

# LENS OB-SWIR35/2 – P/N C0839

## General Description

This family of high resolution SWIR lenses image from 0.9 – 2.3  $\mu\text{m}$  making them especially well-suited for PCB inspection, special laser applications, surveillance and alignment and tracking. A high F/N and excellent transmission characteristics allow superior imaging in these wavelengths of interest.



### Optical and mechanical parameters

Focal length	35 mm
Image format (diagonal)	20.5 mm
F.O.V. (diagonal)	32.6 degrees
Max aperture	F/N = 2
Object format	N.A.
Min working distance	2000 mm
Zoom value	N.A.
Focus	Manual
Iris	Max F/N = 2 Min F/N = N.A.

N. of elements	9
Dimensions	Dia 107 x 123 mm
Weight	N.A.
Options	
Motorized focus	Upon request
Motorized iris	Upon request
Motorized zoom	N.A.
Other mount type	Upon request
Customization	Upon request

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P/N	wavelength range	mount type	note
C0839.001	900-1700 nm	Canon FD	With iris diaphragm
C0839.002		Nikon	
C0839.003		M42 Screw	
C0839.005	1700-2300 nm	Canon FD	
C0839.006		Nikon	
C0839.007		M42 Screw	
C0839.010	900-2300 nm	Canon FD	
C0839.011		Nikon	
C0839.012		M42 Screw	

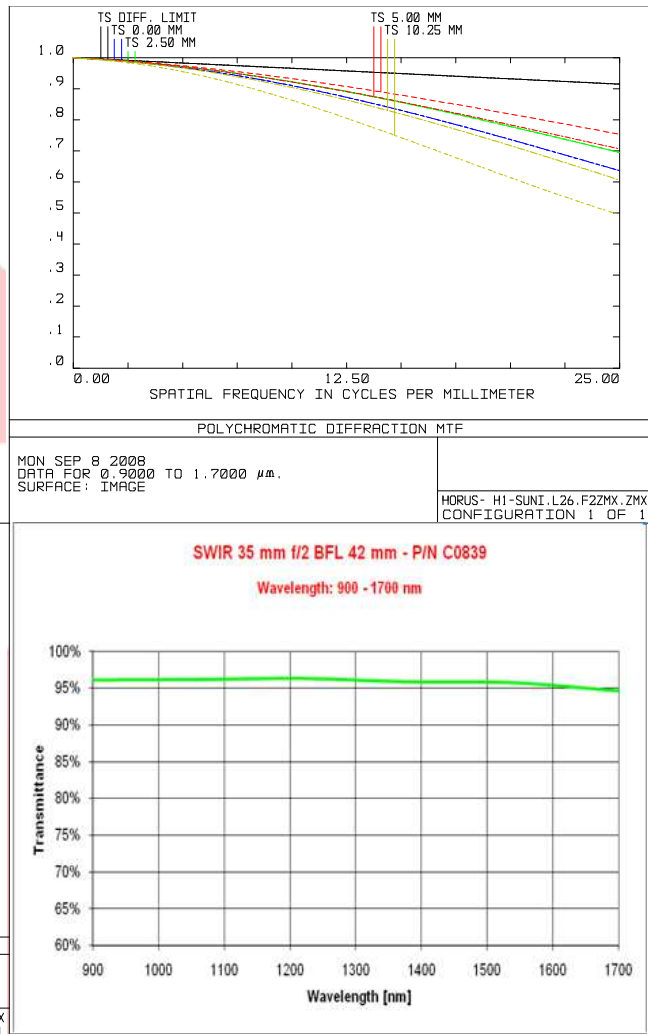
Specification are subject to change without notice

<b>P/N</b>	<b>wavelength range</b>	<b>mount type</b>	<b>note</b>	
C0839.071	900-1700 nm	Canon FD	With motorized iris	
C0839.072		Nikon		
C0839.073		M42 Screw		
C0839.081	1700-2300 nm	Canon FD		
C0839.082		Nikon		
C0839.083		M42 Screw		
C0839.091	900-2300 nm	Canon FD		With motorized focus
C0839.092		Nikon		
C0839.093		M42 Screw		
C0839.074	900-1700 nm	Canon FD	With motorized iris and focus	
C0839.075		Nikon		
C0839.076		M42 Screw		
C0839.084	1700-2300 nm	Canon FD		
C0839.085		Nikon		
C0839.086		M42 Screw		
C0839.094	900-2300 nm	Canon FD		
C0839.095		Nikon		
C0839.096		M42 Screw		
C0839.077	900-1700 nm	Canon FD	With motorized iris and focus	
C0839.078		Nikon		
C0839.079		M42 Screw		
C0839.087	1700-2300 nm	Canon FD		
C0839.088		Nikon		
C0839.089		M42 Screw		
C0839.097	900-2300 nm	Canon FD		
C0839.098		Nikon		
C0839.099		M42 Screw		

More details are available upon request and technical drawings are open for the customers and their needs.

### MTF, Field Curvature, Distortion and Transmission from 900 to 1700 nm

The calculated MTF values are displayed below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting from the center (0%) to the corner (100%).



### Optical parameters for wavelength range 0.9 – 1.7 μm

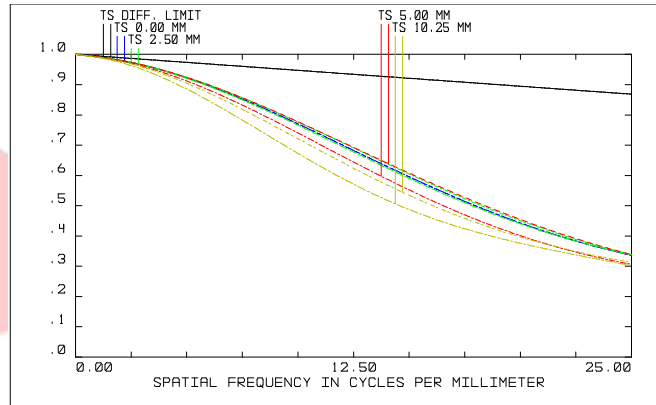
Resolution	MTF >50%@25lp/mm
Distortion	< 2.5%
Average axial chromatic aberration	<0.0285 mm

Glass Transmission without coating	> 95%
Antireflection Coating	R ≤ 1%
Vignetting	0%

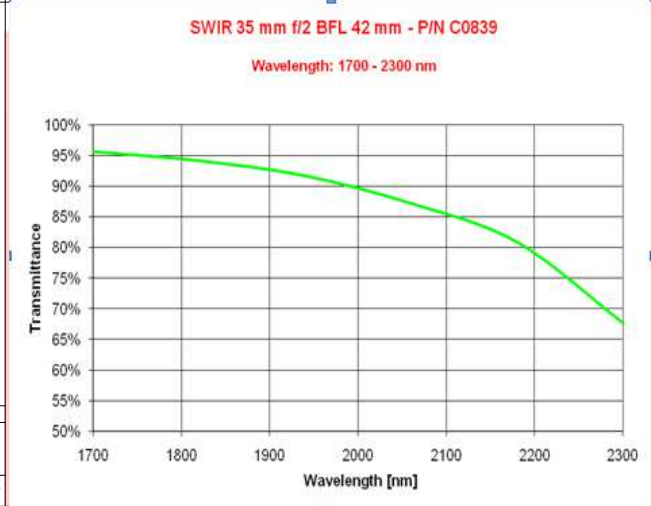
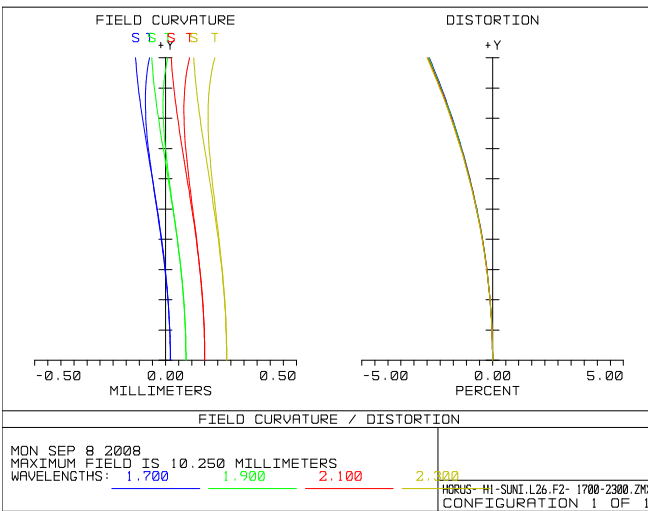
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### MTF, Field Curvature, Distortion and Transmission from 1700 to 2300 nm

The calculated MTF values are displayed Below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting from the center (0%) to the corner (100%).



POLYCHROMATIC DIFFRACTION MTF  
 MON SEP 8 2008  
 DATA FOR 1.7000 TO 2.3000 μm.  
 SURFACE: IMAGE  
 HORUS- HI-SUNI.L26.F2- 1700-2300.ZMX  
 CONFIGURATION 1 OF 1



### Optical parameters for wavelength range 1.7 – 2.3 μm

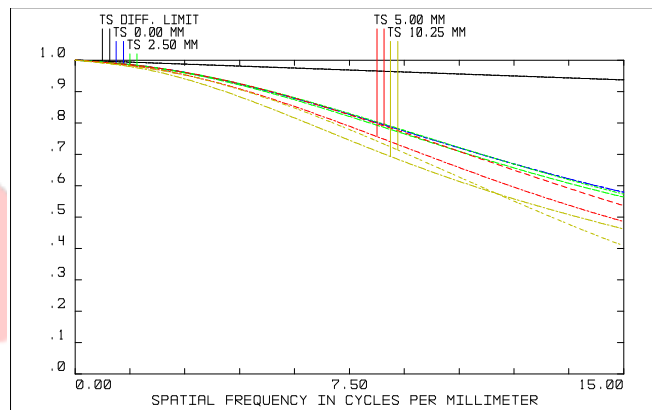
Resolution	MTF > 30% @ 25lp/mm
Distortion	< 3.5%

Glass Transmission without coating	> 68%
Antireflection Coating	R < 1%

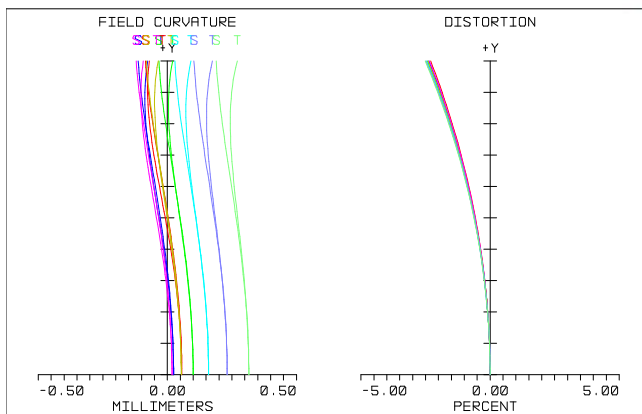
Specification are subject to change without notice

### MTF, Field Curvature, Distortion and Transmission from 900 to 2300 nm

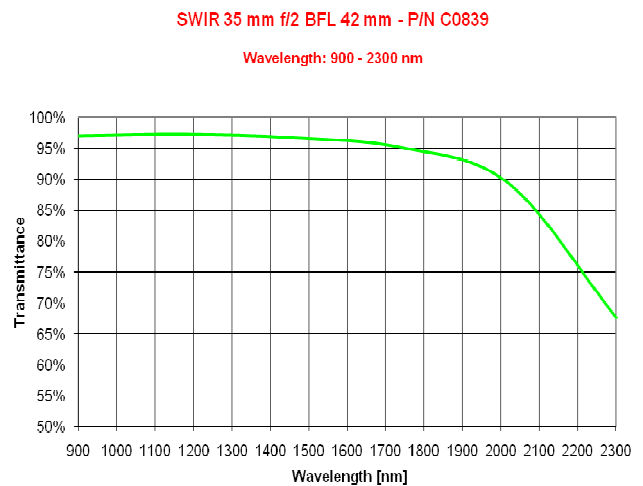
The calculated MTF values are displayed Below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting from the center (0%) to the corner (100%).



POLYCHROMATIC DIFFRACTION MTF  
 MON AUG 31 2009  
 DATA FOR 0.9000 TO 2.3000 μm.  
 SURFACE: IMAGE  
 HORUS- HI-SUNI.L26.F2.900-2300.ZMX  
 CONFIGURATION 1 OF 1



FIELD CURVATURE / DISTORTION  
 MON AUG 31 2009  
 MAXIMUM FIELD IS 10.250 MILLIMETERS  
 WAVELENGTHS: 1.300 1.700 2.100 2.500 2.900 3.300 3.700 4.100 4.500 4.900 5.300 5.700 6.100 6.500 6.900 7.300 7.700 8.100 8.500 8.900 9.300 9.700 10.100 10.500 10.900 11.300 11.700 12.100 12.500 12.900 13.300 13.700 14.100 14.500 14.900 15.300 15.700 16.100 16.500 16.900 17.300 17.700 18.100 18.500 18.900 19.300 19.700 20.100 20.500 20.900 21.300 21.700 22.100 22.500 22.900 23.300  
 HORUS- HI-SUNI.L26.F2.900-2300.ZMX  
 CONFIGURATION 1 OF 1



#### Optical parameters for wavelength range 0.9 – 2.3 μm

Resolution	MTF > 40% @ 15lp/mm
Distortion	< 2.5%

Glass Transmission without coating	> 67%
Antireflection Coating	R ≤ 1%

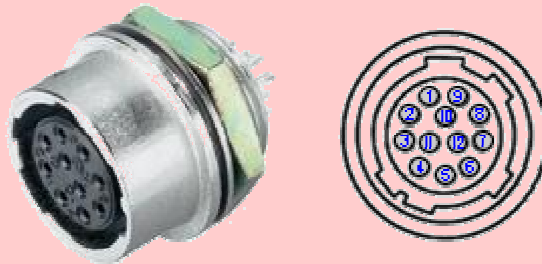
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## Electrical data & Interfaces

<b>IRIS FUNCTION</b>	
Motor model	Faulhaber 1516T009SR
Motor nominal voltage	9 VDC
Motor maximum power	0.54 W
Current limit	0.19 A
Feedback	10 kOhm multi-turn potentiometer
Potentiometer model	Spectrol 533-10K ±5%
Gearhead reduction ratio	592:1

<b>FOCUS FUNCTION</b>	
Motor model	Faulhaber 1516T009SR
Motor nominal voltage	9 VDC
Motor maximum power	0.54 W
Current limit	0.19 A
Feedback	10 kOhm multi-turn potentiometer
Potentiometer model	Spectrol 533-10K ±5%
Gearhead reduction ratio	592:1

### Hirose HR10A-10P-12P connector Pin list



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PIN	MOTORIZED IRIS	MOTORIZED FOCUS	MOTORIZED IRIS & FOCUS
1	Vcc	Vcc	Vcc
2	Gnd	Gnd	Gnd
3	NA	Analog Focus position	Analog Focus position
4	Analog Iris position	NA	Analog Iris position
5	Identification resistor #1	Identification resistor #1	Identification resistor #1
6	Identification resistor #2	Identification resistor #2	Identification resistor #2
7	NA	Focus Motor +	Focus Motor +
8	NA	Focus Motor –	Focus Motor –
9	Iris Motor +	NA	Iris Motor +
10	Iris Motor –	NA	Iris Motor –

**Every shipped motorized lens will be provided with potentiometers values of end positions for both focus and iris motor**

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