

# LENS OB-SWIR100/1.4 – P/N C0812

## 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 = 1.4
Object format	N.A.
Min working distance	6.5 m
Zoom value	N.A.
Focus	Manual
Iris	Max F/N = 1.4 Min F/N = 11

N. of elements	6
Dimensions	Dia 107 x 150 mm
Weight	1.6 Kg
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
C0812.001	900-1700 nm	Canon FD	With iris diaphragm
C0812.002		Nikon	
C0812.003		M42 Screw	
C0812.005	1700-2300 nm	Canon FD	
C0812.006		Nikon	
C0812.007		M42 Screw	
C0812.010	900-2300 nm	Canon FD	
C0812.011		Nikon	
C0812.012		M42 Screw	

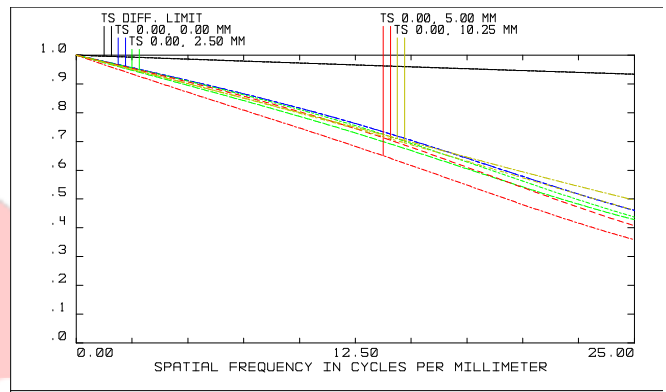
Specification are subject to change without notice

<b>P/N</b>	<b>wavelength range</b>	<b>mount type</b>	<b>note</b>	
C0812.071	900-1700 nm	Canon FD	With motorized iris	
C0812.072		Nikon		
C0812.073		M42 Screw		
C0812.081	1700-2300 nm	Canon FD		
C0812.082		Nikon		
C0812.083		M42 Screw		
C0812.091	900-2300 nm	Canon FD		With motorized focus
C0812.092		Nikon		
C0812.093		M42 Screw		
C0812.074	900-1700 nm	Canon FD	With motorized iris and focus	
C0812.075		Nikon		
C0812.076		M42 Screw		
C0812.084	1700-2300 nm	Canon FD		
C0812.085		Nikon		
C0812.086		M42 Screw		
C0812.094	900-2300 nm	Canon FD		
C0812.095		Nikon		
C0812.096		M42 Screw		
C0812.077	900-1700 nm	Canon FD	With motorized iris and focus	
C0812.078		Nikon		
C0812.079		M42 Screw		
C0812.087	1700-2300 nm	Canon FD		
C0812.088		Nikon		
C0812.089		M42 Screw		
C0812.097	900-2300 nm	Canon FD		
C0812.098		Nikon		
C0812.099		M42 Screw		

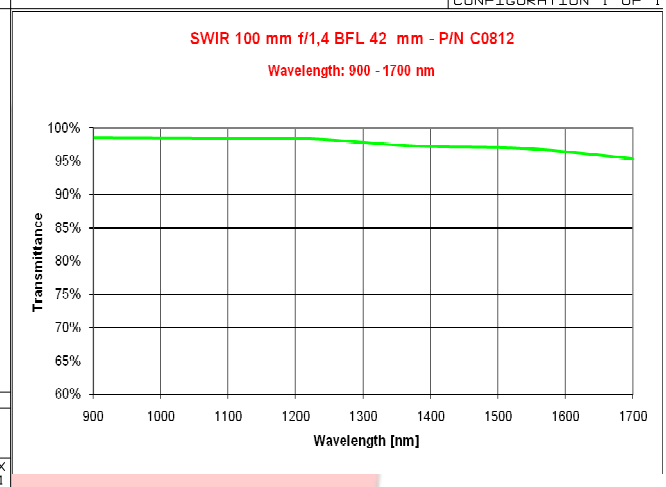
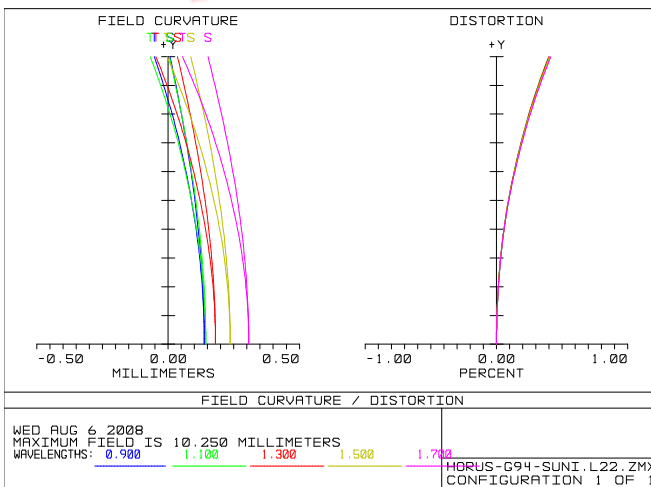
More details are available upon request and technical drawings are open for the customers and their needs.

### 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%).



POLYCHROMATIC DIFFRACTION MTF  
 WED AUG 6 2008  
 DATA FOR 0.9000 TO 1.7000 μm.  
 SURFACE: IMAGE  
 HORUS-G94-SUNI.L22.ZMX  
 CONFIGURATION 1 OF 1



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

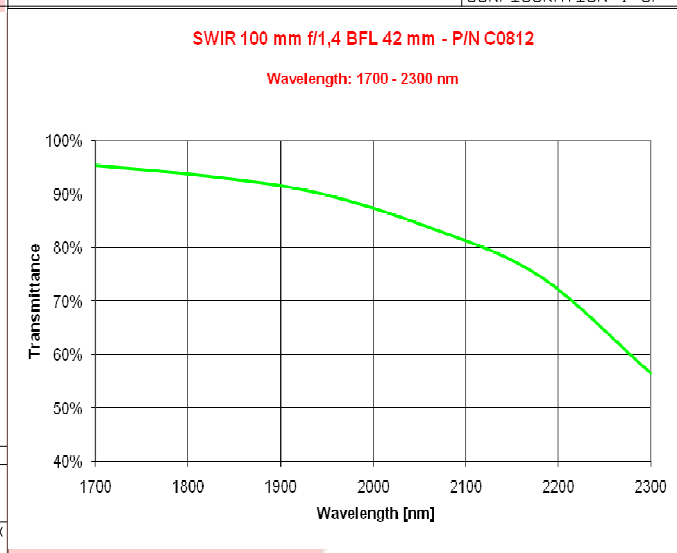
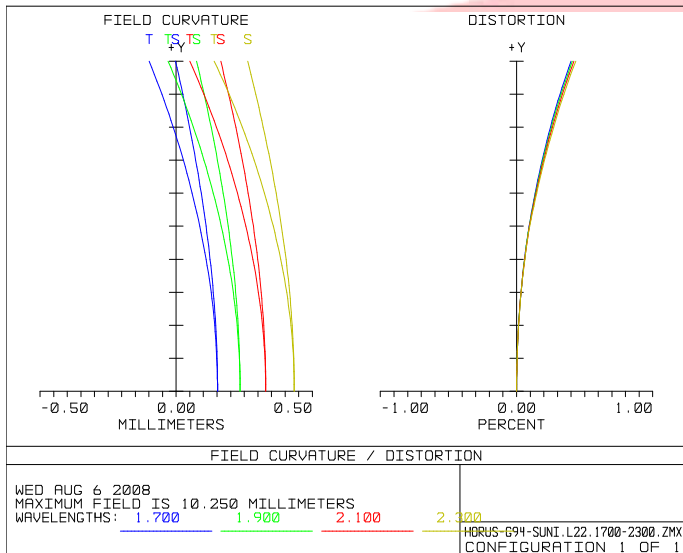
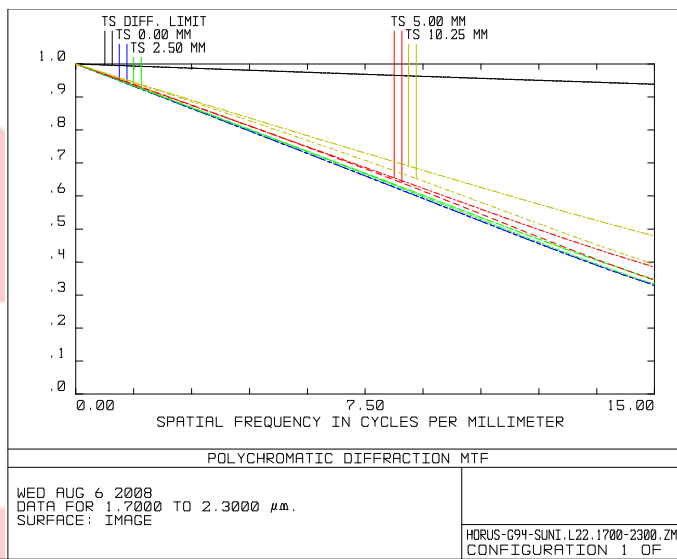
Resolution	MTF > 40% @ 25lp/mm
Distortion	< 0.5%
Average axial chromatic aberration	< 0.0243 mm

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

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%).



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

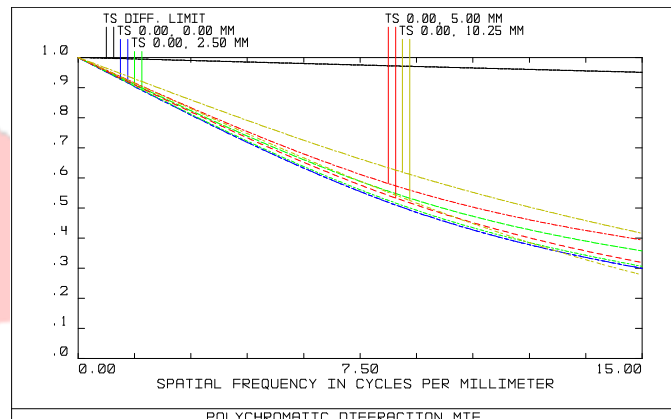
Resolution	MTF > 35%@15lp/mm
Distortion	< 0.5%

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

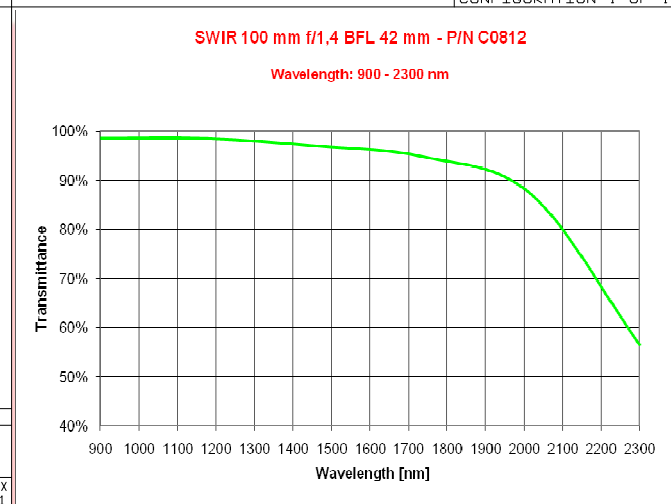
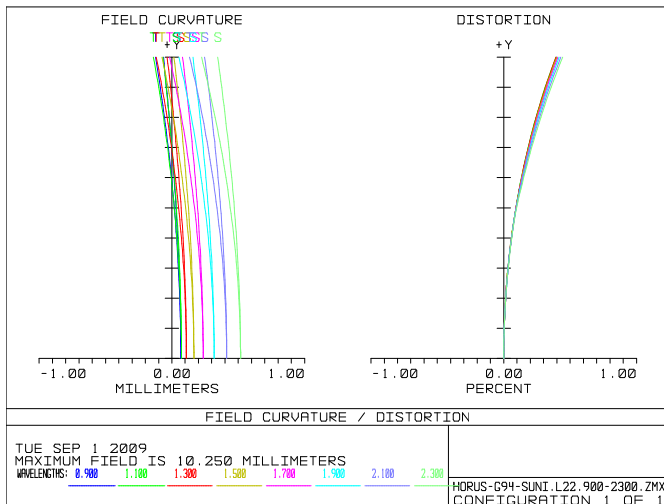
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### MTF, Field Curvature, Distortion and Transmission from 900 to 2300 nm

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  
 TUE SEP 1 2009  
 DATA FOR 0.9000 TO 2.3000 μm.  
 SURFACE: IMAGE  
 HORUS-G94-SUNI.L22.900-2300.ZMX  
 CONFIGURATION 1 OF 1



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

Resolution	MTF > 30%@15lp/mm
Distortion	< 0.5%

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

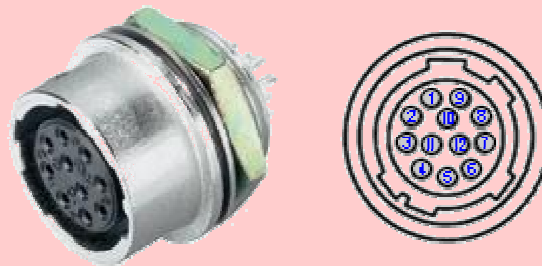
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## Electrical data & Interfaces

<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

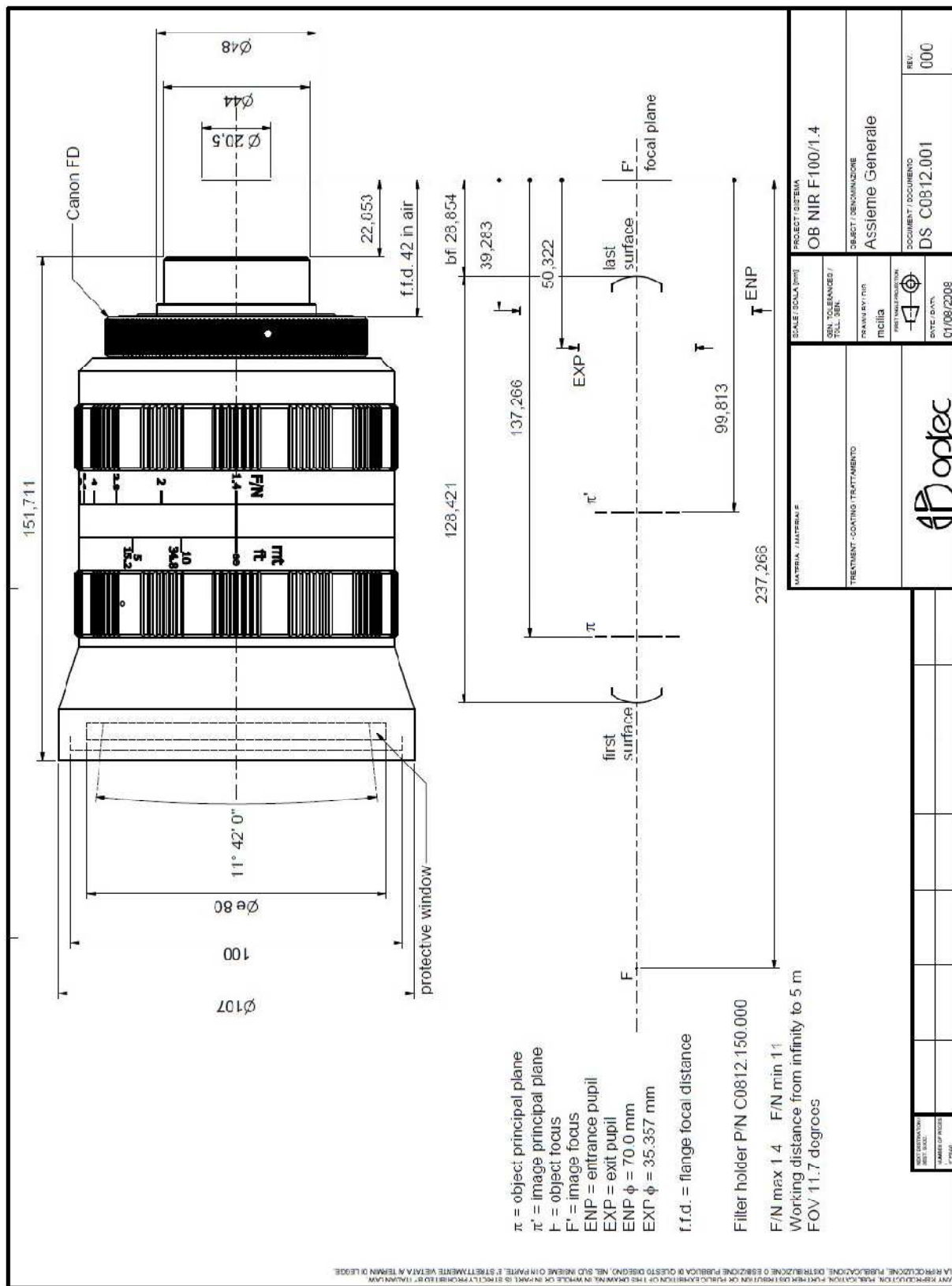


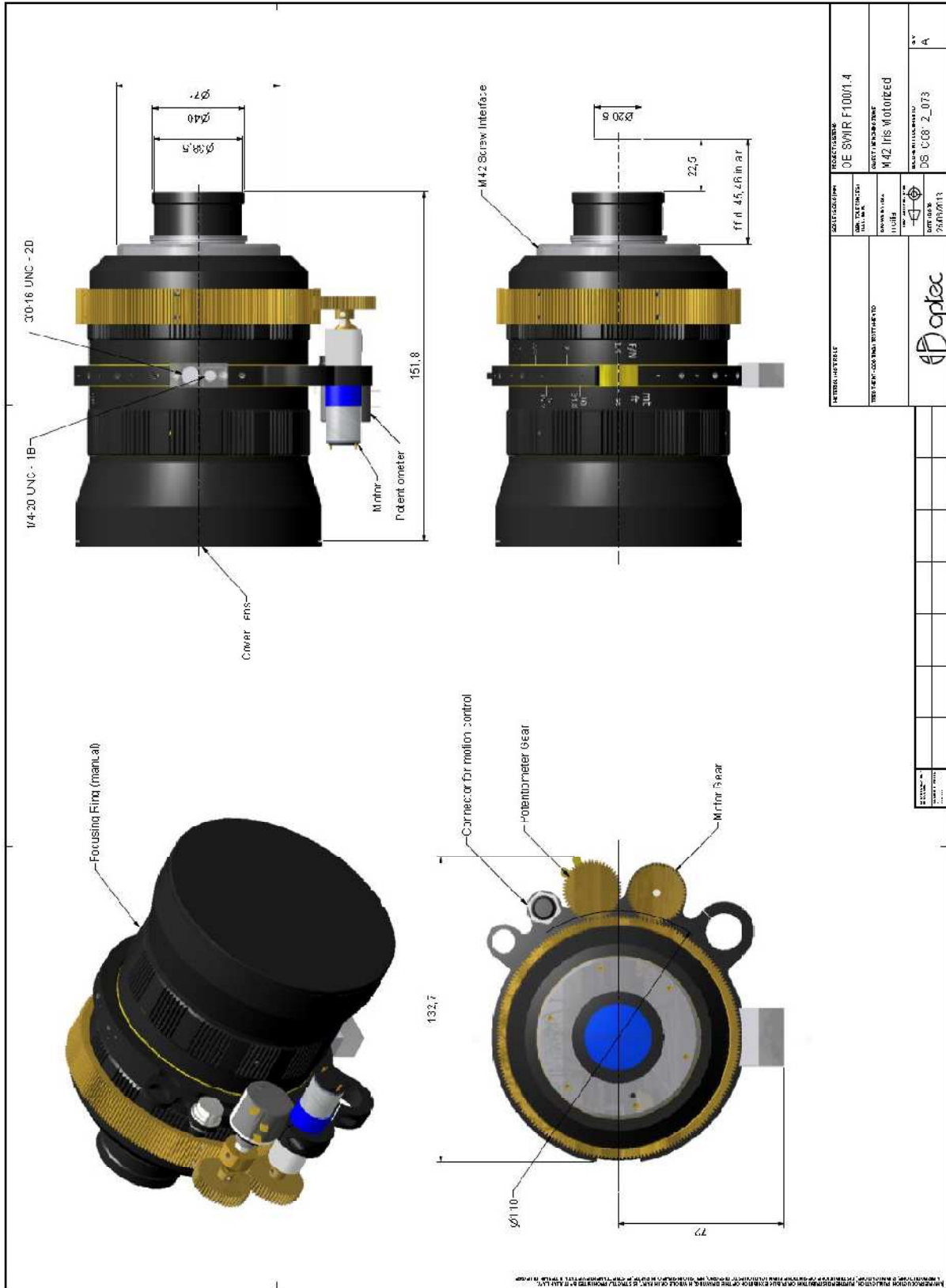
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PIN	MOTORIZED IRIS	MOTORIZED FOCUS	MOTORIZED IRIS & FOCUS
1	Vcc	Vcc	Vcc
2	Gnd	Gnd	Gnd
3	NA	Analog Focus position	Analog Focus position
4	Analog Iris position	NA	Analog Iris position
5	Identification resistor #1	Identification resistor #1	Identification 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**

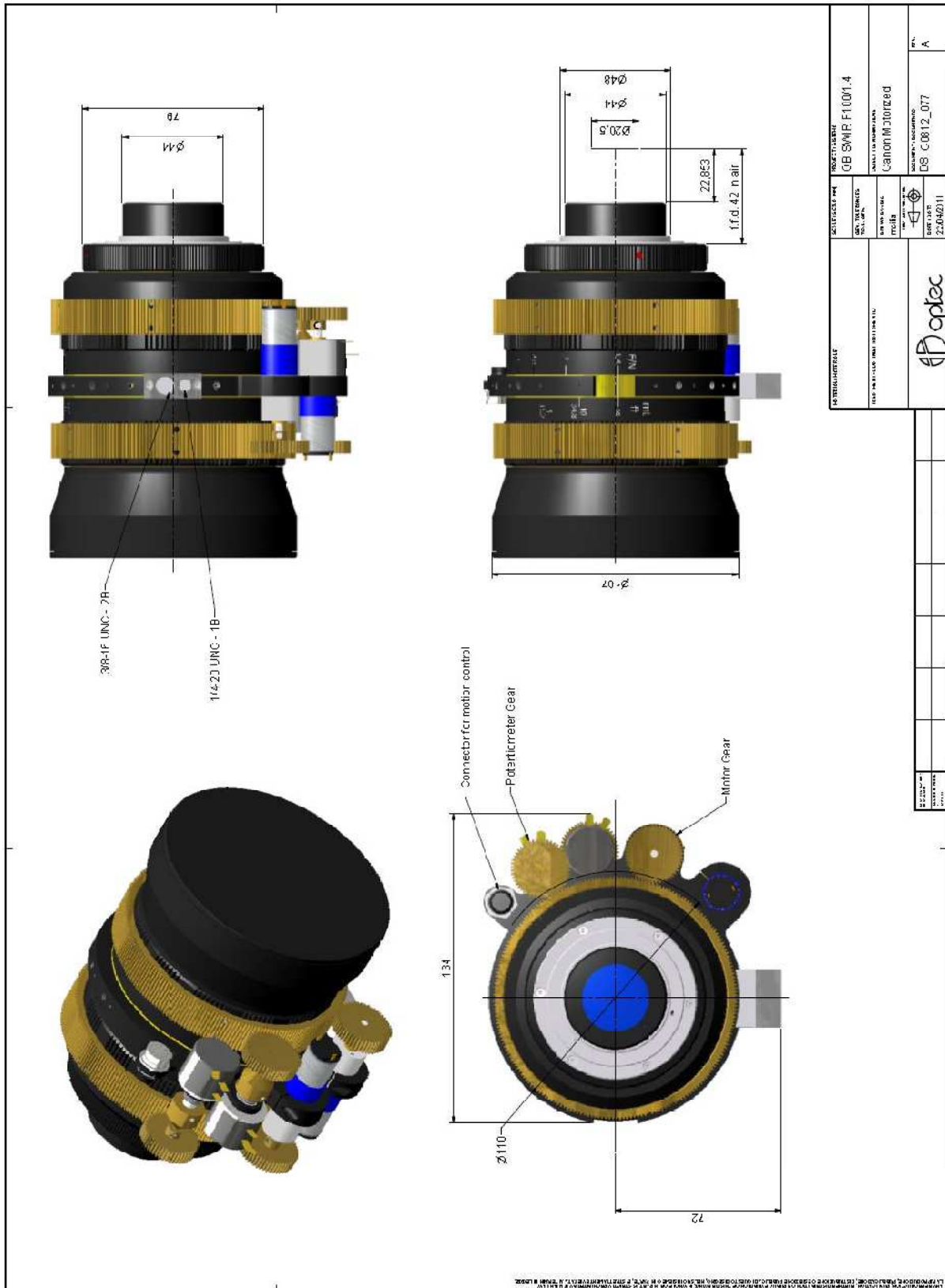
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