Multipoint NanoGauge Thickness measurement system

C11295

The Multipoint NanoGauge Thickness measurement system C11295 is a film thickness measurement system utilizing spectral interferometry. It is designed to measure film thickness as part of the semiconductor manufacturing process, as well as for quality control of the APC and films that are mounted on semiconductor manufacturing equipment. Allows multichannel measurement in real time, which provides simultaneous multichannel measurement and multipoint measurement on film surfaces. At the same time it can also measure reflectivity (transmittance), object color, and their changes over time.

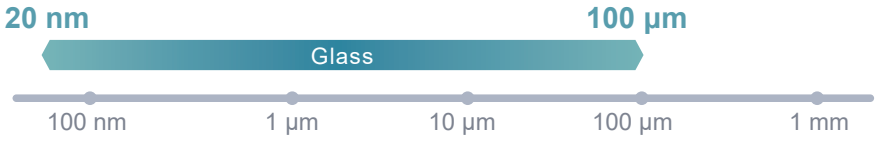
Multipoint measurement model for real time simultaneous measurements

Features

- Simultaneous film thickness measurement up to 15 points
- Reference-free operation
- Stable long-term measurement by correction of light intensity fluctuation
- Alarm and warning function (pass/fail)
- Reflectance (transmittance) and spectrum measurements
- High speed and high accuracy
- Real time measurement
- Precise measurement of fluctuating film
- Analyzes optical constants (n, k)
- External control available

Measurable range

Enables simultaneous measurements in multiple chambers in thin film production lines and multipoint measurements in film production lines.

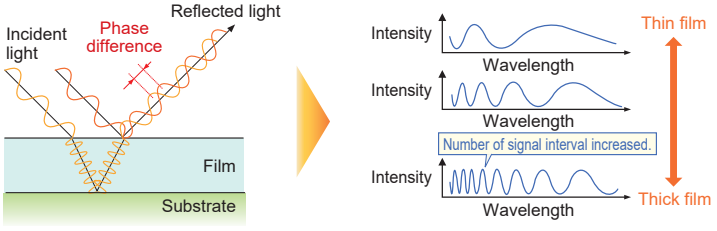


Principle

Spectral interferometry is used to measure film thickness.

White light incident on a sample will display a characteristic spectrum that is dependent on the film thickness. Spectral interferometry is a way of measuring film thickness by analyzing this spectrum.

■ Diagram outlining principle



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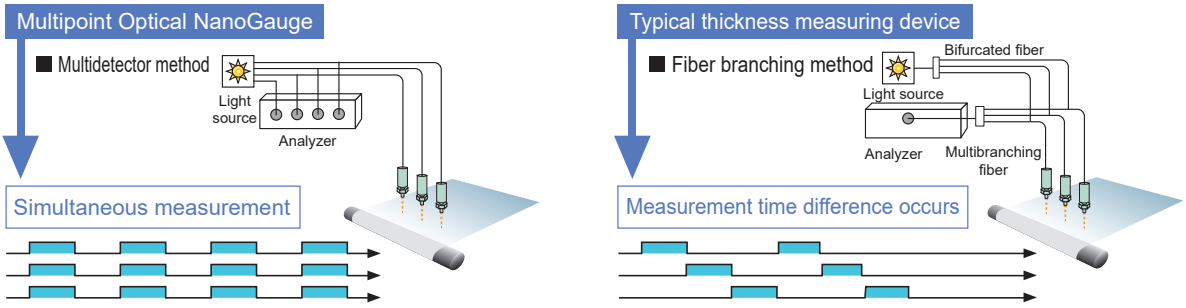
Multipoint measurement method

Concept view comparing multidetector and fiber branch method



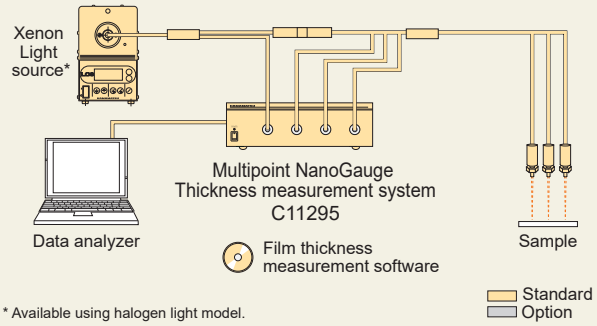
Specifications

Product number	C11295-XX *1
Measurement film thickness range (glass) *2	20 nm to 100 µm
Measurement reproducibility (glass) *3 *4	0.02 nm
Measurement accuracy *4 *5	±0.4 %
Light source *6	Xenon light source
Measurement wavelength range	320 nm to 1000 nm
Spot size *4	Approx. Φ1 mm
Working distance *4	10 mm
Number of measurable layers	Max. 10 layers
Analysis	FFT analysis, Fitting analysis
Measurement time *7	19 ms/point
External communication interface	Ethernet
Interface	USB 2.0 (Main unit - Computer) RS-232C (Light source - Computer)
Power supply voltage	AC 100 V to AC 240 V, 50 Hz/60 Hz
Power consumption	At 2 ch: Approx. 350 VA, at 15 ch: Approx. 500 VA
Light guide connector shape	SMA
Measurement points	2 to 15

*1 -XX indicates the number of measurement points.
*2 When converted with the refractive index of glass = 1.5.
*3 Standard deviation (tolerance) when measuring 400 nm thick glass film.
*4 Depending on optical system or objective lens magnification to be used.
*5 Range of measurement guarantee as recorded in the VLSI Standards measurement guarantee document.
*6 The halogen light source model is C11295-XXH.
*7 Shortest exposure time

Configuration example

C11295-03 Example of system configuration

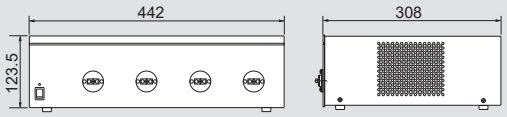


Options

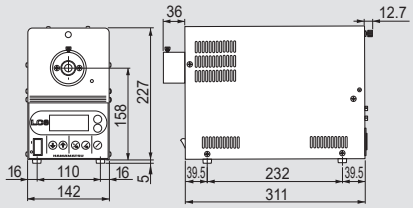
Product number	Product name
A12187-01	SMA Receptacle

Dimensional outlines (Unit: mm)

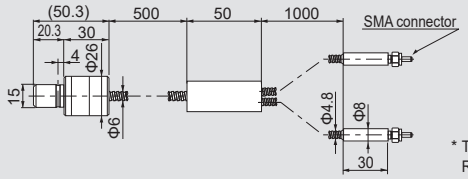
■ Multipoint Nanogauge Thickness measurement system C11295 (Approx. 6 kg)



■ Xenon Light source (Approx. 6.4 kg)

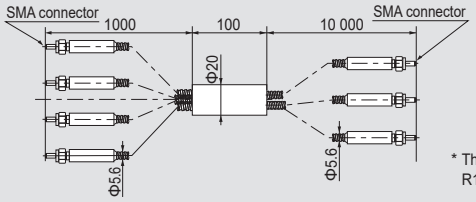


■ Light source light guide



* The bending radius of the fiber is R100 mm or more

■ Measurement light guide



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