CDS-800
Mini CMOS Array Spectrometer

Comprehensive spectral measurements in fractions of a second

Accurate
The highly sensitive CDS-800 Mini CMOS Array Spectrometer offers low noise and a broad spectral response with sensitivity range from 200 to 1100 nm. When coupled with a Labsphere integrating sphere, the spectrometer avoids the inherent photometric errors associated with fiter-based photometers; data is accurate even for narrow-band light sources such as LEDs, solid state lighting, fluorescent lamps, and discharge lamps. In production, these systems can increase the throughput of quality assurance testing which facilitates improved statistical process control for higher manufacturing consistency and greater product quality.

Fast
Labsphere's CDS Mini CMOS Array Spectrometer is a multi-channel spectral analyzer designed for real-time spectral analysis. Instantaneous spectral acquisition provides the radiometric, photometric, and color characteristics of the device under test (DUT). Fast results help to increase the rate of product development, decrease the time to market, and reduce development costs.

Easy to use
The CDS Spectrometer easily connects to a PC via a USB-2 port and uses a fiber optic cable to connect to the optical head, enabling the remote positioning of the spectrometer. Windows® software guides the user through testing procedures making complex spectral measurements simple while still meeting the needs of experienced researchers.

Value:

- Wide spectral range
- < 2.0 nm spectral resolution
- Wavelength accuracy <0.5 nm
- Fast CMOS array detector
- 3 m fiber optic input cable

Measure:

- Packaged LEDs
- Clustered LEDs
- Miniature lamps
- Entertainment lighting
- Automotive lighting

Ordering Information

Model Number	Order Number
CDS-800 CMOS Array Spectrometer	**AS-81080-000**

- Labsphere's CDS CMOS Array Spectrometer
- 3 meter fiber optic input
- 2 meter USB-2 cable

Specifications

Model Number	**CDS-800**
Wavelength Range:	200 - 1100 nm
Signal-to-Noise Ratio:	330:1 (at full signal)
A/D Resolution:	6 MHz
Dark Noise: (correctable)	16 RMS counts
Dynamic Range:	3330
Integration Time:	30 µs to 40 s
Stray Light:	0.2 - 1%
Electronics	
Power:	USB, 500 mA
Computer Operating Systems:	Windows
Computer Interfaces:	USB 2.0
Physical	
Dimensions:	95 mm x 68 mm x 70 mm
Weight:	175 grams
Detector	
Detector:	HAM S11639
Detector Range:	200 - 1100 nm
Pixels:	2048 pixels
Pixel Size:	14 µm x 200 µm

Compatible with:

Integral® Application Software
HELIOSense Application Software
Spectra-UT Ultra Tunable Spectral Calibration Sources
Spectra-FT Fine Tunable Spectral Calibration Sources
Illumia®Plus2 Systems
HELIOS®Plus Systems

MEASURE
any light source

CDS-2600 Spectrometer

When performance, speed, flexibility, and usability are your priorities

Pioneering

First to pave the way for array spectrometers with lighting application software, Labsphere's high-end spectrometers with Integral software continue to set the pace. The base design is the proven Crossed Czerny-Turner spectrograph, with a top of the line electrically-cooled, back-thinned illuminated CCD detector designed for highly efficient stray-light rejection. Our knowledge of many years has been applied to yield a spectrometer design that addresses today's industry needs. The spectral engine includes user-activated integrated shutters for real-time dark subtraction and low uncorrected stray light with intuitive software modules for research, development and production.

Fast and accurate

The highly-sensitive, back-thinned CCD array of the CDS-2600 spectrometer offers low noise, high-dynamic range, very low stray light and unparalleled ease of use. Labsphere's CDS-2600 CCD array spectrometer is a multi-channel spectral analyzer designed for real-time spectral characterization.

When integrated within a Labsphere light metrology system, calibration with auxiliary hardware using Integral® software enables instantaneous acquisition of data that can realize the full range of spectroradiometric, photopic, colorimetric, electrical and thermal characteristics of the device under test (DUT). The increased sensitivity of the CDS-2600 facilitates fast, accurate data driven results that can help increase the rate of product development, decrease the time to market, and reduce development costs.

Complete yet flexible

The CDS-2600 with software stray light correction yields a high performance spectrometer designed to accurately support measurement needs to transition product from research to production. When you are ready to increase your capacity, the integral design and graphical user interface make it easy to transition from research to production with the same high performance you demand from the lab and the ease of use your operations desire.

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Value

- High dynamic range for a broad range of applications
- Fixed cable with SMA
- Internal shutter (real-time dark subtraction)
- Stray light correction
- Integral® software designed for usability
- Fast, low noise; TE cooled back-thinned CCD array detector
- Bench top and rack mountable compact design for today's demanding workspaces
- Adapts to any of Labsphere's light metrology systems and components with NIST traceable calibration options

Measure

- Total Spectral Flux (watts/nm)
- Total Radiant Flux (watts)
- Total Luminous Flux (lumens)
- Spectral Intensity (watts/sr-nm)
- Averaged Luminous Intensity (lumens/sr)
- Averaged Radiant Intensity (watts/sr)
- Spectral Irradiance (watts/cm^2-nm)
- Irradiance (watts/cm^2-nm)
- Illuminance (lux)
- Dominant Wavelength
- Spectral Purity
- Correlated Color Temperature
- Peak Wavelength
- Color Rendering Index (CRI)
- Chromaticity Coordinates
- Correlated Color Temperature
- Half-Bandwidth
- Temporal: W(s), lm(s), CCT(s)

Integral® Software

Sold separately, Integral software is a comprehensive light test application package. It allows for data collection and system control of a variety of system configurations and applications. As a certified National Instruments LabVIEW Alliance partner, Labsphere has designed Integral to include robust reporting capabilities. Integral includes multi-language support and can be accessed remotely via an HTML5-enabled browser. Integral also offers an optional API license option allowing users to create their own programs and interface with existing software applications.

Purchase of the Integral Software Maintenance Plan allows Integral users to stay current with revisions and upgrades when available.

Specifications and Ordering Information

Model Number:	**CDS 2600**
Order Number:	**AS-03023-200**
Detector:	TE Cooled 1044 x 64 CCD (back thinned)
Spectral Range:	325 - 1050 nm
Calibrated Spectral Range:	350 - 1050 nm
Resolution:	2.4 nm
Data Point Interval:	1.0 nm
Integration Time:	8 ms - 900 seconds
Cooling:	-10 ± 0.05 C
TE Temp Drift:	± 1 C
Linearity:	± 0.1%
Sensitivity:	290 ms
Wavelength Accuracy:	< ± 0.4 nm
Average % Noise (360 - 830 nm):	0.07%
Uncorrected Stray Light:	6.1%*
Software Corrected Stray Light:	< 1.0%*
Focal Length:	100 mm
Slit Width:	25 µm
Optical Input:	600 µm, permanently mounted
Includes:	knurled SMA
Speed:	0.1 scans/sec
Dynamic Range:	> 200,000:1**
Internal Shutter:	Yes
AD Converter:	18 bit
PC Interface:	USB 2.0
Weight:	11.3 lbs (5.04 kg)
Dimensions: (W x D x H)	8.3 x 13.0 x 3.5 in (21.1 x 32.9 x 8.9 cm)

* Stray light is the average reported transmittance from 360 - 470 nm through a 500 nm cut-on filter.

** Measured as the saturation signal divided by the standard deviation of the dark signal with 10 scans averaged.

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MEASURE
any light source

CDS 3000
High Speed Spectrometers

Ideal for high precision fixed quantity, UV and quantum efficiency measurement

Accurate

The CDS-30x0 Spectrometer is designed to measure critical spectral and optical characteristics of devices with reliability, speed and accuracy specifically in manufacturing environments. Fiberoptic connectors easily connect the CDS-30x0 to a variety of measurement devices for both spectroradiometric and photometric measurement. The instrument is ideally suited for high precision fixed quantity UV, quantum efficiency measurement and production line use.

Software

DLL drivers are available for customers to easily create proprietary measurement programs. The DLL drivers seamlessly integrate to your specific measurement instrument.

Value

- Wide dynamic range
- Exceptional measurement sensitivity
- Low stray light
- High reproducibility
- High speed
- Synchronized external trigger

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Applications

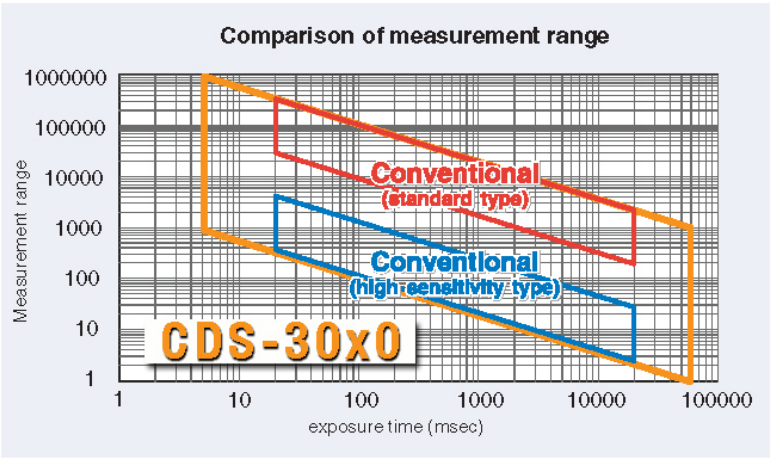
- Luminescence
- In-Line process evaluation
- Reflection/Transmission properties

Measure

- Luminance
- Intensity
- Tristimulus Values
- Chromaticity Coordinates
- Dominant Wavelength
- Peak Wavelength
- Centroid Wavelength
- Correlated Color Temperature
- Color Rendering Properties
- Full Width/Half Max (FWHM)
- Purity (%)

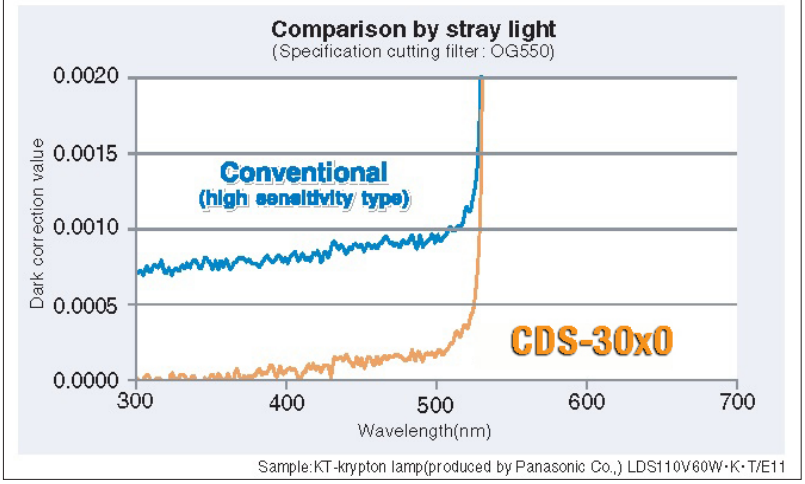
Wide dynamic range

Wide measurement range was achieved by expanding exposure time and combining ND filters.



Low stray light function

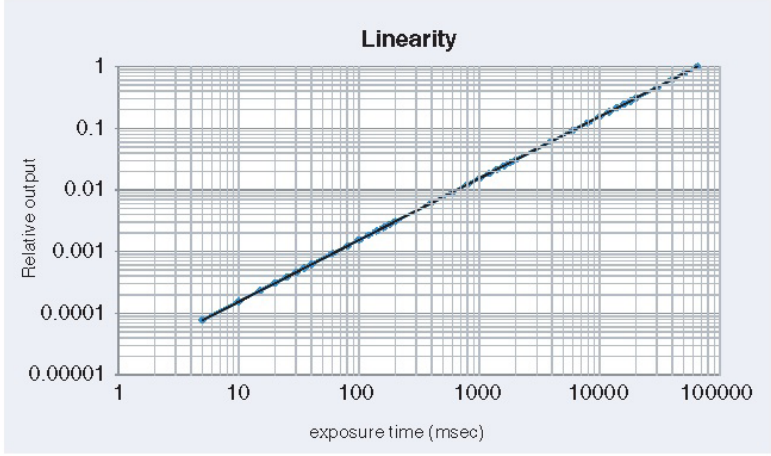
We can achieved about 1/5 decrease of the stray light effect compared with our conventional model by the lowering stray light function.



Sample:KT-krypton lamp(produced by Panasonic Co.,) LDS110V60W・K・T/E11

Speed-up of exposure time and high repeatability

Speed-up by shorter than ever exposure time of 5msec was achieved. Moreover, high repeatability is achieved at wide exposure time up to 65 sec.



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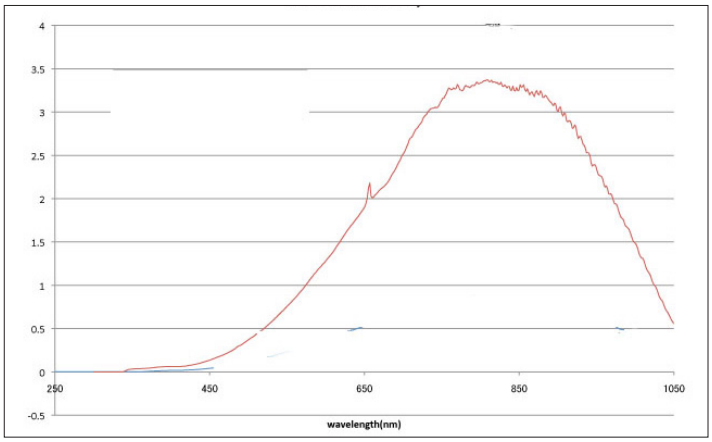
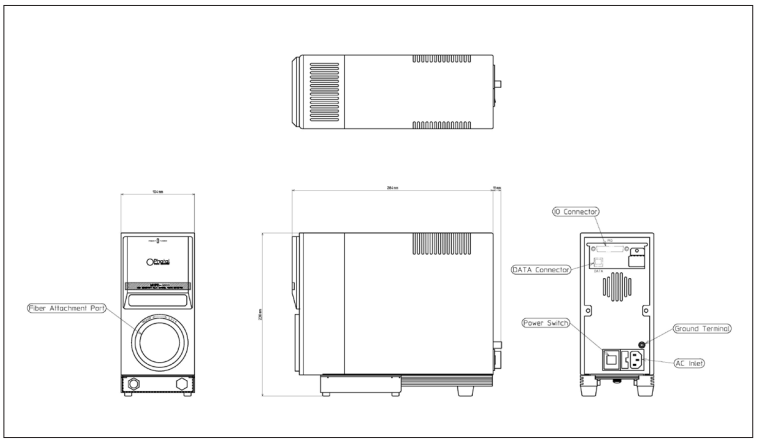
CDS-30x0 Sensitivity



CDS-30x0 Dimensions



Specifications

Spectrometer	**CDS-3020**	**CDS-3030**
Detector: (*1)	TE Cooled 1024 x 122 CCD	TE Cooled 1024 x 122 CCD
Spectral Range:	350 - 830 nm	360 - 1100 nm
Spectral Resolution:	3 nm	3 nm
Grating:	f= 85.8 mm 448grooves/mm	f= 85.8 mm 303grooves/mm
Gate-Time:	5 msec to 20 sec	5 msec to 20 sec
	(option 5 msec to 65 sec)	(option 5 msec to 65 sec)
ND Filter:	OD0-2	OD0-2
Data Point Interval:	0.5 nm*	0.5 nm*
Wavelength Accuracy:	± 0.3 nm	± 0.5 nm
Stray Light:		
(Illuminant A with Y50 cut on filter)	0.97%	0.97%
(Laser 633 nm)	1.8E-5 (450 - 550)	1.8E-5 (450 - 550)
Dynamic Range:	1000000:1	1000000:1
Linearity:	± 0.5%	± 0.5%
A/D Converter:	16 bit	16 bit
A/D Rate:	1 MHz	1 MHz
PC Interface:	USB 2.0	USB 2.0
Weight:	6 kg (18 lbs)	6 kg (18 lbs)
Dimensions: (W x H x D)	105 x 230 x 282 mm	105 x 230 x 282 mm

Installation Environment

Temperature:	20 - 35 C; no sharp temperature change
Relative Humidity:	30 - 80%, no condensation
Ambient Atmosphere:	No corrosive atmosphere, good ventilation
Supply Voltage:	AC100 to 230V 50/60Hz
	No sharp load fluctuation
	No nearby serious noise source

(*1) Detector: Converted to 512ch in order to increase speed to calculate chromaticity. A/D conversion speed 1 ms:512ch, more than 2 ms:1024ch.

*1 nm with MtrX-SPEC

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