ASTERIA
LIGHT METER

Specification

ADMESY

colorimeters | spectroradiometers | lightmeters

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ADMESY

ASTERIA — LUMINANCE / ILLUMINANCE & FLICKER MEASUREMENT DEVICE

Admesy's Asteria light meter provides a CIE 1931 high speed luminance measurement function, targeting application for display and lighting industries. Asteria works like all Admesy products on USB and RS232 and can perform all complex calculations inside due to a high speed CPU and large internal memory. The Asteria is available with lens system or cosine corrector, for luminance or illuminance & luminous intensity measurements respectively. For remote sensing and connecting to accessories, fiber connected versions of the Asteria are available. All optical configurations are suitable for response time and flicker measurements supporting the following standards.

- Contrast min/max
- Contrast RMS
- JEITA
- VESA
- Flicker percentage (IES)
- Flicker index (IES)
- IEEE 1789

HIGHLIGHTS

- Absolute luminance and illuminance & luminous intensity measurement according to the human eye
- (CIE1931 luminosity function)
- All flicker measurement standards supported for display
- (Contrast, JEITA, VESA) and lighting (percentage, index)
- Measure high and low frequencies at the same time
- through a high sample rate (186 567 samples/second) and large memory size
- Windows, Linux, OSX and embedded systems compatible
- SCPI command interface for easy integration in other applications
- Supported in all major programming languages Labview / Labwindows / Visual Studio (C++, C#, VB)/ Other programming languages that support VISA can be used
- USBTMC standard compliant
- Integrating- and sampling mode available
- 3 gain stages for every mode
- Auto-range function
- User calibration function and pre-programmed calibration values
- Trigger in and output for inline applications
- USB and RS232 communication interface general specifications

GENERAL SPECIFICATIONS

Interfaces	
USB 2.0	USBMTC compliant, SCPI command set, full speed device
RS 232	For PC and embedded purposes, using same command set as USB
Trigger in & out	5 V compliant

Power ratings				
	Min voltage	Typical voltage	Max voltage	Max current
USB powered	4.75 V	5.00 V	5.25 V	220 mA

System information	
Photo detector	Silicon photo diode
Spectral response	Approximates CIE 1931 luminosity curve, fs value 8 % typical
Measurement parameters	Luminance, illuminance & luminous intensity, flicker (contrast, JEITA, VESA, Percentage, Index), Response time.
Optical systems	10 mm lens system & cosine corrector
Measurement speed in sample mode	186.567 samples/second. Memory for 250.000 samples. For samples/delay versus total measurement time see table below.
Operating Temperature	10-35°C (1)

Mechanical dimensions	
Size (HxWxD)	69 x 31 x 93 mm
Weight	320 gram
Mounting	12 M3 thread holes spread over four sides of Asteria

TYPICAL SPECTRAL SENSITIVY

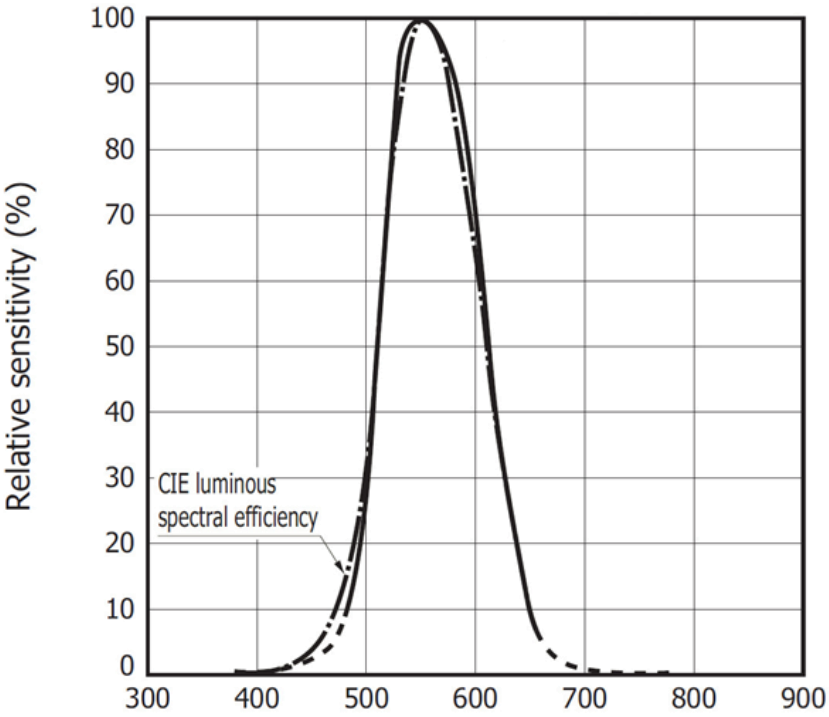


Fig 1 Spectral sensitivity of the Asteria light meter.

ASTERIA 10 MM SPECIFICATIONS

Optics	10 mm lens
Acceptance angle	5º (± 2.5)
Measurement spot size	12 mm at 50 mm distance 15.5 mm at 75 mm distance 19 mm at 100 mm distance

Parameter	f3db [1]
Gain 1	DC – 20 k Hz
Gain 2	DC – 50 k Hz
Gain 3	DC – 120 k Hz

Measurement specification					
Parameter	Range	Accuracy	Light level cd/m²	Repeatability [2]	Speed meas./s [2]
Luminance (Y) integrating mode	0.005 – 15000 cd/m² integration time between 1ms and 5s	± 2 % of measured value. Measured at white image of LED LCD display. Luminance ~150 cd/m²	0.1	± 0.20 %	4 - 10
			1	± 0.10 %	10 - 20
			5	± 0.05 %	20 - 100
			> 150	± 0.03 %	20 - 100
Luminance (Y) sampling mode	1 – 15.000 cd/m²	± 2 % of measured value. Measured at white image of LED LCD display. Luminance ~150 cd/m²			
Flicker Contrast Method	1 – 15.000 cd/m²	± 1 % Flicker frequency: 30 Hz AC/DC 10 % sine wave at 10cd/m2			
Flicker JEITA method	1 – 15.000 cd/m²	± 1dB Flicker frequency: 30 Hz AC/DC 10 % sine wave at 10cd/m2			

1 Based on calculation of a sinusoidal waveform.
2 All measurements are performed 20 times on a LED LCD screen with sufficient signal noise ratio; value is based on 2 sigma. Luminance values are based on best performance possible, while measurement speed is determined by Admesy with a signal noise ratio which is still acceptable according Admesy. Sample speed depends on the measured sample as well: If the sample uses PWM it will take longer so use the lower rated values. Detailed measurement data is available upon request.

ASTERIA COSINE CORRECTOR SPECIFICATIONS

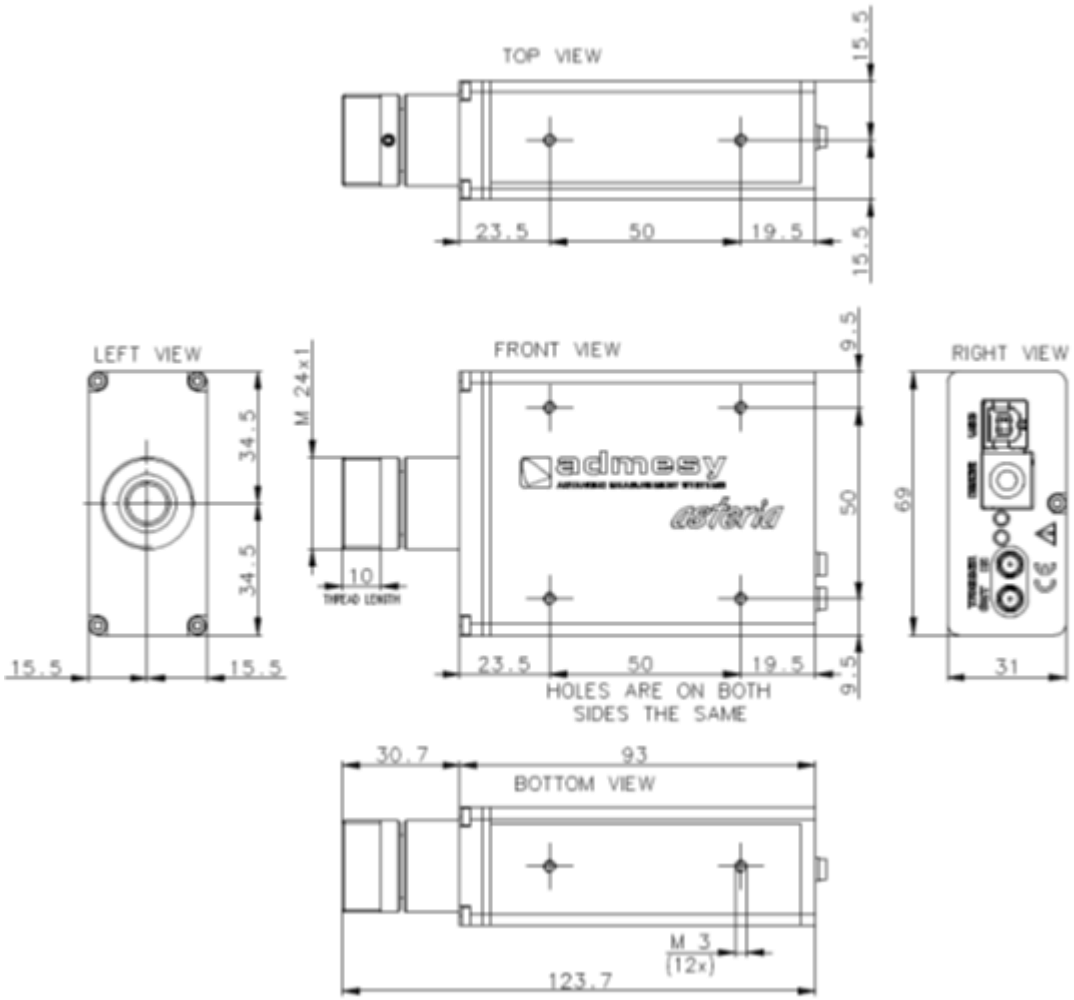
Optical system	
Optics	1 cm² cosine corrector
Cosine response	Lambertian

Parameter	f3db [1]
Gain 1	DC – 20 kHz
Gain 2	DC – 50 kHz
Gain 3	DC – 120 kHz

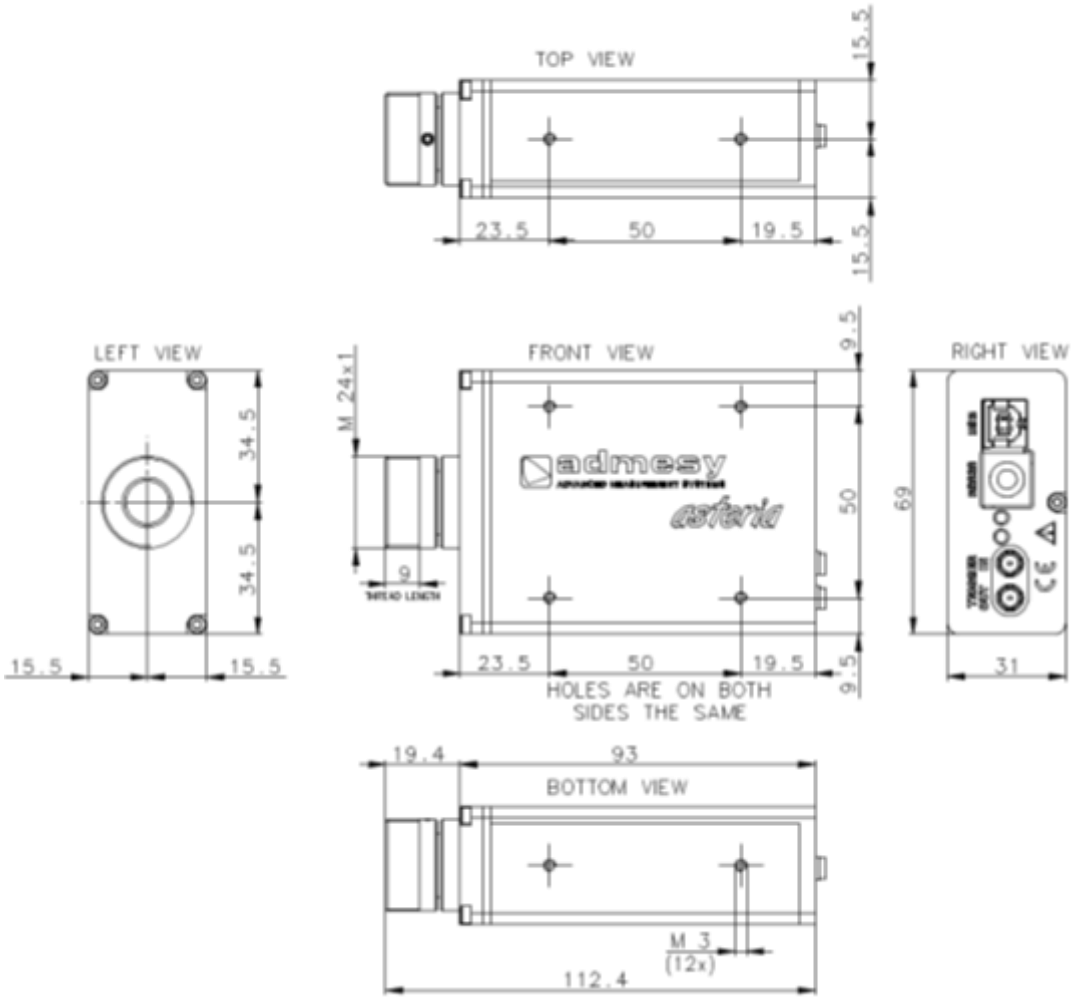
Measurement specification					
Parameter	Range	Accuracy	Light level lx	Repeatability [2]	Speed meas./s [2]
Illuminance (Y) integrating mode	0.05 – 150000 lx integration time between 1ms and 5s	± 2 % of measured value. Measured on halogen light source with illuminance level ~ 1800 lx	1	± 0.20 %	4 - 10
			10	± 0.10 %	10 - 20
			50	± 0.05 %	20 - 100
			> 1500	± 0.03 %	20 - 100
Illuminance (Y) sampling mode	10 – 150000 lx	± 2 % of measured value. Measured on halogen light source with illuminance level ~ 1800 lx			
Percentage flicker	10 – 150000 lx	± 1 % Flicker frequency: 100 Hz AC/DC 10 % sine wave at 100 lx			
Flicker index	10 – 150000 lx	± 0.01 Flicker frequency: 100 Hz AC/DC 10 % sine wave at 100 lx			

1 Based on calculation of a sinusoidal waveform.
2 All measurements are performed 20 times on a halogen lamp with sufficient signal noise ratio; value is based on 2 sigma. Illuminance values are based on best performance possible, while measurement speed is determined by Admesy with a signal noise ratio which is still acceptable according Admesy. Sample speed depends on the measured sample as well: If the sample uses PWM it will take longer so use the lower rated values. Detailed measurement data is available upon request.

ASTERIA 10 MM DIMENSIONS



ASTERIA COSINE CORRECTOR DIMENSIONS



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