG200-00-1-G-24V</a>	LED dome light, 232 mm outer diameter, green, 24V
<a href="#">LT4WRG200-00-1-B-24V</a>	LED dome light, 232 mm outer diameter, blue, 24V



#### LTLAIC series (discontinued models)

Continuous LED low angle diffused ring lights

<a href="#">LT2RZF070-60-2-W-24V</a>	LED ring light, 2 LED rows, 76.2 mm outer diameter, 60°, white, 24V
<a href="#">LT2RZF070-60-2-R-24V</a>	LED ring light, 2 LED rows, 76.2 mm outer diameter, 60°, red, 24V
<a href="#">LT2RZF070-60-2-G-24V</a>	LED ring light, 2 LED rows, 76.2 mm outer diameter, 60°, green, 24V
<a href="#">LT2RZF070-60-2-B-24V</a>	LED ring light, 2 LED rows, 76.2 mm outer diameter, 60°, blue, 24V



#### LTLA series

High power strobed LED low angle diffused ring lights

<a href="#">LTLAB2-R</a>	Diffusive strobed low angle ring light illuminator - medium size high power red
<a href="#">LTLAB2-G</a>	Diffusive strobed low angle ring light illuminator - medium size high power green
<a href="#">LTLAB2-W</a>	Diffusive strobed low angle ring light illuminator - medium size high power white
<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

Continuous LED low angle diffused ring lights

<a href="#">LT3RZF080-60-1-W-24V</a>	LED ring light, 1 LED row, 81 mm outer diameter, 60°, white, 24V
<a href="#">LT3RZF080-60-1-R-24V</a>	LED ring light, 1 LED row, 81 mm outer diameter, 60°, red, 24V
<a href="#">LT3RZF080-60-1-G-24V</a>	LED ring light, 1 LED row, 81 mm outer diameter, 60°, green, 24V
<a href="#">LT3RZF080-60-1-B-24V</a>	LED ring light, 1 LED row, 81 mm outer diameter, 60°, blue, 24V



#### LTLADC series

Continuous LED low angle direct ring lights

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



#### LTDMC series

Continuous LED domes

<a href="#">LT5WRG200-00-1-R-24V</a>	LED dome light, 232 mm outer diameter, red, 24V
<a href="#">LT5WRG200-00-1-G-24V</a>	LED dome light, 232 mm outer diameter, green, 24V
<a href="#">LT5WRG200-00-1-B-24V</a>	LED dome light, 232 mm outer diameter, blue, 24V
<a href="#">LT5WRG200-00-1-W-24V</a>	LED dome light, 232 mm outer diameter, white, 24V



### LTTNC series (discontinued models)

Continuous LED tunnel lights

LT2WRH200-00-1-W-24V	LED tunnel light, 200x183 mm, white, 24V
LT2WRH200-00-1-R-24V	LED tunnel light, 200x183 mm, red, 24V
LT2WRH200-00-1-G-24V	LED tunnel light, 200x183 mm, green, 24V
LT2WRH200-00-1-B-24V	LED tunnel light, 200x183 mm, blue, 24V



### LTDM series

High power strobed LED domes

LTDMC1-W	Diffusive strobed dome illuminator - large size medium power white
LTDMC2-R	Diffusive strobed dome illuminator - large size high power red
LTDMC2-G	Diffusive strobed dome illuminator - large size high power green
LTDMC2-W	Diffusive strobed dome illuminator - large size high power white



### LTBRDC series

Continuous LED bar lights

LTZPFL080-00-6-R-24V	LED bar light, 6 LED rows, 80X26.3 illumination area, red, 24V
LTZPFL080-00-6-G-24V	LED bar light, 6 LED rows, 80X26.3 illumination area, green, 24V
LTZPFL080-00-6-B-24V	LED bar light, 6 LED rows, 80X26.3 illumination area, blue, 24V
LTZPFL080-00-6-W-24V	LED bar light, 6 LED rows, 80X26.3 illumination area, white, 24V



### LTCXC series

Continuous LED coaxial lights

LT2QOG040-00-X-W-24V	LED coaxial light, 48x48 mm light emitting area, white, 24V
LT2QOG040-00-X-R-24V	LED coaxial light, 48x48 mm light emitting area, red, 24V
LT2QOG040-00-X-G-24V	LED coaxial light, 48x48 mm light emitting area, green, 24V
LT2QOG040-00-X-B-24V	LED coaxial light, 48x48 mm light emitting area, blue, 24V



### LTTNC series

Continuous LED tunnel lights

LT3WRH200-00-1-W-24V	LED tunnel light, 227.2X163 mm, white, 24V - Opto-Engineering®.
LT3WRH200-00-1-R-24V	LED tunnel light, 227.2X163 mm, red, 24V - Opto-Engineering®.
LT3WRH200-00-1-G-24V	LED tunnel light, 227.2X163 mm, green, 24V - Opto-Engineering®.
LT3WRH200-00-1-B-24V	LED tunnel light, 227.2X163 mm, blue, 24V - Opto-Engineering®.



### 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
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
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

<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