

# LENS ZOOM-SWIR 7x – P/N C0628

## 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	75-500 mm
Image format (diagonal)	20.5 mm
F.O.V. (diagonal)	15.6-2.35 degrees
Max aperture	F/N = 6
Object format	N.A.
Min working distance	15000 mm
Zoom value	6.7
Focus	compensated
Iris	Max F/N = 6 Min F/N = 16

N. of elements	12
Dimensions	Dia 180x 530 mm
Weight	9 Kg
Options	
Tele Lens Position	-
Motorized focus	Upon request
Motorized iris	Yes
Motorized zoom	Yes
Other mount type	Upon request
Customization	Upon request

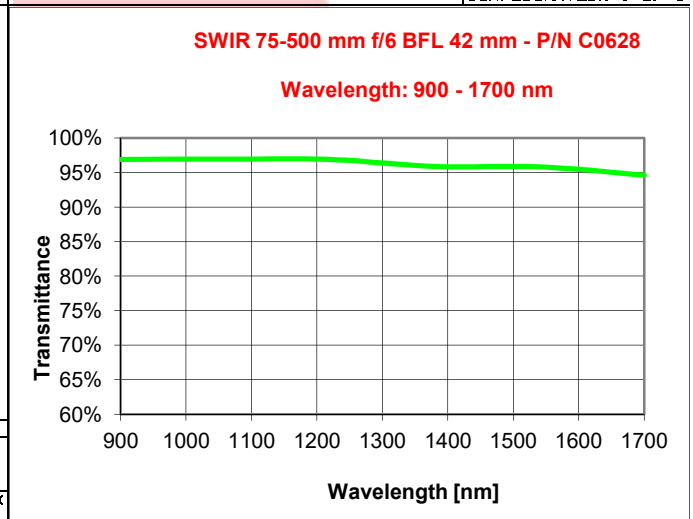
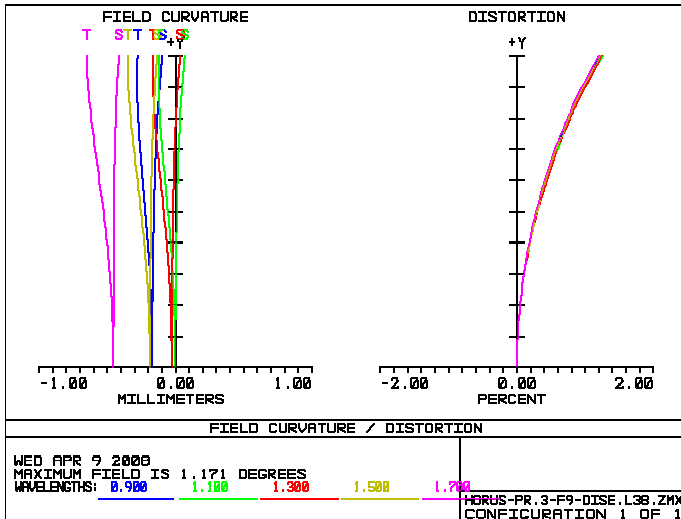
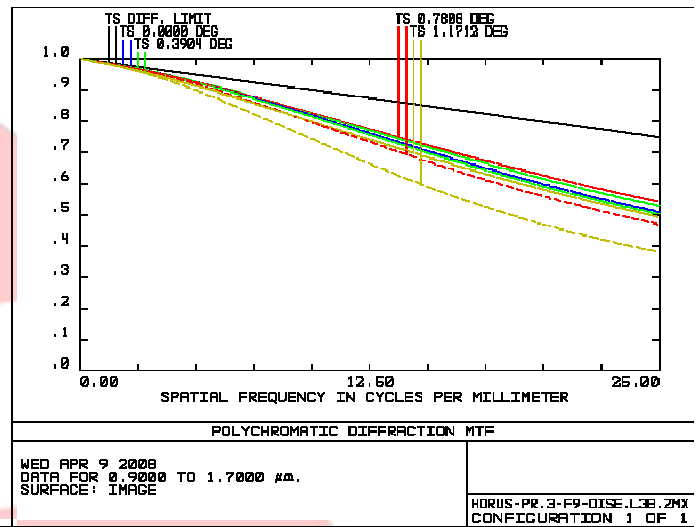
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P/N	wavelength range	mount type	note
C0628.015	900-1700 nm	Canon	Macro motorized working distance from 15 m to infinity
C0628.016		Nikon	
C0628.017		M42 Screw	
C0628.025	1700-2300 nm	Canon	
C0628.026		Nikon	
C0628.027		M42 Screw	
C0628.035	900-2300 nm	Canon	
C0628.036		Nikon	
C0628.037		M42 Screw	

Specification are subject to change without notice

### 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

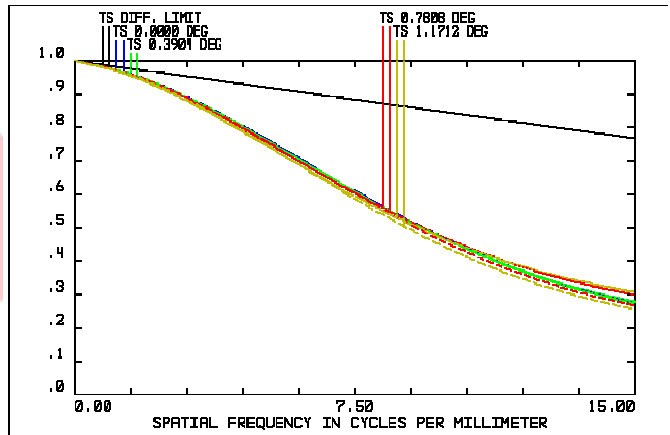
Resolution	MTF > 40% @ 25lp/mm
Distortion	< 2%
Average axial chromatic aberration	< 0.139 mm

Glass Transmission without coating	> 95%
Antireflection Coating	R ≤ 1%
Vignetting	< 14%

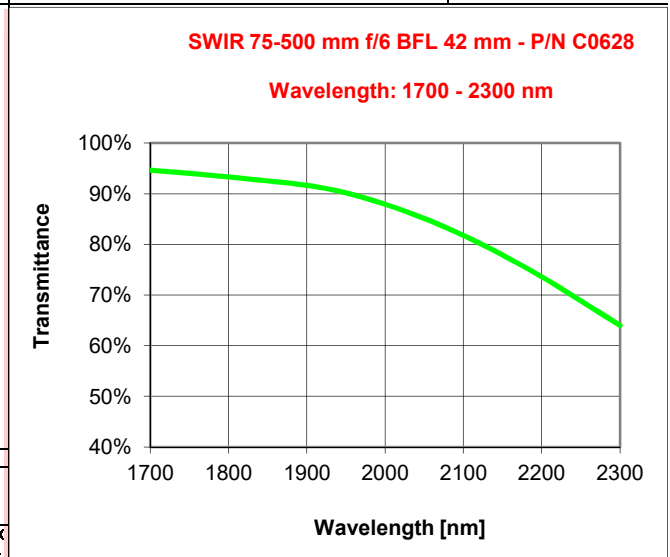
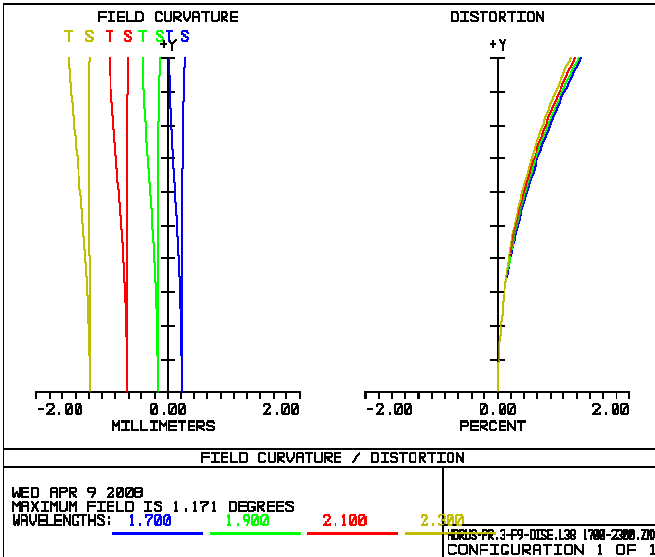
Specification are subject to change without notice

### 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  
 WED APR 9 2008  
 DATA FOR 1.7000 TO 2.3000 μm.  
 SURFACE: IMAGE  
 HRUS-PR.3-F9-DISE.L38 1700-2300.ZMX  
 CONFIGURATION 1 OF 1



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

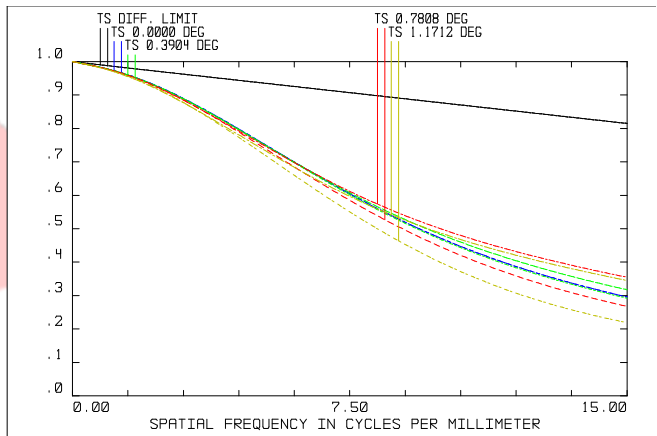
Resolution	MTF > 25%@15lp/mm
Distortion	< 2%

Glass Transmission without coating	> 65%
Antireflection Coating	R ≤ 1%

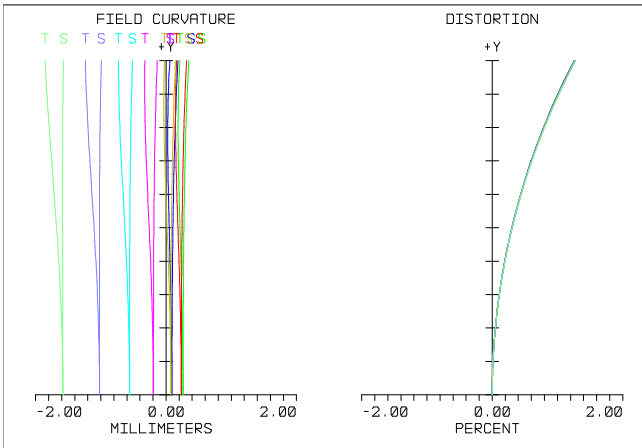
Specification are subject to change without notice

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

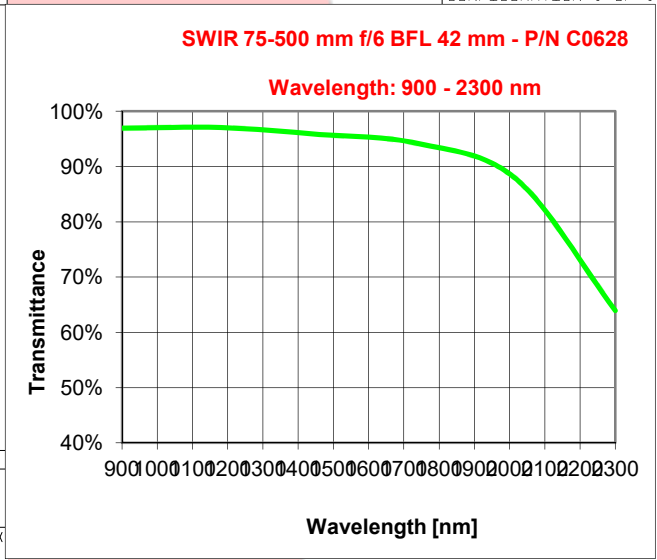
The calculated MTF values are displayed Below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting from the center (0%) to the corner (100%).



POLYCHROMATIC DIFFRACTION MTF  
 FRI SEP 4 2009  
 DATA FOR 0.9000 TO 2.3000 μm.  
 SURFACE: IMAGE  
 HORUS-PR.3-F9-DISE.L38.900-2300.ZMX  
 CONFIGURATION 1 OF 1



FIELD CURVATURE / DISTORTION  
 FRI SEP 4 2009  
 MAXIMUM FIELD IS 1.171 DEGREES  
 WAVELENGTHS: 0.900 1.100 1.300 1.500 1.700 1.900 2.100 2.300  
 HORUS-PR.3-F9-DISE.L38.900-2300.ZMX  
 CONFIGURATION 1 OF 1



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

Resolution	MTF > 20% @ 15lp/mm
Distortion	< 2%

Glass Transmission without coating	> 65%
Antireflection Coating	R ≤ 1%

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

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## **Electrical data & interfaces**

### **ZOOM FUNCTION**

Motors Nominal Voltages	12 VDC
Motors Maximum Power	0.8 watts (over two different motors)
Encoder Maximum Voltages	4.5 – 5-5 VDC
Encoder Maximum Power	0.1 watts (over two different encoders)
Lines per revolution	2560

### **IRIS FUNCTION**

Motor Nominal Voltages	12 VDC
Motor Maximum Power	0.4 watts
Encoder Maximum Voltages	4.5 – 5-5 VDC
Encoder Maximum Power	0.05 watts
Lines per revolution	2560

### **CONTROLLER**

Controllers Nominal Voltages	12-28 VDC
Controllers Maximum Continuous current	5 Amp
Controllers Maximum Peak current	10 Amp
PWM switching frequency	62.5 kHz
Serial Port Interface	RS232 – 9600 (1200, 2400, 4800, 19200)
Program Memory	Serial EEPROM – 7936

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### **FOCUS FUNCTION**

Automatic focus compensation over full zoom range

Focus adjustment can be manually performed to change the working distance: minimum working distance is 15 m

### **LENS INTERFACE**

Standard	The standard version is provided with Canon F-Mount
Options	Other interfaces can be provided like Nikon F-Mount
Customized interfaces can be also considered upon request	

### **MOUNTING**

Lens is able to support the camera

Special interface for tripod installation is also provided

Specification are subject to change without notice

**DB25M connector Pin list**

PIN	DESCRIPTION
1	Zoom 1 – Motor-
2	Zoom 1 - +5V
3	Zoom 1 – Channel B
4	Zoom 2 – Motor+
5	Zoom 2 - +5V
6	Zoom 2 – Channel A
7	Iris – Motor+
8	Iris - +5V
9	Iris – Channel A
10	Focus – Motor-
11	Focus - +5V
12	Focus – Channel B
13	Zoom 1 / Zoom 2 / Iris / Focus - GND
14	Zoom 1 – Motor+
15	Zoom 1 – Channel A
16	Zoom 2 – Motor-
17	Zoom 2 – Channel B
18	Iris – Motor-
19	Iris – Channel B
20	Focus – Motor+
21	Focus – ChannelA
22	Zoom 1 – Stroke End
23	Zoom 2 – Stroke End
24	Iris – Stroke End
25	Focus – Stroke End

