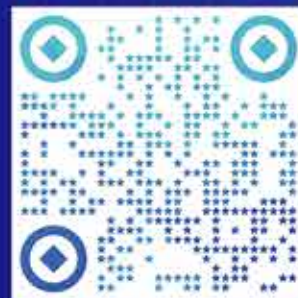




X-DYNAMICS

PROVIDING THE WORLD' S LEADING
HIGH-PRECISION 3D VISION SOLUTIONS



Scan to view our website

Wuhan X-Dynamics Co., Ltd.

Website: <https://en.xdynamx.com/>

Telephone: +86 027 6552 3090

Sourcing Director: Xiao Hang 13971451311

Email: sales@xdynamx.com

Address: 6th Floor, Building C2, Longshan Innovation Park Phase I, Wuhan Future Science And Technology City.
No.999 Gaoxin Blvd Wuhan Hubei 430205, China



Wuhan X-Dynamics Co.,Ltd.

X-Dynamics

Innovation

Pursuit of perfection, ever onward

Duty

Bravely shoulder the responsibility

Sincere

Equal and transparent in communications

Company Profile

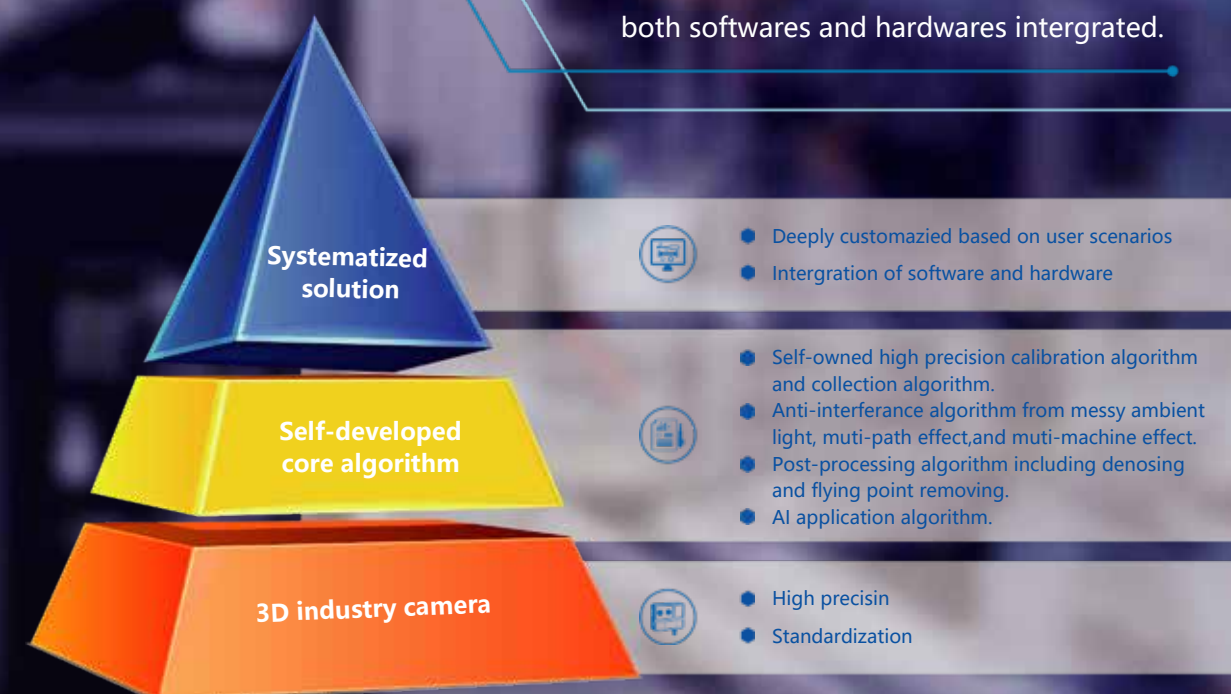
X-Dynamics is a high-tech company focusing on high-precision 3D industrial vision solutions established in 2021. Located in Wuhan Optics Valley, X-Dynamics is honored with Wuhan High-tech Enterprise Award and Gazelle Enterprise Award, always keep market-oriented to optical design, hardware design, 3D calibration, correction algorithms, ISP algorithms, AI application algorithms core technologies.

Now we have self-developed multiple product lines including iToF, dToF, line spectral confocal sensor and so on, providing products widely used in mobile robots, industrial safety protection, logistics volume measurement, passenger counting, health, rail traffic and more industries.



Our Mission

Based on high precision standardized 3D industry camera and self-developed core algorithm, X-Dynamics provides systematized solutions both softwares and hardwares intergrated.



Intelligent logistic



Robots



Intelligent heavy industry



Security and privacy



Industry safety protection

iToF Series Intelligent Passenger Counter



System parameter	Site environment	Indoors, outdoors
	Anti-glare interference degree	90k lx
	Operating temperature	-20 °C ~ 60 °C
	Safety class	CLASS 1
	Protection grade	IP66
	Certification	CE, FCC
	Size	142 mm x 68 mm x 32.8 mm
Electric parameter	Communication interface	Million Ethernet interface
	Power interface	DC 5521
	Supply voltage	12 V
	Rated power consumption	10.5 W
TOF	Resolution	320 x 240
	Frame rate	20 fps
	FOV	98° x 80°
	Wave length	940 nm



Product Features

- High accuracy rate ≥98%.
- Bidirectional statistical algorithm.
- Strong resistance to light interference, can work in total dark environment.
- Strong privacy protection.
- Multi-machine linkage to measure the number of people in and out of different addresses at the same time.

iToF Series 3D Depth Camera



System parameter	Site environment	Indoors, outdoors	
	Anti-glare interference degree	90k lx	
	Operating temperature	-20 °C ~ 60 °C	
	Safety class	CLASS 1	
	Protection grade	IP 55	
Electric parameter	Size	83 mm x 67.5 mm x 42 mm	
	Communication interface	Million Ethernet interface	
		CAN interface	Optional
		Hardware trigger interface	Optional
	Power interface	DC 5521	
	Supply voltage	18 V ~ 24 V	
	Rated power consumption	DC 24 V / 8.544 W	
TOF	Resolution	640 x 480 / 320 x 240	
	Frame rate	20 fps@ 320 x 240 / 5 fps@ 640 x 480	
	Ranging	0.2 m ~ 5 m@ 10% reflectivity	
		0.2 m ~ 8 m@ 90% reflectivity	
	Ranging accuracy	0.5%@ whole range	
	FOV	64° x 50°	
RGB	Wave length	940 nm	
	Maximum resolution	1920 x 1080	Whether it is configured or not can be determined as needed.
	Frame rate	20 fps	
	FOV	84° x 60°	
SDK	Shutter mode	Rolling shutter	
	Operating system	Windows / Linux / ROS	
	Algorithm SDK	Preprocessing: Correction algorithm, depth calculation algorithm, etc.	
		Postprocessing: Filtering algorithm, point cloud conversion, etc.	
Settable parameters	Resolution, exposure time, algorithm level		



Product Features

- High precision: 0.5% @ whole range.
- Anti-interference from multi-machine effect and glare light interference.
- Industrial design: Meet the need in harsh industry application scenarios.
- Built-in AI application algorithm.
- Certifications: CE, RoHS.

iToF Series 3D Depth Camera

Model No. X-D400			
			
System parameter	Site environment	Indoors, outdoors	
	Anti-glare interference degree	90k lx	
	Operating temperature	-20 °C - 60 °C	
	Safety class	CLASS 1	
	Protection grade	IP56	
	Size	85 mm x 26.5 mm x 25.05 mm	
Electric parameter	Communication interface	Million Ethernet interface	
		CAN interface	Optional
		Hardware trigger interface	Optional
	Power interface	DC 5521	
	Supply voltage	12 V ~ 24 V	
TOF	Rated power consumption	DC 24 V<3 W	
	Resolution	640 x 480 / 320 x 240	
	Frame rate	5 fps@640 x 480 / 20 fps@320 x 240	
	Ranging	0.3-2 m@ 10% reflectivity	
		0.2 m ~4 m@ 90% reflectivity	
	Ranging accuracy	1%@ whole range	
	FOV	64° x 50°	
RGB	Wave length	940 nm	
	Maximum resolution	1920 x 1080	Whether it is configured or not can be determined as needed.
	Frame rate	20 fps	
	FOV	64° x 40°	
SDK	Shutter mode	Rolling shutter	
	Operating system	Windows / Linux / ROS	
	Algorithm SDK	Preprocessing: Correction algorithm, depth calculation algorithm, etc.	
		Postprocessing: Filtering algorithm, point cloud conversion, etc.	
SDK	Settable parameters	Resolution, exposure time, algorithm level	



Product Features

- High precision: 1% @ whole range.
- Smart in size, easy to fit most installations.
- Certification: CE, RoHS.

iToF Series 3D Depth Camera

Model No. X-D1000			
			
System parameter	Site environment	Indoors, outdoors	
	Anti-glare interference degree	90k lx	
	Operating temperature	-20°C ~ 60°C	
	Safety class	Class 1	
	Protection grade	IP67	
	Certification	CE, FCC will be ready soon	
Electric parameter	Size	84mm x 73mm x 35mm	
	Communication interface	Million Ethernet interface	
		CAN interface	Optional
		Hardware trigger interface	Optional
	Power interface	DC5521	
TOF	Supply voltage	20~24 V	
	Rated power consumption	DC 24 V / 12 W	
	Resolution	640 x 480 / 320 x 240	
	Frame rate	5 fps@640 x 480 / 20 fps@320 x 240	
	Ranging	0.2~10 m @10% reflectivity	
		0.2~10 m @90% reflectivity	
	Ranging accuracy	1%@whole range	
RGB	FOV	105° x 75°	
	Wave length	940 nm	
	Resolution	1920 x 1080	Whether it is configured or not can be determined as needed.
	Frame rate	20 fps	
SDK	FOV	84° x 60°	
	Shutter mode	Rolling shutter	
	Operating system	Windows / Linux / ROS	
SDK	Algorithm SDK	Preprocessing: Correction algorithm, depth calculation algorithm, etc;	
		Postprocessing: Filtering algorithm, point cloud conversion, etc.	
	Settable parameters	Resolution, exposure time, algorithm level.	



Product Features

- High precision: 1% @ whole range.
- 10m effective detection range.
- Large field of view, small blind area.
- Post-processing algorithm: Denoising, flying pixel removing, anti-glare, muti-path effect resistance, muti-machine effect resistance.

iToF Series 3D Depth Camera

Model No. X-D1100/X-D1200			
			
System parameter	Site environment	Indoors, outdoors	
	Anti-glare interference degree	90k lx	
	Operating temperature	-20°C ~ 60°C	
	Safety class	CLASS 1	
	Protection grade	IP67	
	Certification	CE, FCC will be ready soon	
	Size	130 mm x 70 mm x 60 mm	
Electric parameter	Communication interface	GbE (gigabit Ethernet)	
		DI*4	DI signals and DO signals are 24V PNP; The drive capacity of DO signal is 50mA.
		DO*4	
		RS 485*1	
	Power interface	12 PIN signal interface	
	Supply voltage	18 V ~ 36 V	
	Rated power consumption	DC 24 V/ <8 W	
TOF	Resolution	640 x 480 / 320 x 240	
	Frame rate	25 fps@ 640 x 480 / 25 fps@ 320 x 240	
	Ranging	0.3 m ~ 7 m@ 10% reflectivity	
		0.3 m ~ 10 m@ 90% reflectivity	
	Ranging accuracy	1%@ whole range	
	FOV	105° x 75°	
RGB	Maximum resolution	1920 x 1080	Whether it is configured or not can be determined as needed.
	Frame rate	20 fps	
	FOV	120° x 120°	
	Shutter mode	Global shutter	
SDK	Operating system	Windows / Linux / ROS	
	Algorithm SDK	Preprocessing: Correction algorithm, depth calculation algorithm, etc.	
		Postprocessing: Filtering algorithm, point cloud conversion, etc.	
	Settable parameters	Resolution, exposure time, algorithm level.	



Product Features

- High precision: 1% @ whole range.
- Industrial design: Meet the need under harsh industry application scenarios.
- With security protection application algorithm, it can realize the deployment of human safety protection in heavy industry.
- Automatic recording 1 minute before and after the event, self-check and active reporting functions available.

iToF Series MIPI Module

Model No. X-D450	
	
WLCSP PACKAGED CHIP	
Status	Mass Production
Pixel Array Resolution	640 x 480
Pixel (PD) Pitch	5 um
QE	30% @ 940 nm
Modulation Freq	Configurable, up to 165 MHz
Global shutter	Yes. Global shutter, per-row readout.
Max Frame Rate	240 fps (phase image, =60 fps depth image in 4 phase config)
Frame Modes	Configurable, e.g.: 4 phases/ 8 phases (with configurable integration time) with or w/ o gray/ background image
Image Transformations	2 x 2 binning, Region of interest, Sub sampling
Data/Control Interface	MIPI CSI-2 2lanes, 1Gbps per lane / I2C SPI for VCSEL driver config
External Trigger	Configurable I/ O to sync with other image sensors
Data Output Modes	1. Continuous phase images
	2. Single trigger mode (by register or IO)
Power Supply	1.2 V, 1.5 V, 1.8 V (Optional), 2.7 V
IC Power Consumption	< 2000 mW
Package	Bare die or WLCSP 90-ball 4.6 mm x 5.7 mm
FOV	64° x 50°
Ranging	3m (outdoor sunlight, 18% reflectivity object)
Accuracy	1%@ whole range
Laser Wavelength	940 nm / 850 nm
Laser Peak Power	3 W
Sunlight Resistance	90k lx
System Power Consumption (TX part included)	600 mW (15 fps, 1000 us int-time, dual modulation frequency 20 MHz& 100 MHz)

dToF Series Laser Range Finder Module



Key Index	Measuring ranging	0.03 m ~ 20 m
	Precision	± (1.5 mm+ D x 0.05%)
	Measuring speed	0.1 s - 4 s
	Wave length	620 nm ~ 690 nm
System parameter	Operating environment	Indoors& Semi-outdoors
	Operating temperature	-20 °C ~ 50 °C
	Storage temperature	-25 °C ~ 70 °C
	Safety class	CLASS 2
	Size	≤42 mm x 17.2 mm x 7.1 mm
	Weight	≤5 g
Electric parameter	Communication interface	UART
	Power supply interface	DC 5521
	Supply voltage	DC 2.5 V - 3.3 V
	Peak power consumption	3.3 V/ 300 mA

Product Features

- Smart in size
- Low power consumption
- High precision

dToF Series Laser Range Finder Module

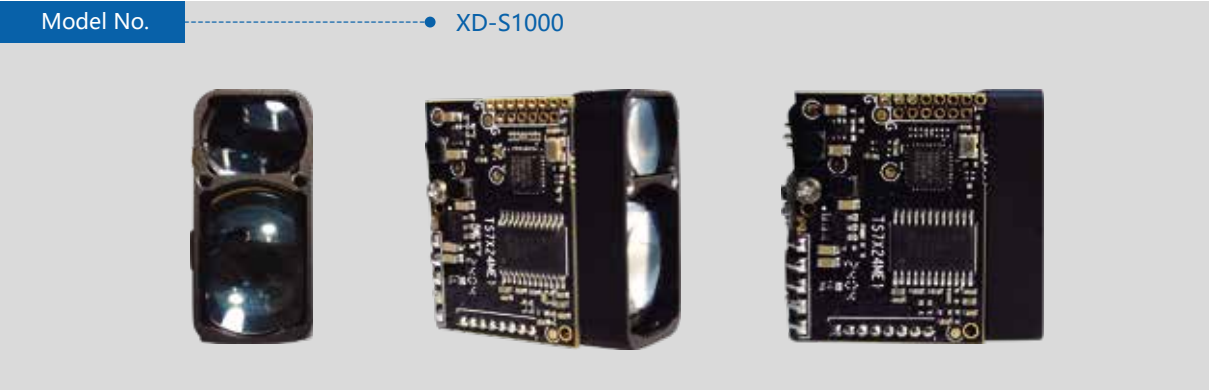


Key Index	Measuring ranging	0.1 m ~ 40 m
	Precision	±3 cm@ (0.1 m~5 m) , 1% x D>5 m
	Frame rate	100 fps
	FOV	< 2°
	Temperature compensation	Yes
	Reflectivity correction	Yes
	Wave length	605 nm
	Laser indication type	650 nm wave length; single point/ cross spot optional.
System parameter	Operating environment	Indoors& outdoors
	Operating temperature	-20 °C ~ 50 °C
	Storage temperature	-40 °C ~ 85 °C
	Size	≤23.2 mm x 22 mm x 17 mm
	Weight	≤10 g
Electric parameter	Communication interface	UART
	Supply voltage	5 V
	Peak power consumption	≤400 mW
	Baud rate	921600 bps

Product Features

- Smart in size
- Narrow FOV
- Eye-safe
- Light in weight

dToF series Laser Range Finder Module



Key Index	Measuring ranging	5 m ~ 1000 m
	Precision	±1 m
	Measuring frequency	≤ 4 Hz
	Measurement of dip angle	±90° (two orientations), tolerant: <±1 °
	Laser emission angle	~6 mrad
	Firing aperture	Φ 10x7.5 mm
	Receiving aperture	Φ 15x10 mm
	Wave length	905 nm
System parameter	Operating environment	Indoors& outdoors
	Operating temperature	-20 °C ~ 60 °C
	Storage temperature	-30 °C ~ 60 °C
	Shock magnitude	1000 G.1 ms
	Size	≤25.8 mm x 24.6 mm x 12.9 mm
	Weight	≤ 10 + 0.5 g
Electric parameter	Communication interface	UART (TTL-3.3)
	Power supply interface	DC 5521
	Supply voltage	DC 3 V ~ 5 V
	Peak power consumption	≤650 mW
	Baud rate	115200 bps

Product Features

Smart in size

Narrow FOV

Far ranging

dToF Series Laser Range Finder Module



Key Indicators	Range	10~1500m	Can reach 1500~2000m
	Accuracy	±1m (d≤400米); ±d*0.4%(d>400米)	
	Ranging Frequency	≤2~4Hz	
	Laser Emission Angle	~6mrad	
	Emission Aperture	10x7.5mm	
	Receiving Aperture	15x10mm	
	Wavelength	905nm	
	Safety Level	Class 1 Eye safe	
System Parameters	Operating Environment	Indoor&Outdoor	
	Operating Temperature	-30°C ~ 60°C	
	Storage Temperature	-30°C ~ 80°C	
	Shock Level	1200G.1ms	
	Structural Dimensions	≤24.6mm x13.55mm x25.72mm	
	Weight	10+0.5g	
Electrical	Communication Interface	UART(TTL3.3V)	
	Power Interface	SM06B-SURS-TF(LF)(SN)	
	Supply Voltage	DC3V~5V	
	Average Power Consumption	≤600mW	
	Baud Rate	115200bps	

Product Features

Small size

Long ranging distance

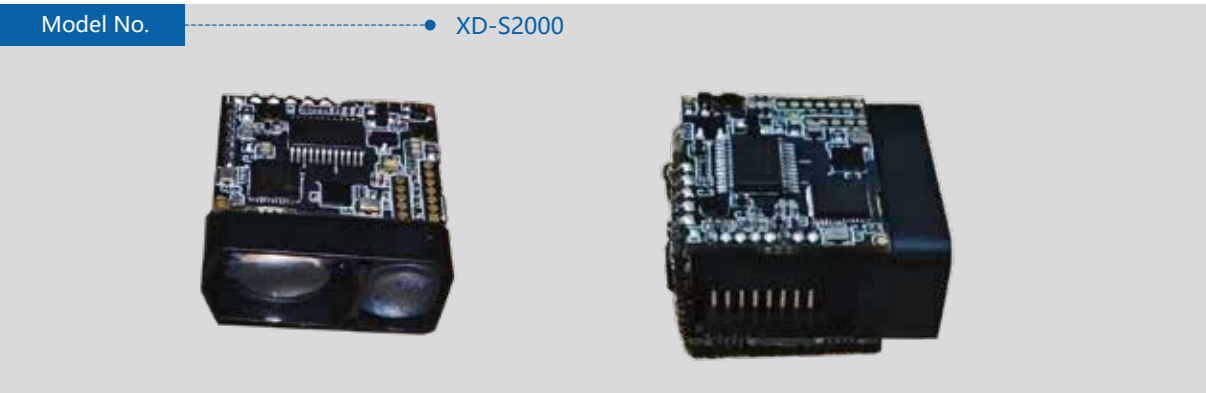
Wide operating temperature range.

Light weight

High precision

Low power consumption

dToF Series Laser Range Finder Module



Key Indicators	Range	10~2000m	Can reach 2000~2500m
	Accuracy	±1m (d≤400m); ±d*0.4‰ (d>400m)	
	Ranging Frequency	≤1~4Hz	
	Laser Emission Angle	~7°3mrad	
	Emission Aperture	10x7.5mm	
	Receiving Aperture	15x10mm	
	Wavelength	905nm	
	Safety Level	Class 1 Eye Safe	
System Parameters	Operating Environment	Indoor&Outdoor	
	Operating Temperature	-30°C ~ 60°C	
	Storage Temperature	-30°C ~ 80°C	
	Shock Level	1200G.1ms	
	Structural Dimensions	≤24.6mm x13.55mm x25.72mm	
	Weight	10±0.5g	
Electrical	Communication Interface	UART(TTL3.3V)	
	Power Interface	SM06B-SURS-TF(LF)(SN)	
	Supply Voltage	DC3V~5V	
	Average Power Consumption	≤600mW	
	Baud Rate	115200bps (default)	

Product Features

- Compact size
- Light weight
- Low power consumption
- Longer ranging distance up to 200m, and wide operating temperature range.

dToF Series Laser Range Finder Module

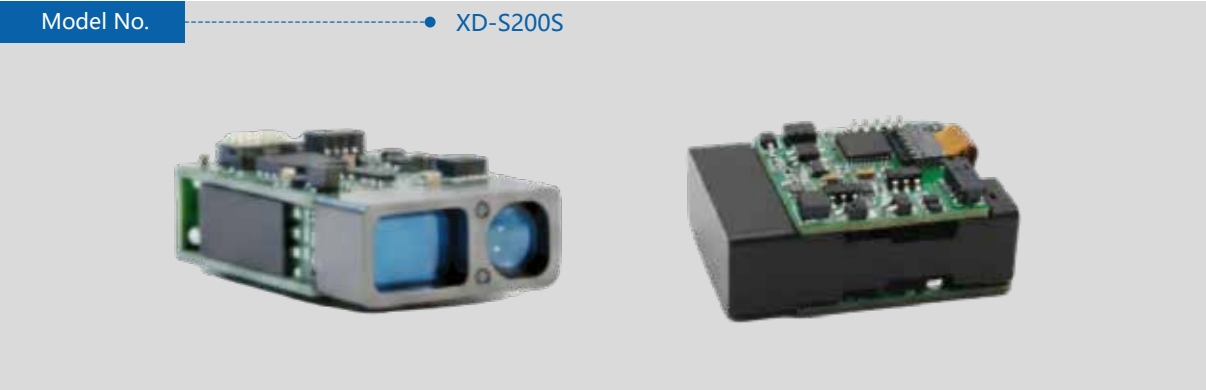


Key Indicators	Range	10~700m	Can reach 2000~2500m
	Accuracy	±1m (d≤400m); ±d*0.4‰ (d>400m)	
	Ranging Frequency	≤1~4Hz	
	Laser Emission Angle	~7°3mrad	
	Emission Aperture	10x7.5mm	
	Receiving Aperture	15x10mm	
	Wavelength	905nm	
	Safety Level	Class 1 Eye Safe	
System Parameters	Operating Environment	Indoor&Outdoor	
	Operating Temperature	-30°C ~ 60°C	
	Storage Temperature	-30°C ~ 80°C	
	Shock Level	1200G.1ms	
	Structural Dimensions	≤24.6mm x13.55mm x25.72mm	
	Weight	10±0.5g	
Electrical	Communication Interface	UART(TTL3.3V)	
	Power Interface	SM06B-SURS-TF(LF)(SN)	
	Supply Voltage	DC3V~5V	
	Average Power Consumption	≤600mW	
	Baud Rate	115200bps (default)	

Product Features

- Ultra-small front window
- Low power consumption
- Light weight,
- High precision.

dToF Series Laser Range Finder Module



Key Indicators	Range	0.1~1200m	
	Accuracy	±1m (d≤400m); ±d*0.4%m (d>400m)	
	Ranging Frequency	≤2~4Hz	
	Laser Emission Angle	~5*5mrad	
	Emission Aperture	5.4 mm	
	Receiving Aperture	8.4*5.4 mm	
	Wavelength	905nm	
	Safety Level	Class 1 Eye Safe	
System Parameters	Operating Environment	Indoor&Outdoor	
	Operating Temperature	-20°C ~ 60°C	
	Storage Temperature	-30°C ~ 80°C	
	Shock Level	1200G.1ms	
	Structural Dimensions	≤10.2mm x 16.5mm x 25.2mm	
	Weight	6.5 ± 0.5g	
Electrical	Communication Interface	UART(TTL3.3V)	
	Power Interface	HDGCO60IWR-S-8P	
	Supply Voltage	DC3V~5V	
	Average Power Consumption	≤ 450mW	
	Baud Rate	115200bps (default)	

Product Features

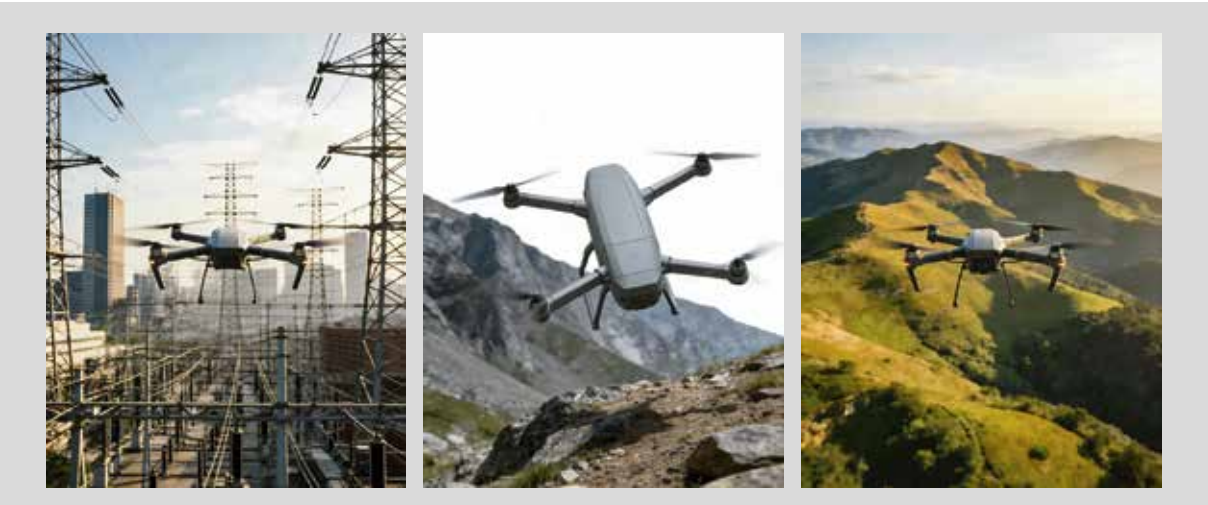
- Ultra-small compact size
- Low power consumption.
- Super light weight to 6.5g/pcs

UAV APPLICATION

Application Proposal Description

This laser ranging module is specially designed for UAV applications as an ultra-long-range, high-reliability core ranging unit. Developed with 905nm eye-safe laser, it is equipped with self-developed high-precision calibration algorithms. Its ultra-small size and lightweight design perfectly meet the integration requirements of UAV airframes.

It supports core UAV functions including altitude hold, obstacle avoidance, terrain mapping, long-distance detection, and precise positioning. Featuring wide temperature resistance, shock resistance, low power consumption and long endurance, it adapts to full-condition indoor and outdoor UAV flights. It also provides a standard UART communication interface and a complete protocol command set for quick integration with UAV flight controllers, greatly improving the accuracy and safety of UAV operations.



Key Index

Measuring range: 10~2000m	Suitable for indoor and outdoor use
Measuring accuracy: ±1m (d ≤ 400m); ±(d×0.4%) m (d > 400m)	Dimensions: ≤24.6mm×13.55mm×25.72mm
Ranging frequency: ≤1~4Hz	Weight: 10±0.5g
Storage temperature: -30°C~80°C	Shock resistance: 1200G, 1ms

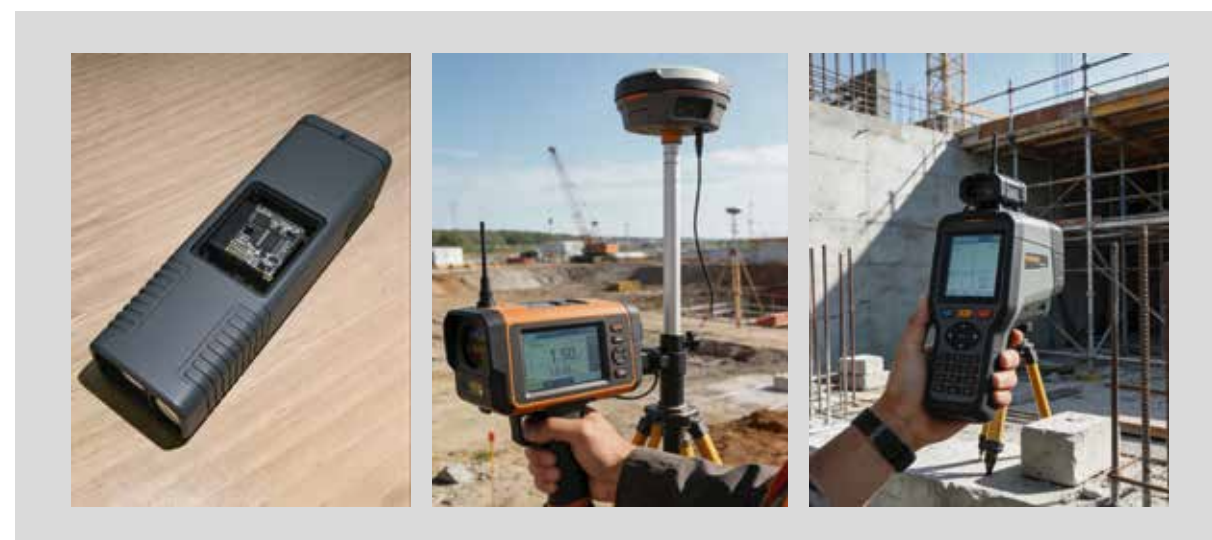
Proposal Features

- Ultra-long ranging for long-distance UAV operations: 10-2000m measuring range meets terrain survey and long-distance detection needs, with graded accuracy ensuring precision even at long distances.
- Eye-safe design for risk-free operation: Class I laser safety level with 905nm infrared laser, no eye damage during flight, suitable for various compliant scenarios.
- Ultra-compact and lightweight for perfect UAV integration: millimeter-level size and only 10g weight, no extra flight load, can be flexibly built-in or externally mounted without affecting aerodynamic layout.
- Low power consumption for extended flight time: low-power circuit design with average power consumption ≤600mW and standby power consumption only 1.5mW, reducing power load and effectively prolonging UAV operation time.

LASER RANGEFINDER

Application Scenarios Description

In scenarios such as interior decoration, engineering surveying and mapping, and outdoor exploration, the dToF handheld rangefinder enables fast and accurate measurement of distance, height and volume, improving measurement efficiency and reducing errors from manual measurement.



Key Index

Measuring range: 0.1~2000m

Measuring accuracy: $\pm 1\text{m}$ ($d \leq 400\text{m}$); $\pm (d \times 0.4\%)\text{m}$ ($d > 400\text{m}$)

Ranging frequency: $\leq 1\sim 4\text{Hz}$

Minimum target size: $1\text{cm} \times 1\text{cm}@0.5\text{m}$ / $5\text{cm} \times 5\text{cm}@10\text{m}$

Target reflectivity: 0.1~100%

Strong sunlight resistance: $>90\text{K LUX}$

Ingress protection rating: IP65

Detection rate: $>99\%$

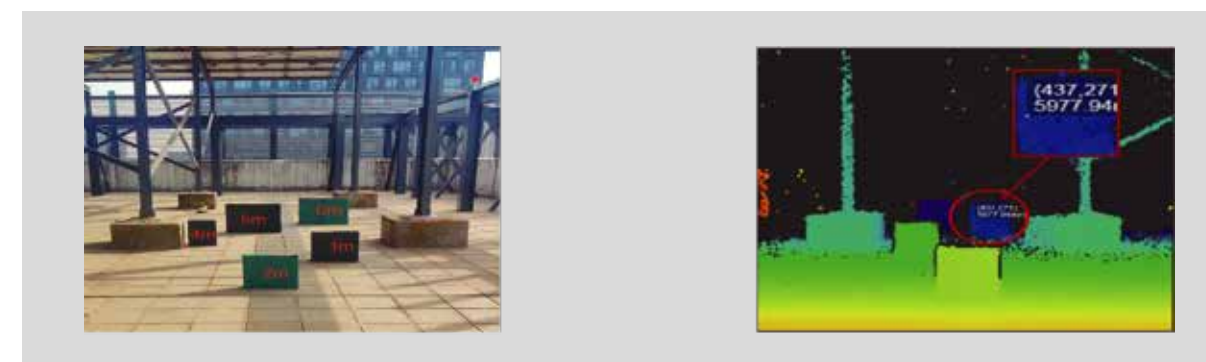
Proposal Features

- Ultra-long measuring range: 0.1~2000m ultra-long range with graded high-precision measurement, meeting long-distance ranging requirements of rangefinders
- Eye-safe design: Class 1 laser safety level, 905nm semiconductor laser, no risk of eye damage during use
- Self-developed precision algorithms: equipped with high-precision calibration and correction algorithms to ensure ranging accuracy and reduce measurement errors
- Ultra-compact integration: millimeter-level compact size, only 10g lightweight design, easily embedded into the rangefinder body without occupying extra space

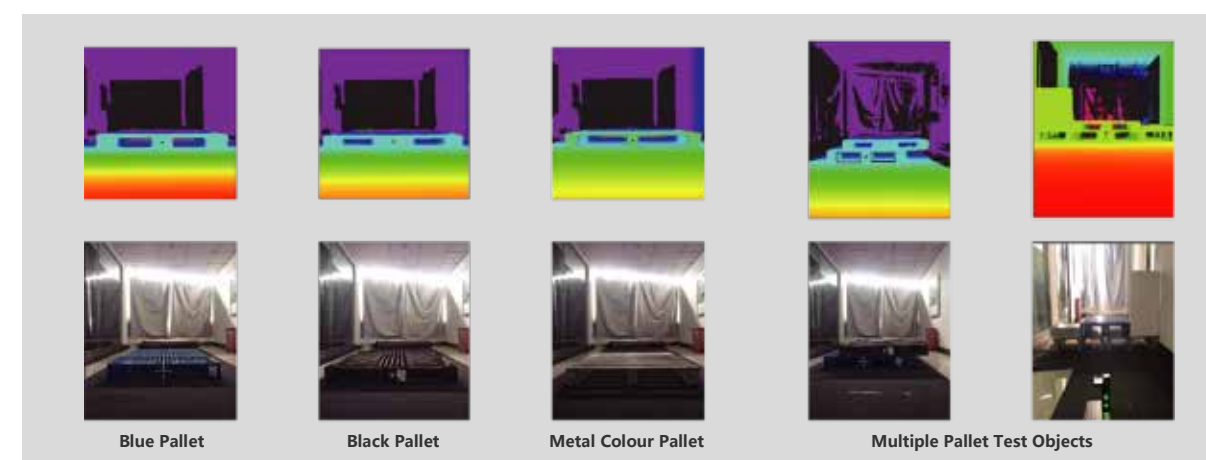
ToF Camera Products Test Show

Sample model:X-D500

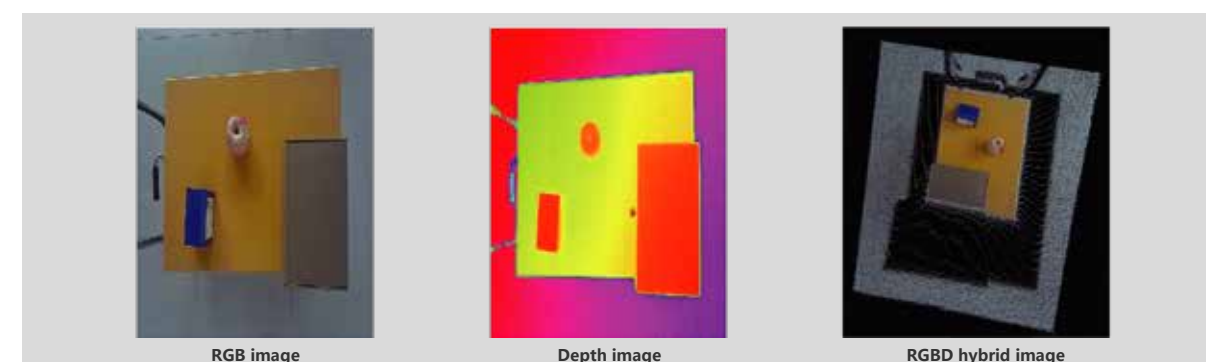
Anti-glare Capacity Test Outdoor in Strong Light



Pallet Identification Capability Tests Result Display



RGBD to 3D Point Cloud Imaging Display



Passenger Flow Statistics (People Counting)

Application Scenarios Description

combine with 3D system, the ToF camera is applied in shopping mall,metro station,terminal building on elevator and all kinds of gate machines. It counts up the number of passerby through 3D imaging tech and AI algorithm, which achieve the passenger management and in the premise of outstanding privacy protection.



Key Index

Resolution ratio: 320x240 Wave band: 940 nm
 Frame rate: 20 fps Data interface: Network interface
 Accuracy rate: >98% Anti-glare capability: >90k lx
 Installation type: Mounted face down on top of object in about 3 meters (product can be customized in case further detection range required).

Proposal Features

- Precisely counting with accuracy $\geq 98\%$.
- Two-way detection, direct output number of people entering and leaving.
- Built-in algorithm, easy to integrate quickly.
- By active light source, it can adapt to a variety of complex working environments.
- Effective protection of personnel privacy.

Automatic Pallet Recognition

Application Proposal Description

Assemble ToF camera in front of AGV bottom part slightly higher than the middle of two fork prongs, it can achieve pallet recognition capability of the AGV to automatically move goods onto and off shelves,trucks,flat ground etc.



Key Index

Recognized object: Standard two holes pallet.
 Effective detective range: Centre distance 1.5m-5m,deviation angle in $\pm 30^\circ$.
 Identification precision: ± 5 mm tolerance in x/y/z axis (centre distance is 1.2 m-2 m).
 $\pm 0.5^\circ$ tolerance in azimuth angle (centre distance is 1.2 m-2 m).
 Installation based correction: Yes.

Proposal Features

- Modular design enable easy&fast installation and effective cost down.
- Strong reliability, batch verification in multiple. scenariosenvironments.
- Built-in pallet recognition algorithm.
- Strong anti-interference capability: Anti-glare capability > 90k lx, multi-machine effect resistant.

Smart Medical & Health (medical assistance massage robot)

Application Proposal Description

X-Dynamics 3D iToF depth camera navigates through 3D positioning tech, equipping flexible manipulators of massage or physical therapy robot with calculation and manual manipulation planning by the 3D point cloud RGBD hybrid information to show the massage area on human body.



Key Index

ToF resolution ratio: 640 x 480
 RGB resolution ratio: 1920 x 1080 / 640 x 480
 FOV: 64° x 50°
 Power supply: DC (24V 2A)
 External interface: 100 M Ethernet
 IP grade: IP67
 Device size: 85 mm x 26.5 mm x 25.05 mm

Proposal Features

- Smart in size and easy to install, fit most of operating environments.
- Stable in quality and most cost-efficient.
- RGBD hybrid information obtained directly, supporting secondary development the relevant funtions.
- Class 1 degree for eye-safe.

Logistics Transportation Automatic Obstacle Avoidance (AGV/ AMR)

Application Proposal Description

Assembled ToF camera on the top front of AGV can replace single point laser radar to enable AGV obstacle recognition and automatic obstacle avoidance path planning.



Key Index

FOV: 64° x 50°
 Detection range: 0.2 m - 5 m
 Min. recognized target: 5 cm x 5 cm x 5 cm
 Output frame rate: 100 M Ethernet
 Correction supported: Yes

Proposal Features

- Modular design enable easy&fast installation and effective cost down.
- Strong reliability, batch verification in multiple scenariosenvironments.
- Built-in obstacle avoidance algorithm.
- Strong anti-interference capability: Anti-glare capability> 90k lx, multi-machine effect resistant.

Industrial Safe Security (Human approach warning)

Application Scenarios Description

In the forbidden district, 3D vision system deployed can timely catch and analyze the dynamic change data of object to trigger the linked safety alarm and emergency shutdown, thereby reduce the unexpected machine hang-up or personal safety accidents.



Vision device installation of industrial safe security system



Industrial safe security system structure



Human intrusion detection in robot workstation



Human intrusion detection in cooperative robotics workstation

Key Index

Precision: >99.9%
Measurement range: >10 m
Response time: 50 ms
Video recording: Automatic video recording at 1 minute before and after the event.
Reliability: self-check, automatic faults report.
Operating temperature: -40 °C ~ +60 °C

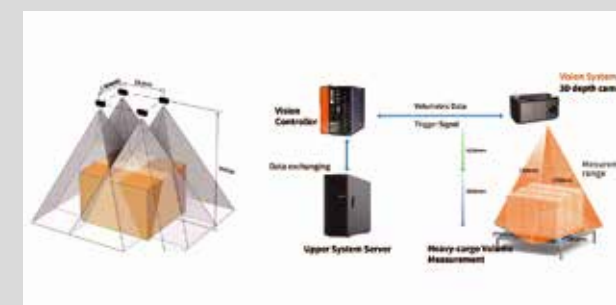
Proposal Features

- Wide field of view, non-blind area for the guard zone.
- Small size, easy to deploy.
- Unique event recording function.
- AI algorithm integrated, fast recognition response from edge units.
- Planar or three-dimensional area protection available.
- Exclusive human body recognition, more accurate in 3D camera area.

Cargo Volume Measurement

Application Scenarios Description

3D depth camera loaded in DWS can accurately measure the length, width and height information of static objects and output cargo volume data to automated logistics management system, perfectly replace the traditional manual measurements, energized intelligent logistics by cost decreasing and benefit increasing.



Key Index

Measurement accuracy: $\pm 5\text{mm}$
Measurable size range: 5 x 5 x 5 cm - 80 x 80 x 80 cm
Measuring time: 1 s/ pcs
Anti-glare: >90k lx

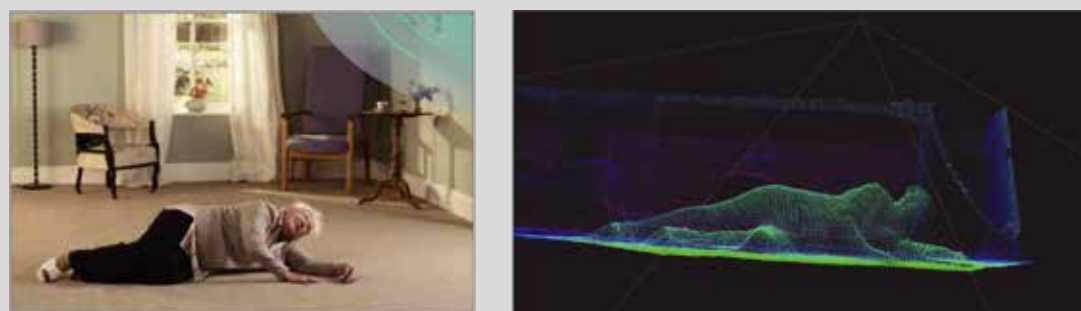
Proposal Features

- Active light source based, adapted to a variety of measuring apparatus and logistics scenarios.
- Combined 3D TOF technology and high-precision calibration algorithm to quickly obtain accurate cargo volume data.
- High measurement accuracy, up to millimeter degree.
- Large field of view, large coverage area to detect.
- Supporting the simultaneous use of multiple cameras, by image stitching it can deal with the volume measurement of oversized/irregular objects.

Human Body Posture Recognition

Application Scenarios Description

3D vision system deployed trace the human body posture change and distance data to obtain conclusion of human body state such as calling for help, stumble or fall. During the care for the elderly and children, motion-sensing interactive games and some VR/ AR applications, ToF camera fit well in diversified integration solution.



Key Index

Resolution ratio: 640 x 480 / 320 x 240	Frame rate: 20 fps
FOV: 105°x 75°	Distance range: > 5 m
Recognition accuracy: ≥ 99%	Multi-target: Multi-target detection supported.
Safety class: CLASS 1 (eye-safe)	

Proposal Features

- Compared with the traditional 2D vision system, it can capture three-dimensional information of multi-object and make more accurate judgment.
- Not affected by strong light or weak night light, with higher reliability to reduce misjudgment.
- Can be used for online monitoring of the elderly, children, pets, etc., timely warning of risks.
- No acquisition of the subject's personal privacy information, higher privacy security.
- IP67 waterproof and active light source make the camera be subject to less external interference, enable hot and humid indoor or complex outdoor environment application.

Domestic Robots and Entertainment Robots

Application Scenarios Description

3D ToF tech used in the service robots including field mower and shopping guide robot mainly enable the object identification and obstacle avoidance capability.



Key Index

Resolution ratio: 640 x 480 / 320 x 240	Detective distance: > 5 m
frame rate: 20 fps	FOV: 105°x 75°
Anti-glare: ≥ 90 k lx	Accuracy rate: ≥ 99%
Soft class: CLASS1 (eye-safe)	IP grade: IP67

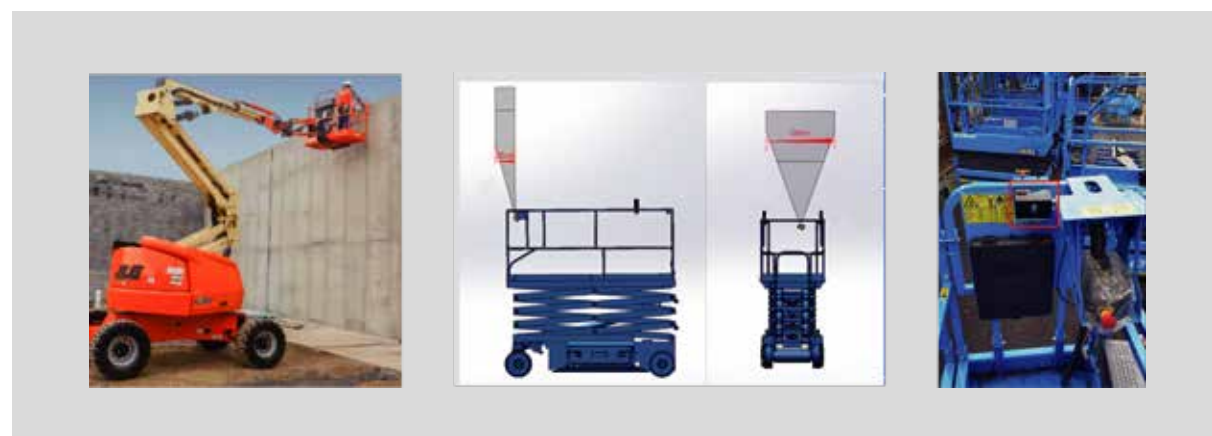
Proposal Features

- Compared with ultrasonic radar, it carry out stereoscopic monitoring of obstacles in the field of vision and judge more accurately.
- Compared with single point ToF, it is with no blind area and large field of vision.
- Not affected by strong light or weak light at night, it can be used outdoors under higher reliability with less misjudgment.
- With IP67 waterproof, it can be used in hot and humid outdoor environment keeping stable and reliable work.

Intelligent Heavy Industry(early warninkg and safety protection)

Application Scenarios Description

Installed 3D detective system device on the top and side wall of manned enclosure of large-scale mechanical equipment or in the operation area of industry robot arms to detect obstacles within a specific range, can identify and trigger alarm therefor effectively reduce the misoperation and unexpected accident.



Key Index

Obstacle avoidance distance: > 5 m (Outdoor light intensity > 90 k lx)

Min.object size: 3 cm x 5 cm@ 2m / 10 cm x 10 cm@ 5 m

Detective range: 0.2 m - 5 m@ 10% reflectivity (under the sunshine)

Anti-glare: >90k lx

IP Grade: IP67

Detection rate: >99%

Proposal Features

- High security: the detection rate is greater than 99%;
- High precision: Centimeter-level measurement accuracy, effectively avoid accidentally touch, collision and other safety accidents.
- Large FOV: wider field of vision, less blind area.
- Multi-sensor fusion: suitable for indoor, outdoor, glass objects and other application scenarios.
- Industrial standard high reliability: Adapt to a variety of complex industrial scenarios.
- Modular design: Rapid large-scale installation, cost saving.
- Based on self-developed AI algorithms, integrated customized solutions of hardware, software and algorithm can be provided.

Why X-Dynamics?

Systematized solutions providing

- Deeply customazied based on user scenarios
- Intergration of software and hardware

3D industry camera

- High precicion
- Standardized products

Self-owned core technologies

- High precision calibration algorithm, collection algorithm, ISP algorithm and AI application algorithm
- Unique optical structure design enable excellent anti-interference capabilities from messy ambient light, muti-path effect, and muti-machine effect.



Systematized solutions

- We accept customization based on user scenarios to deeply determine our software, algorithm, and whole proposals.
- One stop service for both hardware and software providing.



Self-owned core technologies

- Self-developed high precision calibration algorithm and collection algorithm.
- Anti-interference algorithms dealing with messy ambient light, muti-path effect and muti-machine effect.
- Self-owned post-processing algorithm help denoising, flying point removing and AI applications.



Professional 3D industry camera

We have a variety of cameras, can meet all kinds of needs about:

- Large filed of view
- High precision
- Far detective ranging
- Standardized products
- High reliability
- Array imaging