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Display & Color Measurement

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Display & Color Measurement

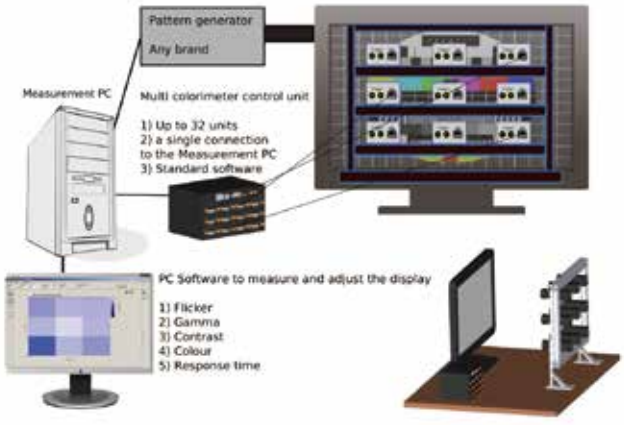
MSE Series - High Speed and Accurate Colour Measurement

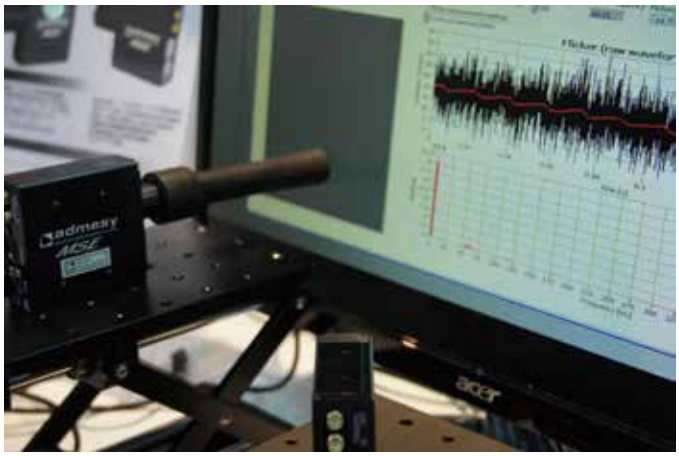
Colorimeter for Display Measurement

The MSE series colorimeters are predominantly found inline in display production facilities, their customers or adjacent R&D departments to handle white point adjustment, uniformity, flicker, response time and general colour quality control.

量測項目：色度 (Color)、亮度 (Luminance)、閃頻 (Flicker)、對比 (Contrast Ratio)、
反應時間 (Response Time)、Gamma Curve、Uniformity.

可量測產品：車用面板、手機面板、電腦螢幕、醫療用顯示屏、觸控面板、面板模組、背光模組

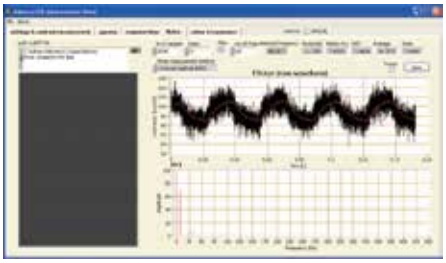




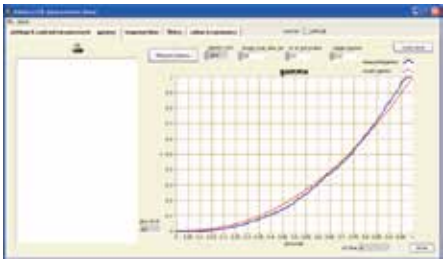
Multiple point system example

Example measurement software

Contrast Ratio

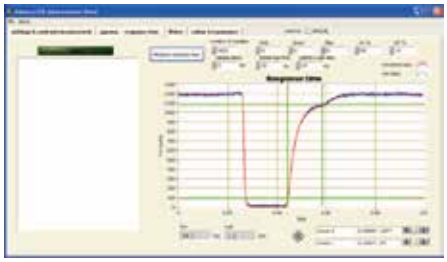


Flicker



Gamma

Colour



Response time

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MSE 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	5V compliant			
Power ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Max current**
USB power no shutter used	4.75V	5.00V	5.25V	120mA
USB power Shutter used	4.75V	5.00V	5.25V	225mA
Measurement system				
Photo detector	Silicon photo diode using XYZ interference filter			
Spectral response	Approximates CIE 1931 colour matching functions			
Measurement parameters	XYZ, Yxy, Yuv, correlated color temperature (CCT), dominant wavelength DWL, Flicker, Response time			
Size (HxWxD)	63 x 24 x 65 mm (without lens system)			
Weight	250 gram			
Mounting	12 M3 threat holes spread over four sides of MSE			

Specifications - 10mm Lens

Measurement system			
Optical system	Acceptance angle is 5 degrees (±2.5)		
Measurement spot size	10mm spot size at 50mm, 12mm spot size at 100mm distance		
Measurement speed	Luminance at 22,000 samples/second , Colour measurement at 7ms or higher, depending on luminance level. 150cd/m² with DC level light at 50ms. PWM requires longer integration (multiple frames). Correct detected frequency = 1kHz		
Measurement distance	MSE 10mm Lens MSE+ 10mm Lens	50mm: 10mm spot size, 100 mm: 12mm spot size, 100 mm: 10mm spot size	
Colorimeter Specification			
Parameter	**Range**	**Accuracy**	**Repeatability**
Resolution	15bit for X, Y and Z	>78dB without averaging	
Luminance (Y)	**MSE 10mm** 0.05cd/m² - 3,000 cd/m² Integration time between 1ms and 5sec. **MSE+ 10mm** 0.05cd/m² - 30,000 cd/m² Integration time between 1ms and 5sec.	±4% of measured value Measured at white image of CCFL LCD display. Luminance of app. 150 cd/m2; x = 0.325 y = 0.355	Y: ±0.3% for Y at 0.1cd/m² *1 Y: ±0.15% for Y at 1cd/m² *1 Y: ±0.08% for Y at 5cd/m² *1 Y: ±0.06% for Y at 150cd/m² *1
Chromaticity: x,y		±0.001 (after calibration) Measured at white image of CCFL LCD display. Luminance of app. 150 cd/m²; x = 0.325 y = 0.355	x,y: ±0.003 for Y at 0.1cd/m² *1 x,y: ±0.001 for Y at 1cd/m² *1 x,y: ±0.0005 for Y at 5cd/m² *1 x,y: ±0.0002 for Y at 150cd/m² *1
Measurement speed			1 sample per sec. for Y at 0.1cd/m2 *1 2 - 5 samples per sec. for Y at 1cd/m² *1 5 - 10 samples per sec. for Y at 5cd/m² *1 10 - 50 samples per sec. for Y at 150cd/m² *1
CR measurement	> 200,000	± 5% (depending on lowest Y value)	± 5% (depending on lowest Y value)
Flicker (contrast Method)	10 cd/m² or higher	± 2% Flicker frequency: 30Hz AC/DC 10% sine wave	± 1%
Flicker (Jeita Method)	10 cd/m² or higher	± 2dB Flicker frequency: 30Hz AC/DC 10% sine wave	± 1dB
Operating temperature	10 - 35°C *2		
Shutter lifetime	> 1,000,000		
Shutter speed	250ms - 300ms Depending on temperature and lifetime		

* 1 All measurements are performed 20 times on a CCFL LCD screen with sufficient signal noise ratio, value is based on 2 sigma. Sample speed depends on the measured sample as well : If the sample uses PWM it will take longer so use the lower rated values.

* 2 Operating temperature reaches from 0- 40 degrees, but dark level compensation works best between 10-35 degrees. Other temperature ranges can be calibrated using the mechanical shutter if necessary.

Hyperion - High Speed and Accurate Colour Measurement

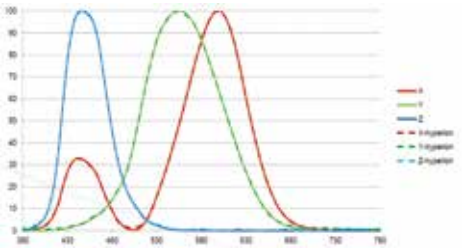
Colorimeter for Display Measurement

The Hyperion colorimeter offers a unique combination of high speed and accurate colour measurement capabilities packed in a robust jacket.The improvement compared to the previous colorimeters is that the Hyperion has a significant improvement on filter characteristics and an incredible speed upgrade. It is actually 4x times faster than our previous models making accurate colour measurements possible in 50ms at 0.3cd/m^2.

Highlights

* Highly accurate colour measurement according to human eye(CIE1931)
* Fast colour measurement even at low luminance level
* Flicker luminance (Y) function: 2,000 samples/second.
* Auto-range function
* Powerful MCU enables internal JEITA flicker calculation
* Mechanical shutter
* USBMTC standard compliant
* Windows, Linux and MAC OSX compatible
* Directly supported in Labview, Labwindows, Visual Studio via VISA library

Typical spectral sensitivity



General Specifications

Interfaces				
USB 2.0	USBMTC compliant, SCPI command set, high speed device			
RS 232	For PC and embedded purposes, using same command set as USB			
Trigger in & out	5V compliant			
Power ratings	**Min voltage**	**Typical voltage**	**Max voltage**	**Max current**
USB power	4.75V	5.00V	5.25V	300mA
9V power	8.75V	9.00V	9.25V	300mA
Measurement system				
Photo detector	3 silicon photo diode using XYZ interference filter			
Spectral response	Approximates CIE 1931 colour matching functions			
Measurement parameters	XYZ, Yxy, Yuv, correlated color temperature(CCT), dominant wavelength DWL, Flicker, Response time			
Size (H x W x D)	53 x 70 x 147 mm (without lens system)			
Mounting	12 M3 threat holes spread over four sides			

Measurement Specifications - 10mm Lens

Measurement system			
Optical system	Acceptance angle 5 ° (+/- 2.5)		
Measurement spot size	13.5 mm at 50 mm distance ; 18 mm at 100 mm distance		
Flicker measurement speed (sample mode)	Luminance 2000 samples / second, XYZ 2000 samples / second Correct detected frequency of at least 1 Hz		
Colour measurement speed	Colour 22 ms or higher, depending on luminance level (including communication) 150 cd/m^2 with DC level light at 16 ms. PWM requires longer integration (multiple frames)		
Sample mode signal frequency response			
Parameter	F_{3db} [a]		
Gain 1	DC - 500 Hz		
Gain 2	DC - 500 Hz		
Gain 3	DC - 500 Hz		
Colorimeter Specification			
Parameter	**Range**	**Accuracy**	**Repeatability**
Resolution	16 bit for X, Y and Z	>80 dB without averaging	
Luminance (Y)	0.005 cd/m^2 - 20,000 cd/m^2 integration time between 0.5ms - 1s	+/-4% of measured value, measured at white image of LCD display, Luminance of app. 150 cd/m^2, x=0.300 y= 0.325	Y +/- 0.5% at 0.1 cd/m^2 *1 Y +/- 0.2% at 1 cd/m^2 *1 Y +/- 0.15% at 5 cd/m^2 *1 Y +/- 0.1% at 150 cd/m^2 *1
Chromaticity (x,y)		+/- 0.001 after calibration, measured at white image of LCD display,Luminance of app. 150cd/m^2, x=0.300 y= 0.325	x,y +/- 0.001 for Y at 0.1 cd/m^2 *1 x,y +/- 0.0005 for Y at 1 cd/m^2 *1 x,y +/- 0.0005 for Y at 5 cd/m^2 *1 x,y +/- 0.0002 for Y at 150 cd/m^2 *1
Measurement speed			4-10 samples / s for Y at 0.1 cd/m^2 *1 10-20 samples / s for Y at 1 cd/m^2 *1 40 samples / s for Y at 5 cd/m^2 *1 40 samples / s for Y at 150 cd/m^2 *1
Flicker (contrast method)	5 cd/m^2 or higher	+/- 0.3% flicker frequency 30Hz AC/DC 10% sine wave. Sine wave at 10 cd/m^2	+/- 0.2%
Flicker (JEITA method)	5 cd/m^2 or higher	+/- 0.3dB flicker frequency 30Hz AC/DC 10% sine wave. Sine wave at 10 cd/m^2	+/- 0.2dB
Operating temperature	10 - 35°C *2		
Shutter lifetime	> 1,000,000		
Shutter speed	250-300 ms depending on temperature and lifetime		

*1 All measurements are performed 20 times on a LED display with sufficient signal noise ratio, value is based on 2 sigma. Sample speed depends on the measured sample. If the sample uses PWM, it will take longer. Use of lower rated values is strongly recommended to ensure repeatability.
*2 Operating temperature reaches from 0 to 40 degrees. Dark level compensation is optimized for operating in temperatures between 10 and 35 degrees.

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Cronus Series - Spectrometer and Colorimeter in one

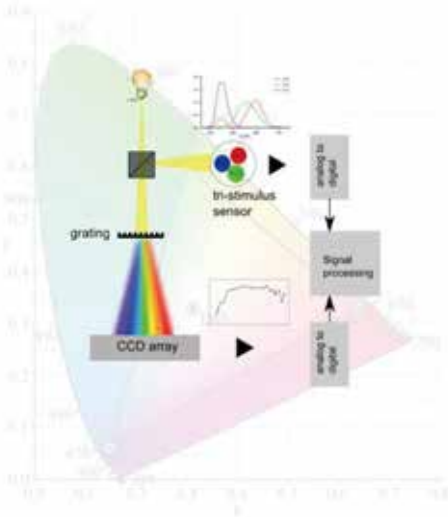
Combining High Speed Measurement with Extreme Accuracy

The Cronus is world's first spectrocolorimeter combining a VIS spectrometer with a MSE like colorimeter. This allows the user to choose between the high speed colour and light measurements of the colorimeter and the detailed spectrum information of the spectrometer.

The Cronus is well suited for lighting and display applications where this combination of speed and accuracy is needed. The Cronus is available in a lens and a fiber version. Just as other Admesy products it is developed with industrial use in mind combining measurement excellence with ease of use, minimal calibration needs, high speed with a compact and robust design. The Cronus offers high end laboratory results with a workforce attitude.

Highlights

* Combination of spectrometer and colorimeter
* LED, lighting and display measurement device
* Measures xy, CRI, CCT luminance, spectrum, flicker
* Up to 50,000 luminance samples per second
* Spectral range 380-780nm, ideal for colour measurements
* Fiber, lens or cosine corrector configuration
* Auto-range function
* Mechanical shutter
* Excellent linearity
* Dark current compensated
* Numerous interface (USB, RS232, Ethernet),ideal for system integration
* USBTMC compliant, SCPI command set, high speed device
* All calculations are done inside



General Specifications

Spectral measurement system			
Spectral range	380 - 780nm		
Optical resolution(FWHM)	2.3nm		
Integration time	2.5ms - 20s		
Stray light	<0.03%		
Non - Linearity	< 1%		
Colorimeter measurement system			
Photo detector	Silicon photo diode using XYZ interference filters		
Spectral response	Approximates CIE 1931 colour matching functions		
Integration time	1ms - 7s		
Flicker measurement speed	Luminance at 22000 samples per second		
System configurations			
Working distance versus spot size-20mm	50mm	100mm	150mm
	22mm	24.5mm	27mm
Acceptance angle	+/- 2.1 degrees		
Interfaces	High speed USB, RS232, Ethernet, Trigger connections		
Weight	1200 gram		
Size (H x W x D)	137 x 88 x 74 mm (without lens system)		
Shutter lifetime	More than 1 million cycles		
Shutter speed	70ms - 120ms (close or open time, depending on temperature and lifetime)		
Operating temperature	10 - 35˚C		
Power consumption	1750mW (USB powered)		

Cronus 20mm Specifications - For Display Measurement

Measurement parameters spectral part			
Luminance range	0.05 cd/m² - 6000 cd/m²		
Wavelength accuracy	+/- 0.5nm		
Luminance accuracy (meas. at std. ill. A)	+/- 4%		
Colour accuracy $x\ y$ (meas. at std. ill. A)	+/- 0.002		
Repeatability[1] [2] [3]			
Luminance level	Luminance (2 sigma)	Colour (2 sigma)	Measurement time (ms)
250 cd/m²	< 0.3%	+/- 0.0005	50
10 cd/m²	< 0.5%	+/- 0.0005	1000
1 cd/m²	< 3%	+/- 0.002	2000
0.25 cd/m²	< 3%	+/- 0.002	5000
Measurement parameters colorimeter part			
Luminance range	0.05 cd/m² - 6000 cd/m²		
Wavelength accuracy	+/- 0.5nm		
Luminance accuracy[4] (meas. at std. ill. A)	+/- 0.5%		
Colour accuracy $x\ y$ (meas. at std. ill. A)	+/- 0.0005		
Flicker accuracy (Jeita)	+/- 3% Flicker frequency 30Hz AC/DC 10% sine wave at 10 cd/m² or higher		
Flicker accuracy (Contrast)	+/- 3dB Flicker frequency 30Hz AC/DC 10% sine wave at 10 cd/m² or higher		
Repeatability[1] [2] [3]			
Luminance level	Luminance (2 sigma)	Colour (2 sigma)	Measurement time (ms)
250 cd/m²	< 0.2%	+/- 0.0005	17
10 cd/m²	< 0.2%	+/- 0.0005	150
1 cd/m²	< 1%	+/- 0.002	500
0.25 cd/m²	< 3%	+/- 0.005	500

[1] Speed and repeatability are directly related to each other, a lower repeatability can increase speed and vice versa.
[2] Data is without the auto-range function, auto-range will add additional time.
[3] Measurements are performed on a LED backlight LCD screen.
[4] Compared with spectral part of the Cronus and after calibration.

Cronus CC System Specifications – For LED/SSL Measurement

Spectral measurement system	
Spectral range	380 - 780nm
Optical resolution (FWHM)	2.3nm
Integration time	2.5ms - 20s
Dynamic range	> 150,000
Non - Linearity	< 0.5%
Accuracy (Y,x,y)[1]	4% +/- 0.002
Repeatability (Y,x,y)[2]	< 1% +/- 0.0005
Colorimeter measurement system	
Photo detector	Silicon photo diode using XYZ interference filters
Spectral response	Approximates CIE 1931 colour matching functions
Dynamic range	> 10,000,000
Measurement speed	Luminance up to 50,000 samples per second
Accuracy (Y,x,y)[1]	4% +/- 0.002
Repeatability (Y,x,y)[2]	< 0.5% +/- 0.0002
System configurations	
Cosine corrector	1cm² cosine corrector
Fiber connector	1cm² cosine corrector or 75, 150 or 250mm integrating sphere
Interfaces	High speed USB, RS232, Ethernet, Trigger connections
Weight	1200 gram
Size (H x W x D)	137 x 88 x 74 mm (without lens system)
Shutter lifetime	More than 1 million cycles
Shutter speed	70ms - 120ms (close or open time, depending on temperature and lifetime)
Operating temperature	10 - 35°C
Power consumption	1750mW (USB powered)

[1] Sufficient signal to noise ratio and relative to the calibration standard
[2] Sufficient signal to noise ratio

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Hera Series - Compact High End Spectrometer

A Small, Robust Package Stuffed with Measurement Power

The Hera Series spectrometer offers a unique combination of ease of use and accurate measurement capabilities packed in a robust jacket. An ideal device for measurements where ease of use, stability, performance and price are of the essence. All in all the perfect solution for hassle free integration in your product or process of for example display or light sources. The Hera spectrometer series consist of various types of spectrometers. VIS spectrometers ranging from 380 to 780nm (Hera 01) and 360 to 830nm (Hera 02), a UV spectrometer with a range from 190 to 435nm (Hera 03) and UV-NIR with a range of 200 to 1100nm (Hera 04).
The Hera series is available in a variety of optical systems: 5, 10 or 20mm collimating lens or a 1cm2 cosine corrector. For measurements of light sources Admesy offers a range of integrating spheres which can be connected through M8 fiber connections. A fixed position fiber connector has been developed to connect the optical fiber in a fixed and uniform way from calibration to final use. Due to this fixed position measurement results are more stable.

Highlights

* Various spectral ranges including UV, VIS and NIR
* Determines both spectral output and colour values
* Autorange function
* Excellent linearity over entire dynamic range
* Dark current compensated, virtually zero over entire integration range
* Holographic grating for low stray light
* USBTMC compliant, SCPI command set, high speed device
* USB, RS232, Ethernet connections and trigger in & out for ideal system integration
* All calculations are carried out inside the device, saving processing power in production environments
* Robust housing, optimized for mounting and protection in harsh production environments

General Specifications

Hera 01	
Model	Hera 01 - VIS
Spectral range	380 - 780nm
Optical resolution (FWHM)	2.3nm
Order sorting filter	2nd order sorting filter
Wavelength accuracy	+/- 0.5nm
Stray light	<0.03%
Luminance accuracy	+/- 4%
Chromaticity accuracy	+/- 0.002
Non - Linearity	< 1%
Integration time	2.5ms - 20s
Spectral resolution	Selectable 0.5nm - 1nm - 2.5nm - 5nm - 10nm
Interfaces	High speed USB, RS232, Ethernet, Trigger connections
Measurement paramet	Spectral output, radiometric data or color data (Lumen, x,y, dwl, pwl CRI etc.)
Data processing time	14ms
Size (L x W x H)	95 x 81 x 61mm (without lens system)
Weight	650 gram
Operating temperature	10 - 35°C
Power consumption	1250mW (USB powered)
Luminance range	0.3 - 1500 cd/m²
Wavelength accuracy	+/- 0.5nm
Luminance accuracy (measured atstandard illuminant A)	+/- 4%
Colour accuracy (measured at standard illuminant A)	+/- 0.002

Hera Lens System Specifications – For Display Measurement

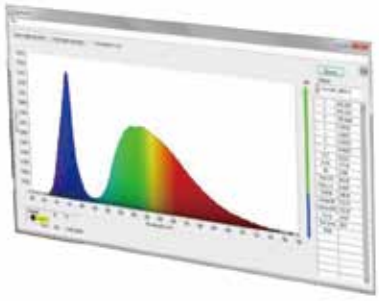
Description	20mm lens
Target	Display
FOV	N/A
Acceptance angle	+/- 0.3˚
Luminance range (cd/m²)	0.05 - 6000
Working distance (WD)	100mm
Spot size at WD	21mm
Spot size at WD - 50mm	20.5mm
Spot size at WD + 50mm	21.5mm

Hera CC System Specifications – For LED/SSL Measurement

Hera type	**01**	**02**	**03**	**04**
Spectral range	380 - 780nm	360 - 830nm	190 - 435nm	200 - 1100nm
Optical resolution (FWHM)	2.3nm	2.3nm	0.7nm	1.7nm
Order sorting filter	2nd order sorting on chip	2nd order sorting on chip	No order sorting filter	Linear variable filter
Wavelength accuracy	+/-0.5nm	+/- 0.5nm	+/- 0.5nm	+/- 0.5nm
Stray light	< 0.03%	< 0.03%	< 0.03%	< 0.03%
Lumen accuracy	+/- 4%	+/- 4%	+/- 5%	+/- 4%
Chromaticity accuracy	+/- 0.002	+/-0.002	+/- 0.003	+/- 0.002
Luminous flux (AIS 75)	1m - 60lm	1m - 60lm	TBD	1m - 60lm
Luminous flux (AIS 150)	5m - 300lm	5m - 300lm	TBD	5m - 300lm
Luminous flux (AIS 250)	10m - 600lm	10m - 600lm	TBD	10m - 600lm

Rhea Series / High-End Spectrometer

Flexible High-End Spectral Measurement Solution



The Rhea series spectrometer offers a unique combination of ease of use and accurate measurement capabilities packed in a robust jacket. Admesy's Rhea utilizes a high-end cooled CCD detector for low noise and high dynamic range. The Neutral density filter wheel extends this dynamic range and also adds a shutter function. The Rhea spectrometer can virtually cover the entire wavelength range from 200-1100nm. Standard version are available however we also support a broad range of gratings for specific applications. Standard versions are: VIS spectrometers ranging from 360 to 830nm. A UV spectrometer with a range from 200 to 435nm. A UV-NIR version of 200-1100nm and a Raman version with a range of 450 to 1100nm.

The Rhea series is available in a variety of optical systems: 5, 10 or 20mm collimating lens or 1cm^2 cosine corrector. For measurements of light sources Admesy offers a range of integrating spheres which can be connected through M8 fixed position fiber connections. This fixed fiber connector has been developed to connect the optical fiber in a fixed and uniform way from calibration to final used. Due to this fixed position measurement results are more stable.

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Highlights

* Various standard spectral ranges including UV, VIS and NIR, custom spectral options range from 200-1100nm
* Cooled high-end CCD detector, cooled to -10 degrees Celsius
* High optical throughput design
* Neutral density filter wheel for huge dynamic range
* Shutter function
* Low noise
* Auto-range function
* Wavelength Calibrated
* Very low stray light
* Excellent linearity, internally compensated within 1%
* Dark current compensated, virtually zero over entire integration range
* USBTMC compliant, SCPI command set, high speed device
* USB, RS 232, Ethernet connections and trigger in & out for ideal system integration
* All calculations are carried out inside the device, saving processing power in production environments
* Robust housing, optimized for mounting and protection in harsh production environments

Speed & Ease of Use

Admesy strongly believes in developing and manufacturing devices where ease of use and speed are key factors. In order to achieve these aspects, Admesy considers the following aspects of spectrometers to be taken care of.

* Wavelength calibration
* Dark current
* Linearity
* Absolute calibration
* ND filter calibration

General Specifications

Non linearity	<1%
Data output resolution	Selectable 0.5nm, 1nm, 2.5nm, 5nm or 10nm
Spectral range	Ranging from 200nm to 1100nm
Order sorting filter	Linear variable filter
Wavelength accuracy	± 0.5nm
Stray light	<0.05% (measured @ 400nm with 455nm cut-off filter with broadband light source)
Luminance accuracy	±4% (after calibration)
Chromaticity accuracy	±0.002 (after calibration)
Detector	High end hamamatsu cooled detector (S7031)
Baseline noise	10 counts RMS (16 bit adc)
Fitler wheel	OD0, OD1, OD2, OD3, OD4, shutter function
Integration time	5ms ~ 10 minutes
Cooling temperature	-10 degrees celcius
Interfaces	High speed USB, RS232, Ethernet, Trigger connections
Measurement parameters	Spectral output, radiometric data or colour data (Lumen, x,y, DWL, PWL, CRI, CCT, etc.)
Data processing time	15ms
Size (LxWxH)	230 x 195 x 82.5mm (without optical system)
Weight	3.3 kg
Operating temperature	10-35°C
Power consumption	5000mW

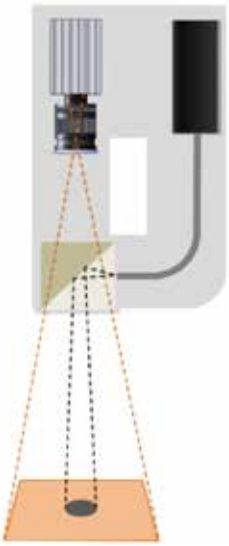
Rhea Series Specifications

Rhea type	**01**	**02**
Spectral range	300 – 900nm	200 – 1100nm
FWHM (100um slit)	2.9nm	3.9nm
Order sorting filter	Linear variable filter	Linear variable filter
Radiance/Irradiance accuracy	±4%	±4%
Repeatability	±0.2%	±0.2%
Chromaticity accuracy	±0.002	±0.002
Chromaticity repeatability	±0.0002	±0.0002
Application	Colour	General

Note: Specification is subject to change without notification, no legal rights can be derived from this specification.
Note: Specification of models which are not in production can change.
Note: Typical value, contact us for different FWHM values.
Note: After calibration to the calibration standard

Atlas - 2D Spectral Vision System

Ultimate 2D Imaging CCD Combined with a Spectrometer



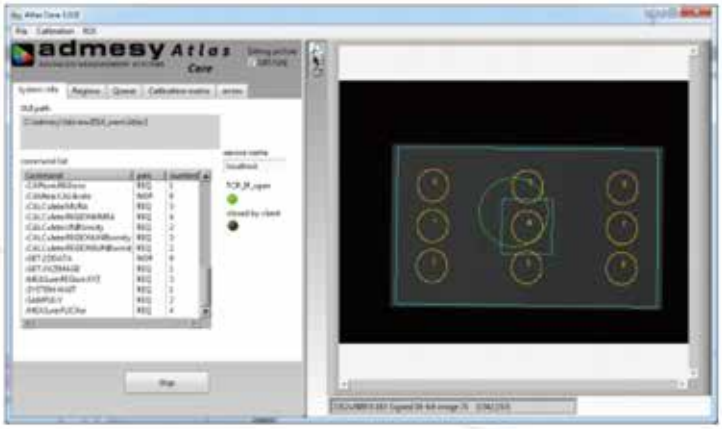
The Atlas 2D analysis system is the ultimate 2D imaging CCD combined with a spectrometer. The Atlas combines two fundamentally different devices in one solution giving it unprecedented capabilities and flexibility.Due to the software the operation of the Atlas is very user-friendly.

Highlights

* Luminance & colour uniformity measurements
* Mura measurements
* White point adjustment
* Self-calibrating 2D part due to the spectrometer
* High accuracy due to spectrometer
* 2D and spectrometer Auto-range measure function
* Dark current compensated
* Programmable regions of interest

Keyboard Inspection Application

Software Screen



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Inspection items

Uniformity	By DFF uniformity algorithm
Line defects	By Admesy algorithm
Blob defects	By AdmesyMura algorithm
Dust	By DFF Mura algorithm
Pixel defects	By DFF Mura algorithm and colour uniformity algorithm
Colour blobs	By colour uniformity algorithm
Light leakage (edge Mura)	By DFF uniformity algorithm

Specifications

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

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

General	
Temperature	15˚C to +35˚C
Humidiy	10% to 90% non-condensing
Weight	5.5kg

8MP camera	
Resolution	3312 x 2488
Sensor	KAI-08050 TrueSense CCD
Output format	12bit
Non - Linearity	< 1%
S/N ratio	60dB
Maximum integration time	1ms - 16 seconds

16MP camera	
Resolution	4872 x 3248
Sensor	KAI-16000 TrueSense CCD
Output format	12bit
Non - Linearity	< 1%
S/N ratio	60dB
Maximum integration time	1ms - 16 seconds

Spectrometer	
Spectral range	380 - 780nm
Optical resolution (FWHM)	2.3nm
Integration time	1.4ms - 20 seconds
Stray light	<0.03%
Non - Linearity	< 1%
Spectral range	380 - 780nm

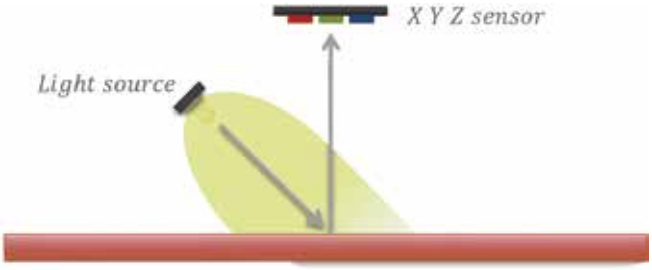
Optics

8 MP			
Lens	Componon-S 4.0/80	Componon-S 4.5/90	Componon-S 5.6/100
f	4.0	4.5	5.6
Focal length	80.3mm	91.2mm	102.3mm
Field of view			
Horizontal	12.5˚	11.2˚	10.1˚
Vertical	9.4˚	8.4˚	7.6˚
Diagonal	15.5˚	13.9˚	12.6˚
Measure distance			
6 inch / 152mm	593mm	677mm	766mm
8 inch / 203mm	774mm	883mm	997mm
10 inch / 254mm	956mm	1089mm	1228mm
12 inch / 305mm	1137mm	1295mm	1459mm

16 MP		
Lens	Componon-S 4.5/90	Componon-S 5.6/100
f	4.5	5.6
Focal length	91.2mm	102.3mm
Field of view		
Horizontal	16.0˚	14.5˚
Vertical	10.7˚	9.7˚
Diagonal	19.2˚	17.3˚
Measure distance		
6 inch / 152mm	492mm	558mm
8 inch / 203mm	635mm	719mm
10 inch / 254mm	779mm	880mm
12 inch / 305mm	922mm	1041mm

Arges Series - High End Colorimeter and Stable Light Source in One

High Speed 45/0 Reflective Surface Analysis



45/0 degree measurement principle

The Arges 45/0 degree colorimeter is a combination of our high speed colorimeters and a stabilized light source similar to the Steropes. Thanks to its innovative design the controlled light beam hits the surface at a 45 degree angle and the colour is measured perpendicularly at a 0 degree angle. This setup allows for high speed and accurate colour measurement of surfaces and materials, easily detecting even minor colour variances, excluding the specular component. Admesy has developed the Arges colorimeter with industrial applications in mind, offering the possibility to use the Arges for both contact and non-contact measurements.

Highlights

* Reflective colour measurement according to 45/0 degree standard
* High speed measurement: 10000 colour measurements/second in RAM mode
* Measure colour and luminance in various colour spaces: XYZ, CIELab, LCH, Luv
* Measure deltaE according to CIE1976, CIE1994, CIE2000, CMC
* Trigger input and output for in line applications. General Purpose I/O for control
* Measure via a PC (also embedded systems) or stand alone
* Works on various operating systems: Windows, OSX, Linux, winCE
* SCPI command interface for easy integration in other applications
* USBTMC standard compliant – full speed USB2.0 interface
* Directly supported in Labview / Labwindows / Visual Studio via VISA library. All other programming languages that support VISA can be used

General Specifications

Interfaces				
USB 2.0	USBTMC compliant, SCPI command set, Full speed device.			
RS232	For PC and embedded purposes, using the same command set as USB.			
I/O	8 lines 5V TTL compliant general purpose I/O			
Trigger input and output	5V TTL compliant.			
Power ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Max Current**
USB powered	4.75V	5.00V	5.25V	Typical 350mA
DC powered	8.50V	9.00V	9.50V	Typical 350mA
GPIO powered	8.50V	9.00V	9.50V	Typical 350mA
Measurement system				
Photo detector	Silicon Photo diodes using XYZ filters			
Spectral response	Approximates CIE 1931 2 degree colour matching functions			
Measurement parameters	XYZ, Lab, Luv, LCH, △E (CIE1976, CIE1994, CIE2000, CMC)			
Optical system	45° lighting, 0° measurement.			
FOV detector	10 degrees			
Measurement spot size	3mm			
Measurement speed	Colour measurement at 10,000 points/second.			
Size (H x W x D)	65 x 55 x 106 mm			
Weight	600 gram			
Mounting	4 x M4 threat holes on bottom plate 4 x M4 threat Holes on the top			

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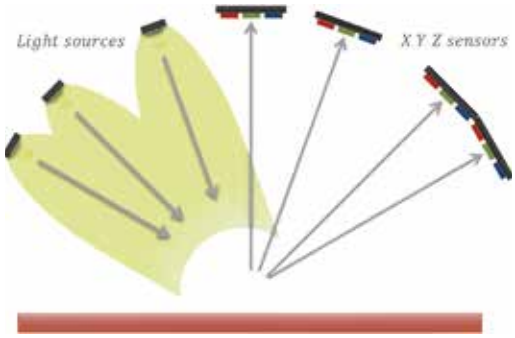
Colorimeter specification

Parameter	Range	Accuracy	Repeatability
Resolution	16bit for X, Y and Z	> 60dB without averaging for X, Y, Z	
Light source output (Y)	White LED Light output is optically stabilized	Within ± 0.3% over entire lifetime	± 0.1% internal light source stability
Illuminant	D65,D50 and C....		
Inter instrument agreement	△E < 1.5 (measured on 24 tiles of the gretag chart)		
Delta E	> 0.05	0.02	± 0.03 (CIE 1976)
Absolute accuracy	△E < 0.5 (measured on grey tiles of the gretag chart) △E < 3 (average of 24 measurements on the gretag chart)		△E of 0.2
Operating Temperature	10 - 40°C		

Vates Seris - Multi-Angle Reflective Surface Analysis

Colour and Gloss Measurement in One



20-45-60 multi degree measurement principle

The Vates is the multi-talented member of the Admesy product family: It offers the reflective surface measurement capabilities of the Arges with 45/0 degree geometry, combined with 20, 45 and 60 degree gloss and colour measurement. Three stabilized light sources and four colour measurement sensors at fixed angles contribute to an easy to use, low maintenance, high end colour and gloss meter for applications in R&D and production settings that demand specular component excluded (SCE), specular component included (SCI) and separate gloss measurements. SCE colour measurements are carried out by Illuminating surfaces and measuring from different angles. This allows true colour measurement excluding the influence of gloss. SCI measures colour by illuminating and measuring at various angles to measure both colour and gloss for total appearance measurement. Gloss is measured by illuminating a sample from a predefined angle and measuring the light reflected at the same but opposite angle.

Highlights

* Reflective colour measurement according to 45/0 degree standard
* Gloss or colour measurement at 20, 45 and 60 degrees
* High speed measurement: 4000 colour or gloss measurements / second in RAM mode
* Measure colour and luminance in various colour spaces: XYZ, CIELab, LCH, Luv
* Measure deltaE according to CIE1976, CIE1994, CIE2000, CMC
* Trigger input and output for in line applications. General Purpose I/O for control
* Measure via a PC (also embedded systems) or stand alone
* Works on various operating systems: Windows, OSX, Linux, winCE
* SCPI command interface for easy integration in other applications
* USBTMC standard compliant – full speed USB2.0 interface
* Directly supported in Labview / Labwindows / Visual Studio via VISA library. All other programming languages that support VISA can be used

Fields of Application

* Automation
* Plastics
* Paper
* Photovoltaic cells
* Coatings
* Paints

General Specifications

Interfaces				
USB2.0	USBTMC Complicant, SCPI commpand set, high speed device			
Ethernet	Same command set as USB			
RS232	Same command set as USB			
Trigger input and output	5V compliant			
Power ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Consumption**
USB powered	4.75V	5.00V	5.25V	450mA
DC powered	8.50V	9.00V	9.50V	450mA
Measurement system				
Photo detector	Silicon photo diodes using XYZ filters			
Spectral response	Approximates CIE 1931 2 degree colour matching functions			
Measurement parameters	XYZ, Lab, Luv, LCH, △E (CIE1976, CIE1994, CIE2000, CMC)			
Optical system	20˚, 45˚, 60˚ lighting 0˚, 20˚, 45˚, 60˚ measurement			
LED	Natural white LED, stabilized through internal optical feedback loop			
Measurement speed	Colour and gloss measurement at 4000 points/s			
Size (H x W x D)	99 x 71.5 x 183.5mm			
Weight	1400 gram			
Mounting	4 x M4 threat holes on top			

Colorimeter Specifications

Parameter	Range	Accuracy	Repeatability
Resolution	16 bit for X, Y and Z	> 60dB without averaging	
Light source output (Y)	White LED is optically stabilised	Within 0.3% over full lifetime	± 0.1% (internal stability)
Illuminant	D65, D50, C.....		
Inter instrument agreement	△E < 1.5		
Delta E	> 0.05	0.02	± 0.03 (CIE 1976)
Absolute accuracy	△E < 0.5 (measured on grey tiles of gretag chart) △E < 3 (average of 24 measurement on the gretag chart)	± 2% Flicker frequency:30Hz AC/DC 10% sine wave	1%
Operating temperature	10 - 40˚ C		

Gloss Specifications

Parameter	Range	Accuracy	Repeatability
Resolution	16 bit for X, Y and Z	> 60dB without averaging	
Light source output (Y)	White LED is optically stabilised	Within 0.3% over full lifetime	± 0.1% (internal stability)
Gloss	20˚ 0 - 2000 GU 60˚ 0 - 1000 GU	from 0 - 99.9 GU ± 0.5 GU from 0 - 2000 GU ± 0.5%	from 0 - 99.9 GU ± 0.1 GU from 0 - 2000 GU ± 0.1%
Operating temperature	10 - 40˚ C		

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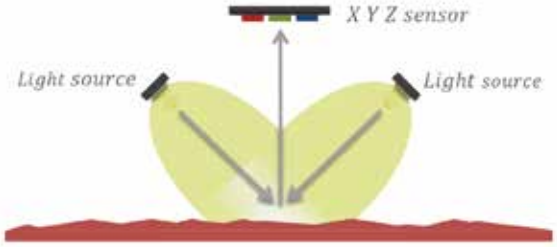
Cylon Series - Innovative Ring of Light

Hard to Measure Surfaces Meet Their Nemesis



Cylon multi angle 45/0 degree measurement principle

The Cylon colorimeter's most outstanding feature is its innovative, stabilised lighting technology: Creating a perfectly 360 degree lit and controlled measurement environment on even the hardest and uneven surfaces. Amongst others the Cylon is used in the high speed production of example carpets, textiles, tiles or quality control on leather. The Cylon's lighting technology is developed from Admesy's Steropes series stable light sources and is designed in such way that no area remains unlit. Inside is a high speed and stable colorimeter giving the best measurements over and over.

Highlights

* Reflective colour measurement according to 45/0 degree standard around 360 degrees
* Measurements of surfaces with variations in height up to 5 mm
* Suitable for non-contact measurements
* Measure colour and luminance in various colour spaces: XYZ, CIELab, LCH, Luv
* Measure deltaE according to CIE1976, CIE1994, CIE2000, CMC
* Trigger input and output for in line applications. General Purpose I/O for control
* Works on various operating systems: Windows, OSX, Linux, winCE
* SCPI command interface for easy integration in other applications
* USBTMC standard compliant – full speed USB2.0 interface
* Directly supported in Labview / Labwindows / Visual Studio via VISA library

Fields of Application

* Fabrics
* Powders
* Paper
* Food
* Plastics
* Paints

General Specifications

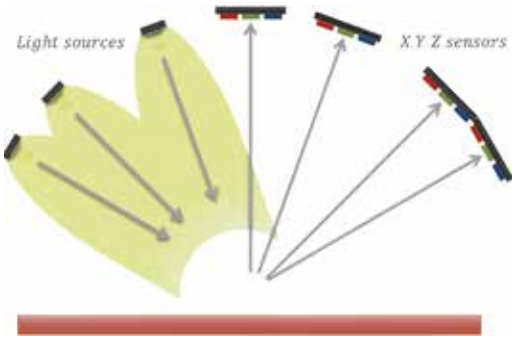
Interfaces				
USB 2.0	USBTMC compliant, SCPI command set, full speed device			
RS232	Same command set as USB			
Ethernet	Same command set as USB			
Trigger input and Trigger output	5V compliant			
Power ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Max current**
DC powered	14.5V	15V	15.5V	360mA
Measurement system				
Photo detector	Silicon photo diodes using interference based XYZ filters			
Spectral response	Approximates CIE 1931			
Measurement parameters	XYZ, Yxy, CIEL*a*b*, Luv, LCH, △E			
Optical system	45° circumferential lighting, 0° measurement			
FOV detector	10 degrees			
Measurement spot size	15 - 45mm			
Measurement speed	Sample mode: 10,000 measurement/s			
Size (HxWxD)	220 x 140 x 140 mm			
Weight	4600 gram			
Mounting	Numerous options, depending on application			

Colorimeter Specifications

Parameter	Range	Accuracy	Repeatability
Resolution	16 bit for X, Y and Z	> 60dB without averaging for X, Y, Z	
Light source output (Y)	White LED light output is optically stabilised	Within ± 0.3% over entire lifetime	± 0.1% internal light source
Illuminant	D65, D50, C, etc		
Inter instrument agreement	△ E < 1.5		
Delta E	> 0.05	0.02	± 0.03 (CIE 1976)
Absolute accuracy	△ E < 0.5 (measured on grey tiles of gretag chart) △ E < 3 (average of 24 measurement on the gretag chart)		△ E of 0.2
Operating temperature	10 - 40° C		

Vates Series - Multi-Angle Reflective Surface Analysis

Colour and Gloss Measurement in One



20-45-60 multi degree measurement principle

The Vates is the multi-talented member of the Admesy product family: It offers the reflective surface measurement capabilities of the Arges with 45/0 degree geometry, combined with 20, 45 and 60 degree gloss and colour measurement. Three stabilized light sources and four colour measurement sensors at fixed angles contribute to an easy to use, low maintenance, high end colour and gloss meter for applications in R&D and production settings that demand specular component excluded (SCE), specular component included (SCI) and separate gloss measurements. SCE colour measurements are carried out by lluminating surfaces and measuring from different angles. This allows true colour measurement excluding the influence of gloss. SCI measures colour by illuminating and measuring at various angles to measure both colour and gloss for total appearance measurement. Gloss is measured by illuminating a sample from a predefined angle and measuring the light reflected at the same but opposite angle.

Highlights

* Reflective colour measurement according to 45/0 degree standard
* Gloss or colour measurement at 20, 45 and 60 degrees
* High speed measurement: 4000 colour or gloss measurements / second in RAM mode
* Measure colour and luminance in various colour spaces: XYZ, CIELab, LCH, Luv
* Measure deltaE according to CIE1976, CIE1994, CIE2000, CMC
* Trigger input and output for in line applications. General Purpose I/O for control
* Measure via a PC (also embedded systems) or stand alone
* Works on various operating systems: Windows, OSX, Linux, winCE
* SCPI command interface for easy integration in other applications
* USBTMC standard compliant – full speed USB2.0 interface
* Directly supported in Labview / Labwindows / Visual Studio via VISA library. All other programming languages that support VISA can be used

Fields of Application

* Automation
* Plastics
* Paper
* Photovoltaic cells
* Coatings
* Paints

General Specifications

Interfaces				
USB2.0	USBTMC Complicant, SCPI commpand set, high speed device			
Ethernet	Same command set as USB			
RS232	Same command set as USB			
Trigger input and output	5V compliant			
Power ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Consumption**
USB powered	4.75V	5.00V	5.25V	450mA
DC powered	8.50V	9.00V	9.50V	450mA
Measurement system				
Photo detector	Silicon photo diodes using XYZ filters			
Spectral response	Approximates CIE 1931 2 degree colour matching functions			
Measurement parameters	XYZ, Lab, Luv, LCH, △E (CIE1976, CIE1994, CIE2000, CMC)			
Optical system	20˚, 45˚, 60˚ lighting 0˚, 20˚, 45˚, 60˚ measurement			
LED	Natural white LED, stabilized through internal optical feedback loop			
Measurement speed	Colour and gloss measurement at 4000 points/s			
Size (H x W x D)	99 x 71.5 x 183.5mm			
Weight	1400 gram			
Mounting	4 x M4 threat holes on top			

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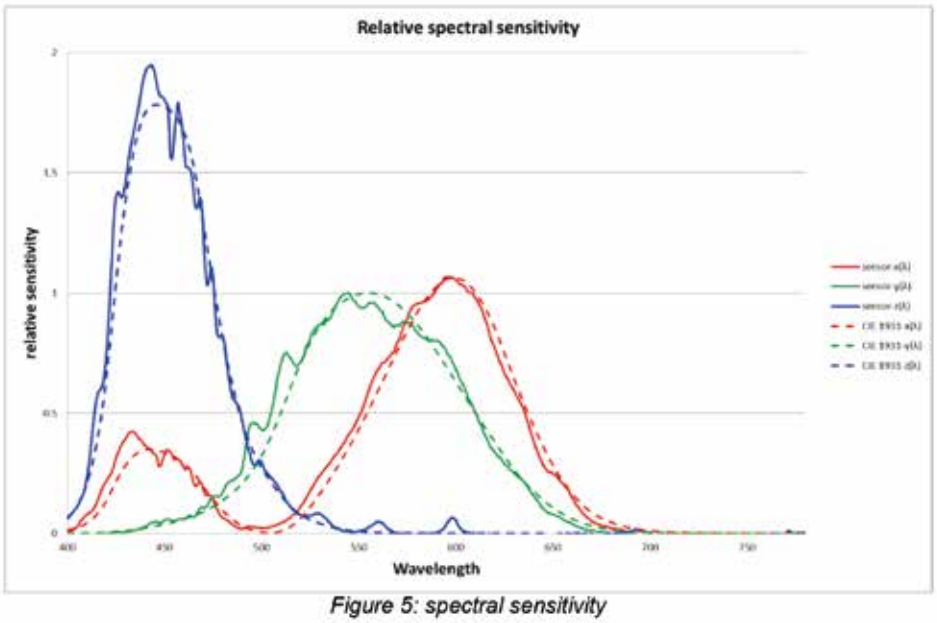


Figure 5: spectral sensitivity

Colorimeter Specifications

Parameter	Range	Accuracy	Repeatability
Resolution	16 bit for X, Y and Z	> 60dB without averaging	
Light source output (Y)	White LED is optically stabilised	Within 0.3% over full lifetime	± 0.1% (internal stability)
Illuminant	D65, D50, C.....		
Inter instrument agreement	△E < 1.5		
Delta E	> 0.05	0.02	± 0.03 (CIE 1976)
Absolute accuracy	△E < 0.5 (measured on grey tiles of gretag chart) △E < 3 (average of 24 measurement on the gretag chart)	± 2% Flicker frequency:30Hz AC/DC 10% sine wave	1%
Operating temperature	10 - 40˚ C		

Gloss Specifications

Parameter	Range	Accuracy	Repeatability
Resolution	16 bit for X, Y and Z	> 60dB without averaging	
Light source output (Y)	White LED is optically stabilised	Within 0.3% over full lifetime	± 0.1% (internal stability)
Gloss	20˚ 0 - 2000 GU 60˚ 0 - 1000 GU	from 0 - 99.9 GU ± 0.5 GU from 0 - 2000 GU ± 0.5%	from 0 - 99.9 GU ± 0.1 GU from 0 - 2000 GU ± 0.1%
Operating temperature	10 - 40˚ C		

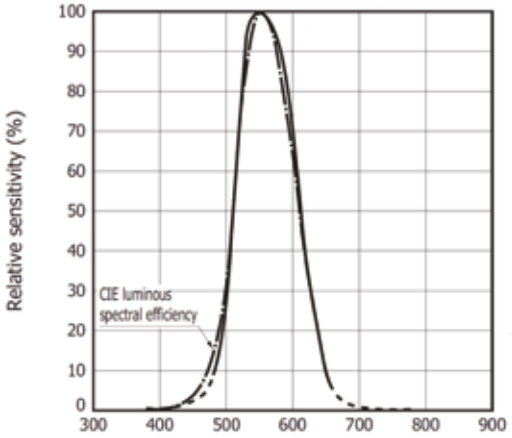
Asteria Series - Compact, Fast Industrial Light Meter

High-Speed Robust Luminance, Illuminance & Flicker Meter

Asteria is a high-speed measurement device suited for Luminance, Illuminance and Flicker measurements. Based on the popular Admesy platform the Asteria is designed for in-line use with integrated calculating power for easy implementation and high speed measurement results in production settings. The Asteria is available in two configurations: the lens based system is capable of measuring luminance (cd/m²) and flicker, its cosine corrector configuration allows illuminance (lux) and flicker measurements.

Highlights

* Absolute luminance or illuminance measurement according to the human eye: CIE1931 luminosity function
* All flicker measurement standards supported for LCD: Contrast, JEITA, VESA and Lighting: percentage, index
* Measure high and low frequencies at the same time through a high sample rate and large memory size
* Trigger input and output for in line applications
* 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)/ etc.
* USBTMC standard compliant
* Integrating- or sampling mode available
* 3 gain stages for every mode
* Autorange function
* User calibration function and pre-programmed calibration values



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	5V compliant			
Power ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Max current**
USB powered	4.75V	5.00V	5.25V	220mA
System information				
Photo detector	Silicon photo diode			
Spectral response	Approximates CIE 1931 spectral luminous efficiency curve, fs value 8% typical			
Measurement parameters	Luminance, illuminance, flicker (contrast, JEITA, VESA, Percentage, Index), Response time.			
Optical systems	10mm lens system & cosine corrector			
Measurement speed in sample mode	180,000 samples/second. Memory for 250,000 samples. For samples/delay versus total measurement time see table below.			
Operating Temperature	10 - 35°C			
Mechanical dimensions				
Size (H x W x D)	69 x 31 x 93 mm			
Weight	320 gram			
Mounting	12 M3 threat holes spread over four sides of Asteria			

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Asteria 10mm Specifications

Optical system					
Optics	10mm lens				
Acceptance angle	Acceptance angle 5° (+/- 2.5)				
Measurement spot size	12 mm at 50 mm distance 15.5 mm at 75 mm distance 19 mm at 100 mm distance				
Sample mode signal frequency response					
Parameter	f_{3db}				
Gain 1	DC - 20 kHz				
Gain 2	DC - 50 kHz				
Gain 3	DC - 120 kHz				
Measurement Specification					
Parameter	**Range**	**Accuracy**	**Light level (cd/m²)**	**Repeatability**	**Speed (samples/sec)**
Luminance (Y) (integrating mode)	0.005 – 15,000 cd/m² integration time between 1ms and 5 seconds	±4% 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	±4% of measured value. Measured at white image of LED LCD display. Luminance ~ 150 cd/m²	1	± 0.20%	4 - 10
			5	± 0.10%	10 - 20
			20	± 0.05%	20 - 100
			>150	± 0.03%	20 - 100
Flicker (Contrast Method)	1 - 15,000cd/m²	±1% Flicker frequency:30Hz AC/DC 10% sine wave @10cd/m²			
Flicker (JEITA method)	1 - 15,000 cd/m²	±1dB Flicker frequency:30Hz AC/DC 10% sine wave @ 10cd/m²			

Asteria Cosine Corrector Specifications

Optical system					
Optics	1 cm² cosine corrector				
Consine response	Lambertian				
Sample mode signal frequency response					
Parameter	f_{3db}				
Gain 1	DC - 20 kHz				
Gain 2	DC - 50 kHz				
Gain 3	DC - 120 kHz				
Measurement Specification					
Parameter	**Range**	**Accuracy**	**Light level (lx)**	**Repeatability**	**Speed (samples/sec)**
Luminance (Y) (integrating mode)	0.005 - 15,000lx integration time between 1ms and 5 seconds	±4% 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
Luminance (Y) (sampling mode)	1 - 150,000 cd/m²	±4% of measured value. Measured on halogen light source with illuminance level ~1800 lx	10	± 0.20%	4 - 10
			50	± 0.10%	10 - 20
			200	± 0.05%	20 - 100
			>1500	± 0.03%	20 - 100
Percentage Flicker	1 - 150,000cd/m²	±1% Flicker frequency: 100Hz AC/DC 10% sine wave @100 lux			
Flicker Index	1 - 150,000 cd/m²	± 0.01 Flicker frequency: 100Hz AC/DC 10% sine wave @ 100 lux			

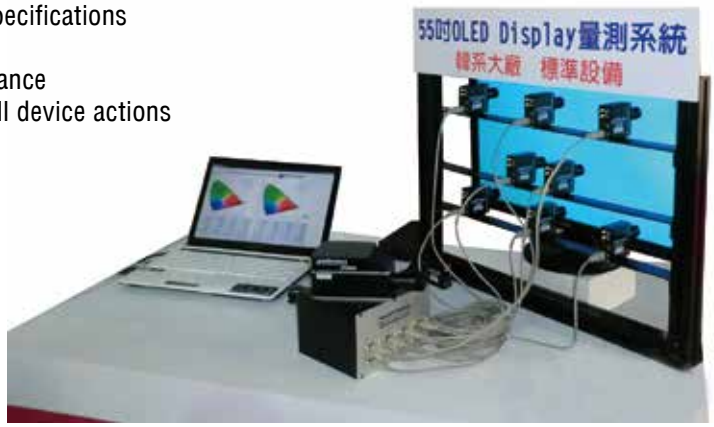
Medusa Series - Multitasking Made Easy

Smart Multiple Device Controller Platform

The Medusa smart device controller platform is designed to operate multiple Admesy devices. It allows our customers to control up to 16 multiple units at once vastly increasing measurement options. All Admesy products are supported and can be used together with the Medusa controller series. Connected devices can be divided into groups and controlled via their unique device ID which allows for both single device measurements and multiple device measurements. Besides these benefits the Medusa is particularly interesting for use in difficult environments such as vacuum chambers where a reduced number of outgoing connections is desired.

Highlights

* Simultaneous measurement up to 4, 8, 12 or 16 ports
* USB ports 500mA compliant as required by USB specifications
* Trigger in- & out connectors
* Combine different types of measurement in an instance
* Build in operating system taking care of handling all device actions



Specifications

System input information (device connector side)				
USB 2.0	USBTMC compliant, SCPI command set, high speed device 4, 8, 12 or 16 USB devices			
Trigger in- & out	5V compliant			
System output information (controller / output side)				
USB 2.0	USBTMC compliant, SCPI command set, high speed host			
Ethernet	Same command set as USB			
RS232	Same command set as USB			
Trigger in- & out	5V compliant			
Power ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Max Current**
USB output power	4.75	5	5.25	Max. 500mA per USB port
DC Input power	11V	12V	13V	Max. 1200mA per each 4 port configuration
System information				
Size 4 port (H x W x D)	60 x 180 x 103 mm			
Size 8 port (H x W x D)	113.4 x 180 x 153 mm			
Size 12 port (H x W x D)	140 x 180 x 153 mm			
Size 16 port (H x W x D)	166.6 x 180 x 153 mm			

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Steropes / Stable Control LED Light Source

Measurement is All About The Right Lighting

Obtaining good measurement results requires good and stable lighting. With this in mind Admesy developed the Steropes LED light source, which is a stable, accurate light source controlled by a build-in colorimeter resulting in a very high stability of the light output.
With the Steropes the user is certain to have a light output at 0.1% accuracy. Combined with our olorimeters or spectrometers the stabilized light of the Steropes offers the best measurement results.

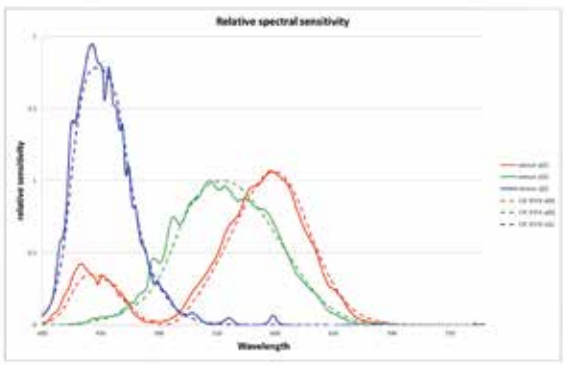
Highlights

* Ultra stable light source with internal regulation
* USB and RS232 communication interfaces controlled light output
* Ultra-fast stabilization within 10 ms
* Stand-alone mode available
* Suitable for use in vacuum environments
* Standard in natural white LED, other colours and custom wavelengths are available on request

General Specifications

Interfaces				
USB 2.0	USBTMC compliant, SCPI command set, full speed device USB connection also available on GPIO connector for industrial connection.			
RS232	For PC and embedded purposes, using same command set as USB			
GPIO	Same command set as USB			
Trigger in- & output	5V compliant			
Power Ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Max current**
USB powered	4.75V	5.00V	5.25V	50-600mA
DC-adapter powered	8.50V	9.00V	9.5V	50-600mA
GPIO powered	8.50V	9.00V	9.5V	50-600mA
System Information				
Size (HxWxD)	54.6 x 55 x 98 mm			
Mounting	4 M4 threat holes on bottom plate 2 M4 threat holes on front side			
LED	LED lighting system			
Light output	0 – 100% in 0.1% steps			
Self-regulating	Light source regulates itself, accuracy of 0.1% over lifetime and over temperature			
Stabilization time	Less than 10 ms			

Typical spectral sensitivity of Steropes controller



Spectral sensitivity of the Steropes build-in colorimeter.

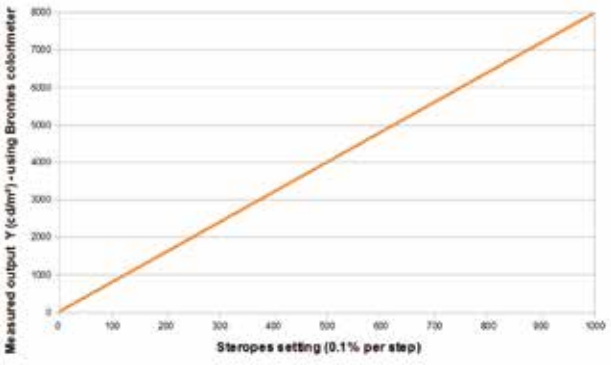


Fig 2 Linearity measured with Admesy Brontes colorimeter.

Steropes / Halogen Light Source

Measurement is All About The Right Lighting

Obtaining good measurement results requires good and stable lighting. With this in mind Admesy developed the Steropes Halogen light source, which is a stable, accurate light source controlled by a current stabilisation circuit.With the Steropes halogen the user is certain to have a light output at +/- 0.1% /˚C accuracy. Combined with our colorimeters or spectrometers the stabilized light of the Steropes offers the best measurement results.

Highlights

* Ultra-stable light source with internal current regulation
* USB and RS232 communication interfaces controlled light output
* USBTMC standard device, works with NI-VISA or other USBTMC compliant drivers
* Stand-alone mode available
* Mechanical shutter
* Optional blue enhanced light output
* Standard, long life or high power mode
* Standard in 20W

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	5V compliant			
Power Ratings				
	Min voltage	**Typical voltage**	**Max voltage**	**Max current**
USB power	4.75V	5.00V	5.25V	1mA*1
24V power	20V	24V	36V	1500mA

System Information	
Size (HxWxD)	60 x 80 x 117 mm *2
Weight	700 gram
Mounting	4 M3 threat holes on top, bottom and front
Wavelength range	360 – 2600 nm
Colour temperature	2900
Colour temperature with blue enhanced filter	5350
Stability	+/- 0.1% / ˚C
Time to stabilize	App. 10 minutes
Temperature range	5 – 40˚C
Source lifetime	1000 hours
Optical power M8 fiber	30 mWatt *3
Optical power M8 fiber with blue enhanced filter	6 mWatt *3
Optical power calibration	75 mWatt *3

*1 No power through USB, only communication
*2 Without optical system
*3 Optical power measured from 350 - 1100 nm

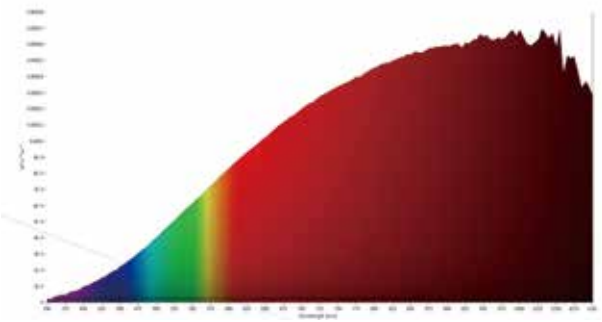


Figure 1 Steropes Halogen spectral output.

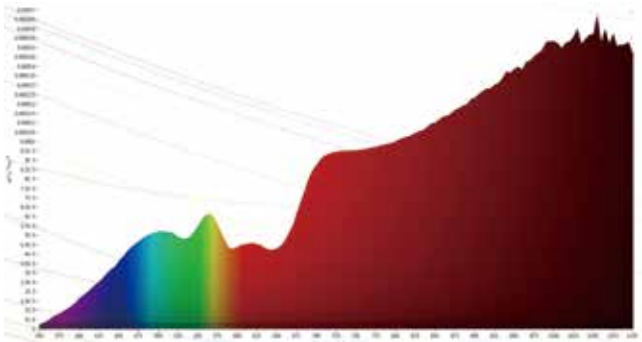


Figure 2 Steropes Halogen blue enhanced spectral output.

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