SinceVision

3D Sensors

- 3D Laser Profilers

SHENZHEN SINCEVISION TECHNOLOGY CO.,LTD.

3D

3D Profiler Specialist
Assist Industry 4.0

About SinceVision

SinceVision was established in 2014, with its headquarters located in Nanshan District, Shenzhen. It is a high-tech enterprise specializing in the research and development and production of industrial sensors.

Since its establishment, SinceVision has focused on 3D industrial sensors, launching products such as 3D Laser Profile, Spectral Confocal Displacement Sensor, Laser Displacement Sensors, and Through-Beam Edge Sensor. In 2021, SinceVision expanded into research and development and the defense market, introducing High-Speed Cameras and multiple product lines, with dozens of series now in mass production. Mass-produced products of Sincevision have successfully broken foreign monopolies, establishing us as a leader in domestic brands. Furthermore, our mature products, particularly 3D Laser Profile, have achieved some world-leading performance parameters, gradually becoming a new benchmark in the industry.

Today, SinceVision is increasingly recognized in automation. We have served hundreds of customers, with our products reaching major domestic and international brands in consumer electronics, lithium batteries, and photovoltaics. We are tirelessly promoting refined product solutions tailored to specific fields, empowering various industries with our products and services. From semiconductors and panels to automotive and rail transit, and from plastics and films to food and textiles, we contribute to cost reduction and efficiency enhancement across multiple sectors.

As labor costs rise and product quality upgrades, the future of industrial automation is unstoppable. With years of experience in 3D industrial sensor research and development, SinceVision has developed a comprehensive R&D platform encompassing optics, mechanics, electronics, and software, along with a mature production control system. In the future, we will relentlessly improve our R&D platform and build a world-class industrial product development team. With the craftsmanship of SinceVision's people, we will continue to tackle high-end sensors, ensuring that Chinese automation has reliable domestic products and trusted national brands.

In order to provide our customers with fast and convenient services, we have set up many offices in China and overseas.

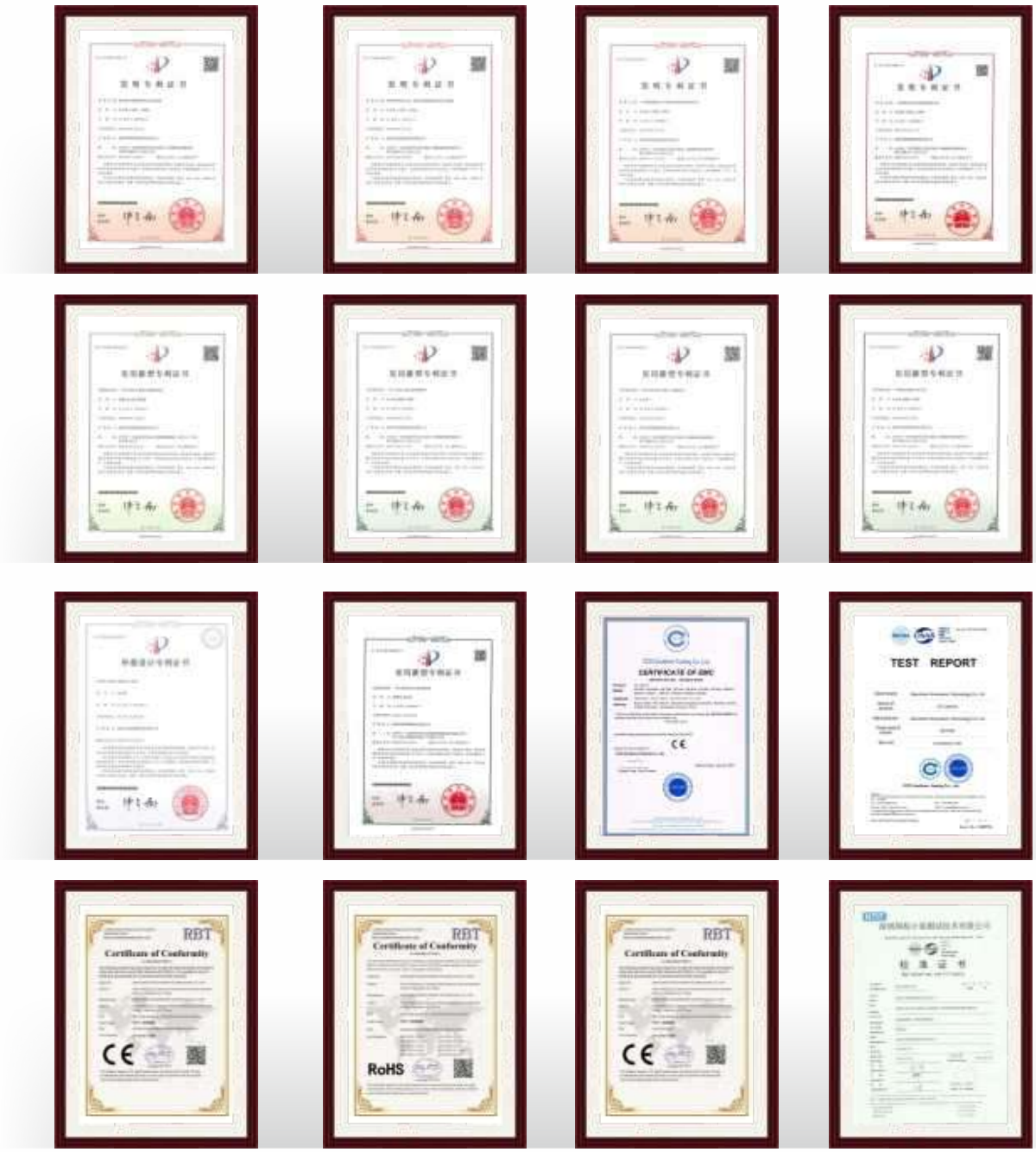
China

Shenzhen, Dongguan, Suzhou (Kunshan), Wuxi, Shanghai, Beiing,Chengdu, Wuhan, Xi'an, Hefei, Ningde, Huizhou, Taipei

Overseas

South Korea, Vietnam, Thailand, Malaysia, Singapore

INTELLECTURAL PROPERTY



Company History

2014

April
Shenzhen SinceVision Technology Co.,Ltd. was officially established

2016

March
Released the first generation of 3D Laser Profiler the SR7000 series.

2017

March
Obtained the titles of "National High-tech Enterprise" and "Shenzhen Industrial Stable Growth Enterprise."

2018

March
Released 3D laser profile the SR8000 series

August
SinceVision completed Round A financing

2019

March
The East China office was officially established in Kunshan to serve the Yangtze River Delta region.

November
SinceVision completed Round A+ financing

December
Released Laser Displacement Sensor the SG series and the SGI series

2020

March
Released 3D Laser Profiler the SR5000 series

June
Released Spectral Confocal Displacement Sensor - the SC series

December
Established offices in Chengdu and Beijing, expanding services to the Southwest and North China regions.

2021

March
Released 3D Laser Profiler the SR9000 series

September
SinceVision completed Round B financing

December
Released Laser Displacement Sensor - the SD series

2022

April
SinceVision completed Round B+ financing, co-led by MPC and GL Ventures. SinceVision entered the scientific research and defense markets, launching the first generation of High-Speed Camera - the SH6 series.

September
SinceVision obtained "CE Certification," "FCC Certification," "KC Certification," "Precision Certification," "ISO9001 Certification," "ISO14001 Certification," and "Social Accountability Management System Certification."

December
Released Through-Beam Edge Sensor - the SE1 series
Established offices in Dongguan, Hefei, Xi'an, and other regions, covering nationwide services.

2023

June
Released High-Speed Camera the SH3 series and Through-Beam Edge Sensor- the SE2 series

September
SinceVision completed Round C financing, led by the Advanced Manufacturing Fund managed by SDIC Fund Management Co., Ltd., with follow-on investment from GL Ventures.SinceVision was awarded the title of "National new special 'Small Giant' Enterprise."

October
Formally established the International Department, developing markets in Southeast Asia and Europe, with a s ervice network covering the globe.

2024

February
Released 3D Laser Profiler the SRI series

March
Released white light spot photoelectric sensor - the SS1series and Laser Displacement Sensor - the SDC series

June
Released High-Speed Camera-the SH2 series and Spectral Confocal Displacement Sensor- the SCI series

Ultra High-speed 3D Laser Profilers

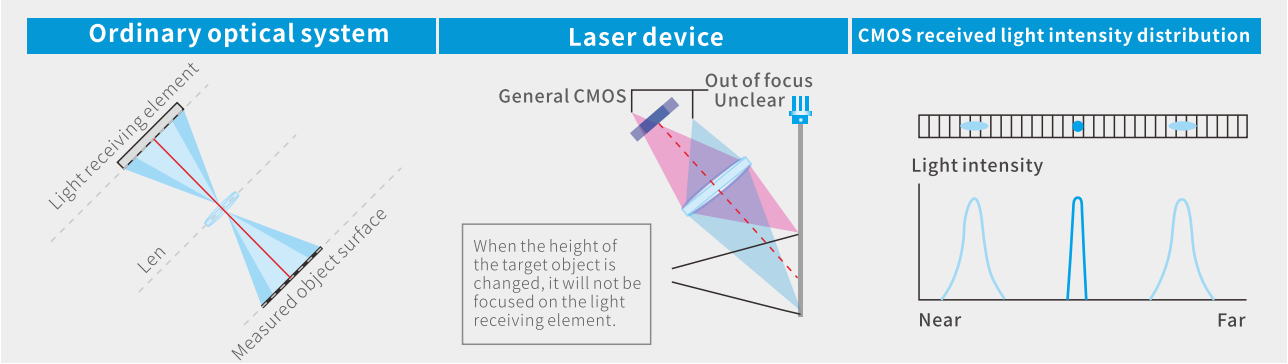
SR Series

Multiple Product Matrix
for Various Applications and Demands

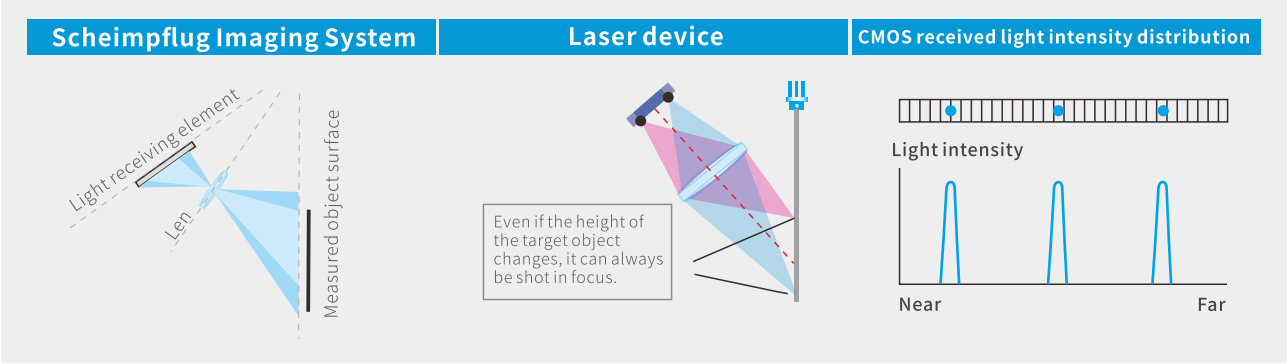
Measuring Principle

The difference between split type 3D measurement and SinceVision SR series 3D measurement

Principle of Split 3D Measurement



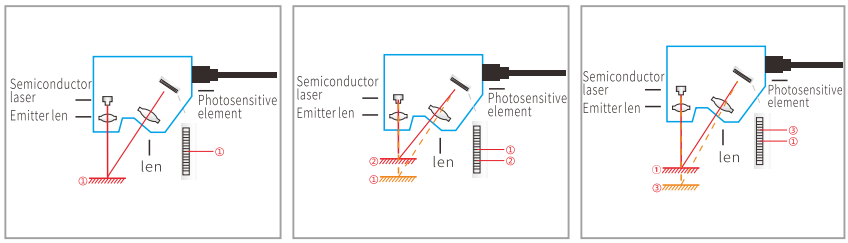
SR Series 3D Measurement Principle (following Scheimpflug principle)



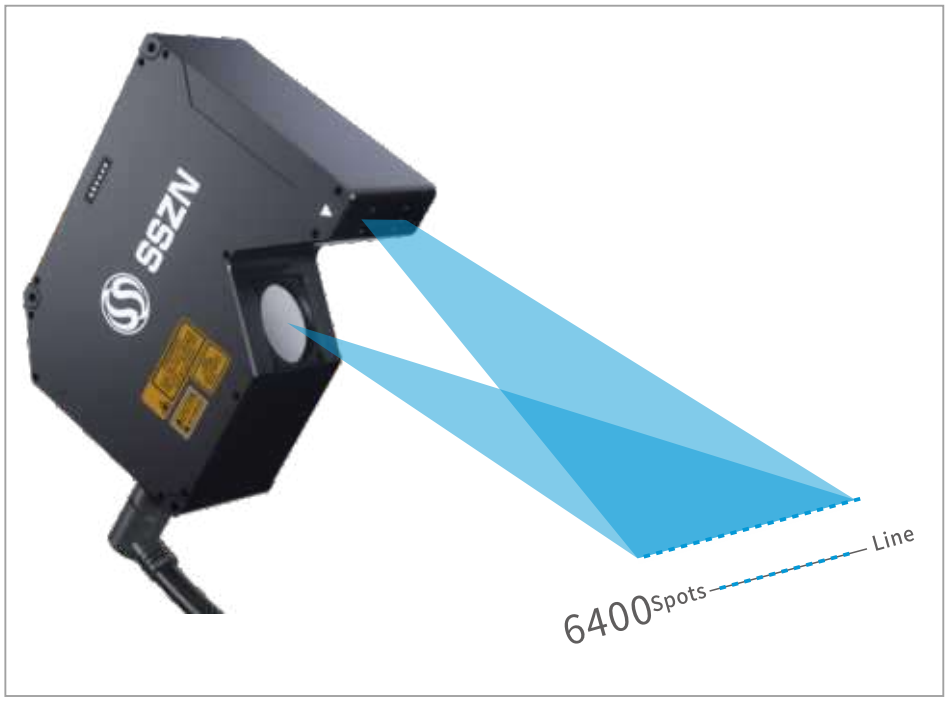
Practical Application

The SR series uses a Scheimpflug principle optical system that allows focusing over the entire measurement range and uses an objective lens that minimizes aberration. As a result, high accuracy of 0.02% linearity is achieved. This is particularly advantageous when measuring targets with height differences and when the position of the target changes.

Triangulation Principle



As shown in the figure above, a semiconductor laser emits a beam of light at the target. The lens gathers the light reflected from the target and forms an image on the sensor. The position of the light spot on the sensor varies depending on the distance to the target. The system estimates this change and converts it into a measurement of the target's position.



6400 Spots

Forming scanning laser lines

As shown in the figure above, a cylindrical objective lens expands the laser beam into a line. Diffuse or specular reflection is generated on the object under test. The reflected light is passed through the light-receiving lens set and imaged on the SSHE-CMOS. The height and gray-scale value of the corresponding position are calculated by the photoelectric response of the different cell on the SSHE-CMOS.

Introduction of Features

01 IP67 Protection level

It meets IP67 standard and can be used with confidence in damp and dusty environments.

02 High toughness cable

Adopting high toughness cable, it can be bent up to 30 million times. Equipped to robot can also be used without worry.

03 Ultra High Speed

67,000 contours/s

04 Ultra-wide X-axis view

Ultra-high line laser resolution, up to 6400 pixels.

05 High Dynamic Range

Accurate measurement of both low-reflectivity black objects and high-reflectivity metallic objects.

06 High-precision Blue Laser

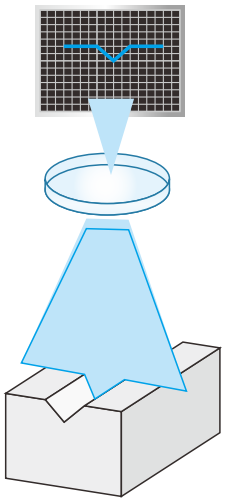
No external light source required, automatically optimizing brightness.

Core Competitiveness

SR Series

Multiple SDK interface	Rapidly match to Halcon, VisionPro, VB, C#, C/C++, Labview. etc.
High speed detection	High-speed detection up to 67kHZ
Output 3D+2D data simultaneously	2D and 3D data can be combined to achieve complete detection; 2D data can be used for positioning, code reading, character recognition, etc.
Self-developed Edge Imaging 3D software system	Simple and easy to use
Equipped with auto-correction and auto-splicing function	The software can automatically correct the image when the workpiece position is shifted: multiple scanned images can be automatically stitched together to achieve stable detection
Support one-for-two control system	The SR7000/8000 series controller can support two sensor heads simultaneously, effectively reducing system costs
High cost effectiveness	Self-developed, fully independent intellectual property rights
Rapid technical support	Localized service, quick response

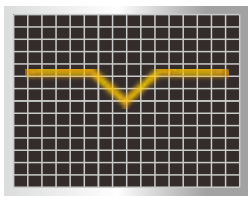
Elements of High-speed and High-precision Detection



Blue Laser

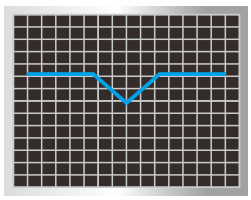
Using 405nm blue laser

The special blue laser with a short wavelength of 405nm and a high performance optical diffusion system achieve extreme focus on the target workpiece to produce a stable and high precision profile. Blue laser has a shorter wavelength, less transmission into the object to be measured, all materials, including transparent objects can be measured stably.



Red laser (traditional model)

Traditional models use red laser, with a thick and uneven imaging beam.



Blue laser

Blue laser imaging beam is finer to measure contours with higher accuracy.

UFP-processor

The custom ICs equipped with Ultra-FastProcessor processors have ultra-high speed channel processing capabilities that not only allow for fast reading of CMOS recording data but also for high-resolution sub-pixel processing. It can also perform high-precision data output, etc.

Introduction to the Functions of UFP-Processors

- Ultra-high-speed sampling and output enable online quality control in production.
- By averaging multiple data sampled at high speed, more stable measurement results can be obtained.
- The ultra-high speed sampling process allows simultaneous output of height and grayscale information, with a maximum sampling speed of 214M contour points/second.

SSHE-CMOS

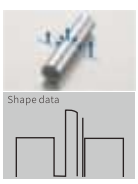
Super Speed and HDR Enhanced is short for SSHE-CMOS

SSHE-CMOS is a special component for 3D laser measurement because of its high speed and high dynamic range. The brightness does not need to be adjusted for materials with different reflectivity. The high sensitivity and wide dynamic range enable stable measurement of all objects, and accurate measurement of black (low reflectivity) and glossy (high reflectivity) objects even with very short exposure times (10μs).

Comparison between traditional mode and high dynamic mode

Traditional mode

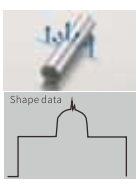
Insufficient light intensity on sloping or shaded parts after planar part optimization.



The amount of reflected light varies depending on the location or the color of the target. (The reflected light from a shaded area or an oblique surface becomes weaker. If the amount of reflected light is weak, the shape cannot be recognized.

Traditional mode

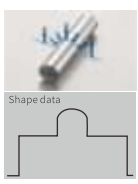
Too much light intensity near the flat part after optimization of the sloping part.



The result of increasing the laser power or exposure time to enhance the amount of reflected light is that the reflection becomes too strong in areas where there is more reflected light. If the amount of reflected light is saturated, the shape cannot be accurately identified.

High dynamic mode

SinceVision SSHE-CMOS can accurately measure the difference between light and dark through dynamic range.



No need to change laser power or exposure time even if there is a difference in reflected light. The dynamic range is wide, so shapes can be accurately identified even if there are differences in light and dark.

Application Cases

Cell Phone Mid-frame Detection

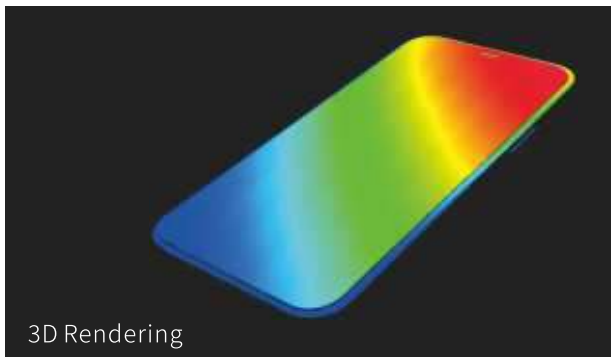
Advantage

- High resolution, one scan can calculate the flatness of the center frame; TP flatness and the height of each structural member.
- Flexible, fast, easy to use, can support rapid image splicing. Can detect the height difference, flatness, internal length and width dimensions of the steps in the frame; battery compartment foreign matter and flatness LCD compartment flatness or assembly height difference; internal auxiliary material structure parts height, flatness, lack of material, screw height, glue route detection.

Detects the flatness of cell phone screen after multi-scan splicing

Reference model:SR9040/SR9041

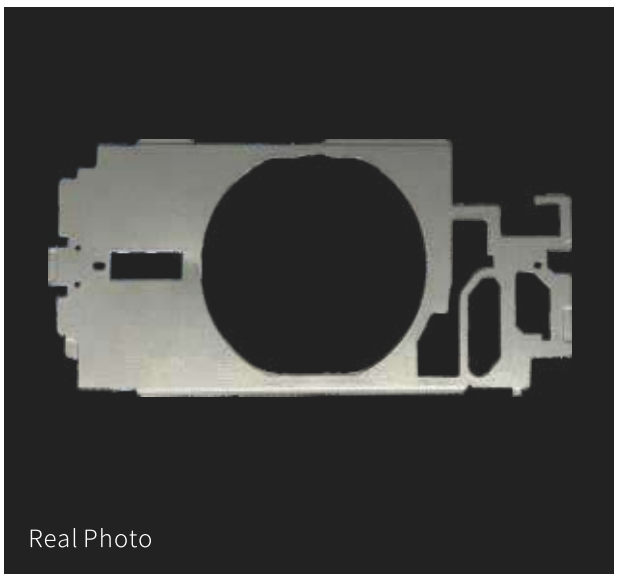
Real Photo



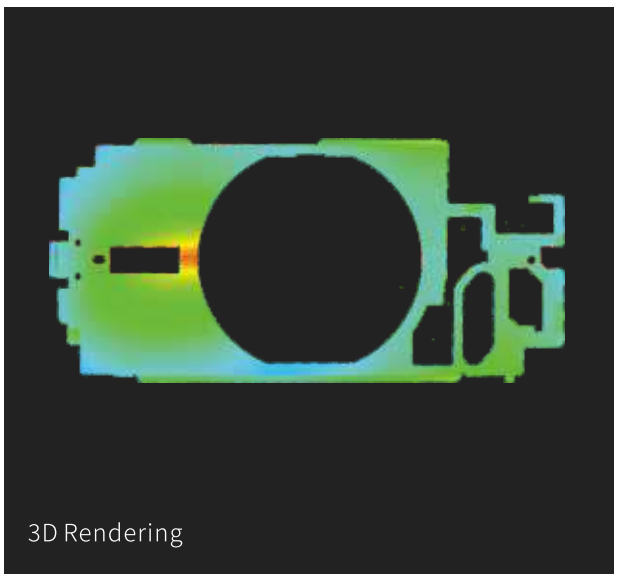
3D Rendering

Detecting the flatness of the middle plate of cell phones

Reference model:SR7140



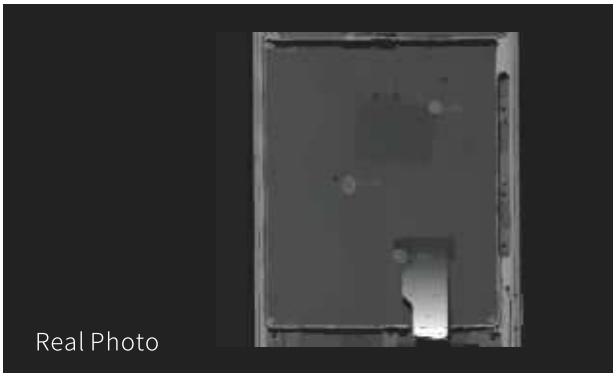
Real Photo

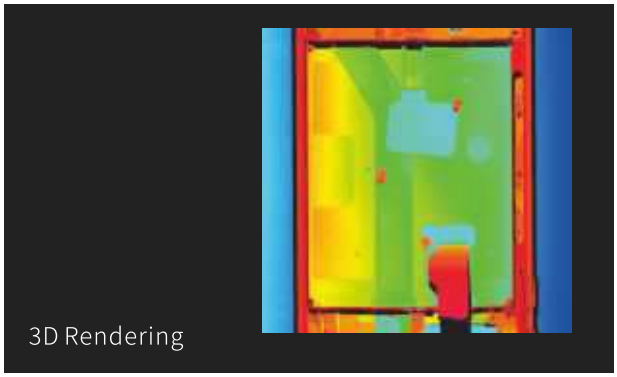


3D Rendering

Detection of foreign objects and flatness in the cell phone battery compartment

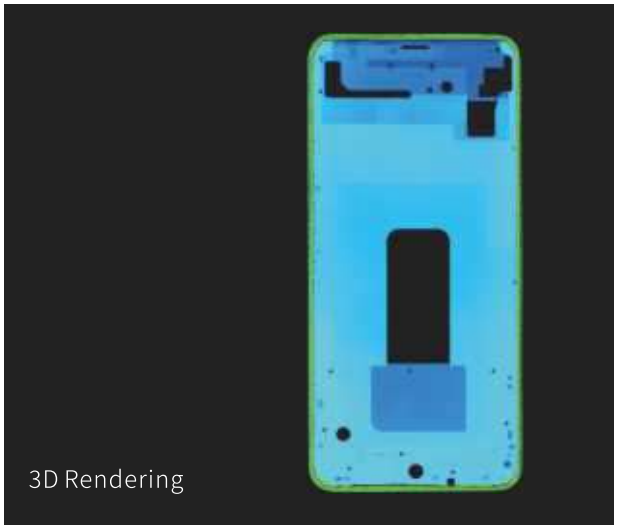
Reference model:SR7140





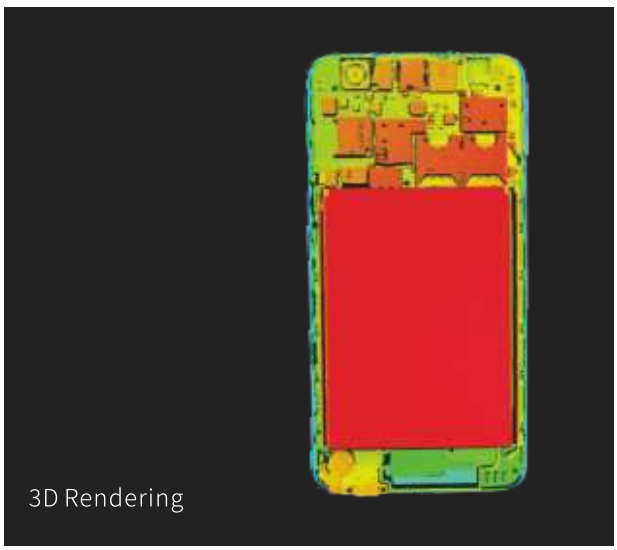
Inside edge size of cell phone frame (for matching with glass cover), battery compartment foreign objects, flatness detection

Reference model: SR7050/SR8020



Cell phone internal accessories detection

Reference model: SR7140



Application Cases

Small Metal Parts Detection

Advantage

- **Quick detection:** The fastest scan rate of 67kHz/s, one scan can detect the front and back side at the same time.
- **Exclusive solution:** Equipped with supporting software suitable for metal small parts detection using turntable feeding methods, achieving high-speed online detection. For thickness detection of metal parts, due to the high requirements of UPH, a glass isolation detection scheme has been developed to overcome the optical distortion caused by glass and effectively detect the thickness of structural components.

Dual camera height difference detection (dual camera shooting through glass turntable)

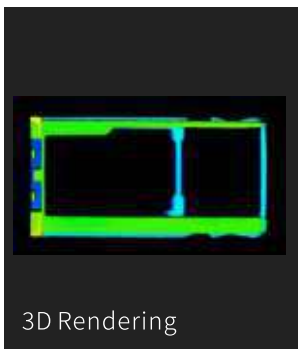

Real Photo


3D Rendering

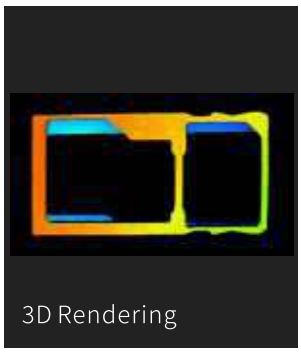
Card support height difference detection (dual camera shooting through glass turntable)

Detection: flatness/height difference/thickness


Real Photo


3D Rendering

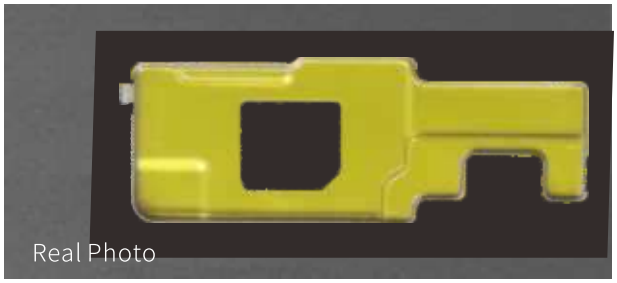

Real Photo


3D Rendering

Reference model:SR7050B/SR7080B

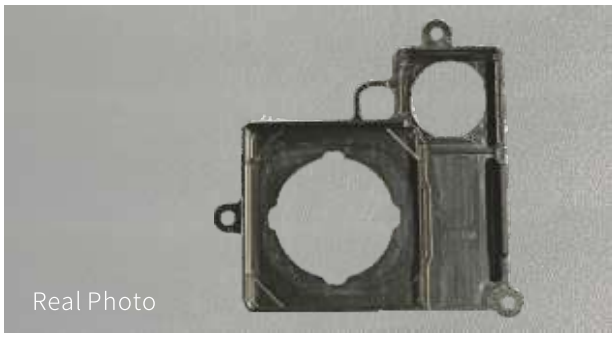
Flatness detection of very fine shield frame

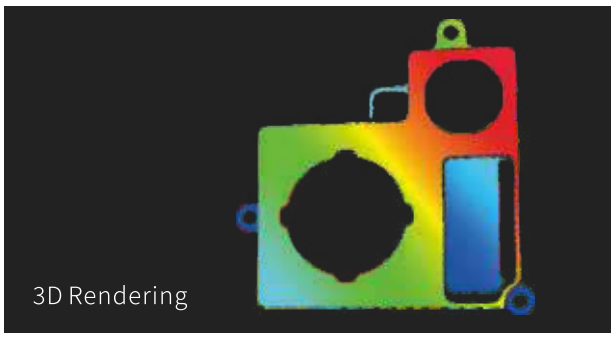
Reference model:SR7050/SR7080



Height difference detection of triple camera module

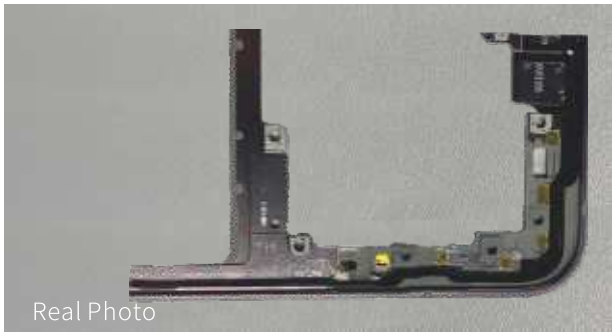
Reference model:SR7060/SR8080

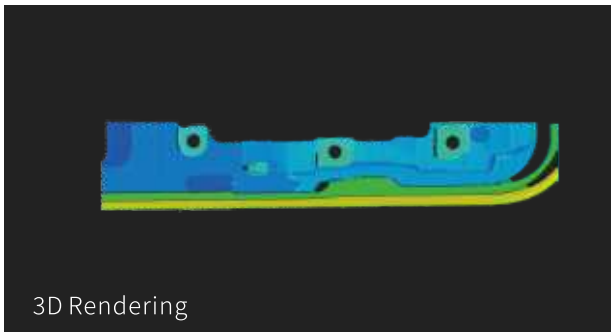




Height difference detection of cell phone middle frame elastic piece

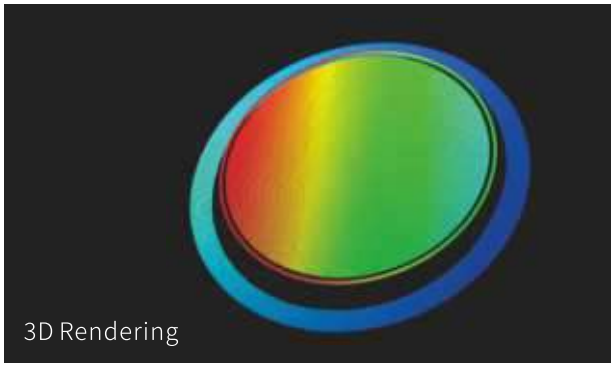
Reference model:SR7080/SR8060





Detection of height difference between mobile phone cameras and metal steps

Reference model:SR9040/SR9041

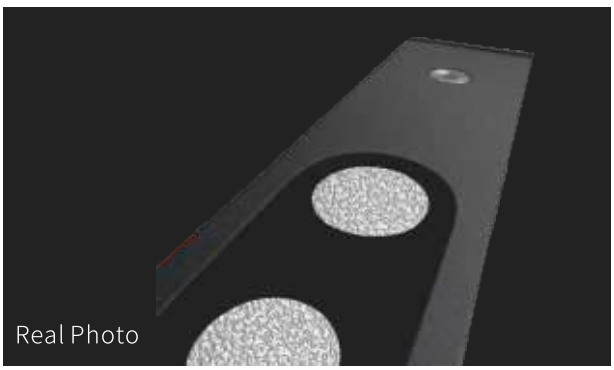


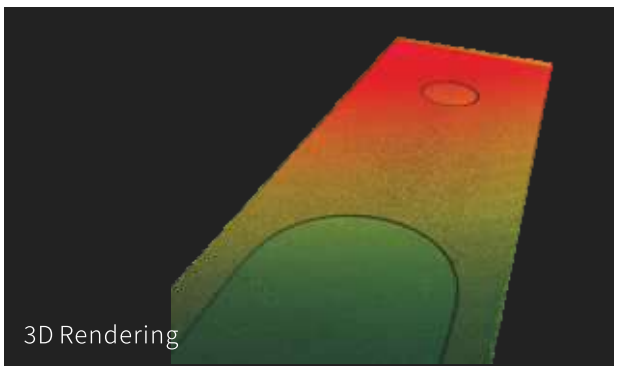
Detection of height difference between mobile phone cameras and metal steps

Reference model:SR8080K

Height difference detection of camera modules

Reference model:SR8060K





PCB Detection

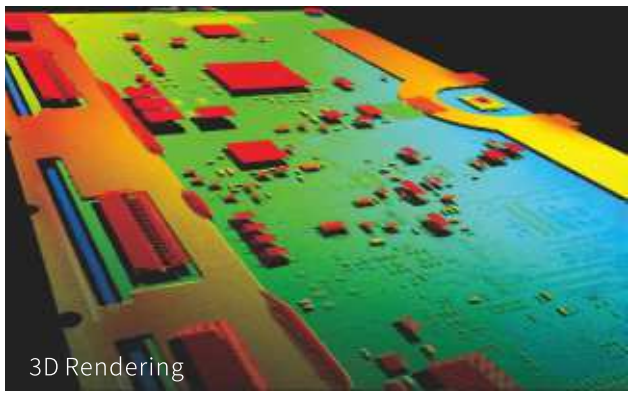
Advantage

- **Ultra high X-axis resolution:** Common circuit boards can be scanned and imaged at once, without the need for multiple scans, increasing inspection speed.
- **High dynamic range:** high-precision imaging, compatible with a variety of materials, to effectively avoid the reflection of solder.
- **Quick full inspection:** detect the presence and height of components on the PCBA, the height and co-planarity of the pins, and the flatness of the whole board.

Detect the presence of PCB components

Reference model:SR7140/SR7240

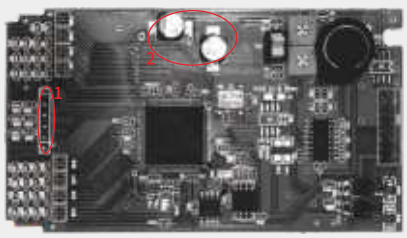
Real Photo



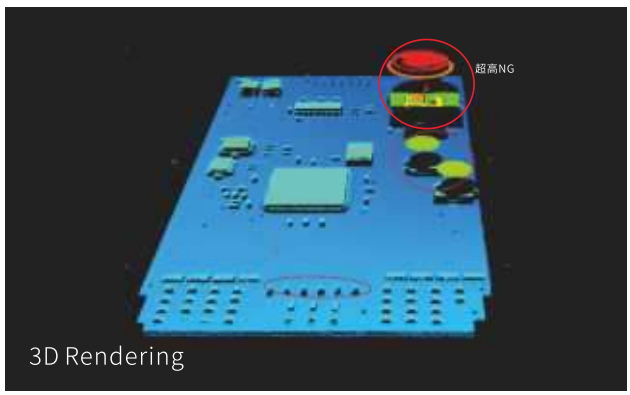
3D Rendering

Board height detection, including the detection of devices exceeding the height or connector pins exceeding the height, etc.

Reference model:SR7080/SR7140/SR7240

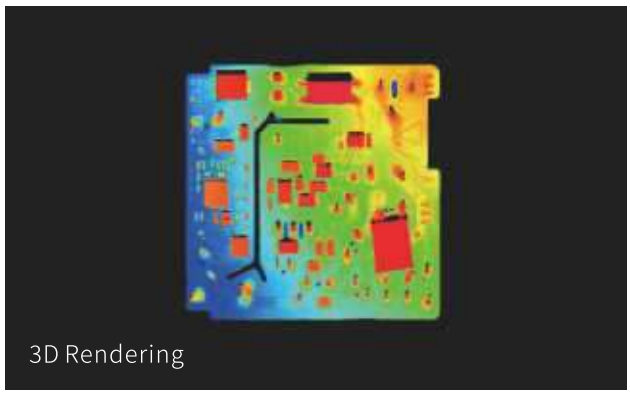


Real Photo



3D Rendering

Real Photo



3D Rendering

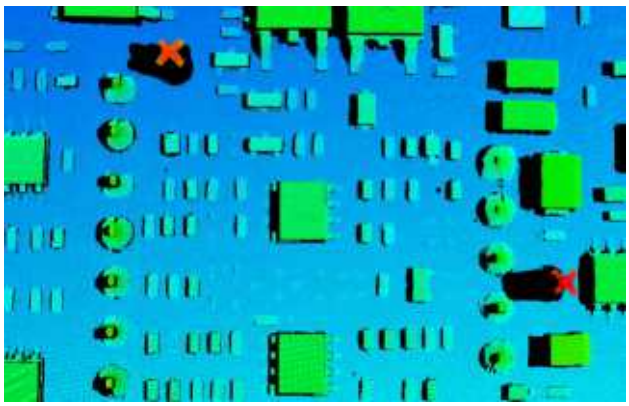
Splicing Detection by Dual Cameras

Advantage

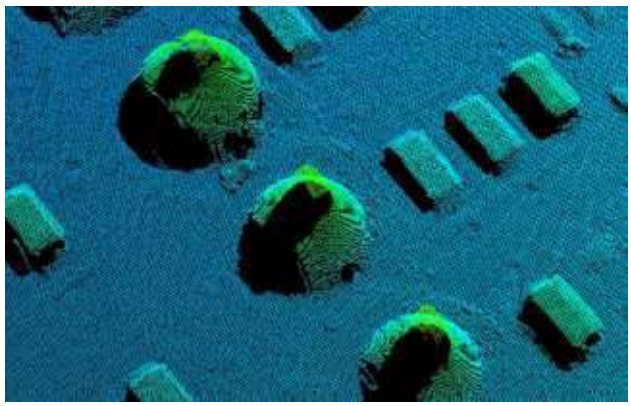
- Due to blind spots in one-way scanning, some data are missing.
- Quickly generate splicing images to compensate for missing data and generate data images without blind spots.

Splicing detection of PCB solder height difference

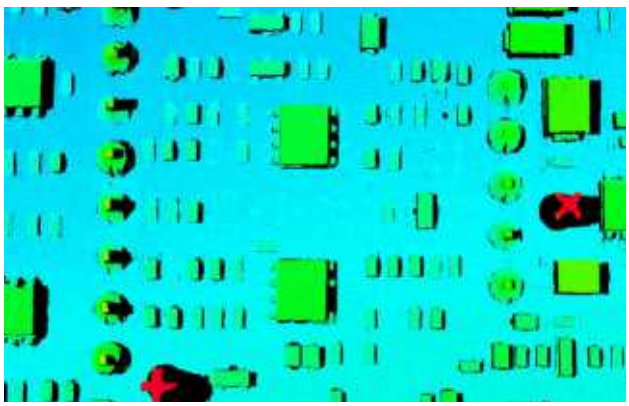
Reference model: SR7060D



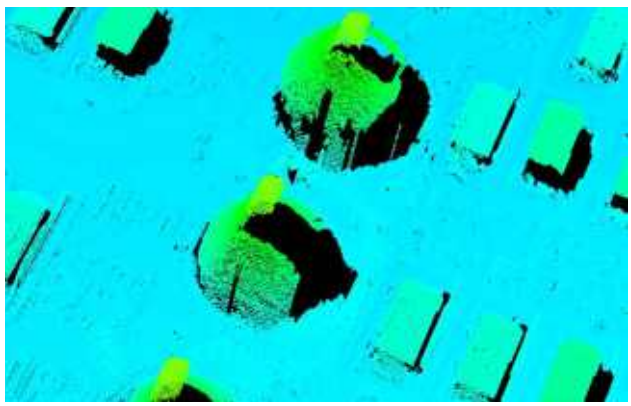
Scanning image of sensor head A



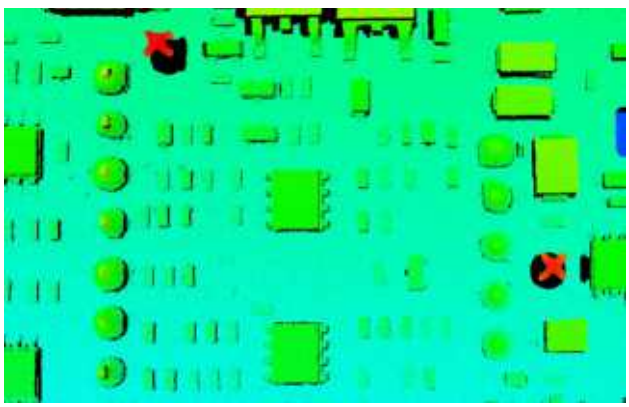
Details of scanning image of sensor head A



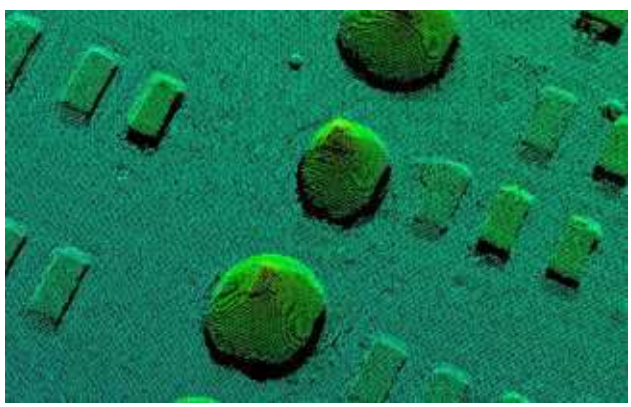
Scanning image of sensor head B



Details of scanning image of sensor head B



Splicing image by dual cameras



Details of splicing image by dual cameras

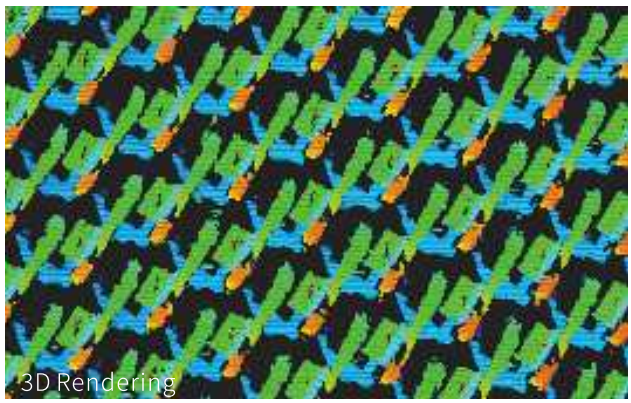
Chip Detection

Advantage

- **Quick inspection:** Scan once and get the height of all solder balls or solder pins.
- **High precision detection:** Fine appearance inspection can be realized with 3μm interval for X-axis point data and 0.1μm repeatability for Z-axis.

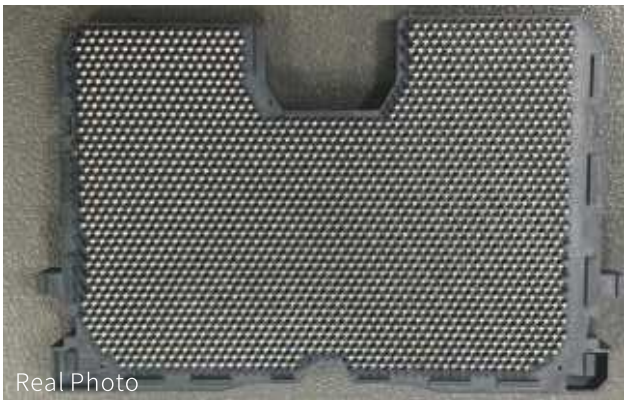
Detection of very fine pin coplanarity and position (to avoid pin abnormalities leading to soldering problems)

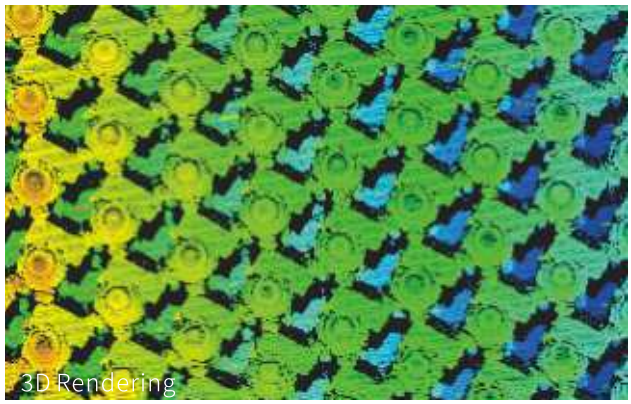
Reference model: SR9040/SR9041



BGA solder ball coplanarity detection (to avoid chip mis-soldering)

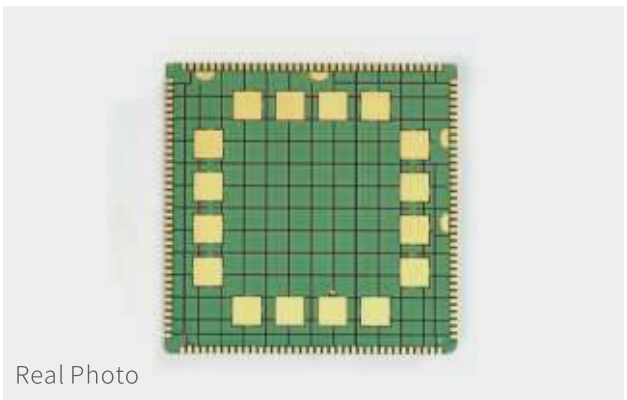
Reference model: SR9040/SR9041

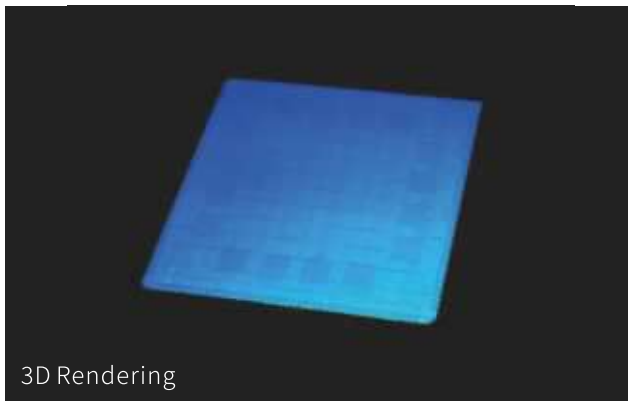




Chip flatness inspection (check the abnormal curvature of the chip after passing through the solder pot)

Reference model: SR7080





Connector Measurement

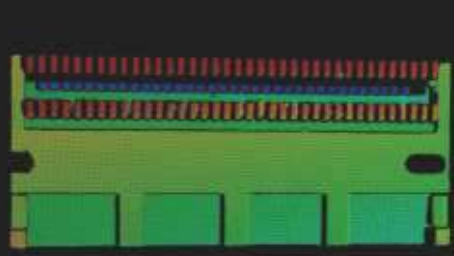
Advantage

- **Accurate positioning:** can accurately detect the height and coplanarity of small area pins.
- **Scanning once:** can simultaneously detect the flatness of multiple surfaces.
- **High speed and high dynamic range:** compatible with multiple materials, it can simultaneously perform good imaging on metals and plastics, achieving high-precision detection.

Detect connector pin height difference, coplanarity, and pin deformation

Reference model: SR7050/SR7080/SR8060

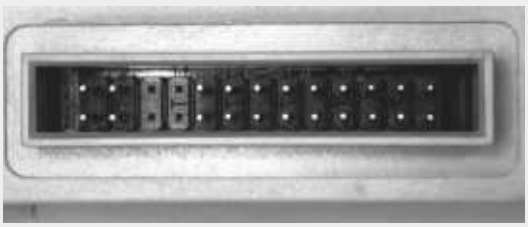
Real Photo



3D Rendering

Detect the coplanarity of connector pins and the height difference between pins and reference plane

Reference model: SR7050/SR7080/SR8060



Real Photo

3D Rendering

Coplanarity detection of connector welding roots, which can simultaneously detect the coplanarity of blue and green welding roots

Reference model: SR7140

Real Photo

3D Rendering

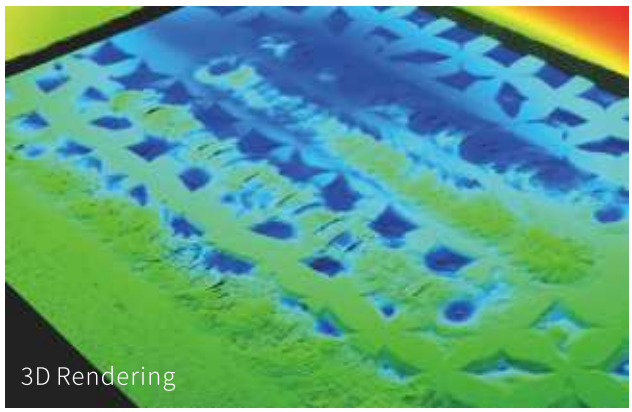
Battery Inspection

Advantage

- **Fast detection, large line width:** X-axis resolution up to 6400/3200 points, scanning frequency up to 67kHz.
- **No additional light source required:** Eliminates the effects of light source installation.
- **Accurate measurement:** can be combined with 2D grayscale image calculation.

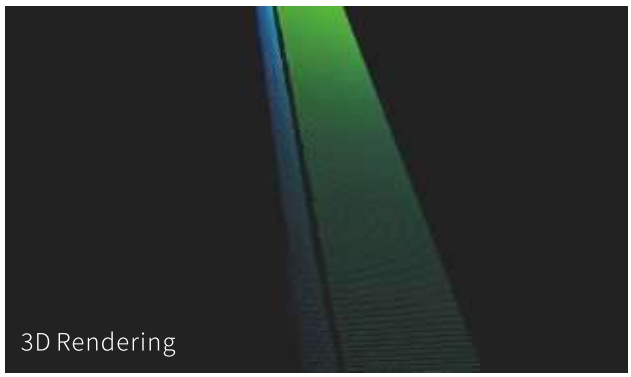
Quality inspection of soldering tabs

Reference model: SR8020/ SR8060H



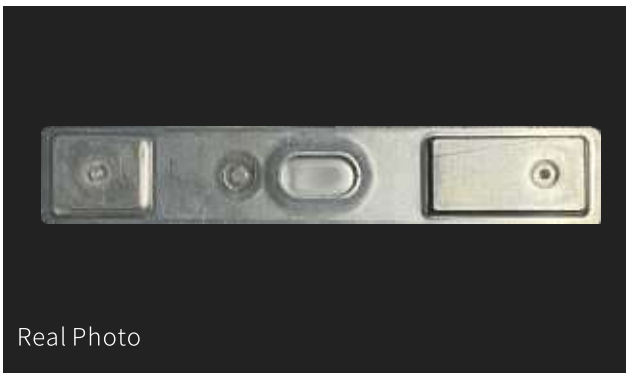
Core case pre-solder inspection

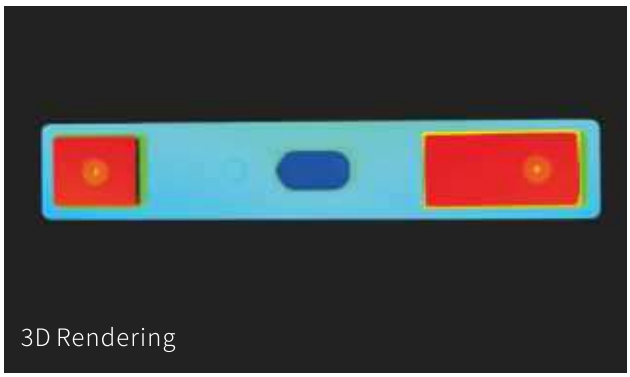
Reference model: SR8062/SR8020



Coplanarity inspection of battery poles

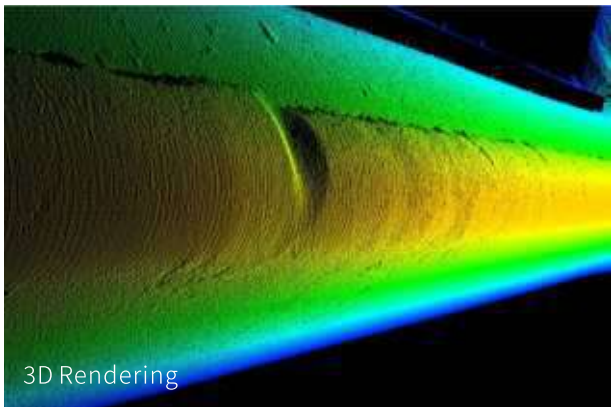
Reference model: SR7140

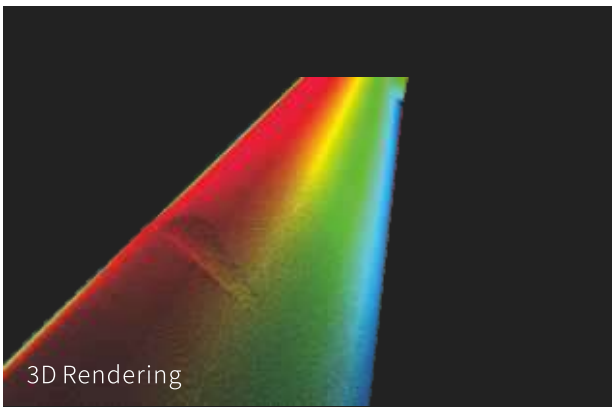


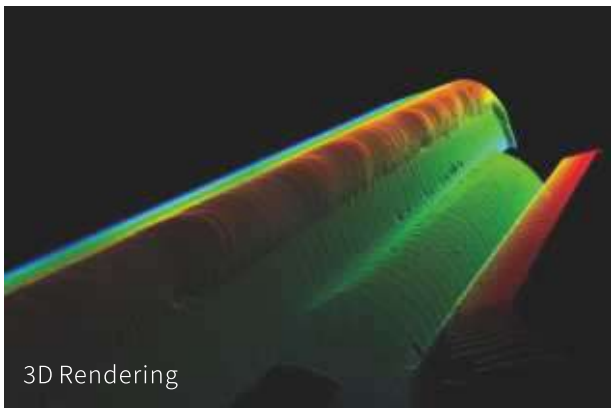


Quality inspection after full welding of the top cover

Reference model: SR8020/SR8060H

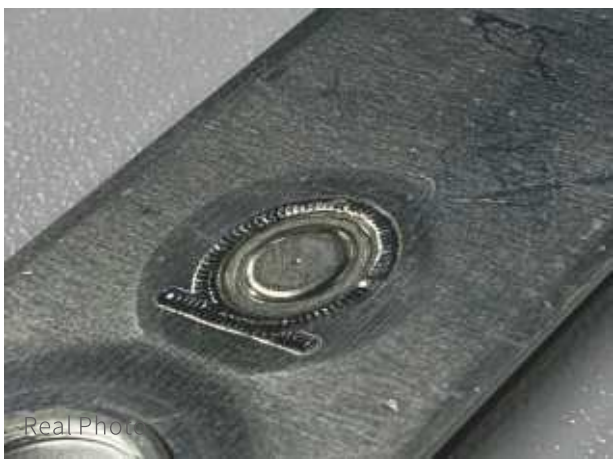


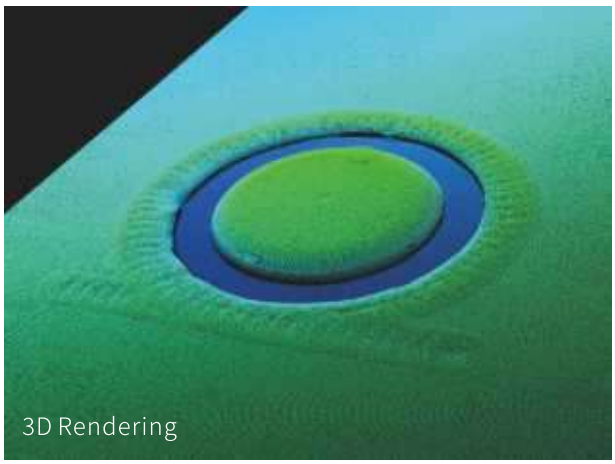




Sealing nail inspection after welding

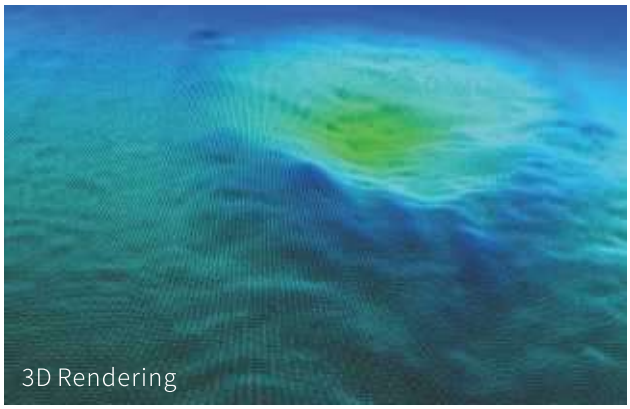
Reference model: SR8062/SR8020





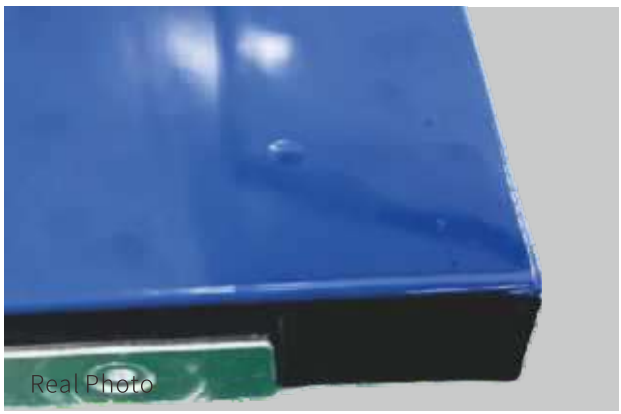
Appearance inspection of the six sides of the battery cell

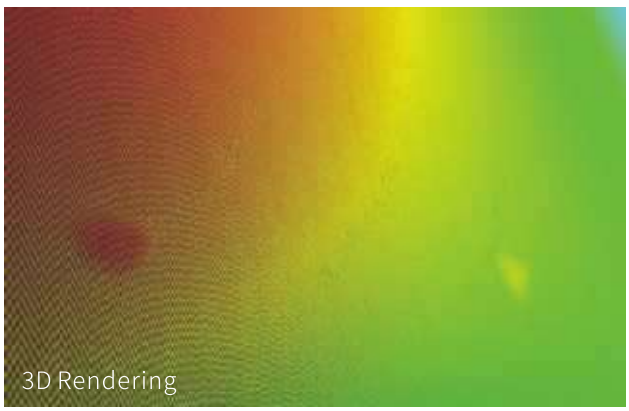
Reference model: SR7140



Blue film defect inspection

Reference model: SR7140



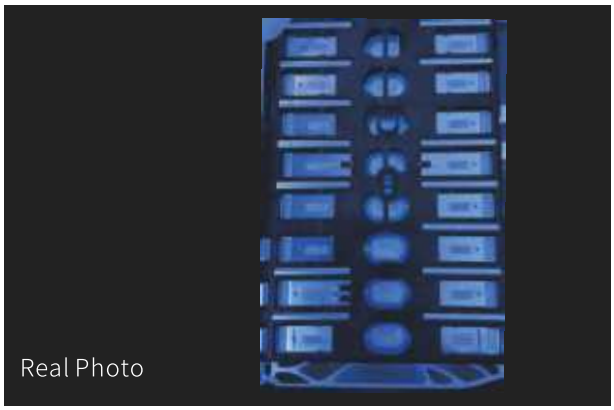


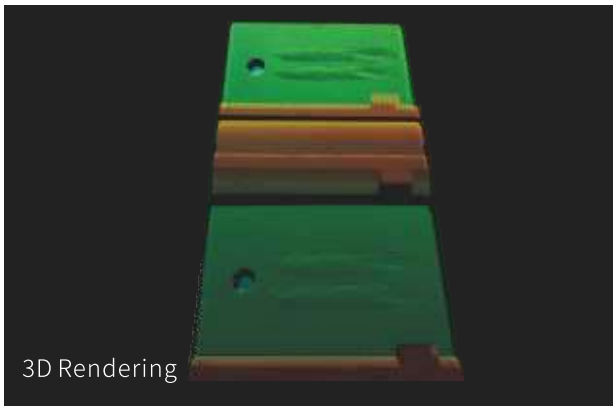
Electrode lug height difference detection (to avoid the battery not being installed in place)

Reference model: SR7140

Module pack section battery Busbar welding

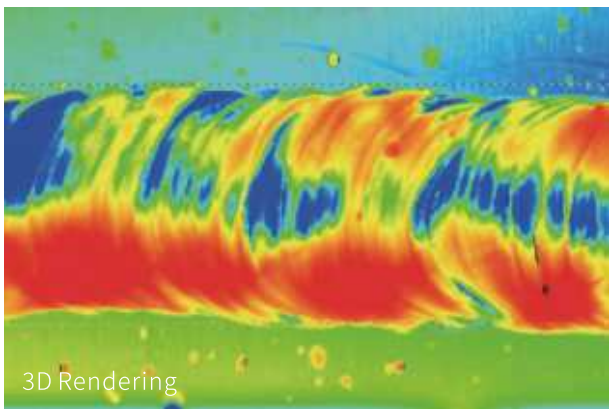
Reference model: SR7140/SR8060





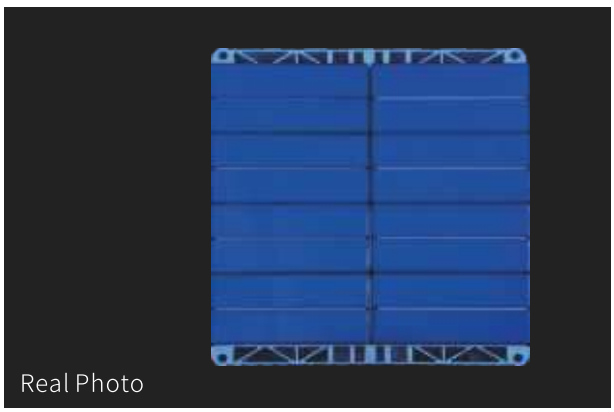
Inspection of module side seam after welding

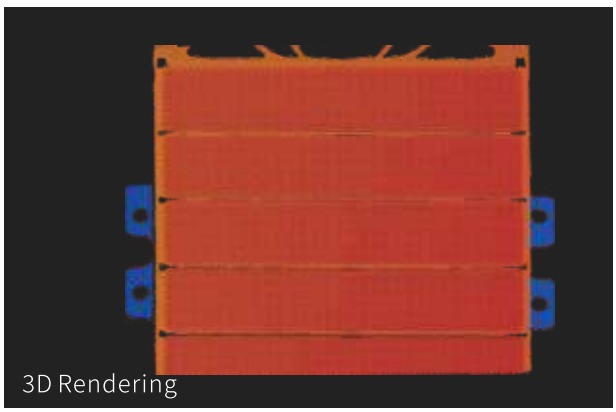
Reference model: SR7050/SR8060



Module Dimensional Inspection

Reference model: SR7400





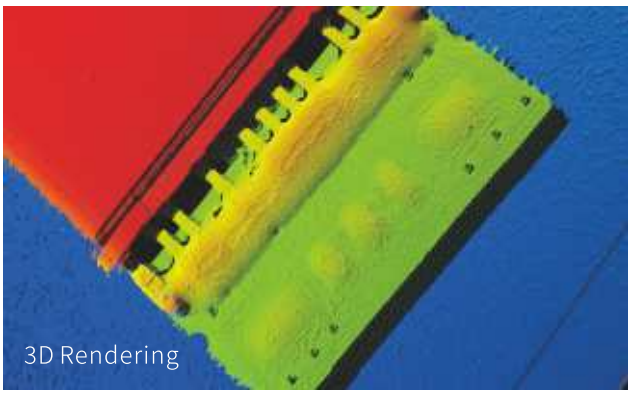
Glue Bead Inspection

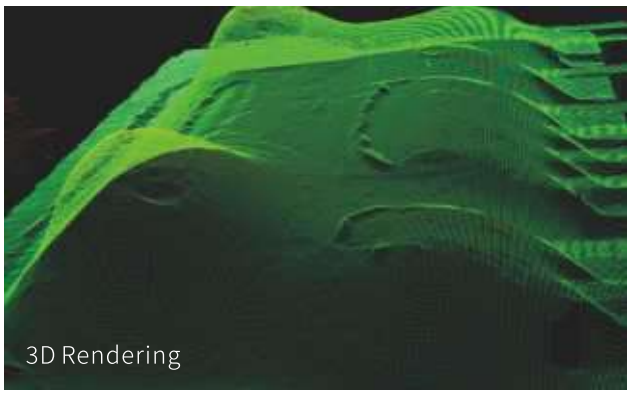
Advantage

- **High speed detection:** The maximum speed is 67K/S.
- **Compatible with various adhesives:** transparent, semi transparent, all black, etc.

TPC glue bead height detection

Reference model: SR8020/SR8062





Detection of the height and width of the middle frame adhesive in cell phones

Reference model: SR8020/SR8062

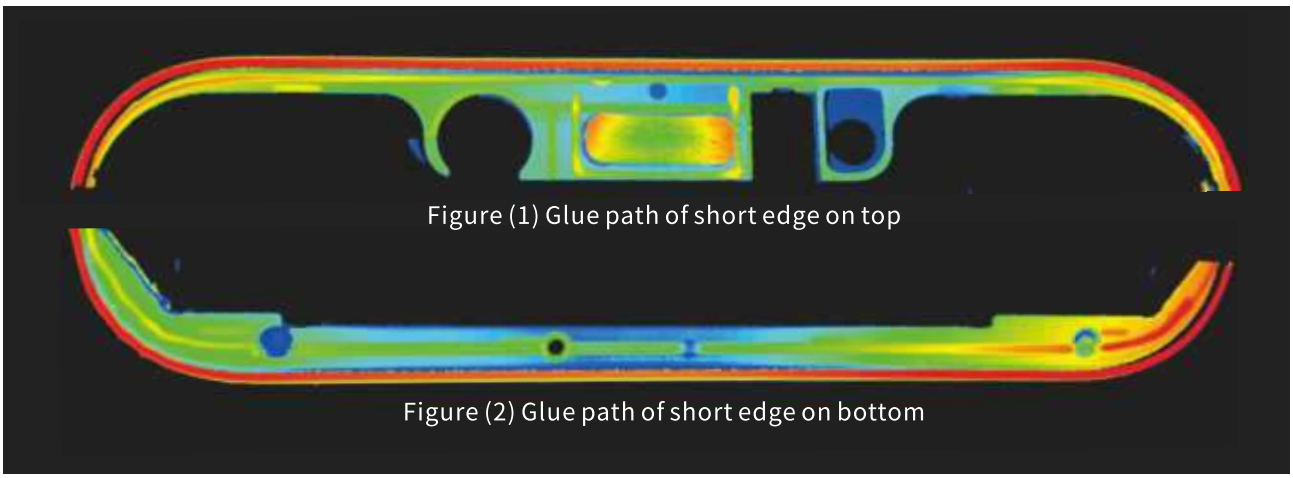


Figure (1) Glue path of short edge on top

Figure (2) Glue path of short edge on bottom

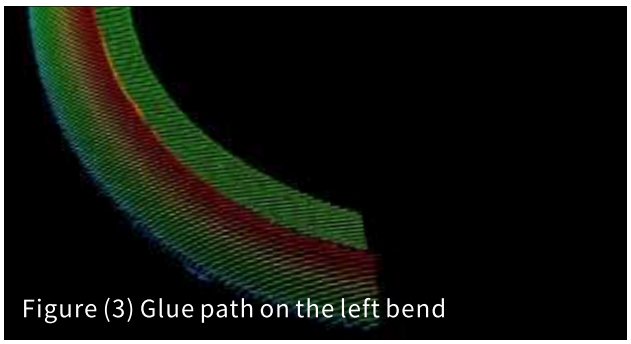


Figure (3) Glue path on the left bend

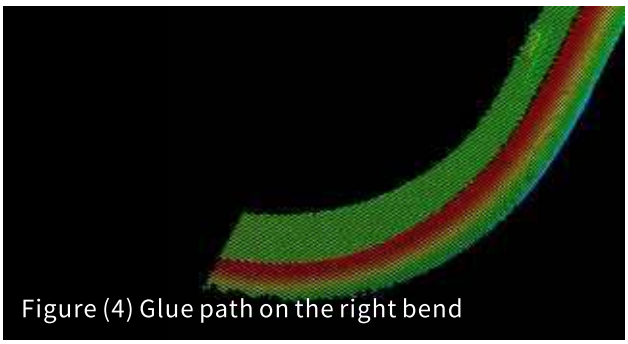
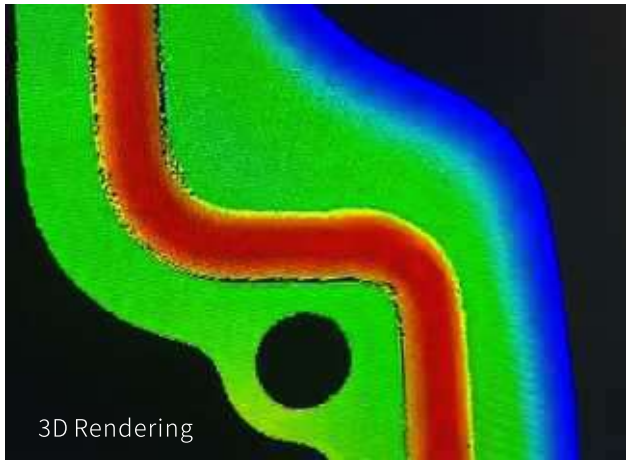


Figure (4) Glue path on the right bend

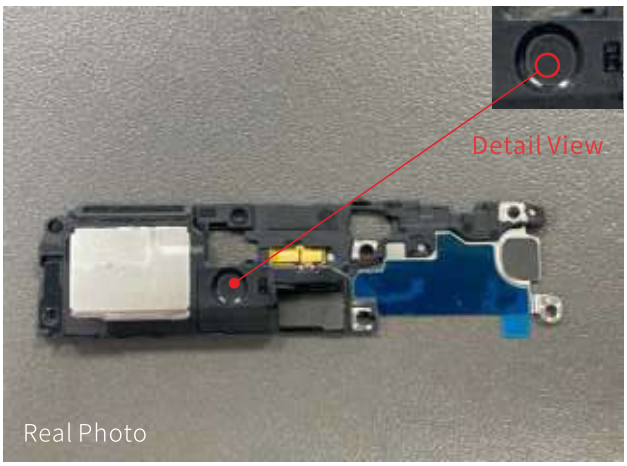
Glue height detection of black glue on automobile engines

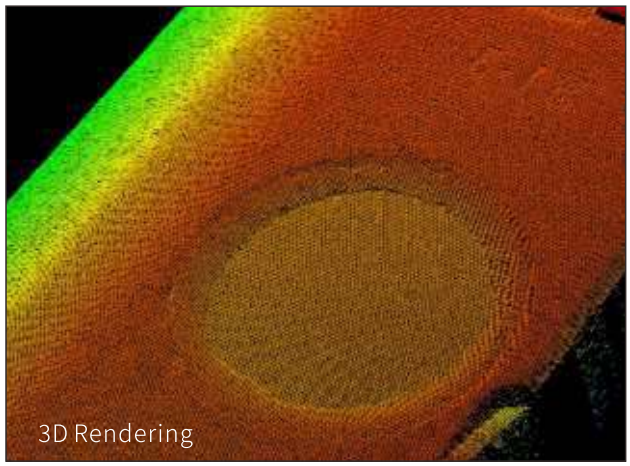
Reference model: SR7050



Height difference detection of transparent UV adhesive for speakers

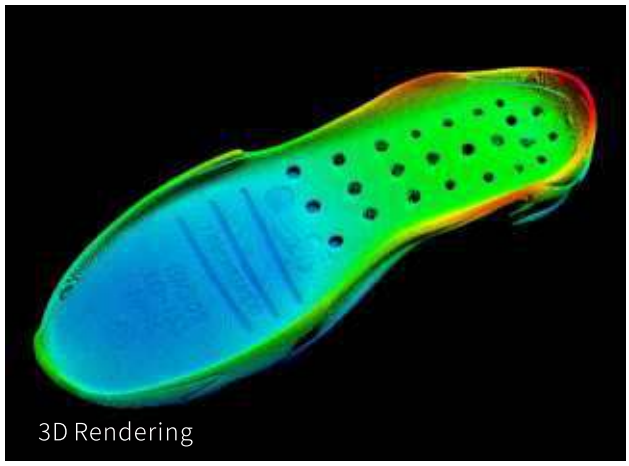
Reference model: SR9040/SR9041





Sole gluing/upper guiding

Reference model: SR7240



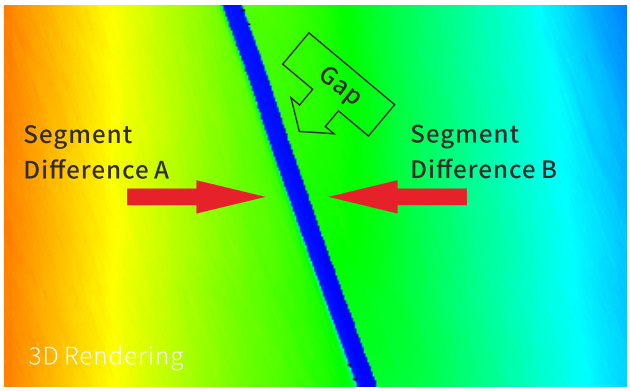
Automobile industry testing applications

Advantage

- **High speed detection:** it can detect multiple materials.
- **High precision detection:** it can restore character and graphic information at micron level height.

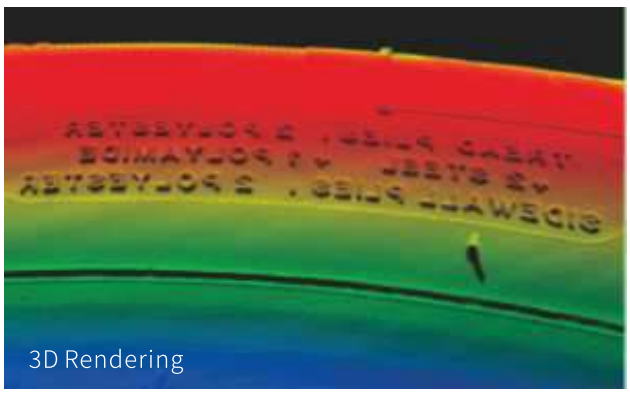
Door gap detection

Reference model: SR7140/SR7400



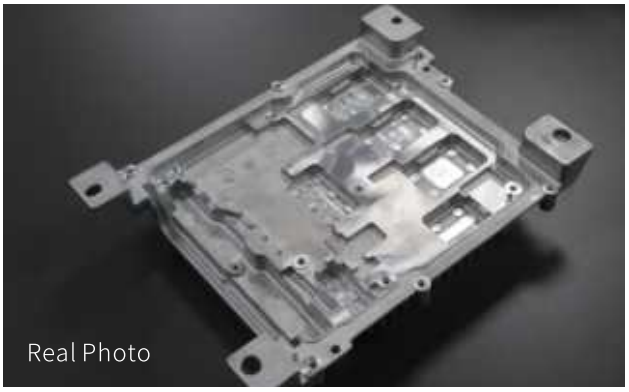
Tire quality inspection

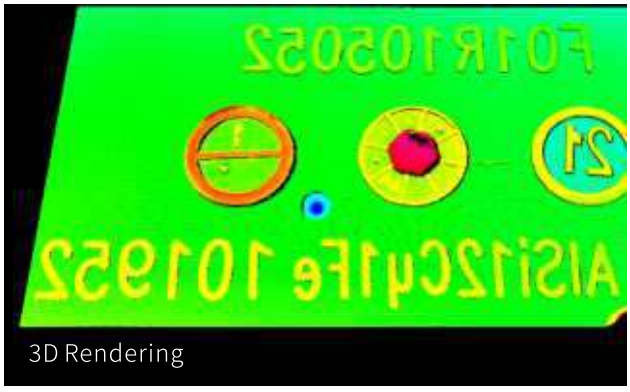
Reference model: SR7240



Engine steel stamp character detection

Reference model: SR7400



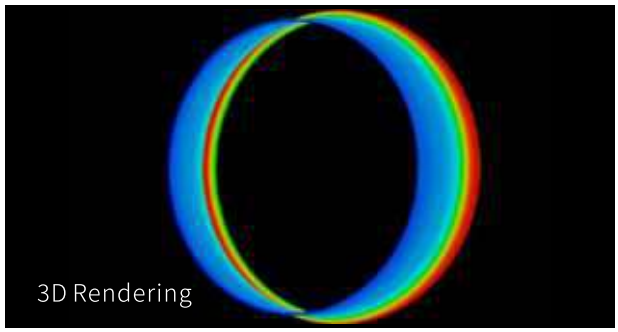


Rail transit applications

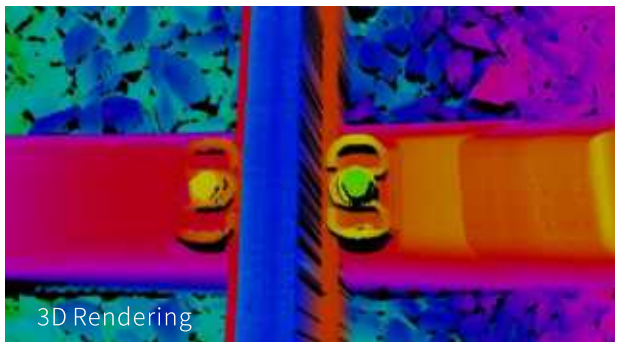
360 ° surround detection

Fastener detection

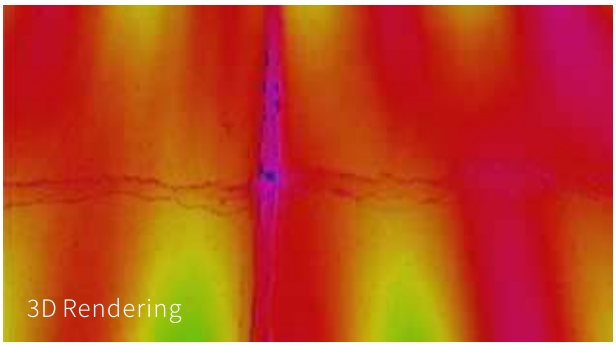
Wheel set detection



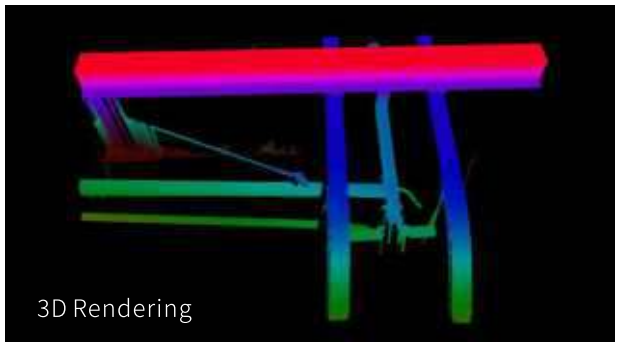
Track wear detection



Road surface detection



Pantograph carbon strip detection



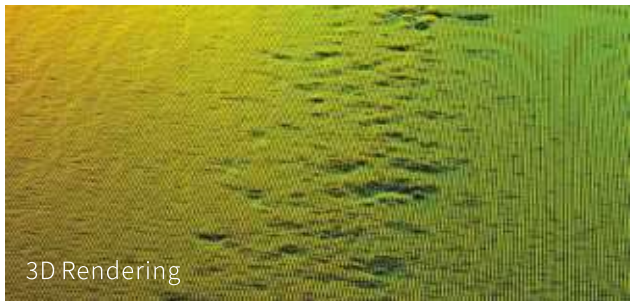
Other industry testing applications

Advantage :

High speed detection: it can detect multiple materials.
High precision detection: it can restore character and graphic information at micron level height.

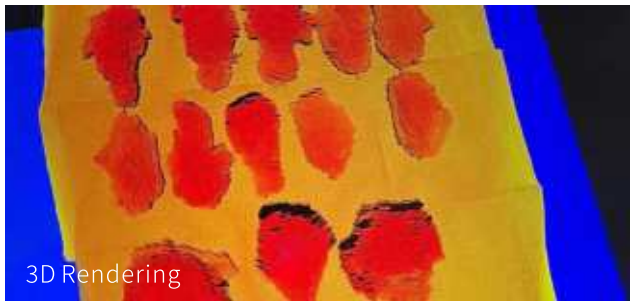
Plate size and surface inspection

Reference model: SR7400



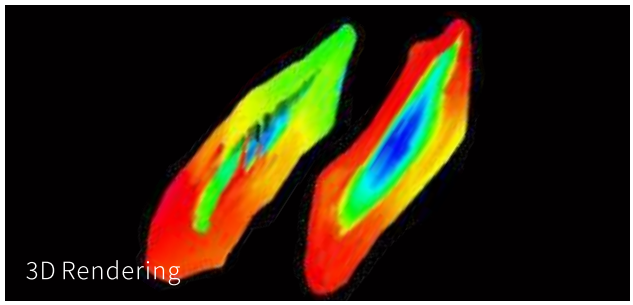
Food counting

Reference model: SR7900



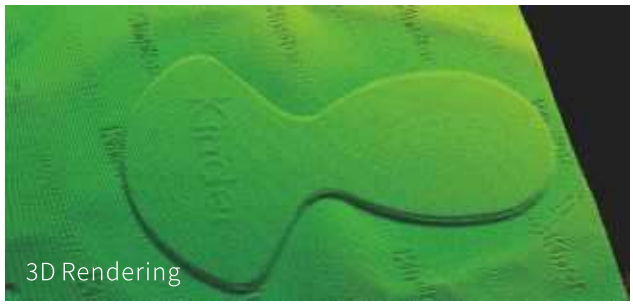
Internal cavity volume detection of Betel nuts and guide to add bitterness

Reference model: SR7900/SR7300



Sealing detection of Kinder Joy eggs

Reference model: SR7900/SR7300



Basic Parameters of Products

SR5000 Series - 3D Camera

Parameter / Model		SR5220	SR5280	SR5320	SR5540
Reference Distance (CD) ①		350mm	380mm	500mm	730mm
Z-axis height (FS)		340mm	280mm	510mm	460mm
X-axis width	Near side	440mm	180mm	360mm	399mm
	Reference Distance	565mm	234mm	470mm	480mm
	Remote side	640mm	320mm	640mm	608mm
Light source wavelength		450nm Blue laser			
Laser class		3R			
Laser output power		50mW			
Z-axis repeatability ②		8μm	4μm	7.5μm	8μm
X-axis repeatability		50μm	25μm	50μm	50μm
X-axis data interval		200μm	100μm	200μm	200μm
Z-axis linearity		±0.02% F.S.			
X-axis profile points		3200			
Reflection angle (°)		40	28.7	35	33.9
Scanning speed (Hz)		4000~67000	2500~67000		
Dimension (mm)		436x110.5x64.5	325x89.5x62	460x92.5x62	608x98.5x62
Weight (g)		1800	1500	1900	2700

Notes:
①The recommended optimal installation distance.
② The data was obtained through 4096 average tests.
The dimensions of the SR5000 series cameras are shown on pages 33, and the accessory controller model is SR7002.

SR7000 Series - 3D Camera

Parameter / Model		SR7050	SR7060	SR7060D	SR7080	SR7140	SR7240
Reference Distance (CD)①		50mm	60mm	57mm	80mm	140mm	240mm
Z-axis height (FS)		5 mm	9.5mm	6mm	12mm	24mm	40mm
X-axis width	Near side	30mm	41.5mm	29mm	57.5mm	89mm	138mm
	Reference Distance	30.5mm	44mm	30mm	60mm	95mm	147mm
	Remote side	31.5mm	46.5mm	31mm	62.8 mm	96mm	157mm
Light source wavelength		405nm Blue laser					
Laser class		2M					
Laser output power		10mW					
Z-axis repeatability ②		0.2μm	0.3μm	0.2μm	0.4μm	0.5μm	1μm
X-axis repeatability		2.5μm	4μm	2.5μm	5μm	8μm	13μm
X-axis data interval		10μm	15μm	10μm	20μm	30μm	50μm
Z-axis linearity		±0.05% F.S.					
X-axis profile points		3200					
Reflection angle (°)		45	30	30	37	28	26
Scanning speed (Hz)		2500~8000					
Dimension (mm)		159.5x98x48.2	156x98x55.2	228x107x52	143.5x93x48	143x93.2x48.3	189.5x93x48
Weight (g)		750	750	1500	730	730	840

Notes:
①The recommended optimal installation distance.
② The reference distance was obtained through 4096 average static tests.
The dimensions of the SR7000 series cameras are shown on pages 33-35, and the accessory controller model is SR7001.

SR7000 Series - 3D Camera

Parameter / Model		SR7400	SR7300	SR7900	SR71600
Reference Distance (CD) ①		400mm	300mm	900mm	1600mm
Z-axis height (FS)		200mm	288mm	500mm	1500mm
X-axis width	Near side	180mm	175mm	359mm	1000mm
	Reference Distance	220mm	290mm	489mm	1600mm
	Remote side	280mm	320mm	576mm	1600mm
Light source wavelength		405nm Blue laser	450nm Blue laser		
Laser class		2M	3R		
Laser output power		10mW	50mW		
Z-axis repeatability ②		5μm	8μm	12μm	100μm
X-axis repeatability		20μm	45μm	40μm	150μm
X-axis data interval		90μm	100μm	180μm	500μm
Z-axis linearity		±0.02% F.S.	±0.05% F.S.		
X-axis profile points		3200	3200	3200	3200
Reflection angle (°)		17	22	13	8.1
Scanning speed (Hz)		1250-10000	1000~4000	1250~4500	100~2200
Dimension (mm)		189.5x93x48	192.5x105.2x59	275.5x98.5x59	290.5x100x59
Weight (g)		840	1145	1300	1500

Notes:
①The recommended optimal installation distance.
② The data was obtained through 4096 average tests.
The dimensions of the SR7000 series cameras are shown on pages 33-35, and the accessory controller model is SR7001.

SR8000 Series - 3D Camera

Parameter / Model		SR8020	SR8060	SR8060H	SR8060K	SR8062
Reference Distance (CD)①		23mm	60mm	60mm	60mm	60mm
Z-axis height (FS)		5.2 mm	18mm	18mm	7.5mm	8.5mm
X-axis width	Near side	13mm	26mm	20mm	28mm	16mm
	Reference Distance	14.5mm	31mm	20mm	28mm	17mm
	Remote side	16mm	36mm	20mm	28mm	17.6mm
Light source wavelength		405nm Blue laser				
Laser class		2M				
Laser output power		10mW				
Z-axis repeatability ②		0.1μm	0.2μm	0.2μm	0.2μm	0.15μm
X-axis repeatability		1.5μm	5μm	5μm	5μm	1.5μm
X-axis data interval		5μm	12μm	12μm	12μm	5.5μm
Z-axis linearity		±0.02% F.S.				
X-axis profile points		3200				
Reflection angle (°)		41.5	33	33	33	35
Scanning speed (Hz)		3200~67000				2500~6700
Dimension (mm)		125.5x82x55	123.5x84x55.2	123.5x84x55.2	123.5x 84x55.2	142x69.5x133
Weight (g)		650	630	650	650	1500

Notes:
①The recommended optimal installation distance.
② The data was obtained through 4096 average tests.
The dimensions of the SR8000 series cameras are shown on pages 35-36, and the accessory controller model is SR7002.

SR9000 Series - 3D Camera

Parameter / Model		SR9040	SR9041	SR9060	SR9061	SR9080	SR9160
Reference Distance (CD)①		40mm	42mm	60mm	60mm	80mm	160mm
Z-axis height (FS)		6.6 mm	8.6mm	24mm	14.5mm	35mm	90mm
X-axis width	Near side	16.2mm	18mm	36mm	25mm	48mm	84mm
	Reference Distance	17mm	19mm	39mm	27mm	52mm	99mm
	Remote side	18mm	20mm	42mm	30mm	59mm	120mm
Light source wavelength		405nm Blue laser					
Laser class		2M					
Laser output power		10mW					
Z-axis repeatability ②		0.1μm	0.1μm	0.4μm	0.3μm	0.6μm	1.5μm
X-axis repeatability		0.6μm	0.6μm	1.5μm	1.2μm	2μm	4μm
X-axis data interval		3μm	3.5μm	7μm	5μm	10μm	19μm
Z-axis linearity		±0.02% F.S.					
X-axis profile points		6400					
Reflection angle (°)		50	50	30	30	30	28
Scanning speed (Hz)		1500~13000					
Dimension (mm)		177x130.3x69.5	177x130.3x69.5	177x145.6x69.4	189x125.5x67	177x130.6x69.5	206x127x70.5
Weight (g)		1920	1920	1940	2050	1910	2020

Notes:
①The recommended optimal installation distance.
② The data was obtained through 4096 average tests.
The dimensions of the SR9000 series cameras are shown on pages 37, and the accessory controller model is SR9001.

General Parameters of Products

Parameter / Model	General Parameters of Products
Temperature Characteristics	0.02% F.S./°C
Encoder input	Support single end and differential encoder
Input/Output	1 Ethernet interface 100Base-TX/1000Base-T
Working Temperature	0～50°C
Storage Temperature	-20～70°C
Working humidity	35%～85% No condensation
ESD Protection	Contact discharge 4kV, air discharge 8kV, comply with IEC 61000-4-2
EFT Protection	Power port 2kV/5 or 100kHz, signal port 1kV/5 or 100kHz, comply with IEC61000-4-4
Shock resistance	Each axis 50Gs/3ms, comply with IEC 68-2-27 Ea
Vibration resistance	10Gs (10-500Hz) , comply with IEC 68-2-6 Fc
Protection level	IP67, comply with IEC 60529

Accessories - Controller

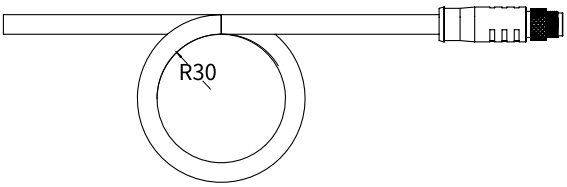
Model		SR7001/SR7002		SR9001
Mode		2.5D mode	3D mode	3D mode
Sensor head input		2 at Max. (SR7001 supports SR7000 series sensor heads, SR7002 supports SR5000 and SR8000 series sensor heads.) ♦ When using 2 sensors, the sensor heads must be of the same model.		SR9001 supports SR9000 series sensor heads and for one head only.
Sampling period (trigger interval)		2500-10000HZ/3200-67000HZ		1500-13000HZ
Ethernet interface		• Numerical output • Connect to the included computer application software produced by SinceVision. In addition to the above functions, you can also upload or download detection settings. Send and receive various data including profile/image. • 1000BASE-T/100BASE-TX		
Digital input	Level control enable input	Adaptable to NPN and PNP outputs		
	Measurement start input			
	Measurement end input			
	Trigger input			
Digital output	Batch status output	NPN open collector output		
Encoder input		1 set: compatible with RS-422 linear drive output (with 5V output: 150 mA Max.), or open collector output (Supports 5V/12V/24V)		
Encoder input Response frequency	RS-422	2-phase/1 increasing 1.6MHz, 2-phase/2 increasing 3.2MHz, 2-phase/4 increasing 6.4MHz		
	Open collector (OC)	2-phase/1 increasing 100kHz, 2-phase/2 increasing 200kHz, 2-phase/4 increasing 400kHz		
Language		Support simplified Chinese and English		
Minimum display unit		0.1μm		
Heat dissipation		Natural heat dissipation		
Rated	Supply voltage	24 VDC±10%		
	Consumption current at Max.	6.0A		
Environmental resistance	Ambient temperature	0～50°C (installed below)		
	Ambient humidity	35%～85%RH (No condensation)		
Dimension (mm)		182x169x64		
Weight（g)		Approx. 1900		

Accessories - High toughness cables

Parameter / Model	SCB-HCAM-HR1/SCB-HCAM-HB1/SCB-HCAM-HR2/SCB-HCAM-HR2Z/SCB-HCAM-HB2/SCB-HCAM-HB2Z			
Protection	IP67, comply with IEC 60529 ①			
Minimum bending radius of cable components (fixed)	30mm			
Service life	Cable carrier installation with a radius of no less than 72mm (recommended 100mm), with repeated bending times greater than 10 million times ②			
Adapted model	SR7000/SR8000		SR5000/SR9000	
	L-joint (bending end)	"—" shape joint (straight end)	L-joint (bending end)	"—" shape joint (straight end)
1m cable	SCB-HCAM-HR1-1m	SCB-HCAM-HB1-1m	/	/
3m cable	SCB-HCAM-HR1-3m	SCB-HCAM-HB1-3m	SCB-HCAM-HR2-3m	SCB-HCAM-HB2-3m
			SCB-HCAM-HR2Z-3m	SCB-HCAM-HB2Z-3m (Assembly type aviation plug)
6m cable	SCB-HCAM-HR1-6m	SCB-HCAM-HB1-6m	SCB-HCAM-HR2-6m	SCB-HCAM-HB2-6m
			SCB-HCAM-HR2Z-6m	SCB-HCAM-HB2Z-6m (Assembly type aviation plug)
10m cable				SCB-HCAM-HB2-10m
	SCB-HCAM-HR1-10m	SCB-HCAM-HB1-10m	/	SCB-HCAM-HB2Z-10m
Extension cable of 3m cable	/	SCB-HCAM-HBY-3m	/	/
Extension cable of 5m cable	SCB-HCAM-HRY-5m	SCB-HCAM-HBY-5m	SCB-HCAM-HR2Y-5m	SCB-HCAM-HB2Y-5m
			SCB-HCAM-HR2YZ-5m	SCB-HCAM-HB2YZ-5m (Assembly type aviation plug)
Extension cable of 20m cable	SCB-HCAM-HRY-20m	SCB-HCAM-HBY-20m		

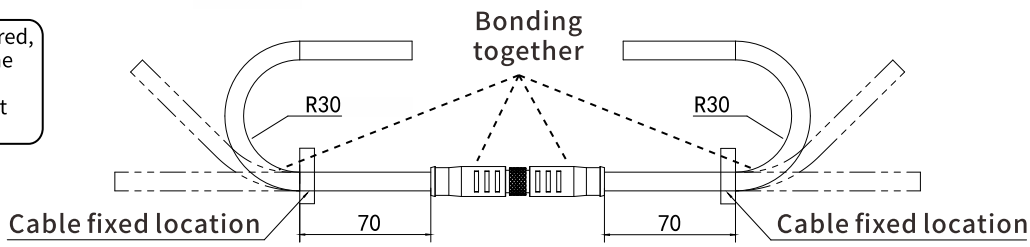
Notes:
①The value when connecting the sensor head, but not including the connector of the controller.
②Testing environment: temperature/humidity 23°C/40%RH; test conditions: cable carrier radius: R72mm; cable carrier distance: 1000mm, running speed: 60 round trips/min. Measurement results: Standard value > 30 million times; minimum value > 10 million times.

Please ensure that the minimum bending radius of the sensor head cable is above 30mm.



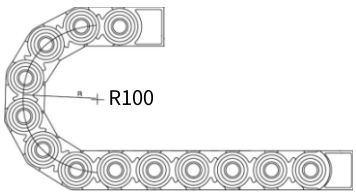
Minimum cable bending radius

When a splice is required, the splice head and the cable within 70mm of each end must be kept relatively fixed.



Cable splice connection

When using cable carriers, if not specifically specified, please choose products with R100 or higher.



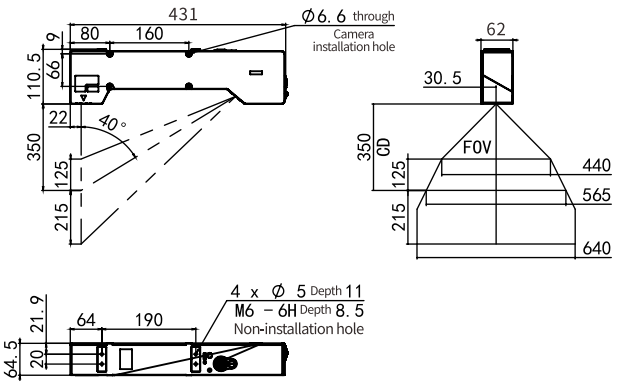
Minimum cable bending radius

PRODUCT DIMENSION DRAWINGS

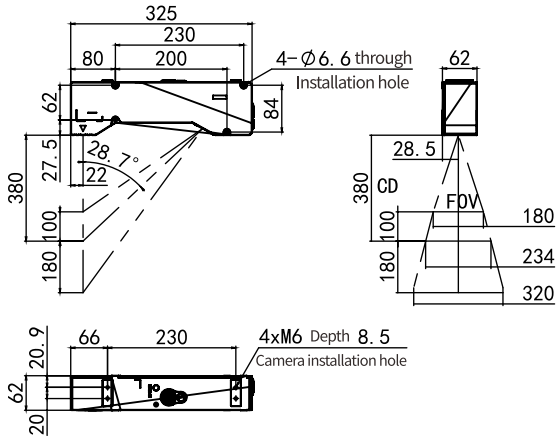
PRODUCT DIMENSION DRAWINGS

SR5000 Series

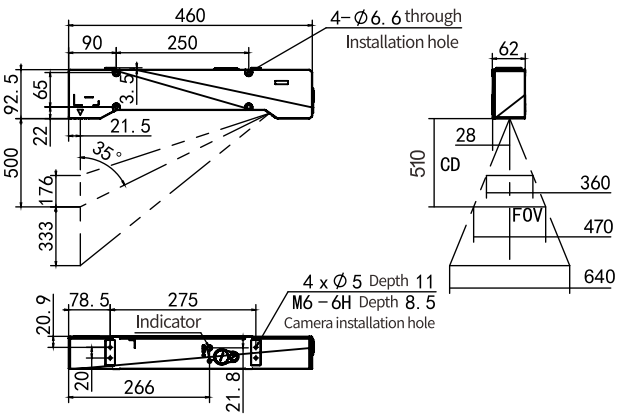
SR5220



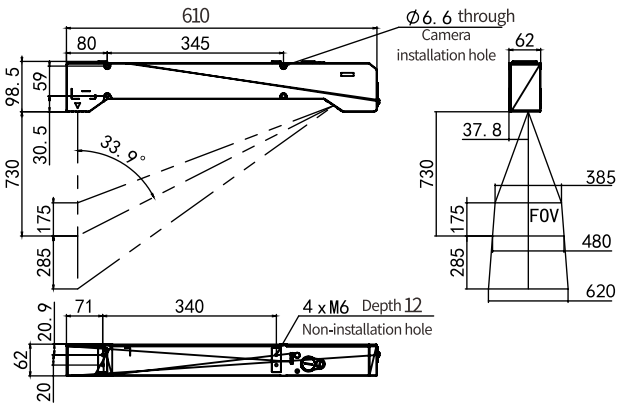
SR5280



SR5320

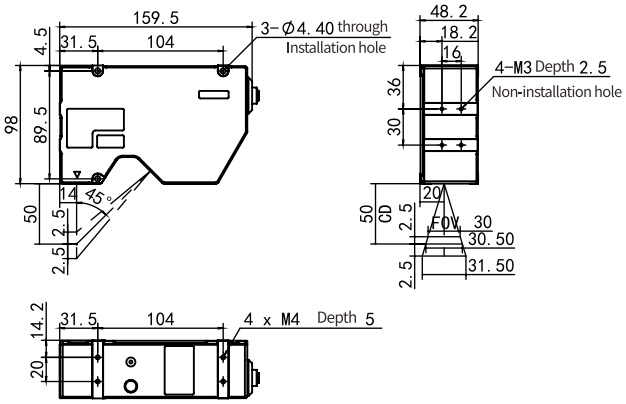


SR5540

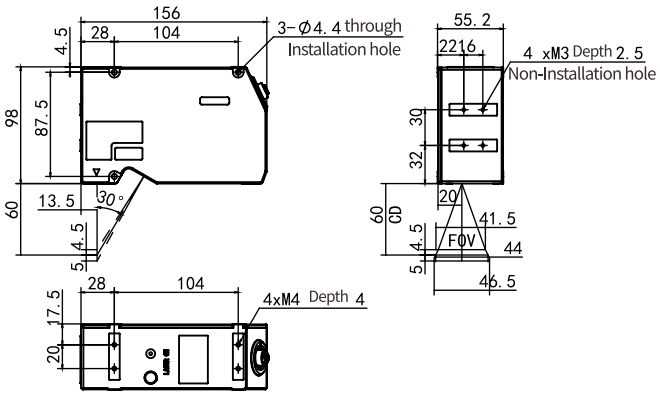


SR7000 Series

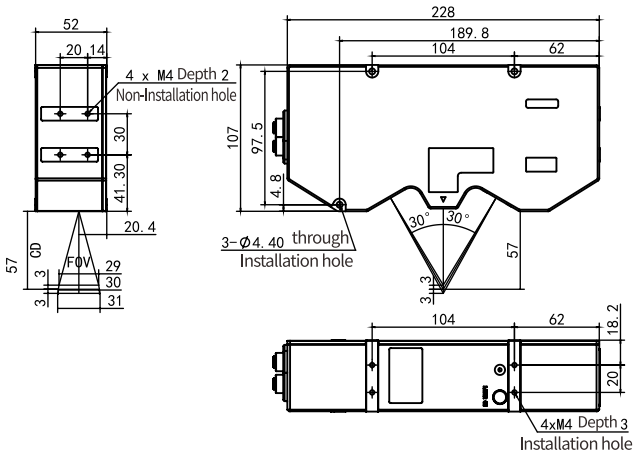
SR7050



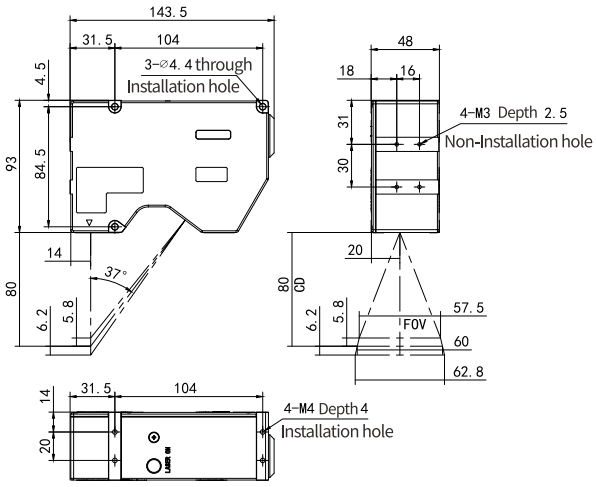
SR7060



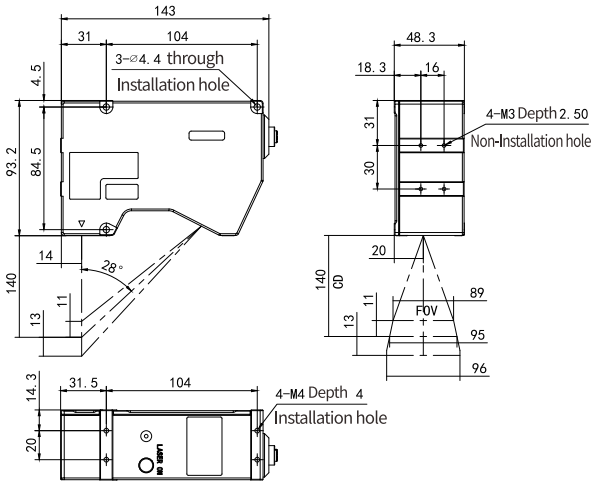
SR7060D



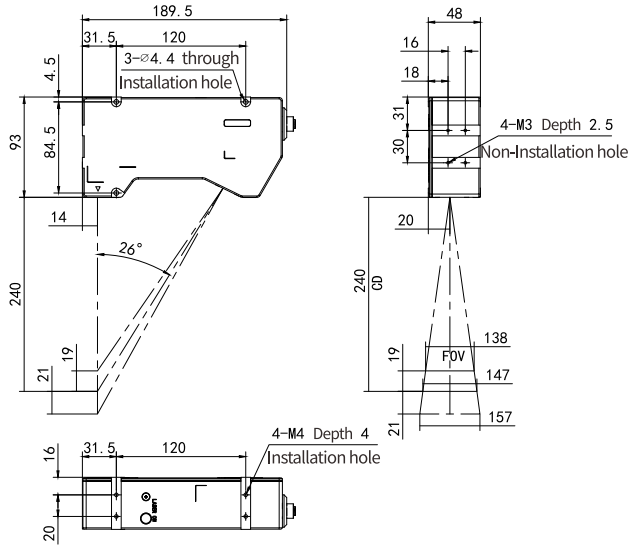
SR7080



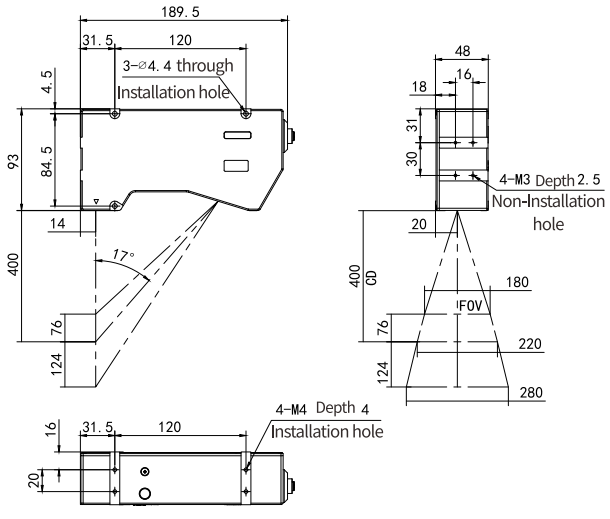
SR7140



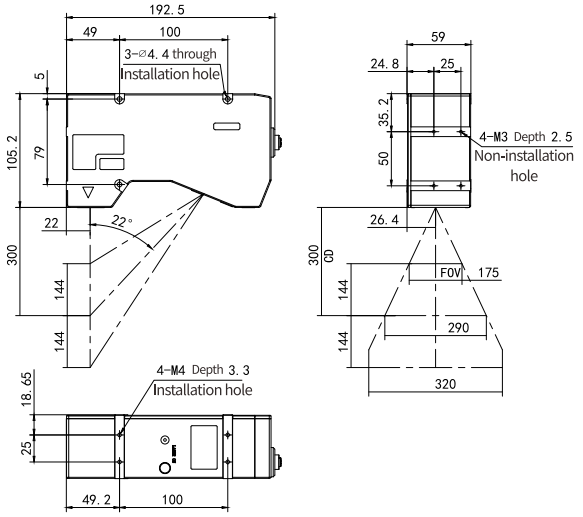
SR7240



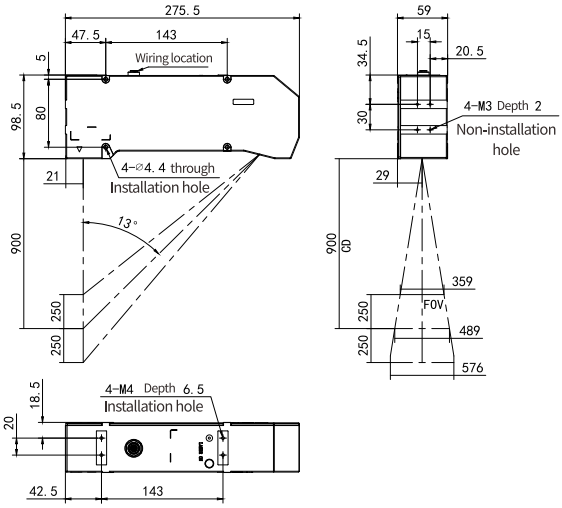
SR7400



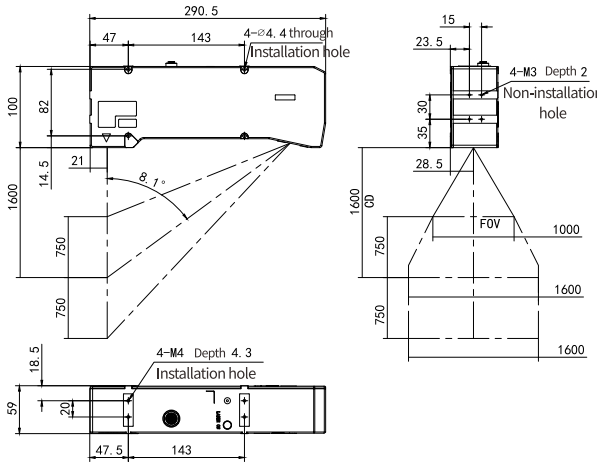
SR7300



SR7900

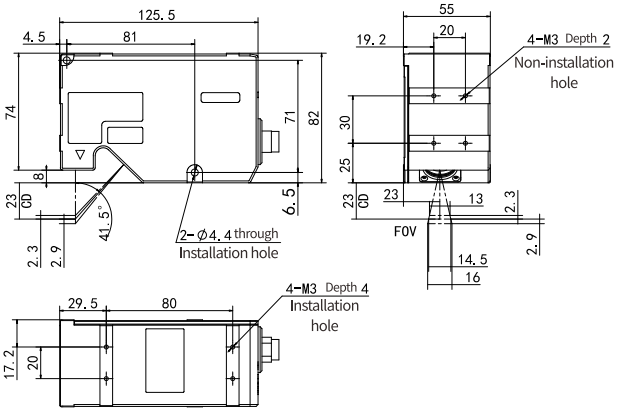


SR71600

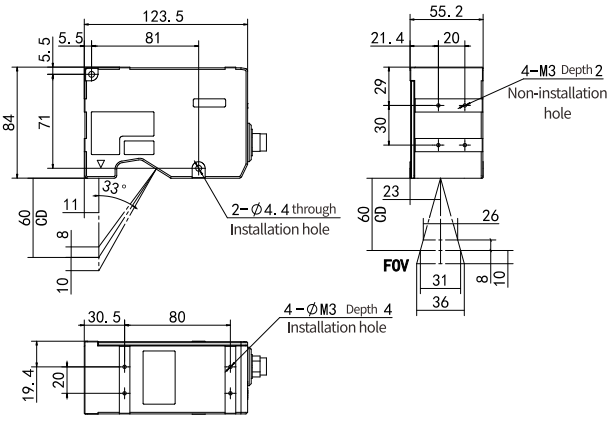


SR8000 Series

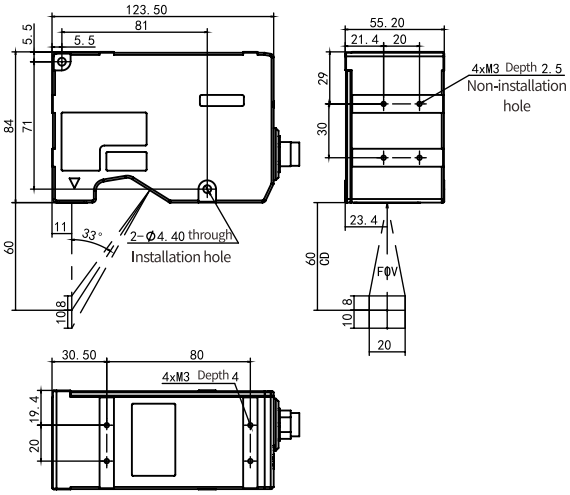
SR8020



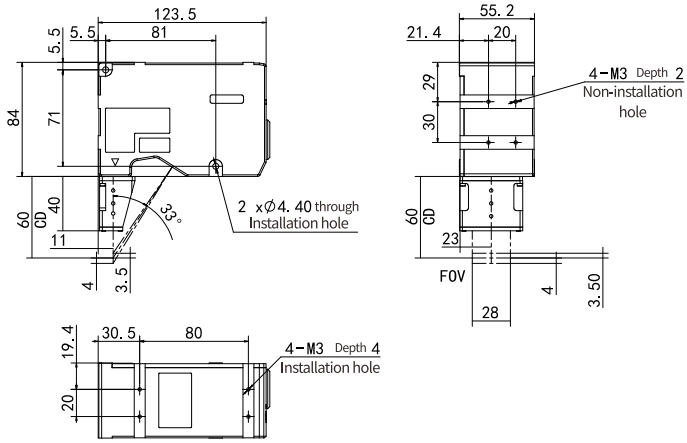
SR8060



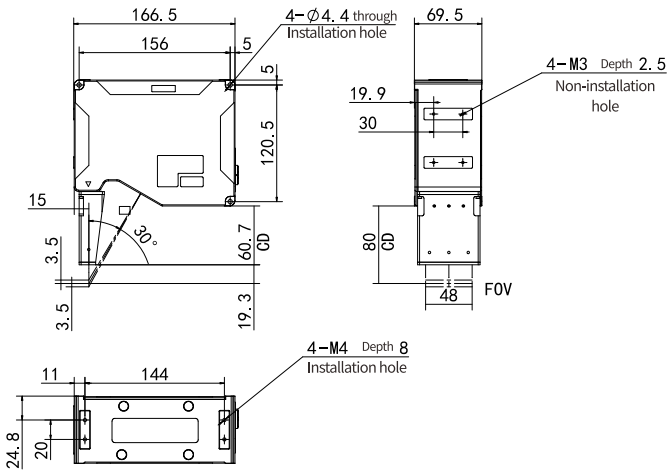
SR8060H



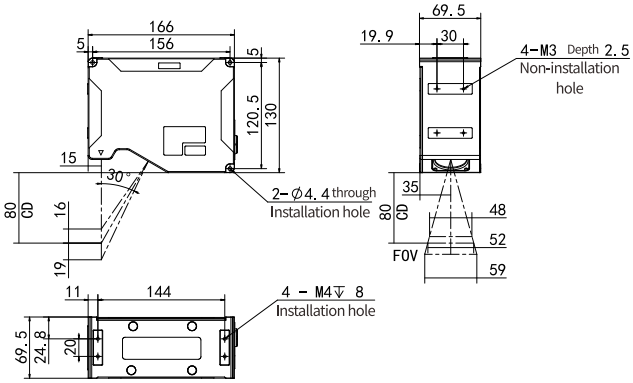
SR8060K



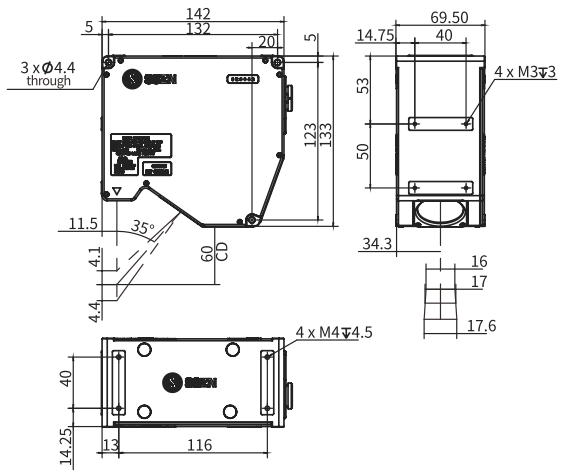
SR8080K



SR8080

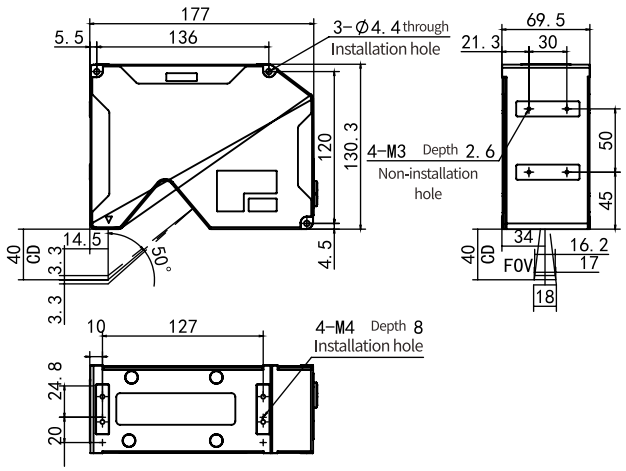


SR8062

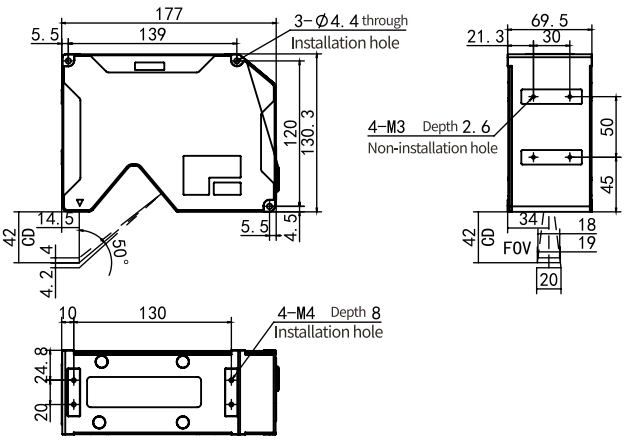


SR9000 Series

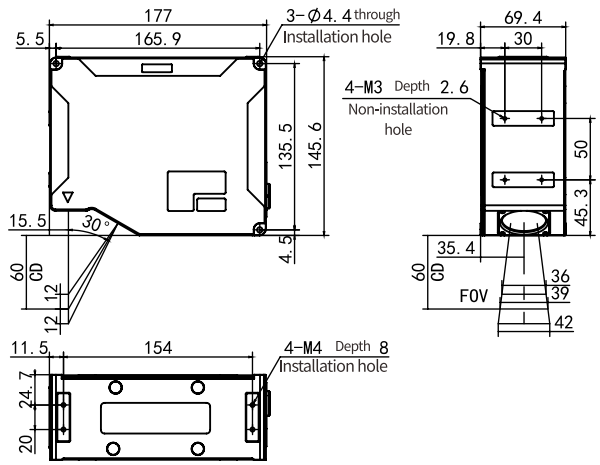
SR9040



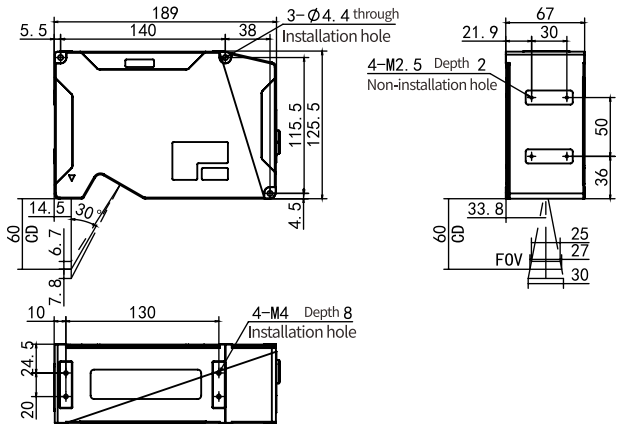
SR9041



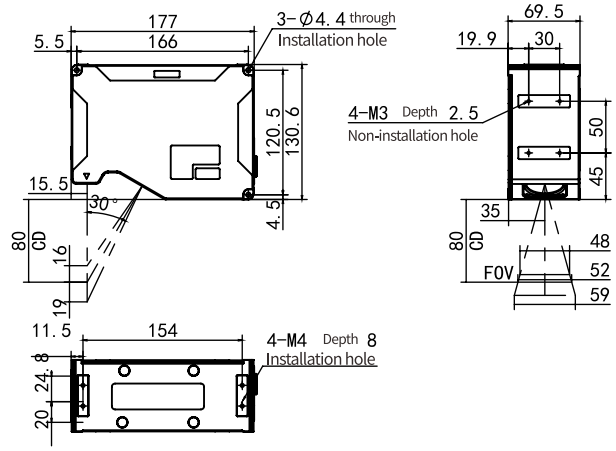
SR9060



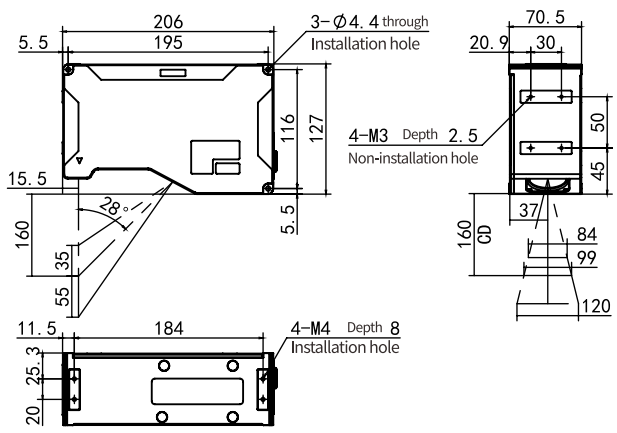
SR9061



SR9080



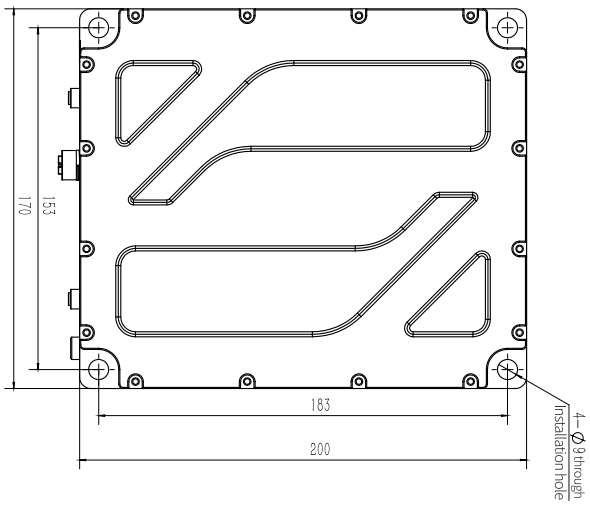
SR9160

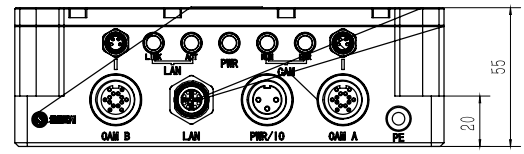


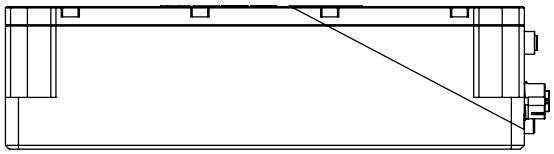
Accessories - Controller

SR5001

For SR5000 series

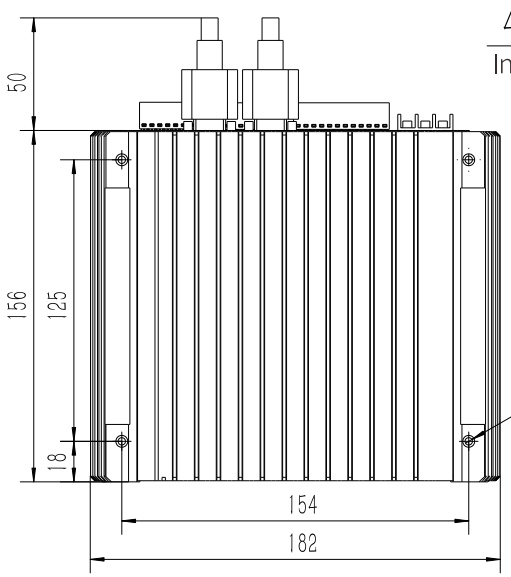


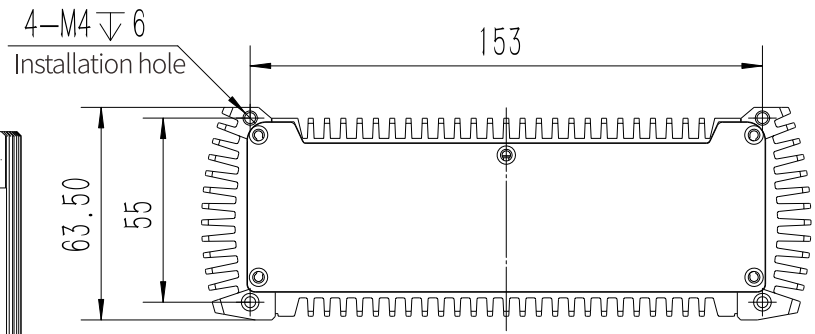


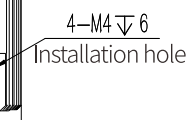


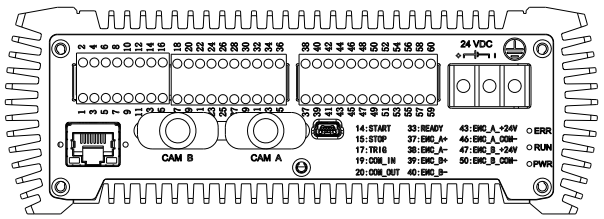
SR7001/SR7002/SR9001

For SR7000/SR8000/SR9000 series









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