

# Optical NanoGauge Thickness measurement system C12562-04



The Optical NanoGauge Thickness measurement system C12562 is a compact, space-saving, non-contact film thickness measurement system designed to easily install in equipment where needed. In the semiconductor industry, measuring silicon thickness is essential due to the spread of through-silicon via technology; and in the film production industry, adhesion layer films are being made ever thinner to meet product specifications. So these industries now require even higher accuracy in thickness measurements ranging from 1  $\mu\text{m}$  to 300  $\mu\text{m}$ . The C12562 allows making accurate measurements across a wide thickness range from 500 nm to 300  $\mu\text{m}$  that include the thin film coating and film substrate thickness as well as the total thickness. The C12562 also offers rapid measurements up to 100 Hz making it ideal for measurements on high-speed production lines.

Measures a wide range of objects from thin films to substrates with a single system

## Features

- Measures ranging from thin film thickness to the total thickness
- Shortens cycle time (max. 100 Hz)
- Enhanced external triggers (accommodates high-speed measurement)
- Simplified measurement is added to the software
- Precise measurement of fluctuating film
- External control available
- Analyzes optical constants (n, k)
- Capable of both surface analysis

## Measurable range

One unit measures a wide variety of materials from thin films to silicon substrates in thicknesses from 500 nm to 300  $\mu\text{m}$ .

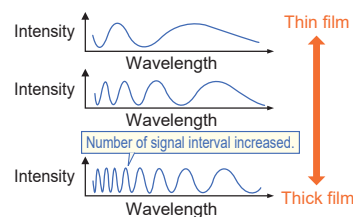
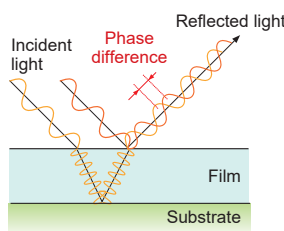


## Principle

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



## Specifications

Product number	C12562-04
Measurement film thickness range (glass) *1	500 nm to 300 μm
Measurement reproducibility (glass) *2 *3	0.2 nm
Measurement accuracy *3 *4	±0.4 %
Light source	Halogen light source
Spot size *3	Approx. Φ1 mm
Working distance *3	10 mm
Number of measurable layers	Max. 10 layers
Analysis	FFT analysis, Fitting analysis, Optical constant analysis
Measurement time *5	3 ms/point
External communication interface	RS-232C, Ethernet
Power supply voltage	AC100 V to AC240 V, 50 Hz/60 Hz
Power consumption	Approx. 80 VA
Light guide connector shape	FC

\*1 When converted with the refractive index of glass = 1.5.

\*2 Standard deviation (tolerance) when measuring 1 μm thick glass film.

\*3 Depending on optical system or objective lens magnification to be used.

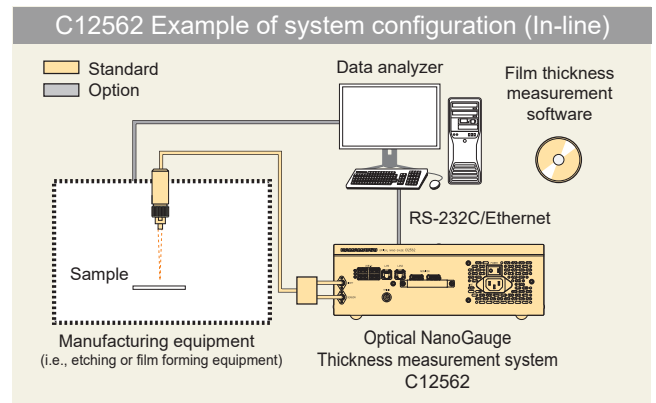
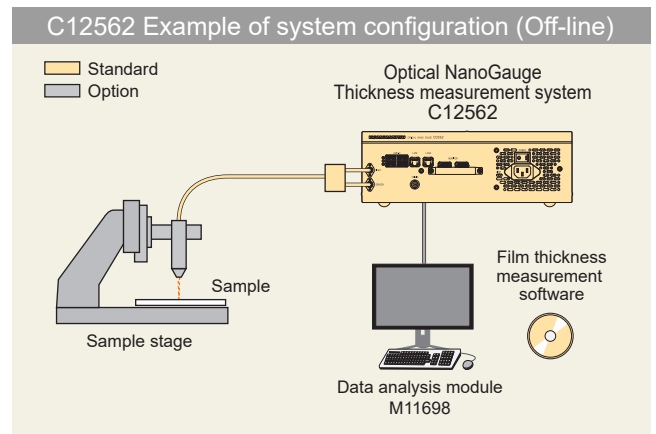
\*4 Range of measurement guarantee as recorded in the VLSI Standards measurement guarantee document.

\*5 Shortest exposure time

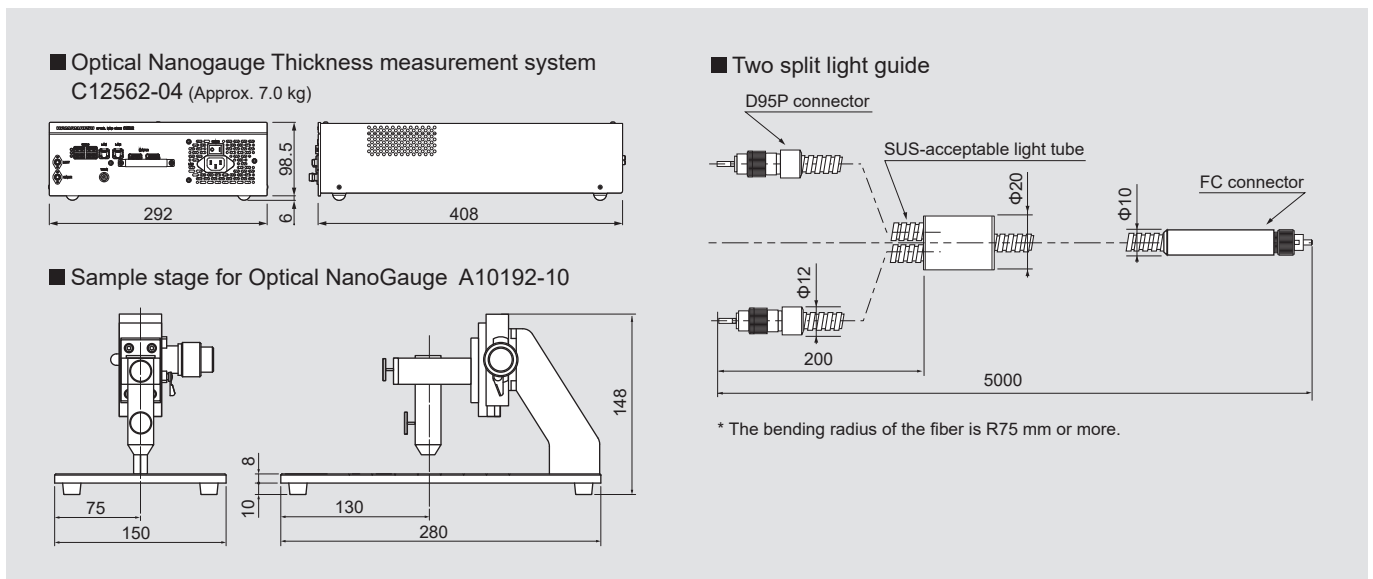
## Options

Product number	Product name
A10192-10	Sample stage for Optical NanoGauge
A10192-05	Sample stage FC connector type for VIS
A12187-02	FC Receptacle
L12839-02	Lamp unit
U12708-01	Film thickness measurement software for both surface
A10191-03	Macro optics FC connector type for VIS
M11698	Data analysis module

## Configuration example



## Dimensional outlines (Unit: mm)



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  - Subject to local technical requirements and regulations, availability of products included in this brochure may vary. Please consult your local sales representative.
  - The product described in this brochure is designed to meet the written specifications, when used strictly in accordance with all instructions.
  - The measurement examples in this brochure are not guaranteed.
  - Specifications and external appearance are subject to change without notice.
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Cat. No. SSMS0067E01  
APR/2024 HPK  
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