



High-Precision Measurement Product Catalog

- TS-P Series Laser Triangulation Displacement Sensors
- TS-C Series Chromatic Confocal Displacement Sensors
- TS-M Series Compact Laser Displacement Sensors
- TS-I Series Interferometric Thickness Sensors
- TS-R Series Reflective Film Thickness Sensors

ABOUT US

Suzhou TronSight Intelligent Technology (TronSight) is a high-tech leader in precision measurement sensors, driven by a global team of PhD and Master's experts and combining advanced R&D with precision manufacturing. We are committed to delivering engineering excellence through a technology-driven, service-first approach.

TronSight offers high-precision solutions including chromatic confocal, laser triangulation, and spectral interference sensors. Built on independently developed core technologies and supported by nearly 100 patents, our solutions serve thousands of customers across semiconductor, new energy, consumer electronics, industrial automation, scientific research, and advanced manufacturing industries.

Recognized by national innovation programs and key research initiatives, TronSight continues to advance precision sensing technologies, enabling smarter and more reliable global manufacturing.



Elite Team

Backed by top-tier academic research, we drive continuous innovation to maintain our leading position in high-end sensing.



High-Performance & Value

International-level performance with in-house R&D and 40% cost advantage.



Agile Response

We offer free sampling and rapid technical support, ensuring a seamless experience backed by our robust development capabilities.



Certified Excellence

A leader in national R&D programs with dozens of patents and CE certification, recognized as a premier High-Tech Enterprise.



Suzhou Headquarters



Xinchang Factory



Dongguan Office

30%+
R&D Investment

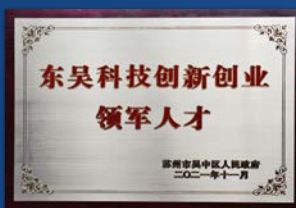
100%
In-house Development

10 Years
Technical Expertise

50+
Patent Applications

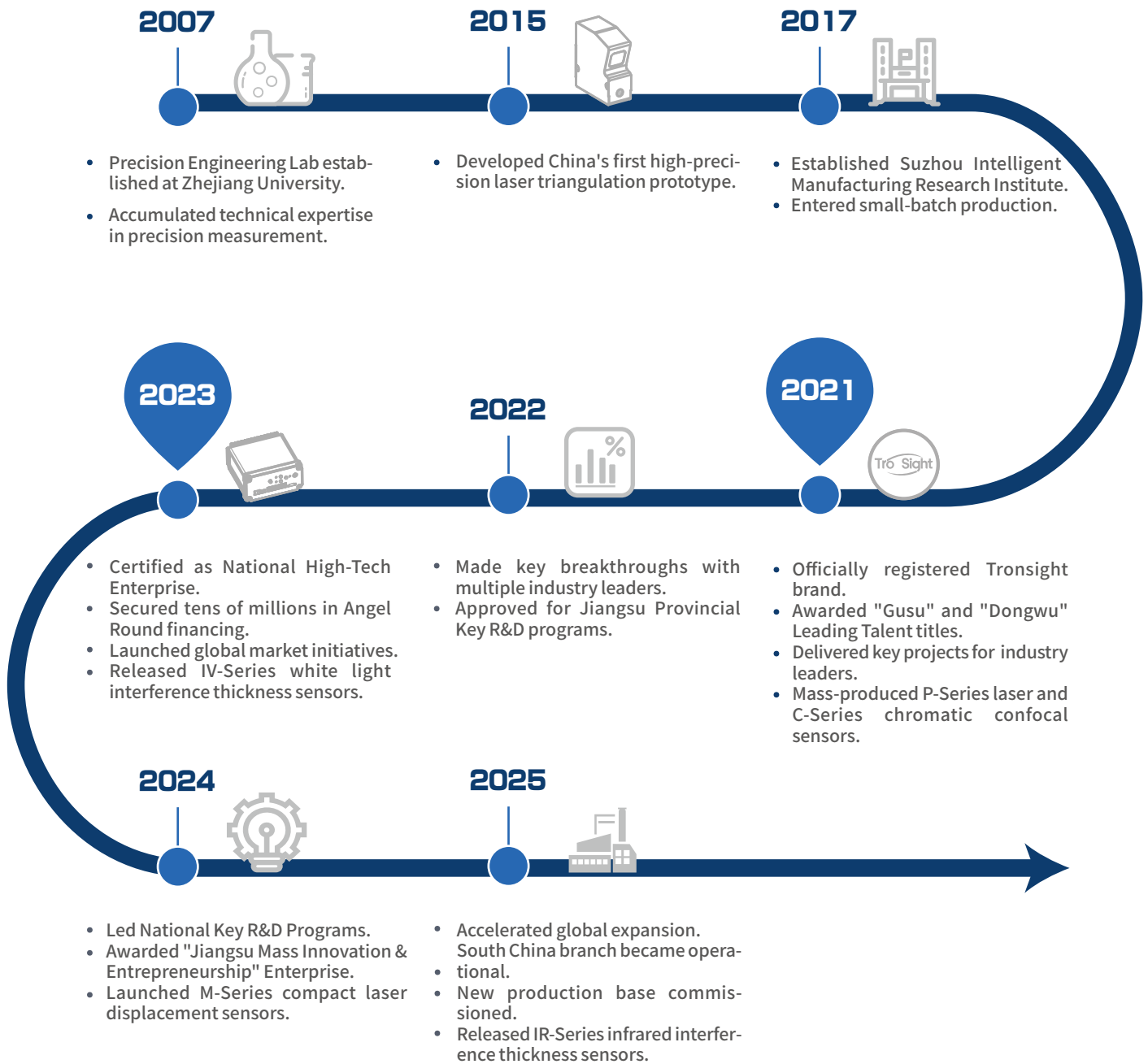


SEASON OF HONORS



SOFTWARE COPYRIGHT
& PATENTS

DEVELOPMENT HISTORY



P06

TS-C

Chromatic Confocal
Displacement Sensor

- Principle
- Product Overview
- Specifications
- Applications
- Dimensions



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TS-P

Laser Triangulation
Displacement Sensor

- Principle
- Product Overview
- Specifications
- Applications
- Dimensions



P22

TS-M

Compact Laser
Displacement Sensor

- Principle
- Product Overview
- Specifications
- Applications
- Dimensions



P32

TS-I

Spectral Interference
Thickness Sensor

- Principle
- Product Overview
- Specifications
- Applications
- Dimensions



P38

TS-R

Reflective Film
Thickness Sensor

- Principle
- Product Overview
- Specifications
- Applications
- Dimensions



| *TS-C Series* | Chromatic Confocal Displacement Sensor

3
nm

Ultra-High
Repeatability

± 0.02
% of F.S

Ultra-High
Linearity

Up to **32**
kHz

Ultra-Fast
Sampling Rate

$\pm 60^\circ$

Ultra-Large
Acceptance Angle



◆ Why Choose TronSight?



Minimal Dead
Zone



Excellent Noise
Immunity



Sub-Micron
Accuracy



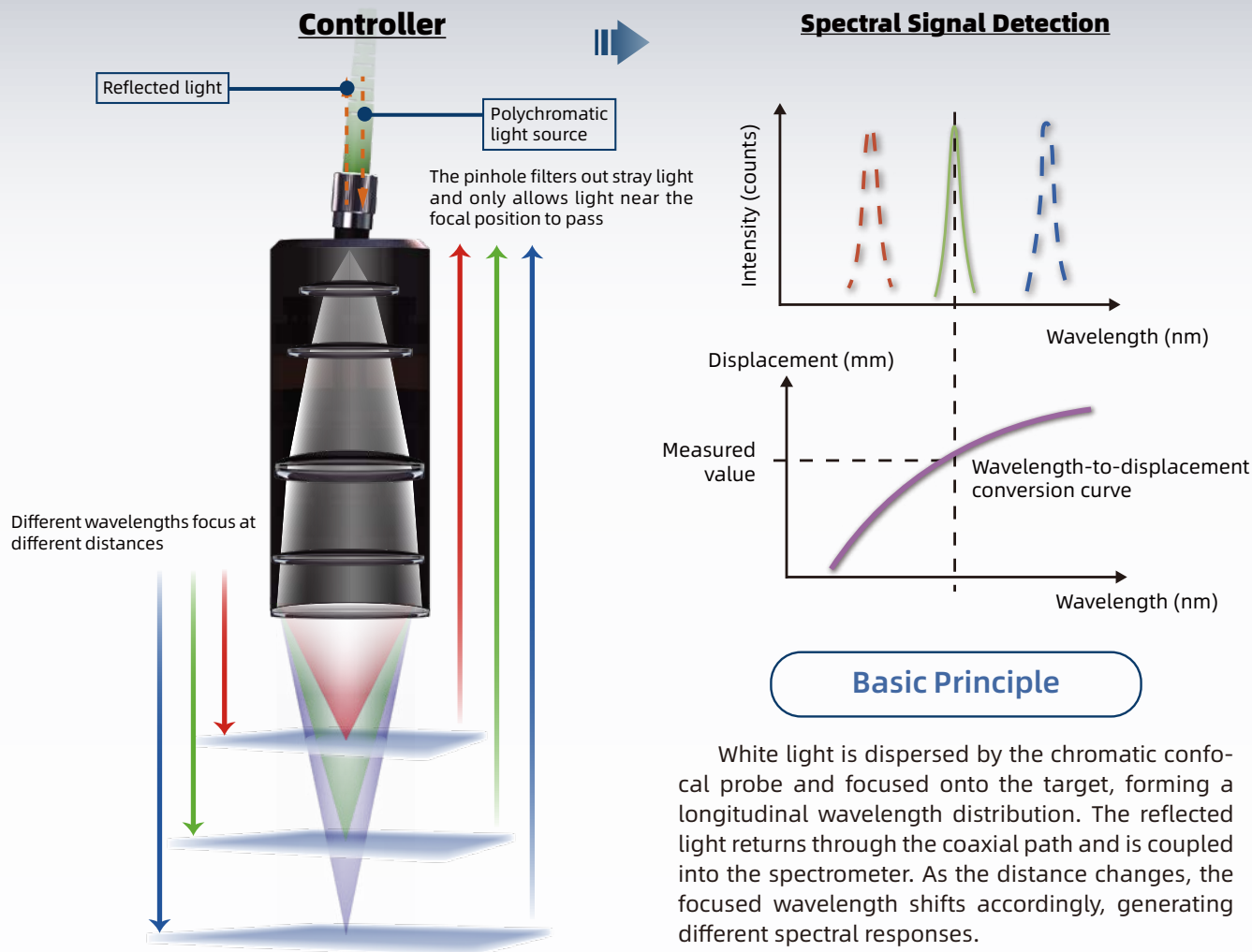
Specular Surface
Measurement



Multi-Layer
Thickness



Axial/Radial
Measurement

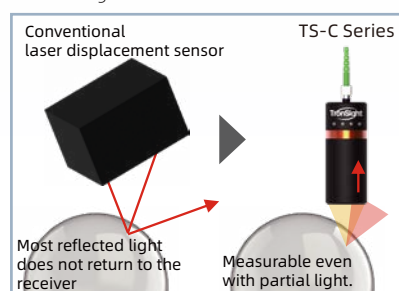


Accurate Measurement for Objects with Different Structural Features

High-Precision Measurement for

Transparent Curved Surfaces

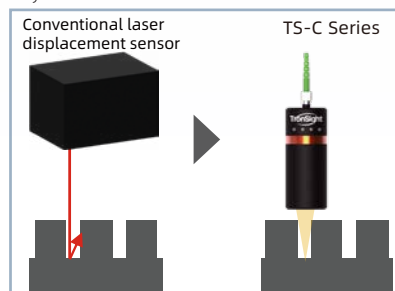
Accurate measurement even with limited reflected light.



Dead-Zone-Free Measurement

Pits and Steps

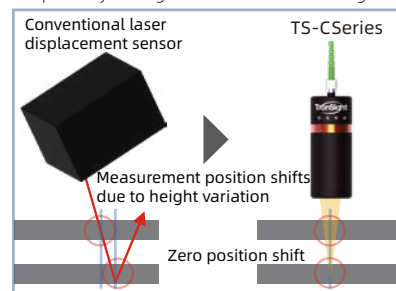
Coaxial design ensures stable measurement in any orientation.



Accurate Measurement for

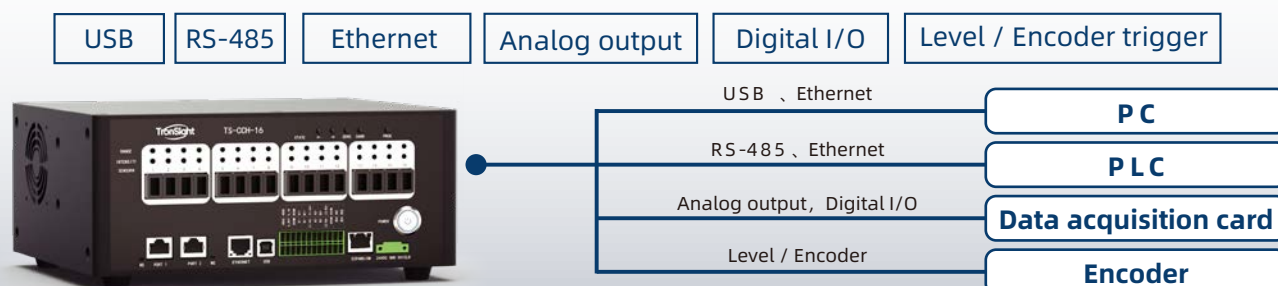
Transparent and Mirror Objects

Zero lateral displacement of the measuring spot, despite any changes in measurement height.



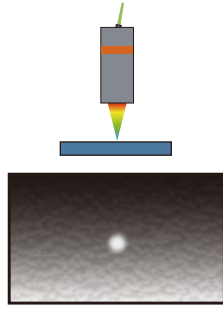
Multiple Input and Output Interfaces

Equipped with USB, RS485, Ethernet, Analog, Digital, and Encoder-Trigger I/O, the controller supports PC/PLC control and multi-channel data acquisition. Its external sync-triggering capability ensures flexibility for various application requirements.



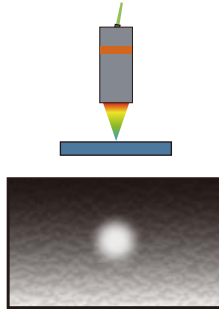
Spot Size Options

Small Spot



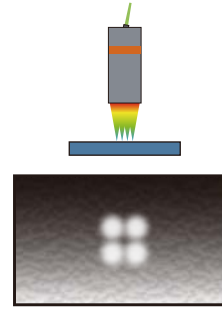
Detects micro targets with a minimum spot diameter of $\phi 2.7 \mu\text{m}$, ideal for precision profile and geometry measurement.

Large Spot



A larger measurement spot improves stability when measuring rough or uneven surfaces.

Four-Spot



Four independent spots are measured simultaneously and processed algorithmically to reduce the influence of surface irregularities and tilt.

Product Overview

Ref. Dist. (mm)	C100B	C400	C600	C1200	C2000	C2400	C2600	C3000
125								
100								
75								
50								
25								
0								
Accept. Angle	$\pm 46.5^\circ$	$\pm 43^\circ$	$\pm 32.5^\circ$	$\pm 32^\circ$	$\pm 14^\circ$	$\pm 60^\circ$	$\pm 31^\circ$	$\pm 12.5^\circ$
Repeat.	3nm	12nm	16nm	30nm	85nm	45nm	50nm	100nm
Linear.	$< \pm 0.03 \mu\text{m}$	$< \pm 0.08 \mu\text{m}$	$< \pm 0.12 \mu\text{m}$	$< \pm 0.24 \mu\text{m}$	$< \pm 0.6 \mu\text{m}$	$< \pm 0.12 \mu\text{m}$	$< \pm 0.26 \mu\text{m}$	$< \pm 0.6 \mu\text{m}$

Ref. Dist. (mm)	CR10000	C4000F	C6000	C7000	C7000L	C7000S	C8000 (Straight)	C8000 (Angled)
125								
100								
75								
50								
25								
0								
Accept. Angle	$\pm 5.5^\circ$	$\pm 21^\circ$	$\pm 14^\circ$	$\pm 15.5^\circ$	$\pm 21^\circ$	$\pm 10^\circ$	$\pm 7.3^\circ$	$\pm 7.3^\circ$
Repeat.	284nm	100nm	140nm	140nm	140nm	200nm	250nm	250nm
Linear.	$< \pm 1.6 \mu\text{m}$	$< \pm 0.4 \mu\text{m}$	$< \pm 0.72 \mu\text{m}$	$< \pm 0.7 \mu\text{m}$	$< \pm 0.7 \mu\text{m}$	$< \pm 1.4 \mu\text{m}$	$< \pm 1.6 \mu\text{m}$	$< \pm 1.6 \mu\text{m}$

Ref. Dist. (mm)	C10000	C16000	C20000	C50000	CR1500	CR1500N	CR4000	CR5000
125								
100								
75								
50								
25								
0								
Accept. Angle	$\pm 13^\circ$	$\pm 15.3^\circ$	$\pm 10.5^\circ$	$\pm 9.5^\circ$	$\pm 14^\circ$	$\pm 12^\circ$	$\pm 12.5^\circ$	$\pm 13^\circ$
Repeat.	250nm	300nm	290nm	850nm	80nm	100nm	100nm	100nm
Linear.	$< \pm 1 \mu\text{m}$	$< \pm 2 \mu\text{m}$	$< \pm 2 \mu\text{m}$	$< \pm 5 \mu\text{m}$	$< \pm 0.3 \mu\text{m}$	$< \pm 0.75 \mu\text{m}$	$< \pm 1.2 \mu\text{m}$	$< \pm 1 \mu\text{m}$

*Only selected models shown. Refer to Product Specifications for details. Ref. Dist. = Reference Distance; Repeat. = Repeatability; Linear. = Linearity; Accept. Angle = Acceptance Angle.

Applications



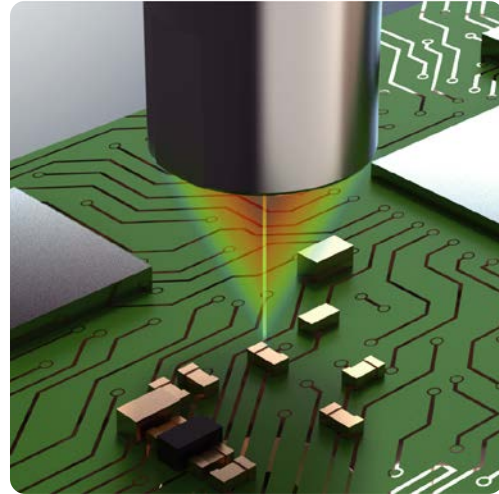
◆ Road Surface Roughness Measurement



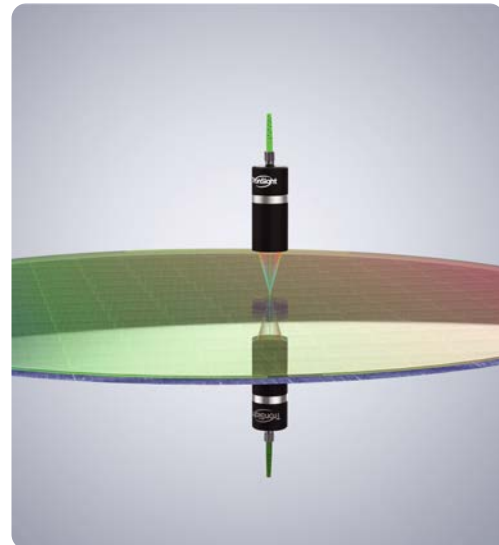
◆ Metal Workpiece Profile Measurement



◆ Oil Film Thickness & Liquid Level Measurement



◆ PCB Component Height Difference Measurement



◆ Wafer Thickness Measurement



◆ Structural Part Flatness Measurement

Chromatic Confocal
Displacement Sensors

Laser Triangulation
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Interferometric
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Reflective Film
Thickness Sensors

Product Specifications

Sensor Head

Model*8	Refer. Distance*1	Measurement Range	Accept. Angle*2	Spot Size*3	Repeat.*4	Linear.*5	Diameter* Length(mm)	Weight	Min. Measurable Thickness	Temp. Drift	IP Rating	
C100B	8mm	±0.05mm	±46.5°	φ2.7μm/5.4μm	3nm	≤±0.03μm	φ40*111.5	256g	5% of F.S.	<0.03% F.S./°C	IP40	
C400	10mm	±0.2mm	±43°	φ7μm/14μm/112μm	12nm	≤±0.08μm	φ40*99.4	186g				
C600	6.5mm	±0.3mm	±32.5°	φ8μm/16μm	16nm	≤±0.12μm	φ20*110	73g				
C1200	20 mm	±0.6mm	±32°	φ9.5μm/19μm/152μm	30nm	≤±0.24μm	φ36*106.3	182g				
C1400*7	13.8mm	±0.7mm	±18.5°	φ12μm	30nm	≤±0.1μm	φ15*37.5	39g	5% of F.S.	<-0.02% F.S./°C		IP40
C2000	50mm	±1mm	±14°	φ20μm/40μm	85nm	≤±0.6μm	φ34*90.7	162g	10% of F.S.	≈ 0.1% F.S./°C		
C2400	9mm	±1.2mm	±60°	φ5.5μm/11μm/88μm	45nm	≤±0.12μm	φ94*267.5	2350g	5% of F.S.	<0.03% F.S./°C		
C2600	15mm	±1.3mm	±31°	φ9μm/18μm/144μm	50nm	≤±0.26μm	φ36*97.9	228g		<0.03% F.S./°C		
C2600H	15mm	±1.3mm	±31°	φ9μm/18μm/144μm	50nm	≤±0.3μm	φ36*97.9	228g		<0.03% F.S./°C		
C3000	7mm	±1.5mm	±12.5°	φ20μm	100nm	≤±0.6μm	φ8*65.7	23g*6	10% of F.S.	≈ 0.05% F.S./°C	IP67	
C4000F	38 mm	±2mm	±21°	φ16μm/32μm/256μm	100nm	≤±0.4μm	φ36*126.1	226g	5% of F.S.	<0.03% F.S./°C	IP40	
C6000	40 mm	±3mm	±14°	φ22μm /44μm/352μm	140nm	≤±0.72μm	φ30*65.3	112g		≈ 0.05% F.S./°C		
C7000	45 mm	±3.5mm	±15.5°	φ20μm/40μm/320μm	140nm	≤±0.7μm	φ36*84.2	200g		<0.03% F.S./°C		
C7000L	47 mm	±3.5mm	±21°	φ16μm/32μm	140nm	≤±0.7μm	φ52*207	784g				
C7000S	70mm	±3.5mm	±10°	φ25μm/50μm/400μm	200nm	≤±1.4μm	φ30*84.2	130g				
C8000 (Straight)	54.5mm	±4mm	±7.3°	φ34μm/68μm	250nm	≤±1.6μm	φ23*50	29g				
C8000 (Angled)	54.5mm	±4mm	±7.3°	φ34μm/68μm	250nm	≤±1.6μm	φ23*48.5					
C7000XS	25mm	±3.5mm	±15°	φ17μm	114nm	≤±0.5μm	142*41*32	475g			IP67	
C7000XS (Tail-Angled)*7	25mm	±3.5mm	±15°	φ17μm	140nm	≤±0.5μm	134*41*32	475g				
C10000	50mm	±5mm	±13°	φ20μm /40μm/320μm	250nm	≤±1 μm	φ36*84	203g			IP40	
C10000H	50mm	±5mm	±13°	φ20μm/40μm/320μm	250nm	≤±2μm	φ36*84	405g				
C16000	55mm	±8mm	±15.3°	φ15μm/30μm/240μm	300nm	≤±2μm	φ60*211.1	1180g				
C10000MS	48.5 mm	±5mm	±15.5°	φ35μm	195nm	≤±0.7μm	φ60*194	825g				
C20000	60mm	±10mm	±10.5°	φ25μm/50μm /400μm	290nm	≤±2μm	φ36*163	310g				
C20000H	60mm	±10mm	±10.5°	φ25μm/50μm/400μm	290nm	≤±2μm	φ36*163	670g				
C50000	100mm	±25mm	±9.5°	φ25μm/50μm	850nm	≤±5μm	φ60*217.3	1154g				
C50000H*7	100mm	±25mm	±9.5°	φ25μm/50μm	850nm	≤±5μm	φ60*217.3	1167g				
C70000*7	150mm	±35mm	±5.5°	φ43μm	1550nm	≤±2μm	φ50*120.5	207g				
CR1500	Axial:3.92mm	±0.75mm	±14°	φ20μm	80nm	≤±0.3μm	φ8*68.8	23g*6	10% of F.S.	<0.02% F.S./°C	IP40	
	Radial:5.75mm						φ8*70.2					
CR1500N	Axial:1.7mm	±0.75mm	±12°	φ17μm	100nm	≤±0.75μm	φ3.8*85	23g*6				
	Radial:3mm											
CR4000	Axial:4.7mm	±2mm	±12.5°	φ20μm	100nm	≤±1.2μm	φ8*73.1	59g*6				
	Radial:8mm*8											
CR5000	Axial: 6.75mm	±2.5mm	±13°	φ19μm	100nm	≤±1μm	φ12*94.6	37g*6				<0.02% F.S./°C
	Radial:12mm											<0.03% F.S./°C
CR10000*7	Axial:16.3mm	±5mm	±5.5°	φ30μm	284nm	≤±1.6μm	φ8*56.8	14g*6				<0.03% F.S./°C

*1 Calculated at the center of the measurement range.

*2 Measured using a standard flat mirror under tilt testing at a 1 kHz sampling rate.

*3 Measured on a sharp glass edge using a sub-micron positioning stage, with displacement verified by a laser interferometer. Spot diameter values correspond to small spot / large spot / four-spot configurations.

*4 Measured using a standard silver-coated mirror; RMS deviation calculated from 10,000 consecutive data points at 1 kHz without averaging.

*5 Calibrated and verified using a nanometer-precision laser interferometer.

*6 The probe includes a 3 m rear cable. The listed weight includes the cable.

*7 CR sub-series probes are available in axial and radial optical configurations. Suffix definitions: N: Near reference distance; F: Far reference distance; S: Compact size; L: Large size; H: High-temperature version (operating temperature: -10°C to 150°C) To optimize product identification, the color ring of this series (except C2000) has been upgraded to orange. Products delivered may feature either the previous or updated color ring. Appearance is subject to actual delivery; performance and quality remain unchanged.

*8 This model is newly released; actual specifications may vary slightly. Final specifications are subject to the contract.

Product Specifications

CC Controller

Model		CCS/CCS-L*1	CCD/CCD-L	CCF/CCF-L
Number of Probe Channels		1	2	4
Sampling Rate		1 channel: Max. 10 kHz; 2 channels: Max. 5 kHz; 4 channels: Max. 2.5 kHz		
Input Ports	Encoder Input	AB/ABZ encoder input, configurable for trigger		
	Trigger Signal Input	Pulse/Level trigger		
Output Ports	Digital Signal Output	Alarm output, comparator output (configurable as comparator output or invalid data warning)		
	Analog Signal Output	Linear ± 10 V voltage output / 4-20 mA current output (optional module)		
Industrial Interfaces	Ethernet	100BASE-TX		
	USB	Compliant with USB 2.0 Full-Speed		
	RS-485	Modbus protocol, 19200 to 115200 bps		
	EtherCAT	\		
Measurement Software	PC Software	TSConfocalStudio		
	SDK	C++ / C# Software Development Kit		
Rated Power	Supply Voltage	24 VDC $\pm 10\%$		
	Current Consumption	Approx. 0.4 A		
Environmental Resistance	Operating Temperature	0 to +50° C		
	Relative Humidity	20 to 85% RH (non-condensing)		
Weight		Approx. 2000 g		

*1 Certain CC and CP series models are available in multiple configurations. "L" suffix denotes laser light source.

CCH Controller

Model	CCH-4	CCH-8	CCH-12	CCH-16
Controller Description	High-speed multi-channel controller (4 / 8 / 12 / 16 channels)			
Number of Connectable Sensor Heads	4	8	12	16
Sampling Rate	1 ch: Max. 20 kHz; 2 ch: Max. 18 kHz; 4 ch: Max. 12.5 kHz; 6 ch: Max. 10 kHz; 8 ch: Max. 8 kHz; 12 ch: Max. 6 kHz; 16 ch: Max. 4 kHz			
Input Ports	Encoder Input	AB / ABZ encoder input, configurable for triggering		
	Trigger Input	Pulse / level trigger		
Output Ports	Digital Output	Alarm output, comparator output (configurable as comparator output or data invalid warning)		
	Analog Output	Linear ± 5 V / 0 to 10 V / ± 10 V voltage output; 4 to 20 mA current output (optional module)		
Industrial Interfaces	Ethernet	1000 / 100 Mbps		
	USB	USB 2.0 High-speed (480 Mbps)		
	RS-485	Modbus protocol, 19200 to 115200 bps		
	EtherCAT	100 Mbps (optional)		
Measurement Software	PC Software	TSConfocalStudio		
	SDK	C++ / C# Software Development Kit		
Rated Power	Supply Voltage	24 VDC $\pm 10\%$		
	Current Consumption	Approx. 0.5 A (1 ch); approx. 4 A (16 ch); recommended power supply: 24 VDC, 6 A or higher		
Environmental Resistance	Operating Temperature	0 to +50° C		
	Relative Humidity	20 to 85% RH (non-condensing)		
Weight		Approx. 2800 g (varies depending on channel configuration)		

Chromatic Confocal
Displacement Sensors

Laser Triangulation
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Thickness Sensors

Product Specifications

CCH Controller (Four-Spot)

Model	CCH-M1	CCH-M2	CCH-M3	CCH-M4
Controller Description	Four-Spot Controller (1 / 2 / 3 / 4 channels)			
Number of Connectable Sensor Heads	1	2	3	4
Sampling Rate	1 ch: Max. 12.5 kHz; 2 ch: Max. 8 kHz; 3 ch: Max. 6 kHz; 4 ch: Max. 4 kHz			
Input Ports	Encoder Input	AB / ABZ encoder input, configurable for triggering		
	Trigger Input	Pulse / level trigger		
Ootput Ports	Digital Output	Alarm output, comparator output (configurable as comparator output or data invalid warning)		
	Analog Output	Linear ±5 V / 0 to 10 V / ±10 V voltage output; 4 to 20 mA current output (optional module)		
Industrial Interfaces	Ethernet	1000 / 100 Mbps		
	USB	USB 2.0 High-speed (480 Mbps)		
	RS-485	Modbus protocol, 19200 to 115200 bps		
	EtherCAT	100 Mbps (optional)		
Measurement Software	PC Software	TSConfocalStudio		
	SDK	C++ / C# Software Development Kit		
Rated Power	Supply Voltage	24 VDC ±10%		
	Current Consumption	Recommended power supply: 24 VDC, 6 A or higher		
Environmental Resistance	Operating Temperature	0 to +50° C		
	Relative Humidity	20 to 85% RH (non-condensing)		
Weight	Approx. 2800 g (varies depending on channel configuration)			

CP Controller

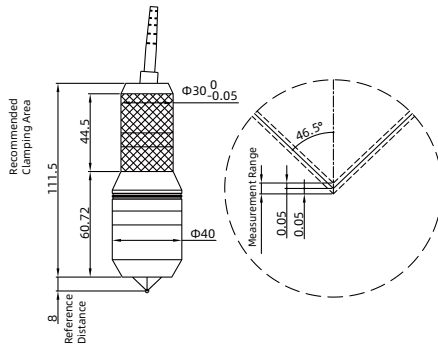
Model	CPS / CPS-L*1	CPD / CPD-L	CPF
Controller Description	Four-Spot Controller (1 / 2 / 3 / 4 channels)		
Number of Connectable Sensor Heads	1	2	3
Sampling Rate	1 ch: Max. 32 kHz; 2 ch: Max. 16 kHz; 4 ch: Max. 8 kHz		
Input Ports	Encoder Input	AB / ABZ encoder input, configurable for triggering	
	Trigger Input	Pulse / level trigger	
Output Ports	Digital Output	Alarm output, comparator output (configurable as comparator output or data invalid warning)	
	Analog Output	Linear ±10 V voltage output; 4 to 20 mA current output (optional module)	
Industrial Interfaces	Ethernet	1000 / 100 Mbps	
	USB	USB 2.0 High-speed (480 Mbps)	
	RS-485	Modbus protocol, 19200 to 115200 bps	
	EtherCAT	100 Mbps (optional)	
Measurement Software	PC Software	TSConfocalStudio	
	SDK	C++ / C# Software Development Kit	
Rated Power	Supply Voltage	24 VDC ±10%	
	Current Consumption	Recommended power supply: 24 VDC, 6 A or higher	
Environmental Resistance	Operating Temperature	0 to +50° C	
	Relative Humidity	20 to 85% RH (non-condensing)	
Weight	Approx. 2800 g (varies depending on channel configuration)		

*1 Certain CC and CP series models are available in multiple configurations. "L" suffix denotes laser light source version.

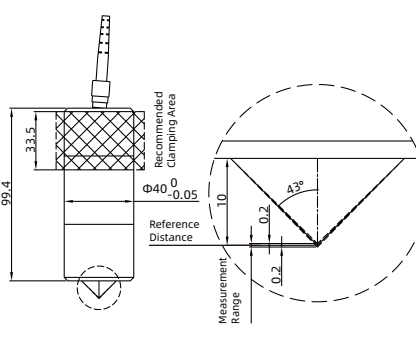
Dimension Drawing

Sensor Head

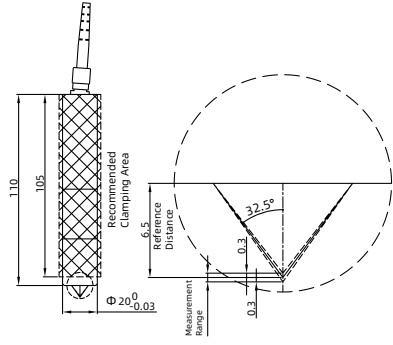
C100B



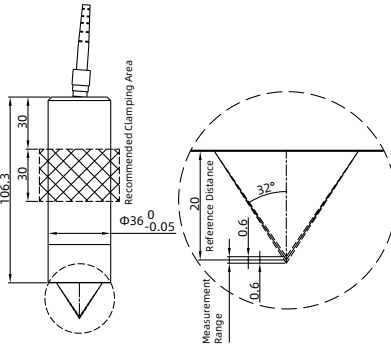
C400



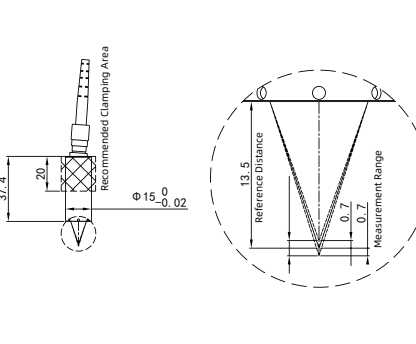
C600



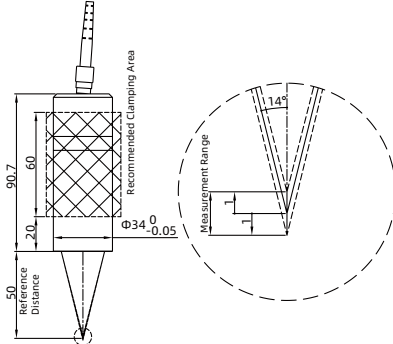
C1200



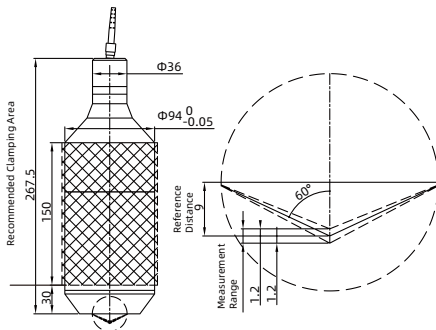
C1400



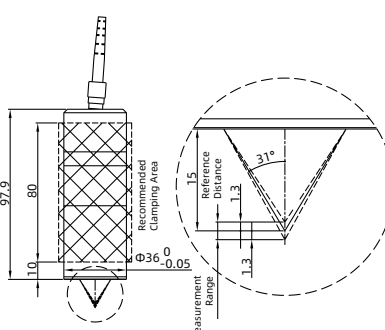
C2000



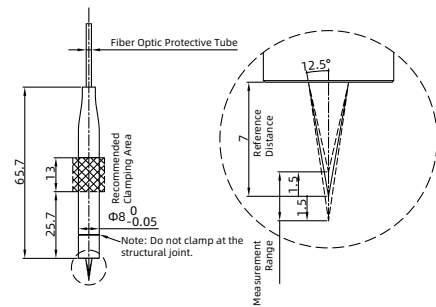
C2400



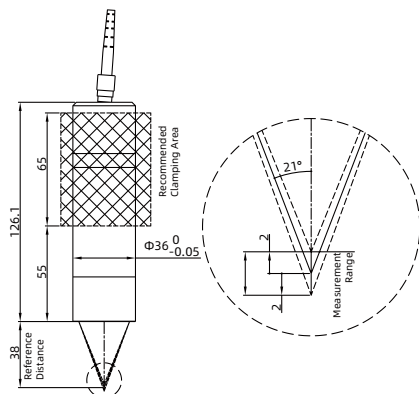
C2600_2600H



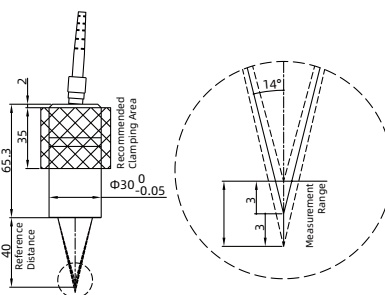
C3000



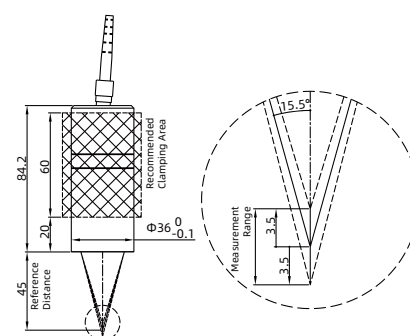
C4000F



C6000

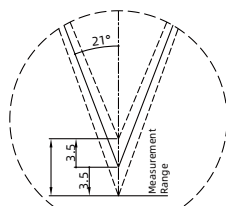
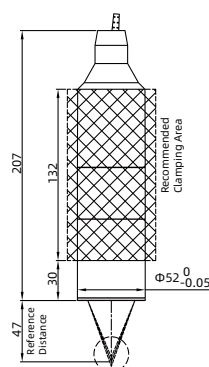


C7000

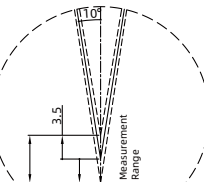
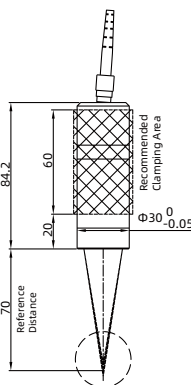


Dimension Drawing

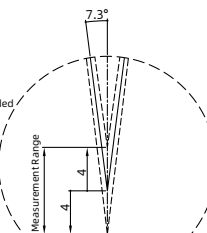
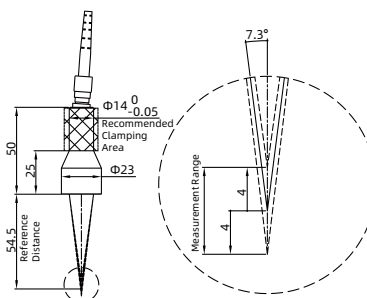
C7000L



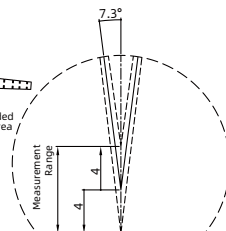
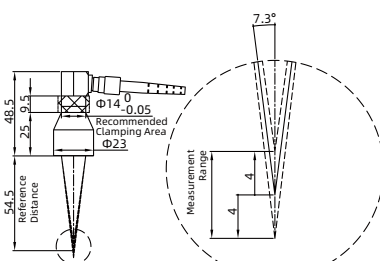
C7000S



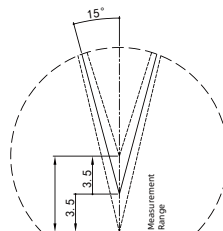
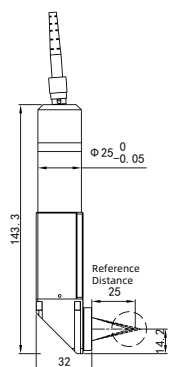
C8000 (直款)



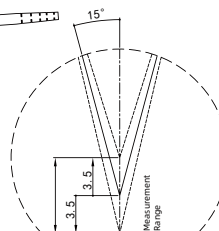
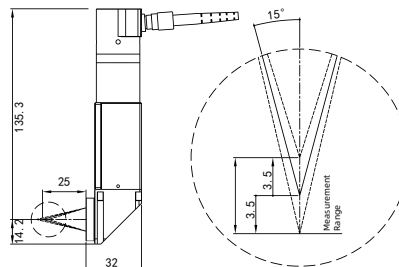
C8000 (折款)



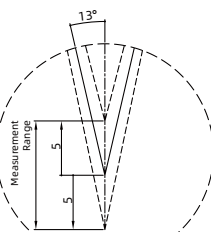
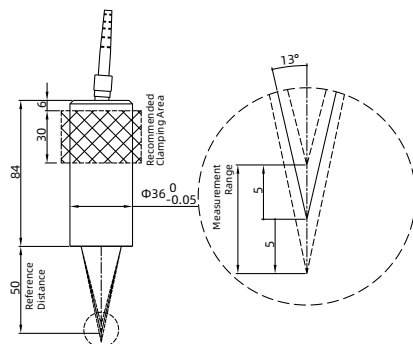
C7000XS



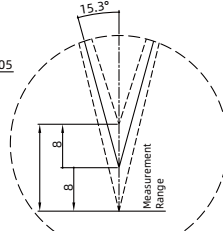
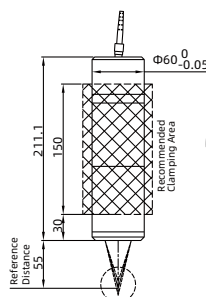
C7000XS (尾端转折)



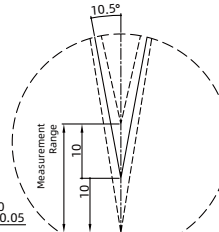
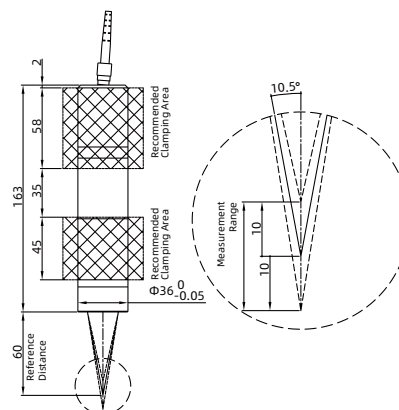
C10000_C10000H



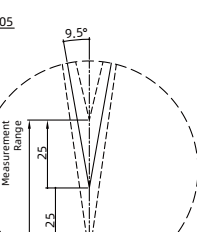
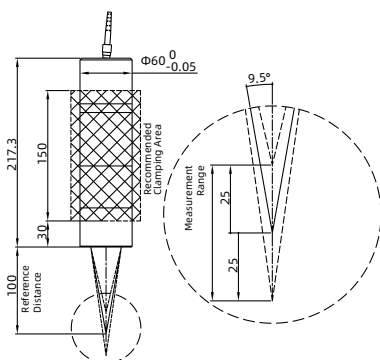
C16000



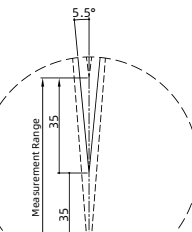
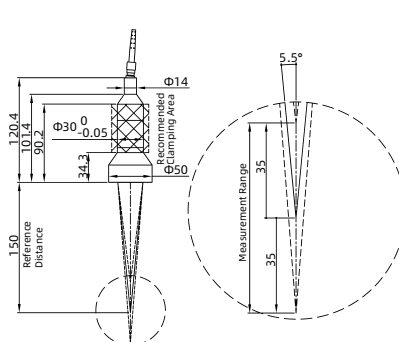
C20000_20000H



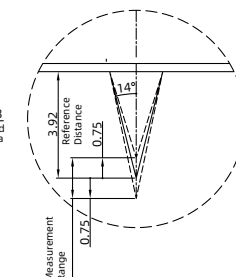
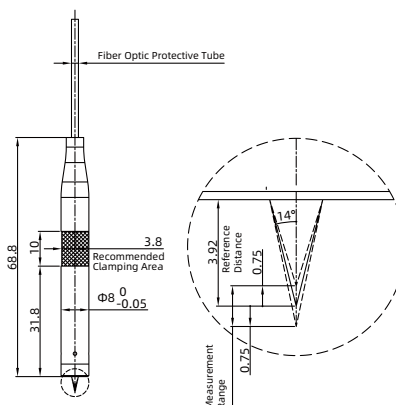
C50000_C50000H



C70000

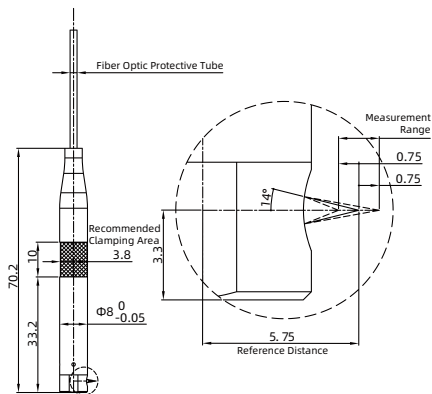


CR1500 (轴向)

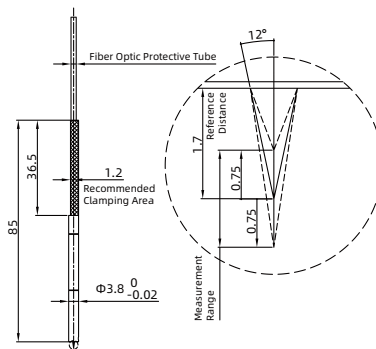


Dimension Drawing

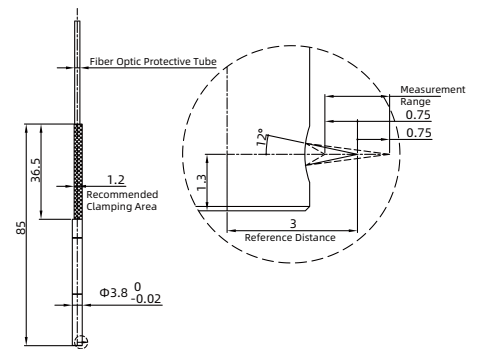
CR1500 (Radial)



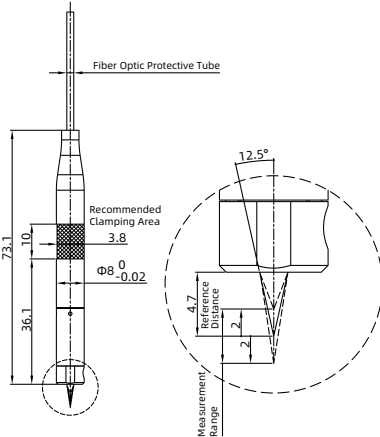
CR1500N (Axial)



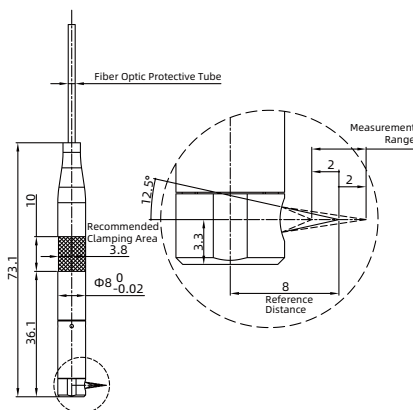
CR1500N (Radial)



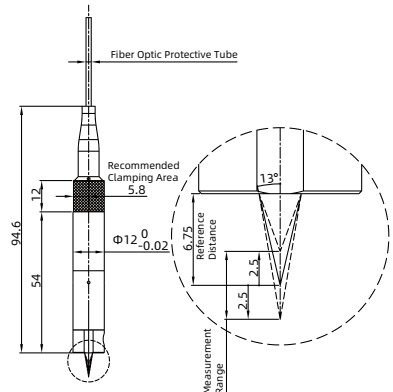
CR4000 (Axial)



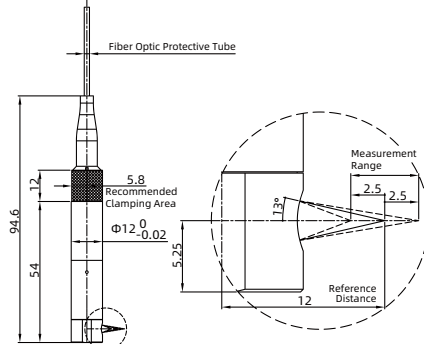
CR4000 (Radial)



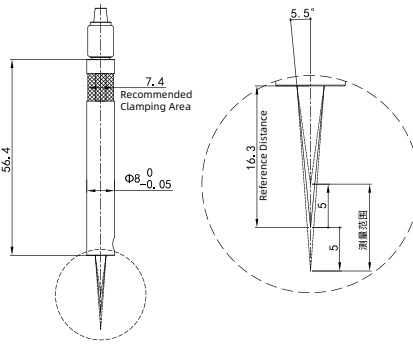
CR5000 (Axial)



CR5000 (Radial)

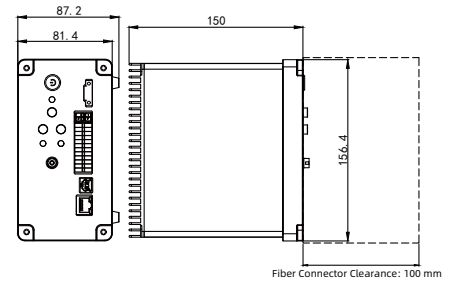


CR10000

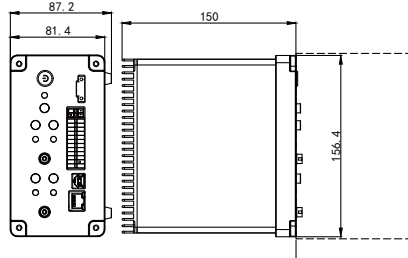


Controller

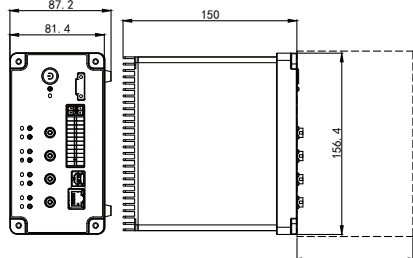
CCS (-L)



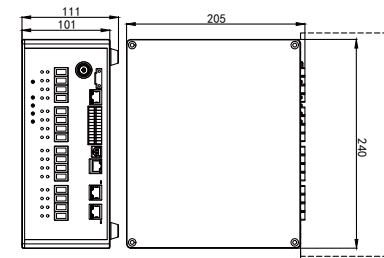
CCD (-L)



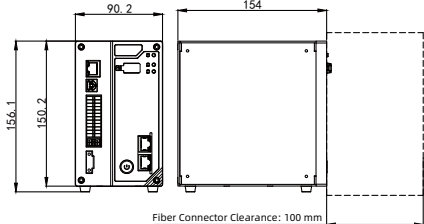
CPF (-L)



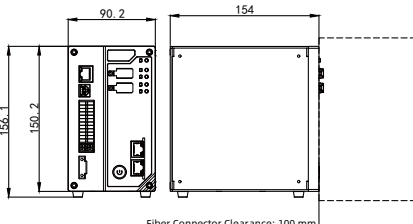
CCH Series



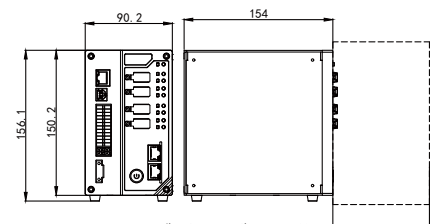
CPS (-L)



CPD (-L)



CPF



| *TS-P Series* | Laser Triangulation Displacement Sensor

0.01
μm

Ultra-High
Repeatability

±0.02
% of F.S

Ultra-High
Linearity

Up to **160**
kHz

Ultra-fast
Sampling Rate

*Ethernet
RS - 485
Analog output*

Simple Interface
Configuration



◆ Why Choose TronSight?



Full-Range
Industrial I/O



No External
Controller



Ultra-Fast
Sampling



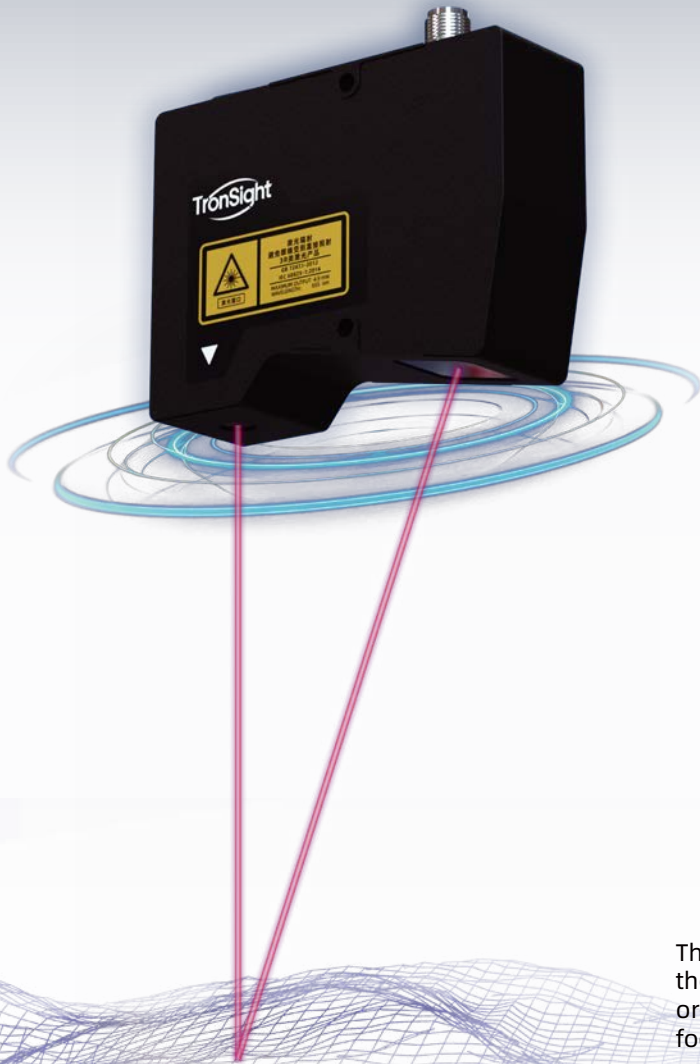
Extended
Range



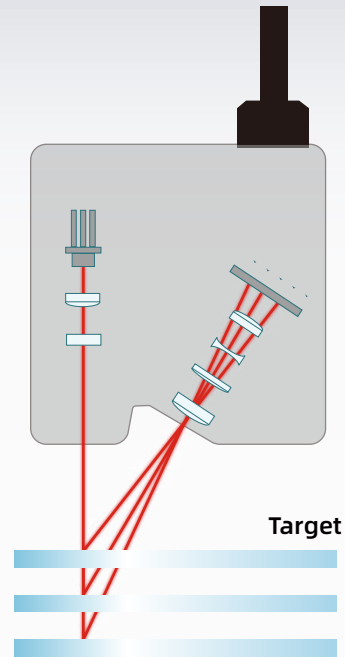
In-House Devel-
oped Technology



Specular & Diffuse
Reflection



Measurement Principle

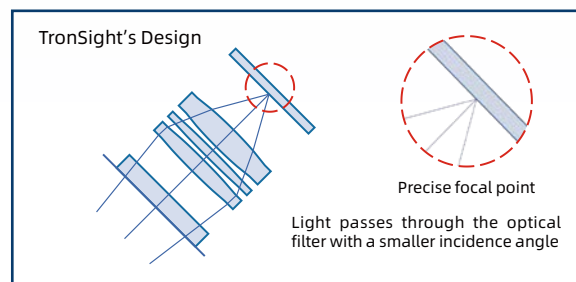
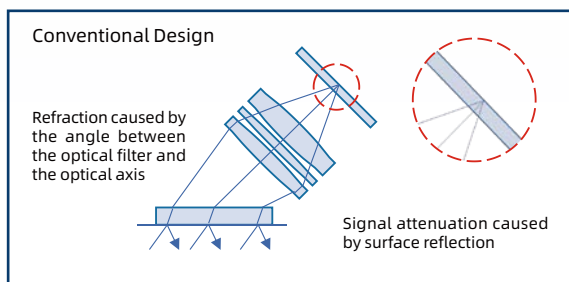


Basic Principle

The laser beam emitted by the sensor is projected onto the target surface. The receiving lens collects the diffuse or specular reflected light from the target surface and focuses it onto the photosensitive element.

Optimized Receiving Lens Module

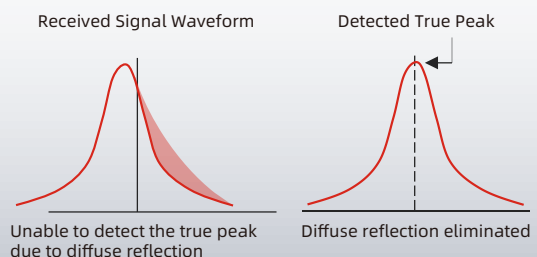
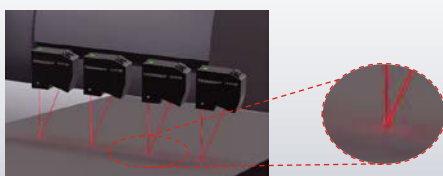
TronSight optimizes the receiver optics of laser triangulation sensors to suppress filter-induced multiple reflections, eliminating multi-spot errors and improving SNR.



Semi-Transparent Object Measurement Algorithm

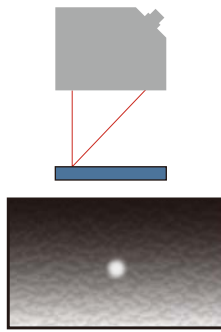
When measuring semi-transparent materials, subsurface scattering broadens the received signal. TronSight's proprietary algorithm compensates for this effect and accurately detects the true peak.

Semi-transparent object height measurement



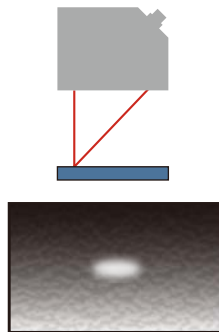
Spot Size Options

Small Spot Size



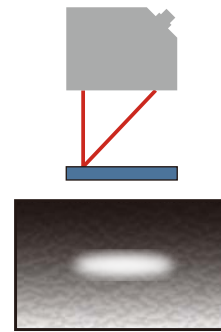
With a minimum spot size of 18 μm , it enables precise measurement of very small objects, making it ideal for fine-feature applications.

Wide Spot Size



By increasing the spot size, it is better suited for uneven surfaces, ensuring stable measurement results.

Ultra-Wide Spot Size



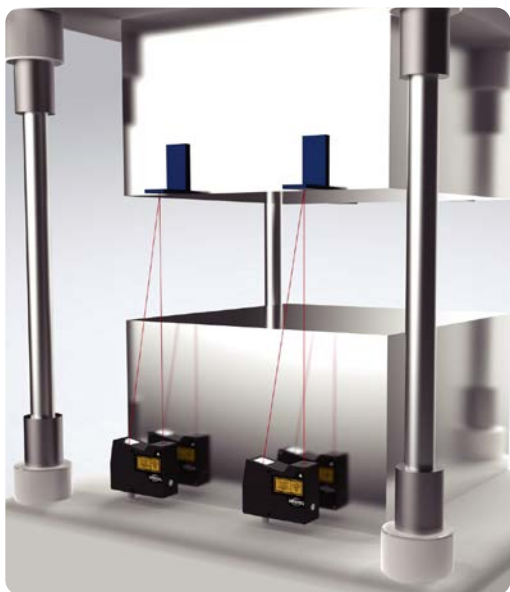
With a larger spot size, it is suitable for accurate measurement of objects with high surface roughness.

Product Overview



*Only selected models shown. Refer to Product Specifications for details. Ref. Dist. = Reference Distance; Repeat. = Repeatability; Linear. = Linearity.

Applications



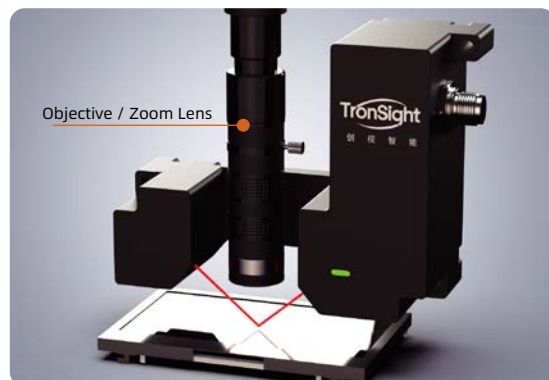
◆ Motion Stage Position Measurement



◆ Calendared Electrode Thickness Measurement



◆ Road Surface Roughness Measurement



◆ Coaxial Height and Focus Measurement



◆ High-Frequency Vibration Measurement



◆ PCB Component Height & Board Thickness Measurement

Chromatic Confocal
Displacement Sensors

Laser Triangulation
Displacement Sensors

Compact Laser
Displacement Sensors

Interferometric
Thickness Sensors

Reflective Film
Thickness Sensors

Product Specifications

Model* ⁹	Ref. Dist.	Measurement Range	Spot Size	Repeat.* ²	Repeat.* ³	Linear.* ⁴	Dimensions	Weight	Sampling Rate	Light Source* ⁵
PD08	8 mm	±0.8 mm	Φ20μm	0.03 μm	0.01 μm	≤ ±0.5 μm	82*115*38.5 mm	213 g	Max. 160 kHz	655 nm Max. 4.9 mW
PD15	15 mm	±1.0 mm	Φ35μm	0.05 μm	0.01 μm	≤ ±0.6 μm	102*137*55.5 mm	475 g	Max. 160 kHz	
PD15U	15 mm	±1.0 mm	approx.35*1000μm	0.05 μm	0.01 μm	≤ ±0.6 μm	102*137*55.5 mm	475 g	Max. 25 kHz	
P20* ⁸	20 mm	±3 mm	Φ30μm	0.1 μm	0.01 μm	≤ ±1.2 μm	76*96*31 mm	303 g	Max. 160 kHz	
P20W* ⁸	20 mm	±3 mm	approx.30*150μm	0.1 μm	0.01 μm	≤ ±1.2 μm	76*96*31 mm	303 g	Max. 160 kHz	
P20U* ⁸	20 mm	±3 mm	approx.30*700μm	0.05 μm	0.01 μm	≤ ±1.2 μm	76*96*31 mm	303 g	Max. 25 kHz	
P25B	25 mm	±1 mm	Φ18μm	0.05 μm	0.01 μm	≤ ±0.6 μm	120*80*31 mm	372 g	Max. 160 kHz	405 nm Max. 4.9 mW
P30	30 mm	±5 mm	Φ35μm	0.15 μm	0.02 μm	≤ ±3 μm	87*76*31 mm	287 g	Max. 160 kHz	655 nm Max. 4.9 mW
P30W	30 mm	±5 mm	approx.35*400μm	0.15 μm	0.02 μm	≤ ±2 μm	87*76*31 mm	287 g	Max. 160 kHz	
P30U	30 mm	±5 mm	approx.35*1100μm	0.075 μm	0.02 μm	≤ ±2 μm	87*76*31 mm	287 g	Max. 25 kHz	
PM30U	23.9 mm	±4.5 mm	approx.35*1100μm	0.075 μm	0.02 μm	≤ ±2 μm	87*76*31 mm	287 g	Max. 25 kHz	
P50	50 mm	±10 mm	Φ45μm	0.25 μm	/	≤ ±4 μm	93*78*37 mm	359 g	Max. 160 kHz	
P50W	50 mm	±10 mm	approx.45*390μm	0.25 μm	/	≤ ±4 μm	93*78*37 mm	359 g	Max. 160 kHz	
P50U	50 mm	±10 mm	approx.45*1600μm	0.15 μm	/	≤ ±4 μm	93*78*37 mm	359 g	Max. 25 kHz	
P70	70 mm	-50 mm +40 mm	Φ70μm	1.3 μm	0.3 μm	≤ ±18 μm	130*90*31 mm	408 g	Max. 160 kHz	
P70W	70 mm	-50 mm +40 mm	approx.70*500μm	1.3 μm	0.3 μm	≤ ±18 μm	130*90*31 mm	408 g	Max. 160 kHz	
P80	80 mm	±15 mm	Φ70μm	0.5 μm	0.1 μm	≤ ±6 μm	93*78*37 mm	359 g	Max. 160 kHz	
P80W	80 mm	±15 mm	approx.70*800μm	0.5 μm	0.1 μm	≤ ±6 μm	93*78*37 mm	359 g	Max. 160 kHz	
P80U	80 mm	±15 mm	approx.70*2200μm	0.25 μm	0.1 μm	≤ ±6 μm	93*78*37 mm	359 g	Max. 25 kHz	
PM80U	75.4 mm	±15 mm	approx.70*2200μm	0.25 μm	0.1 μm	≤ ±6 μm	93*78*37 mm	359 g	Max. 25 kHz	
P150	150 mm	±40 mm	Φ110μm	1.2 μm	0.25 μm	≤ ±16 μm	95*80*37 mm	374 g	Max. 160 kHz	
P150W	150 mm	±40 mm	approx.110*1400μm	1.2 μm	0.25 μm	≤ ±16 μm	95*80*37 mm	374 g	Max. 160 kHz	
P400	400 mm	±100 mm	Φ300μm	3 μm	1.5 μm	≤ ±60 μm	115*85*37 mm	438 g	Max. 160 kHz	
P400W	400 mm	±100 mm	approx. 300*3400μm	3 μm	1.5 μm	≤ ±60 μm	115*85*37 mm	438 g	Max. 160 kHz	
P450	450 mm	±250 mm	Φ320μm	8 μm	2 μm	≤ ±250 μm	120*75*37 mm	416 g	Max. 160 kHz	
P450W	450 mm	±250 mm	approx.320*4200μm	8 μm	2 μm	≤ ±250 μm	120*75*37 mm	416 g	Max. 160 kHz	
P1000	1000 mm	±500 mm	Φ320 μm	12 μm	/	≤ ±500 μm	180*85*40 mm	785 g	Max. 160 kHz	660 nm Max. 50 mW
P1000H	1000 mm	±500 mm	Φ320μm	12 μm	/	≤ ±500 μm	180*85*40 mm	785 g	Max. 160 kHz	
P1500H	1500 mm	±1000 mm	Φ400μm	30 μm	/	≤ ±1000 μm	260*85*45 mm	1250 g	Max. 160 kHz	
P2250H	2250 mm	±650 mm	Φ700μm	50 μm	/	≤ ±650 μm	200*85*41 mm	924 g	Max. 160 kHz	
Temperature Drift			0.01% of F.S./° C							
Industrial Interface* ⁶			Ethernet, RS485 port, analog output (Max. ±10 V, 4–20 mA)							
Software			Compatible with Tronsight software and C++ / C# SDK							
Operation Mode			Standalone operation without controller; configurable for master-slave multi-head measurement and alternating exposure interference suppression							
Power Supply			DC 9–36 V, max. voltage fluctuation ±10%							
Power Consumption			≤ 21.5 W							
IP Rating			IP67 (IEC60529)							
Operating Temperature			0 to +50° C							

*1 Calculated at measurement range center.

*2 Measured on a standard white ceramic target; RMS deviation (1σ) from 65,536 data points.50 kHz averaging (U-series: 8 kHz).

*3 Measured on a standard white ceramic target; RMS deviation (1σ) from 65,536 data points with 1024 averaging(U-series: 8 kHz, 1024 averaging).

*4 Verified using a nanometer-precision laser interferometer.

*5 Laser power customizable; 405 nm blue laser available on selected models.

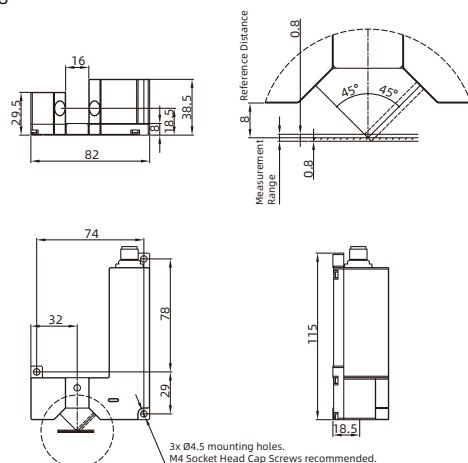
*6 Voltage, current, and RS-485 outputs available directly from the probe.

*7 Optional analog voltage/current output module.

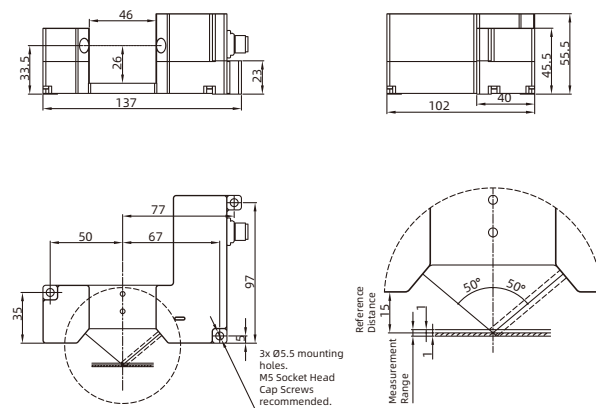
*8 Specifications subject to change; final values per contract.

*9 PD series: split-type structure. PM: mirror-reflection reference type. Suffix: W (Wide spot), U (Ultra-wide spot), B (Blue laser), H (High power).

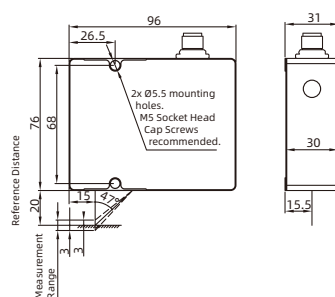
PD08



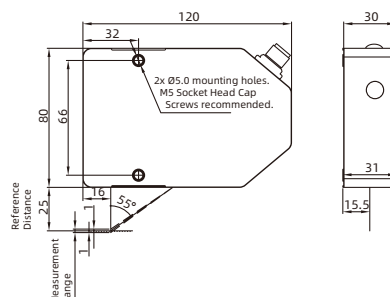
PD15 PD15U



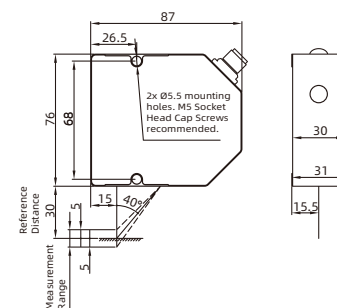
■ P20_P20W_P20U



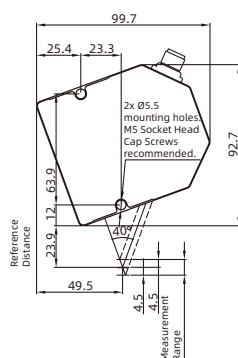
P25B



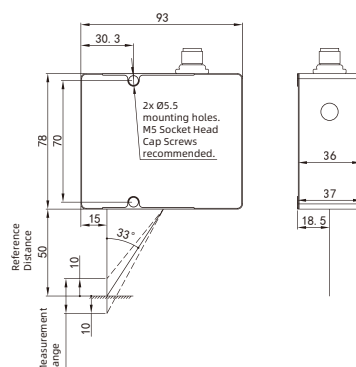
■ P30_P30W_P30U



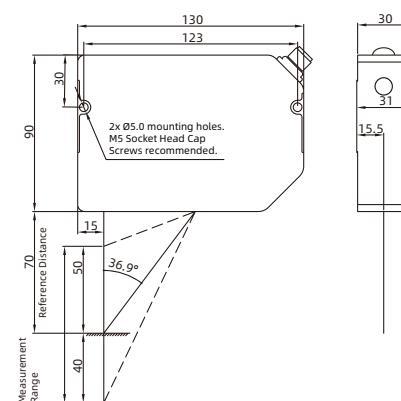
PM30U



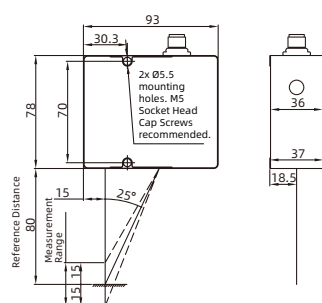
■ P50_P50W_P50U



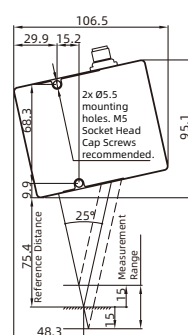
■ P70_P70W



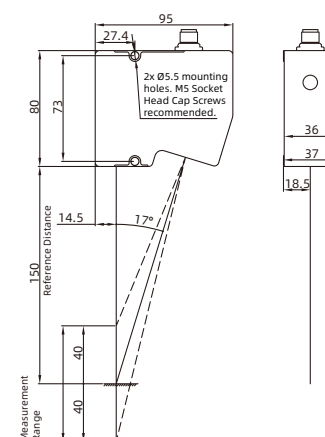
■ P80_P80W_P80U



PM80U

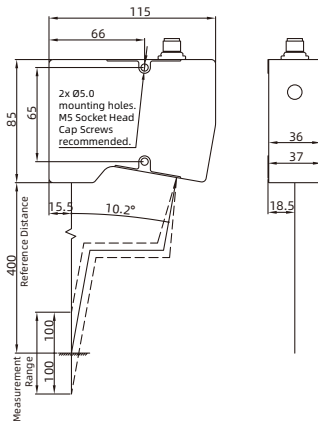


■ P150_150W

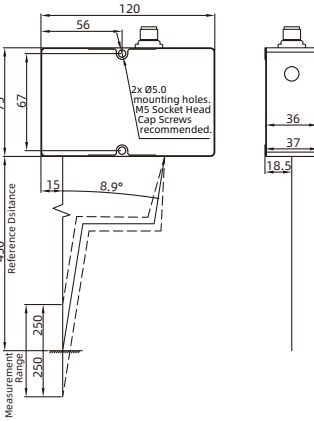


Dimension Drawing

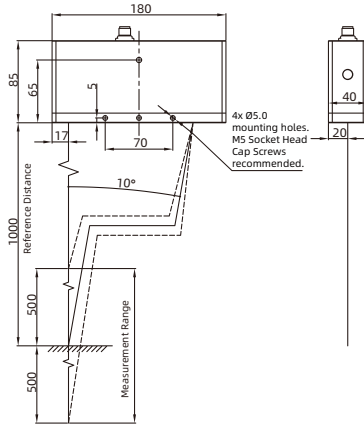
P400_P400W



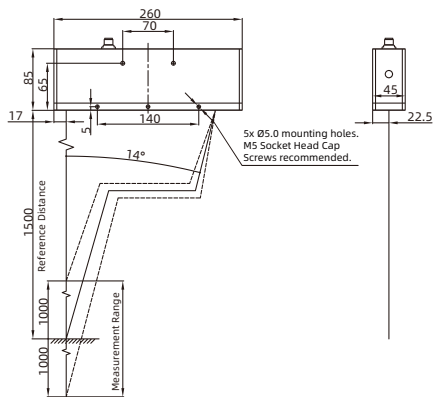
P450_P450W



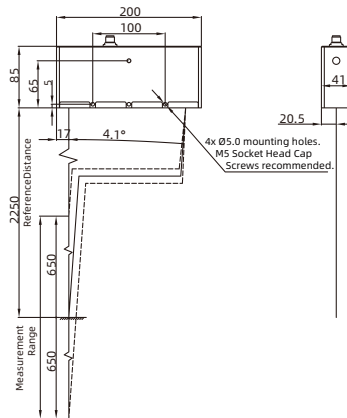
P1000_1000H



P1500H



P2250H



TS-M Series | Laser Triangulation Displacement Sensor

0.25
 μm

Ultra-High
Repeatability

± 0.05
% of F.S

Ultra-High
Linearity

Up to **50**
kHz

Ultra-Fast
Sampling Rate

Ethernet
RS - 485
Analog output

Simple Interface
Configuration



◆ Why Choose TronSight?



Full-Range
Industrial I/O



No External
Controller



Compact
Design



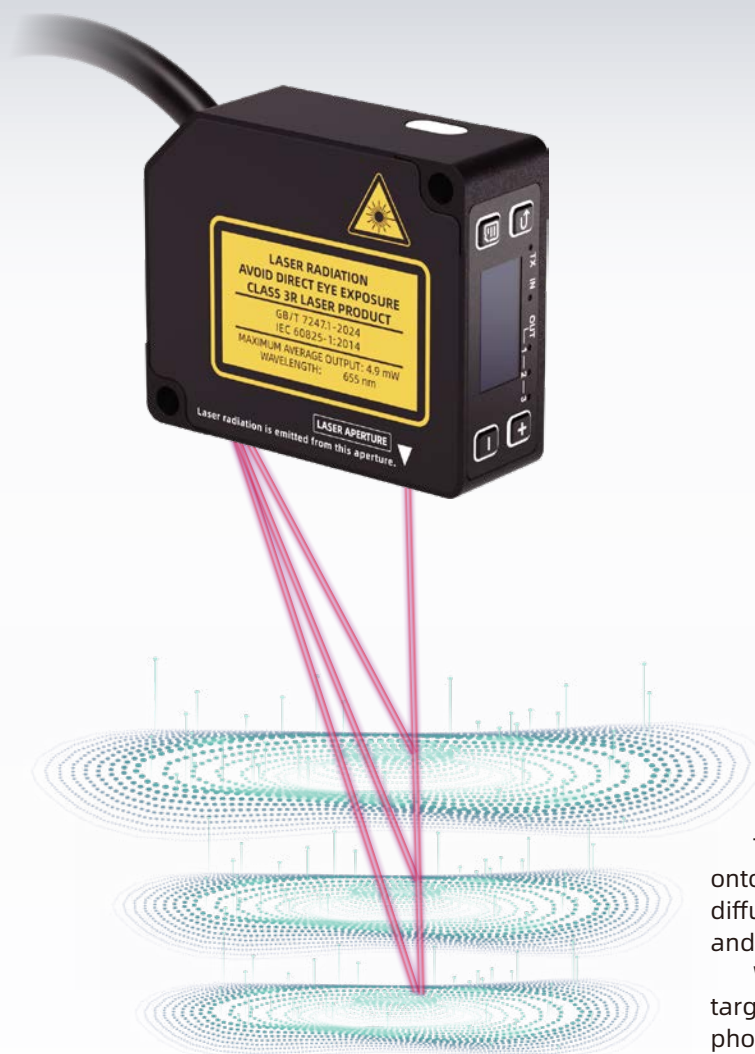
Cost-Effective



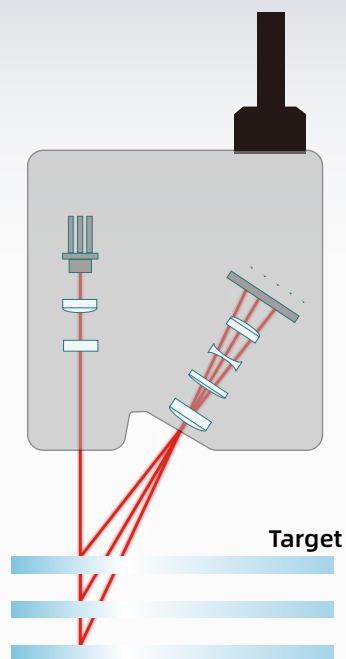
Independently
Developed



Integrated
Functions



Measurement Principle



Basic Principle

The laser beam emitted by the sensor is projected onto the target surface. The receiving lens collects the diffuse or specular reflected light from the target surface and focuses it onto the photosensitive element.

When the distance between the sensor and the target changes, the position of the light spot on the photosensitive element shifts accordingly.

Compact Design for Easy Integration

Compact 60 × 50 × 20.4 mm design for easy installation in confined spaces, enabling seamless integration without impacting system structure or performance.



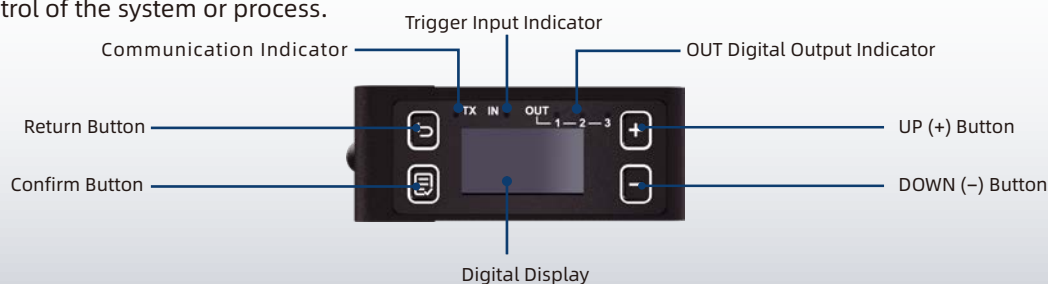
Other Models



Tronsight TS-M Series

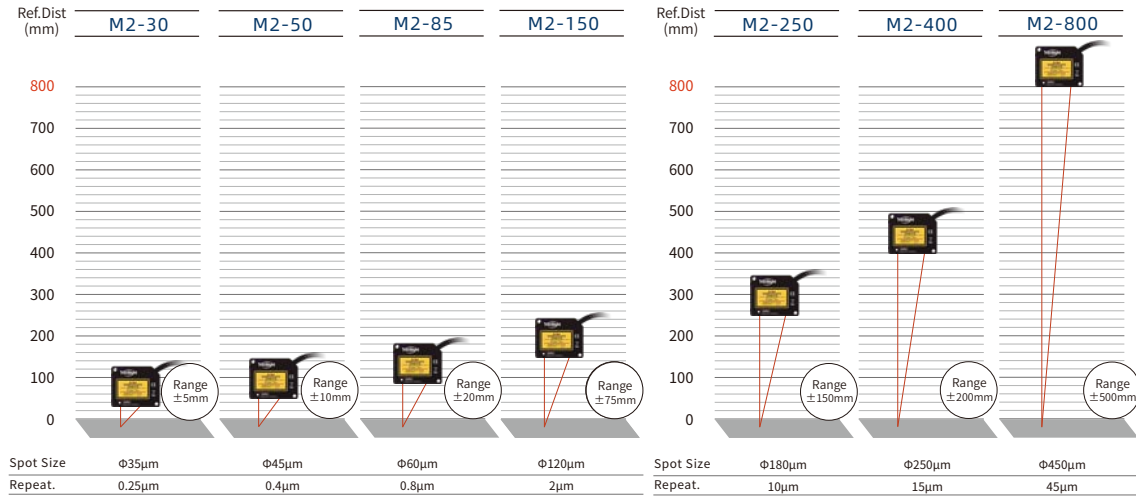
Human-Machine Interaction

Users can operate and configure the sensor through an intuitive button interface, enabling quick and convenient setup. The TS-M series provides real-time feedback of measurement data and device status via the display. Based on this feedback, users can make timely adjustments and decisions, achieving real-time monitoring and precise control of the system or process.

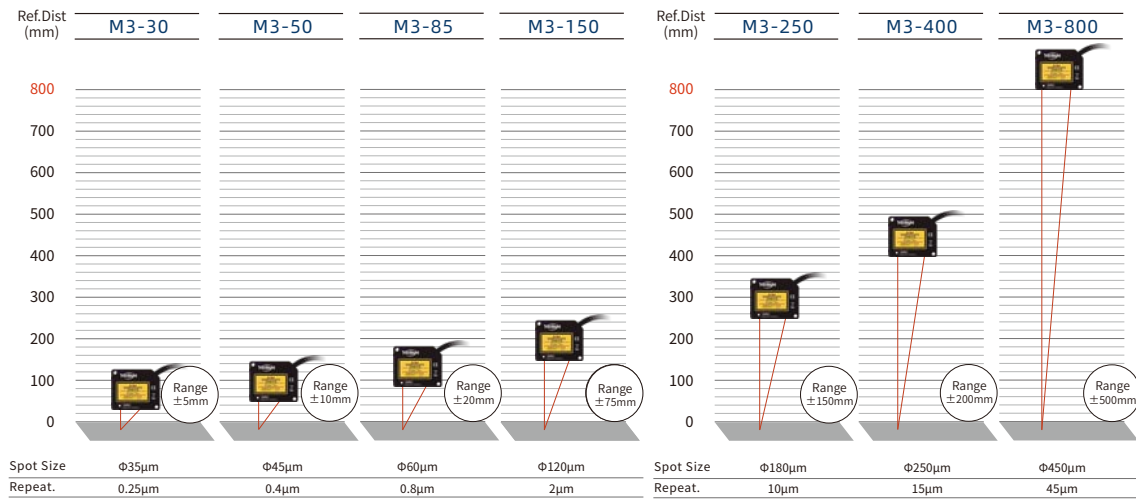


Product Overview

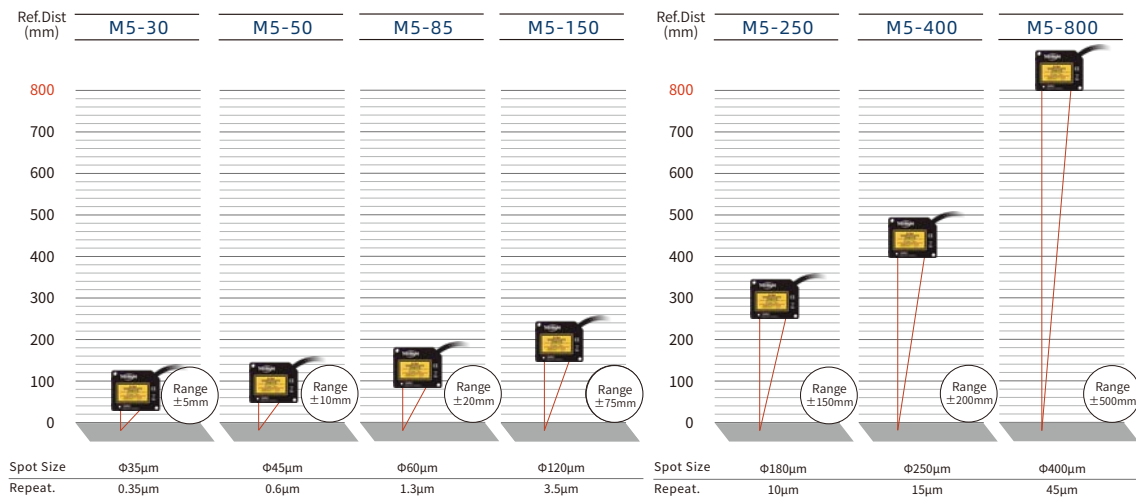
◆ M2(Sampling Rate: 5kHz)



◆ M3(Sampling Rate: 10kHz)



◆ M5(Sampling Rate: 31.25kHz)



*Ref. Dist. = Reference Distance; Repeat. = Repeatability; Accept. Angle = Acceptance Angle.

Chromatic Confocal
Displacement Sensors

Laser Triangulation
Displacement Sensors

Compact Laser
Displacement Sensors

Interferometric
Thickness Sensors

Reflective Film
Thickness Sensors

Applications



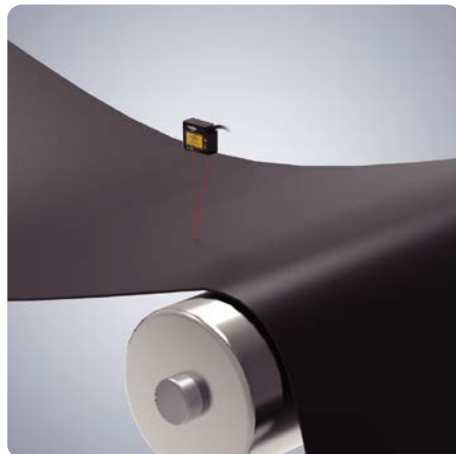
◆ Bottle Cap Height Variation Detection



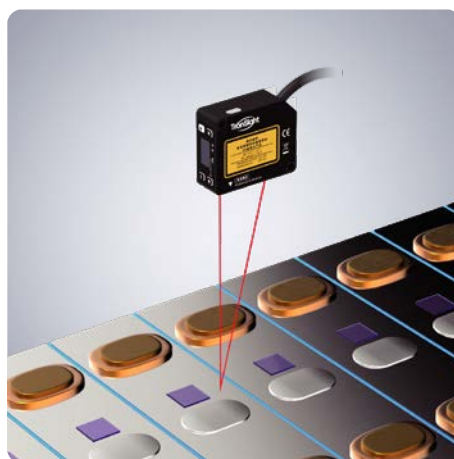
◆ Gap Detection in Building Materials



◆ Ceramic Thickness Measurement



◆ Tension Control of Rubber Sheets



◆ Seal Pin Welding Guidance



◆ Wafer Position Detection in Wafer Cassette

Product Specifications

M2 Series

Model* ⁶	Reference Distance* ¹	Measurement Range	Spot Size	Repeat.* ²	Linear.* ³	Dimensions	Weight	Sampling Rate	Light Source
M2-30	30 mm	±5 mm	φ35μm	0.25 μm	< ±8 μm	60*50*20.4 mm	Approx. 230g	Analog: 5 kHz	655 nm, Max. 4.9 mW
M2-30W	30 mm	±5 mm	35*400μm	0.25 μm	< ±5 μm				
M2-50	50 mm	±10 mm	φ45μm	0.4 μm	< ±15 μm				
M2-50W	50 mm	±10 mm	45*550μm	0.4 μm	< ±10 μm				
M2-85	85 mm	±20 mm	φ60μm	0.8 μm	< ±40 μm				
M2-85W	85 mm	±20 mm	60×800 μm	0.8 μm	< ±30 μm				
M2-150	150 mm	±75 mm	φ120μm	2 μm	< ±150 μm				
M2-150W	150 mm	±75 mm	120×1500μm	2 μm	< ±113 μm				
M2-250	250 mm	±150 mm	φ180 μm	10 μm	< ±450 μm				
M2-250W	250 mm	±150 mm	180*2600μm	10 μm	< ±300 μm				
M2-400	400 mm	±200 mm	φ250μm	15 μm	< ±600 μm				
M2-400W	400 mm	±200 mm	250*4500μm	15 μm	< ±400 μm				
M2-800	800 mm	±500 mm	φ450μm	45 μm	< ±2000 μm				
M2-800W	800 mm	±500 mm	450*6000μm	45 μm	< ±1000 μm				
M2-30R	25.7 mm	±5 mm	φ35μm	0.25 μm	< ±5 μm				
M2-50R	46.4 mm	±6 mm	φ45μm	0.4 μm	< ±6 μm				
M2-85R	85 mm	±10 mm	φ60 μm	0.8 μm	< ±10 μm				
M2-30WR	25.7 mm	±5 mm	35*400μm	0.25 μm	< ±5 μm				
M2-50WR	46.4 mm	±6 mm	45*550μm	0.4 μm	< ±6 μm				
M2-85WR	85 mm	±10 mm	60*800μm	0.8 μm	< ±10 μm				
M2-150WR	107.5 mm	±10.5 mm	120*1500μm	2 μm	< ±16.8 μm				
Temperature Drift		0.03% F.S./° C							
Output Ports* ⁴		RS-485 communication, analog output (Max. ±10 V, 4-20 mA)							
Measurement Software		M2-Navigator software							
Operating Mode		Standalone operation, no controller required							
Supply Voltage		DC 9-36 V (±10%)							
Power Consumption		Approx. 2.0 W							
IP Rating		IP67 (IEC 60529)							
Operating Temperature		0 to +50° C							

*1 Calculated at the center of the measurement range.

*2 Measured on a standard white ceramic sample; RMS deviation (1σ) of 1024 data points at 5 kHz without averaging.

*3 Verified and calibrated using a nanometer-precision laser interferometer.

*4 The sensor head supports independent voltage, current, and RS-485 outputs.

*5 Optional analog voltage/current output module available.

*6 Suffix definitions: W - wide spot; R - specular reflection reference type.

M3 Series

Model*6	Reference Distance*1	Measurement Range	Spot Size	Repeat.*2	Linear.*3	Dimensions	Weight	Sampling Rate	Light Source
M3-30	30 mm	±5 mm	φ35μm	0.25 μm	< ±8 μm	60*50*20.4mm	Approx. 150 g	10 kHz	655 nm, Max. 4.9 mW
M3-30U	30 mm	±5 mm	35*1200μm	0.25 μm	< ±5 μm				
M3-50	50 mm	±10 mm	φ45μm	0.4 μm	< ±15 μm				
M3-50U	50 mm	±10 mm	45*1800μm	0.4 μm	< ±10 μm				
M3-85	85 mm	±20 mm	φ60 μm	0.8 μm	< ±40 μm				
M3-85U	85 mm	±20 mm	60*2600 μm	0.8 μm	< ±30 μm				
M3-150	150 mm	±75 mm	φ120 μm	2 μm	< ±150 μm				660nm, Max. 50mW
M3-150U	150 mm	±75 mm	120*4600 μm	2 μm	< ±113 μm				
M3-250	250 mm	±150 mm	φ180μm	10 μm	< ±450 μm				
M3-250W	250 mm	±150 mm	180*2600 μm	10 μm	< ±300 μm				
M3-400	400 mm	±200 mm	φ250μm	15 μm	< ±600 μm				
M3-400W	400 mm	±200 mm	250*4500 μm	15 μm	< ±400 μm				
M3-800	800 mm	±500 mm	φ450μm	45 μm	< ±2000 μm				655 nm, Max. 4.9 mW
M3-800W	800 mm	±500 mm	450*6000 μm	45 μm	< ±1000 μm				
M3-30R	25.7 mm	±4.5 mm	φ35μm	0.25 μm	< ±7.2 μm				
M3-30UR	25.7 mm	±4.5 mm	35*1200μm	0.25 μm	< ±4.5 μm				
M3-50R	46.9 mm	±4.5 mm	φ45μm	0.4 μm	< ±7.2 μm				
M3-85UR	77.5 mm	±8 mm	60*2600 μm	0.8 μm	< ±12.8 μm				

Chromatic Confocal
Displacement Sensors

Laser Triangulation
Displacement Sensors

Compact Laser
Displacement Sensors

Interferometric
Thickness Sensors

Reflective Film
Thickness Sensors

Product Specifications

(Continued)

Temperature Drift	0.03% F.S./° C
Industrial Interface* ⁴	Ethernet, RS-485 serial communication, analog output* ⁵ (Max. ±10 V, 4–20 mA)
Software	MPLaserStudio measurement software and C++, C# SDK
Operating Mode	Standalone operation, no controller required
Supply Voltage	DC 9–36 V (±10% fluctuation allowed)
Power Consumption	Approx. 2.0 W
IP Rating	IP67 (IEC 60529)
Operating Temperature	0 to +50° C

*1 Calculated at the center of the measurement range.

*2 Measured on a standard white ceramic sample; RMS deviation (1σ) of 65,536 data points at 8 kHz without averaging.

*3 Verified and calibrated using a nanometer-precision laser interferometer.

*4 The sensor head supports independent voltage, current, and RS-485 outputs.

*5 Optional analog voltage/current output module available.

*6 Suffix definitions: W – wide spot; U – ultra-wide spot; R – specular reflection reference type.

M5 Series

Model* ⁶	Reference Distance* ¹	Measurement Range	Spot Size	Repeat.* ²	Linear.* ³	Dimensions	Weight	Sampling Rate	Light Source
M5-30	30 mm	±5 mm	φ35 μm	0.35 μm	< ±8 μm	60*50*20.4 mm	Approx. 150g	Ethernet: 31.25 kHz; Analog output: 50 kHz	655 nm, Max. 4.9 mW
M5-30W	30 mm	±5 mm	35*400 μm	0.35 μm	< ±5 μm				
M5-50	50 mm	±10 mm	φ45 μm	0.6 μm	< ±15 μm				
M5-50W	50 mm	±10 mm	45*550 μm	0.6 μm	< ±10 μm				
M5-85	85 mm	±20 mm	Approx. φ60 μm	1.3 μm	< ±40 μm				
M5-85W	85 mm	±20 mm	60*800 μm	1.3 μm	< ±30 μm				
M5-150	150 mm	±75 mm	φ120 μm	3.5 μm	< ±150 μm				
M5-150W	150 mm	±75 mm	120*1500 μm	3.5 μm	< ±113 μm				
M5-250	250 mm	±150 mm	φ180 μm	10 μm	< ±450 μm				
M5-250W	250 mm	±150 mm	180*2600 μm	10 μm	< ±300 μm				
M5-400	400 mm	±200 mm	Approx. φ250 μm	15 μm	< ±600 μm				
M5-400W	400 mm	±200 mm	250*4500 μm	15 μm	< ±400 μm				
M5-800	800 mm	±500 mm	Approx. φ400 μm	45 μm	< ±2000 μm				
M5-800W	800 mm	±500 mm	450*6000 μm	45 μm	< ±1000 μm				
M5-30R	25.7 mm	±4.5 mm	φ35 μm	0.35 μm	< ±4.5 μm				
M5-50R	44.4 mm	±5 mm	φ45 μm	0.6 μm	< ±5 μm				
M5-85R	76.5 mm	±5.5 mm	φ60 μm	1.3 μm	< ±8.8 μm				
M5-30WR	25.7 mm	±4.5 mm	35*400 μm	0.35 μm	< ±4.5 μm			655 nm, Max. 4.9 mW	
M5-50WR	44.4 mm	±5 mm	45*550 μm	0.6 μm	< ±5 μm				
M5-85WR	76.5 mm	±5.5 mm	60*800 μm	1.3 μm	< ±8.8 μm				
M5-150WR	107.5 mm	±9 mm	120*1500 μm	3.5 μm	< ±14.4 μm				
Temperature Drift		0.03% F.S./° C							
Industrial Interface* ⁴		Ethernet, RS-485 serial communication, analog output* ⁵ (Max. ±10 V, 4-20 mA)							
Software		MPLaserStudio measurement software and C++, C# SDK							
Operating Mode		Standalone operation, no controller required							
Supply Voltage		DC 9-36 V, max. allowable fluctuation ±10%							
Power Consumption		Approx. 2.0 W							
IP Rating		IP67 (IEC 60529)							
Operating Temperature		0 to +50° C							

*1 Calculated at the center of the measurement range.

*2 Measured on a standard white ceramic sample; RMS deviation (1σ) of 65,536 data points at 12.5 kHz without averaging.

*3 Verified and calibrated using a nanometer-precision laser interferometer.

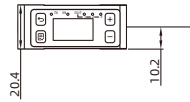
*4 The sensor head supports independent voltage, current, and RS-485 outputs.

*5 Optional analog voltage/current output module available.

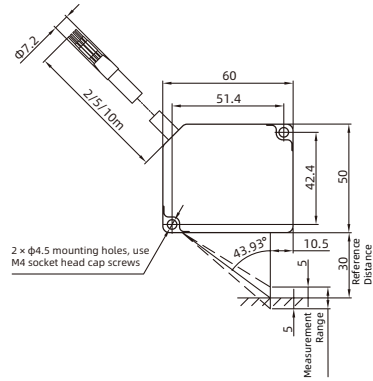
*6 Suffix definitions: W – wide spot; R – specular reflection reference type.

Dimension Drawing

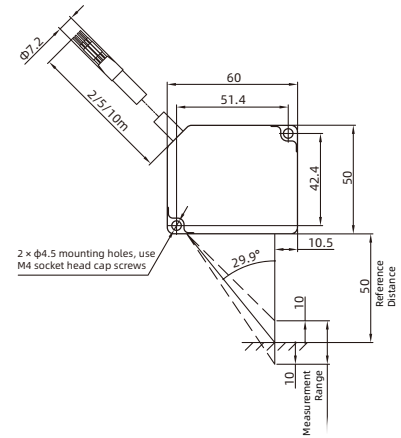
M Series Control Panel



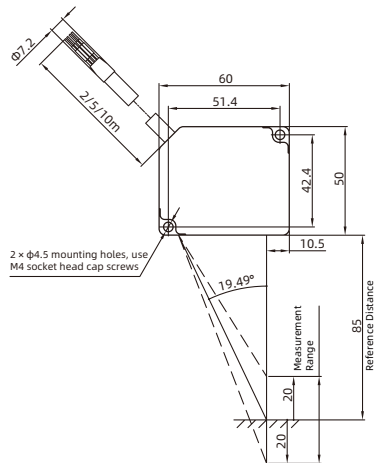
M2-30_30W



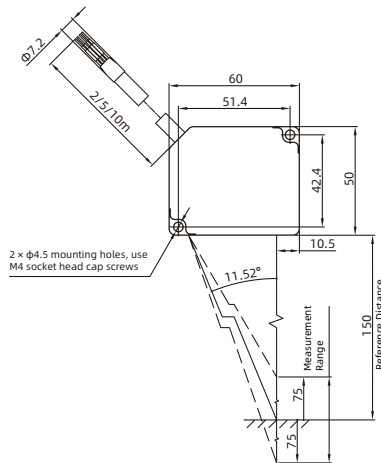
M2-50_50W



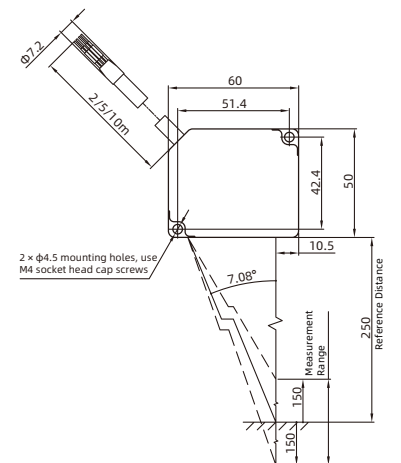
M2-85_85W



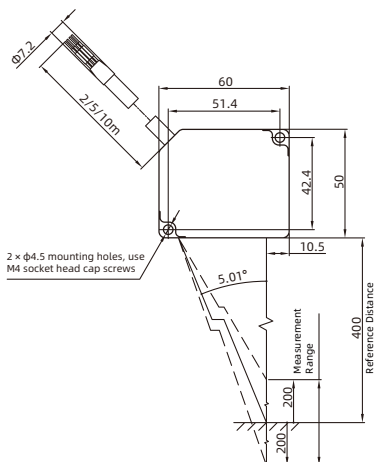
M2-150_150W



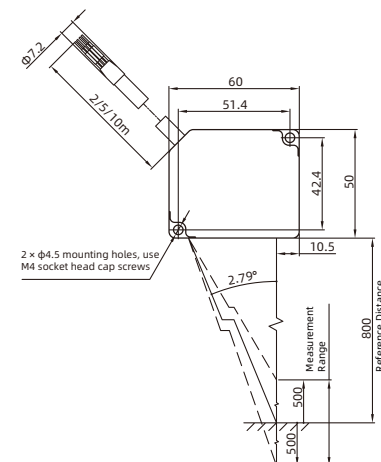
M2-250_250W



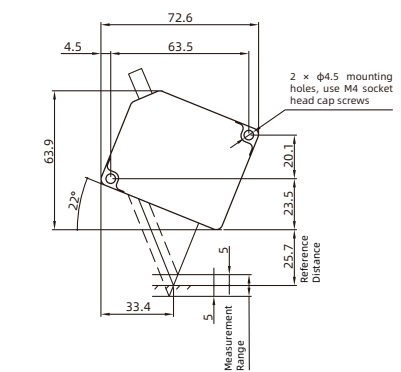
M2-400_400W



M2-800_800W



M2-30R_30WR



Chromatic Confocal
Displacement Sensors

Laser Triangulation
Displacement Sensors

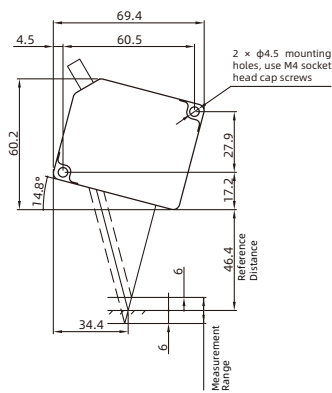
Compact Laser
Displacement Sensors

Interferometric
Thickness Sensors

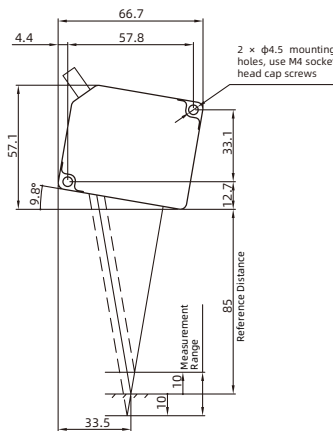
Reflective Film
Thickness Sensors

Dimension Drawing

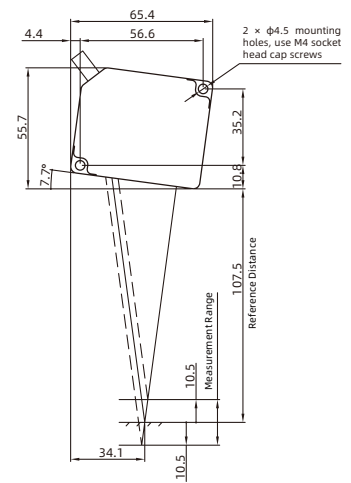
M2-50R_50WR



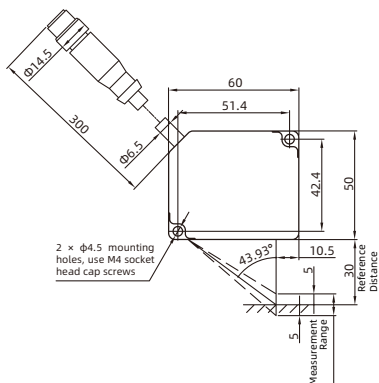
M2-85R_85WR



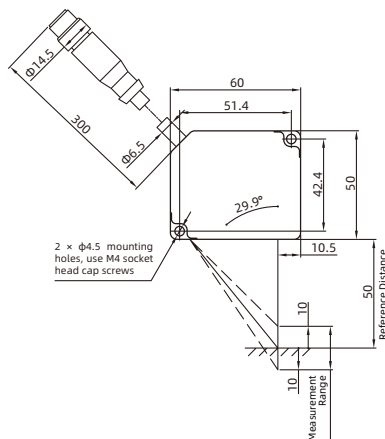
M2-150WR



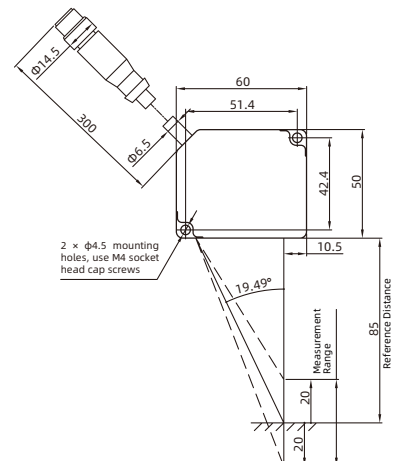
M3-30_30U



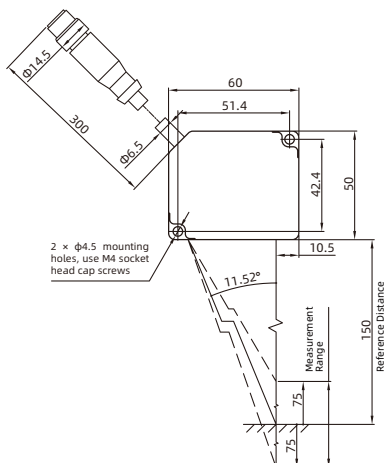
M3-50_50U



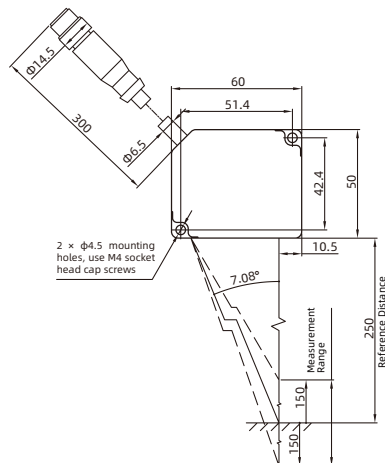
M3-85_85U



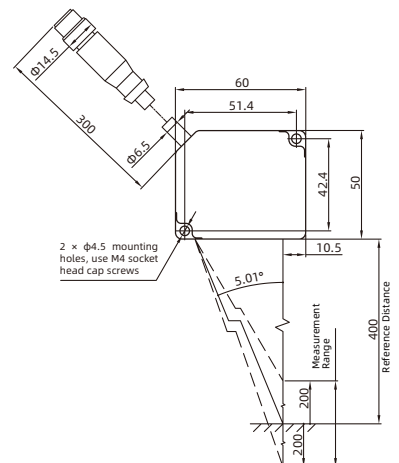
M3-150_150U



M3-250_250U

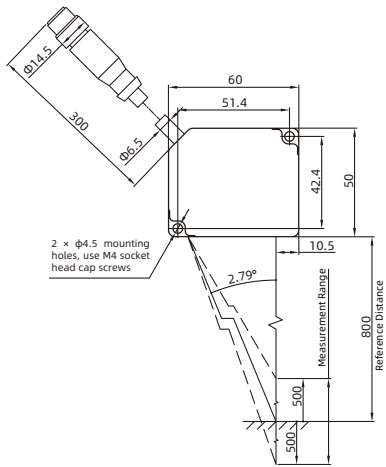


M3-400_400W

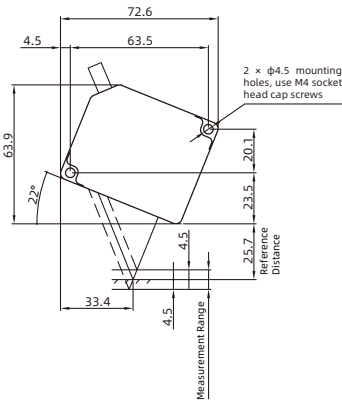


Dimension Drawing

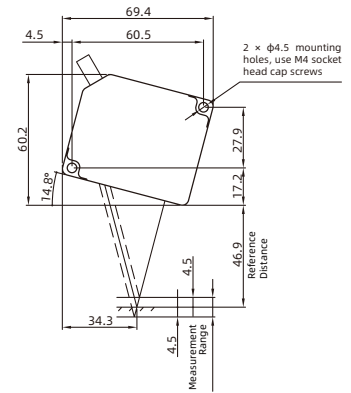
M3-800_800W



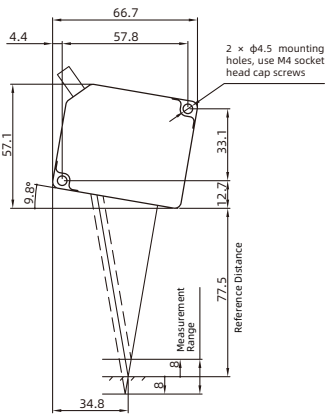
M3-30R_30UR



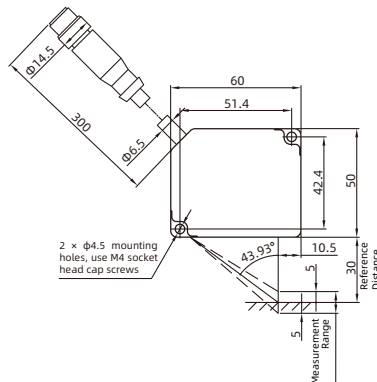
M3-50R



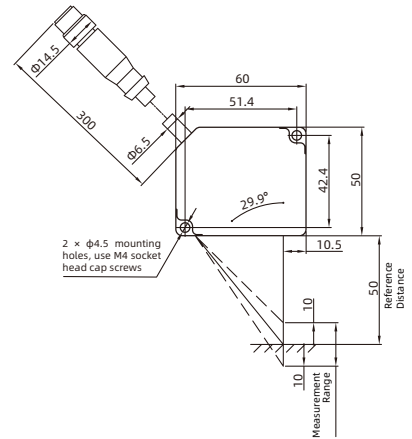
M3-85UR



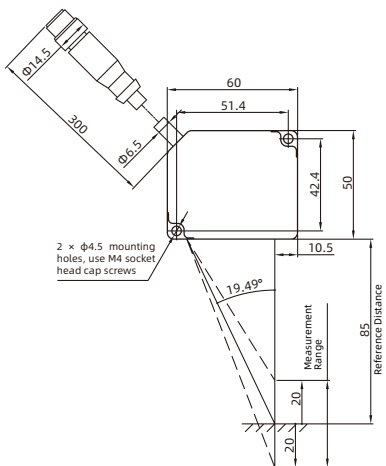
M5-30_30W



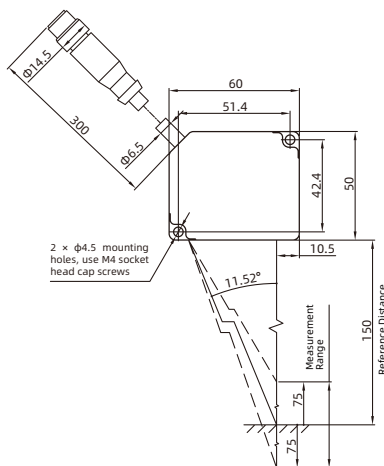
M5-50_50W



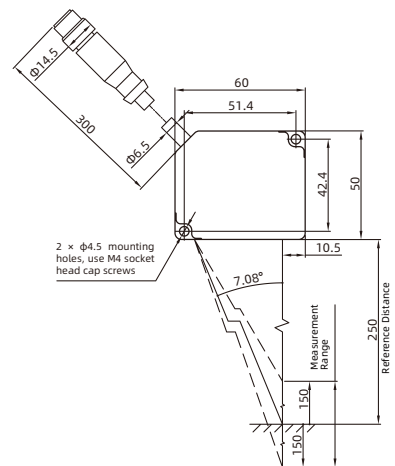
M5-85_85W



M5-150_150W



M5-250_250W



Chromatic Confocal
Displacement Sensors

Laser Triangulation
Displacement Sensors

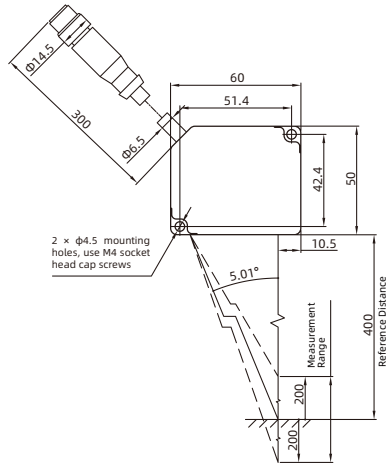
Compact Laser
Displacement Sensors

Interferometric
Thickness Sensors

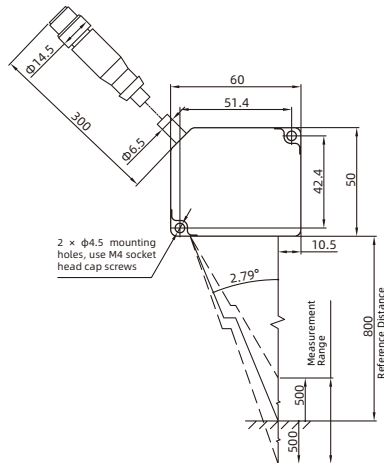
Reflective Film
Thickness Sensors

Dimension Drawing

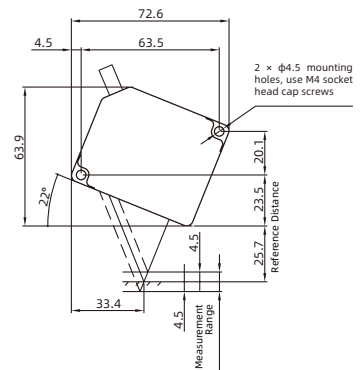
M5-400_400W



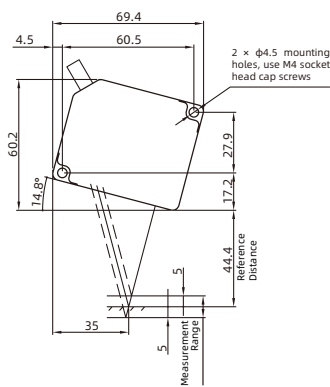
M5-800_800W



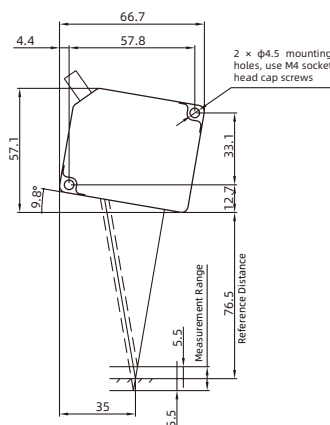
M5-30R_30WR



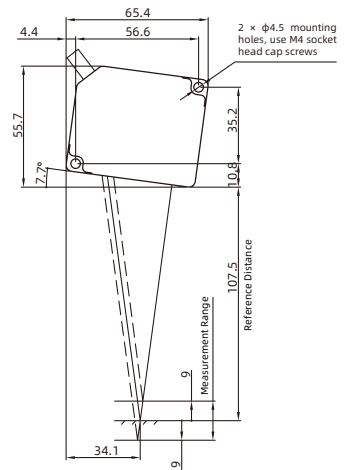
M5-50R_50WR



M5-85R_85WR



M5-150WR



| TS-I Series | Interferometric Thickness Sensor

1
nm

Ultra-High
Repeatability

±20
nm

Ultra-High
Linearity

Up to **40**
kHz

Ultra-Fast
Sampling Rate

1~4000

Ultra-wide
Thickness Range



◆ Why Choose TronSight?



WLI / IR
Optional



Strong
Anti-interference



Nanometer-level
Accuracy



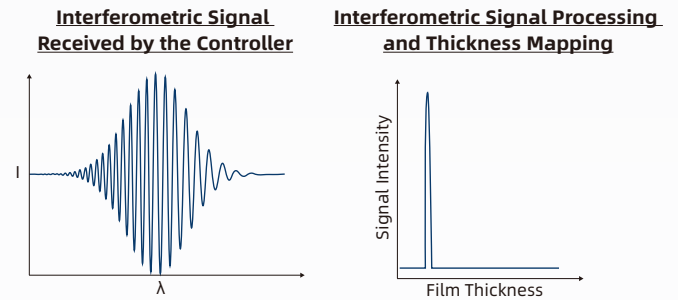
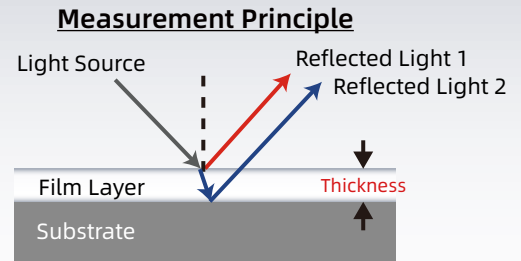
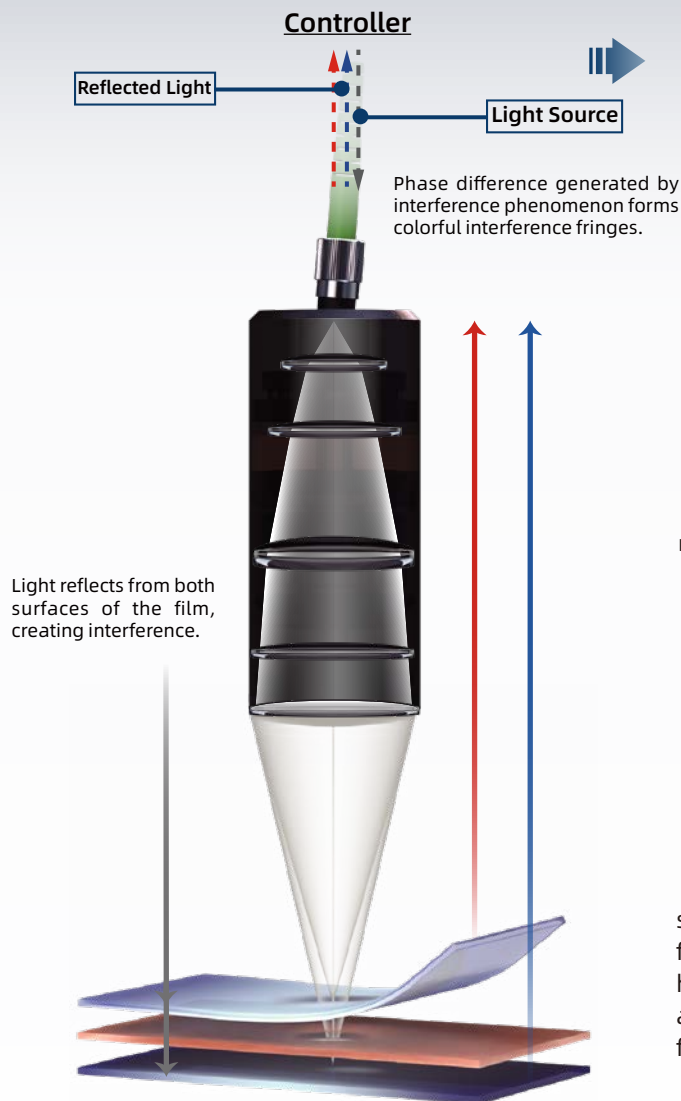
Multi-channel
Measurement



Film & Wafer
Thickness

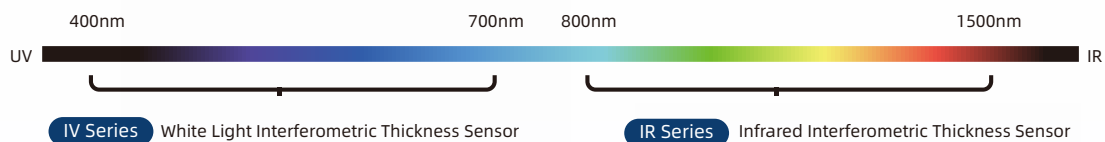


Wide Stand-off
Distance



Basic Principle

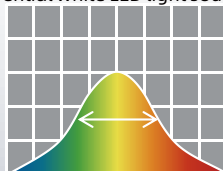
Incident light is reflected from the top and bottom surfaces of the film, and the two beams interfere to form interference fringes. The fringe characteristics have a strict correspondence with film thickness. By accurately detecting and analyzing these fringes, the film thickness can be precisely calculated.



High-brightness Broadband Source

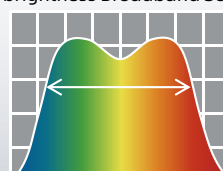
Our sensor series covers white light and near-infrared options for diverse industrial applications. White light models use broadband sources to capture rich spectral data, delivering high-precision measurements at long stand-off distances—ideal for thin films, glass, and transparent materials. Near-infrared variants leverage SLED technology to measure silicon, SiC, and other transparent substrates, from undoped to heavily doped wafers. Both platforms ensure exceptional stability across all working distances.

Conventional white LED light sources



Narrow high-brightness emission band

High-brightness Broadband Source



Wide high-brightness emission band

Product Overview

IV Series White Light Interferometric Thickness Sensor

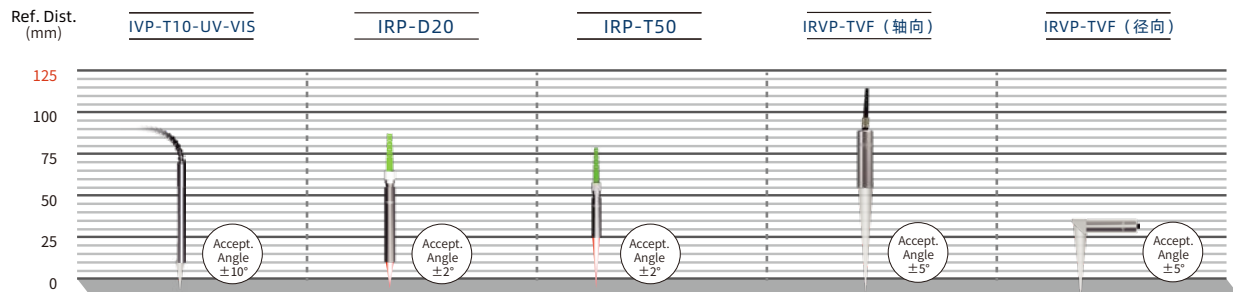


- Visible light, with interferometric probes
- For transparent / semi-transparent films
- High precision, small range, nm-level repeatability

IR Series Infrared Interferometric Thickness Sensor

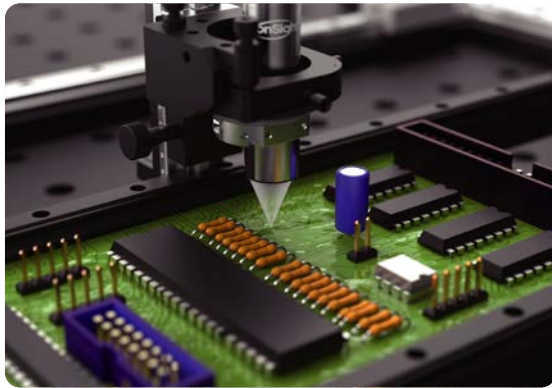


- Infrared light with longer wavelength and higher penetration
- Thickness and displacement measurement simultaneously
- For opaque, dark, and multi-layer materials
- Strong ambient light immunity

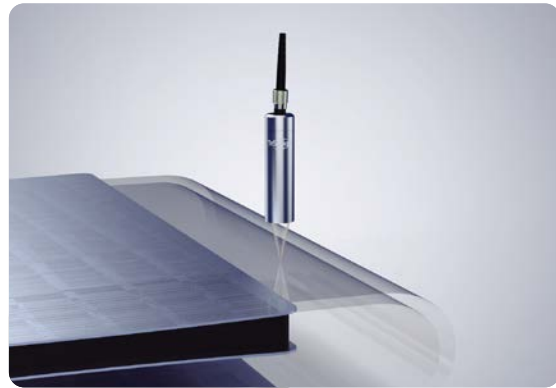


- Zero Thermal Drift:** Split probe design eliminates heat-induced deformation for stable long-term monitoring
- Complex Materials:** WLI and IR technologies handle transparent, semi-transparent, opaque, and highly reflective surfaces
- High Spatial Adaptability:** Miniaturized all-optical probes integrate seamlessly into semiconductor equipment for in-situ measurement
- Strong Anti-interference:** Fiber-optic transmission ensures signal purity and precision in complex electromagnetic environments

Applications



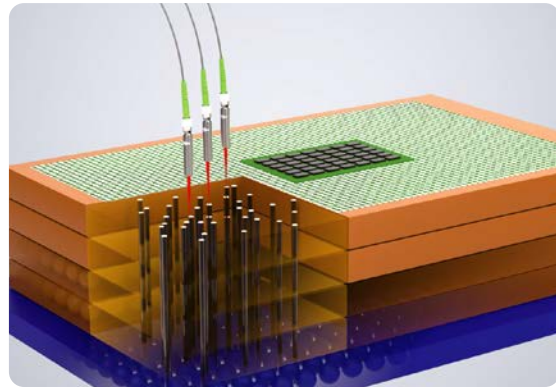
◆ PCB Conformal Coating Thickness



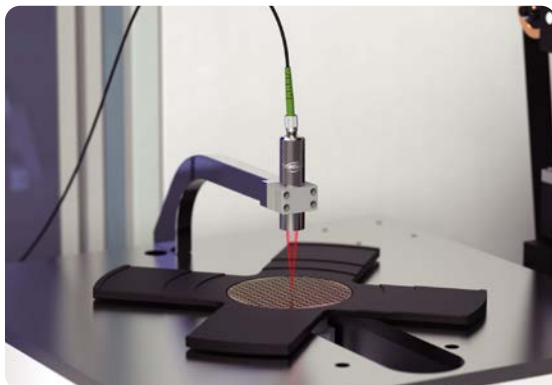
◆ Ultra-thin Flexible Glass (UTG) Thickness



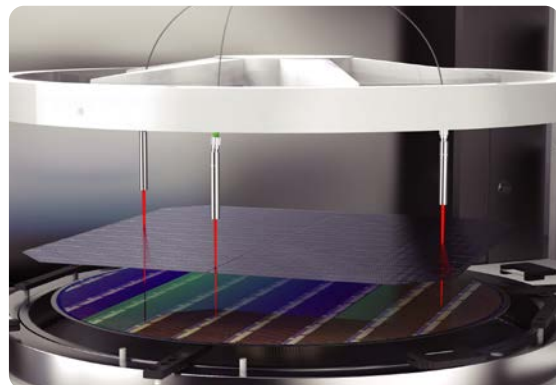
◆ PET Multi-layer Film Thickness



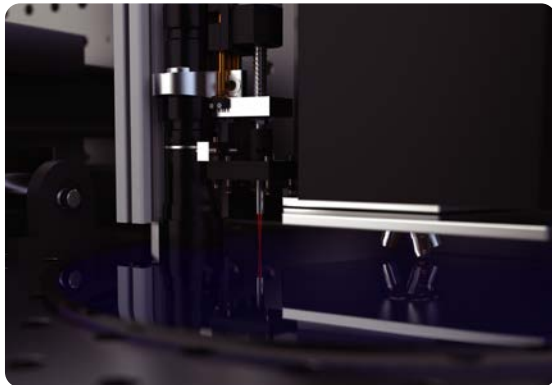
◆ TSV (Through-Silicon Via) Depth



◆ Advanced Packaging Wafer Bond Layer Thickness



◆ Wafer Bonding Gap Measurement



◆ Thickness Measurement Module Integration



◆ Wafer Grinding & Polishing Thickness Monitoring

Product Specifications

IV Series

Series Name		IVS-100	IVS-100W	IVS-50	IVS-50W
Controller Model		IVCS-100	IVCS-100W	IVCS-50	IVCS-50W
Compatible Probe		IRVP-TVF	IVP-T10-UV-VIS	IRVP-TVF	IVP-T10-UV-VIS
Recommended Working Distance*1		55 mm ±2 mm	Non-telecentric probe, installation distance 5-10 mm	55 mm ±2 mm	Non-telecentric probe, installation distance 5-10 mm
Measurement Angle*2		±5°	±10°	±5°	±10°
Light Spot Type*3		Focused spot, Φ100 μm	Diffuse spot, spot diameter ≈ 4 mm at 10 mm distance	Focused spot, Φ100 μm	Diffuse spot, spot diameter ≈ 4 mm at 10 mm distance
Probe Diameter × Length		Φ20 × 77.7 mm (including fiber base length)	Φ6.35 × 3200 mm*6	Φ20 × 77.7 mm (including fiber base length)	Φ6.35 × 3200 mm*6
Probe Weight		108 g	190 g	108 g	190 g
Probe Protection Class		IP40	IP40	IP40	IP40
Number of Sensor Heads		1			
Measurement Range		approx. 2 μm-100 μm (n=1.5)	approx. 1 μm-50 μm (n=1.5)	approx. 2 μm-100 μm (n=1.5)	approx. 1 μm-50 μm (n=1.5)
Repeatability*4		1 nm	1 nm	1 nm	1 nm
Linearity*5		≤ ±20 nm	≤ ±20 nm	≤ ±20 nm	≤ ±20 nm
Sampling Rate		Max. 10 kHz	Max. 10 kHz	Max. 10 kHz	Max. 10 kHz
Input / Output	Encoder Input	AB / ABZ encoder input, configurable for triggering			
	Trigger Input	Pulse / level trigger			
	Digital Output	Alarm output, comparator output			
	Analog Output	Linear voltage output (0-5 V / 0-10 V / ±5 V / ±10 V) / 4-20 mA current output			
Industrial Interfaces	Ethernet	100BASE-TX			
	USB	USB 2.0 Full-speed			
	RS-485	Modbus protocol, 19200-115200 baud rate			
Measurement Software	Software	TSConfocalStudio			
	SDK	C++ and C# development			
Rated Power	Power Supply	24 VDC ±10%			
	Current Consumption	approx. 0.4 A			
Environmental	Operating Temperature	0 to +50° C			
	Humidity	20 to 85% RH (non-condensing)			
Controller Weight		approx. 2000 g			

*1 Focal position where the return signal is strongest.

*2 Measured using a standard flat mirror, tilt test at 1 kHz sampling rate.

*3 Measured on a sharp glass edge using a sub-micron precision motion stage, verified against a laser interferometer.

*4 Measured on a standard thickness sample, RMS deviation of 10,000 thickness data points at 1 kHz without averaging.

*5 Theoretical value.

*6 Total length 3200 mm, including probe and armored cable.

IRS5 Series Controll

Controller Model	IRC5400-S	IRC5200-S	IRC5030-S
Measurement Range (n=1)	50-4000 μ m	23-2000 μ m	3-350 μ m
Measurement Range (n=1.5)	33.3-2667 μ m	15.3-1333 μ m	2-233 μ m
Measurement Range (n=3.5)	14.3-1143 μ m	6.6-571 μ m	0.86-100 μ m
Spot Diameter*1	Φ 20 μ m	Φ 20 μ m	Φ 800 μ m (customizable)
Repeatability	<2 nm rms (measured on n=1.5 glass sample)	<1 nm rms (measured on n=1.5 glass sample)	<1 nm rms (measured on n=1.5 glass sample)
Linearity	$\leq$ $\pm$ 0.1 μ m	$\leq$ $\pm$ 0.1 μ m	$\leq$ $\pm$ 0.05 μ m
IP Rating	IP40	IP40	IP40
Number of Sensor Heads	1		
Sampling Rate	Max. 40 kHz	Max. 40 kHz	Max. 40 kHz
Input / Output	Encoder Input	AB / ABZ encoder input, configurable for triggering	
	Trigger Input	Pulse / level trigger	
	Digital Output	Alarm output, comparator output	
	Analog Output	Linear voltage output (0-5 V / 0-10 V / $\pm$ 5 V / $\pm$ 10 V) / 4-20 mA current output	
Industrial Interfaces	Ethernet	100BASE-TX	
	USB	USB 2.0 High-speed	
	RS485	Modbus protocol, 9600-115200 baud rate	
Measurement Software	Software	TSConfocalStudio	
	SDK	C++ and C# SDK	
Rated Power	Power Supply	24 VDC $\pm$ 10%	
	Current Consumption	approx. 0.4 A	

Product Specifications

(Continued)

Environmental	Operating Temperature	10 to +40° C
	Humidity	20 to 85% RH (non-condensing)
Controller Weight		approx. 5700 g

*1 For thickness probes, the value refers to the spot diameter at the reference distance; for displacement probes, it refers to the spot diameter at the center of the measurement range.

IRS5 Series Sensor Heads

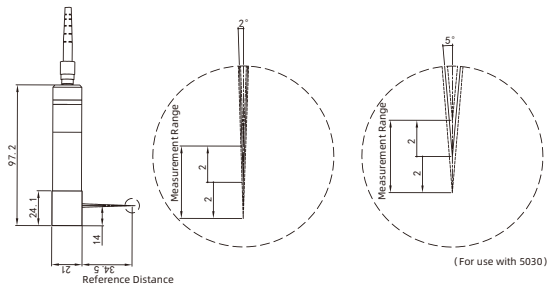
Sensor Head Model	IRP-D20	IRP-T50	IRVP-TVF	
Sensor Head Type	Displacement Sensor Head	Thickness Sensor Head	/	
Compatible Controller	IRC5200-S, IRC5400-S	IRC5200-S, IRC5400-S	IRC5030-S	IRC5200-S, IRC5400-S
Reference Distance	20 mm	50 mm	Side-view with prism: 34.5 mm ϕ 2 mm ; Axial output: 55 mm ϕ 2 mm	
Diameter * Length	ϕ 10*58.5 mm	ϕ 10*34.2 mm (including fiber length)	ϕ 20*77.7 mm (including fiber length)	
Sensor Head Weight	/	approx. 10 g	108 g	
Acceptance Angle	$\pm 1.5^\circ$	$\pm 5^\circ$	$\pm 2^\circ$	

IRS4 Series

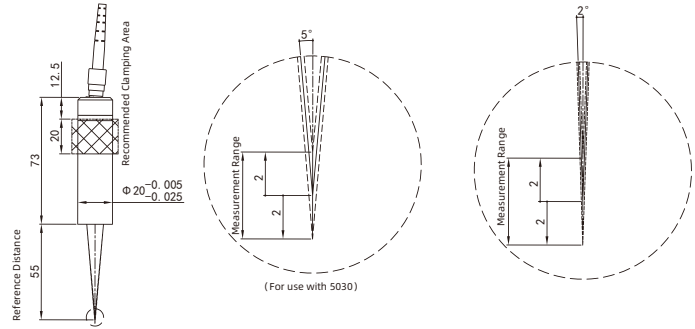
Controller Model		IRC4060-F/8/16	
Compatible Sensor Head		IRVP-TVF (Thickness Sensor Head)	IRP-T50 (Thickness Sensor Head)
Reference Distance		55 mm	50 mm
Measurement Range		(n = 1): 20-600 μ m	
		(n = 1.5): 13.3-400 μ m	
Acceptance Angle		$\pm 5^\circ$	$\pm 2^\circ$
Spot Diameter *1		approx. 100 μ m	approx. 150 μ m
Repeatability		5 nm rms (measured at n = 1.5 glass sample)	
Linearity		± 0.1 μ m	
Diameter * Length		ϕ 20*77.7 mm (including fiber length)	ϕ 10*34.2 mm (including fiber length)
Sensor Head Weight		108 g	approx. 10 g
IP Rating		IP40	
Number of Sensor Heads		4 / 8 / 16	
Sampling Rate		approx. 10 Hz (calculated by PC software)	
Input Ports	Encoder Input	ABZ encoder input (3-channel), supports position acquisition and trigger	
	Trigger Input	Pulse / Level trigger	
Output Ports	Digital Output	Alarm output, comparator output	
	Analog Output	Linear 0-5 V / 0-10 V / ± 5 V / ± 10 V voltage output / 4-20 mA current output	
Industrial Interfaces	Ethernet	100BASE-TX	
	USB	USB 2.0 High Speed	
	RS-485	Modbus protocol, 9600-115200 baud rate	
Measurement Software	Software	ITHStudio measurement software	
	SDK	C++ and C# SDK	
Rated Power	Power Supply	24 VDC $\pm 10\%$	
	Current Consumption	approx. 1 A / 1.8 A / 3.5 A (4 / 8 / 16 channels)	
Environmental	Operating Temperature	10 to +40° C	
	Humidity	20 to 85% RH (non-condensing)	
Controller Weight		approx. 3000 g	

Dimension Drawing

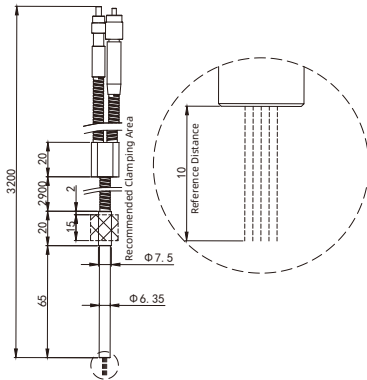
IRVP-TVF (Radial)



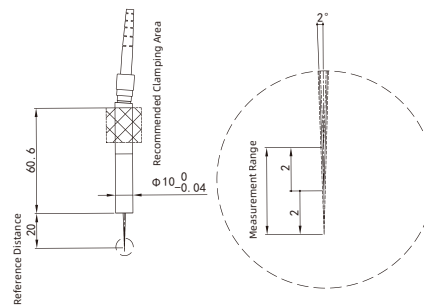
IRVP-TVF (Axial)



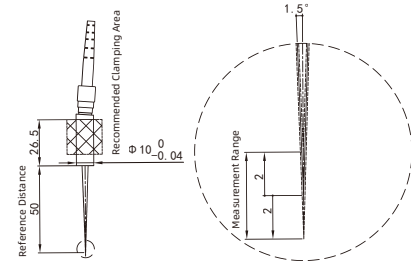
IVP-T10-UV-VIS



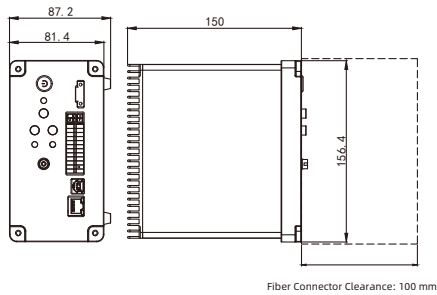
IRP-D20



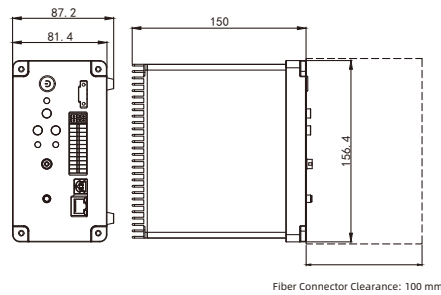
IRP-T50



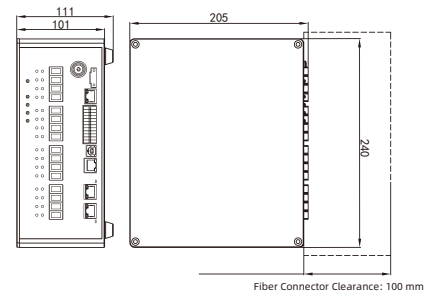
IVCS50_IVCS100



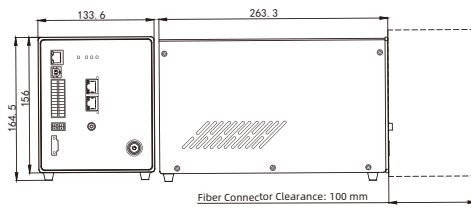
IVCS50W_IVCS100W



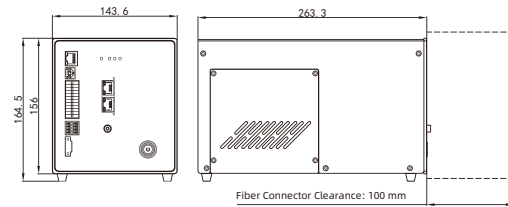
IRS4 Series



IRC5200-S_IRC5400-S



IRC5030-S



Chromatic Confocal
Displacement Sensors

Laser Triangulation
Displacement Sensors

Compact Laser
Displacement Sensors

Interferometric
Thickness Sensors

Reflective Film
Thickness Sensors

| *TS-R Series* |

Reflective Film Thickness Sensors

20
nm

Ultra-thin Thickness
Measurement

± 1
nm

Ultra-high
Accuracy

Up to **100**
Hz

Ultra-Fast
Sampling Rate

0.05
nm

Ultra-high
Repeatability



◆ Why Choose TronSight?



Freestanding Film
Measurement



High Interference
Immunity



Nanometer
Repeatability



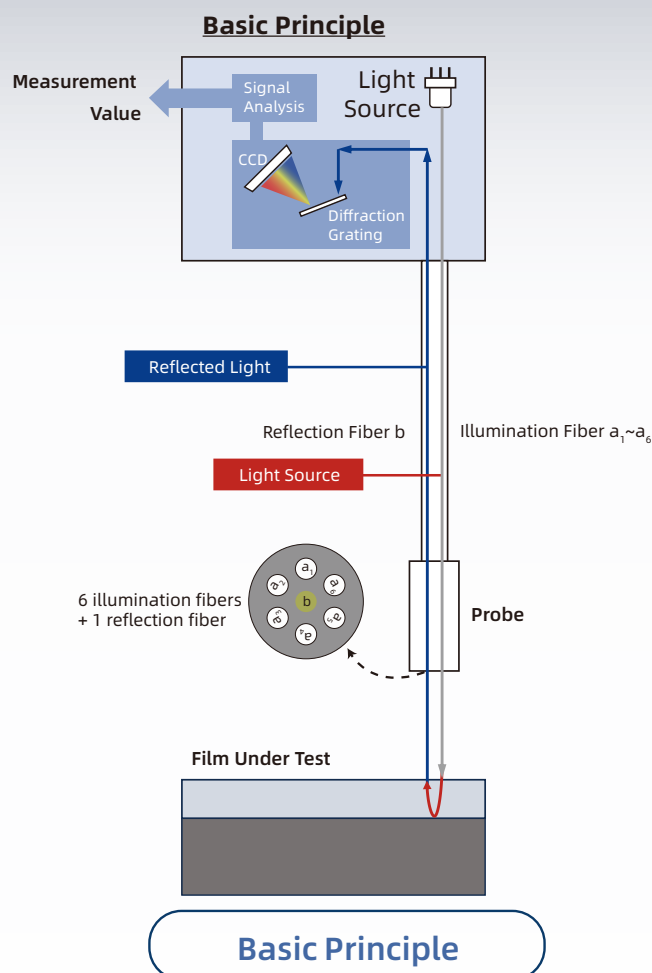
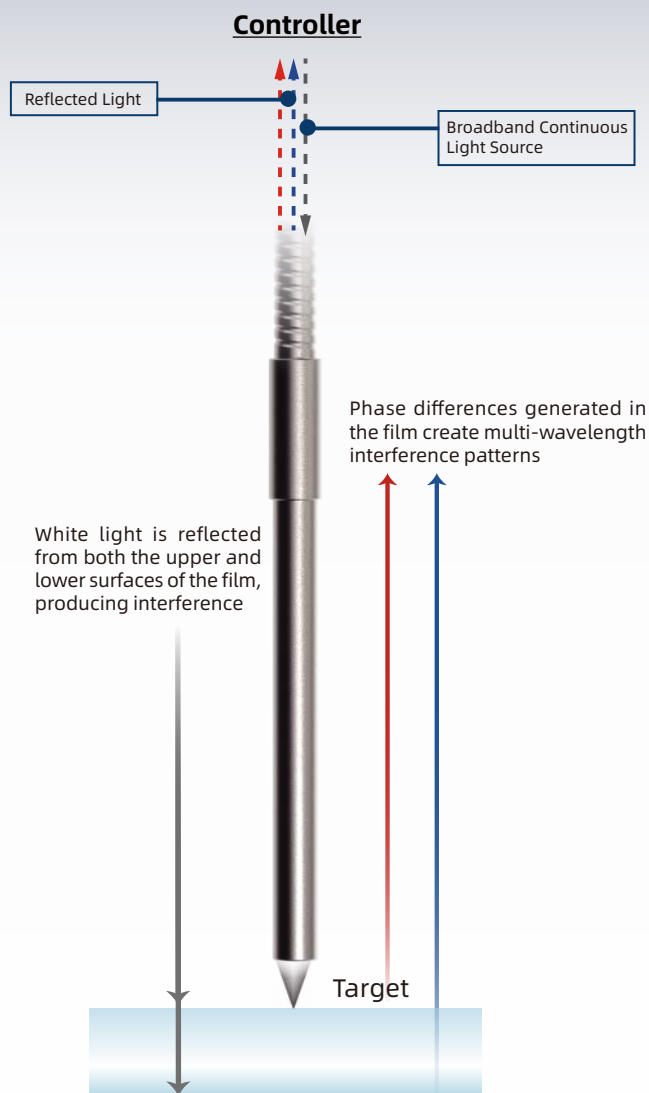
Multi-layer Transparent
Measurement



Rigid Thin Film
Measurement



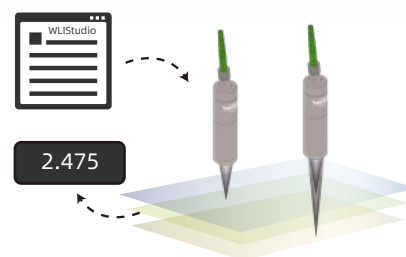
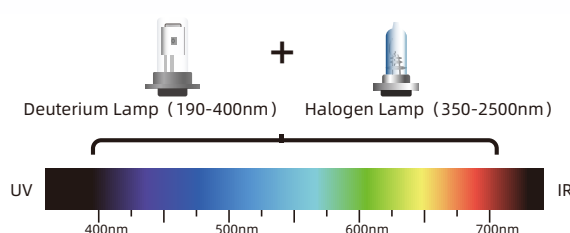
Compact & Easy
Integration



Interference between reflections from the top and bottom surfaces forms a reflectance spectrum dependent on film thickness, optical constants, and roughness; thickness is obtained by model fitting over a defined wavelength range.

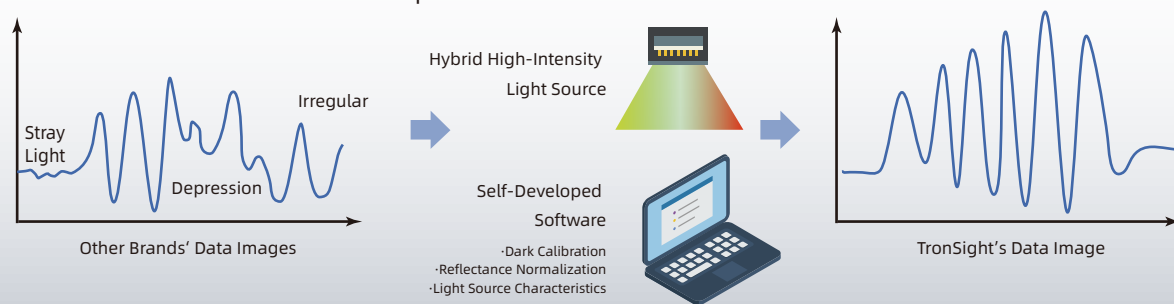
High-Intensity Hybrid Light Source

Tronsight uses a hybrid UV-visible-IR light source to ensure high stability, accuracy, and adaptability across various materials and film structures.

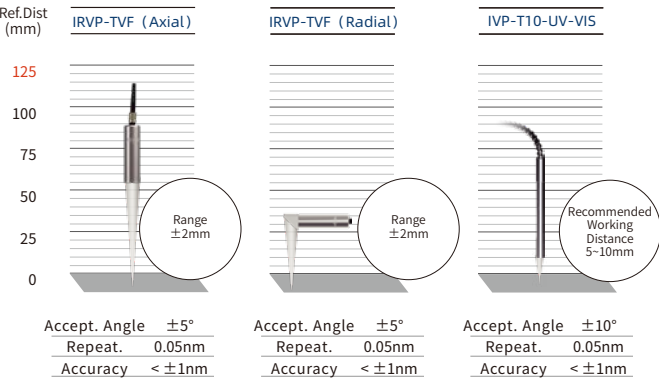


Advanced Anti-Interference Design

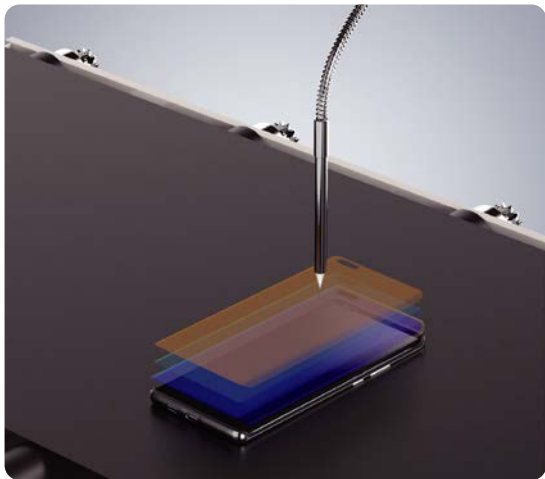
Tronsight combines high-performance optics and advanced algorithms to suppress interference, ensuring stable and reliable measurements in complex industrial environments.



Product Overview



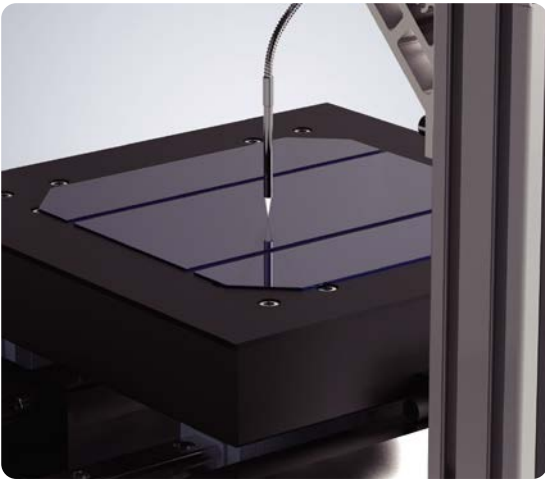
Applications



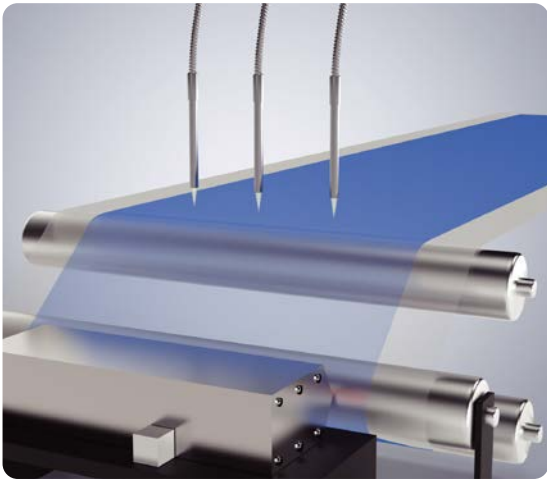
◆ LCD Film Thickness Measurement



◆ Coating Thickness Measurement



◆ Poly Layer Thickness Measurement on PV Wafers



◆ Precision Coating Thickness Measurement

Product Specifications

Controller

Controller Model* ¹		RUVC-1020 (HS)	RUVC-2050 (HS)	RUVC-3050
Compatible Sensor Head		IVP-T10-UV-VIS	IVP-T10-UV-VIS, IRVP-TVF	IRVP-TVF
Light Source		Deuterium light source	Tungsten halogen light source	Tungsten halogen light source
Spectral Range		190-1100 nm	400-1100 nm	1000-1700 nm
Measurement Range		approx. 20 nm-100 µm (n = 1.5)	approx. 50 nm-100 µm (n = 1.5)	approx. 50 nm-50 µm (n = 1.5)
Number of Sensor Heads		1	1	1
Repeatability* ²		0.05 nm	0.05 nm	0.05 nm
Accuracy (max.)* ³		≤ ±1 nm or ±0.3%	≤ ±1 nm or ±0.3%	≤ ±1 nm or ±0.3%
Sampling Rate		Max. 100 Hz (depending on spectral analysis complexity)		
Measurement Software	Software	WLIStudio		
	SDK	WLI-SDK		
Rated Power	Power Supply	220 V ±20 V, 50 Hz AC		
	Power Consumption	50 W		
Environmental	Operating Temperature	-10 to +40° C		
	Relative Humidity	20 to 85% RH (non-condensing)		
Controller Weight		approx. 5000 g		

*1 "HS" indicates that a high-speed version is available for this model.

*2 Measured on a 100 nm SiO₂ standard; 1σ standard deviation of 1,000 consecutive measurements.

*3 Measured on a SiO₂ standard; deviation between the average of 100 consecutive measurements and the nominal value.

Sensor Heads

Sensor Head Model	IVP-T10-UV-VIS	IRVP-TVF
Recommended Working Distance* ¹	Non-focused beam, mounting distance 5-10 mm	Side-view with prism: 34.5 mm ±2 mm / Axial output: 55 mm ±2 mm
Acceptance Angle* ²	±10°	±5°
Spot Type	Diffuse spot; at 10 mm mounting distance, spot diameter ≈ 4 mm	Focused spot; approx. 200 µm
Diameter*Length	Φ6.35*3200 mm * ³	Φ20*73 mm
Sensor Head Weight	190 g	108 g (sensor head), 49 g (prism)
IP Rating	IP40	

*1 During measurement, keep the distance between the target and the sensor head relatively constant. For IRVP-TVF, the working distance can be adjusted from 35 to 200 mm; for specific requirements, please contact sales in advance.

*2 During measurement, keep the angle between the target and the sensor head relatively constant.

*3 The length of 3200 mm refers to the total length of the sensor head including the cable.

Chromatic Confocal
Displacement Sensors

Laser Triangulation
Displacement Sensors

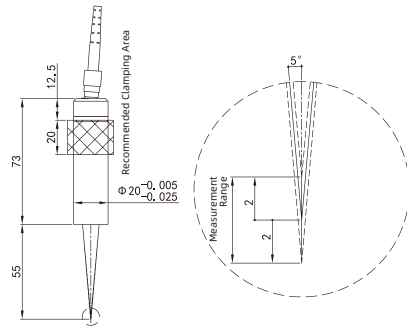
Compact Laser
Displacement Sensors

Interferometric
Thickness Sensors

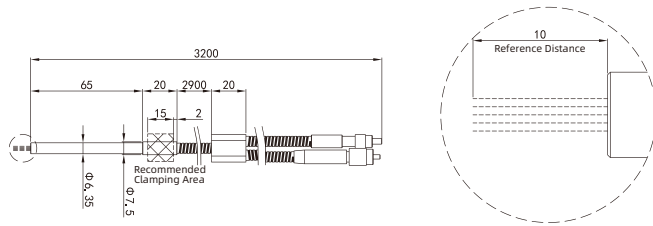
Reflective Film
Thickness Sensors

Product and Accessories Dimension Drawing

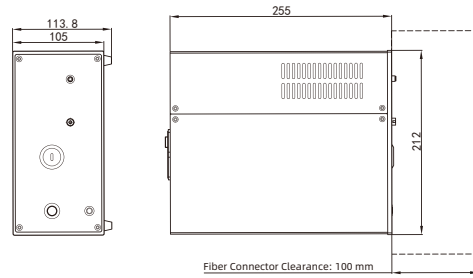
IRVP-TVF (Axial)



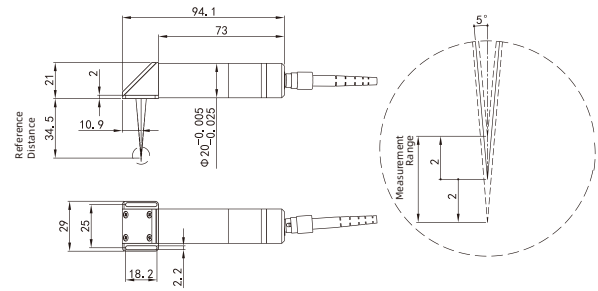
IRVP-T10-UV-VIS



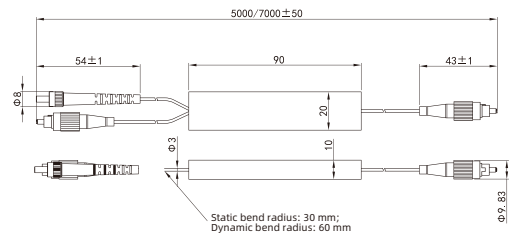
RUVC-2050 (HS) _RUVC-3050



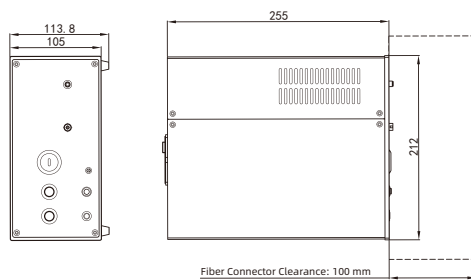
IRVP-TVF (Radial)



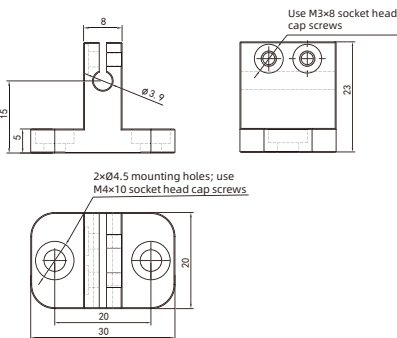
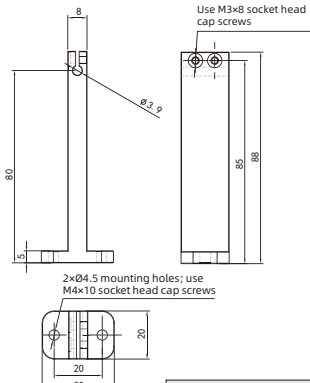
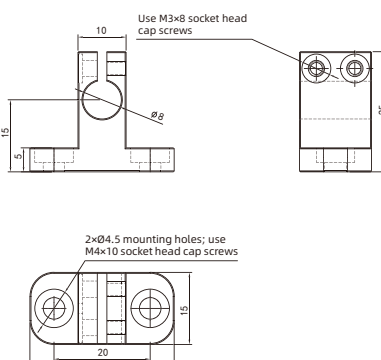
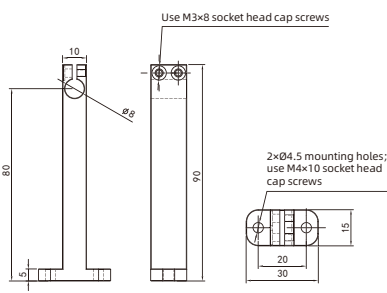
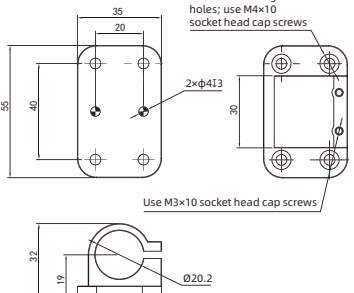
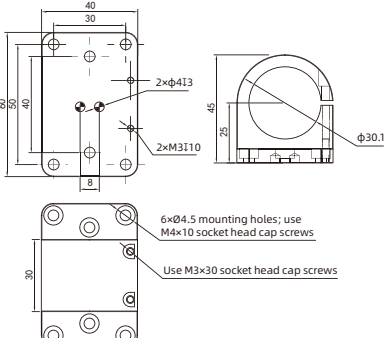
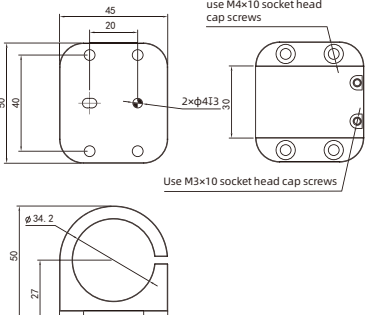
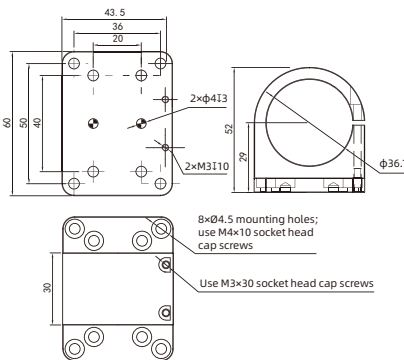
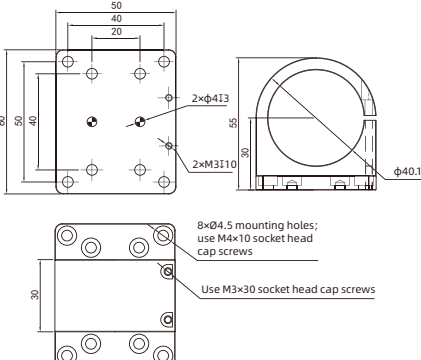
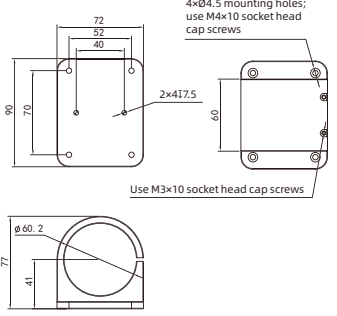
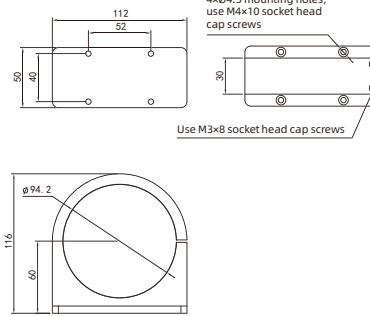
External Dual-Connector Coupler Jumper



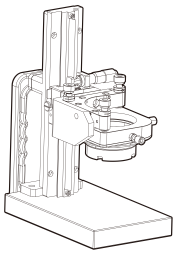
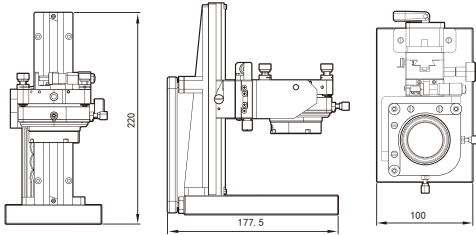
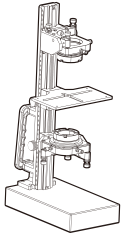
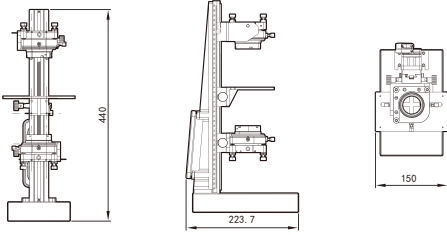
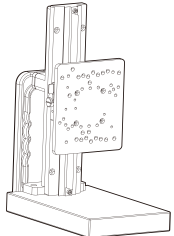
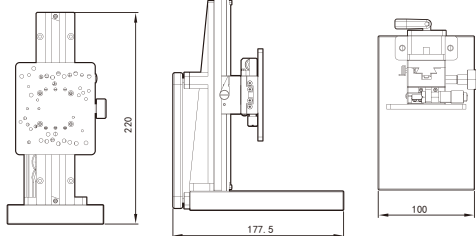
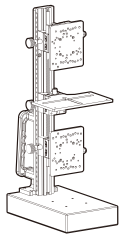
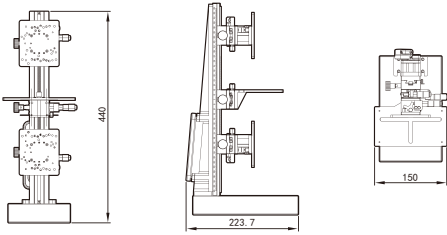
RUVC-1020 (-HS)



Appendix: Sensor Head Clamp Specifications (TS-C/I Series)

 Use M3×8 socket head cap screws 2×Ø4.5 mounting holes; use M4×10 socket head cap screws TS-C-D3.8L15	 Use M3×8 socket head cap screws 2×Ø4.5 mounting holes; use M4×10 socket head cap screws TS-C-D3.8L80	 Use M3×8 socket head cap screws 2×Ø4.5 mounting holes; use M4×10 socket head cap screws TS-C-D8L15
 Use M3×8 socket head cap screws 2×Ø4.5 mounting holes; use M4×10 socket head cap screws TS-C-D8L80	 4×Ø4.5 mounting holes; use M4×10 socket head cap screws 2×Ø4.13 Use M3×10 socket head cap screws Ø20.2 TS-C-D20	 2×Ø4.13 2×M3I10 6×Ø4.5 mounting holes; use M4×10 socket head cap screws Use M3×30 socket head cap screws TS-C-D30
 2×Ø4.5 mounting holes; use M4×10 socket head cap screws 2×Ø4.13 Use M3×10 socket head cap screws TS-C-D34	 2×Ø4.13 2×M3I10 Ø36.1 8×Ø4.5 mounting holes; use M4×10 socket head cap screws Use M3×30 socket head cap screws TS-C-D36	 2×Ø4.13 2×M3I10 Ø40.1 8×Ø4.5 mounting holes; use M4×10 socket head cap screws Use M3×30 socket head cap screws TS-C-D40
 4×Ø4.5 mounting holes; use M4×10 socket head cap screws 2×Ø4.17.5 Use M3×10 socket head cap screws TS-C-D60	 4×Ø4.5 mounting holes; use M4×10 socket head cap screws Use M3×8 socket head cap screws TS-C-D94	

Appendix: Tooling Overview

Tooling Drawing	Function	Three-View Drawing	Applicable Models
	Single-Point Measurement Fixture		C Series (except C2400, C7000, folded C8000, C20000H, C50000, C50000H), R Series, I Series
	Two-Sided Measurement Fixture		C Series (except C2400, C7000, folded C8000, C20000H, C50000, C50000H)
	Single-Point Measurement Fixture		P Series (Diffuse Type, except P50 and P70 Series) P Series (Specular Type, i.e., PM Series) D60 Clamp, D30 Clamp, D20, D34 Clamp, D36, D40 Clamp M Series (Diffuse Type) M Series (Specular Type, i.e., MR Series, except P85R Series)
	Two-Sided Measurement Fixture		P Series (Diffuse Type, except P50 and P70 Series) P Series (Specular Type, i.e., PM Series) D60 Clamp, D30 Clamp, D20, D34 Clamp, D36, D40 Clamp M Series (Diffuse Type) M Series (Specular Type, i.e., MR Series, except P85R Series)

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