

# Line Scan Lens

## XENON-ZIRCONIA XL 4.0/104, beta' = -0.33x

This lens is optimized for the use with 16k pixel line scan sensors with 5 µm pixel size and hence a length of 82 mm. It is broadband coated and can be used in the spectral range of 400 – 1000 nm. The V-mount makes it easy to install and rotate into the desired azimuth position for a wide range of line scan applications.

- F#5.6 shows optimum performance and a homogenous MTF @ 72 lp/mm as well. Performance is close to diffraction limited over the whole field. Down to F#5.0 the lens is free of artificial vignetting.
- A resolution of close to 100 lp/mm is achievable for magnification -0.33 at F#5.6. Hence the lens can also be used with 16 K line sensor having 3.5 µm pixel size.
- F#4.0 allows maximum light throughput and still shows good MTF over the field. The light fall-off at F#4.0 towards the edge is very small as the lens shows only little artificial vignetting.



XENON-Zirconia XL

### Key Features

- for line scan cameras 16k (82 mm length / pixel sizes appr. 5µm) and 12k (62.5mm length / pixel size appr. 5.2 µm) and 16k (57.3mm length / pixel size appr. 3.5 µm)
- Very high optical image quality in the large sensor range
- Vibration-insensitive for stable optical performance
- Lockable distance and aperture settings
- Industry-compatible V-mount interface
- Reliability and constant quality due to 100% quality control

### Applications

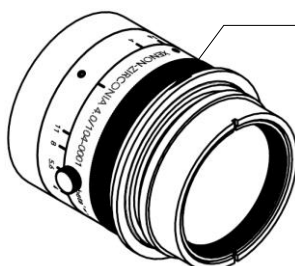
- Web and surface inspections
- Quality control
- FPD inspection
- PCB inspection
- OLED inspection
- Line scan applications

Technical Specifications	XENON-ZIRCONIA XL 4.0/104
F# range	optimum 5.6 (4.0 – 11)
Focal length	104 mm
Image circle	82 mm
Beta'	-0.33 (-0.28 ... -0.38)
Object to image distance	535 (499 ... 586) mm
Transmission	400 - 1000 nm
Interface	V48-Mount
Weight	ca. 250 gr.
Filter thread	M46 x 0.75
Code no.	1079651

### Accessories

		Code no.
Adapter V48-Mount/V70-Mount		# 1075304
incl. focusing ring		
Adapter V70/M72 x 0.75	10 mm	# 1072419
Extension tube M72x0.75	5 mm	# 1072420
Extension tube M72x0.75	10 mm	# 1072421
Extension tube M72x0.75	25 mm	# 26406
Extension tube M72x0.75	50 mm	# 1054733
Adapter M72x0.75/M95x1	4 mm	# 1077013
Extension tube M95x1	10 mm	# 1077290
Extension tube M95x1	25 mm	# 1062892
Extension tube M95x1	50 mm	# 1062893

standard equipment:  
Schneider V48-Mount



red dot marking for best azimuth  
90° to line direction

additional accessories:  
Schneider V70-Mount  
with focusing



# Xenon-Zirconia XL 4.0/104

XENON-ZIRCONIA XL 4.0/104

$f' = 103.8 \text{ mm}$      $\beta'_{p=} = 1.02$

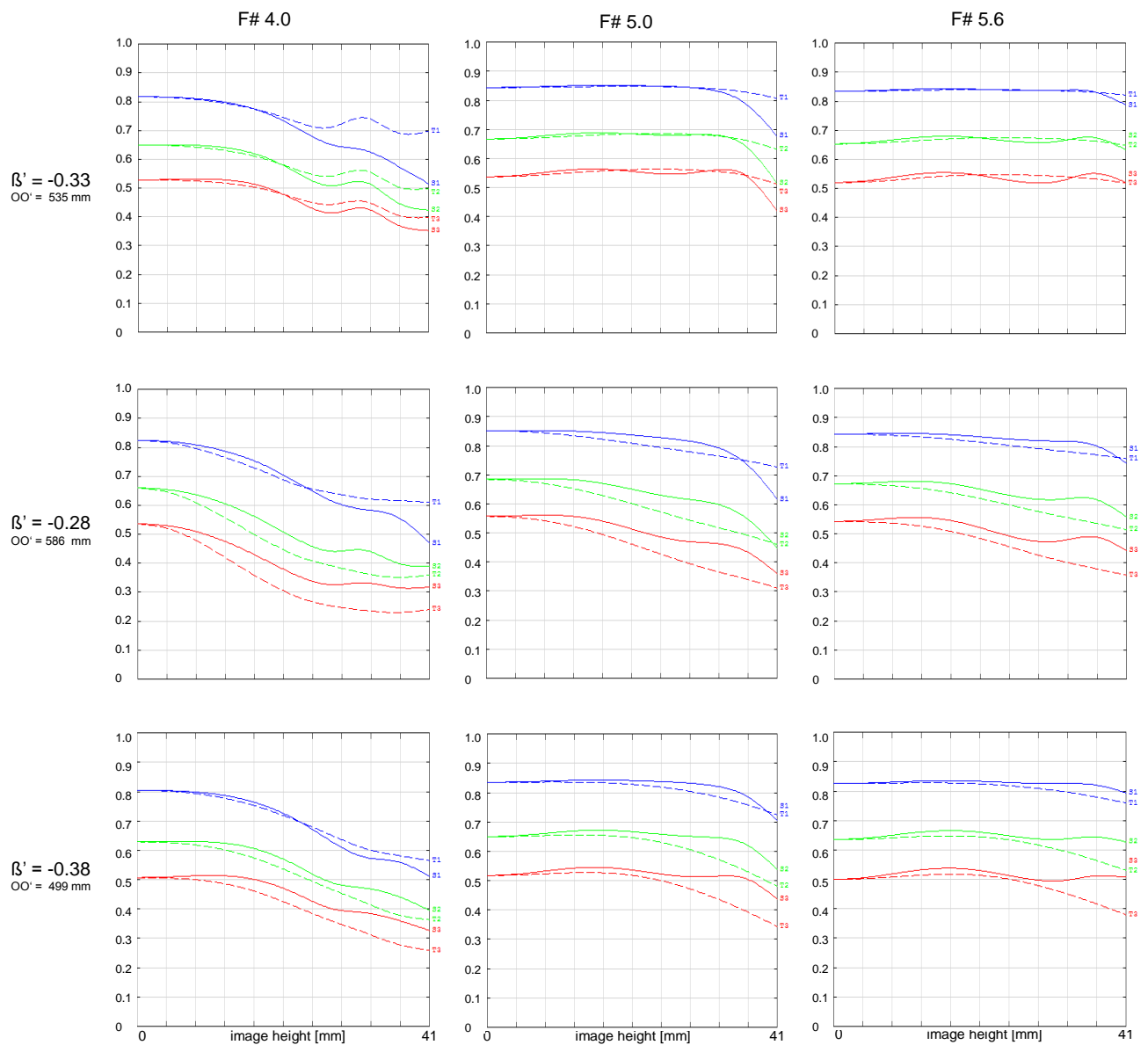
$s_F = -64.4 \text{ mm}$      $s_{EP=} = 37.7 \text{ mm}$

$s'_{F=} = 67.9 \text{ mm}$      $s'_{AP=} = -37.5 \text{ mm}$

$HH' = -18.6 \text{ mm}$      $\Sigma d = 56.7 \text{ mm}$

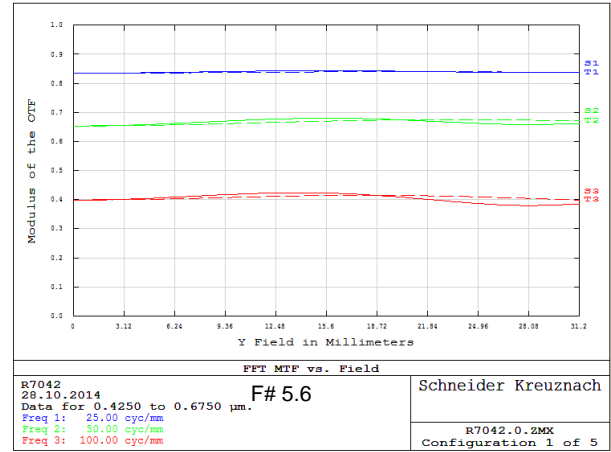
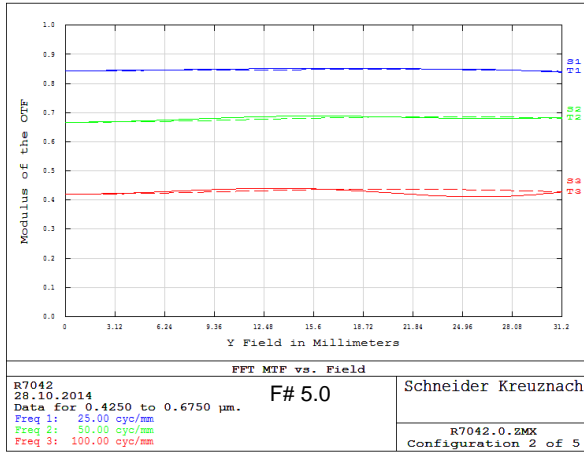
XENON-Zirconia XL 4.0/104  
MTF for sensor with 82 mm length for up to 72 lp/mm  
with reference to image height

Wavelength $\lambda$	[nm]:	425	475	525	575	625	675	
Spectral weighting	[%]:	1.5	13.6	26.5	27.8	24.2	6.4	radial
Spatial frequency R	[1/mm]:	25	50	72				tangential
Image- $\emptyset$	[mm]:	62.5						



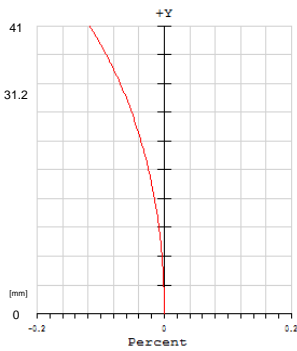
# Xenon-Zirconia XL 4.0/104

Optical quality for 16 K sensor  
with 62.5 mm length for up to 100 lp/mm



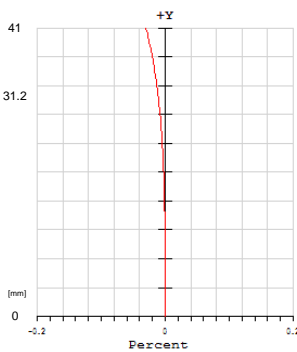
## Distortion

$\beta' = -0.33$   
OO' = 535 mm

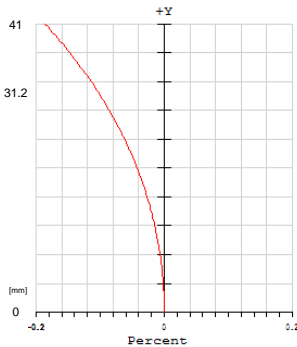


Distortion is shown for different magnifications. Positive values indicate pincushion distortion and negative values barrel distortion.

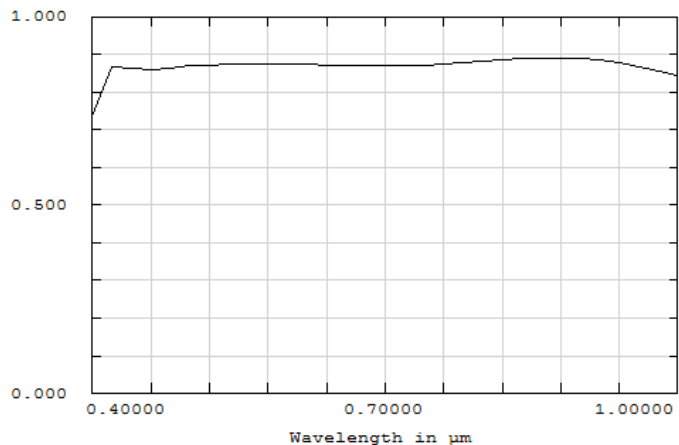
$\beta' = -0.28$   
OO' = 586 mm



$\beta' = -0.38$   
OO' = 499 mm

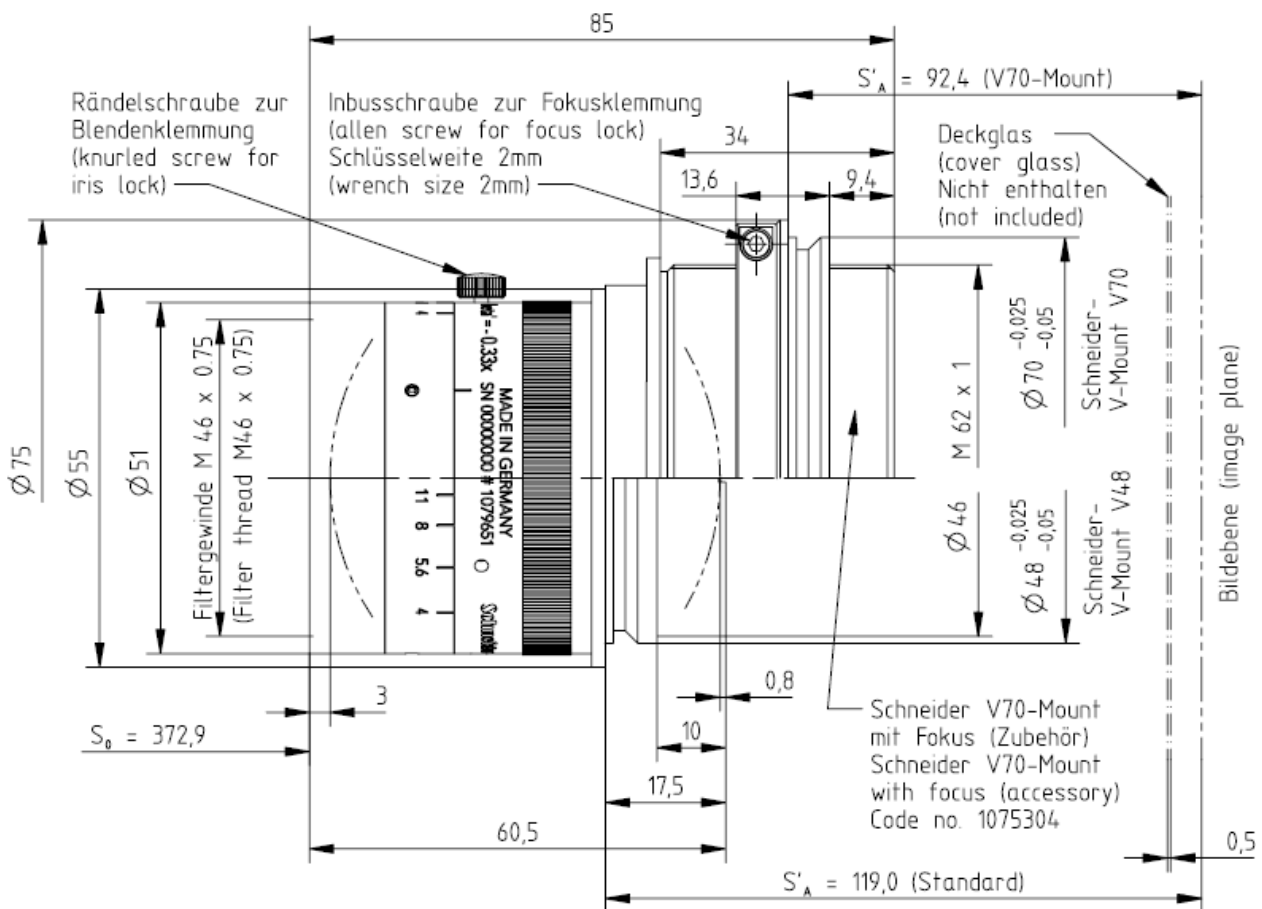
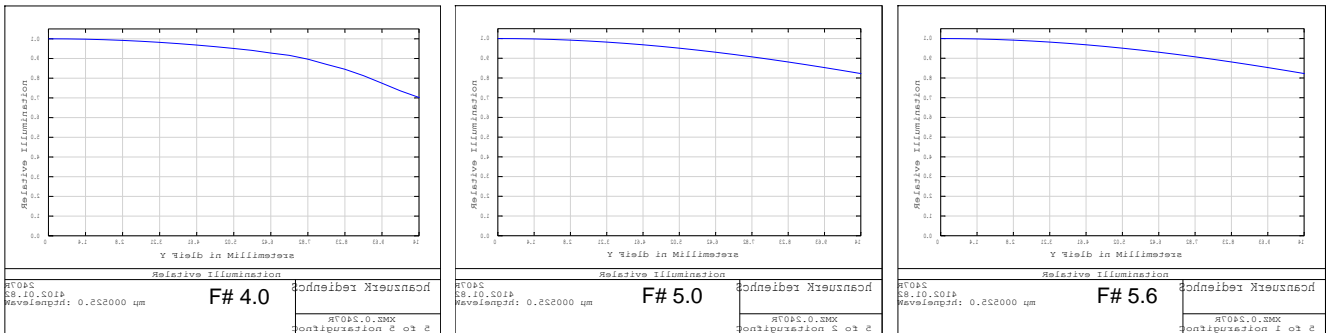


## Transmission



# Xenon-Zirconia XL 4.0/104

Relative Illumination for Image Field Height up to 41 mm



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