



# TCDP2MF4MF144

## SPECIFICATIONS

Magnification	(x)	0.089 0.122
Object field of view	(mm x mm)	
with 1/3" detector (4.8 x 3.6 mm)		54.1 x 40.6 39.3 x 29.5
with 1/2.5" detector (5.70 x 4.28 mm)		64.3 x 48.3 46.6 x 35.0
with 1/2" detector (6.4 x 4.8 mm)		72.2 x 54.1 52.4 x 39.3
with 1/1.8" detector (7.13 x 5.37 mm)		80.4 x 60.5 58.3 x 43.9
with 2/3" - 5 MP detector (8.45 x 7.07 mm)		95.3 x 79.7 69.1 x 57.9
with KAI-2020 14.8 mm diagonal w x h 11.84 x 8.88		133.0 x 100.1 96.6 x 72.7
with KAI-04050 16 mm diagonal w x h 12.8 x 9.6		144.3 x 108.2 104.7 x 78.6
with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2		171.4 x 171.4 124.4 x 124.4
with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6		Ø=153.3 148.1 x 111.3

## Optical specifications

Working distance	(mm)	396 396
wF/# (2)		16 16
Telecentricity (3)	(deg)	< 0.05 (0.10) < 0.05 (0.10)
Distortion , typical (max)	(%)	< 0.05 (0.10) < 0.04 (0.10)
Field depth (4)	(mm)	151 79.5
CTF @ 70 lp/mm	(%)	> 40 > 30

## Mechanical specifications

Length	(mm)	486.7
H1	(mm)	118.9
Diameter	(mm)	200.0
Mount		F

Last update: 2016-01-18

## NOTES

1. TCDP Series has been replaced by TCDP PLUS series. Please check our website for the list of [replaced products](#)
2. Working F-number (wF/#): the real F/# of a lens when used as a macro.
3. Maximum slope of principal rays inside the lens: when converted to milliradians, it gives the maximum measurement error for any millimeter of object displacement.
4. 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.

## 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.



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.



### LTRNST series

LED ring illuminators - straight type

LTRN144RD	Ring LED illuminator, inner diameter 200 mm, straight type, red 630 nm
LTRN144GR	Ring LED illuminator, inner diameter 200 mm, straight type, green 525 nm
LTRN144BL	Ring LED illuminator, inner diameter 200 mm, straight type, blue 470 nm
LTRN144NW	Ring LED illuminator, inner diameter 200 mm, straight type, white



### LTBC series

Continuous LED backlight

LTBC234234-W	Continuous LED backlight, 234x234 illumination area, white
LTBC234234-G	Continuous LED backlight, 234x234 illumination area, green



### mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

RT-mvBF3-2024a	USB3 Vision camera with Sony Pregius CMOS sensor IMX249
RT-mvBF3-2024	USB3 Vision camera with Sony Pregius CMOS sensor IMX174
RT-mvBF3-2089a	USB3 Vision camera with Sony Pregius CMOS sensor IMX267
RT-mvBF3-2089	USB3 Vision camera with Sony Pregius CMOS sensor IMX255
RT-mvBF3-2124a	USB3 Vision camera with Sony Pregius CMOS sensor IMX304
RT-mvBF3-2124	USB3 Vision camera with Sony Pregius CMOS sensor IMX253



### mvBlueCOUGAR series

GigE & Dual GigE Vision cameras

RT-mvBC-X105b	Camera with interface GigE (1GB/s), sensor size 2/3", mpixel 5.07, resolution 2464 x 2056, sensor name IMX264, sensor type CMOS
RT-mvBC-X104f	Camera with interface GigE (1GB/s), sensor size 1/1.2", mpixel 2.35, resolution 1936 x 1216, sensor name IMX249, sensor type CMOS
RT-mvBC-XD104d	Camera with interface Dual GigE (2GB/s), sensor size 1/1.2", mpixel 2.35, resolution 1936 x 1214, sensor name IMX174, sensor type CMOS
RT-mvBC-X109b	Camera with interface GigE (1GB/s), sensor size 1", mpixel 8.95, resolution 4112 x 2176, sensor name IMX267, sensor type CMOS
RT-mvBC-XD109b	Camera with interface Dual GigE (2GB/s), sensor size 1", mpixel 8.95, resolution 4112 X 2176, sensor name IMX267, sensor type CMOS
RT-mvBC-X1012b	Camera with interface GigE (1GB/s), sensor size 1.1", mpixel 12.37, resolution 4112 x 3008, sensor name IMX304, sensor type CMOS
RT-mvBC-XD107	Camera with interface Dual GigE (2GB/s), sensor size 1.1", mpixel 7.1, resolution 3216 x 2208, sensor name IMX420, sensor type CMOS
RT-mvBC-XD1012b	Camera with interface Dual GigE (2GB/s), sensor size 1.1", mpixel 12.37, resolution 4112 x 3008, sensor name IMX304, sensor type CMOS



### COE HR AS-X series

20MP, 26MP and 29MP area scan cameras for high-speed applications

COE-200-M-POE-070-IR-C	HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 × 3648, 20.4 MP, 2.4 pix, 1", Gray, GigE, 6 fps, POE, C - mount, Glass filter
COE-200-C-POE-070-IR-C	HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 × 3648, 20.4 MP, 2.4 pix, 1", Color, GigE, 6 fps, POE, C - mount, Infrared cut filter
COE-200-M-USB-070-IR-C	HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 × 3648, 20.4 MP, 2.4 pix, 1", Gray, 14 fps, C - mount, Glass filter
COE-200-C-USB-070-IR-C	HR Area Scan camera IMX183, CMOS, Rolling shutter, 5472 × 3648, 20.4 MP, 2.4 pix, 1", Color, 14 fps, C - mount, Infrared cut filter