

# METRIC ZOOM-SWIR 7x – P/N C1601

## General Description

This family of high resolution METRIC ZOOM SWIR lenses image from 0.9 to 2.3  $\mu\text{m}$  making them especially well-suited for surveillance, alignment and tracking. A high and constant F/N, excellent transmission, controlled bore sighting and high repeatability 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	6.66x
Focus	compensated
Max Iris	F/N = 6
Min Iris	F/N = 32
Boresighting	< 1mrad
Repeatability Error	< 0.1%

N. of elements	12
Dimensions	200x200x740 mm
Weight	18 Kg
Options	
Tele Lens Position	Yes
Motorized focus	Yes
Motorized iris	Yes
Motorized zoom	Yes
Other mount type	Upon request

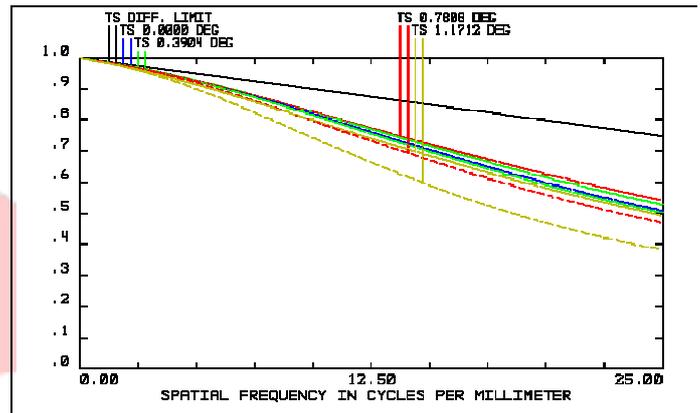
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P/N	wavelength range	mount type	note
C1601.001	900-1700 nm	C-Mount	
C1601.002	1700-2400 nm	C-Mount	
C1601.003	900-2400 nm	C-Mount	

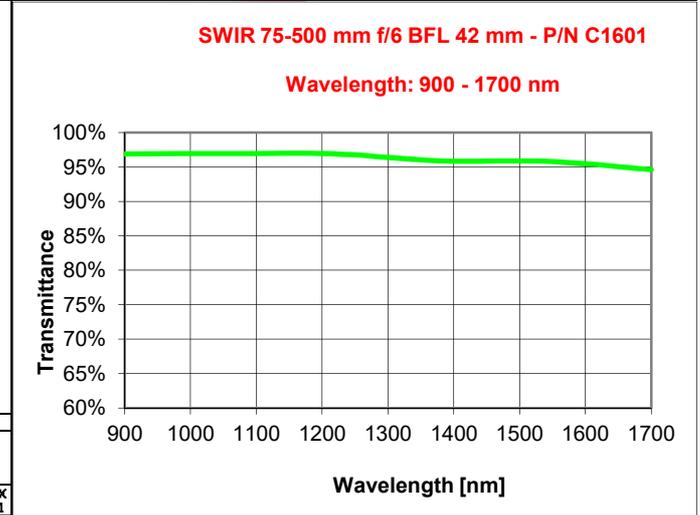
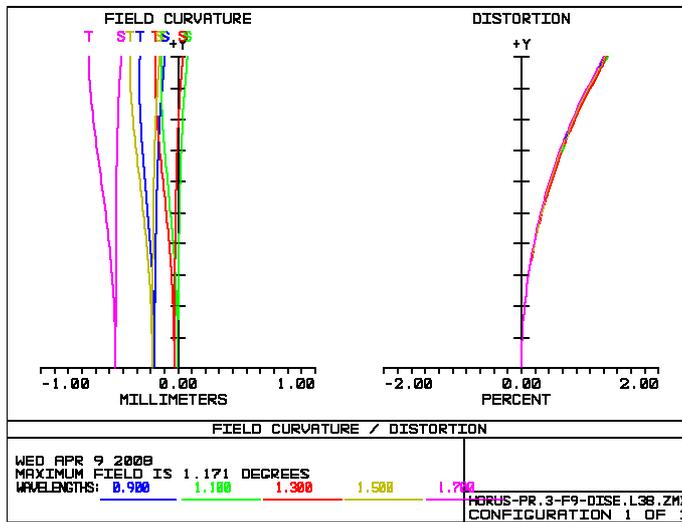
Specification are subject to change without notice

### 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%).



POLYCHROMATIC DIFFRACTION MTF  
 WED APR 9 2008  
 DATA FOR 0.9000 TO 1.7000 μm.  
 SURFACE: IMAGE  
 HORUS-PR.3-F9-DISE.L38.ZMX  
 CONFIGURATION 1 OF 1



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

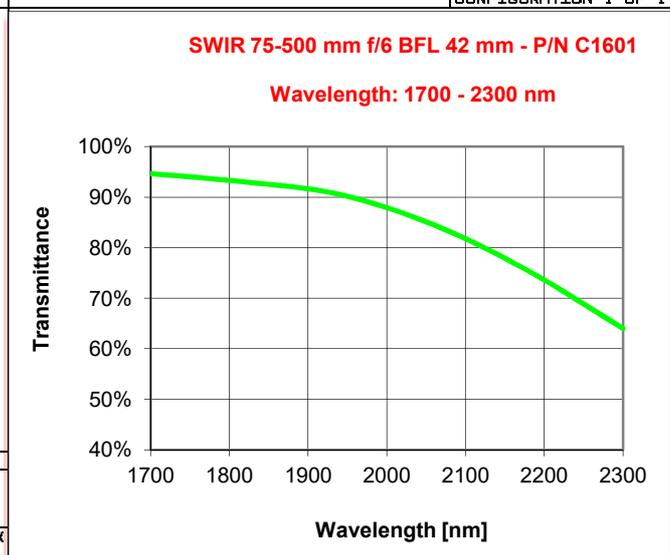
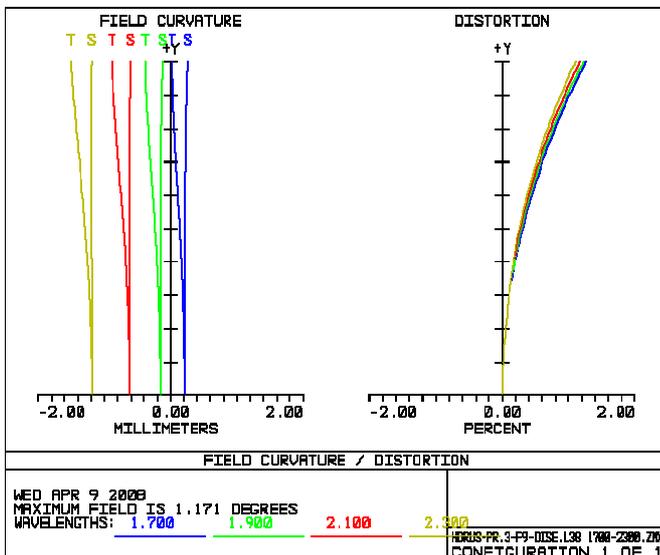
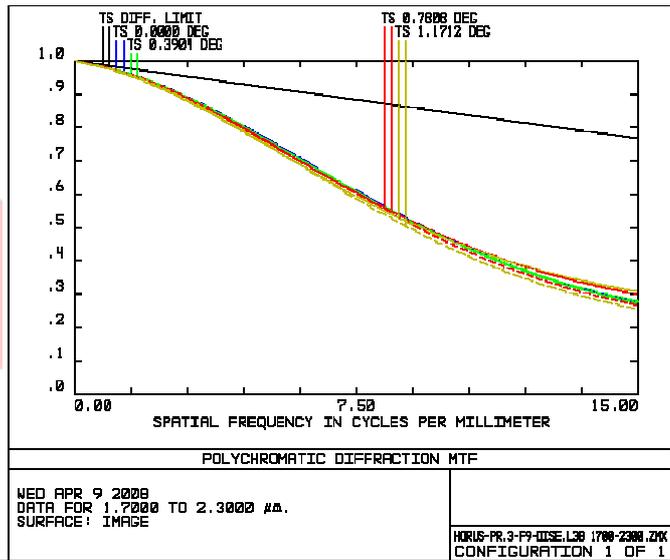
Resolution	MTF>40%@25lp/mm
Distortion	< 2%
Average axial chromatic aberration	< 0.139 mm

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

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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%).



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

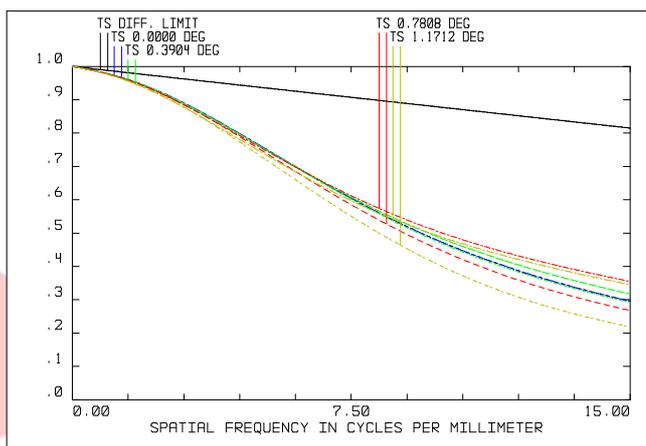
Resolution	MTF > 25% @ 15lp/mm
Distortion	< 2%

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

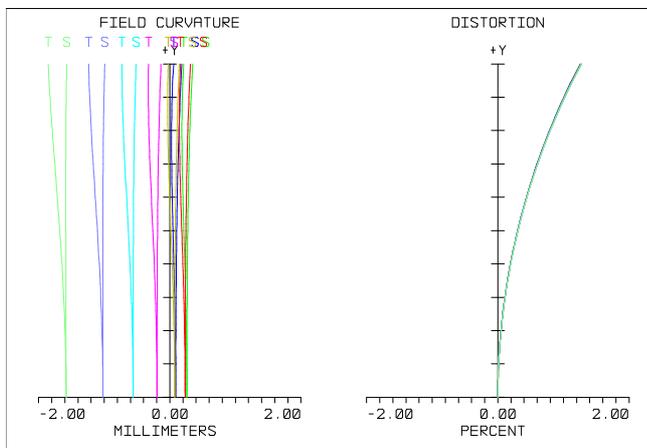
Specification are subject to change without notice

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

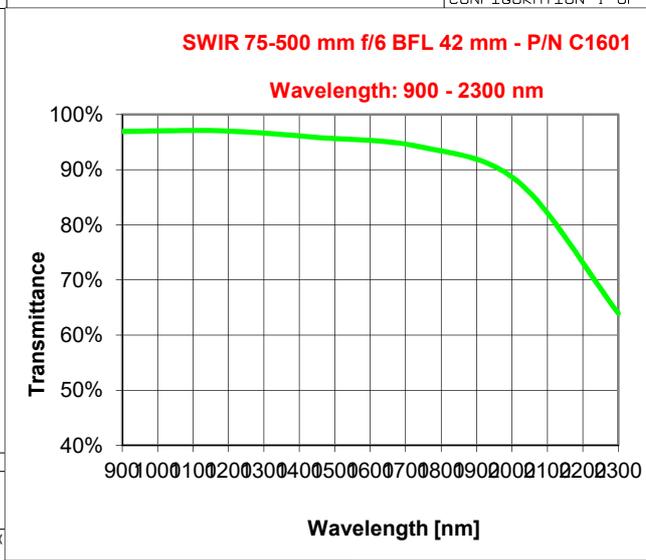
The calculated MTF values are displayed Below and are verified at the maximum F/N and the best focus plane. The colored lines represent the F.O.V. starting from the center (0%) to the corner (100%).



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.

Specification are subject to change without notice

## **Electrical data & interfaces**

### **ZOOM FUNCTION**

Motors Nominal Voltages	48 VDC
Motors Maximum Power	100 watts (over two different motors)
Encoder Maximum Voltages	4.5 – 5-5 VDC
Encoder Maximum Power	0.1 watts (over two different encoders)
Encoder Resolution	0.001mm

### **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	110-220 VAC
Controllers Maximum Continuous current	2 Amp
Controllers Maximum Peak current	3 Amp
PWM switching frequency	10 kHz
Serial Port Interface	RS485

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### **FOCUS FUNCTION**

Automatic focus compensation over full zoom range
Focus adjustment can be performed to change the working distance from 15m to infinity

### **LENS INTERFACE**

Standard	The standard version is provided with Canon F-Mount, Nikon, M42 Screw, C-Mount
Options	Other interfaces can be upon request
	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

