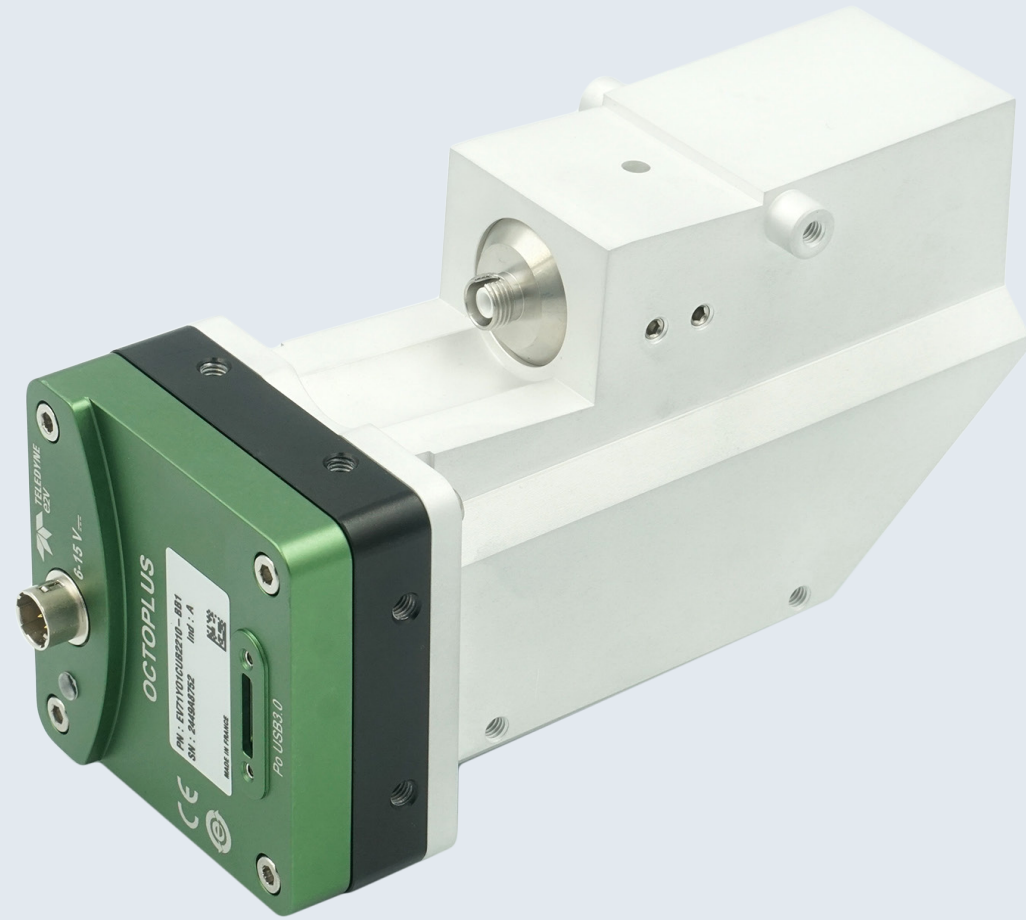




## EAGLE OCT-S-140

High axial resolution and exceptional sensitivity OCT spectrometer

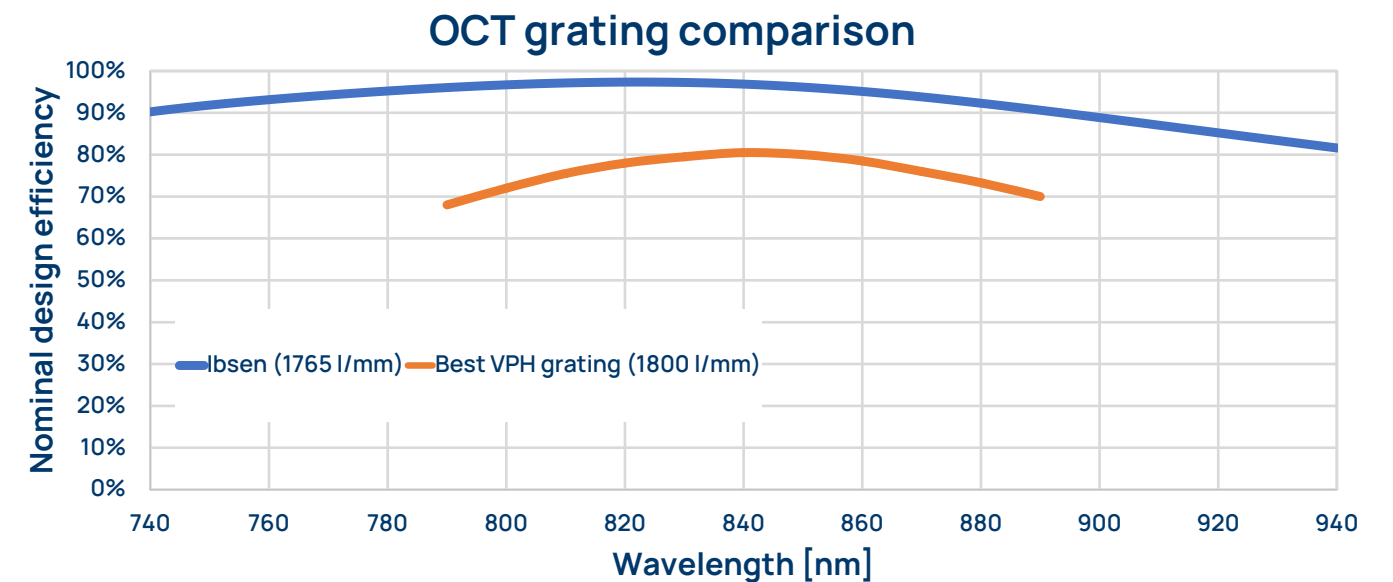
**Ibsen**   
photonics



## EAGLE OCT-S-140 for exceptional sensitivity across 140 nm bandwidth

The EAGLE OCT-S-140 features the world's most efficient OCT grating, delivering exceptional overall efficiency for a 140 nm bandwidth spectrometer. By combining Ibsen Photonics' optimised optical design with the unmatched efficiency of our transmission gratings, our OCT spectrometer achieves both superior sensitivity and enhanced signal-to-noise performance, even at very high frame rates and ultra-short integration times. This efficiency also enables detection of the weakest reflecting structures, ensuring comprehensive imaging capability.

The broad bandwidth of the spectrometer provides an impressive high axial resolution of 2.7  $\mu\text{m}$  in air and 2  $\mu\text{m}$  in tissue\*. This level of resolution not only facilitates earlier disease detection and ongoing monitoring, thereby ensuring better patient outcomes, but also finds use in a range of industrial applications such as, coating inspection, pill and capsule measurements, lens manufacturing and many more where high resolution is essential for optimal results.



### Unmatched roll-off performance in compact design

Equipped with an E2V OCTOPLUS camera, the EAGLE OCT-S-140 offers industry-leading roll-off performance and unmatched image quality in a compact 143 mm x 80 mm x 60 mm footprint. It generates full OCT measurements at a rapid framerate of up to 250 kHz, optimizing workflow.

The compact size of the EAGLE OCT-S-140 creates opportunities for portable OCT instruments entering new markets. This cost-efficient OCT spectrometer can also increase profit margins for OCT instrument manufacturers relative to swept source solutions and other OCT spectrometers, making it accessible to markets such as home use, pharmacies, and optometrists.

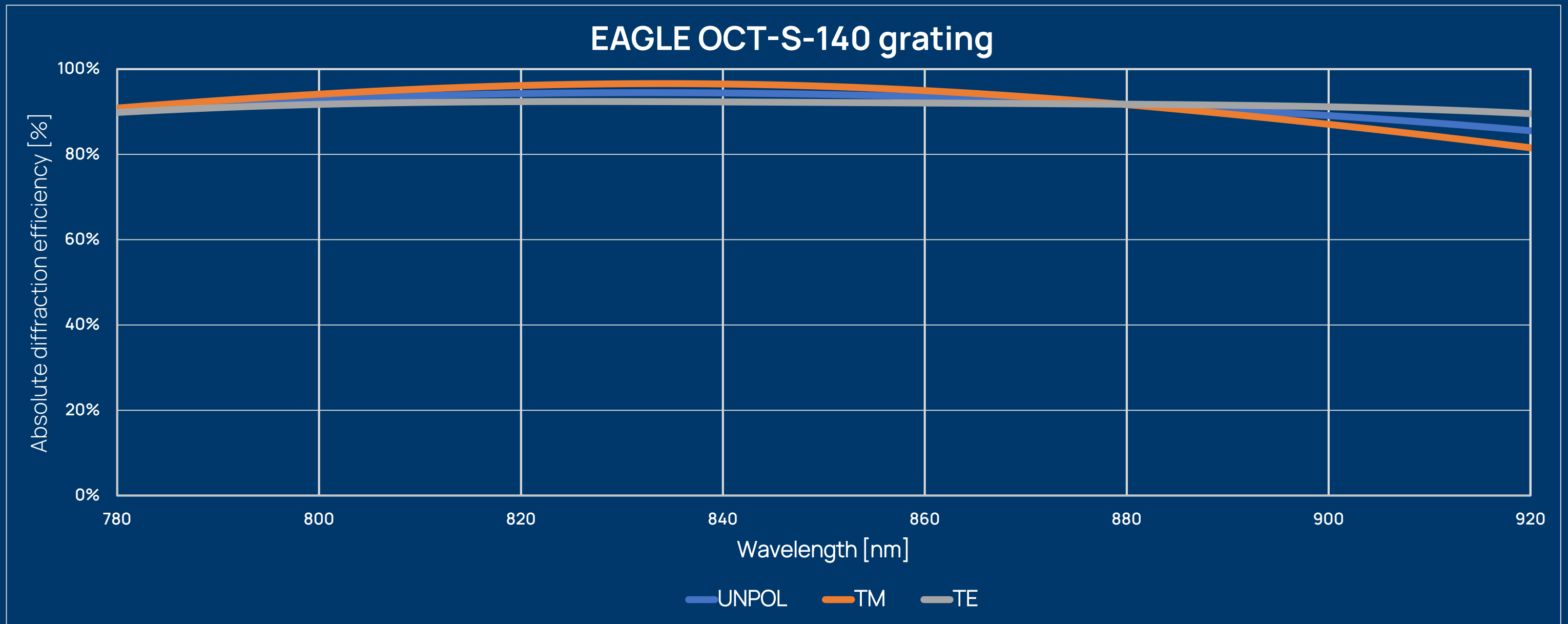
## Technical Specifications

	EAGLE OCT-S-140	Comments
Optical entrance	FC/UPC adapter	
Wavelength range	780- 920 nm	Other range available upon request
Resolution	0.09 nm	Average resolution
Numerical aperture	0.13	To match SMF Corning HI780 fiber
Camera	Teledyne E2V Octoplus	Available in USB3 or camera link
Number of pixels	2048 x 1 pixels	
Pixel size	10 x $\mu\text{m}$ 200 $\mu\text{m}$	
Detector	CMOS	Camera
Frame rate	20 - 250 kHz	20, 80, 130 and 150 kHz with USB3 interface.** 20, 80, 130 and 250 kHz with CameraLink (CL) interface.***
Operating temperature range	+10 to + 45 °C	Non-condensing
Storage temperature range	-10 to +50 °C	
Wavelength shift with temperature	< 0.002 nm/°C	
Dimensions	143 mm x 80 mm x 60 mm	Including camera
Weight	0.7 kg	Including camera

\* Assuming flattop SLED profile

\*\* 150 kHz over USB3 only achievable at 10-bit data resolution

\*\*\* 250 kHz over CL only achievable at 10-bit data resolution

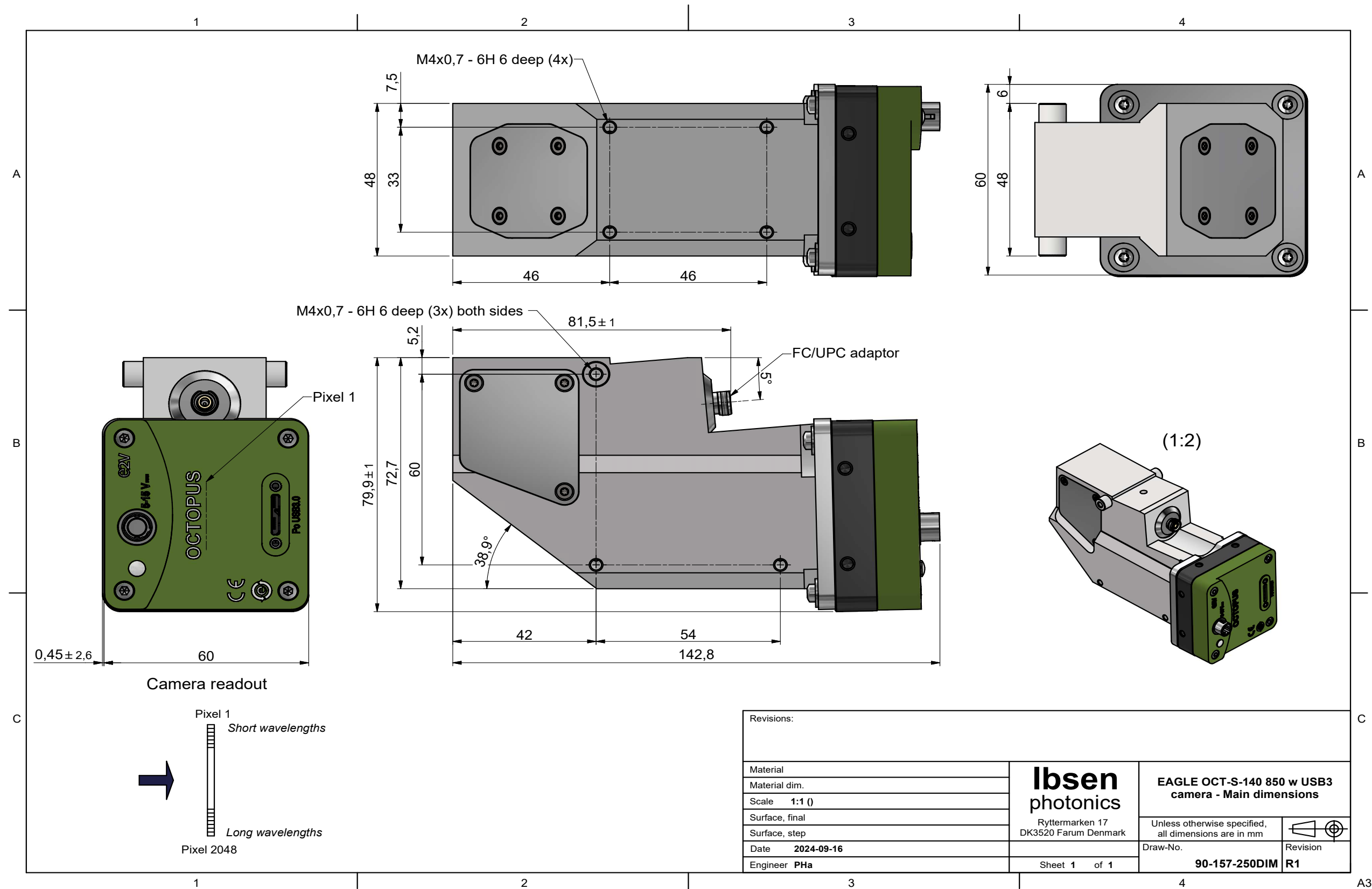


## Transmission Gratings

The compact EAGLE OCT-S-140 spectrometer utilizes the Ibsen Photonics OCT transmission grating. The grating provides a high even diffraction efficiency, as evident by the absolute diffraction efficiency graph displayed above. The design also provides very low polarization dependence as an added benefit.

Every grating used in the compact EAGLE OCT-S-140 spectrometer platform is a master grating fabricated at Ibsen Photonics' clean room facility in Denmark.

# Mechanical Drawings



Revisions:		
Material	<b>lbsen</b> photonics	<b>EAGLE OCT-S-140 850 w USB3</b> camera - Main dimensions
Material dim.		
Scale 1:1 ( )	Ryttermarken 17 DK3520 Farum Denmark	Unless otherwise specified, all dimensions are in mm
Surface, final	Date <b>2024-09-16</b>	Draw-No.
Surface, step		Sheet 1 of 1
Engineer <b>PHa</b>		<b>90-157-250DIM R1</b>

## About Ibsen Photonics

Ibsen was founded in 1991 by Per Ibsen under the name of Ibsen Micro Structures A/S. Today, 88% of Ibsen Photonics is majority owned by Foss A/S, a world leader in analytical solutions for the Food and Agricultural industries. Ibsen management and employees own 12 % of the shares in the company.

The Ibsen spirit combines the dynamic, entrepreneurial culture of a medium size company with a disciplined, operational mentality of a large corporation. With an average employee tenure of more than 10 years, Ibsen makes for a very effective organization that builds on more than 30 years of experience as a company.

Ibsen employs more than 75 people at our R&D and manufacturing facility in Denmark and achieved a turnover of more than 150 MDKK in 2023.

## Working with Ibsen Photonics

The core expertise of Ibsen Photonics lies in opto-mechanical design, grating technology and metrology. We master the cycle from optics, grating simulation and design, through optical and semiconductor production technologies, to high volume assembly, packaging and testing. Over the years, we have developed many new designs, technologies and processes - many patented.

Our customers are large to medium-sized manufacturers of advanced optical devices and instruments, into which our products are integrated. With a highly organized production process, we are able to help customers obtain smooth instrument production, low unit-to-unit variation, high level of right first time, no field returns, and a low level of rework.

Our grating production facilities are world-class, including class 10 cleanroom facilities that we designed and built in 2000/2001, in which all environmental parameters are under continuous surveillance.

Our spectrometers are produced under strict quality control in our assembly facility in Denmark, certified to ISO 9001, ISO 13485, ISO 14001 and ISO 45001. This confirms Ibsen's capability to consistently produce high quality products that meet market standards and all regulatory requirements.

## Contact us

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