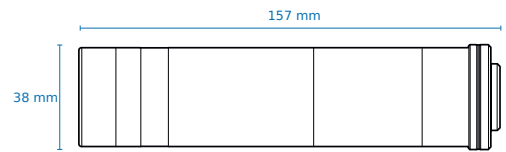
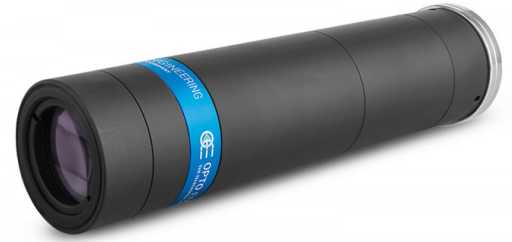


TCLWD250

Long working distance telecentric lens for 2/3" detectors, WD 132.3 mm, magnification 2.50x, C-mount

SPECIFICATIONS

Magnification	(x)	2.500
Image circle Ø	(mm)	11.0
Object field of view(8)		
with 1/3" detector (4.8 x 3.6 mm)	(mm x mm)	1.92 x 1.44
with 1/2.5" detector (5.70 x 4.28 mm)	(mm x mm)	2.28 x 1.71
with 1/2" detector (6.4 x 4.8 mm)	(mm x mm)	2.56 x 1.92
with 1/1.8" detector (7.13 x 5.37 mm) (7)	(mm x mm)	2.85 x 2.15
with 2/3" - 5 MP detector (8.45 x 7.07 mm)	(mm x mm)	3.38 x 2.83
Optical specifications		
Working distance (1)	(mm)	132.3
wF/# (2)		20
Telecentricity typical (max) (3)	(deg)	0.04 (0.06)
Distortion typical (max) (4)	(%)	0.05 (0.10)
Field depth (5)	(mm)	0.3
CTF @ 35 lp/mm	(%)	> 40
Dimensions		
Mount		C
Phase adjustment (7)		Yes
Length (6)	(mm)	157.0
Diameter	(mm)	37.7
Mass	(g)	413



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.
4. Typical (average production) values and maximum (guaranteed) values are listed. 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 5.5 µm.
6. Measured from the front end of the mechanics to the camera flange.
7. Indicates the availability of an integrated camera phase adjustment feature.

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



LTDM series

High-power strobed LED domes

LTDMA1-R	Diffusive strobed dome illuminator - small size medium power red
LTDMA1-G	Diffusive strobed dome illuminator - small size medium power green
LTDMA1-W	Diffusive strobed dome illuminator - small size medium power white
LTDMB2-R	Diffusive strobed dome illuminator - medium size high power red
LTDMB2-G	Diffusive strobed dome illuminator - medium size high power green
LTDMB2-W	Diffusive strobed dome illuminator - medium size high power white
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



LTDMC series

Continuous LED domes

LT4WRG150-00-1-W-24V	LED dome light, 185 mm outer diameter, white, 24V
LT4WRG150-00-1-R-24V	LED dome light, 185 mm outer diameter, red, 24V
LT4WRG150-00-1-G-24V	LED dome light, 185 mm outer diameter, green, 24V
LT4WRG150-00-1-B-24V	LED dome light, 185 mm outer diameter, blue, 24V



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
LTLAC2-R	Diffusive strobed low angle ring light illuminator - large size high power red
LTLAC2-G	Diffusive strobed low angle ring light illuminator - large size high power green
LTLAC2-W	Diffusive strobed low angle ring light illuminator - large size high power white



LTLAIC series (discontinued models)

Continuous LED low angle diffused ringlights

LT2RZF070-60-2-W-24V	LED ringlight, 2 LED rows, 76.2 mm outer diameter, 60°, white, 24V
LT2RZF070-60-2-R-24V	LED ringlight, 2 LED rows, 76.2 mm outer diameter, 60°, red, 24V
LT2RZF070-60-2-G-24V	LED ringlight, 2 LED rows, 76.2 mm outer diameter, 60°, green, 24V
LT2RZF070-60-2-B-24V	LED ringlight, 2 LED rows, 76.2 mm outer diameter, 60°, blue, 24V



LTLAIC series

Continuous LED low angle diffused ringlights

LT3RZF080-60-1-W-24V	LED ringlight, 1 LED row, 81 mm outer diameter, 60°, white, 24V
LT3RZF080-60-1-R-24V	LED ringlight, 1 LED row, 81 mm outer diameter, 60°, red, 24V
LT3RZF080-60-1-G-24V	LED ringlight, 1 LED row, 81 mm outer diameter, 60°, green, 24V
LT3RZF080-60-1-B-24V	LED ringlight, 1 LED row, 81 mm outer diameter, 60°, blue, 24V



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



LTDMLA series

High power strobe dome + low angle illumination systems

LTDMLAB2-WW	Diffusive strobed dome + low angle illumination system - medium size high power white
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View-through system

Space saving illumination system for double-side object inspection

LTVTENCH	View-through system bench - small size medium power white
LTVTA1-W	Complete View-through illuminators system - small size medium power white



LTBC series

Continuous LED backlight

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



CMBS series

45° beam splitters

CMBS016 45° beam splitter with mount for 37.7 mm clamping diameter optics



CMHO series

Clamping mechanics

CMHO016 Clamping mechanics for TCxx016 lenses and LTCLHP016-X illuminators



LTPR series

LED patterns projectors

LTPRHP3W-W LED pattern projector 3W, HP, white

LTPRHP3W-R LED pattern projector 3W, HP, red

LTPRHP3W-G LED pattern projector 3W, HP, green

LTPRHP3W-B LED pattern projector 3W, HP, blue

LTPRUP-W 90W strobed LED pattern projector white

LTPRUP-R 90W strobed LED pattern projector red

LTPRUP-G 90W strobed LED pattern projector green

LTPRUP-B 90W strobed LED pattern projector blue



LTPRSMHP3W series

3W tilting LED pattern projectors

LTPRSMHP3W-R 3D LED pattern projector 3W, HP, red

LTPRSMHP3W-G 3D LED pattern projector, 3W, HP, green

LTPRSMHP3W-B 3D LED pattern projector, 3W, HP, blue

LTPRSMHP3W-W 3D LED pattern projector, 3W, HP, white



COE-G series

GenICam® PoE cameras

COE-032-M-POE-040-IR-C Area Scan camera IMX265, CMOS, Global shutter, 2048 x 1536, 3.1 MP, 3.45 pix, 1/1.8", Gray, 37.5 fps, GigE, POE, C - mount, Glass filter

COE-032-C-POE-040-IR-C Area Scan camera IMX265, CMOS, Global shutter, 2048 x 1536, 3.1 MP, 3.45 pix, 1/1.8", Color, 37.5 fps, GigE, POE, C - mount, Infrared cut filter

COE-063-M-POE-040-IR-C-B Area Scan camera IMX178, CMOS, Rolling shutter, 3072 x 2048, 6.3 MP, 2.4 pix, 1/1.8", Gray, 17 fps, GigE, POE, C - mount, Glass filter

COE-063-C-POE-040-IR-C Area Scan camera IMX178, CMOS, Rolling shutter, 3072 x 2048, 6.3 MP, 2.4 pix, 1/1.8", Color, 17 fps, GigE, POE, C - mount, Infrared cut filter

COE-122-M-POE-041-IR-C Area Scan camera IMX226, CMOS, Rolling shutter, 4024 x 3036, 12.2 MP, 1.85 pix, 1/1.7", Gray, 9.6 fps, GigE, POE, C - mount, Glass filter

COE-122-C-POE-041-IR-C Area Scan camera IMX226, CMOS, Rolling shutter, 4024 x 3036, 12.2 MP, 1.85 pix, 1/1.7", Color, 9.6 fps, GigE, POE, C - mount, Infrared cut filter

COE-023-M-POE-050-IR-C Area Scan camera PYTHON 2000, CMOS, Global shutter, 1920 x 1200, 2.3 MP, 4.8 pix, 2/3", Gray, 51 fps, GigE, POE, C - mount, Glass filter

COE-023-C-POE-050-IR-C Area Scan camera PYTHON 2000, CMOS, Global shutter, 1920 x 1200, 2.3 MP, 4.8 pix, 2/3", Color, 51 fps, GigE, POE, C - mount, Infrared cut filter

COE-050-M-POE-050-IR-C Area Scan camera IMX264, CMOS, Global shutter, 2448 x 2048, 5 MP, 3.45 pix, 2/3", Gray, 23.5 fps, GigE, POE, C - mount, Glass filter

COE-050-C-POE-050-IR-C Area Scan camera IMX264, CMOS, Global shutter, 2448 x 2048, 5 MP, 3.45 pix, 2/3", Color, 23.5 fps, GigE, POE, C - mount, Infrared cut filter



COE-U series

USB 3.0 GenICam® cameras

COE-063-M-USB-040-IR-C Area Scan camera IMX178, CMOS, Rolling shutter, 3072 x 2048, 6.3 MP, 2.4 pix, 1/1.8", Gray, 42 fps, USB 3.0, C - mount, Glass filter

COE-063-C-USB-040-IR-C Area Scan camera IMX178, CMOS, Rolling shutter, 3072 x 2048, 6.3 MP, 2.4 pix, 1/1.8", Color, 42 fps, USB 3.0, C - mount, Infrared cut filter

COE-050-M-USB-050-IR-C Area Scan camera IMX264, CMOS, Global shutter, 2448 x 2048, 5 MP, 3.45 pix, 2/3", Gray, 35 fps, USB 3.0, C - mount, Glass filter



mvBlueFOX3-2 series

USB3 vision camera with Sony Pregius CMOS sensors

RT-mvBF3-2032a	USB3 Vision camera with Sony Pregius CMOS sensor IMX265
RT-mvBF3-2032	USB3 Vision camera with Sony Pregius CMOS sensor IMX252
RT-mvBF3-2064	Usb3 vision camera with sony pregius cmos sensor imx178
RT-mvBF3-2051a	USB3 Vision camera with Sony Pregius CMOS sensor IMX264
RT-mvBF3-2051	USB3 Vision camera with Sony Pregius CMOS sensor IMX250



mvBlueCOUGAR series

GigE & Dual GigE Vision cameras

RT-mvBC-X104i	Camera with interface GigE (1GB/s), sensor size 1/1.8", mpixel 3.19, resolution 2064 x 1544, sensor name IMX265, sensor type CMOS
RT-mvBC-XD104h	Camera with interface Dual GigE (2GB/s), sensor size 1/1.8", mpixel 3.19, resolution 2064 x 1544, sensor name IMX252, sensor type CMOS
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-XD105a	Camera with interface Dual GigE (2GB/s), sensor size 2/3", mpixel 5.01, resolution 2448 x 2048, sensor name IMX250, sensor type CMOS



Accessories

Accessories and add-ons to make the most of Opto Engineering lenses.

RT-mvBC-X104iC	CMOS camera GIGE, 2064 x 1544 color, 1/1.8", 37 Hz, IR cut, C-mount, I/O
RT-mvBC-X105bC	CMOS camera GIGE, 2464 x 2056 Colour sensor, 2/3", 23.5 Hz, IR cut, C-mount, I/O