

# Sizector® 3D Camera

Highly Integrated 3D In-line Inspection Products



Product Selection Guide  
HD/H/R Series

## Company Profile

Mega Phase Technology, as the leading industrial structured light 3D camera manufacturer and a member of Shanghai Software Industry Association, is located in Shanghai Zhangjiang Science City. Since the establishment, the company has achieved great technical development and obtained a number of patent certificates, including invention patents, utility model patents and software copyrights.

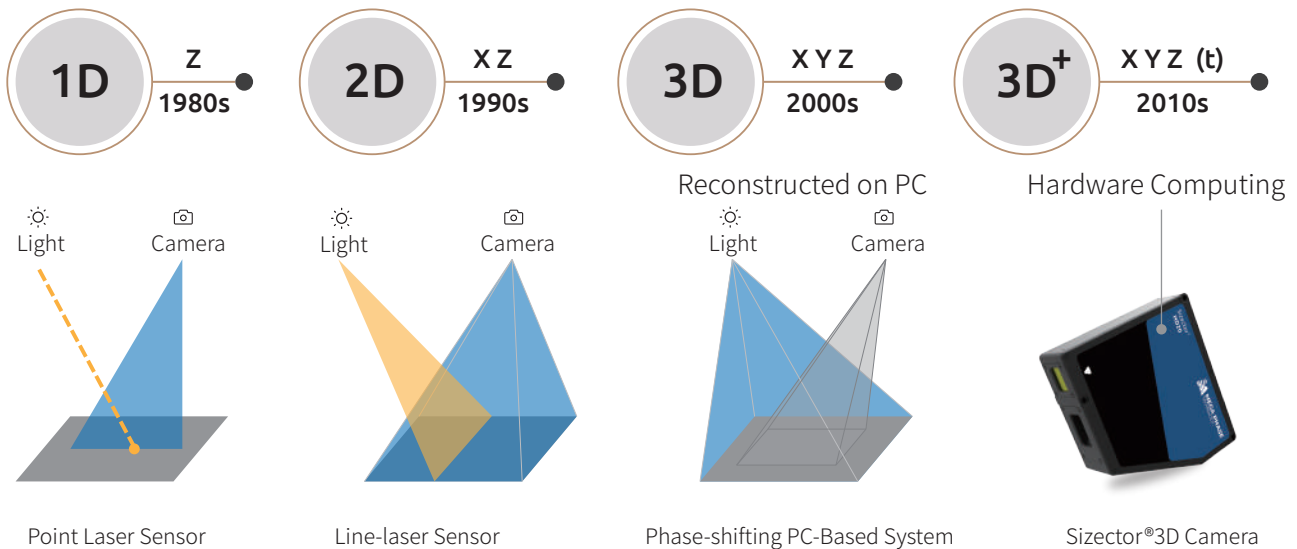
Sizector®3D camera is used to solve the difficulties faced by manufacturing customers in product dimension inspection. In practical applications, a majority of smart phone manufacturers and their supply chains benefit from Sizector 3D camera's outstanding performances, which improve the inspection efficiency significantly and save huge manpower costs for the customers.

Mega Phase Technology combines innovative technologies with in-depth applications, provides revolutionary products and solutions for customers in different industries, to help customers improve production efficiency, reduce production costs, promote holistic upgrades in production inspection process. With those above, Mega Phase Technology aims to support customers achieving smart manufacturing and move towards Industry 4.0.

## Phase-Shifting Structured Light Technology

Sizector® 3D camera applies phase-shifting structure light technology, of which the basic principle is to project a series of 2D images with specific phase encoding onto the object, and snap it at the same time. Afterwards, the 3D camera decodes the obtained image, calculate the decoding information according to the calibration data, and finally reconstruct it into 3D data.

Both line-laser and phase-shifting structure light technology are based on triangulation, so their accuracy is very close. For structure light technology, light is projected to the entire surface. As a result, 3D data can be generated without any moving or stitching.



For static 3D measurement, the phase-shifting structure light technology has a primary advantage over line-laser technology. The line-laser 3D sensor requires continuous excitation signals from the encoder during the movement, therefore the accuracy and speed of the inspection are influenced by the moving and feedback system. In the design process, speed and accuracy have to be balanced to achieve a satisfying inspection result.

In the equipment commissioning process, each equipment must be rigorously calibrated and tested. During the long-term operation, the life-time and maintenance of the motion equipment must also be considered. In contrast, Phase-shifting structure light technology not only saves the cost off high-precision moving parts, but also makes installation and maintenance much easier.

## Sizector®3D Camera Technical Characteristics

### Highly Integrated

Based on hardware computing technology, 3D reconstruction does not occupy users' computing resources

### Easy to Use

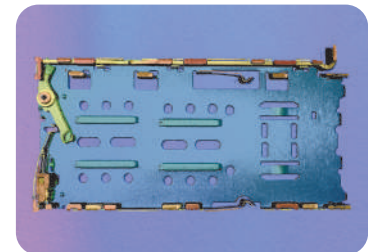
Easy-to-use SDK ; Calibrated before delivery ; Out-of-the-box device

### Outstanding 3D Reconstruction

Wide dynamic range ; Suitable to various materials

### Fastest in the Industry

Highest frame rate up to 13.5FPS ; Designed for in-line inspection



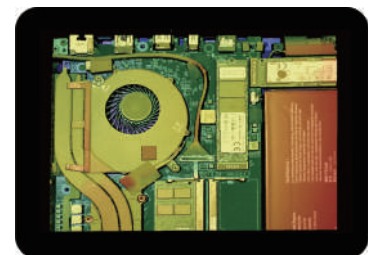
SIM Card Slot



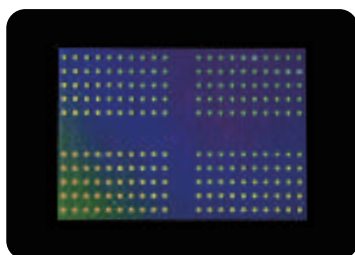
3D Character Recognition



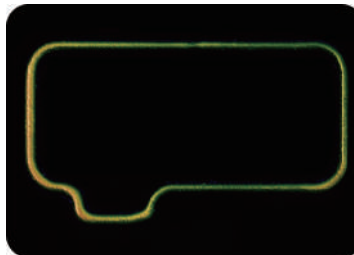
Cell Phone Frame



PC Board



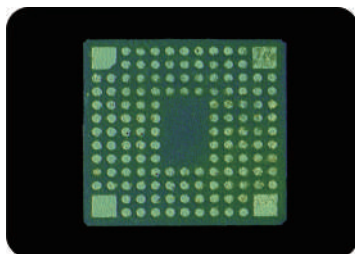
BGA



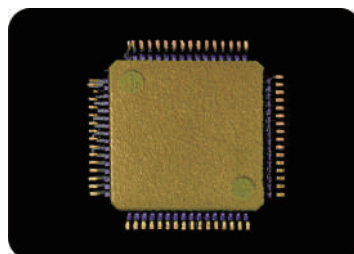
Sealant with  
Fluorescent Agent



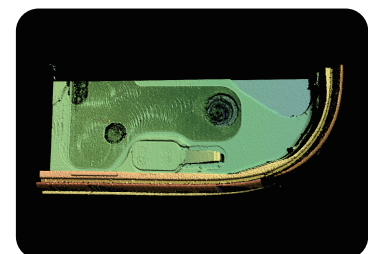
Automotive Parts Glueing



Ceramics Packaging



Plastic Packaging



Cell Phone Edge

## Sizector®HD Series High Resolution 3D Camera

Sizector HD series 3D camera also benefits from hardware parallel computing technology. Combined with the optimized system architecture, high-resolution CMOS and 3.2M imager, the device is recommended to high-resolution image output for X/Y axis measurement or positioning.



Features	HD20	HD40	HD80	HD180	HD600
Maximum Frame Rate	2.1FPS	2.1FPS	2.1FPS	2.1FPS	2.1FPS
Imagers (Mega Pixels)	3.2	3.2	3.2	3.2	3.2
Clearance Distance (mm)	110	110	160	414	1500
Standard FOV (mm)	20x15	40x30	80x60	180x135	600x450
Measurement Range Z (mm)	±2.5	±10	±20	±45	±300
Repeatability Z (μm)* <sup>①</sup>	1	1	1	3	75
Light Source	Blue LED	Blue LED	Blue LED	Blue LED	Blue LED
Dimensions (mm)	156x169x49	156x169x49	156x174x49	156x268x49	156x343x49
Weight (kg)	1.35	1.35	1.5	1.9	2.3
Data Interface	USB3.0	USB3.0	USB3.0	USB3.0	USB3.0
I/O Input	2x Polarless Level Signal Input (12/24V)				
I/O Output	4x Polarless Switching Signal Output (12/24V)				
SDK	YES				
Platform	C, C++, .Net				
Example Program	Open Source SDK and Applications				
Input Voltage	12V				
Input Current	5A				
Operating Temperature	0-40°C				
Storage Temperature	0-60°C				
Operating Humidity	20% ~80% (No condensation)				
Accessories	Power Adapter, 3m USB cable, and 3m I/O cable				

\*<sup>①</sup>Value obtained using Mega Phase's specified standard gauge and measurement mode.



## Sizector® H Series High Speed 3D Camera

Sizector H Series 3D camera applies hardware parallel computing technology, especially suitable for high-speed inspection requirements such as flatness, height, and segment difference.



## Sizector® R Series Designed for Bin-Pick Applications

The immunity to ambient light interference is significantly improved by algorithm and hardware upgrade, which makes R600 suitable for Bin-Pick applications.

设备参数	H40	H180
Maximum Frame Rate	13.5FPS	13.5FPS
Imagers (Mega Pixels)	0.4	0.4
Clearance Distance (mm)	110	414
Standard FOV (mm)	40x30	180x135
Measurement Range Z (mm)	±10	±45
Repeatability Z (μm)*①	1	3
Light Source	Blue LED	Blue LED
Dimensions (mm)	156x169x49	156x268x49
Weight (kg)	1.35	1.9
Data Interface	USB3.0	USB3.0
I/O Input	2x Polarless Level Signal Input (12/24V)	
I/O Output	4x Polarless Switching Signal Output (12/24V)	
SDK	YES	
Platform	C, C++, .Net	
Example Program	Open Source SDK and Applications	
Input Voltage	12V	
Input Current	5A	
Operating Temperature	0-40°C	
Storage Temperature	0-60°C	
Operating Humidity	20% ~80% (No condensation)	
Accessories	Power Adapter, 3m USB cable, and 3m I/O cable	

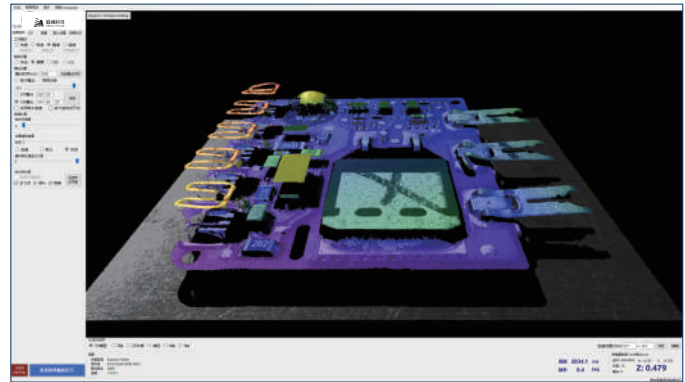
设备参数	R600
Maximum Frame Rate	5FPS
Imagers (Mega Pixels)	0.4
Clearance Distance (mm)	1500
Standard FOV (mm)	600x450
Measurement Range Z (mm)	±300
Repeatability Z (μm)*①	75
Light Source	Blue LED
Dimensions (mm)	156x343x49
Weight (kg)	2.3
Data Interface	USB3.0
I/O Input	2x Polarless Level Signal Input (12/24V)
I/O Output	4x Polarless Switching Signal Output (12/24V)
SDK	YES
Platform	C, C++, .Net
Example Program	Open Source SDK and Applications
Input Voltage	12V
Input Current	5A
Operating Temperature	0-40°C
Storage Temperature	0-60°C
Operating Humidity	20% ~80% (No condensation)
Accessories	Power Adapter, 3m USB cable, and 3m I/O cable

\*① Value obtained using Mega Phase's specified standard gauge and measurement mode.

## Sizector SDK and LIGHT

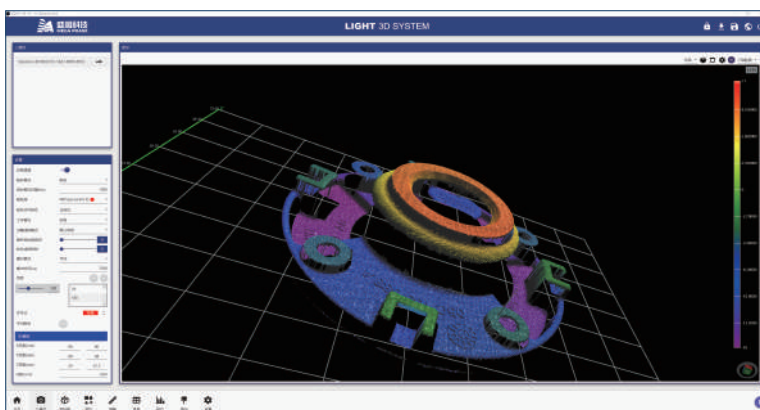
Sizector 3D camera provides two application modes: SDK interface & the standard Sizector LIGHT software. Users can choose specific mode based on project requirements and development cycles.

Sizector SDK supports C, C++, .NET language, Win 7/10 or Linux system, and includes 3D camera drivers, libraries, sample code, and documentation. It also supports multiple 3D cameras working at the same time. Users can add Sizector 3D cameras to the inspection system by calling the driver to achieve complex functions and build up customized systems, such as multi-3D camera collaboration, 2D & 3D collaboration, mechanical control & 3D measurement collaboration.



Software interface based on SDK

Sizector LIGHT is a modular 3D measurement software developed by Mega Phase Technology. It has a friendly and simple human-computer interaction interface. Users can add/delete measurement items, set/adjust tolerances, or save/load settings in this software. In addition, it can display the statistics of test results as well. Sizector LIGHT allows users to write their own algorithm modules and add them to LIGHT software platform, in which way users would minimize their software development workload.



Sizector LIGHT software interface



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