



Brochure





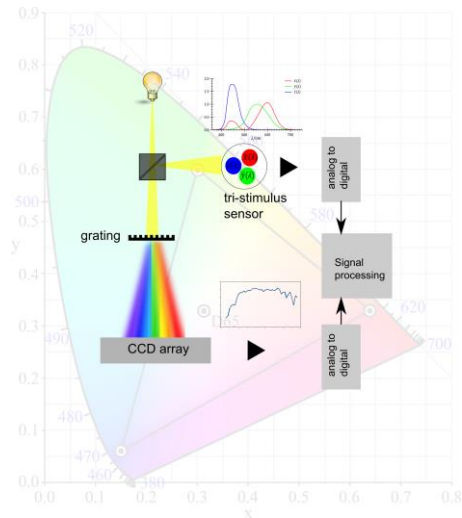
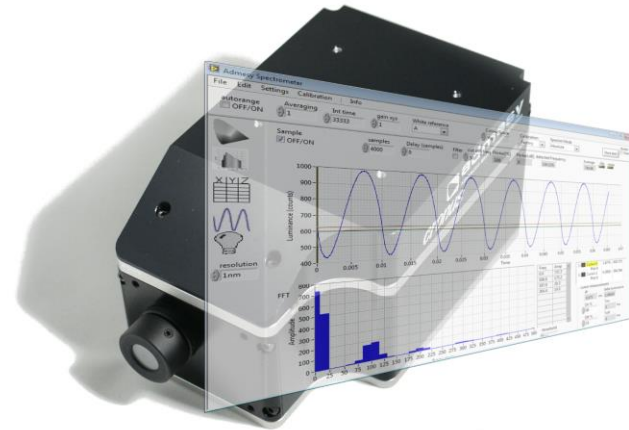
**Introduction**

**Cronus: The first spectrometer and colorimeter in one**

The Cronus is world's first spectrocolorimeter combining a high en VIS spectrometer with a high speed XYZ colorimeter. This allows the user to vary between the high-speed colour and flicker measurements of the colorimeter and the high accuracy and detailed colour information of the spectrometer.

The Cronus is tailored for lighting and display applications where the combination of speed and accuracy is needed in (for example) flicker measurements. The Cronus is available in a Fixed Optics and Fiber Optics version. Just as our other products it is developed with an industrial use in mind combining ease of use, minimal calibration needs, high-speed measurement capabilities with a compact and robust design.

The Cronus offers laboratory results with a workforce attitude.



**Highlights**

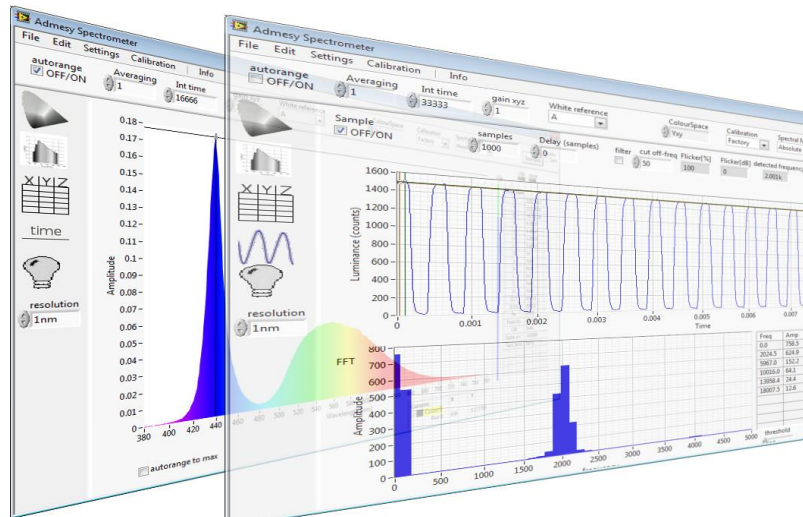
- Combination of spectrometer and colorimeter
- LED, lighting and display measurement device
- Measures xy, CRI, lumen, spectrum, flicker.....
- Up to 50.000 luminance samples per second
- Spectral range 380-780nm, ideal for colour measurements
- Numerous optical configurations (spheres, lenses, cosine corrector.....)
- Auto-range function
- Mechanical shutter
- Excellent linearity
- Dark current compensated
- USBTMC compliant, SCPI command set, high speed device



**Applications**

The Cronus is used for measurements in solid state lighting development and production processes. Due to the spectrometer the Cronus is ideal to develop and monitor the spectral colour of LED light sources during development, during long term testing or in production.

The colorimeter in the cronus allows for high-speed sampling in your production line checking the quality of all your products, leading to increased product quality and production efficiency. The spectrometer can be used for both spectral and colour measurements.



Controlling your LED lighting system is crucial. Not only visible light flicker within the range ~3 to ~70Hz but also invisible (non-perceivable) flicker can have an effect on human health. Ranging from headaches, migraines or impaired visual performance to an increased risk of seizures research has shown that flicker is an effect with reason for concern.

The build-in colorimeter and large internal memory of the Cronus allows for high speed measurements over a long period of time. This enables the user to check flicker effects over time and during fade of the light source. Adjusting the driver during development and checking the flicker effect of each light source during production leads to increased performance and end-user satisfaction and health.



## Configurations

The Cronus spectroradiometer is available in two optical configurations: with **Fixed optical configuration** and **Fiber optical configuration**. All Cronus' products are produced and calibrated to your order and delivered with the accessories needed to start your measurements. Neutral density filters can be applied to the system to change the measurement range.

### Fixed optical configuration

The Cronus with fixed optical configuration is built with the optics directly attached to the body creating a robust and compact measurement system. Available optical systems include 10 or 20mm collimating lenses suited for display measurements or a 1cm<sup>2</sup> Cosine corrector.

The fixed optical system creates a more robust system suited for the more challenging measurement environments.



### Fiber optical configuration

The Cronus with fiber optical system comes with a M8 fiber connector\*, an optical fiber and an optical system or Integrating sphere.

**M8 Fiber connector: the Admesy 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.**

Just as with the fixed optical configuration customers can choose between a variety of optical systems: 5, 10 or 20mm collimating lens or a 1cm<sup>2</sup> cosine corrector. For light source measurements Admesy offers a range of integrating spheres.



## General specification

<b>Cronus spectral measurement system</b>	
Spectral range	380-780nm
Optical resolution (FWHM)	3.2nm
Integration time	2.5ms – 20s
Non - Linearity	< 0.5%
Dynamic range	>150.000
Accuracy <sup>1</sup> (Y, x,y)	4%, +/- 0.002
Repeatability <sup>2</sup> (Y, x,y)	< 1%, 0.0005

<b>Cronus colorimeter measurement system</b>	
Photo detector	Silicon photo diode using XYZ interference filters
Spectral response	Approximates CIE1931 color matching functions
Dynamic range	>10.000.000
Measurement speed	Luminance at up to 50.000 samples per second
Accuracy <sup>1</sup> (Y, x,y)	4%, +/- 0.002
Repeatability <sup>2</sup> (Y, x,y)	< 0.5%, 0.0002

<b>System configurations</b>	
Cosine corrector	Fixed or fiber connected 1 cm <sup>2</sup> cosine corrector
Integrating spheres	75mm, 150mm and 250mm spheres available
Lens systems	10 and 20 mm fixed lens systems available and 5, 10 and 20 mm fiber connected lens systems

<b>System information</b>	
Interfaces	High speed USB, RS232, Ethernet, Trigger connections
Size (height, width, depth)	137,5 x 88 x 74 mm
Power consumption	1750mW (USB powered)
Weight	1.1 kg
Shutter lifetime	More then 1 million cycles
Operating temperature	10-35°C

(1) Sufficient signal to noise ratio and relative to the calibration standard

(2) Sufficient signal to noise ratio

Specifications are subject to change at any time without any notice