

# LENS OB-SWIR100/2 – P/N C0842

## 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	100 mm
Image format (diagonal)	20.5 mm
F.O.V. (diagonal)	11.7 degrees
Max aperture	F/N = 2
Object format	N.A.
Min working distance	6 m
Zoom value	N.A.
Focus	Manual
Iris	Max F/N = 2 Min F/N = 11

N. of elements	6
Dimensions	Dia 107 x 150 mm
Weight	1.4 Kg
Options	
Motorized focus	Upon request
Motorized iris	Upon request
Motorized zoom	N.A.
Other mount type	Upon request
Customization	Upon request

P/N	wavelength range	mount type	note
C0842.001	900-1700 nm	Canon FD	With iris diaphragm
C0842.002		Nikon	
C0842.003		M42 Screw	
C0842.005	1700-2300 nm	Canon FD	
C0842.006		Nikon	
C0842.007		M42 Screw	
C0842.010	900-2300 nm	Canon FD	
C0842.011		Nikon	
C0842.012		M42 Screw	

Specification are subject to change without notice

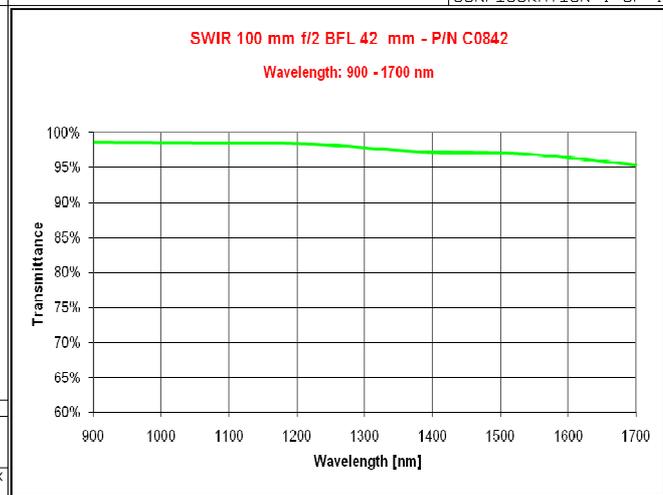
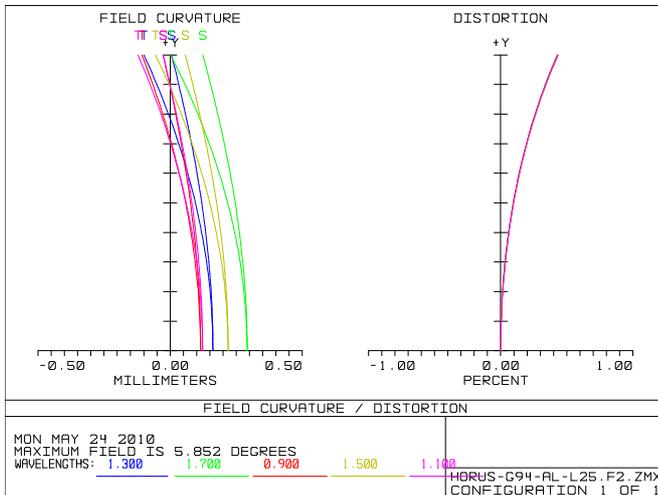
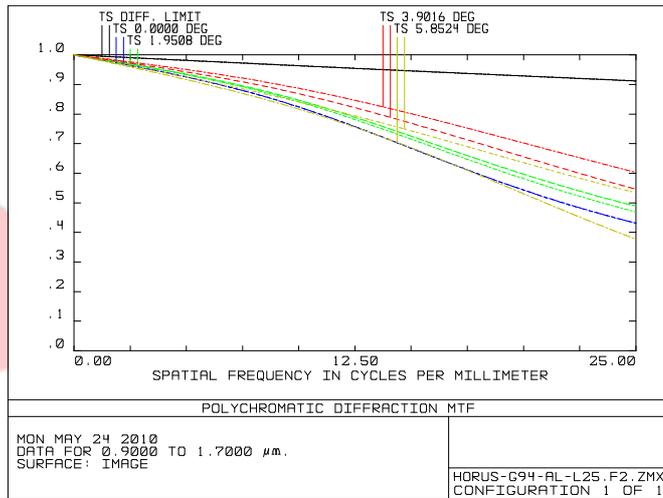
<b>P/N</b>	<b>wavelength range</b>	<b>mount type</b>	<b>note</b>
C0842.071	900-1700 nm	Canon FD	With motorized iris
C0842.072		Nikon	
C0842.073		M42 Screw	
C0842.081	1700-2300 nm	Canon FD	
C0842.082		Nikon	
C0842.083		M42 Screw	
C0842.091	900-2300 nm	Canon FD	
C0842.092		Nikon	
C0842.093		M42 Screw	
C0842.074	900-1700 nm	Canon FD	With motorized focus
C0842.075		Nikon	
C0842.076		M42 Screw	
C0842.084	1700-2300 nm	Canon FD	
C0842.085		Nikon	
C0842.086		M42 Screw	
C0842.094	900-2300 nm	Canon FD	
C0842.095		Nikon	
C0842.096		M42 Screw	
C0842.077	900-1700 nm	Canon FD	With motorized iris and focus
C0842.078		Nikon	
C0842.079		M42 Screw	
C0842.087	1700-2300 nm	Canon FD	
C0842.088		Nikon	
C0842.089		M42 Screw	
C0842.097	900-2300 nm	Canon FD	
C0842.098		Nikon	
C0842.099		M42 Screw	

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

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### 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

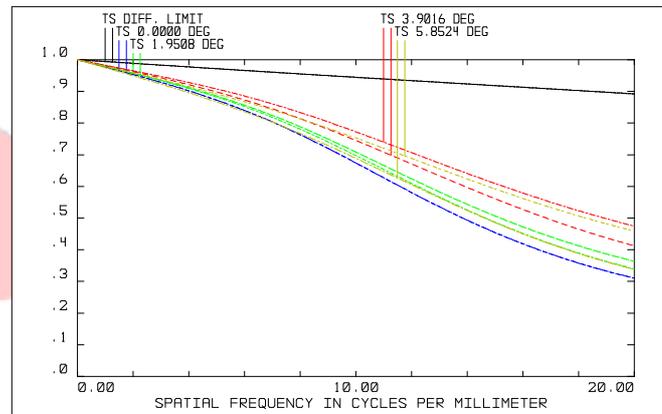
Resolution	MTF > 40%@25lp/mm
Distortion	< 0.5%
Average axial chromatic aberration	<0.0243 mm

Lens Transmission without coating	> 95%
Antireflection Coating	R ≤ 1%
Vignetting	<3%

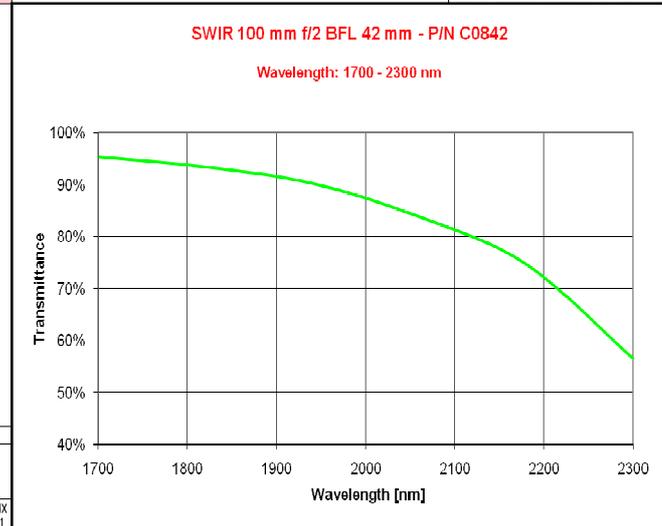
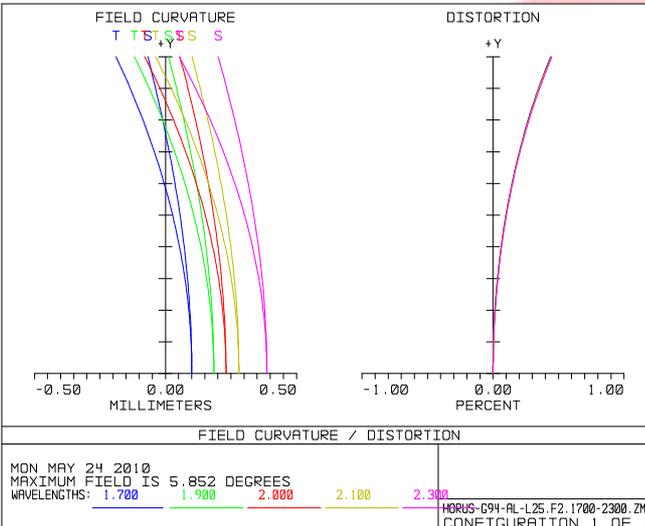
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### MTF, Field Curvature, Distortion and Transmission from 1700 to 2300 nm

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 MAY 24 2010  
 DATA FOR 1.7000 TO 2.3000 μm.  
 SURFACE: IMAGE  
 HORUS-G94-AL-L25.F2.1700-2300.ZMX  
 CONFIGURATION 1 OF 1



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

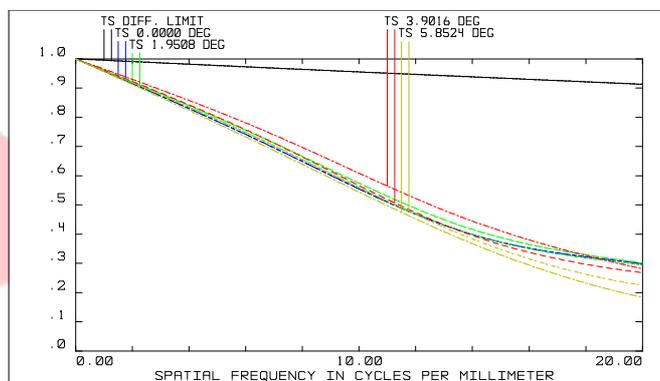
Resolution	MTF > 30% @ 20lp/mm
Distortion	< 0.5%

Lens Transmission without coating	> 56%
Antireflection Coating	R ≤ 1%

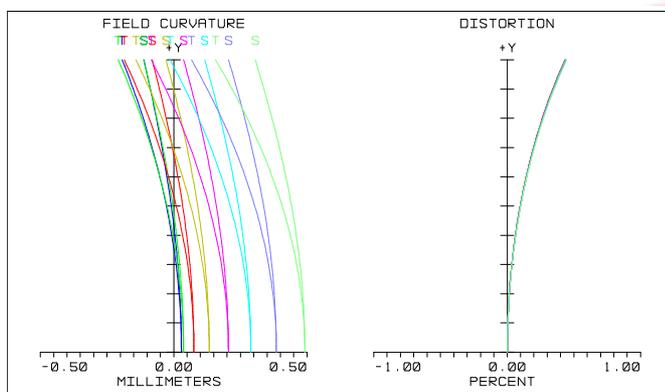
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### MTF, Field Curvature, Distortion and Transmission from 900 to 2300 nm

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 MAY 24 2010  
 DATA FOR 0.9000 TO 2.3000 μm.  
 SURFACE: IMAGE  
 HORUS-G94-AL-L25.F2.900-2300.ZMX  
 CONFIGURATION 1 OF 1



FIELD CURVATURE / DISTORTION  
 MON MAY 24 2010  
 MAXIMUM FIELD IS 5.852 DEGREES  
 WAVELENGTHS: 0.900 1.100 1.300 1.500 1.700 1.900 2.100 2.300  
 HORUS-G94-AL-L25.F2.900-2300.ZMX  
 CONFIGURATION 1 OF 1



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

Resolution	MTF > 15%@20lp/mm
Distortion	< 0.5%

Lens Transmission without coating	> 56%
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

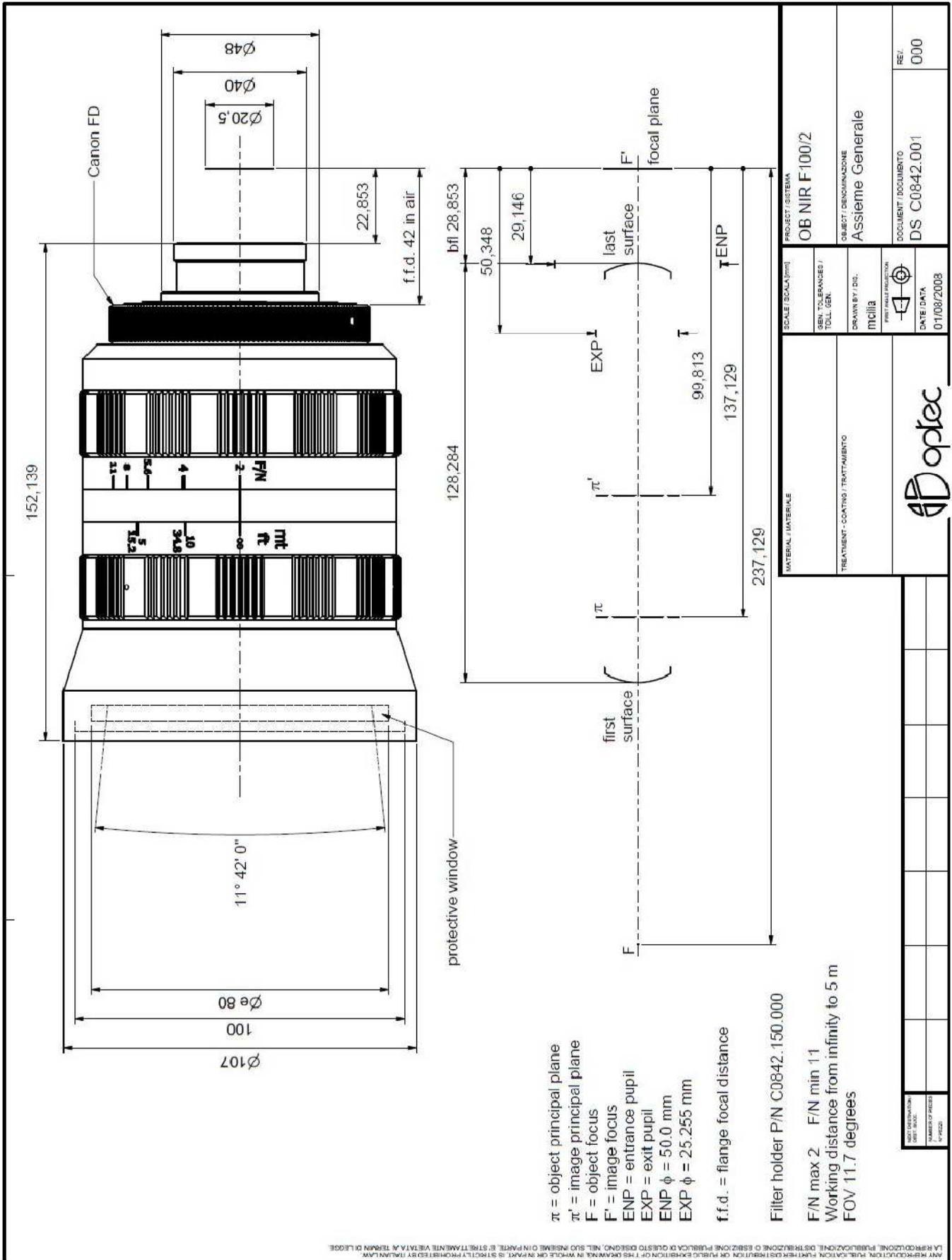
**Hirose HR10A-10P-12P connector Pin list**

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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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