

HELIOS XYZ

12.4 MP XYZ IMAGING SYSTEM

PRE-LIMINARY

Specification

ADMESY

colorimeters | spectroradiometers | lightmeters

CONTENTS

Helios XYZ 2

Highlights..... 2

Specifications..... 3

Helios XYZ measurement data 4

 Speed..... 4

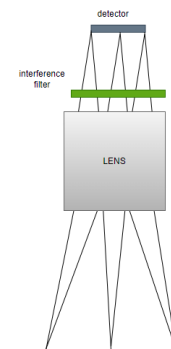
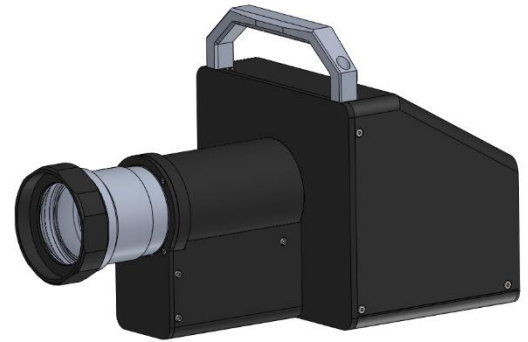
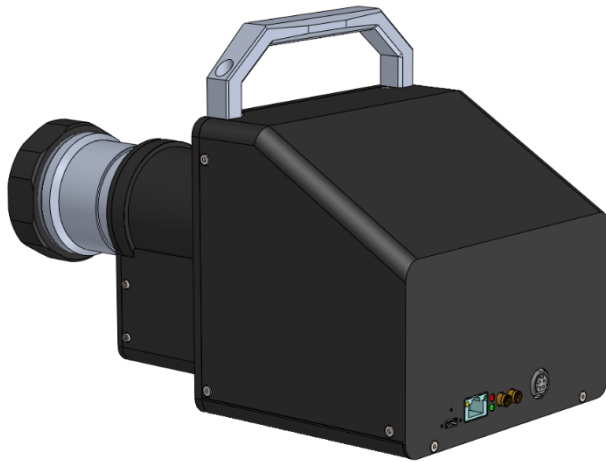
 Chromaticity..... 4

 Luminance 4

FOV 4

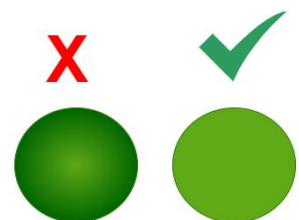
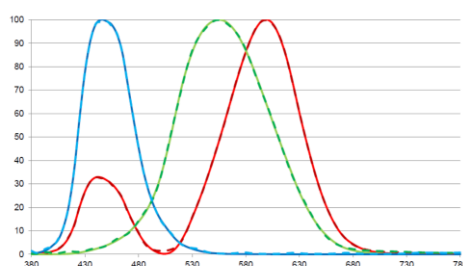
HELIOS XYZ

The Helios is the ultimate 2D imaging CMOS sensor combining high accuracy interference based XYZ filters with virtually flat response OD filters for a high dynamic range. In order to mitigate the angle effects of interference filters the lens system is image space telecentric, this in combination with the in-house produced extreme uniform and accurate filters makes the Helios stand apart from any other solution on the market when accuracy is key



HIGHLIGHTS

- High accuracy X,Y and Z filters, in-house made
- Image space telecentric
- Automated controlled focus by software command
- OD0 and OD1 filter integrated for high dynamic range, more OD possible
- Spectrally flat OD filters
- Large aperture, ideal for low luminance measurements
- High accuracy due to the filters and extreme filter uniformity
- Dark current compensated
- Flat Field calibrated for every focus distance



SPECIFICATIONS

Interface	
USB 3	USBMTC compliant, SCPI command set, high speed device
Ethernet	GIGE Ethernet interface (should support jumbo packets)
12 V power	12 V DC regulated (supplied in package)

Power ratings				
	Min. voltage	Typical voltage	Max. voltage	Max. current
12 V power	11 V	12 V	13 V	3000 mA

General	
Temperature	15°C to +35°C
Humidity	10 % to 70 % non-condensing
Weight	5.5kg

2D colorimeter specification	
Model	Helios XYZ
Detector	12.4MP sony detector (<i>other resolutions available soon</i>)
Spectral response	Approximates CIE 1931 color matching functions (X,Y and Z < 3%)
Luminance accuracy	± 2%
Chromaticity accuracy	± 0.002

Sensor specification	
Resolution	4128 x 3008
Sensor	IMX545
Output format	12bit
Integration time	1 ms – 10 s (can be longer)
Dynamic range	70 dB

Measurement system	
FOV	± 14 degree
Measurement spot size	See chapter spot size and FOV
Lens	28mm lens with fixed aperture of $f/2$
OD filter	OD0 and OD1
Working range	200mm to 2000mm

General performance		
Parameter	Range	Accuracy
Non-uniformity after flat field calibration	±0.45%	—
AD converter	12 bit ADC converter	—
Luminance (Y)	0.005 cd/m ² - ~17,000 cd/m ² integration time between 1ms – 10sec ¹	± 1%
Chromaticity (x,y)	—	± 0.002
Measurement speed	1s per image at white image	—

1) Camera can integrate longer than 10s

HELIOS XYZ MEASUREMENT DATA

Speed

Measurement	From [cd/m ²]	To [cd/m ²]	#1 times / sec
Lv, xy	1 100	— 17000	0.25 1

Speed includes image processing time and is for a X,Y and Z capture

Chromaticity

Measurement Range	From [cd/m ²]	To [cd/m ²]	Int time camera [μs]	xy
Accuracy ¹	1	—	1000000	± 0.002
	100	17000	16666	± 0.002
Repeatability ² (2 sigma)	1	—	1000000	± 0.0001
	100	17000	16666	± 0.0001

1) accuracy data is determined on 9p measurement comparison with an internal reference device and an internal reference display, values are determined on **greyscales**. This is intended as an indication of the performance. These values are DUT (display) dependent.

2) repeatability is determined on the sum of the ROI used in the 9p measurement

Luminance

Measurement Range	From [cd/m ²]	To [cd/m ²]	Int time camera [μs]	Level [%]
Accuracy ¹	1	—	1000000	2
	100	17000	16666	2
Repeatability ² (2 sigma)	1	—	1000000	0.3
	100	17000	16666	0.15

1) accuracy data is determined on 9p measurement comparison with an internal reference device and an internal reference display, values are determined on **greyscales**. This is intended as an indication of the performance. These values are DUT (display) dependent.

2) repeatability is determined on the sum of the ROI used in the 9p measurement

FOV

Camera FOV									
Working distance best [mm] - best focus	400	600	800	840	1000	1140	1400	1650	2000
Field of view [mm] ¹	144x105	225x165	307x224	323x236	388x284	445x325	551x403	605x477	795x582
Field of view diagonal [inch] ¹	7.1	11.0	15.0	15.8	19.0	21.8	26.9	31.9	38.9

1) values can slightly differ

ADMESY

colorimeters | spectroradiometers | lightmeters

Sleestraat 3
6014 CA IJlervoorl
The Netherlands

+31 (0)475 600 232
info@admesy.com

admesy.com

The material in this document is subject to change. No rights can be derived from the content of this document. All rights reserved. No part of this document may be reproduced, stored in a database or retrieval system, or published in any form or way, electronically, mechanically, by print, photo print, microfilm or any other means without prior written permission from the publisher.

Version 1.0.2 Oct 2023