LENS OB-SWIR50/1.4 – P/N C0810

General Description

This family of high resolution SWIR lenses image from 0.9 – 2.3 μm 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	50 mm
Image format (diagonal)	20.5 mm
F.O.V. (diagonal)	23 degrees
Max aperture	F/N = 1.4
Object format	N.A.
Min working distance	10 m
Zoom value	N.A.
Focus	Manual
Iris	Max F/N = 1.4 Min F/N = 11

N. of elements	8
Dimensions	Dia 107 x 122 mm
Weight	1.67 Kg
Options	
Motorized focus	Upon request
Motorized iris	Upon request
Motorized zoom	N.A.
Other mount type	Upon request
Customization	Upon request

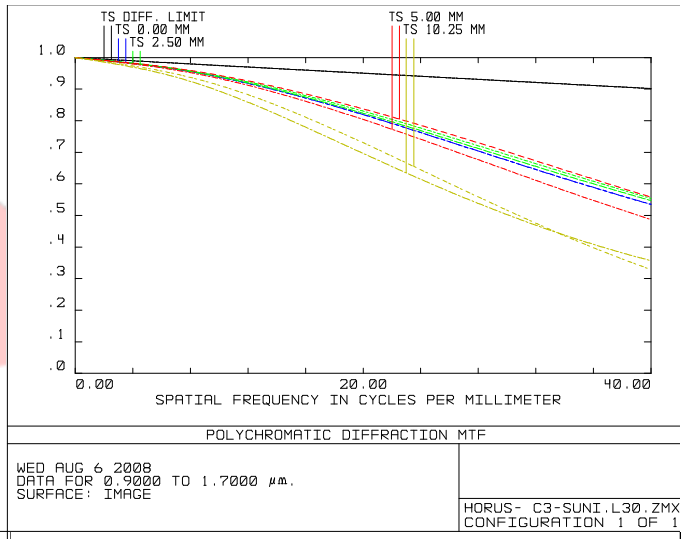
P/N	*wavelength range*	*mount type*	*note*
C0810.001	900-1700 nm	Canon FD	With iris diaphragm
C0810.002		Nikon	
C0810.003		M42 Screw	
C0810.005	1700-2300 nm	Canon FD	
C0810.006		Nikon	
C0810.007		M42 Screw	
C0810.010	900-2300 nm	Canon FD	
C0810.011		Nikon	
C0810.012		M42 Screw	

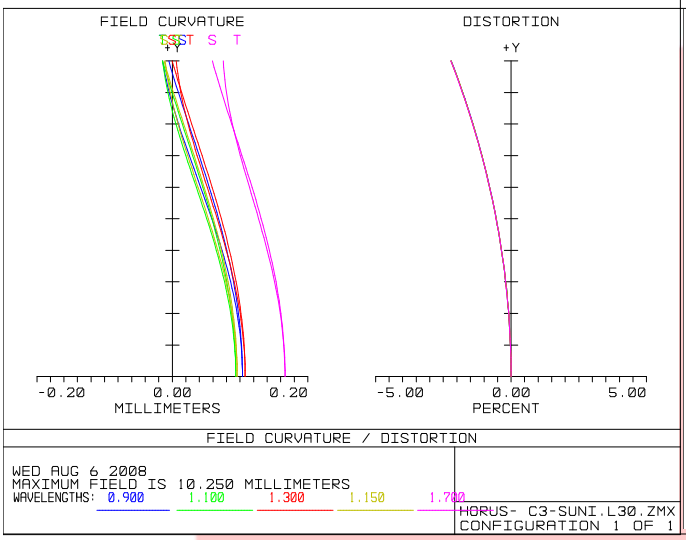
P/N	wavelength range	mount type	note
C0810.071	900-1700 nm	Canon FD	With motorized iris
C0810.072		Nikon	
C0810.073		M42 Screw	
C0810.081	1700-2300 nm	Canon FD	
C0810.082		Nikon	
C0810.083		M42 Screw	
C0810.091	900-2300 nm	Canon FD	
C0810.092		Nikon	
C0810.093		M42 Screw	
C0810.074	900-1700 nm	Canon FD	With motorized focus
C0810.075		Nikon	
C0810.076		M42 Screw	
C0810.084	1700-2300 nm	Canon FD	
C0810.085		Nikon	
C0810.086		M42 Screw	
C0810.094	900-2300 nm	Canon FD	
C0810.095		Nikon	
C0810.096		M42 Screw	
C0810.077	900-1700 nm	Canon FD	With motorized iris and focus
C0810.078		Nikon	
C0810.079		M42 Screw	
C0810.087	1700-2300 nm	Canon FD	
C0810.088		Nikon	
C0810.089		M42 Screw	
C0810.097	900-2300 nm	Canon FD	
C0810.098		Nikon	
C0810.099		M42 Screw	

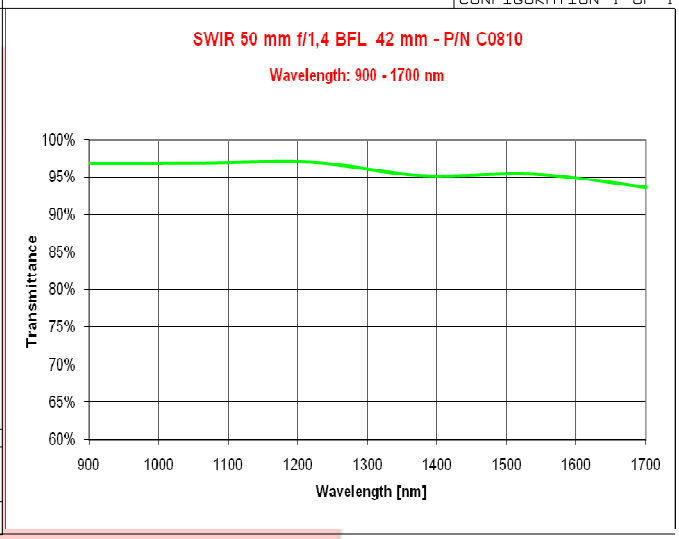
More details are available upon request and technical drawings are open for the customers and their needs.

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%).







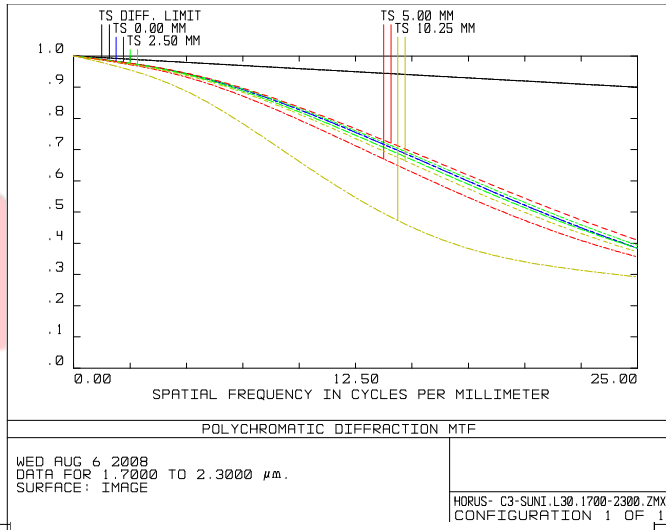
Optical parameters for wavelength range 0.9 – 1.7 µm

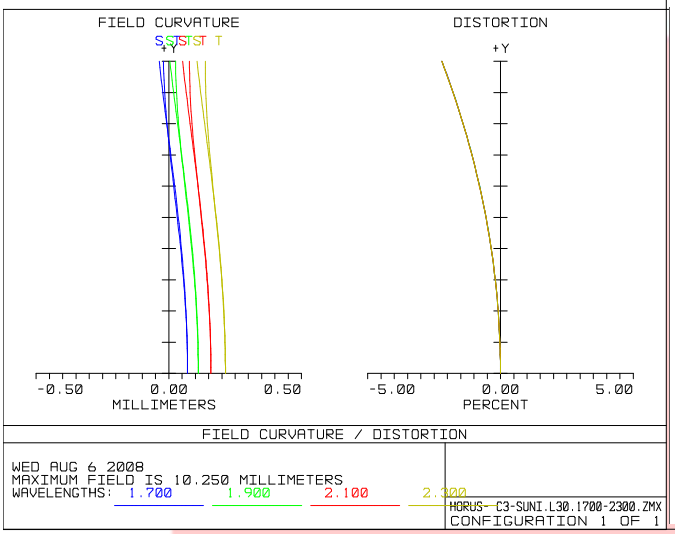
Resolution	MTF > 35%@40lp/mm
Distortion	< 2.5%
Average axial chromatic aberration	<0.0163 mm

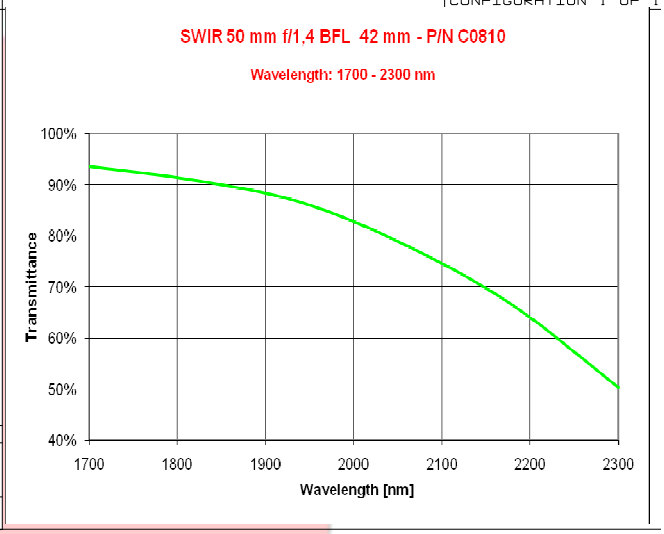
Lens Transmission without coating	> 93%
Antireflection Coating	R ≤ 1%
Vignetting	<2%

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%).







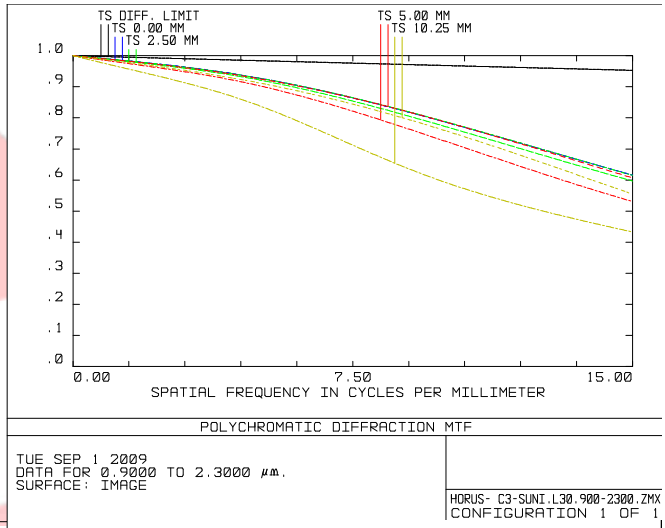
Optical parameters for wavelength range 1.7 – 2.3 µm

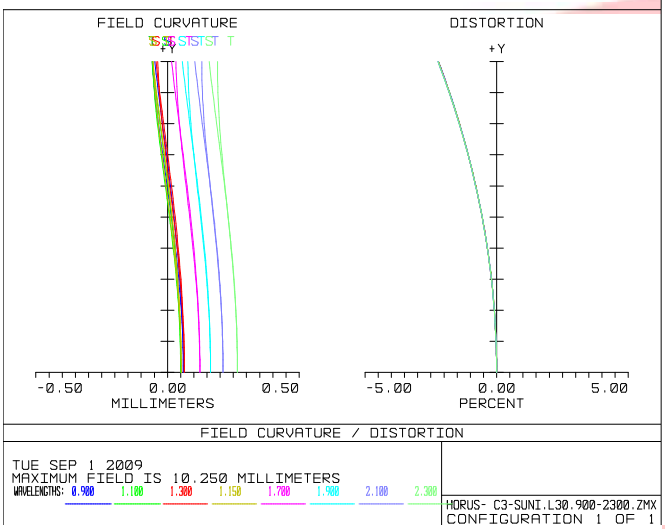
Resolution	MTF > 30%@25lp/mm
Distortion	< 2.5%

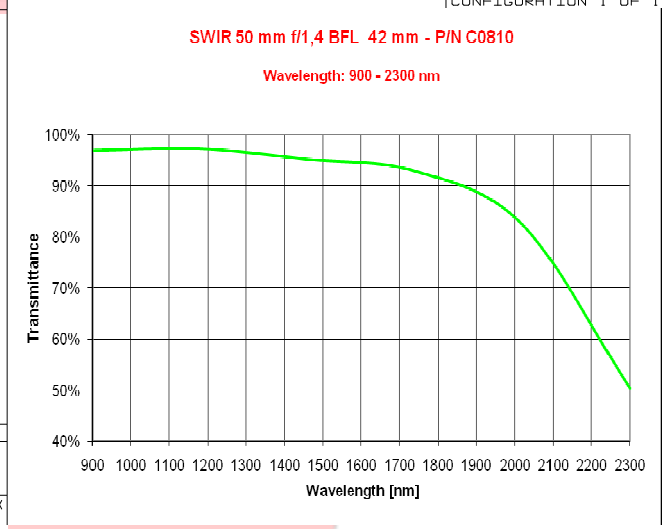
Lens Transmission without coating	> 50%
Antireflection Coating	R ≤ 1%

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%).







Optical parameters for wavelength range 0.9 – 2.3 μm

Resolution	MTF > 45%@15lp/mm
Distortion	< 2.5%

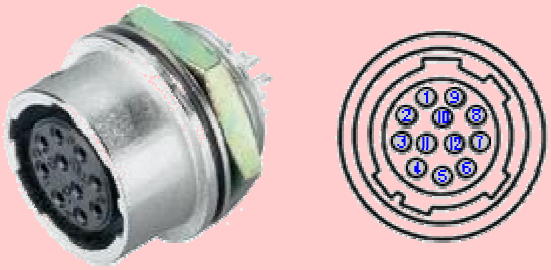
Lens Transmission without coating	> 50%
Antireflection Coating	R ≤ 1%

Electrical data & Interfaces	

IRIS FUNCTION	
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

FOCUS FUNCTION	
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



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