



“Redefining Precision: TronSight's Laser Triangulation and Confocal Technology for Next-Gen Manufacturing”

Speakers:



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Who we are?

Vision Components, Delivered.

We are a Start Up of experienced System Integrators bringing to you: Machine Vision components one click away. Explore our e-commerce selection:

- Laser Displacement Sensors
- Vision Lighting & Lenses
- Cameras & Industrial PCs and more!

Ask for our 2025 catalogue!

More Info, contact: sales@aoi-airon.com

www.aoi-airon.com



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Precision Photoelectric Sensors, Industrial Cameras,
Lighting, Lenses, Industrial Computers and more!
Shipped Today!

All Products

- Laser Sensors
- Lighting
- FA Lenses
- Industrial PC
- Industrial Cameras
- Touch Panels (HMI)

All Products Most popular ▾

 AIRON-RING-30-90 €44.00 More options	 10.1 inch - YPC-101AZ From €273.00 More options	 MV-3DL2048G-AB €2.999.99	 MV-ITA/ITAE134GC/M €500.00
 TronSight Bestseller TS-PM80UEA €1.262.00	 TronSight Bestseller TS-P150E €1.238.00	 TronSight Bestseller TS-IV Series Controller IVS-100 €6.813.00	 TronSight Bestseller TS-CPF €3.390.00

Company Timeline: 10 years of R&D



- First demo product
- Base in Suzhou, ready to start a business

- Investment obtained
- 30 colleagues
- New project on interferometric sensor

2015

2018

2021

2023

2025

- First project on laser distance sensor
- Three Master Thesis in Zhejiang University, China

- TronSight Established
- 1 PhDs & 4 Masters
- 200 m² space
- New project on confocal sensor

- More than 120 colleagues
- 3000 m² space
- 4 site offices in China
- Presence in Southeast Asia & Europe (Airon)

TronSight: Precision Measurement Expert

Product Overview: displacement measurement product



TS-P Series Laser Triangulation Sensor



KEY FEATURES:

- Measurement range: 2-2000 mm
- Repeatability: 0.15 μm
- High-speed sampling up to 160 kHz
- Deep customization: wavelength, light source, structure

TS-C Series Chromatic Confocal Sensor



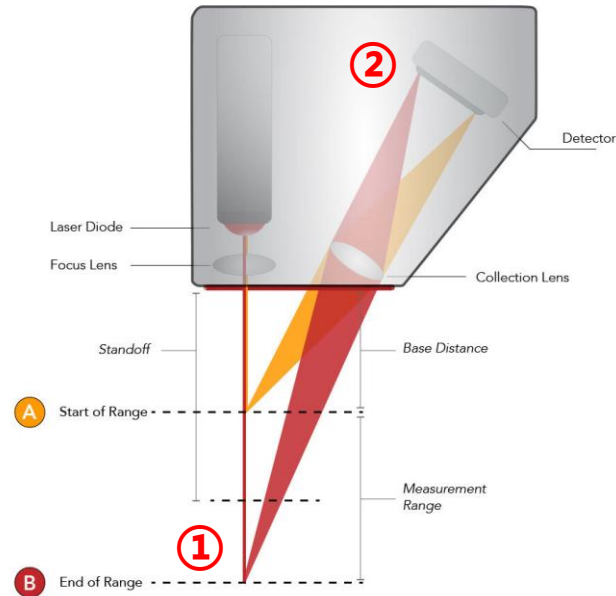
KEY FEATURES:

- Vertical resolution 3 nm
- Sampling up to 32 kHz
- Supports 16-channel synchronous sampling,
- Coaxial configuration minimizes blind zones, can measure high-reflective materials

Product Overview: displacement measurement principle

Laser Triangulation

Measurement Method



Source: Acuity

Pros:

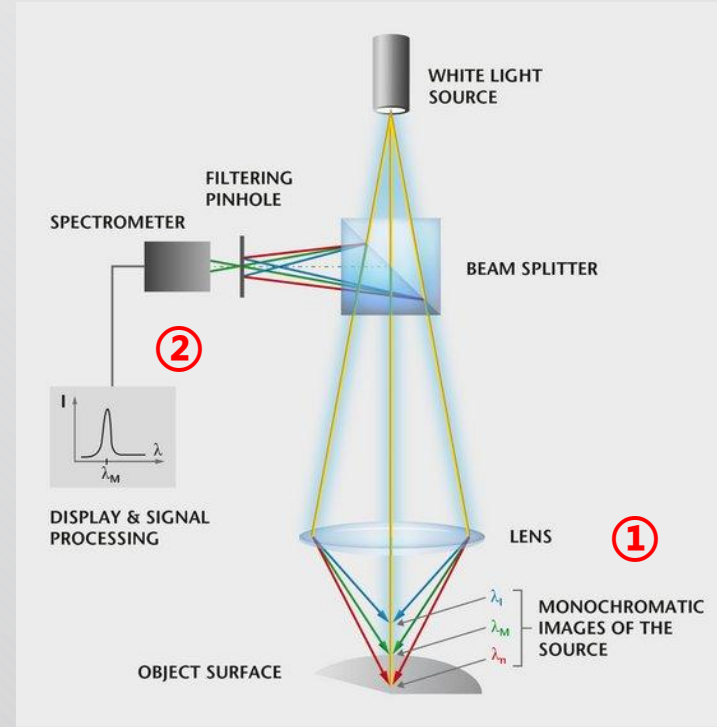
1. high speed
2. long range

Cons:

1. big size
2. vacuum incompatible

PRINCIPLE:

- ① Laser beam diffusely reflected
- ② Image of the spot focused on the detector
- ③ spot location changes with the distance to the target



Source: Polytec

Pros:

1. small size
2. large solid angle
3. glass compatible
4. vacuum compatible

Cons:

1. limited speed
2. short range

PRINCIPLE:

- ① Color-coding of space
- ② Color-decoding by analyzing the spectral content
- ③ the spectrum position changes with the distance to the target

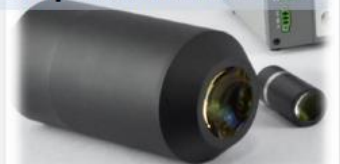
User case 4: glass industry

GLASS BOTTLE THICKNESS MEASUREMENT

Background:

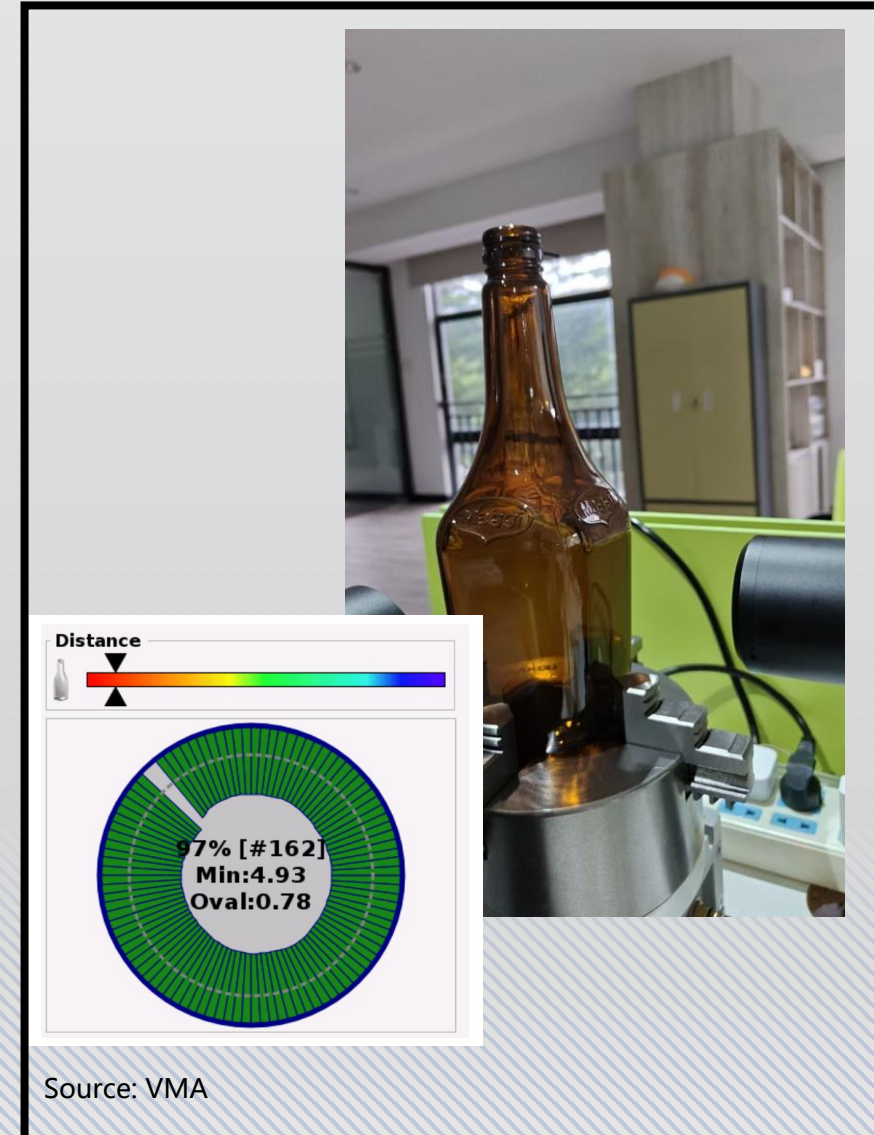
- The wall thickness of every single glass bottle must be checked to avoid breakage and possible harm to the user.
- This measurement process is challenging due to the varying shapes, colors, high production speeds, and extreme temperatures of the glass bottles on the line.
- Therefore, reliable inline measurement is essential for continuous quality control, ensuring manufacturing efficiency and consistent product safety standards.

Chromatic Confocal
Displacement Sensor



SOLUTION & RESULT:

- TS-C Series Chromatic Confocal Sensor



User case 2: Automotive industry

Barcode scanning and recognition for the vehicle wheel hub

Background:

- The production of automotive wheels involves numerous processes, and a 1D barcode is set on the hub to identify its information for convenient quality control.
- This product information is converted into a cast or printed 1D barcode on the wheel, serving as the unique identifier for the corresponding mold, which allows for information logging, positioning, and automatic quantity statistics during production.
- Tronsight's TS-P series laser triangulation displacement sensor can measure the height variations on the wheel edge as it rotates, thereby reading the 1D barcode information.

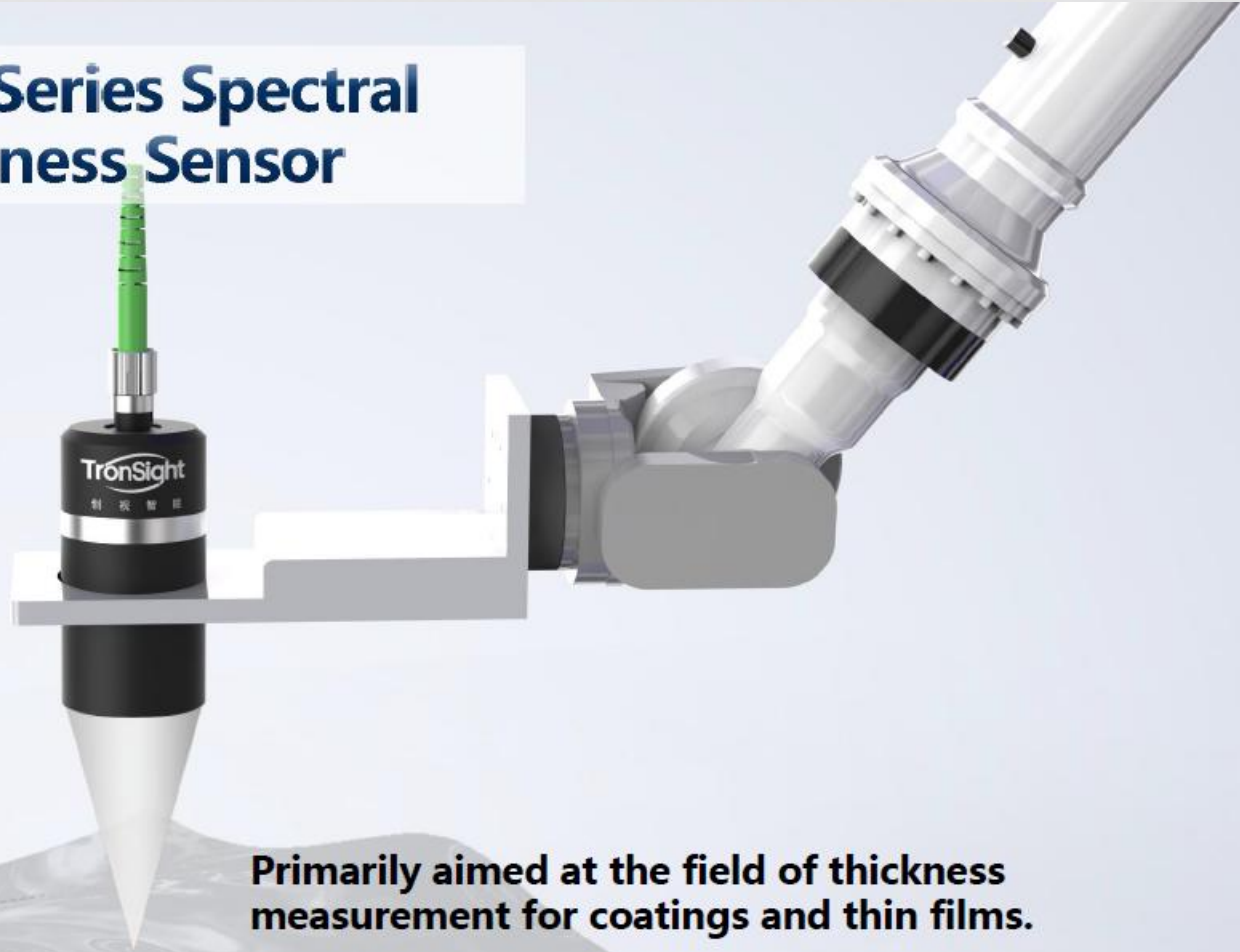
SOLUTION & RESULT:

- TS-P Series Laser Triangulation Sensor

Laser Triangulation Displacement Sensor



Product Features: TS-I Series Spectral Interference Film Thickness Sensor



Primarily aimed at the field of thickness measurement for coatings and thin films.

➤ Band range: visible light, near-infrared band

➤ Thickness measurement range: $1\mu\text{m}\sim 2500\mu\text{m}$

➤ Repeatability precision: 1nm

➤ Measurement speed: 10kHz

UTG THICKNESS MEASUREMENT

Background:

- Ultra-thin flexible glass (UTG) is a type of glass material with flexibility and bendable properties, is a key material in foldable screens.
- UTG is produced by processing ordinary glass through slimming processes, where glass with a thickness of 0.4mm or more is reduced to 0.1mm or less through chemical etching, with some being as thin as 20um, followed by cutting and strengthening treatments.
- During the slimming process, real-time measurement of the reduced thickness is required.



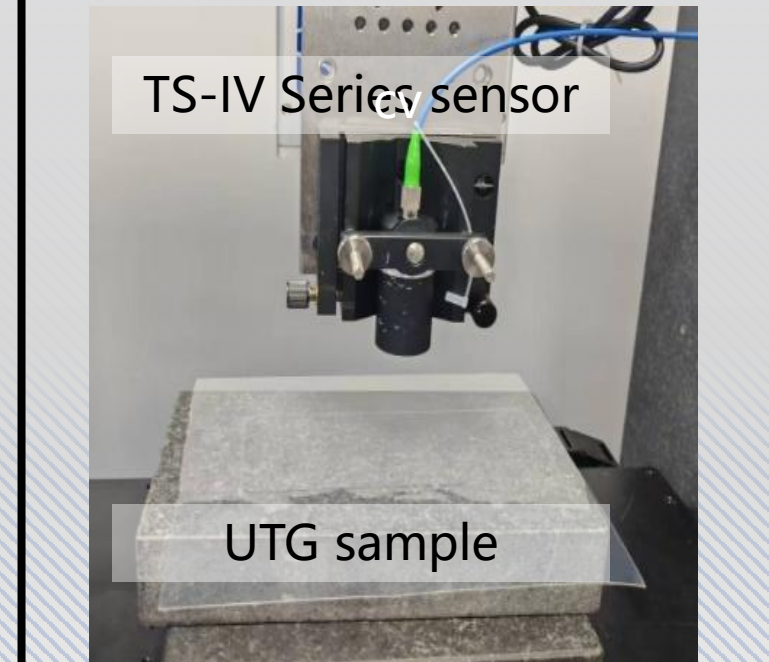
SOLUTION & RESULT:

TS-IV Series white light interferometric sensor

- Sample1: with film on the glass; sample2: without upper film on the glass
- Dynamic repetition test: for each sample, 5 measuring points, 20 times in movement
- **Dynamic repetition <math>< 0.01\mu\text{m}</math>**



Source: SAMSUNG



PRODUCTS

Displacement Measurement



Chromatic Confocal Displacement Sensor

- < 8 mm Probe outer diameter
- 1×10^{-4} Pa Vacuum compatible

Laser Triangulation Displacement Sensor

- 160kHz Sampling speed
- 2~2000mm Measurement range



Split-type Autofocus Sensor

- 50kHz focusing speed
- 0.5 μ m focusing accuracy

Thickness Measurement



Reflective Film Thickness Sensor

- >20 nm measurement capability
- ± 1 nm accuracy

Infrared Interferometric Thickness Sensor

- $\pm 0.1 \mu$ m linear accuracy
- 40 kHz Sampling rate
- 10 μ m-2 mm silicon wafer thickness measurement



White Light Interferometric Thickness Sensor

- 50 mm working distance
- <100 μ m thickness range

The logo for TronSight, featuring the word "TronSight" in a blue sans-serif font with an orange swoosh above the "i" and below the "t".

TronSight

The logo for Airon, featuring the word "Airon" in a bold black sans-serif font with a German flag icon inside the letter "o", and the text "AUTOMATED OPTICAL INSPECTION" below it.

Airon
AUTOMATED OPTICAL INSPECTION

A collection of TronSight and Airon industrial vision inspection equipment, including cameras, sensors, and processing units, arranged on a black display stand. The background features a blurred image of a city skyline and some code snippets.

**Danke,
Thanks,
Obrigado!
谢谢!**

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User case 5: semiconductor industry



WAFER THICKNESS MEASUREMENT

BACKGROUND:

- Due to the "More than Moore" trend, the demand for advanced packaging requires increasingly thinner wafers.
- The successful implementation of these advanced packaging techniques depends on critical process upgrades in areas such as chemical mechanical polishing (CMP), bonding, and metrology.
- Therefore, achieving real-time wafer thickness measurement is essential for these processes and their associated equipment.

SOLUTION & RESULT:

- TS-IR Series infrared interferometric sensor
- sa

Product Overview: thickness measurement product



TS-IV Series white light interferometric sensor



KEY FEATURES:

- Measurement range: 1-100 μm ($n=1.5$)
- Accuracy: $\pm 0.05 \mu\text{m}$
- High-speed sampling up to 10 kHz
- Supports 16-channel synchronous sampling

TS-IR Series infrared interferometric sensor



KEY FEATURES:

- Measurement range: 4-2500 mm($n=1.5$)
- Accuracy: $\pm 0.1 \mu\text{m}$
- High-speed sampling up to 40 kHz
- Able to measure silicon wafer

- TronSight: Precision Measurement Expert
- Focusing on the customers' demands for precision measurement