



KONICA MINOLTA

Advancing Optical Measurement for Next-Generation Semiconductor and Sensor Manufacturing.

Introducing the CL-700A Illuminance Spectrophotometer

As demand grows for autonomous driving and security applications, optical measurement requirements for image sensors and other semiconductor devices are becoming increasingly demanding.

Konica Minolta's CL-700A Illuminance Spectrophotometer is a next-generation solution designed to address optical measurement challenges in advanced semiconductor manufacturing processes.



■ Optical Measurement Needs in the Semiconductor Industry

In semiconductor manufacturing, optical technologies play a critical role directly linked to yield. The CL-700A supports measurement from UV-A*1 to near-infrared (NIR), helping address challenges across multiple process steps.

*1 Guaranteed measurement range: 360 nm and above

1. Managing UV-A Processes (360–405 nm)

Exposure Process (Photolithography)

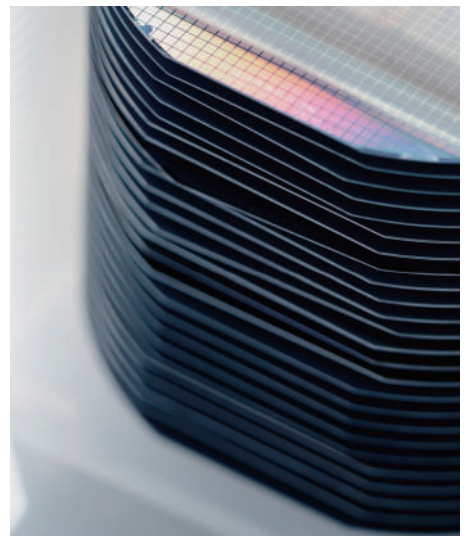
Transferring circuit patterns requires high precision. By managing the wavelength and irradiance of UV-LEDs (e.g., 365–405 nm) and verifying compatibility with photoresist sensitivity characteristics, the CL-700A helps prevent exposure non-uniformity and insufficient curing.

UV Curing Process

Real-time monitoring of accumulated UV exposure and irradiance from UV-LEDs used for rapid curing of encapsulants and adhesives helps prevent insufficient curing and in-plane curing non-uniformity before they occur.

PL Inspection and Surface Inspection Processes

The CL-700A precisely evaluates the wavelength accuracy and output of inspection UV light sources, such as 365 nm LEDs and lasers used for PL inspection of wafer crystal defects, as well as surface and scratch inspection of compound semiconductors and Micro-LEDs. Monitoring light-source aging and wavelength shifts helps maintain the accuracy and reliability of detecting minute defects and contamination.



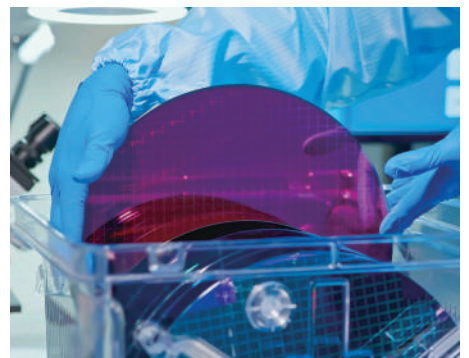
2. Managing Near-Infrared Processes (800–1,000 nm)

Heating and Annealing Processes (RTP/RTA)

In rapid thermal processing of wafers using near-infrared heaters such as halogen lamps, the CL-700A evaluates spectral characteristics up to 1,000 nm. Understanding changes in lamp output and wavelength shifts helps maintain temperature uniformity.

Inspection and Measurement Processes

In non-destructive inspection using near-infrared light transmitted through silicon, such as internal circuit pattern observation and bonding alignment checks, the CL-700A supports verification of inspection light sources and helps eliminate stray light in darkroom environments.



■ Konica Minolta's Proposal

The CL-700A enables consistent light-source management from UV-A to NIR with a single instrument. Its wide illuminance measuring range, from low to high illuminance, helps consolidate instruments that were previously used separately by process, supporting standardized quality control and reduced workload.

Giving Shape to Ideas

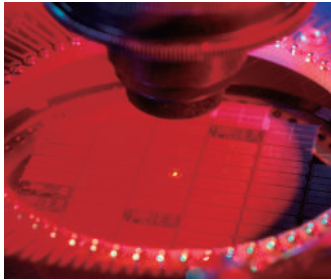
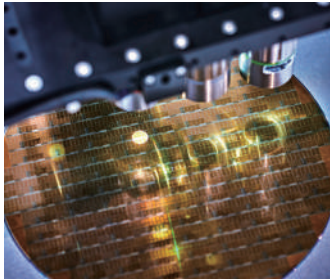
CL-700A Key Specifications and Performance

Combining speed, range, and compactness to enhance both productivity and quality in semiconductor manufacturing.

01

Expanded Measurement Wavelength Range up to NIR (360–1,000 nm)

Conventional instruments limited to the visible range can face accuracy limitations when evaluating NIR sensors operating at 850–940 nm, such as those used in LiDAR and facial-recognition systems. The CL-700A extends measurement capability up to 1,000 nm. A single light-receiving unit covers the range from UV-A to NIR and provides high-accuracy evaluation with flat sensitivity characteristics.



02

Compact, Lightweight Design Ideal for Equipment Integration

Conventional instruments limited to the visible range can face accuracy limitations when evaluating NIR sensors operating at 850–940 nm, such as those used in LiDAR and facial-recognition systems. The CL-700A extends measurement capability up to 1,000 nm. A single light-receiving unit covers the range from UV-A to NIR and provides high-accuracy evaluation with flat sensitivity characteristics.



03

Advanced Analysis with Dedicated "CL-S30" Software

The included dedicated CL-S30 software provides a seamless workflow from measurement-condition setup to real-time display of spectral distributions and chromaticity diagrams, as well as report creation. It strongly supports consistent data management from R&D through mass production.



[CL-700A Illuminance Spectrophotometer — Main Specifications]

Wavelength range	360 to 1000nm
Output wavelength pitch	1nm
Spectral bandwidth	Approx. 10 nm (half bandwidth)
Wavelength precision *1	±0.3 nm (Centroid wavelengths of 435.8 nm, 546.1 nm, 696.5 nm, and 912.3 nm as specified in JIS Z 8724:2015)
Measuring range	0.01 to 200,000 lx (chromaticity accuracy guaranteed range is 0.5lx or more)
Accuracy *2	Ev: ±2%±1 digit of displayed value
	xy: ±0.0015 (5 to 200,000 lx) xy: ±0.003 (0.5 to 5 lx)
Measurement time*3	Super FAST mode: Within 0.3 seconds
	FAST mode: Within 0.5 seconds
	NORMAL mode: Approximately 0.5 to 5 seconds
Size (W × H × D)	80 × 170.5 × 35 mm
Weight	Approx.214 g

* 1 Based on Konica Minolta test standards (temperature change ≤2°C after zero calibration).

* 2 NORMAL mode (at 23°C ±2°C, relative humidity ≤75%).

* 3 The measurement time is the value under the following conditions:

- Time from measurement request from the operating terminal to completion of result reception from the measuring instrument
- When connected via USB
- Super FAST mode when Manual range setting is active
- When Buzzer Drive Mode is OFF

Note: When 15 points are connected (via Ethernet), the measurement time is within measurement time shown + 1 second"

Other Optical Measurement Solutions

Konica Minolta offers a lineup of high-precision measuring instruments to meet a wide range of measurement needs in the semiconductor and display fields.

Illuminance Meter

Illuminance Spectrophotometer CL-500A

A basic model for high-precision measurement of color rendering index and color temperature.



Chroma Meter CL-200A

A standard instrument ideal for measuring illuminance, chromaticity, and color temperature of light sources.



Illuminance Meter T-10A/ T-10MA

High-precision illuminance meters that also support multi-point measurement.



Luminance meter

Spectroradiometer CS-3000HDR/ CS-3000

Provides high-precision spectral measurement from ultra-low to high luminance, including display applications.



Chroma Meter CS-200

A high-precision color luminance meter for spot measurement of luminance and chromaticity of light sources and displays.



Chroma Meter CS-150/ CS-160

Portable instruments for spot measurement of the luminance and chromaticity of light sources and light-emitting surfaces.



Contact Us / Inquiries

Please feel free to contact us regarding demo unit loans, detailed specifications, or implementation simulations for your production line.

KONICA MINOLTA JAPAN, INC.
Konica Minolta Sensing Americas, Inc.

Konica Minolta Sensing Europe B.V.

Konica Minolta (CHINA) Investment Ltd.

Konica Minolta Sensing Singapore Pte Ltd.
Konica Minolta Sensing Korea Co., Ltd.

Tokyo, JAPAN
New Jersey, U.S.A.

European Headquarter
German Office
French Office
UK Office
Italian Office
Swiss Office
Polish Office
Belgium Office
Nordic Office
Spain Office
SE Sales Division
Beijing Office
Guangzhou Office
Chongqing Office
Qingdao Office
Wuhan Office

Singapore
Korean HQ
Thailand Representative Office

Nieuwegein, Netherlands
München, Germany
Roissy CDG, France
Warrington, United Kingdom
Cinisello Balsamo, Italy
Dietikon, Switzerland
Wroclaw, Poland
Zaventem, Belgium
Västra Frölunda, Sweden
Valencia, Spain
Shanghai, China
Beijing, China
Guangzhou, China
Chongqing, China
Shandong, China
Hubei, China

Goyang-si, Korea
Bangkok, Thailand

+1-888-473-2656 (in USA)
+1-201-236-4300(outside USA)
+31 (0) 30 248-1193
+49 (0) 89 4357 156 0
+33 (0) 1 80-11 10 70
+44 (0) 1925 467300
+39 02 84948000
+41 (0) 43 322-9800
+48 (0) 71 734-52-11
+32 (0) 2 7170-933
+46 (0) 31 7099464
+34 (0) 96 330 2013
+86-(0)21-5489 0202
+86-(0)10-85221551
+86-(0)20-38264220
+86-(0)23-67734988
+86-(0)532-80791871
+86-(0)27-85449942

+65 6563-5533
+82 (0) 2-523-9726
+66-2029-7000

*For product details and other contact information, please visit the website below.

www.konicaminolta.com/instruments/network