TC4MHR016-E

OPTO ENGINEERING®

High resolution telecentric lens for 4/3" detectors, magnification 1.055x, mount M42X1 FD=16

SPECIFICATIONS

Magnification	(x)	1.055
Image circle Ø	(mm)	21.2

Object field of view 8	(mm x mm or Ø)	
with IMX174/IMX249 13.3 mm diag w x h 11.35 x 7.13	10.75 x 6.75	
with IMX255/IMX267 16.1 mm diag w x h 14.19 x 7.51	13.45 x 7.12	
with IMX253/IMX304 17.6 mm diag w x h 14.16 x 10.37	13.42 x 9.83	
with KAI-4022/4021 21.5 mm diagonal w x h 15.2 x 15.2	14.4 x 14.4	
with KAI-08050 22.6 mm diagonal w x h 18.1 x 13.6(7)	17.2 x 12.9	

Optical specifications		
Working distance (1)	(mm)	43.8
wF/# (2)		16
Telecentricity typical (max) (3)	(deg)	<0.08 (0.10)
Distortion typical (max) (4)	(%)	<0.04 (0.10)
Field depth (5)	(mm)	1.1
CTF@ 50 lp/mm	(%)	> 30

Mechanical specifications		
Mount		M42x1 FD16.00
Phase adjustment(9)		Yes
Length (6)	(mm)	171.1
Diameter	(mm)	52
Mass	(g)	490

Last update: 2019-06-17

REACH COMPLIANT   RoHS

NOTES

1. 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.

2. 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.

3. 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.

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 5 µm.

6. Measured from the front end of the mechanics to the camera flange.

7. With KAI-08050 (22.6 mm diagonal) detectors, the FOV of TC4MHRyyy-x lenses may show some vignetting at the image corners.

8. For the fields with the indication "Ø =", the image of a circular object of such diameter is fully inscribed into the detector.

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

LTCLHP016-R	Telecentric HP illuminator, beam diameter 20 mm, red
LTCLHP016-G	Telecentric HP illuminator, beam diameter 20 mm, green

LTCLHP016-B	Telecentric HP illuminator, beam diameter 20 mm, blue
LTCLHP016-W	Telecentric HP illuminator, beam diameter 20 mm, white

 LTLA series

High-power strobed LED low angle diffused ringlights

LTLAB2-R	Diffusive strobed low angle ring light illuminator - medium size high power red
LTLAB2-G	Diffusive strobed low angle ring light illuminator - medium size high power green
LTLAB2-W	Diffusive strobed low angle ring light illuminator - medium size high power white
LTLAC1-W	Diffusive strobed low angle ring light illuminator - large size medium power white

 LTLADC series

Continuous LED low angle direct ringlights

LTZZO130-75-3-W-24V	LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, white, 24V
LTZZO130-75-3-R-24V	LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, red, 24V
LTZZO130-75-3-G-24V	LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, green, 24V
LTZZO130-75-3-B-24V	LED low angle ringlight, 3 LED rows, outer diameter 131 mm, 75°, blue, 24V

 LTRNST series

LED ring illuminators - straight type

LTRN016RD	Ring LED illuminator, inner diameter 37 mm, straight type, red 630 nm
LTRN016GR	Ring LED illuminator, inner diameter 37 mm, straight type, green 525 nm
LTRN016BL	Ring LED illuminator, inner diameter 37 mm, straight type, blue 470 nm
LTRN016NW	Ring LED illuminator, inner diameter 37 mm, straight type, white

 LTRNDC series

Continuous LED direct ringlights

LTZGK050-15-2-W-24V	LED ringlight, 2 LED rows, outer diameter 50 mm, 15°, white, 24V
LTZGK050-15-2-R-24V	LED ringlight, 2 LED rows, outer diameter 50 mm, 15°, red, 24V
LTZGK050-15-2-G-24V	LED ringlight, 2 LED rows, outer diameter 50 mm, 15°, green, 24V
LTZGK050-15-2-B-24V	LED ringlight, 2 LED rows, outer diameter 50 mm, 15°, blue, 24V
LTZGK070-45-3-W-24V	LED ringlight, 3 LED rows, outer diameter 70 mm, 45°, white, 24V
LTZGK070-45-3-R-24V	LED ringlight, 3 LED rows, outer diameter 70 mm, 45°, red, 24V
LTZGK070-45-3-G-24V	LED ringlight, 3 LED rows, outer diameter 70 mm, 45°, green, 24V
LTZGK070-45-3-B-24V	LED ringlight, 3 LED rows, outer diameter 70 mm, 45°, blue, 24V

 LTBC series

Continuos LED backlight

LTBC054054-W	Continuos LED backlight, 54x54 illumination area, white
LTBC054054-G	Continuos LED backlight, 54x54 illumination area, green

 LTBFC series

Continuous flat side-emitting LED backlights

LTPVRG25X36-00-1-W-24V	Flat side-emitting LED backlight, thin borders, 25X36 mm illumination area, white, 24V
LTPVRG25X36-00-1-R-24V	Flat side-emitting LED backlight, thin borders, 25X36 mm illumination area, red, 24V
LTPVRG25X36-00-1-G-24V	Flat side-emitting LED backlight, thin borders, 25X36 mm illumination area, green, 24V
LTPVRG25X36-00-1-B-24V	Flat side-emitting LED backlight, thin borders, 25X36 mm illumination area, blue, 24V

 LTBRDC series

Continuous LED bar lights

LTZPFL040-00-6-W-24V	LED bar light, 6 LED rows, 40X26.3 illumination area, white, 24V
LTZPFL040-00-6-R-24V	LED bar light, 6 LED rows, 40X26.3 illumination area, red, 24V

LTZPFL040-00-6-G-24V	LED bar light, 6 LED rows, 40X26.3 illumination area, green, 24V
LTZPFL040-00-6-B-24V	LED bar light, 6 LED rows, 40X26.3 illumination area, blue, 24V

LTCXC series

Continuous LED coaxial lights

LT2QOG025-00-X-W-24V	LED coaxial light, 25x25.6 mm light emitting area, white, 24V
LT2QOG025-00-X-R-24V	LED coaxial light, 25x25.6 mm light emitting area, red, 24V
LT2QOG025-00-X-G-24V	LED coaxial light, 25x25.6 mm light emitting area, green, 24V
LT2QOG025-00-X-B-24V	LED coaxial light, 25x25.6 mm light emitting area, blue, 24V

CMHO series

Clamping mechanics

CMHO016	Clamping mechanics for TCxx016 lenses and LTCLHP016-X illuminators

mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

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-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