Vision for Imagination

MACHINE VISION
SMART PRODUCT CATALOG

Hikrobotics.com

HIKROBOT

Overview

SC1000 Series Vision Sensor
P16

- Resolution range 0.3MP~0.8MP
- It has vision tools such as existence, count, measurement, and recognition

SC2000E Series Vision Sensor
P18

- Resolution range 0.4MP~1.6MP
- It has existence, position, defect, logic, count, measurement and recognition vision tools

SC2000A Series Navigation Sensor
P22

- Support for wide field code reading and positioning
- Provide precise positioning information for AGV

SC3000 Series Vision Sensor
P24

- Resolution range 1.6MP~5MP
- It has existence, position, defect, logic, count, measurement and recognition vision tools

SC5000X Series Smart Camera
P28

- Resolution range 2MP~5MP
- It has VM Platform, including deep learning modules.

SC6000 Series Smart Camera
P30

- Resolution range 1.6MP~25MP
- It has VM Platform, including deep learning modules

ID800 Series Smart Code Reader
P48

- Compact fixed industrial code reader, various data interfaces, and large depth of field
- Suitable for retail, logistics, medical treatment, intelligent manufacturing, enterprise and public institutions.

ID2000 Series Smart Code Reader
P50

- Extremely small fixed industrial code reader, which can be embedded in automated machine equipment
- Suitable for lithium, packaging, consumer electronics and other industries

ID3000 Series Smart Code Reader
P54

- Compact fixed industrial code reader, high speed reading, high reading rate
- Suitable for lithium, consumer electronics, photovoltaic, panel, auto parts, tobacco and other industries

ID5000 Series Smart Code Reader
P56

- Full-featured fixed industrial code reader, large FOV
- Suitable for PCB, automotive, manufacturing, internal logistics, food and drug industries

ID6000 Series Smart Code Reader
P58

- Logistics industry special type high-resolution code reader
- Responding to complex logistics code reading application scenarios

ID7000 Series Smart Code Reader
P60

- Logistics industry special type smart line scan code reader
- Easily covers conveyor belts up to 1.4m wide

IDS Series Logistics Code Reader P62

- Core component products for code reading devices, standard and smart models available
- Integrates image acquisition, data processing and result output functions

IDH Series Handheld Smart Code Reader P64

- The handheld scanner with excellent user experience
- Applicable to PCB, 3C, auto parts, lithium, home appliance manufacturing and other industries

IDP Series Smart Mobile Terminal P70

- Intelligent PDA device with Android system
- Suitable for retail, logistics, intelligent manufacturing, warehousing, assets management, and other industries

3D Laser Profile Sensor P78

- Provides point cloud data, depth image, and brightness image with high frame rate and high accuracy up to micron level.
- Suitable for online, non-contact, and high precision 3D measurement application scenarios.

Line Laser 3D Camera P94

- Accurate measurement and output of dimensional information of target objects
- Suitable for express parcel dynamic 3D measurement application scenarios

RGB-D Smart Camera P96

- Output RGB-D image with high frame rate
- Suitable for volume measurement, goods recognition and location

VC2000 Series Vision Controller P100

- Equipped with Intel high-performance CPU, equipped with rich data acquisition and control interface
- Compact in design, it provides a complete solution for multi-camera simple vision applications

VC3000 Series Vision Controller P102

- Devices for control and processing of vision inspection with strong arithmetic power, as well as rich data acquisition and control interfaces
- Good compatibility of machine vision components in positioning, inspection, measurement, identification and other tasks

VC5000 Series Vision Controller P106

- A high-performance AI edge vision computing platform
- Flexible modular design, meeting the extended requirements of acquisition interface or graphics card in machine vision

VT2000 Series TouchScreen PC P108

- Equipped with Intel Elkhart Lake processor and multi-point capacitive touchscreen
- Used in simple multi-camera vision applications, providing more flexible choices for machine vision devices

VT3000 Series TouchScreen PC P110

- Equipped with Intel Elkhart Lake processor and multi-point capacitive touchscreen
- Used in simple multi-camera vision applications, providing more flexible choices for machine vision devices

VM Algorithm Development Platform P113

- Self-developed machine vision software with 140+ modules and tools
- Applications in machine vision applications such as visual positioning, dimensional measurement, defect detection, and information recognition

CodePlatform P119

- Comprehensive code reading software platform, including data acquisition, image processing, communication output, data statistics and other functions
- Suitable for flexible code reading needs of various complex scenarios in logistics enterprises

CONTENTS

Hangzhou Hikrobot Co., Ltd.

Hikrobot is a global product and solution supplier specialized in machine vision and mobile robot. Focusing on IIoT, smart logistics and smart manufacturing, we build open cooperation ecosystem, provide service to industry and logistics customers, and commit to continuously promoting the intelligentization and leading the intelligent manufacturing process.

Machine Vision

With efforts in industrial vision sensing application and hardware technology, the company provides customers with leading machine vision products. The products cover industrial camera, lens, vision box, industrial smart camera and related accessory.
Through rigorous EMC, safety and reliability tests, Hikrobot guarantees the high precision, high efficiency and high environmental performance of each product. The machine vision products are widely used in industrial automation sectors such as consumer electronics, semiconductors and logistics, as a part of the vision applications like positioning guidance, measurement, quality inspection, code reading, OCR, etc. They help users to greatly improve productivity, accuracy and stability.

Performance and Application of Smart Camera

Product Background

Industrial vision is widely used in food & beverage, cosmetics, pharmaceutical, building materials and chemicals, metal processing, electronics manufacturing, packaging, automotive manufacturing and other industries, and is still dominated by PC solutions. However, embedded (smart camera) solutions for automated factories, the solution is simple to operate and easy to maintain equipment, and is increasingly becoming the mainstream choice.

Smart camera is a highly integrated micro and small machine vision system that integrates image acquisition, storage, processing and communication functions into one, thus forming a multi-functional, modular, highly reliable and easy-to-operate machine vision solution. At the same time, due to the continuous iterative update of DSP, FPGA and a large number of storage technologies, its intelligence has been increasing to meet the needs of increasingly complex machine vision applications.

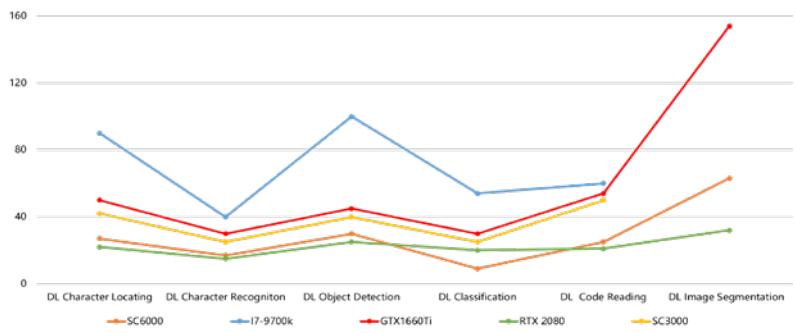
Key Features

- Resolution range 0.4MP~25MP, Support long-range and large FOV detection
- Built-in large-capacity storage space, support for cyclic saving pictures
- Includes traditional vision algorithms as well as AI deep learning, covering all types of detection
- Support a variety of industrial communication protocols
- IP65 or higher protection level, adapt to the harsh industrial application environment

Performance

- Rich operators and over 160 detection tools, providing various choices.

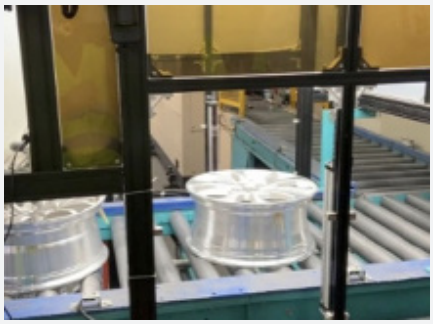
- Powerful computing platform to help more complex applications.



- One-button debugging parameters, automatic setting of brightness focus and white balance

Industry Cases

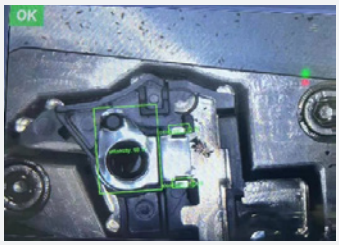
Automotive & Auto Parts Industry



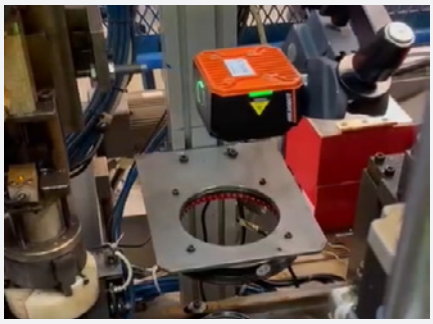
Error-proof detection of multi-model car wheels

On the complete vehicle assembly line, the SC camera can judge more than 1 hundred types of wheel categories and support instant update and modification of the set wheel type information.

Error-proof detection of metal dome before auto part assembly



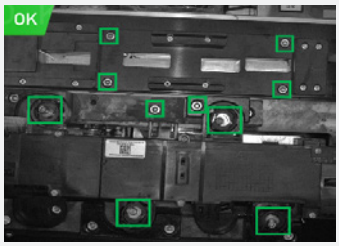
Before auto part assembly, it should be ensured that the right metal domes are used. The SC camera can detect the wrong metal dome and send an alarm to the mechanism to remove it, improving the manufacturing yield.

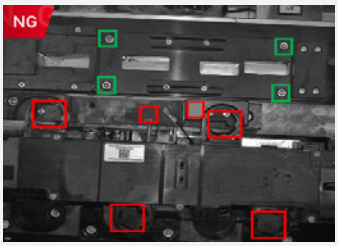


Error-proof detection of wheel bearing

In wheel bearing installation, it is required to check if the incoming wheel bearing is from the right batch, in the right direction, and upside-down. The SC camera, with its small size, requires less space for installation and provides a detection accuracy rate higher than 99.99%.

Car door handle screw installation detection

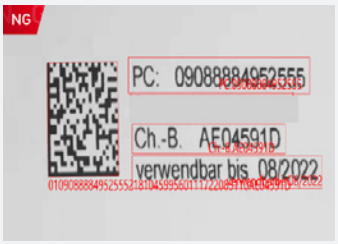




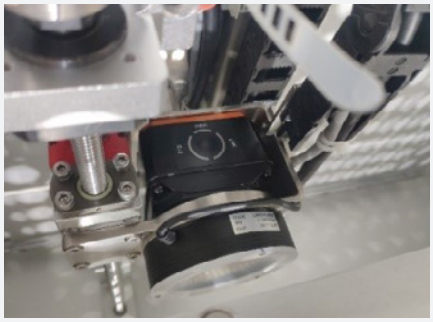
The screws in fixed positions should be checked when car door handles are installed. The SC camera can detect screws in multiple places at a time, compatible with scenes of different brightness and changed positions, providing an accuracy higher than 99.99%.

Medical Industry

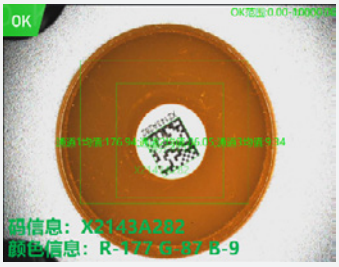
Pill box code traceability

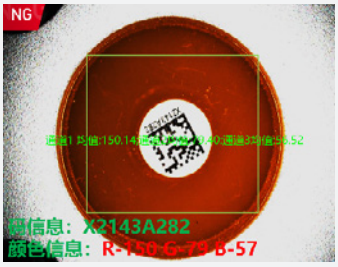


By using the AI method of OCR + code reading, up to more than 99.9% accuracy, it provides a more reliable and integrated solution for reading and identifying multiple information on the outer packaging of pharmaceutical boxes.

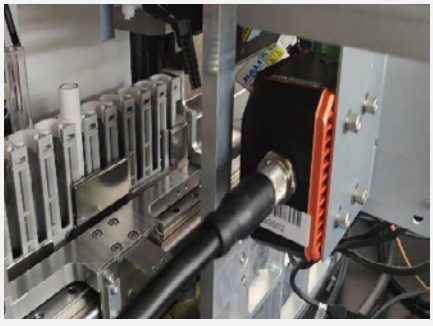


Medical culture test tube status tracking





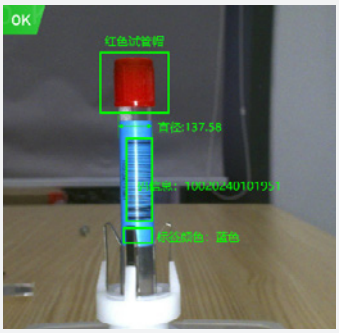
Bacteria ferment in the culture medium over time, showing different color changes in the test tube. the SC camera's ultra-high color reproduction can record the state changes of the culture medium in real time.

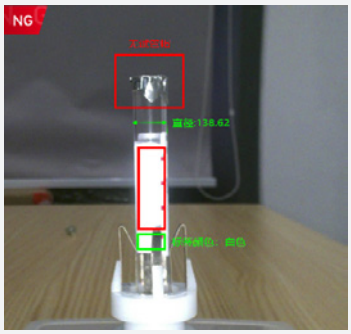


Pharmaceutical test tube multi-class judgment

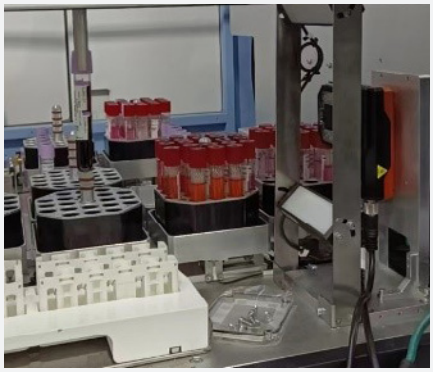
Arbitrary size, shape, label interference, blood color, etc. of the test tube does not affect the full autochemical detection of drug liquid test tube, the integrated camera can realize the sample container code identification, test tube category judgment, liquid level detection, etc.

Pharmaceutical test tube information detection

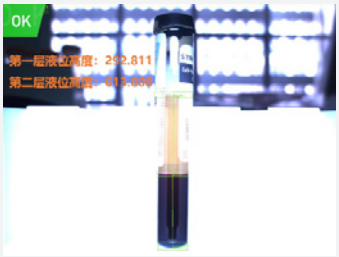


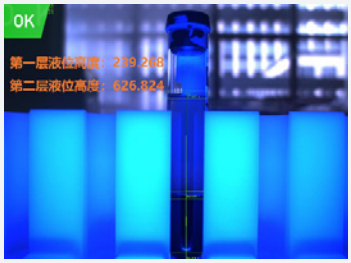


In automatic test of medical equipment, test tubes are rotated to check the cap presence, cap color, label information and tube type. The design of SC camera is optimized for medical industry, meeting all testing and data transmission requirements.



Pharmaceutical test tube liquid level measurement

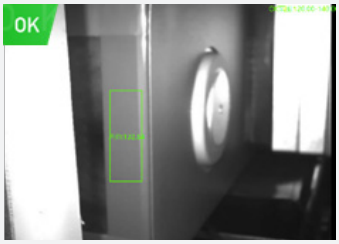


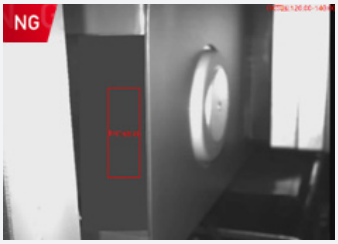


The liquid levels of plasma, buffy coat and red blood cells after centrifugation require to be tested, and the three levels are not fixed because of individual differences. The SC camera can correctly recognize the liquid level of different layers even with interference from the labels on the surface, providing high detection stability.

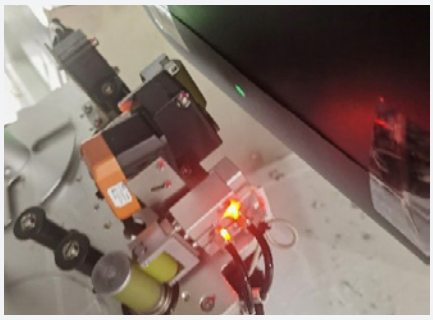
Lithium Industry

Lithium battery color detection

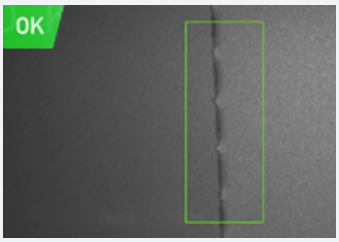


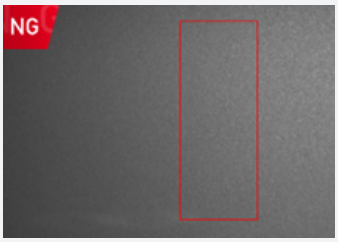


Compact models with efficient algorithms, 40ms can complete a test, 99.99% accuracy can ensure the accuracy of anti-error verification, integrated equipment installation, debugging, maintenance more convenient.

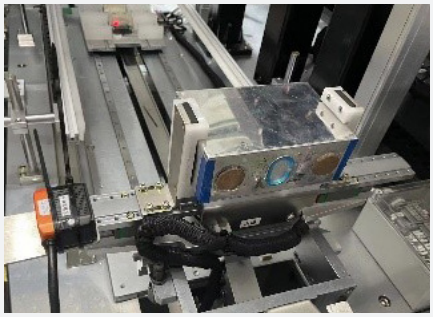


Lithium battery tab zigzag detection





With built-in AI learning algorithms, the SC camera can check the zigzag shape, size, position, warping, and folds after the cutting of the coiling machine. The detection takes only 50 ms and filters background changes, making it more applicable.



Inkjet interference in lithium battery information detection

Due to inkjet and other process interference resulting in more white dot interference with characters and codes, the use of AI method of OCR + code reading, can achieve up to 99.9% accuracy rate, effectively eliminate the leakage of spray, multiple spray, spray error, missing and other abnormal products.

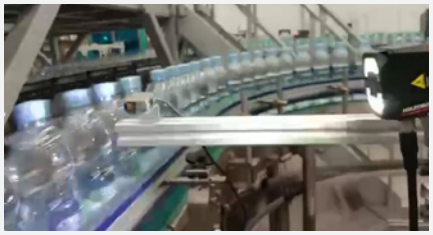
Packaging Industry

Package labeling guide ultra-high speed inspection

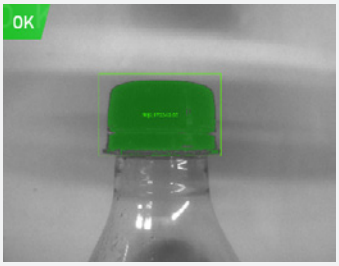
The labeling machine applies labels to bottles rotating at high speed, and the SC camera enables a full-flow high-speed inspection application from trigger to IO output, taking less than 40ms.

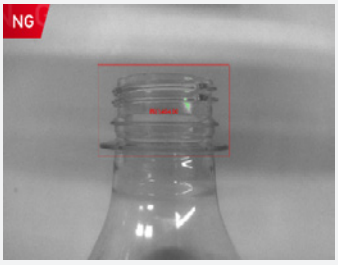
Food package number inspection

The number and direction of milk packages in a box should be checked on production line, and unqualified packages should be removed. The SC camera can meet this requirement with high stability and efficiency without being affected by any covering or tilting.

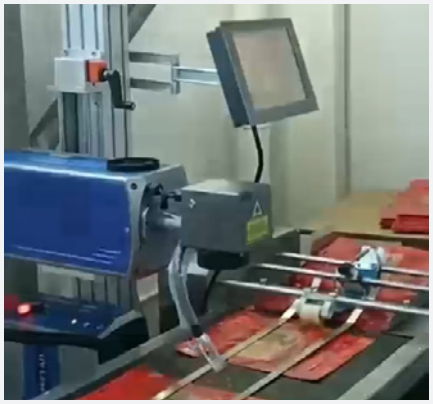


Bottle cap presence detection





On high-speed production lines, the SC camera can check the presence of bottle caps, and each detection takes only 30 ms. Bottles without caps or with caps in wrong colors can be removed, realizing ultra-high-speed detection.

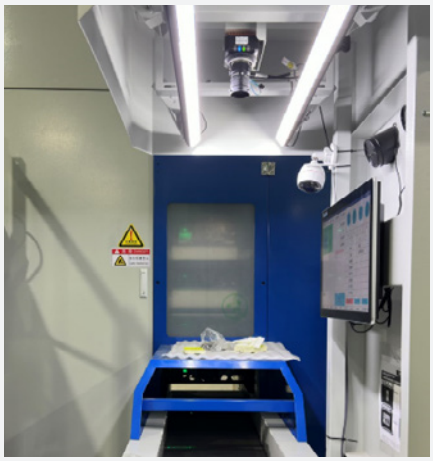


Marking machine label printing inspection

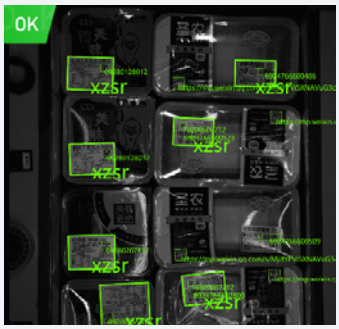
With a marking machine, the SC camera can detect and recognize the printing on labels, including code information, Chinese and English characters, logo presence, and printing defects such as excessive or insufficient inkjet. Dynamic label information in changing backgrounds or depths of field can also be detected.

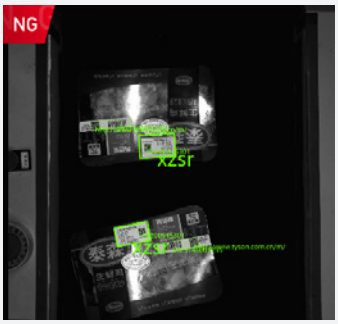
Food package defect detection

SC6000 AI smart camera can detect the defect of the package surface or sealing without being affected by stains. Defect type judgement is also supported, such as package adhesion, broken package, or wrong color. Its high accuracy reduces the cost of manual check and improves the food package quality.



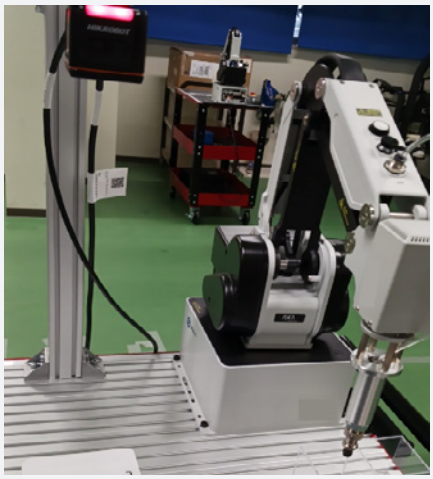
Inbound and outbound food detection



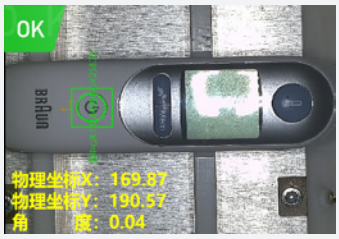


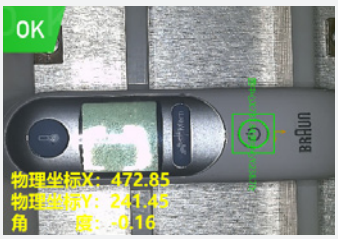
During food inbound and outbound, the food type should be detected and uploaded to MES for record. SC6000 AI smart camera can detect food type and code information of different food packages with high efficiency and accuracy, suitable for wide field of view and automatic information tracking.

Mechanical arm gripping scene



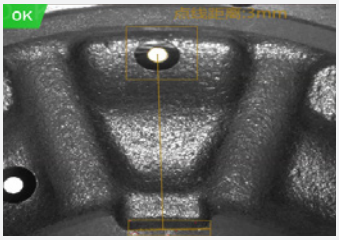
Mechanical arm guided product gripping

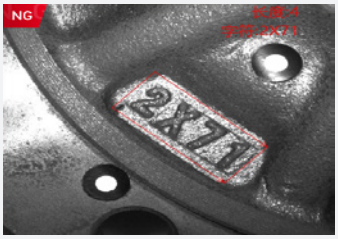




The SC camera is an integration of camera, light source, and algorithm. With mechanical arms, the SC camera can accomplish location and gripping and guided application of various products. Able to communicate and interact with different types of mechanical arms, it provides high stability and easy maintenance.

Mechanical arm multi-point detection

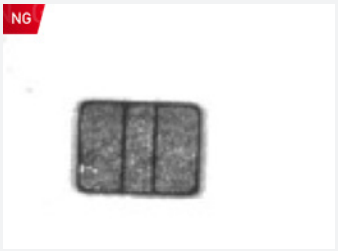




The SC camera can realize multi-point detection of workpieces, including presence detection, recognition, upside/downside detection, and measurement. No solution switching is required, as different instructions correspond to different detection types, meeting the requirement of high-speed detection in production on site. The small size of the SC camera also makes it easier to be installed on the mechanical arm.

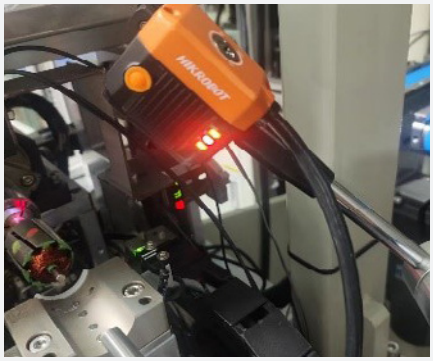
Manufacturing Industry

Vibrating tray feeder incoming material detection

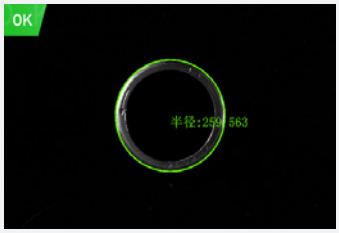


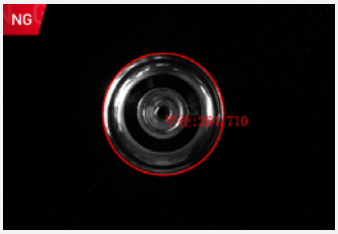
On vibrating tray feeders, the workpieces are in small size and the production is fast, and it is required to check if the incoming materials are placed upside-down or in the wrong direction. Unqualified materials are removed by the air blower. The SC smart camera error-proof detection is compatible with workpieces of all sizes, and with its high frame rate and excellent vision algorithm, the detection can be accomplished within 10 ms.

Photovoltaic Industry

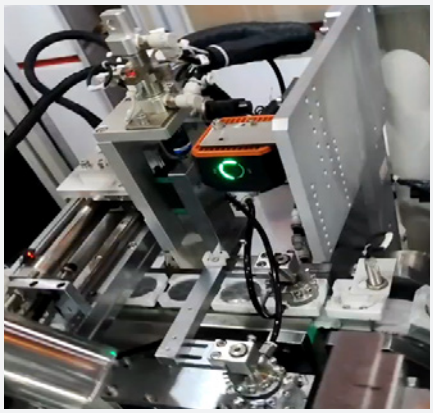


Workpiece dimension measurement

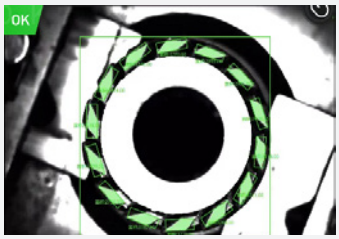


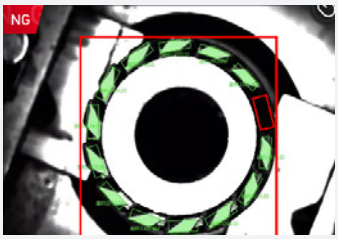


The SC integrated smart camera can detect the appearance and dimension of products for you to judge whether the product reaches the standard. With its small size, the camera can perfectly fit into the production device and detect with high efficiency and stability.

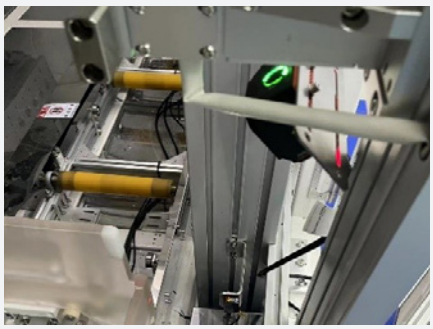


Error-proof detection of photovoltaic module

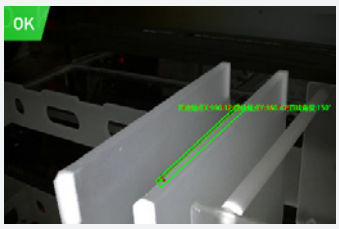


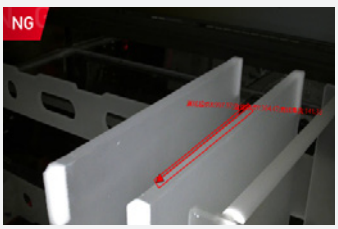


In photovoltaic module processing, error-proof judgement is required. The SC smart camera helps to ensure the precision and manufacturing yield of products and provides detection solutions with high stability.



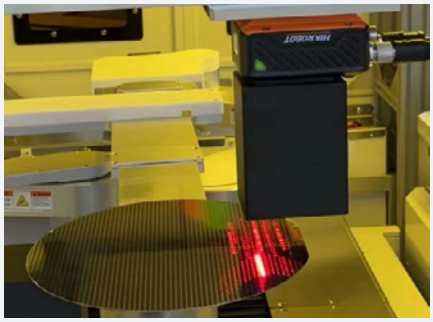
Photovoltaic quartz boat position detection



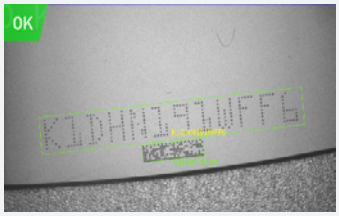


In silicon wafer production, quartz boat position detection is required for a more precise and efficient craft execution. The SC smart camera provides high accuracy with a deviation within 1 mm. It supports batch reproduction and data and image record for convenient tracking.

Semiconductor Industry



Silicon wafer SEMI font recognition

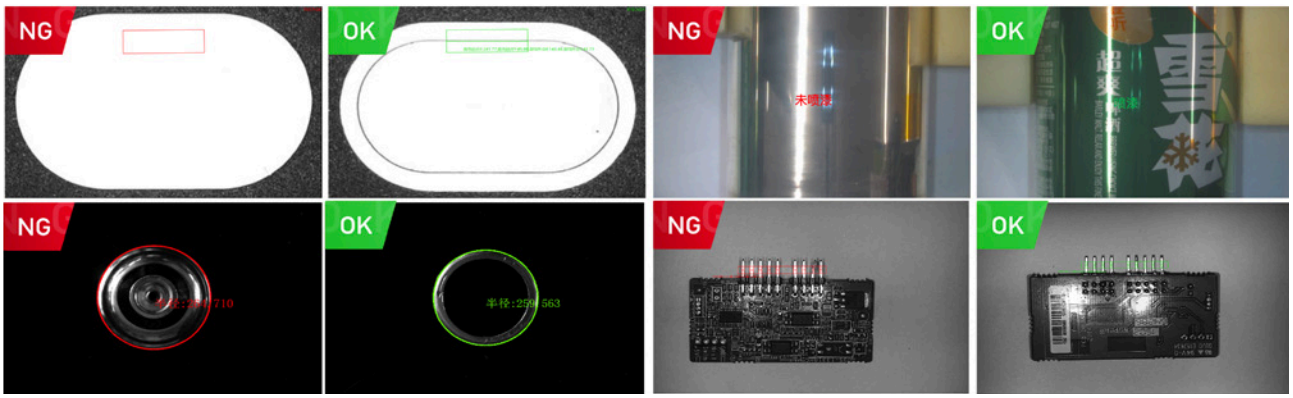


SC6500 is dedicated for silicon wafer SEMI font reading. Equipped with an advanced optical design and AI detection algorithms, it can recognize any character in the view automatically and precisely, with a reading rate up to 36,000 pieces per hour and a recognition accuracy over 99.9%.

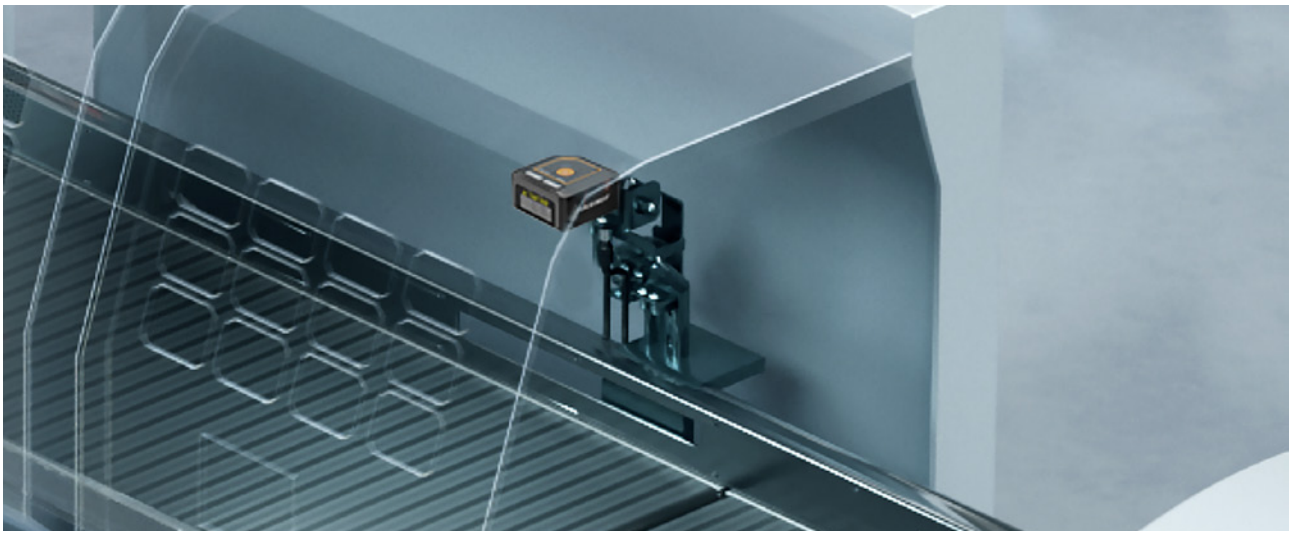
Smart Camera

SC1000 Series vision sensor

The SC1000 series has the smallest overall machine size. It integrates lighting, collection, processing, communication and other visual modules in a very small body, and can implement detection algorithms such as existence detection, forward/reverse detection, counting, size measurement, and AI registration classification. It covers the use of a single device for production quality inspection and other scenarios, and is more cost-effective.



- Internally integrated algorithms such as existence detection, forward/reverse detection, measurement, and AI registration classification can be used to replace various traditional position/measurement sensors, bringing a better choice for error-proofing detection in the automotive, new energy, consumer electronics and other industries.

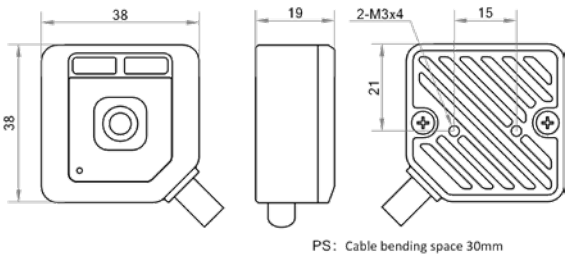


- The whole device is compact and can be installed freely in a small space, perfectly embedded in miniaturized machine equipment.

Specifications

Model	Vision tool	Pixel size	Sensor size	Resolution	Max. frame rate	Mono/ color	Focal length
MV-SC1003M	Count: Contour count, edge count, and spot count Whether or not: circles, lines, spots, edges, patterns Positioning: Position correction Logic: condition judgment, logic judgment, variable calculation Measurement: line Angle, diameter measurement, brightness mean, contrast measurement, width measurement, point line measurement, gray area, straight line Angle, pitch detection Recognition:classification registration	3.74 μm	1/6"	640 × 480	60 fps	Mono	3.1 mm
MV-SC1008M	Count: Contour count, edge count, and spot count Whether or not: circles, lines, spots, edges, patterns Positioning: Position correction Logic: condition judgment, logic judgment, variable calculation Measurement: line Angle, diameter measurement, brightness mean, contrast measurement, width measurement, point line measurement, gray area, straight line Angle, pitch detection Recognition:classification registration	2.7 μm	1/4"	1024 × 768	15 fps	Mono	4.9 mm

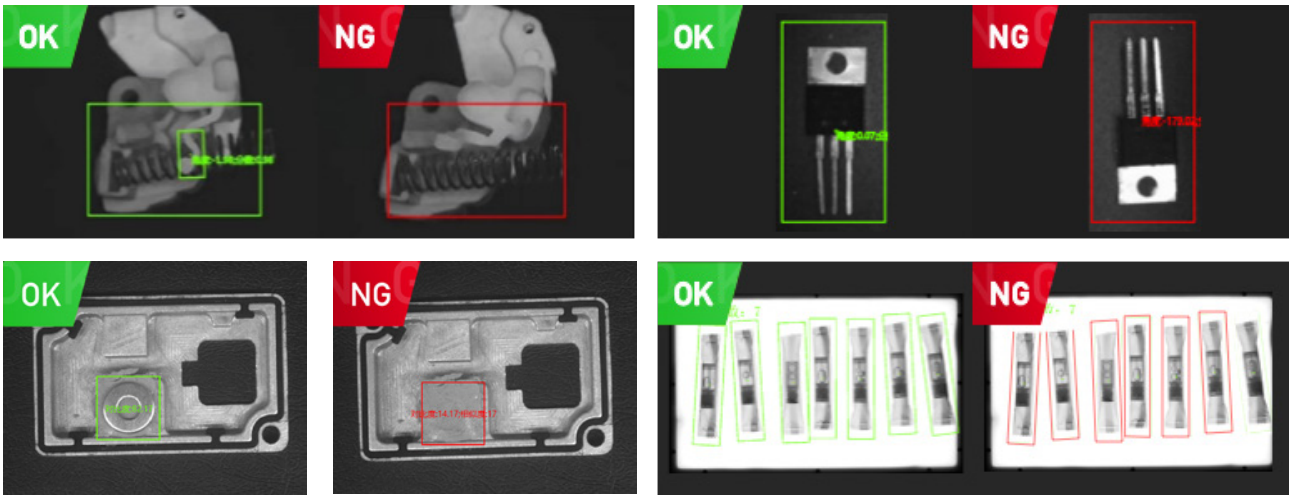
Dimension



Unit:mm

SC2000E Series Vision Sensor

SC2000E Series Vision Sensor integrates full functions of a vision system: lighting, acquisition, processing, and communication in minimal fuselage. Bring new choices for Y/N, P/N verifications with excellent performance in error-proofing detection scenarios.



- Comprehensive Error-proofing Detection Algorithm

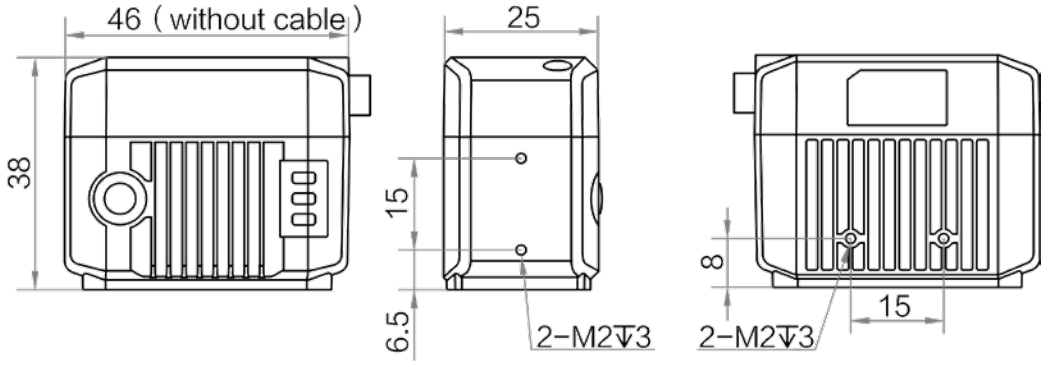
- Ultra-compact size

Specifications

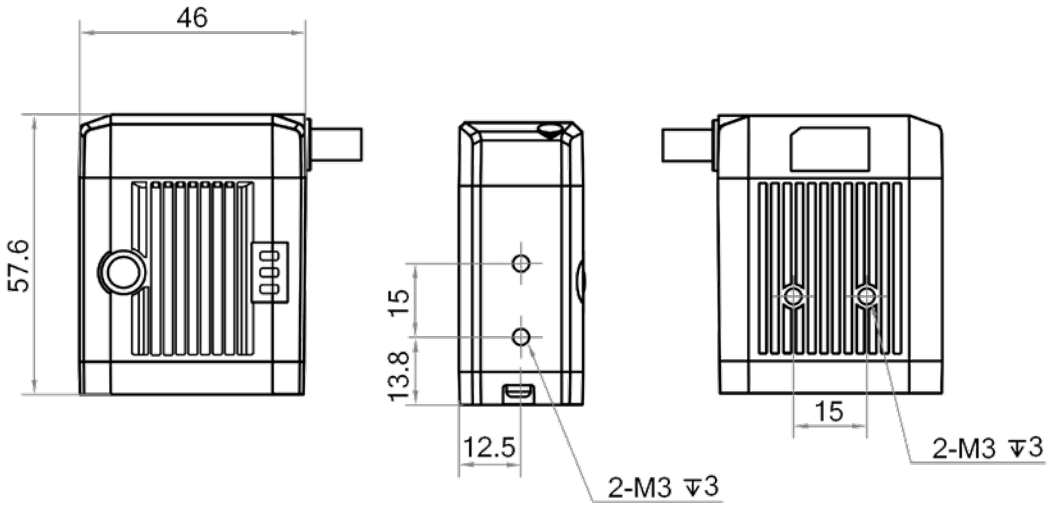
Model	Vision tool	Pixel size	Sensor size	Resolution	Max. frame rate	Mono/ color	Focal length	Label
MV-SC2004EM(Mini)	Count: Pattern count, Contour count, edge count, and spot count Existence: Circle existence, line existence, spot existence, edge existence, and pattern existence, Contour existence Location: Fixture Logic tool: Condition judge, character comparison, logic judge, and calculator Measurement: L2L angle, diameter measurement, brightness average value, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, and edge width measurement Recognition: OCR, character location,and classification registration	6.9 μm	1/2.9"	704 × 540	60 fps	Mono	6.72 mm	A
MV-SC2016EM(Mini)	Count: Pattern count, Contour count, edge count, and spot count Existence: Circle existence, line existence, spot existence, edge existence, and pattern existence, Contour existence Location: Fixture Logic tool: Condition judge, character comparison, logic judge, and calculator Measurement: L2L angle, diameter measurement, brightness average value, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, and edge width measurement Recognition: OCR, character location,and classification registration	3.45 μm	1/2.9"	1408 × 1024	60 fps	Mono	6.72 mm	A
MV-SC2004EM	Count: Pattern count, Contour count, edge count, and spot count Existence: Circle existence, line existence, spot existence, edge existence, and pattern existence, Contour existence Location: Fixture Logic tool: Condition judge, character comparison, logic judge, and calculator Measurement: L2L angle, diameter measurement, brightness average value, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, and edge width measurement Recognition: OCR, character location,and classification registration	6.9 μm	1/2.9"	704 × 540	60 fps	Mono	8/12.4/ 14.8mm	B

Model	Vision tool	Pixel size	Sensor size	Resolution	Max. frame rate	Mono/ color	Focal length	Label
MV-SC2004EC	Count: Pattern count,Contour count, edge count, and spot count Existence: Circle existence, line existence, spot existence, edge existence, and pattern existence, Contour existence Location: Fixture Logic tool: Condition judge, character comparison, logic judge, and calculator Measurement: L2L angle, diameter measurement, brightness average value, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement, and color size Recognition: OCR, character location,Color recognition,color contrast, and classification registration	6.9 μm	1/2.9"	704 × 540	60 fps	Color	8/12.4/ 14.8mm	B
MV-SC2016EM	Count: Pattern count, Contour count, edge count, and spot count Existence: Circle existence, line existence, spot existence, edge existence, and pattern existence, Contour existence Location: Fixture Logic tool: Condition judge, character comparison, logic judge, and calculator Measurement: L2L angle, diameter measurement, brightness average value, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, and edge width measurement Recognition: OCR, character location,and classification registration	3.45 μm	1/2.9"	1408 × 1024	60 fps	Mono	8/12.4/ 14.8mm	B
MV-SC2016EC	Count: Pattern count,Contour count, edge count, and spot count Existence: Circle existence, line existence, spot existence, edge existence, and pattern existence, Contour existence Location: Fixture Logic tool: Condition judge, character comparison, logic judge, and calculator Measurement: L2L angle, diameter measurement, brightness average value, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement, and color size Recognition: OCR, character location,Color recognition,color contrast, and classification registration	3.45 μm	1/2.9"	1408 × 1024	60 fps	Color	8/12.4/ 14.8mm	B

Dimension



A



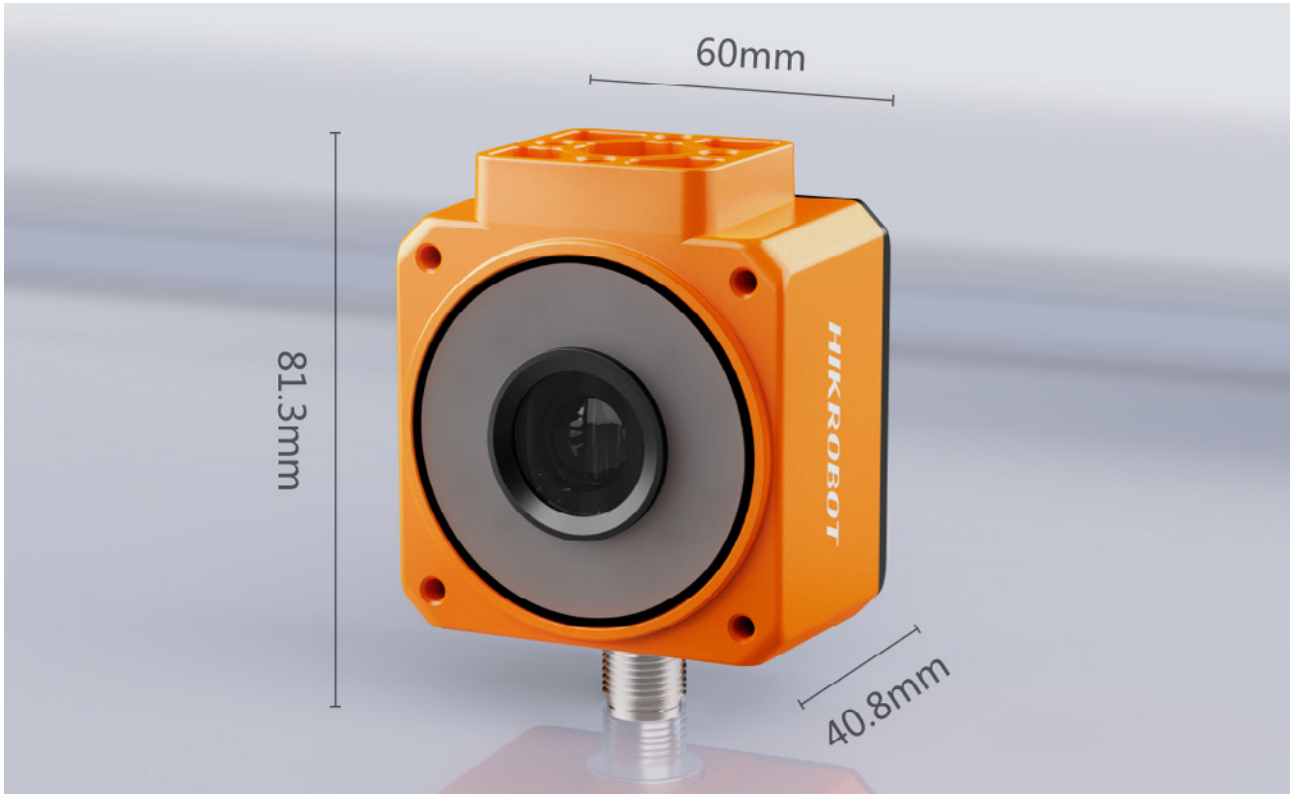
B

Unit:mm

SC2000A Series Navigation Sensor

SC2000A series navigation sensor is a navigation sensor developed specifically for AGV. With excellent hardware design and high-performance algorithms, the non-contact design can provide various positioning information for AGV cars stably, efficiently, and accurately. It is widely used in multiple industries such as unmanned warehousing, lithium-ion batteries, and photovoltaic systems.

- Built in multifunctional algorithms for efficient operation



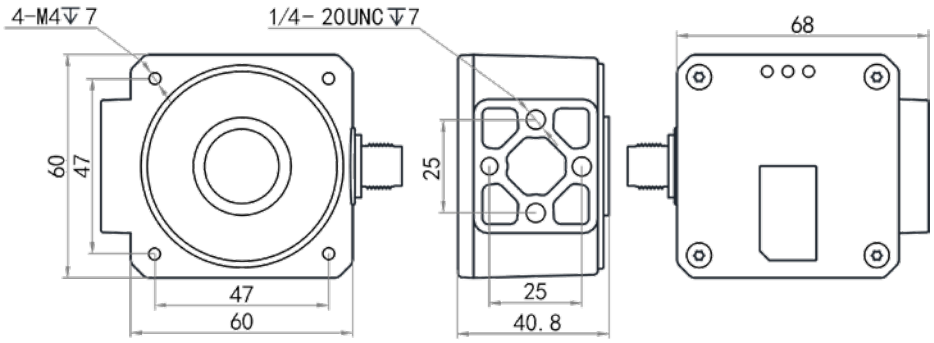
- Compact structure, perfectly embedded inside the AGV

Specifications

CE RoHS

Model	Pixel size	Sensor size	Resolution	Max. frame rate	Max. reading speed	Max.running speed	Mono/color	Focal length
MV-SC2005AM-02WBN	4.8 μm	1/3.6"	800 × 600	100 fps	100 codes/sec	3 m/s	Mono	2.5 mm
MV-SC2005AC-02WBN	4.8 μm	1/3.6"	800 × 600	96 fps	83 codes/sec	3 m/s	Color	2.5 mm
MV-SC2005AC-03WBN	4.8 μm	1/3.6"	800 × 600	96 fps	83 codes/sec	3 m/s	Color	3.4 mm

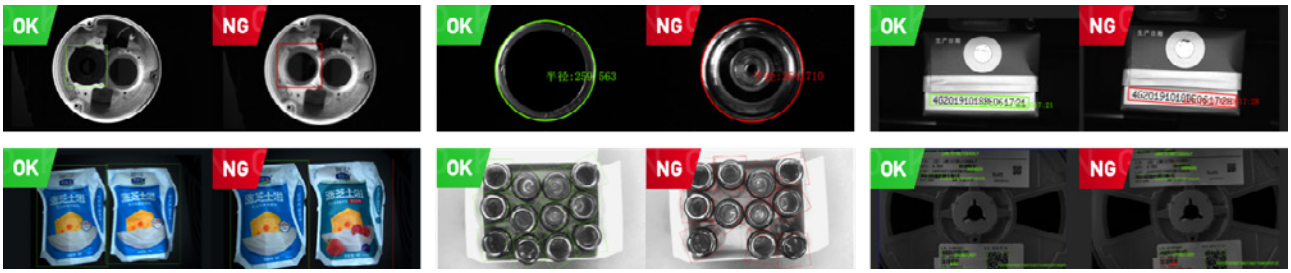
Dimension



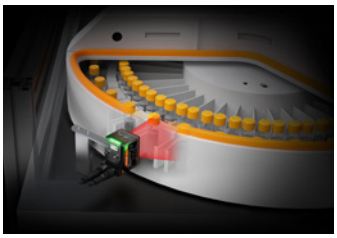
Unit:mm

SC3000 Series Vision Sensor

Integrated with imaging, processing and communication functions, the SC3000 series has a more compact size and the vision detection tools lead to better performance. Equipped with a new SCMVS for on-site deployment and lower debugging requirements, bringing a more comprehensive and cost-effective choice for visual inspection!



- Comprehensive Error-proofing Detection Algorithm



- Outgoing right angle design, supporting 180 degree rotation, flexible adaptation to narrow spaces

Specifications

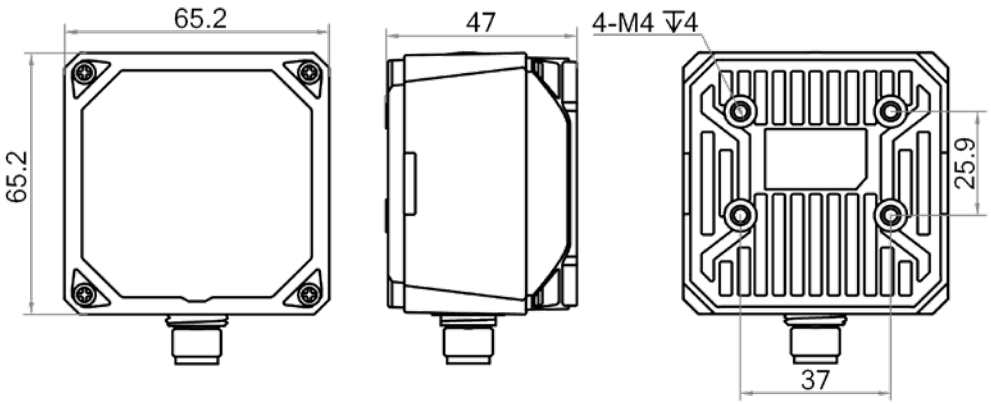
Mode	Vision tool	Pixel size	Sensor size	Resolution	Max. frame rate	Mono/ color	Focal length	Label
MV-SC3016M	Count: Pattern count, spot count, edge count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, code recognition Deep Learning: Object Detection, Classification	3.45 μm	1/2.9"	1408 × 1024	60 fps	Mono	6/12.4/ 14.8 mm	A
MV-SC3016C	Count: Pattern count, spot count, edge count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: Color size, L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, color contrast, code recognition, color recognition Deep Learning: Object Detection, Classification	3.45 μm	1/2.9"	1408 × 1024	60 fps	Color	6/12.4/ 14.8 mm	A

Mode	Vision tool	Pixel size	Sensor size	Resolution	Max. frame rate	Mono/ color	Focal length	Label
MV-SC3050M	Count: Pattern count, spot count, edge count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, code recognition Deep Learning: Object Detection, Classification	3.2 μm	1/1.7"	2368 × 1760	30 fps	Mono	8/12.4/ 16 mm	A
MV-SC3013XM	Count: Pattern count, spot count, edge count,outline count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence,outline existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, code recognition Deep learning: object detection, classification	6.9 μm	1/1.45"	1216 × 1024	60 fps	Mono	8/12/ 16 mm	B
MV-SC3013XC	Count: Pattern count, spot count, edge count,outline count,color count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence,outline existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, code recognition, color contrast, color recognition Deep learning: object detection, classification	6.9 μm	1/1.45"	1216 × 1024	60 fps	Color	8/12/ 16 mm	B
MV-SC3030XM	Count: Pattern count, spot count, edge count,outline count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence,outline existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, code recognition Deep learning: object detection, classification	3.45μm	1/1.8"	2048 × 1536	40 fps	Mono	8/12/ 16 mm	B

Mode	Vision tool	Pixel size	Sensor size	Resolution	Max. frame rate	Mono/ color	Focal length	Label
MV-SC3030XC	Count: Pattern count, spot count, edge count,outline count,color count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence,outline existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, code recognition, color contrast, color recognition Deep learning: object detection, classification	3.45 μm	1/1.8"	2048 × 1536	40 fps	Color	8/12/ 16 mm	B
MV-SC3050XM	Count: Pattern count, spot count, edge count,outline count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence,outline existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, code recognition Deep learning: object detection, classification	3.45 μm	1/1.45"	2448 × 2048	30 fps	Mono	8/12/ 16 mm	B
MV-SC3050XC	Count: Pattern count, spot count, edge count,outline count,color count Defect detection: Exception detection Existence: Pattern existence, spot existence, edge existence, circle existence, line existence,outline existence Location: Match location, match calibration, fixture Logic tool: If module, condition judge, logic judge, combination judge, string comparison, calculator Measurement: L2L angle, diameter measurement, brightness analysis, contrast measurement, width measurement, P2L measurement, greyscale size, line angle, edge width measurement Recognition: OCR, code recognition, color contrast, color recognition Deep learning: object detection, classification	3.45 μm	1/1.45"	2448 × 2048	30 fps	Color	8/12/ 16 mm	B

Dimension

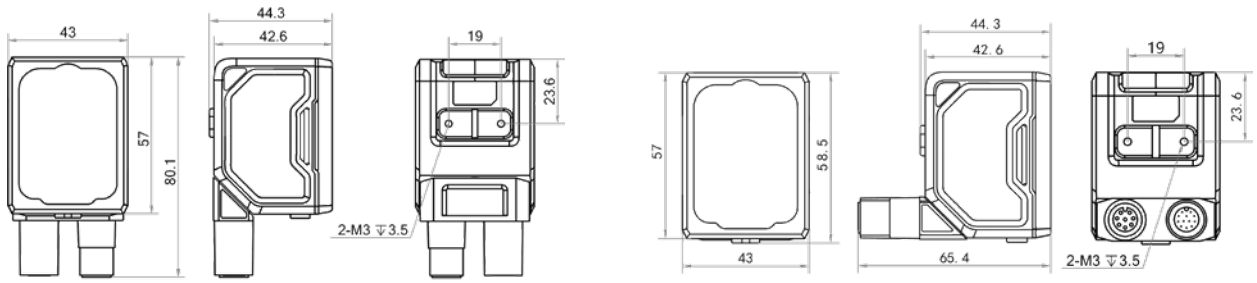
Unit:mm



A

straight angle

right angle



B

SC5000X Series Smart Camera

SC5000X series smart cameras have built-in VM algorithms based on high-performance embedded platforms. They have powerful processing capabilities while also taking into account high ease of use and strong flexibility.Combined with AI technology, they can significantly reduce application difficulty and implementation costs, help users quickly apply it in multiple industries and scenarios.

- The integrated smart camera provides more than 160 vision algorithms, which can easily handle everything from existence detection to complex defect detection, and can provide users with solutions that are not subject to industry restrictions.

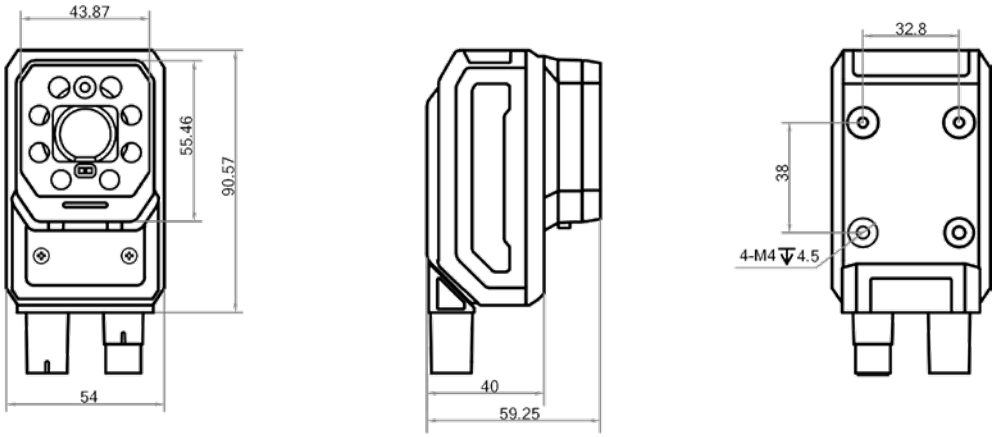
- The modular lighting design provides users with a variety of accessories such as lens cap and lamp panel to choose from, improving the application flexibility of smart cameras and their ability to cope with complex scenes.

Specifications

	Vision tool	Pixel size	Sensor size	Resolution	Max. frame rate	Mono/color	Focal length
MV-SC5020XM*	VM Platform (Including deep learning modules)	3.45 μm	1/2.53"	1632 × 1264	100 fps	Mono	6/12/16 mm
MV-SC5020XC*	VM Platform (Including deep learning modules)	3.45 μm	1/2.53"	1632 × 1264	100 fps	Color	6/12/16 mm
MV-SC5050XM*	VM Platform (Including deep learning modules)	3.45 μm	1/1.45"	2464 × 2064	60 fps	Mono	8/12/16 mm
MV-SC5050XC*	VM Platform (Including deep learning modules)	3.45 μm	1/1.45"	2464 × 2064	60 fps	Color	8/12/16 mm

Notice:* will be released soon.

Dimension

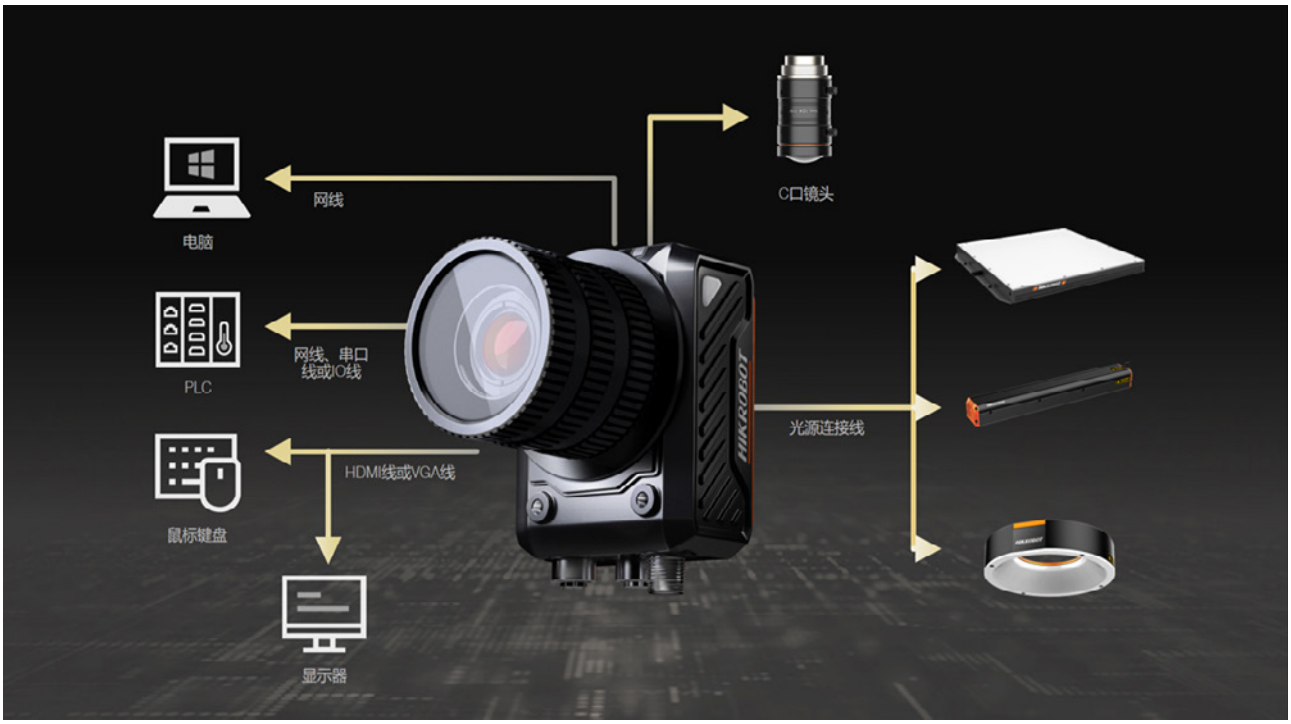


Unit:mm

SC6000 Series Smart Camera

SC6000 series smart cameras are developed based on high-performance embedded processors, with powerful hardware performance and fully functional VM Algorithm Development Platform. They can meet machine vision applications such as visual positioning, size measurement, defect detection, and information recognition. The highly integrated product form brings more choices for intelligent manufacturing.

- Built in over 160 visual tools, various deep learning algorithms

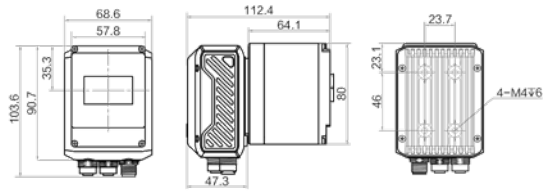


- Rich interfaces, breaking through limitations

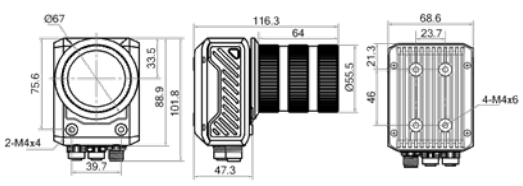
Specifications

Model	Function module	Pixel size	Sensor size	Resolution	Max. frame rate	Mono/color	Focal length	Label
MV-SC6016M	VM Platform (Including deep learning modules)	3.45 μm	1/2.53"	1408 × 1024	120 fps	Mono	6/12/16 mm	A
MV-SC6016C	VM Platform (Including deep learning modules)	3.45 μm	1/2.53"	1408 × 1024	120 fps	Color	6/12/16 mm	A
MV-SC6050M	VM Platform (Including deep learning modules)	3.45 μm	1/1.45"	2432 × 2048	80 fps	Mono	8/12/16 mm	A
MV-SC6050C	VM Platform (Including deep learning modules)	3.45 μm	1/1.45"	2432 × 2048	80 fps	Color	8/12/16 mm	A
MV-SC6016M-00C-NNN/V2	VM Platform (Including deep learning modules)	3.45 μm	1/2.53"	1408 × 1024	120 fps	Mono	/	B
MV-SC6016C-00C-NNN/V2	VM Platform (Including deep learning modules)	3.45 μm	1/2.53"	1408 × 1024	120 fps	Color	/	B
MV-SC6050M-00C-NNN/V2	VM Platform (Including deep learning modules)	3.45 μm	1/1.45"	2432 × 2048	80 fps	Mono	/	B
MV-SC6050C-00C-NNN/V2	VM Platform (Including deep learning modules)	3.45 μm	1/1.45"	2432 × 2048	80 fps	Color	/	B
MV-SC6120M-00C-NNN	VM Platform (Including deep learning modules)	3.45 μm	1/1.1"	4096 × 2944	40 fps	Mono	/	B
MV-SC6250M-00C-NNN	VM Platform (Including deep learning modules)	2.5 μm	1.1"	5120 × 5120	20 fps	Mono	/	B

Dimension



A



B

Unit:mm

List of Smart Camera Accessories

I/O Power Cables	Adaptation Series													
	SC2000E			SC2000A		SC3000			SC3000X/SC5000X			SC6000		
	Standard	High Flex/ Super Flex	Bend	Standard	Bend	Standard	High Flex/ Super Flex	Bend	Standard	High Flex/ Super Flex	Bend	Standard	High Flex/ Super Flex	Bend
1m	×	×	×	√	√	×	×	×	×	×	×	×	×	×
3m	√	√	√	×	×	√	√	√	√	√	×	√	√	√
5m	√	√	√	×	×	√	√	√	√	√	√	√	√	×
7m	√	√	×	×	×	√	√	×	√	×	×	√	√	×
10m	√	√	√	×	×	√	√	√	√	√	×	√	√	×
15m	√	√	×	×	×	√	√	×	√	×	×	√	√	×
20m	×	×	×	×	×	×	×	×	×	√	×	×	×	×
30m	×	×	×	×	×	×	×	×	√	×	×	×	×	×

Gigabit Ethernet Cable	Adaptation Series								
	SC1000/SC2000E/SC2000A/SC3000			SC3000X/SC5000X			SC6000		
	Standard	High Flex/ Super Flex	Bend	Standard	High Flex/ Super Flex	Bend	Standard	High Flex/ Super Flex	Bend
1m	√	×	×	×	×	×	×	×	×
3m	√	√	√	√	√	×	√	√	√
5m	√	√	√	√	√	√	√	√	√
7m	√	√	×	√	×	×	√	×	×
10m	√	√	×	√	√	×	√	√	×
15m	√	√	√	√	×	×	√	×	×
20m	×	×	×	×	√	×	×	√	×
30m	√	√	×	√	×	×	√	×	×

Power Supply	Two Wire Adapter	Switching Power Supply	Adaptation Series						
			SC1000	SC2000E	SC2000A	SC3000	SC3000X	SC5000X	SC6000
12V	√	√	√	√	×	×	×	×	×
24V	√	√	√	√	√	√	√	√	√

Lens Cap	Adaptation Series						
	SC1000	SC2000E	SC2000A	SC3000	SC3000X	SC5000X	SC6000
Transparent	√	√	×	√	√	√	√
Semi-polarization	×	×	×	√	√	×	×
Polarization	×	√	√	√	√	√	√
Diffusion	×	×	×	√	√	×	×
Magnification	×	×	×	√	√	×	×
Light uniformity	×	×	×	×	√	×	√
YAG Guard	×	×	×	×	√	√	√
ESD Guard	×	×	×	×	√	√	√

Other Accessories	Adaptation Series						
	SC1000	SC2000E	SC2000A	SC3000	SC3000X	SC5000X	SC6000
Display Extension Line	×	×	×	×	×	×	√
Expansion Box	√	√	×	√	√	×	×
Touch Screen	√	√	√	√	√	√	√
Installation Board	√	√	×	√	√	√	√
IO Box	×	√	×	√	×	×	×
M-mount (6/8/12/15/16/25mm)	×	√	×	√	√	√	√
C-mount (6/8/12/16/25/35/50mm)	×	×	×	×	×	×	√
Light Source Panel (white/blue/red/near-infrared)	×	×	×	√	√	√	√
Extended Light Source	×	×	×	×	×	√	√

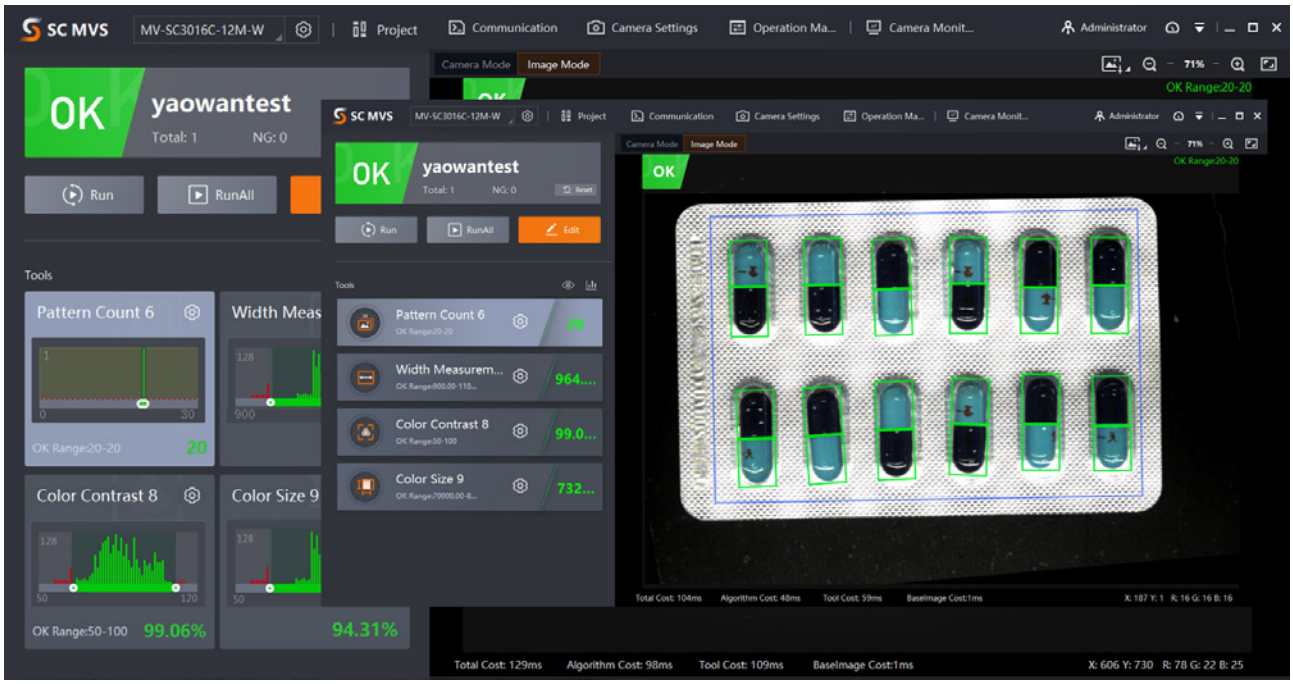
SCMVS client

SCMVS client is an application software independently developed by HIKROBOT for smart cameras. It supports visual detection of images acquired by the device in real time or imported into the device, and can edit, manage and store the device scheme, which can meet the requirements of various machine vision applications such as positioning, measurement, recognition and deep learning applications.

Performance characteristics

- Support multiple platforms, compatible with Windows 32/64/10 bit operating system
- Simple interaction, facilitated the process of configuration mode, and only four steps to complete the plan to build
- Support interface data statistics and camera operation monitoring
- Support I/O, communication, time calibration, firmware upgrades, passwords and other Settings
- Support a key set camera parameters, automatically adjust the brightness focus and white balance
- Support query operation log, equipment storage and import the pictures

SCMVS



Download

SCMVS client can be downloaded by visiting the website of Hikrobot.
https://www.hikrobotics.com/en/machinevision/service/download?module=0

Selection Guide of Smart Camera

Step 1: Select Camera Type

The smart camera with M-mount lens and light source

The smart camera integrated with M-mount lens and light source, easy to use.
Automatic adjustment without complex operation.

The smart camera with C-mount

The smart camera with C-mount can be used with the C-mount lens that is determined by the field of view and the working distance.

Step 2 Select Camera Adjustment Method

Focus Adjustment

Select the type of smart camera according to the demands.

Refer to the specification of the smart camera for the details of working distance and field of view.

SC1000 Series
- Fixed focus
- Fixed working distance and field of view

SC2000E Series
- Manual focus
- Changeable working distance and field of view

SC3000X Series
SC5000X Series
SC6000-00M Series
- Auto focus
- Changeable working distance and field of view

SC6000-00C Series
- Manual focus
- Changeable working distance and field of view

Step 3 Select Camera Capability Set

Algorithm Capability Set

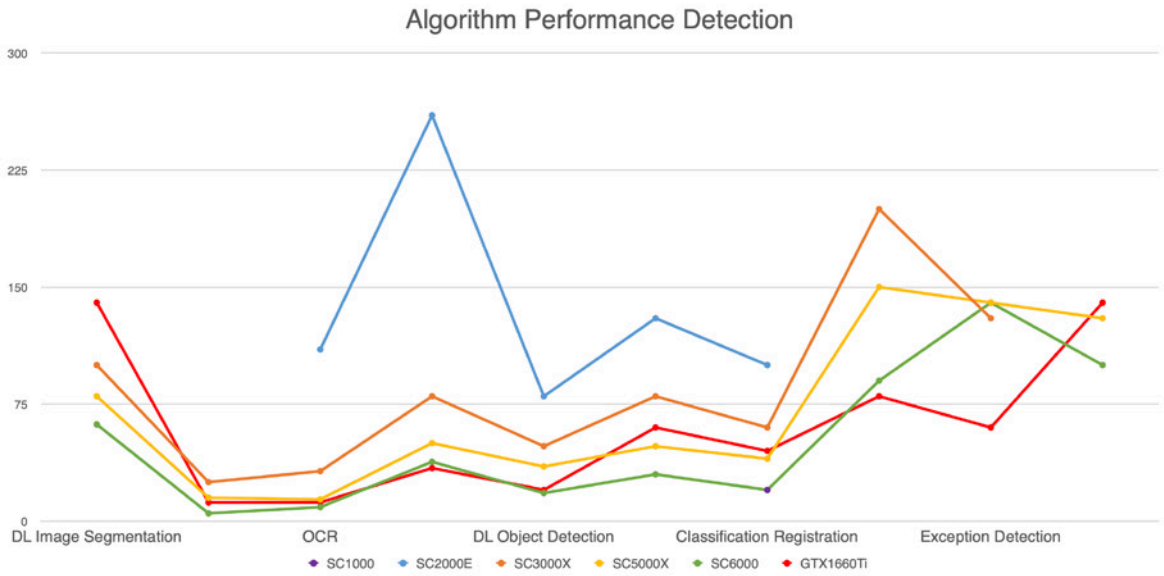
Select the type of smart camera according to the application and detection requirements.

Camera / Function		SC1000 Series	SC2000E Series	SC3000X Series	SC5000X Series	SC6000 AI
Mono/Color		Mono	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Count	Spot Count	√	√	√	√	√
	Edge Count	√	√	√	√	√
	Pattern Count	X	√	√	√	√
	Contour Count	√	√	√	√	√
Existence	Circle Existence	√	√	√	√	√
	Line Existence	√	√	√	√	√
	Spot Existence	√	√	√	√	√
	Edge Existence	√	√	√	√	√
	Pattern Existence	X	√	√	√	√
	Contour Existence	√	√	√	√	√
Measurement	Color Size	X	√	√	√	√
	L2L Angle	√	√	√	√	√
	Diameter Measurement	√	√	√	√	√
	Brightness Analysis	√	√	√	√	√
	Contrast Measurement	√	√	√	√	√
	Width Measurement	√	√	√	√	√
	P2L Measurement	√	√	√	√	√
	Greyscale Size	√	√	√	√	√
	Line Angle	√	√	√	√	√
	Edge Width Measurement	√	√	√	√	√
Recognition	OCR	X	√	√	√	√
	DL Character Locating	X	√	√	√	√
	Classification Registration	√	√	√	√	√
	Object Detection Registration	X	X	√	√	√
	Register Segmentation	X	X	X	√	√
	Color Contrast	X	√	√	√	√
	Code Recognition	X	X	√	√	√
	Color Recognition	X	√	√	√	√
Location	Match Calibration	X	X	√	√	√
	Match Location	X	X	√	√	√
	Position Fixture	√	√	√	√	√
Logic Tool	If Module	X	X	√	√	√
	Condition judge	√	√	√	√	√
	Logic Judge	√	√	√	√	√
	Combination Judge	X	X	√	√	√
	Character Comparison	X	√	√	√	√
	Calculator	√	√	√	√	√
Defect Detection	Exception Detection	X	X	√	√	√
Deep Learning	DL Object Detection	X	X	√	√	√
	DL Classification	X	X	√	√	√
	DL Image Segmentation	X	X	X	√	√

Step 4 Select Algorithm Performance

Different AI Algorithm Performance

Select the type of smart camera according to the production cycle time.



Step 5 Select Hardware

There is a limit to the number of modules that can be created for each type of camera.

Select the type of smart camera according to the application and detection requirements.

Project \ Camera	SC1000 Series	SC2000E Series	SC3000X Series	SC5000X Series	SC6000 Series
Module Quantity Limit	20	40	40	1024	1024
Solution Quantity Limit	8	8	32	No Limit*	No Limit*
Image Saving in Camera	×	×	√	√	√
Image Saving via FTP	√	√	√	√	√

No Limit*: It is related to the size of the single solution and camera storage space. The solution quantity will not be limited.

Image Saving in Camera: The images will be saved in the camera without using space on the external device.

Image Saving via FTP: The images will be saved in the external device via FTP communication, that takes up space on the external device.

Performance and Application of Smart Code Reader

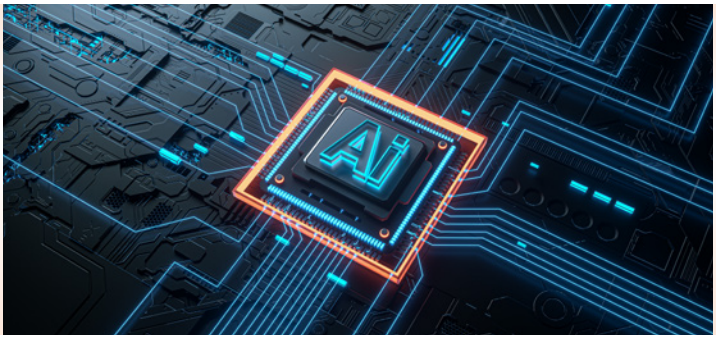
Product introduction

In the industrial application scenario, barcode marking is a very important information storage medium, mainly applied to product information, supply chain information, production information and transportation information marking. Information collection is the basis for the formation of industrial IOT, and the acquisition of barcode information is often realized by means of code readers. In industrial scenes, the uncontrollable quality of coding, fast beat, high reading rate requirements, and harsh external use environment are the factors that determine higher requirements for industrial code reader products.

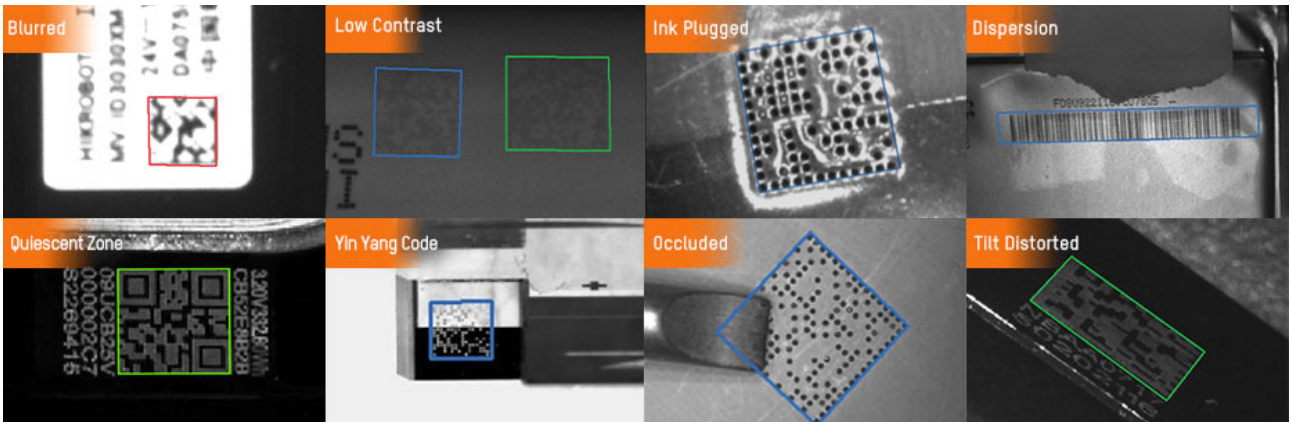
Key Features

- Rich product models, covering 0.4-25MP resolutions
- Built-in deep learning code reading algorithm, models trained by a large number of samples
- Millisecond reading efficiency, easy to cope with high-speed reading scenarios
- Support mainstream industrial communication protocols, system data interfacing more easily and stably
- Deep optimization for difficult codes to achieve over 99.95% read rate in complex scenarios
- IP65 or higher protection level, high-strength anti-drop and anti-drop design, to meet the harsh industrial application scenarios

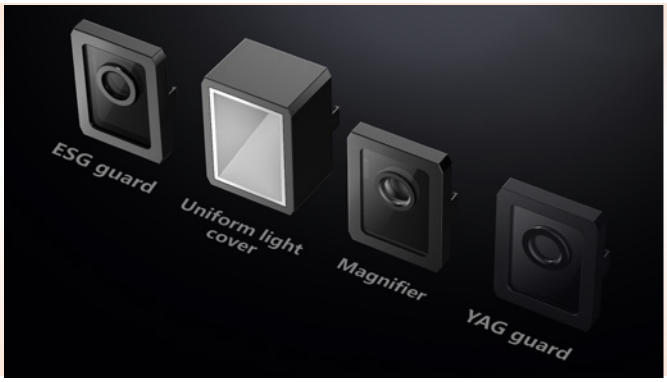
Performance



- AI support: An embedded platform equipped with powerful AI capabilities, combined with deep learning technology, significantly improves code reading efficiency



- Strong robustness: built-in deep learning decoding algorithm, million level sample model, capable of adapting to various complex working conditions

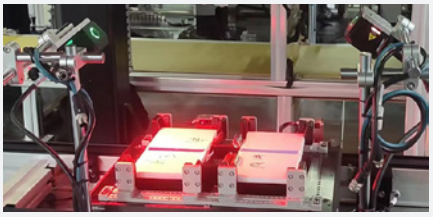


- Strong adaptability: providing a variety of product accessories to cope with complex industrial environments

- Strong usability: supports coding rating and intelligent parameter adjustment

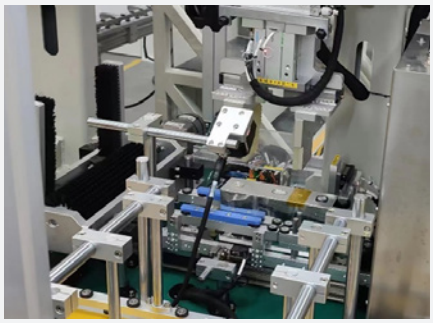
Industry Cases

Lithium Industry

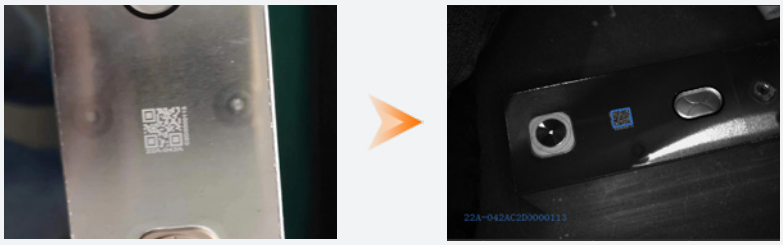


Battery cell PET tape code reading

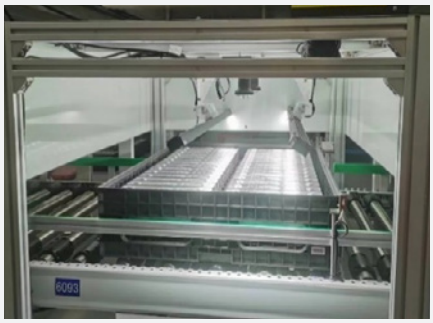
After winding and stacking of battery cells, the termination parts of the cell is marked with a piece of termination tape for insulation and fixation, and the QR code is used on the tape for bare cell quality tracking. This solution provides a code reading rate of over 99.99%.



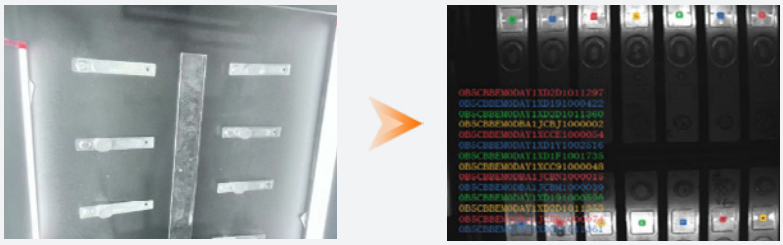
Battery top cover laser-engraved code reading



The metal cover of lithium batteries reflects light and influences the QR code quiet zone. With a polarized lens cover, the smart code reader can filter the glare, and the deep learning algorithm overcomes the influence on the quiet zone, providing a code reading rate of over 99.99%.

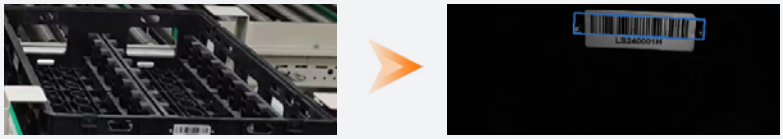


Battery top cover code batch reading in turnover boxes



Recognizing codes on all the battery top covers in a turnover box is difficult due to the large field of view, small size of code, and glare reflected by the metal material. Equipped with a bar light which guarantees the consistence of images and the primary/secondary and multi-ROI features which facilitates data summary and sorting, the smart code reader reaches a code reading rate of over 99.99%.

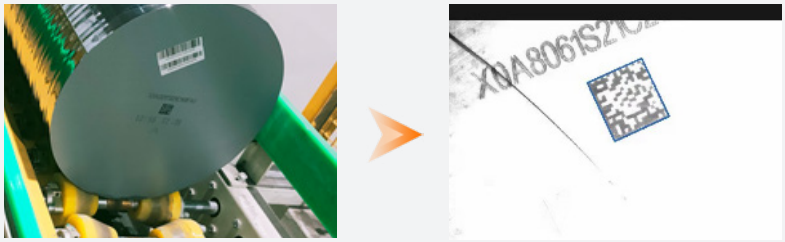
Logistics line pallet barcode reading



Intelligent logistics system is the connecting link between various systems, and the barcode information on the pallet is used to achieve battery tracking, management, status and other information. The solution's code is repeatedly used leading to easy dirty wear and low contrast, but the reading rate reaches more than 99.99%.

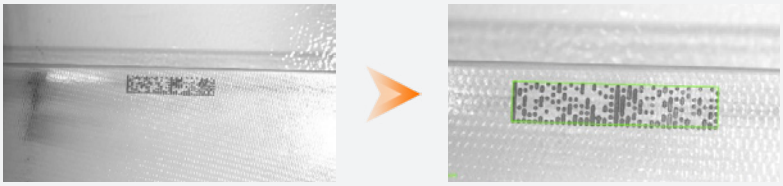
Photovoltaic Industry

Silicon bar 2D code reading



In the photovoltaic industry, after processing silicon ingots into silicon rods, the 2D code printed by laser on the end face of the rods needs to be read. The solution achieves stable reading with poor consistency and a code reading rate of over 99.9%.

PV module frosted glass rectangular code reading

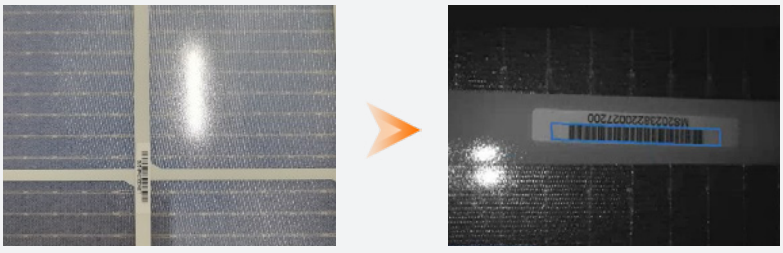


Before glass covering, the rectangular DM code on the edge of photovoltaic glass should be read, which is influenced by the graininess of the translucent plate and the glare. With a polarized cover and a white background, the smart code reader can reach a code reading rate of over 99.9%.

Covered PV module code reading

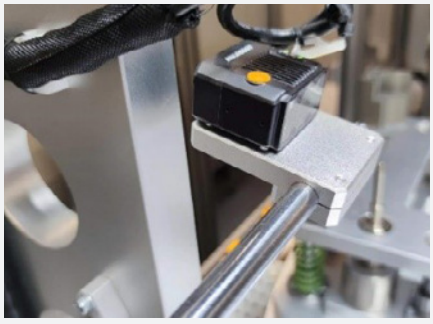
Before module lamination, the label code should be read through frosted glass and EVA film, but the texture of the glass and the bubbles in the EVA material influence the clarity of the barcode. The dedicated algorithm of the smart code reader solves the problem of barcode distortion and fuzziness, with a code reading rate higher than 99.9%.

PV module backboard 1D code reading



Before the backboard of PV modules leaves the factory, the Code 128 on the surface is read. This solution realizes stable recognition of 1D code with a code reading rate of over 99.99%, and the code information is uploaded to MES and bound to the backboard.

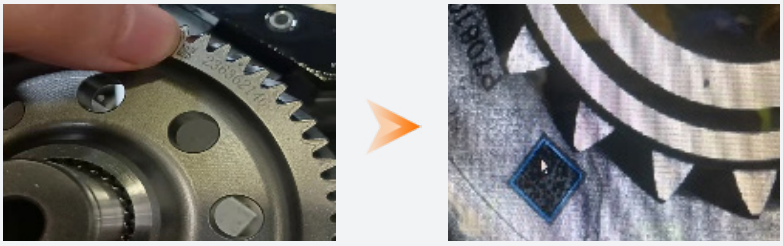
Automotive Industry



ECU cover code reading

After producing an automotive ECU (Automotive Electronic Control Unit), a protective cover needs to be installed on the surface and a white 2D code printed on the surface. The solution overcomes the code quality problems of distorted reflection, low contrast and high speed rotation, and the code reading rate reaches more than 99.9%.

Gear DPM code reading

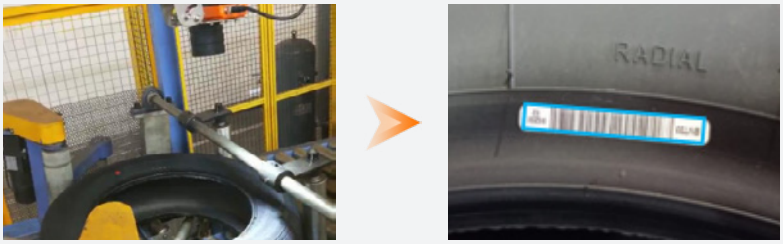


In gear manufacturing, gear lubricant is used to prevent wearing, but the greasy dirt caused by lubricant influences code reading, resulting in a lower reading rate. With optimized algorithms targeted at greasy dirt scenes, the smart code reader provides a code reading rate over 99.9%.

Automotive casting part code reading

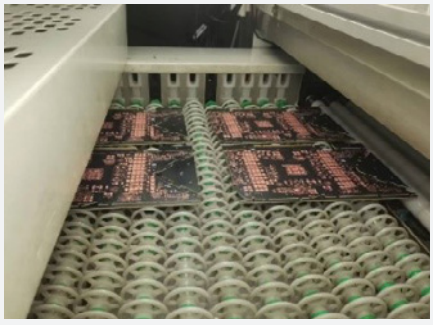
Different casting parts DM code engraving position is different and there is depth of field. The solution is highly migratable and reusable, with a code reading rate of over 99.9%.

Tyre code reading

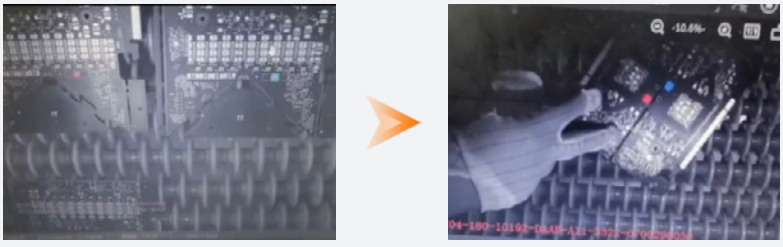


Tyre code is read to record quality inspection information, classify tyres, and record tyre inbound and outbound, facilitating the calculation of inventory and production volume. If the camera is set appropriately, the top part of tyres can be fully scanned to record or track the process information.

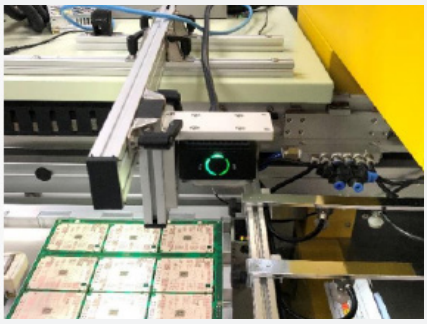
PCB Industry



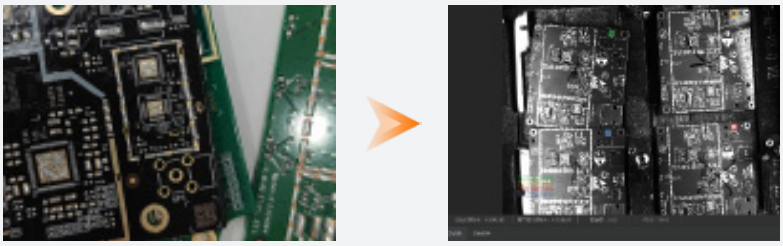
PCB board traceability code reading



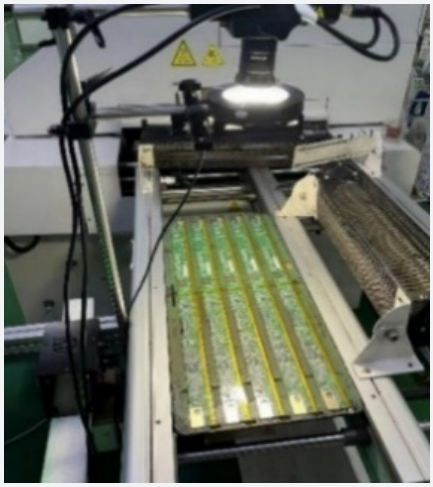
The finished production of PCB boards, read the 2D code on the assembly line, the code is small, the field of view requirements are large, and the barcode needs to be read steadily in motion. The solution achieves a large field of view to read small size codes, and the reading rate reaches more than 99.5%.



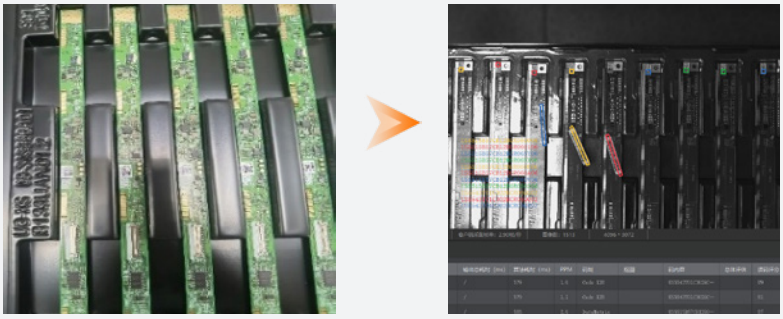
Multiple base color PCB board reading codes



Multi-background color 2D code reading, including both QR code and DM code. The solution achieves stable QR code recognition with a read rate of 99.9% or more.

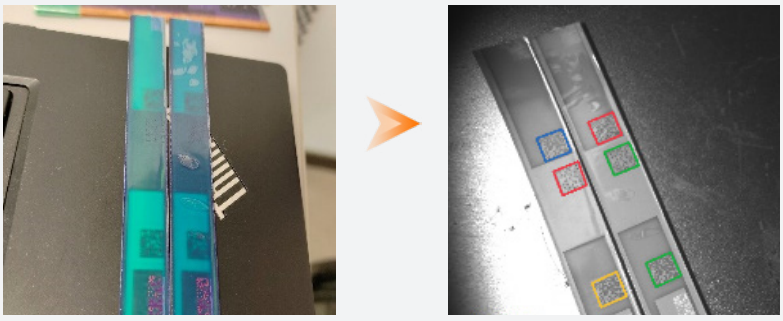


PCB tray code batch reading in the whole box



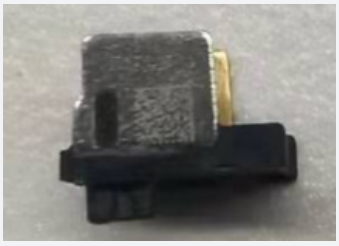
To recognize all the codes on trays of different specifications, hand-held code readers are not efficient enough. The smart code reader, with 2000 W high resolution, realizes stable recognition of barcodes in the whole box, reaching a code reading rate of over 99.9%.

Covered PCB code reading



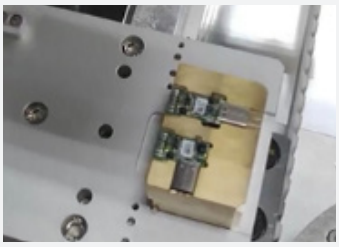
When recognizing PCBs in motion on the production line, there may be laser-bored code, covered code, or dual-code. This smart code reader solution uses special lighting method to reduce the influence of the covering on the images, with a code reading rate over 99.9%.

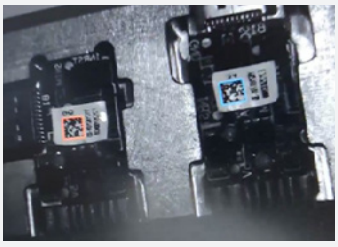
Very small code reading



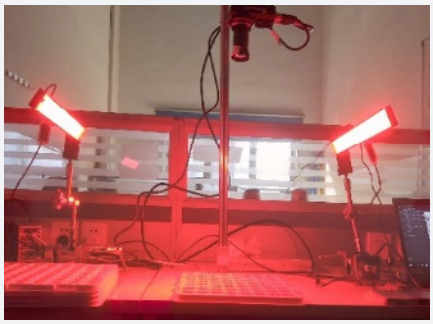
With the continuous upgrade of automated production line and engraving process, the size of QR code is getting smaller and smaller. ID series industrial readers with high resolution accessories ensure stable reading of very small codes.

Type-C label code reading

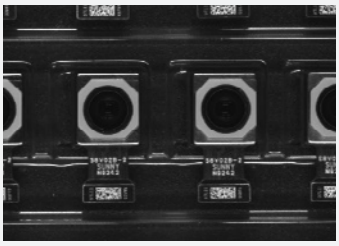




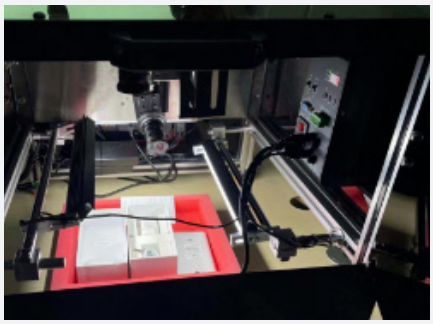
As people's quality awareness raises, more consumer electronics are labelled with a code for tracing. With a polarized lens cover, the smart code reader removes the glare and steadily recognize 2D codes with a reading rate higher than 99.9%.



Consumer electronic parts batch code reading

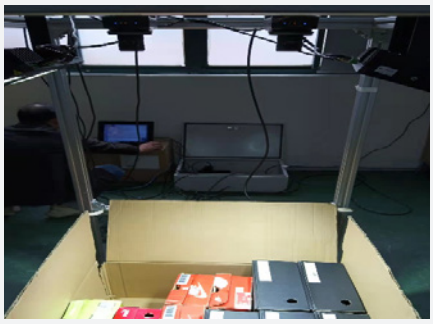


For product traceability, the 2D codes of all the parts on the tray should be recognized at one time, the number of which may be over a hundred. The smart code reader adopts high resolution and robust algorithm performance, reading small codes in a large field of view steadily, with the maximum reading capacity of 200 codes in one image.

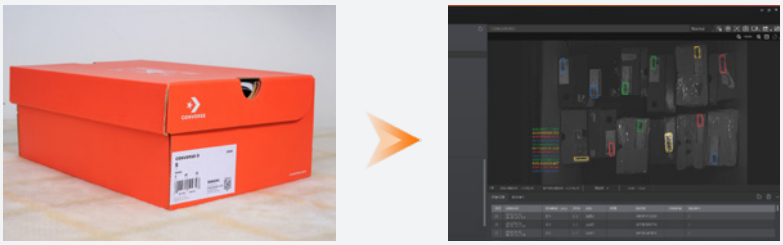


Phone package code reading

Recognizing all the barcodes on the phone package at one time, including the IMEI, SN, charger and data cable of the phone, demands a large field of view and a deep depth of field. This solution provides stable recognition of all the barcodes and imports code data in a designated sequence, preventing repetition, omission, or error.

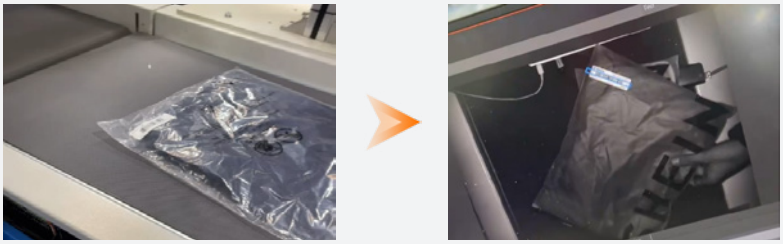


Shoe box reading code

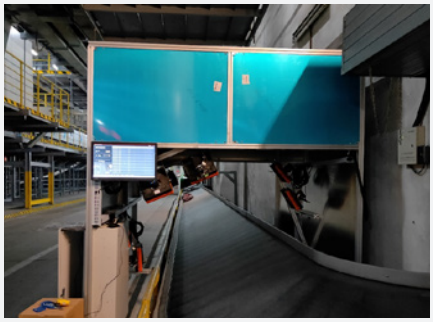


The 1D code recognition of this scene has a large field of view (more than 800mm on the long side), high code accuracy (around 8mils), and large depth of field difficulty. The program 1D code stable recognition, read code rate reached more than 99.9%.

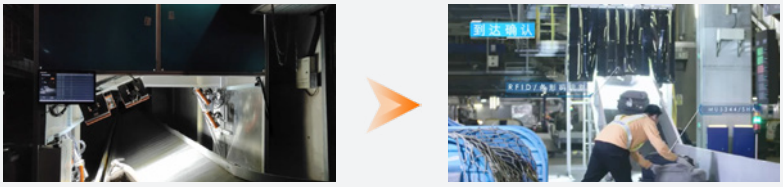
Parcel barcode reading



The code reader recognizes the parcel 2D code and does material sorting according to the barcode content. The solution solves the problem of distortion and folds in the code quality, efficient and stable recognition, and the reading rate reaches more than 99.9%.

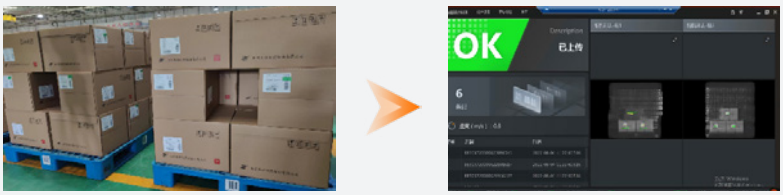


Baggage claim full-process automation



At the baggage claim, the 1D codes on five sides are read and automatically acquired, and the information is uploaded to logistics system and archived. During the whole process, the panorama camera is used. All the baggage pictures are stored in real time and the labels are not covered. This solution ensures the integrity of labels and provides a reading accuracy of over 99% and an OCR accuracy of over 95%.

Enterprise warehousing corridor code reading



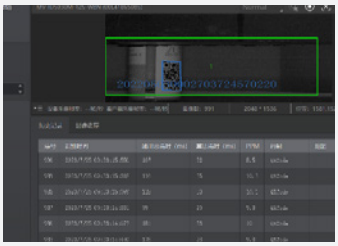
Multiple smart code readers compose a corridor device, which is used with AMRs. Two corridors independently recognize the code and stitch the images, completing the reading of product information and the uploading of data to the system, thus realizing automatic product transportation and tracing.

Food and medicine Industry

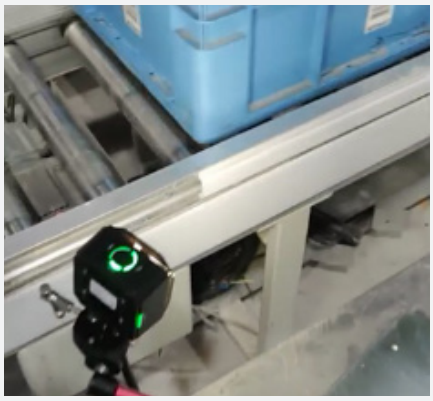
High-speed dynamic code reading for soy sauce bottle cap

The two master-slave relationship cameras recognize the QR code on the bottle cap, overcoming the problems of high-speed code reading, distorted reflection, low contrast, and high-beat data fusion, with a code reading rate of over 99%.

Food and medicine bottle code reading



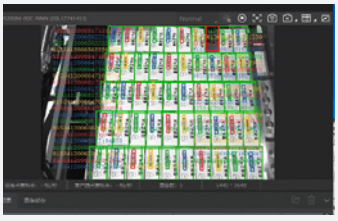
When the bottle rotates with the belt, the whole bottle should be scanned to ensure the code is scanned. This solution solves the problems of code reading in high-speed rotation, glare caused by the curved surface, and code distortion, reaching a reading rate of over 99.9% and adapting to the fast pace of food and medicine industry.



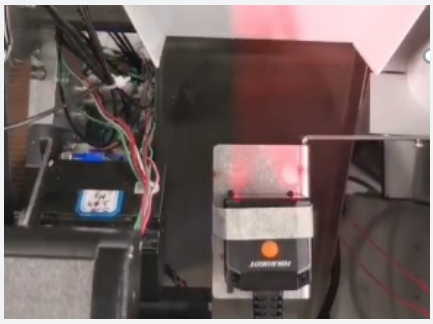
Medicine tote code reading

Medicine is transferred by totes and then picked manually for outbound according to orders. To avoid leaving out, the code pasted on the front and sides of the tote should all be scanned. This solution realizes stable recognition of barcodes from multiple angles, improving the efficiency of medicine picking and outbound tasks.

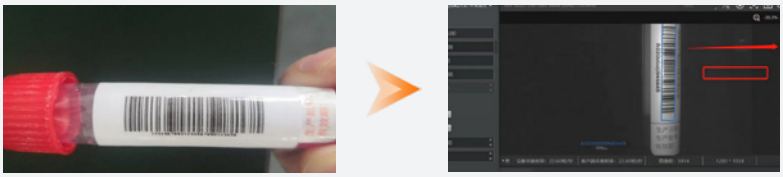
Medicine package code batch reading for tracing



After medicine package arrangement, all the codes should be read and uploaded in order. In this solution, the smart code reader works with the code reading platform and steadily recognizes codes. When the number of packages is wrong, the package missing location and an I/O alarm will be sent within 2 seconds.

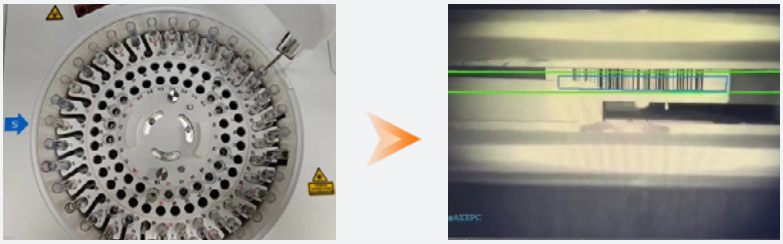


Medical test tube code reading



Identify the Code128 code of the test tube bottle, the barcode may appear in any position of the test tube bottle, overcome the problems of distortion reflection and high speed movement, the reading rate reaches more than 99.9%.

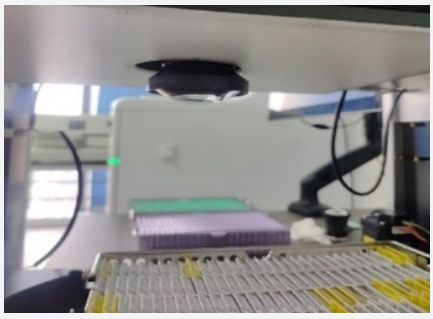
Analyzer code reading



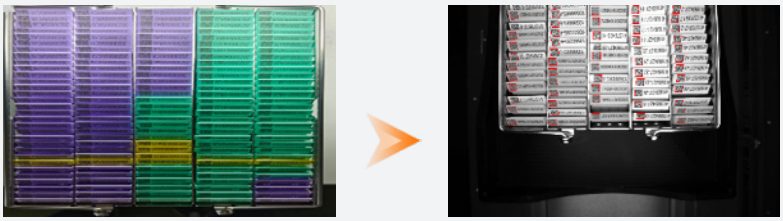
The smart code reader can read codes of analyzers in dynamic rotation with a close distance and a large field of view, suitable for high-speed rotation scenes. This solution stands over a million tests without missing any code.

Test tube bottom code batch reading

The bottom codes of all test tubes in a tray should be read at one time, and the number of test tubes changes. This solution adopts high-resolution code readers and extra lighting to realize uniform images, recognizing bottom codes within 1 second and outputting the code information in order.

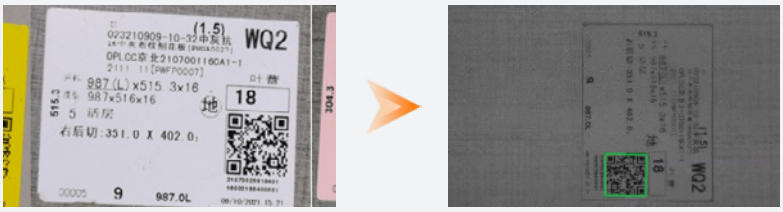


Embedding cassette code batch reading

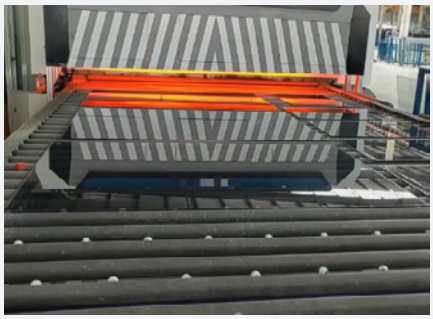


Over 400 embedding cassettes are stored in a tray, causing code distortion or covering. This solution captures one third of the whole tray for three times, reaching an integrated code reading rate of over 99.9%, and outputs the coordinates of the unknown code for checking.

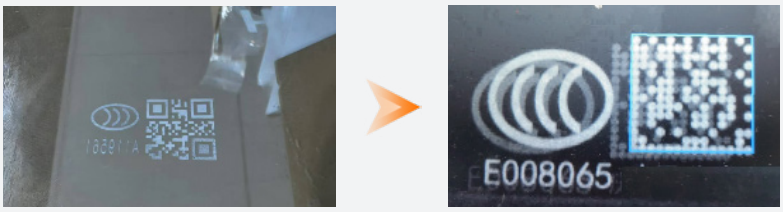
Large-field of view code reading in Carpentry



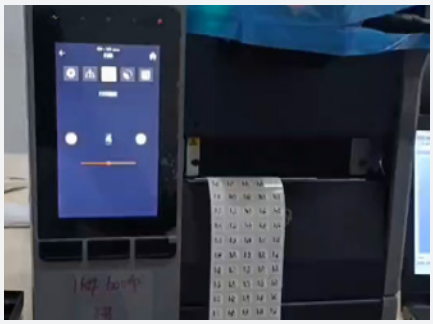
The length of a plank can reach 2 meters with labels in various colors, and the codes are read when planks are in motion. This solution provides a network composed of multiple high-resolution code readers to realize code reading in an ultra-large field of view, with various accessories suitable for different scenes.



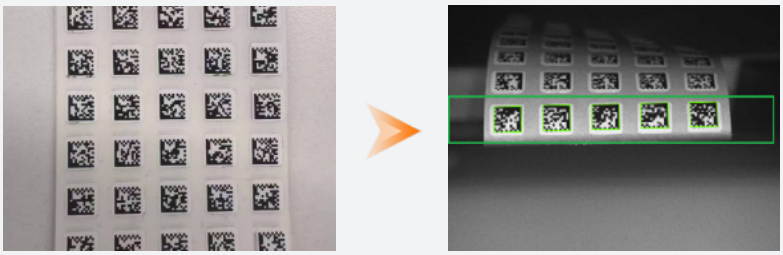
Large-field of view code reading in glass industry



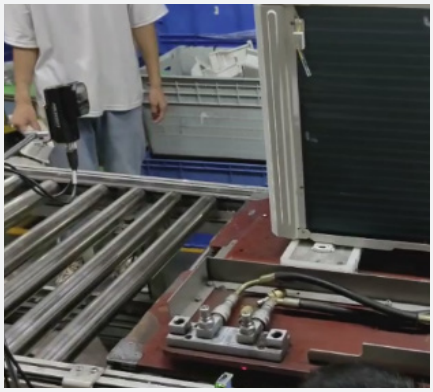
The length of a glass pane can reach 3 meters, and the DM code and QR code are both demanded to be read from an appropriate angle. Multiple cameras realize an ultra-large field of view, and the dedicated algorithm overcomes the ghost effect or glare in images, reaching an overall recognition rate and angle accuracy of over 99.9%.



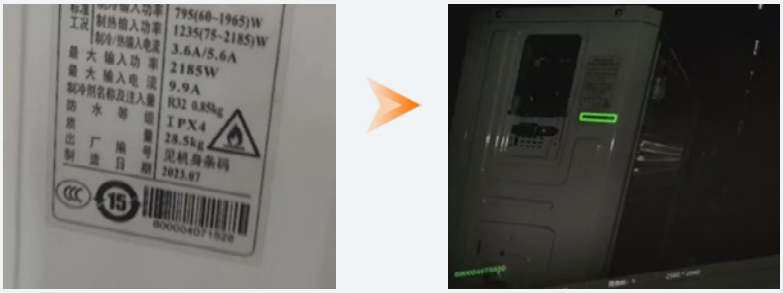
High-speed code reading in printing industry



When the printer prints out codes, it is hoped that the codes are read and matched with the database to check whether the printing is normal. This solution realizes efficient recognition of codes at the printer exit, recognizing and outputting 75 codes per second.



External label code reading in household appliance industry



The code on the label of air conditioner outdoor units requires to be recognized and uploaded to MES. The outdoor units are manually put on the production line, so the angle and position are not fixed. This solution solves fuzziness and distortion of codes in images, providing a code reading rate of over 99.9%.

Smart Code Reader

ID800 Series Smart Code Reader

As a compact industrial barcode reader, ID800 series can decode different codes rapidly, such as on-screen codes or codes on the label, and be applicable to retail, medical treatment, intelligent manufacturing, enterprise and public institutions.

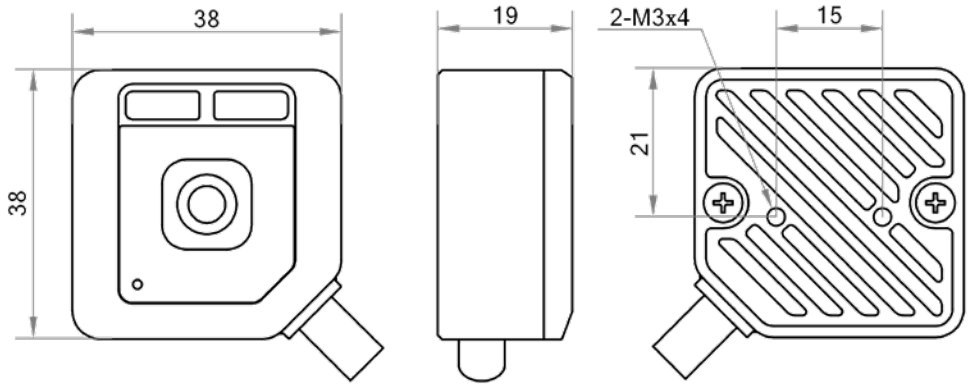
- Supports the identification of different codes, such as on-screen codes or codes on the label.

- Ultra-compact size and ease of use.

Specifications

Model	Resolution	Max. frame rate	Max. reading speed	Light source	Max. power consumption	Focal Length	Data interface
MV-ID803M-03S-WBN-SR-U	640 × 480	60 fps	15 codes/sec	Warm white LED	2.5 W@5 VDC	3.1 mm	USB2.0
MV-ID803M-03S-WBN-SR-R	640 × 480	60 fps	15 codes/sec	Warm white LED	2.5 W@12 VDC	3.1 mm	RS-232
MV-ID813M-05S-WBN-SR-U	1280 × 1024	60 fps	20 codes/sec	Warm white LED	2.5 W@5 VDC	4.9 mm	USB2.0
MV-ID813M-05S-WBN-SR-R	1280 × 1024	60 fps	20 codes/sec	Warm white LED	2.5 W@12 VDC	4.9 mm	RS-232
MV-ID813M-05S-WBN-NR-U	1280 × 1024	60 fps	20 codes/sec	Warm white LED	2.5 W@5 VDC	4.9 mm	USB2.0
MV-ID813M-05S-WBN-NR-R	1280 × 1024	60 fps	20 codes/sec	Warm white LED	2.5 W@12 VDC	4.9 mm	RS-232

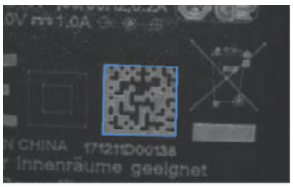
Dimension



PS: Cable bending space 30mm

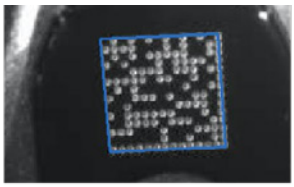
ID2000 Series Smart Code Reader

As a compact industrial barcode reader, ID2000 series can be embedded in automated machine equipment and other automated assembly line proximity barcode reading applications. Support common 1D, 2D and DPM codes, the patented lighting design provides high-quality image lighting.



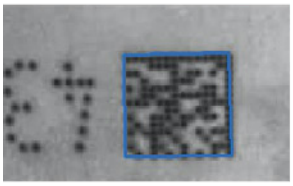
Inkjet DM Code

Product Label



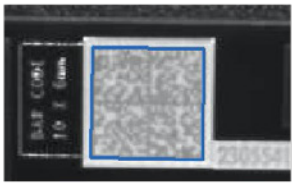
Metal Lattice DPM Code

Food Package Inkjet Code



Copper plate DPM Code

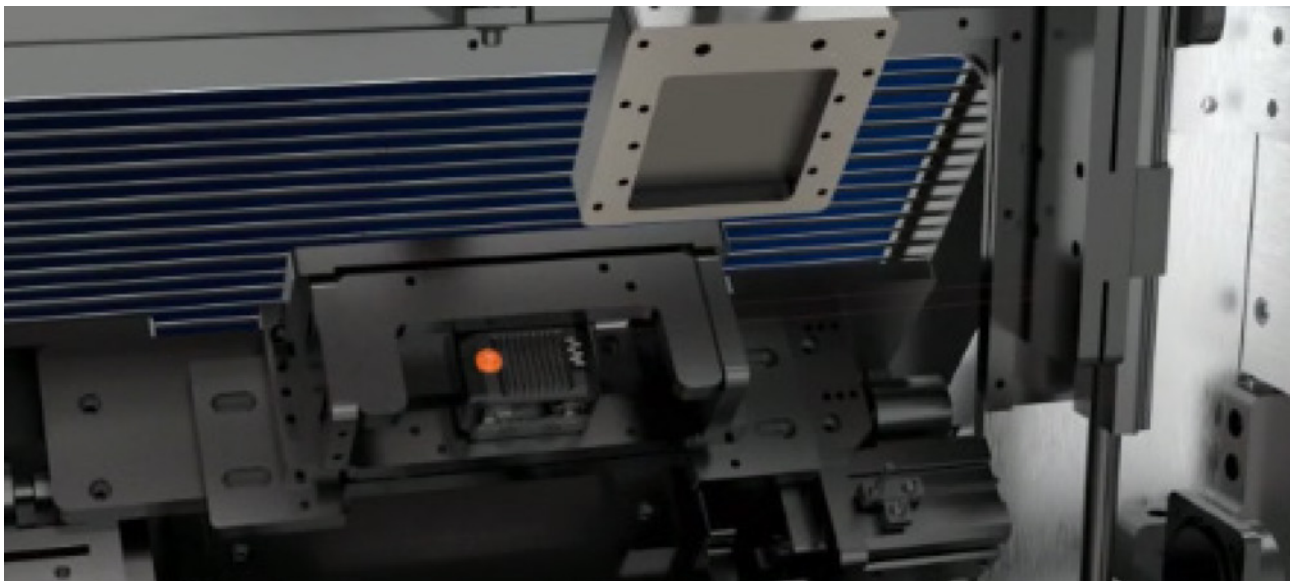
Logistics Label



Low-contrast DPM Code

Mini Label

- Reliable reading performance



- Ultra-compact size

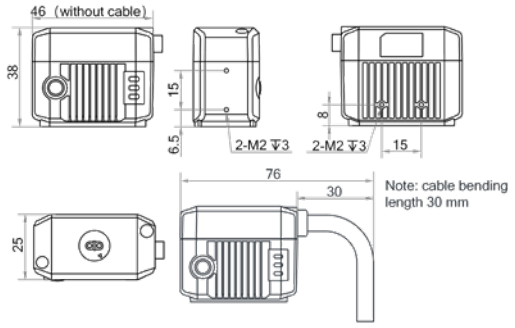
Specifications

CE RoHS KC

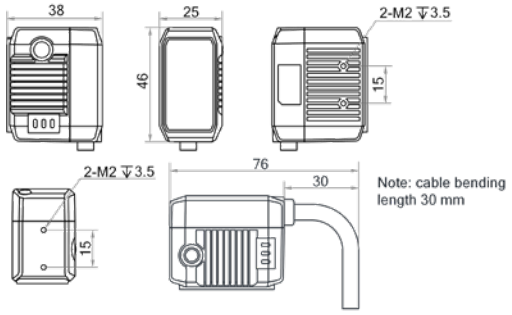
Model	Resolution	Max. frame rate	Max. reading speed	Light source	Max. power consumption	Focal Length	Working/Focus distance	Label
MV-ID2004M-06S-xBN	704 × 540	60 fps	41 codes/sec	white/blue/ red	10.6 W@24 VDC	6.72 mm	40 mm to 120 mm, manually focus	A
MV-ID2004M-06S-xBN-U	704 × 540	60 fps	38 codes/sec	white/blue/ red	4.6 W@5 VDC	6.72 mm	40 mm to 120 mm, manually focus	A
MV-ID2004M-16T-RBN	704 × 540	60 fps	45 codes/sec	Red	11 W@12 VDC	16 mm	100 mm to 400 mm	B
MV-ID2013EM-05-xBy (-U/-S/-SU)	1280 × 1024	50 fps	30 codes/sec	White/ Red/Blue/ Polarized	2.5 W@5 VDC	4.7 mm	/	D
MV-ID2013EM-05N-xBy (-U/-S/-SU)	1280 × 1024	50 fps	30 codes/sec	White/ Red/Blue/ Polarized	2.5 W@12 VDC	4.7 mm	/	D
MV-ID2013EM-05H-xBy (-U/-S/-SU)	1280 × 1024	50 fps	30 codes/sec	White/ Red/Blue/ Polarized	2.5 W@12 VDC	4.7 mm	/	D
MV-ID2013EM-03N-Rby	1280 × 1024	50 fps	30 codes/sec	Red	2.5 W@12 VDC	2.45 mm	/	D
MV-ID2013M-06S-xBy (-YAG)	1280 × 1024	60 fps	45 codes/sec	White/ Red/Blue/ Polarized	10.6 W@24 VDC	6.72 mm	40 mm to 120 mm, manually focus	A
MV-ID2013M-16S-RBN (-YAG)	1280 × 1024	60 fps	45 codes/sec	Red	24 W@12 VDC	16 mm	105mm to 150 mm, manually focus	E
MV-ID2013M-25S-RBN (-YAG)	1280 × 1024	60 fps	45 codes/sec	Red	24 W@12 VDC	25 mm	170mm to 200 mm, manually focus	E
MV-ID2013M-00C-NNN	1280 × 1024	60 fps	45 codes/sec	/	6 W@12 VDC	/	/	F
MV-ID2016M-06S-xBN	1408 × 1024	60 fps	45 codes/sec	White/Red/ Blue	10.6 W@24 VDC	6.72 mm	40 mm to 120 mm, manually focus	A
MV-ID2016M-06S-xBN-U	1408 × 1024	60 fps	45 codes/sec	White/Red/ Blue	4.6 W@5 VDC	6.72 mm	40 mm to 120 mm, manually focus	A
MV-ID2016M-06T-RBP	1408 × 1024	60 fps	45 codes/sec	Red and Polarized	11 W@12 VDC	6mm	70 mm to 160mm	B
MV-ID2016M-10T-RBP	1408 × 1024	60 fps	45 codes/sec	Red and Polarized	11 W@12 VDC	10mm	95 mm to 400mm	B
MV-ID2016M-16T-RBN	1408 × 1024	60 fps	45 codes/sec	Red	11 W@12 VDC	16 mm	100 mm to 400mm	B
MV-ID2016M-16S-RBN	1408 × 1024	60 fps	45 codes/sec	Red	24 W@12 VDC	16 mm	105mm to 150 mm, manually focus	E
MV-ID2016M-25S-RBN	1408 × 1024	60 fps	45 codes/sec	Red	24 W@12 VDC	25 mm	170mm to 200 mm, manually focus	E

Notice: x=W represents a white light source, x=R represents a red light source, x=B represents a blue light source, y=P represents polarization, and y=N represents polarized

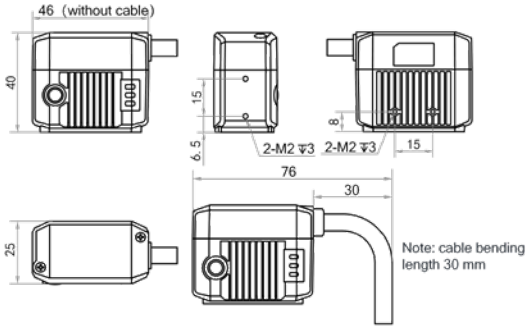
Dimension



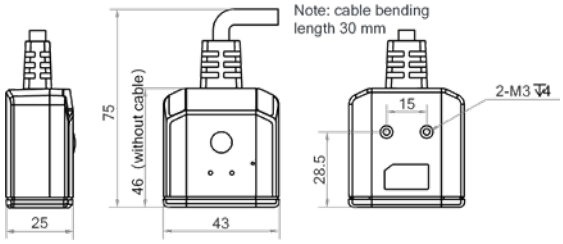
A



B

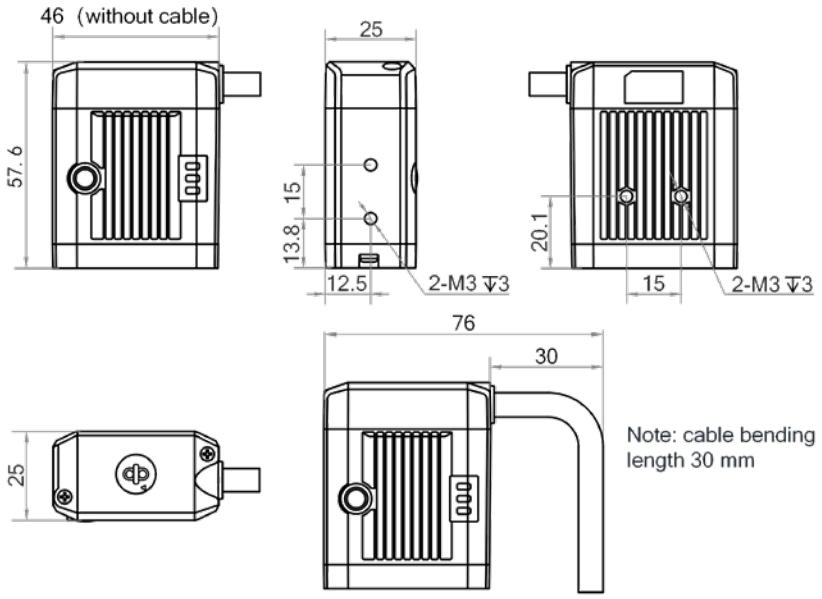


C

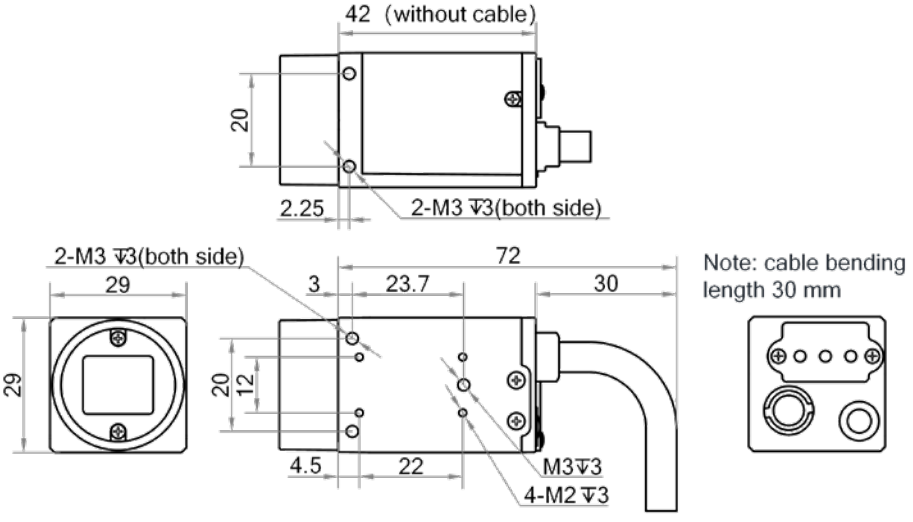


D

Unit:mm


46 (without cable)
25
57.6
15
13.8
12.5
2-M3 ↧3
20.1
15
2-M3 ↧3
76
30
25
Note: cable bending
length 30 mm

E

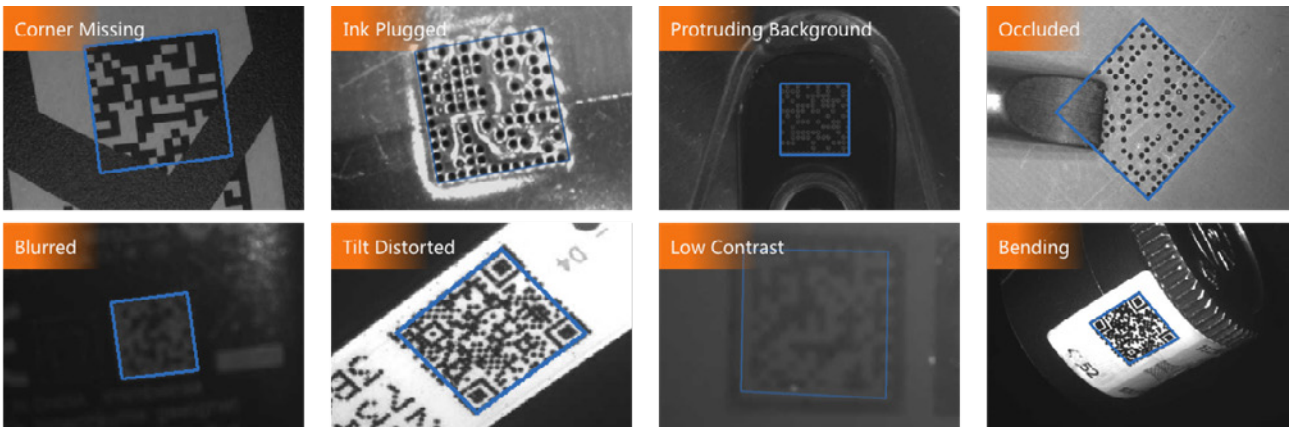

42 (without cable)
20
2.25
2-M3 ↧3(both side)
2-M3 ↧3(both side)
29
29
72
3
23.7
30
20
12
4.5
22
M3↧3
4-M2 ↧3
Note: cable bending
length 30 mm

F

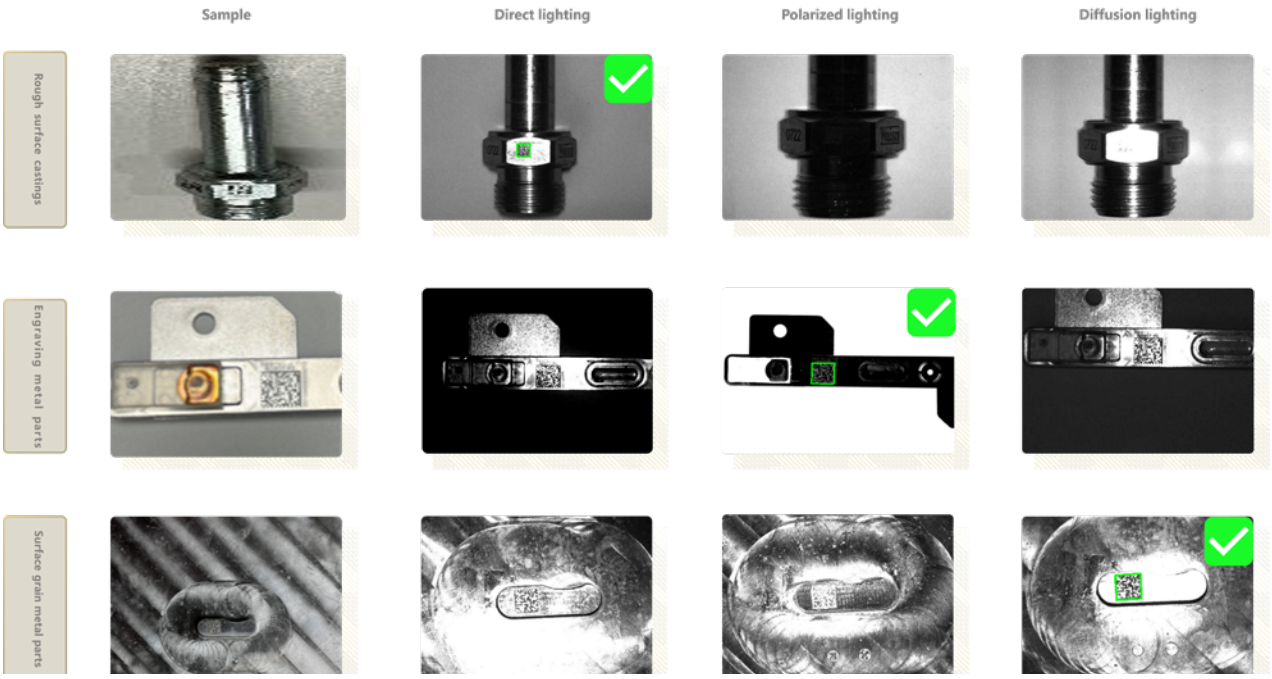
Unit:mm

ID3000 Series Smart Code Reader

Based on the embedded deep-learning platform, ID3000 adopt compact & modular design. With easy debugging (mechanical focusing), automatic polarization function and controllable light source branching, ID3000 can be widely used in various code reading scenarios.



- Out-standing code reading effect



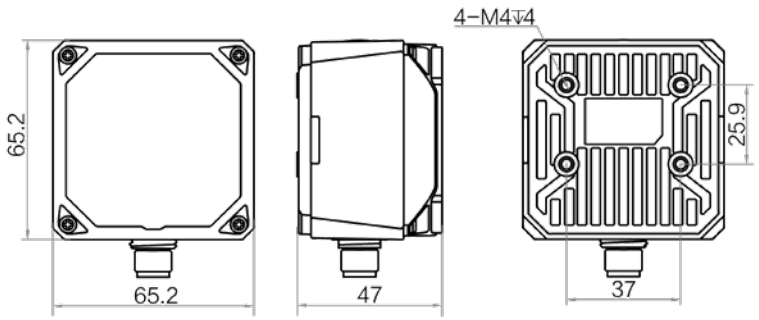
- Three ways of multiple optical lighting, with strong environmental adaptability

Specifications

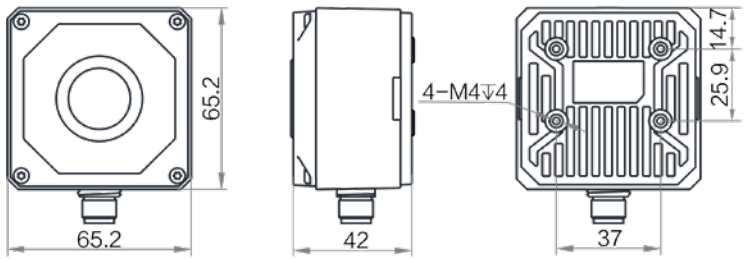
Model	Resolution	Max. frame rate	Max. reading speed	Light source	Max. power consumption	Focal Length	Label
MV-ID3013PM	1280 × 1024	60 fps	84 codes/sec	white/blue/red/infrared	20 W@24 VDC	6/12/14.8 mm	A
MV-ID3013PM-XXX-8*	1280 × 1024	60 fps	84 codes/sec	white/blue/red/infrared	20 W@24 VDC	6/12/14.8 mm	B
MV-ID3016XM	1408 × 1024	60 fps	90 codes/sec	Concentrated red light, optional white/blue/ infrared	6.2 W@24 VDC	8/12/16/25 mm	C
MV-ID3030XM	2048 × 1536	60 fps	90 codes/sec	Concentrated red light, optional white/blue/ infrared	6.2 W@24 VDC	8/12/16/25 mm	C
MV-ID3050XM	2368 × 1760	30 fps	60 codes/sec	Concentrated red light, optional white/blue/ infrared	10.6 W@24 VDC	8/12/16/25 mm	C

Notice:* will be released soon.

Dimension



A



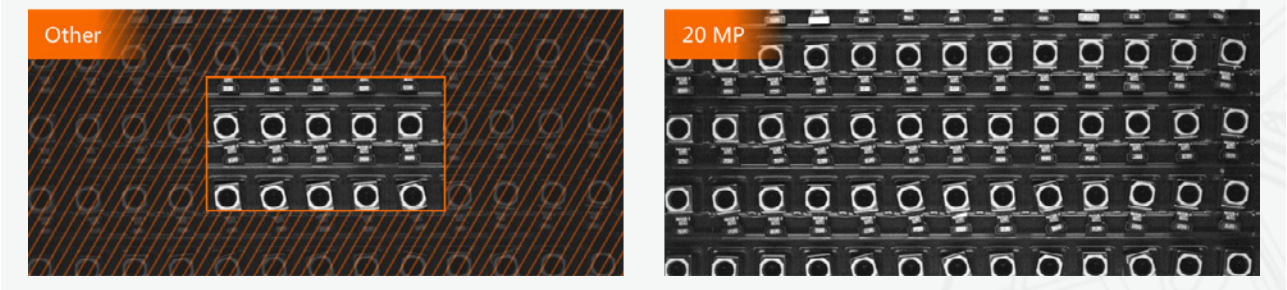
B

Unit:mm

ID5000 Series Smart Code Reader

Based on multi-core deep learning processor, the full-featured code reader brings powerful code reading performance. Equipped with mechanical focus lens and various components, ID5000 can reach up to 20M pixels, suitable for various code reading applications.

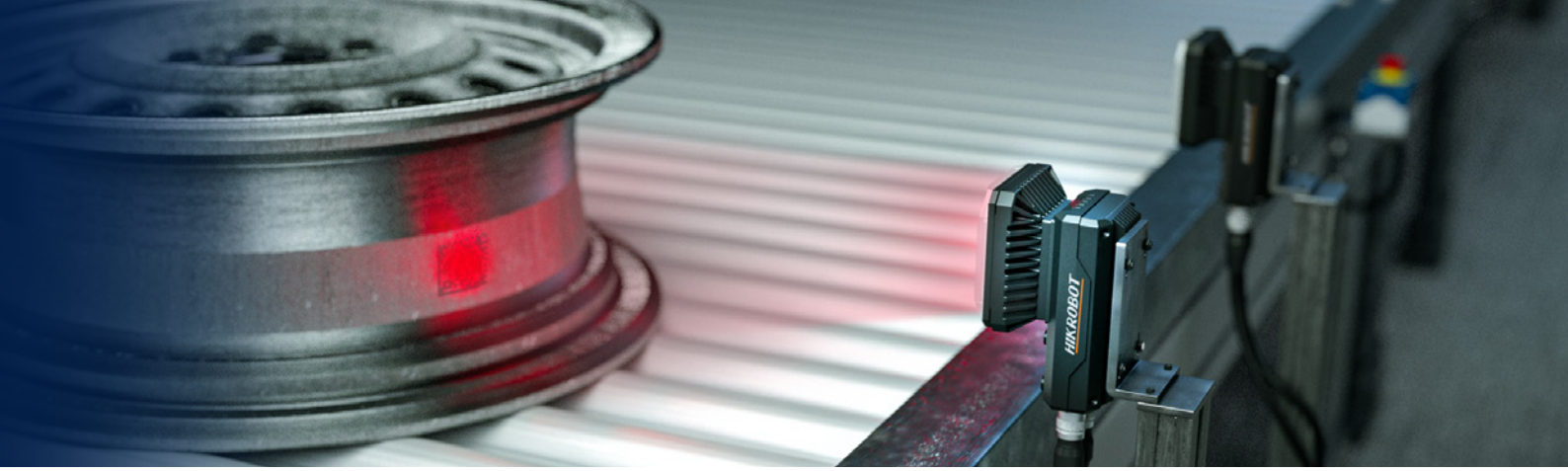
- Multi-core Processing



- High Accuracy & Wide View

Specifications

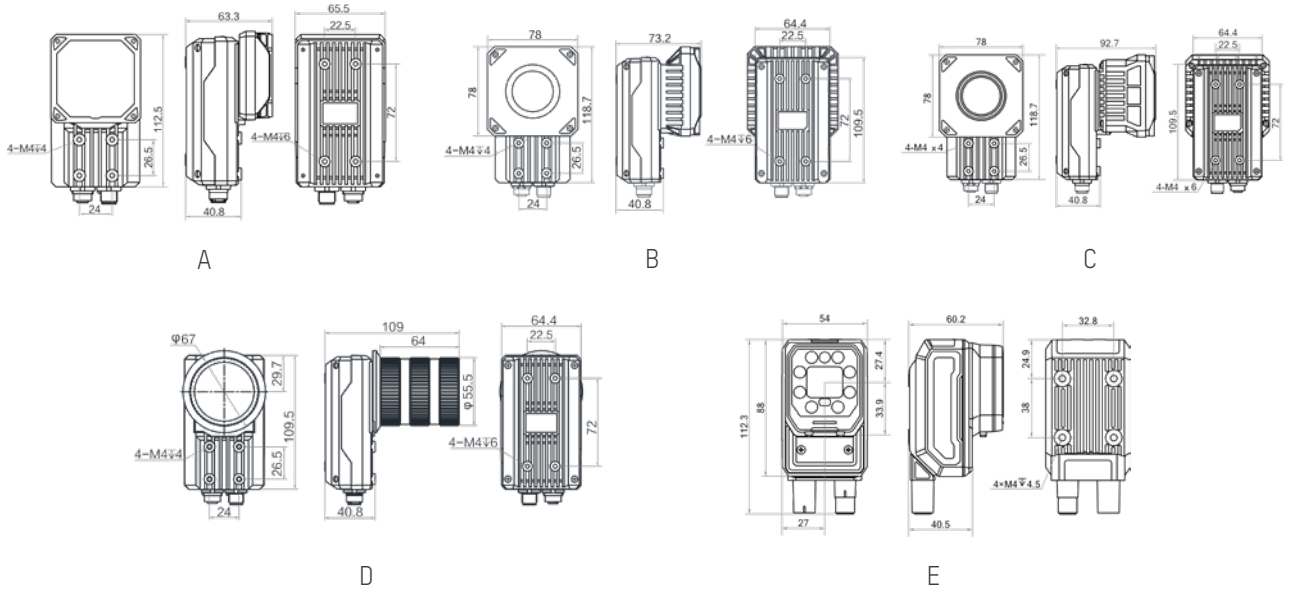
Model	Resolution	Max. frame rate	Max. reading speed	Light source	Max. power consumption	Focal Length	Label
MV-ID5030M-xxS-WBN	2048 × 1536	60 fps	90 codes/sec	white, optional blue/red/infrared	60 W@24 VDC	8/12/16/25 mm	A
MV-ID5030M-00C-NNN	2048 × 1536	60 fps	90 codes/sec	white, optional blue/red/infrared	60 W@24 VDC	8/12/16/25 mm	D
MV-ID5050M-xxS-WBN	2368 × 1760	40 fps	90 codes/sec	white, optional blue/red/infrared	60 W@24 VDC	8/12/16/25 mm	A
MV-ID5050XM-xxS-RBN*	2368 × 1760	92 fps	96 codes/sec	Concentrated red light, optional white/blue/infrared	12 W@24 VDC	8/12/16/25 mm	E



Model	Resolution	Max. frame rate	Max. reading speed	Light source	Max. power consumption	Focal Length	Label
MV-ID5060M-xxS-WBN	3072 × 2048	30 fps	90 codes/sec	white, optional blue/red/infrared	20 W@24 VDC	8/12/16/25 mm	B
MV-ID5060M-xxS-RBN	3072 × 2048	30 fps	90 codes/sec	red, optional blue/ white/infrared	20 W@24 VDC	8/12/16/25 mm	B
MV-ID5060M-00C-WBN	3072 × 2048	30 fps	90 codes/sec	white, optional blue/red/infrared	23 W@24 VDC	Additional purchase of C-mount lens is required	C
MV-ID5060M-00C-NNN	3072 × 2048	30 fps	90 codes/sec	/	23 W@24 VDC	Additional purchase of C-mount lens is required	D
MV-ID5120M-00C-NNN	4096 × 3072	28 fps	84 codes/sec	/	12 W@24 VDC	Additional purchase of C-mount lens is required	D
MV-ID5200M-00C-NNN	5440 × 3648	20 fps	36 codes/sec	/	12 W@24 VDC	Additional purchase of C-mount lens is required	D
MV-ID5250PM-00C-NNN*	5120 × 5120	15 fps	36 codes/sec	/	12 W@24 VDC	Additional purchase of C-mount lens is required	D

Notice: * will be released soon.
xx products with different focal Lengths.

Dimension

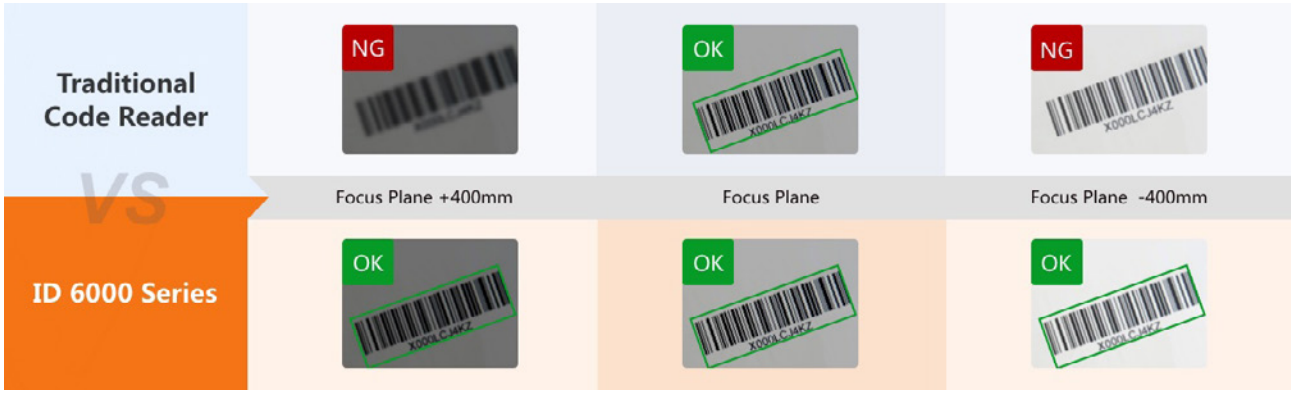


Unit:mm

ID6000 Series Smart Code Reader

Image-based high-resolution barcode reader ID6000 is specialized for the logistics industry. ID6000 has especially developed in algorithm development to cope with various complex logistics code reading application scenarios.

- Powerful performance



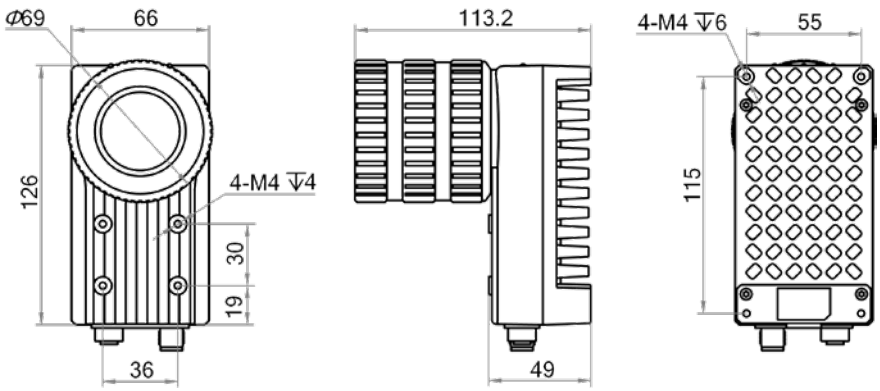
- Extra-wide field of view

Specifications

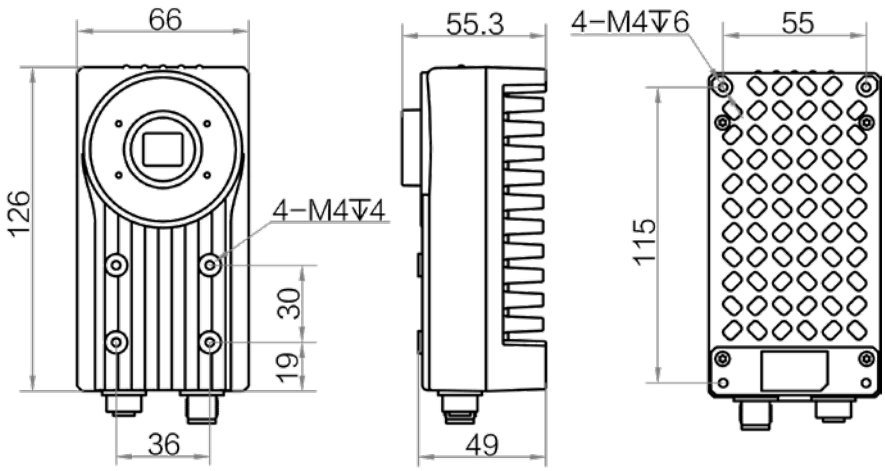
CE RoHS

Model	Pixel size	Resolution	Max. frame rate	Max. reading speed	Data interface	Lens mount	Label
MV-ID6120PM-00C-NNG	3.2 μm	4000 × 3000	28 fps	84 codes/sec	Gigabit Ethernet	C	A
MV-ID6200EM-00C-NNG	2.4 μm	5440 × 3648	10 fps	30 codes/sec	Gigabit Ethernet	C	B
MV-ID6200M-00C-NNG	2.4 μm	5440 × 3648	20 fps	60 codes/sec	Gigabit Ethernet	C	A

Dimension



A

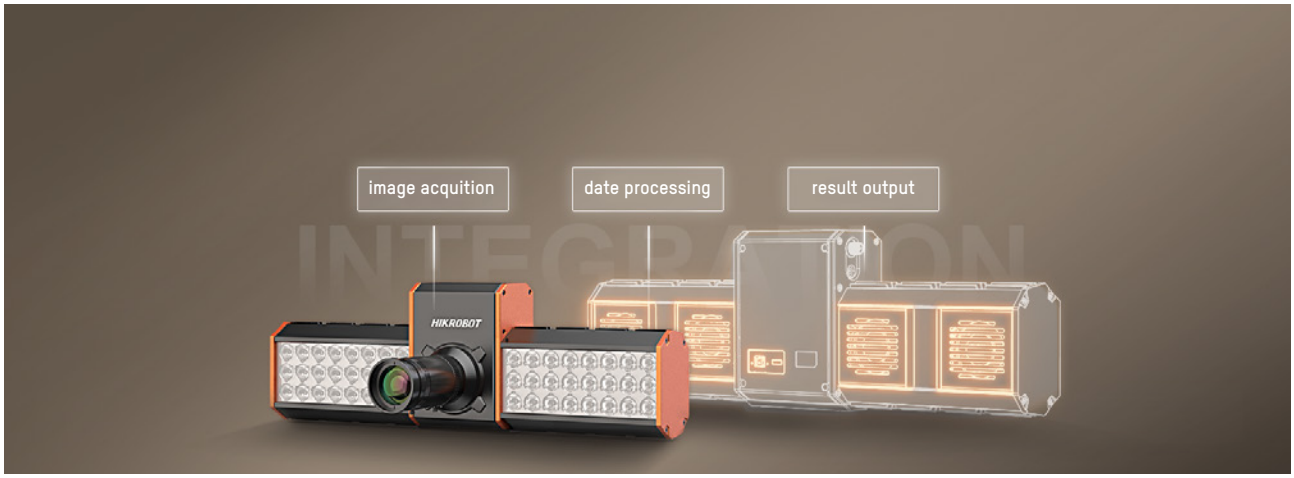


B

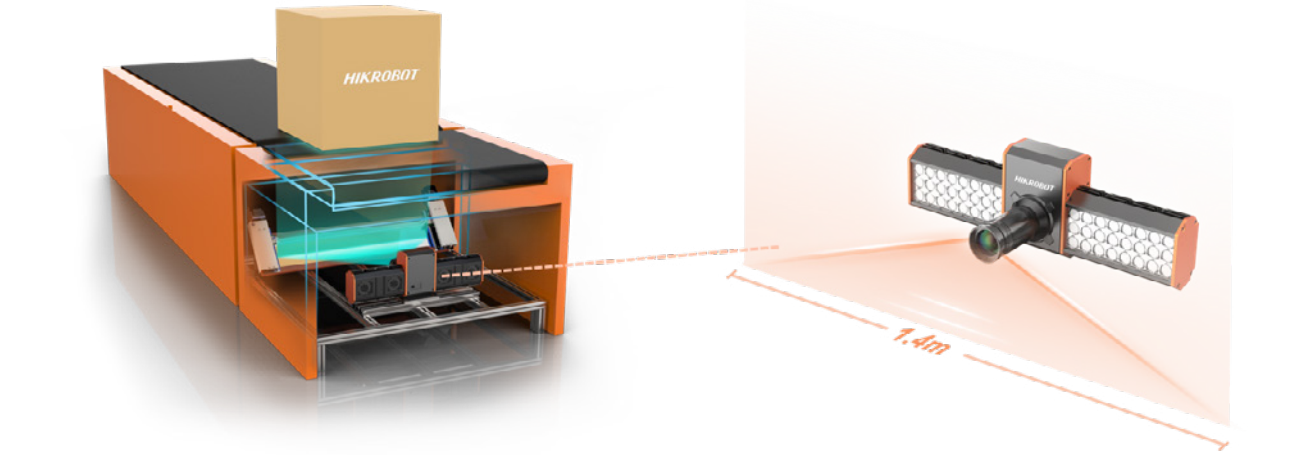
Unit:mm

ID7000 Series Smart Code Reader

Based on the embedded platform, ID7000 series is developed according to the application scenarios and needs of the bottom surface of the logistics industry. With 48 particles of LED light source and integrated structure design, ID7000 can realize an ultra-wide coverage.



- Integrated design



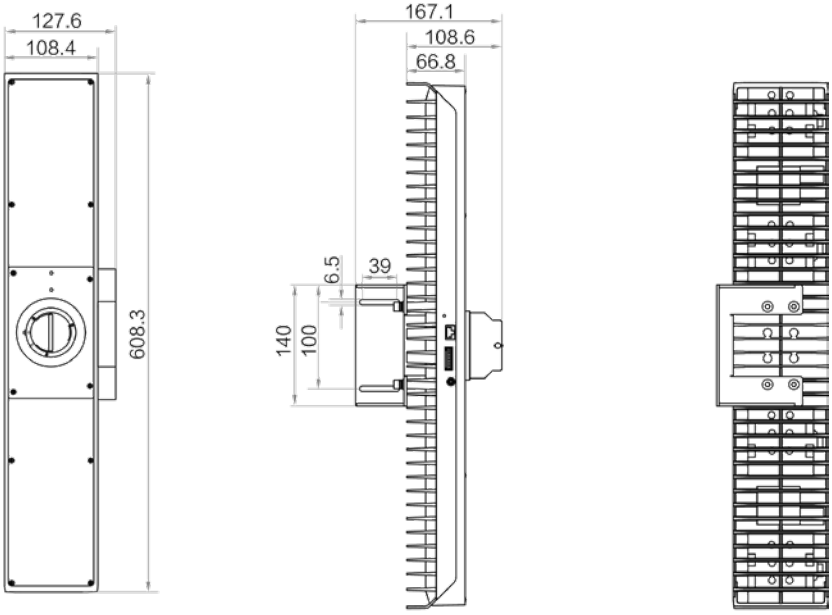
- Wide Coverage

Specifications

CE KC RoHS

Model	Max. line frequency	Resolution	Data interface	Focal Length	Working distance	Field of view	Lens mount
MV-ID7080EM-35F-WHA	15 kHz	8K	Gigabit Ethernet	35 mm	1000 mm	1000 mm	F

Dimension

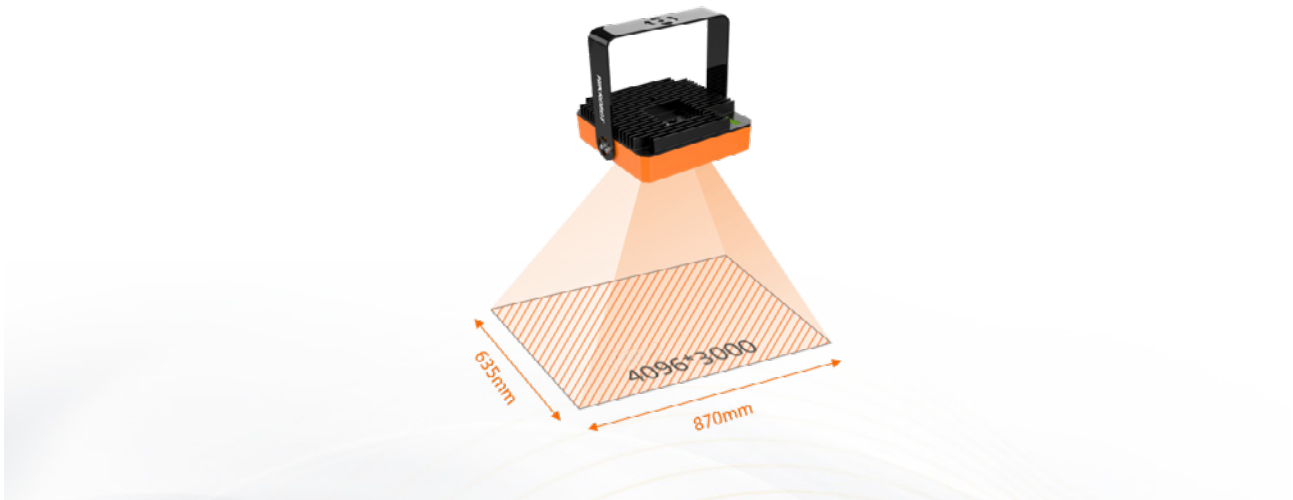


Unit:mm

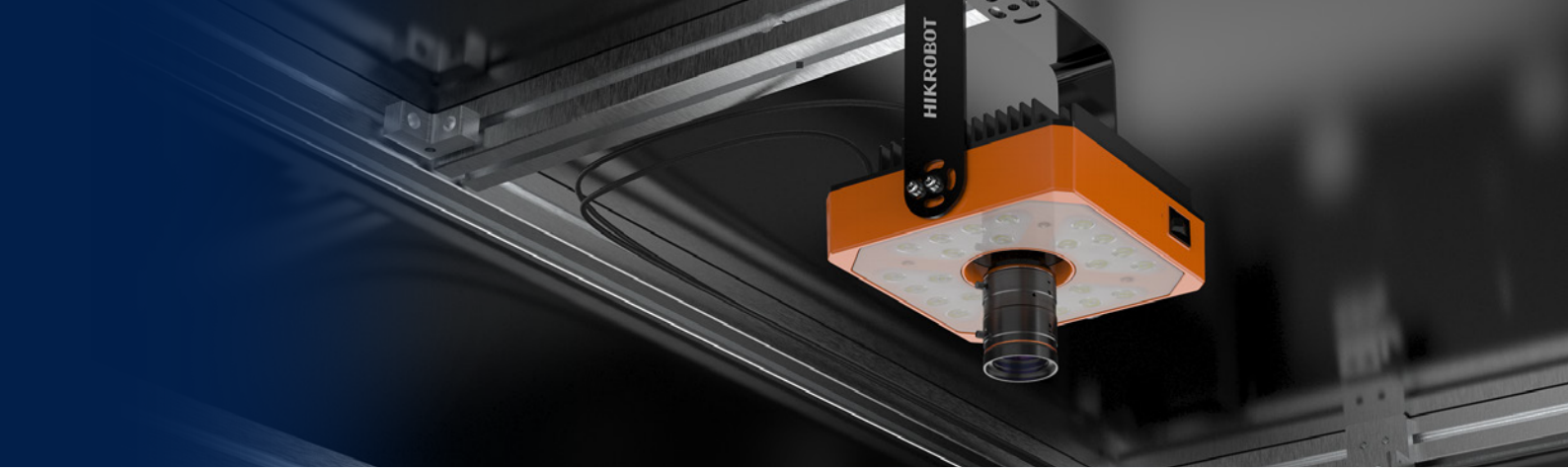
IDS Series Logistics Code Reader

As the core component of a code reading device, the product is divided into two categories: standard type and smart type. The product integrates the functions of image acquisition, data processing and result output. With its features of convenient use, excellent performance and rich supporting functions, it can be widely used in various types of code reading application scenarios.

- Flexible collocation and rapid deployment



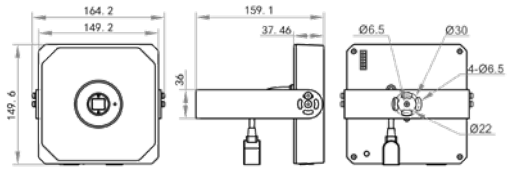
- Built-in embedded high performance processor



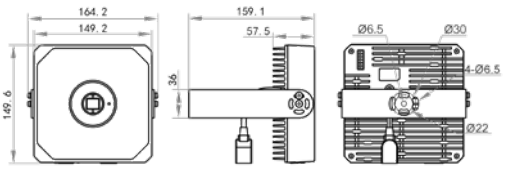
Specifications

Model	Type	Max. frame rate	Resolution	Focal Length	Working distance	Field of view	Depth of field	Label
MV-PD010003-06M-12C	Standard type	15 fps	3072 × 2048	12 mm	900 mm	550 mm × 340 mm	500 mm	A
MV-PD010003-06C-12C	Standard type	17 fps	3072 × 2048	12 mm	900 mm	550 mm × 340 mm	500 mm	A
MV-PD010003-06M-16C	Standard type	17 fps	3072 × 2048	16 mm	1500 mm	550 mm × 340 mm	500 mm	A
MV-PD010003-12C-8C	Standard type	9.6 fps	4024 × 3036	8 mm	780 mm	730 mm × 550 mm	400 mm	B
MV-PD010003-12M-16C	Standard type	5.5 fps	4024 × 3036	16 mm	1550 mm	730 mm × 550 mm	650 mm	B
MV-IDS006M-12C-C	Smart type	28 fps	3072 × 2048	12 mm	1050 mm	650 mm × 440 mm	600 mm	C
MV-IDS012M-16C-C	Smart type	20 fps	3968 × 3000	16 mm	1870 mm	870 mm × 635 mm	700 mm	C
MV-IDS020M-20C-C	Smart type	10 fps	5440 × 3648	20 mm	1600 mm	1050 mm × 705 mm	650 mm	C

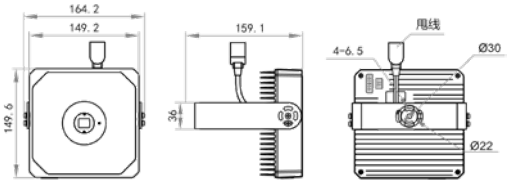
Dimension



A



B

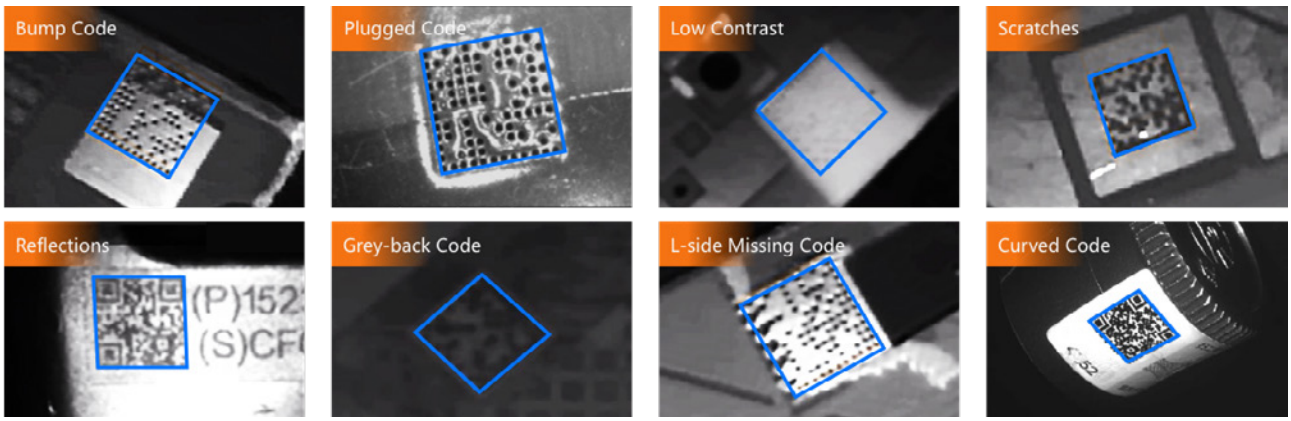


C

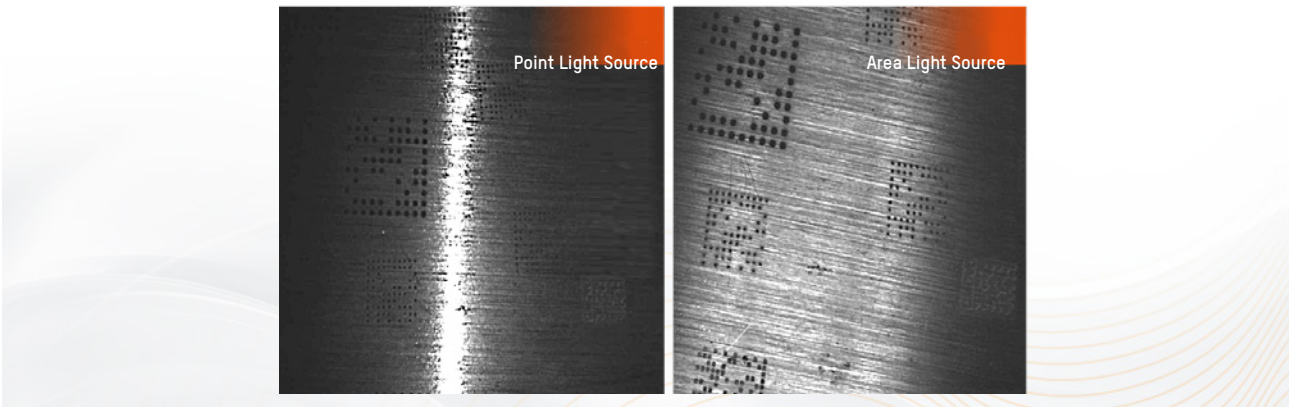
Unit:mm

IDH Series Handheld Smart Code Reader

As a powerful handheld barcode scanner, the IDH series adopt a million-resolution global exposure sensor. With high-level protection, IDH has red/white fill light which can be automatically adjusted. Support USB/ network port, simple and convenient to use.



- Excellent DPM code identify function



- Multi-light source design, adapt to more scenes

Specifications

Model	Model Description	Resolution	Frame rate	Min. accuracy	Data interface	Max. power consumption	Focal length	Label
MV-IDH2000/03SR/03WN/U	wired	640 × 480	50 fps	4 mil	SmartSDK,USB(HID/CDC)	2.5 W@5 VDC	3.1 mm	A
MV-IDH2000/13SR/04WN/U*	wired	1280 × 1024	50 fps	4 mil	SmartSDK,USB(HID/CDC)	2.5 W@5 VDC	3.9 mm	A
MV-IDH2000/13xR/05WN/U	wired	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,USB(HID/CDC)	2.5 W@5 VDC	4.9 mm	A
MV-IDH2000/13xR/05WP/U/PM	Wireless/Polarization	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,USB(HID/CDC)	2.5 W@5 VDC	4.9 mm	A

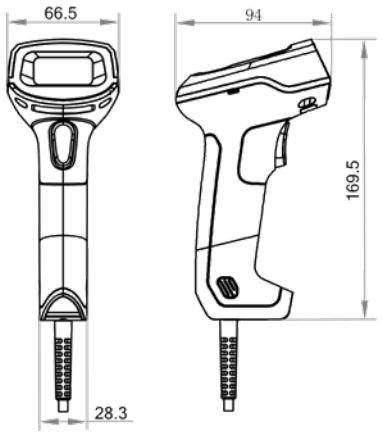
Model	Model Description	Resolution	Frame rate	Min. accuracy	Data interface	Max. power consumption	Focal length	Label
MV-IDH2000B/13xR/05WN*	Wireless/Bluetooth	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,Bluetooth,USB	6 W@ 5 VDC	4.9 mm	B
MV-IDH2000RF/03SR/03WN	Wireless (2.4G), including base	640 × 480	50 fps	4 mil	SmartSDK,USB,2.4G	6 W@5 VDC	3.1 mm	B
MV-IDH2000RF/03SR/05WN/UC	Wireless (2.4G), including base	640 × 480	50 fps	4 mil	SmartSDK,USB,2.4G	6 W@5 VDC	4.9 mm	B
MV-IDH2000RF/13SR/05WN	Wireless (2.4G), including base	1280 × 1024	50 fps	4 mil	SmartSDK,USB,2.4G	6 W@ 5 VDC	4.9 mm	B
MV-IDH2000RF/13NR/05WN/U	Wireless (2.4G), including base	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,USB,2.4G	6 W@ 5 VDC	4.9 mm	B
MV-IDH2000RF/13xR/05WN/UC	Wireless (2.4G), including base	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,USB,2.4G	6 W@ 5 VDC	4.9 mm	B
MV-IDH3000/13SR/05WN/U	Wired/USB/White light	1280 × 1024	50 fps	4 mil	SmartSDK,USB(HID/CDC)	1.5 W@5 VDC(USB) 1.8 W@12 VDC(DC terminal)	4.7 mm	C
MV-IDH3000/13xR/05RN/U*	Wired/USB/Red light	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,USB(HID/CDC)	1.5 W@5 VDC(USB) 1.8 W@12 VDC(DC terminal)	4.7 mm	C
MV-IDH3000/13SR/05WN/L	Wired/USB/White light	1280 × 1024	50 fps	4 mil	Fast Ethernet(100 Mbit/s),RS-232,DC terminal	1.8 W@12 VDC	4.7 mm	C
MV-IDH3000/13xR/05RN/L	Wired/USB/Red light	1280 × 1024	50 fps	S:4 mil N:3 mil	Fast Ethernet(100 Mbit/s),RS-232,DC terminal	1.8 W@12 VDC	4.7 mm	C
MV-IDH3000/13xR/05RN/LE/PM	Wired/GigeE/Red light	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,TCP Client,FTP,TCP Server,UDP,Serial,EthernetIp,Profinet,Modbus	1.8 W@12 VDC	4.7 mm	C
MV-IDH3000/13SR/05WP/L/PM	Wired/GigeE/White light/ Polarization	1280 × 1024	50 fps	4 mil	Fast Ethernet(100 Mbit/s), RS-232,DC terminal	1.8 W@12 VDC	4.7 mm	C
MV-IDH3000/13SR/05WP/U/PM	Wired/USB/White light/ Polarization	1280 × 1024	50 fps	4 mil	SmartSDK,USB(HID/CDC)	1.5 W@5 VDC(USB) 1.8 W@12 VDC(DC terminal)	4.7 mm	C

Model	Model Description	Resolution	Frame rate	Min. accuracy	Data interface	Max. power consumption	Focal length	Label
MV-IDH3000B/13SR/05WN/US	Wireless/Bluetooth/ White light, including base	1280 × 1024	50 fps	4 mil	SmartSDK,Bluetooth,USB	1.6 W@ 3.8 VDC	4.7 mm	D
MV-IDH3000B/13SR/05WN/LS	Wireless/Bluetooth/ White light, including smart base	1280 × 1024	50 fps	4 mil	SmartSDK,Bluetooth,USB	1.6 W@ 3.8 VDC	4.7 mm	D
MV-IDH3000B/13xR/05RN	Wireless/Bluetooth/Red light	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,Bluetooth,USB	1.6 W@ 3.8 VDC	4.7 mm	D
MV-IDH3000B/13xR/05RN/US	Wireless/Bluetooth/Red light, ncluding base	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,Bluetooth,USB	1.6 W@ 3.8 VDC	4.7 mm	D
MV-IDH3000B/13xR/05RN/LS	Wireless/Bluetooth/Red light, including smart base	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,Bluetooth,USB	1.6 W@ 3.8 VDC	4.7 mm	D
MV-IDH3000B/13xR/05RN/LES/ PM	Wireless/GigeE/ Bluetooth/Red light	1280 × 1024	50 fps	S:4 mil N:3 mil	SmartSDK,Bluetooth,USB	1.6 W@ 3.8 VDC	4.7 mm	D
MV-IDH3000B/13SR/05WP/LS/ PM	Wireless/Bluetooth/ White light, including smart base	1280 × 1024	50 fps	4 mil	SmartSDK,Bluetooth,USB	1.6 W@ 3.8 VDC	4.7 mm	D
MV-IDH3000B/13SR/05WP/US/ PM	Wireless/Bluetooth/ White light,including base	1280 × 1024	50 fps	4 mil	SmartSDK,Bluetooth,USB	1.6 W@ 3.8 VDC	4.7 mm	D
MV-IDH7000P/10xR/07RN/L	Wired/GigE/Red light	1280 × 800	50 fps	S:4 mil N:3 mil	SmartSDK,TCP,FTP,Profinet,Ethe rnetIP,Modbus,UDP,Serial	6 W@24 VDC	6.7 mm	E
MV-IDH7000P/10xR/07RN/U	Wired/USB/Red light	1280 × 800	50 fps	S:4 mil N:3 mil	SmartSDK,USB(HID/CDC)	USB 2.0:4.6 W@5 VDC DC terminal:6 W@24 VDC	6.7 mm	E
MV-IDH7000P/10HHD/07RN/U/ PM	Wired/USB/Red light/ Ultra high density barcode reading	1280 × 800	50 fps	1D:0.8 mil 2D:2 mil	SmartSDK,USB(HID/CDC)	USB 2.0:4.6 W@5 VDC DC terminal:6 W@24 VDC	6.7 mm	E
MV-IDH7000P/10HHD/07RN/L/ PM	Wired/GigE/Red light/ Ultra high density barcode reading	1280 × 800	50 fps	1D:0.8 mil 2D:2 mil	SmartSDK,TCP,FTP,Profinet, EthernetIP, Modbus,UDP,Serial	6 W@24 VDC	6.7 mm	E
MV-IDH7000P/10ER/07RN/U/PM	Wired/USB/Red light/ Remote barcode reading	1280 × 800	50 fps	1D:5 mil 2D:10 mil	SmartSDK,USB(HID/CDC)	USB 2.0:4.6 W@5 VDC DC terminal:6 W@24 VDC	6.7 mm	E
MV-IDH7000B/10xR/07RN/LS	Wireless/Bluetooth/ Red light,including smart base	1280 × 800	50 fps	S:4 mil N:3 mil	code reader:Bluetooth base:SmartSDK,TCP Client,Serial ,FTP, TCP Server,UDP,Profinet,Ethernet/IP	6.4 W@ 3.8 VDC	6.7 mm	F
MV-IDH7000B/10xR/07RN/US	Wireless/Bluetooth/Red light,including base	1280 × 800	50 fps	S:4 mil N:3 mil	code reader:Bluetooth base:SmartSDK,USB(HID/CDC)	6.4 W@ 3.8 VDC	6.7 mm	F
MV-IDH7000B/10xR/07RN	Wireless/Bluetooth/Red light	1280 × 800	50 fps	S:4 mil N:3 mil	Bluetooth	6.4 W@ 3.8 VDC	6.7 mm	F
MV-IDH7000B/10HHD/07RN/LS/ PM	Wireless/Bluetooth/ Red light/Ultra high density barcode reading,including smart base	1280 × 800	50 fps	3 mil	code reader:Bluetooth base:SmartSDK,TCP Client,Serial ,FTP, TCP Server,UDP,Profinet,Ethernet/IP	6.4 W@ 3.8 VDC	6.7 mm	F

Model	Model Description	Resolution	Frame rate	Min. accuracy	Data interface	Max. power consumption	Focal length	Label
MV-IDH7000B/10HHD/07RN/US/PM	Wireless/Bluetooth/Red light/Ultra high density barcode reading,including base	1280 × 800	50 fps	3 mil	code reader:Bluetooth base:SmartSDK,USB(HID/CDC)	6.4 W@ 3.8 VDC	6.7 mm	F
MV-IDH7000B/10ER/07RN/US/PM	Wireless/Bluetooth/Red light/Remote barcode reading,including base	1280 × 800	50 fps	3 mil	code reader:Bluetooth base:SmartSDK,USB(HID/CDC)	6.4 W@ 3.8 VDC	6.7 mm	F
MV-IDH9000/13DP/16RP/L*	Wired/GigE/Minimum code reading	1280 × 1024	50 fps	1.7mil (0.4×0.4mm Overall size)	Fast Ethernet,RS-232,DC terminal	10 W@24 VDC	16 mm	G
MV-IDH9000/13DP/16RP/U*	Wired/USB/Minimum code reading	1280 × 1024	50 fps	1.7mil (0.4×0.4mm Overall size)	USB2.0/3.0,RS-232,DC terminal	USB2.0:4.6 W@5 VDC DC terminal:10 W@24 VDC	16 mm	G
MV-IDH9000/13SR/04RP/L*	Wired/GigE/Difficult code reading	1280 × 1024	50 fps	1D:3 mil 2D:5 mil	Fast Ethernet,RS-232,DC terminal	10 W@24 VDC	4.3 mm	G
MV-IDH9000/13SR/04RP/U*	Wired/USB/Difficult code reading	1280 × 1024	50 fps	1D:3 mil 2D:5 mil	USB2.0/3.0,RS-232,DC terminal	USB2.0:4.6 W@5 VDC DC terminal:10 W@24 VDC	4.3 mm	G
MV-IDH9000B/13DP/16RP/LS*	Wireless/GigE/ Difficult code reading/ Minimum code reading/ Package,including base	1280 × 1024	50 fps	1.7mil (0.4×0.4mm Overall size)	Fast Ethernet,RS-232,DC terminal	10 W@24 VDC	16 mm	H
MV-IDH9000B/13DP/16RP/US*	Wireless/USB/ Difficult code reading/ Minimum code reading/ Package,including base	1280 × 1024	50 fps	1.7mil (0.4×0.4mm Overall size)	USB2.0/3.0,RS-232,DC terminal	USB2.0:4.6 W@5 VDC DC terminal:10 W@24 VDC	16 mm	H
MV-IDH9000B/13SR/04RP/LS*	Wireless/GigE/ Difficult code reading/ Package,including base	1280 × 1024	50 fps	1D:3 mil 2D:5 mil	code reader:Bluetooth base:SmartSDK,TCP Client,Serial ,FTP, TCP Server,UDP,Profinet,Ethernet/IP	10 W@24 VDC	4.3 mm	H
MV-IDH9000B/13SR/04RP/US*	Wireless/USB/ Difficult code reading/ Package,including base	1280 × 1024	50 fps	1D:3 mil 2D:5 mil	code reader:Bluetooth base:SmartSDK,USB(HID/CDC)	USB2.0:4.6 W@5 VDC DC terminal:10 W@24 VDC	4.3 mm	H

Notice:* will be released soon. x=S denotes the standard focus, x=N denotes the near focus

Dimension



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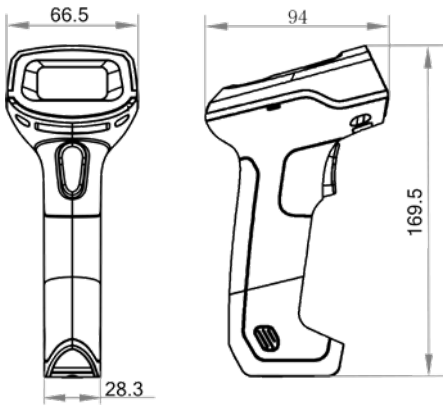

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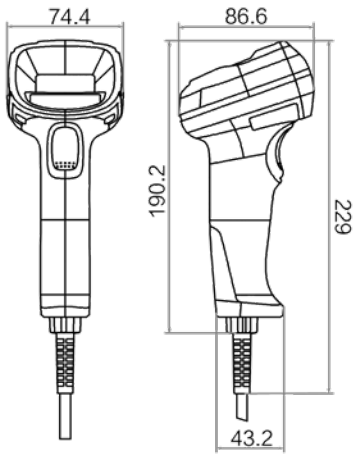

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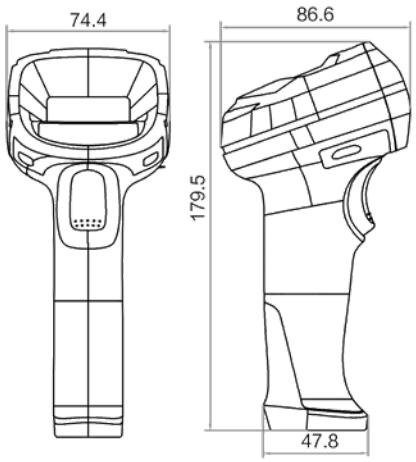
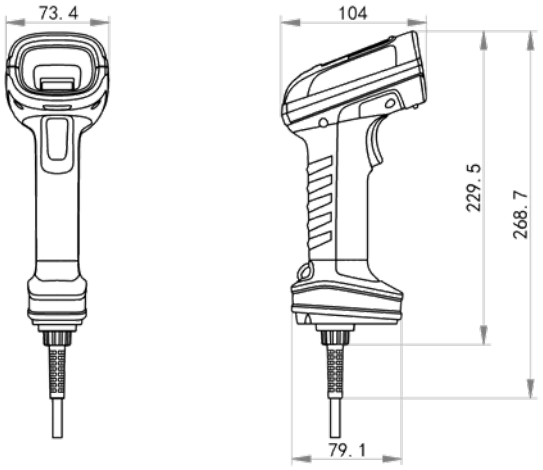


D

Unit:mm



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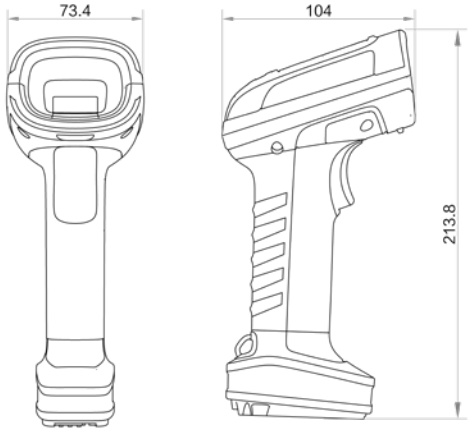

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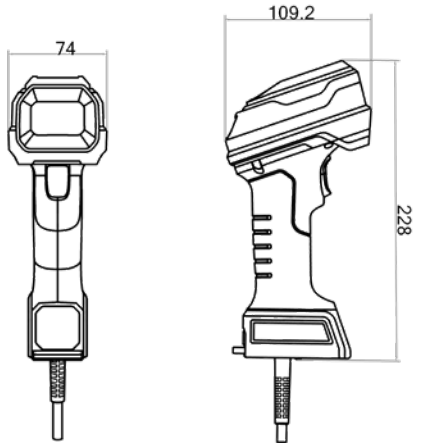

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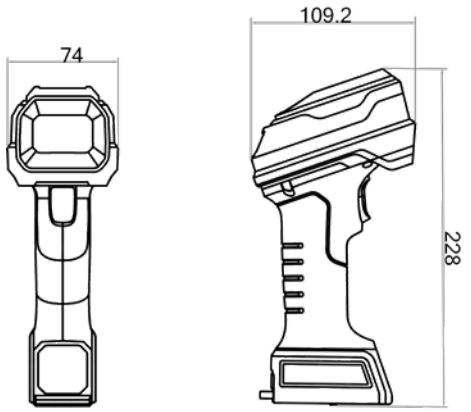


H

Unit:mm

IDP Series Smart Mobile Terminal

An intelligent Android-based PDA device, using a self-developed imaging code reading module and algorithm, it can efficiently read mainstream one-dimensional and two-dimensional codes, and can meet the requirements of intelligent manufacturing, logistics, retail, warehousing, asset management and many other industry applications.

- Excellent one-dimensional code and two-dimensional code reading performance, and developed for industry applications such as continuous code scanning, precise code scanning, OCR recognition, batch scanning and other functions

- Industrial-grade smart handheld terminal, equipped with an eight-core 2.0GHZ high-performance processor, based on the Android 10 operating system, and the running speed is comprehensively improved

Specifications

Model	Model Description	Processor	Storage	Resolution	Battery	Bluetooth	NFC	Interface
MV-IDP3304	4"/DP/Keyboard style/ Scan code handheld terminal	Eight core processor Maximum 2.2GHZ	RAM 3/4GB ROM 32/64GB	Code reading module:1MP/Mono/ Global Rear camera:13MP/ Color/Zoom front camera:8MP/ Color/Fixed focus	5000 mAh(Support replacement)	BT5.1	support (Optional)	USB2.0,Type-C,OTG

Model	Model Description	Processor	Storage	Resolution	Battery	Bluetooth	NFC	Interface
MV-IDP4104/DP	Industrial grade/DP/Long keyboard/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4GB ROM 64GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Zoom front camera:13MP/Color/Fixed focus	5200mAh (Support replacement,Backup electricity 50mAh)	BT5.0	support	USB2.0,Type-C,OTG
MV-IDP5104	5"/Baseline payment/Full screen display/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4GB ROM 64GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Fixed focus front camera:13MP/Color/Zoom	4900 mAh(Non removable)	BT5.0	support	USB2.0,Type-C,OTG
MV-IDP5104/AI	5"/OCR/Full screen display/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4GB ROM 64GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Fixed focus front camera:13MP/Color/Zoom	4900mAh(Non removable)	BT5.0	support	USB2.0,Type-C,OTG
MV-IDP5006	6"/5G/Full screen display/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4/8GB ROM 64/128GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Fixed focus front camera:13MP/Color/Zoom	5000 mAh(Support replacement)	BT5.2	support	USB2.0,Type-C,OTG
MV-IDP5006/H	6"/5G/Full screen display/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4GB ROM 64GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Fixed focus front camera:13MP/Color/Zoom	5000 mAh(Support replacement)	BT5.2	support	USB2.0,Type-C,OTG
MV-IDP5204	6.2"/Baseline payment/Full screen display/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4GB ROM 64GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Fixed focus front camera:13MP/Color/Zoom	5000mAh(Non removable)	BT5.0	support	USB2.0,Type-C,OTG
MV-IDP5204ER	6.2"/Remote code reading/Full screen display/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4GB ROM 64GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Fixed focus front camera:13MP/Color/Zoom	5000mAh(Non removable)	BT5.0	support	USB2.0,Type-C,OTG
MV-IDP5204DP	6.2"/DP/Full screen display/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4GB ROM 64GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Fixed focus front camera:13MP/Color/Zoom	5000mAh(Non removable)	BT5.0	support	USB2.0,Type-C,OTG

Model	Model Description	Processor	Storage	Resolution	Battery	Bluetooth	NFC	Interface
MV-IDP5204/H	6.2"/Medical payment/Full screen display/Scan code handheld terminal	Eight core processor Maximum 2.0GHZ	RAM 4GB ROM 64GB	Code reading module:1MP/Mono/Global Rear camera:5MP/Color/Fixed focus front camera:13MP/Color/Zoom	5000mAh(Non removable)	BT5.0	support	USB2.0,Type-C,OTG
MV-IDP8104	10"/Baseline payment/Scan code tablet	Eight core processor Maximum 1.9GHZ	RAM 4GB ROM 64GB		8000mAh(Non removable)	BT5.0	support	USB2.0,Type-C,OTG
MV-IDP8104/FR	10"/Remote code reading/Scan code tablet	Eight core processor Maximum 1.9GHZ	RAM 4GB ROM 64GB		8000mAh(Non removable)	BT5.0	support	USB2.0,Type-C,OTG

List of Code Reader Accessories

I/O Power Cables		ID1000	ID800	ID2000E		ID2000M/ID3000P			ID3000X/ID5000/ID6000			ID7000	IDS	IDH
		Standard	Standard	Standard	High Flex	Standard	High Flex/Super Flex	Bend	Standard	High Flex	Bend	Standard	Standard	Flexible
Serial Port Model	1.5m	×	√	×	×	×	×	×	×	×	×	×	×	×
USB Model	2m	×	√	√	×	√	√	×	×	×	×	×	×	√*2
	2.5m	×	×	√	×	×	×	×	×	×	×	×	×	√*3
	3m	√	×	×	×	×	×	×	×	×	×	×	×	√
Lan Model	3m	×	×	×	×	√	√	√	√	√	×	×	√	√
	3.5m	×	×	√	√	×	×	×	×	×	×	×	×	×
	5m	×	×	√	√	√	√*1	√	√	√	√	×	×	√
	7m	×	×	×	×	√	√	×	√	×	×	√	×	×
	10m	×	×	×	×	√	√	√	√	√	×	×	×	√
	15m	×	×	√	×	√	√	×	√	×	×	×	×	×
	20m	×	×	×	×	×	×	×	×	√	×	×	×	×
	30m	×	×	×	×	×	×	×	√	×	×	×	×	×

Note: The yellow mark means it comes in the package; *1 super flexible cable; *2 cable for IDH2000/IDH9000; *3 cable for IDH3000/IDH7000

Gigabit Ethernet Cable	ID3000X/ID5000/ID6000			ID7000/IDS				IDH
	Standard	High Flex	Bend	Standard	High Flex	Super Flex	Bend	Flexible
3m	√*1	√	×	√	√	√	√	√
5m	√	√	√	√*2	√	√	√	√
7m	√	×	×	√	√	√	×	×
10m	√	√	×	√*3	√	√	×	√
15m	√	×	×	√	√	√	√	×
20m	×	√	×	×	×	×	×	×
30m	√	×	×	√	√	×	×	×
60m	×	×	×	√	×	×	×	×

Note: The yellow mark means it comes in the package; *1 cable for ID6000; *2 cable for IDS; *3 cable for IDH7000

Power Adapter	Adapter	Switching Power Supply	Adaption Series								
			ID800	ID2000	ID3000M	ID3000X	ID5000	ID6000	ID7000	IDS	IDH
12V	√	√	√	×	×	×	×	√	×	×	√
24V	√	√	√	√	√	√	√	√	×	√	√
48V	×	√	×	×	×	×	×	×	√	×	×

Lens Cap	Adaption Series						
	ID3013P	ID3013P-8	ID3000X	ID5030	ID5050	ID5050X	ID5060
Transparent	√	√	√	√	√	√	√
Semi-polarization	√	×	√	√	√	√	×
Polarization	√	√	√	√	√	√	√
Diffusion	√	×	√	√	√	×	√
Magnification	√	×	√	√	√	×	×
Light uniformity	×	×	√	×	×	×	×
YAG Guard	×	×	√	×	×	√	×
ESD Guard	×	×	√	×	×	√	×

Note: The yellow mark means it comes in the package

Other Accessaries	Adaption Series									
	ID1000	ID800	ID2000	ID3000M	ID3000X	ID5000	ID6000	ID7000	IDS	IDH
Flat Ribbon Cable	√	×	×	×	×	×	×	×	×	×
Installation Board	×	√	√	√	√	√	×	×	×	×
IO Box	×	×	√	√	×	×	×	×	×	×
Lens(6/8/12/16/25/35/50mm)	×	×	√	×	×	√	√	√	√	×
Light Source Panel (white/blue/red/near-infrared)	×	×	×	√	√	√	×	×	×	×
Extended Light Source	×	×	×	×	×	√	√	×	×	×
Bottom Code Reading Mirror	×	×	×	×	×	×	×	√	×	×
IDH Bracket	×	×	×	×	×	×	×	×	×	√

Note: The yellow mark means it comes in the packag

Other Accessaries	Adaption Series				
	IDP3304	IDP4104	IDP5102	IDP5204	IDP8104
Hand Strap	√	√	√	√	×
Charger	√	√	√	√	√
Data Cable	√	√	√	√	√
Screen Film	×	√	√	√	×
Rubber Boot	×	×	√	×	×
Wrist Strap	×	√	√	×	√
Device Battery Hybrid Dock Charger	×	√	×	×	×
Single Slot Charger	×	×	√	×	×
4-slot Battery Charger	×	×	×	×	×
6-slot Battery Charger	×	×	√	×	×
Scan Handle	×	×	×	×	×
RFID Scan Handle	×	×	√	√	√

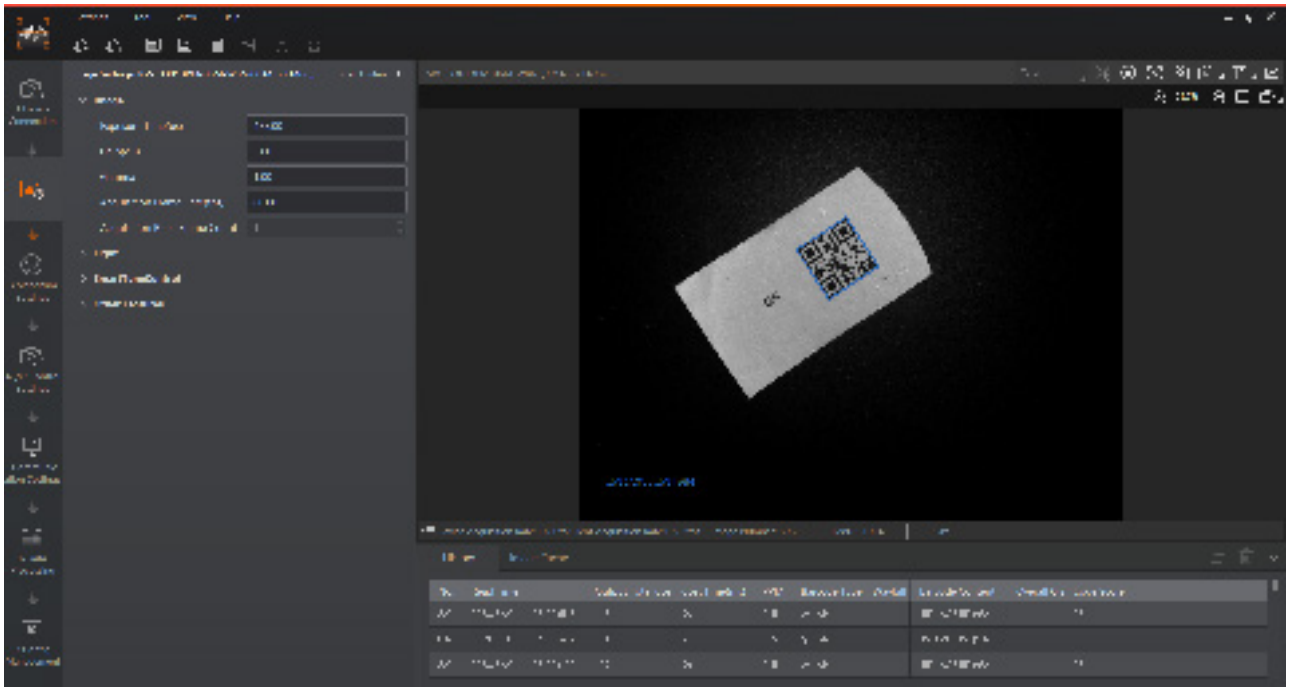
Note: The yellow mark means it comes in the packag

IDMVS Client

IDMVS client is an application software developed by Hikrobot exclusively for code reading cameras, which supports the debugging of all series of industrial code readers, handheld scanners, code reading modules and other code reading products. Through IDMVS, you can perform a series of debugging operations such as code reader focusing, parameter setting and establishing communication, etc. You can follow the seven-step guide bar on the left side of the software interface to complete the equipment setting and easily complete the preparation before the equipment comes online.

Key Features

- Directly connected to the code reader debugging, with interface operation for all code reading functions, easy to operate and start
- Real-time display of code reading effects for imaging optimization and debugging
- Integrated FTP client for direct local storage via FTP
- Provide SDK secondary development, support C, C++, C# development language
- Provide UI interface and other in-depth customization services to meet customer needs in all aspects



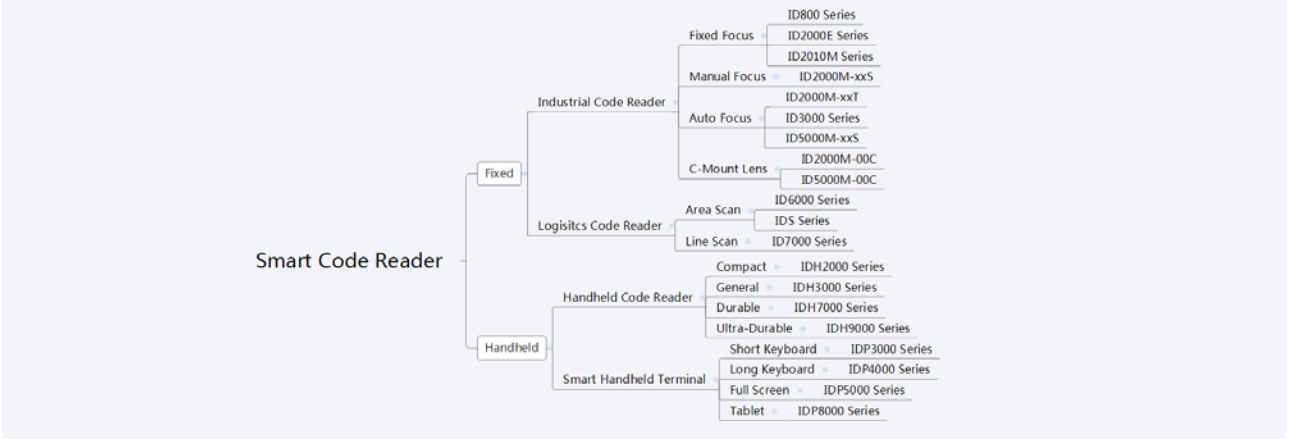
IDMVS

IDMVS client can be downloaded by visiting the website of Hikrobot.
https://www.hikrobotics.com/en/machinevision/service/download?module=0

Selection Guide of Smart Code Reader

Step 1 Select Product Series

Select the product series based on the actual demands.



Step 2 Select Resolution and Focal Length

Select Resolution

Confirm code information and requirements of field of view, and convert the minimum resolution of camera as follows.

$$\text{Minimum Resolution of Camera} \geq \frac{\text{Field of View*Algorithm Performance}}{\text{Minimum Resolution of Code}} = \frac{(\quad)mm \times (\quad)}{(\quad)mm}$$

Based on the project stability, it is recommended to select algorithm performance from 1 to 4 for 1D codes and from 3 to 8 for 2D codes. The minimum resolution of code refers to narrow bar size for bar code and minimum module size for QR code. You can see in the figure below.

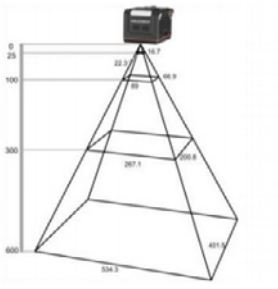
The product resolution is shown below.

ID800	ID2000	ID3000	ID5000	ID6000	ID7000	IDS	IDH	IDP
30 W to 130 W	40 W to 160 W	130 W to 500 W	300 W to 2500 W	890 W to 2000 W	6 K to 8 K	600 W to 2000 W	30 W to 130 W	100 W

Select Focal Length

Refer to the specification to confirm the working distance and the field of view.

MV-ID3030XM (Unit: mm)					
Lens Focal Length	Working Distance	FoV		1D Single Pixel Accuracy	2D Single Pixel Accuracy
		H	V		
8	25	22.3	16.7	0.011	0.033
	100	89.0	66.9	0.043	0.131
	300	267.1	200.8	0.130	0.392
	600	534.3	401.5	0.261	0.784
	1000	883.2	662.4	0.400	1.300
	2000	1766.4	1324.8	0.900	2.600



Step 3 Select Light Source and Lens Cap

Select a suitable light source and lens cap according to the carrier material, coding process, surface pattern, and other factors. The accessories are detailed in the list of code reader accessories.

Image effect of lamp panels with different colors

Step 4 Select Structure and Function

Select the supported device model, cable type, and cable length according to the device environment. See the list of code reader accessories.

For fixed products, it is recommended to consider ingress protection and dimension.

Device Model	ID800	ID2000E	ID2000M	ID3000P	ID3000X	ID5000-xxS	ID5000-00C	ID5000X
Ingress Protection	IP54	IP54	IP65	IP67	IP67	IP67	IP67	IP67
Dimension (mm)	38 × 38 × 18	45 × 43 × 25	46 × 40 × 25	65 × 65 × 47	80 × 43 × 44	112 × 65 × 63	109 × 64 × 109	88 × 65 × 54

For handheld products, it is recommended to consider ingress protection and drop height.

Device Model	IDH2000	IDH3000	IDH7000	IDH9000	IDP3000	IDP4000	IDP5000	IDP8000
Ingress Protection	IP42	IP42	IP65	IP67	IP65/IP67	IP66/IP68	IP68	IP67
Drop Height (m)	1.5	1.5	1.8	2.5	1.5	1.5	1.5	1.2

Select the supported device models based on the software functions.

For fixed products, the following functions may be considered.

Device Model	ID800	ID2000E	ID2000M	ID3000	ID5000
Communication Protocol	USB, Serial	TCP Client, Serial, FTP, TCP Server, UDP, Profinet, EthernetIP, USB	TCP Client, Serial, FTP, TCP Server, Profinet, Ethernet/IP, Melsec, Fins, ModBus, SLMP, UDP		
Polling Function	Not supported	Not supported	8	8	8
Algorithm ROI	4	4	4	150	150
Main-Sub Function	Not supported	Not supported	Support	Support	Support
Code Score	Not supported	Not supported	Support	Support	Support

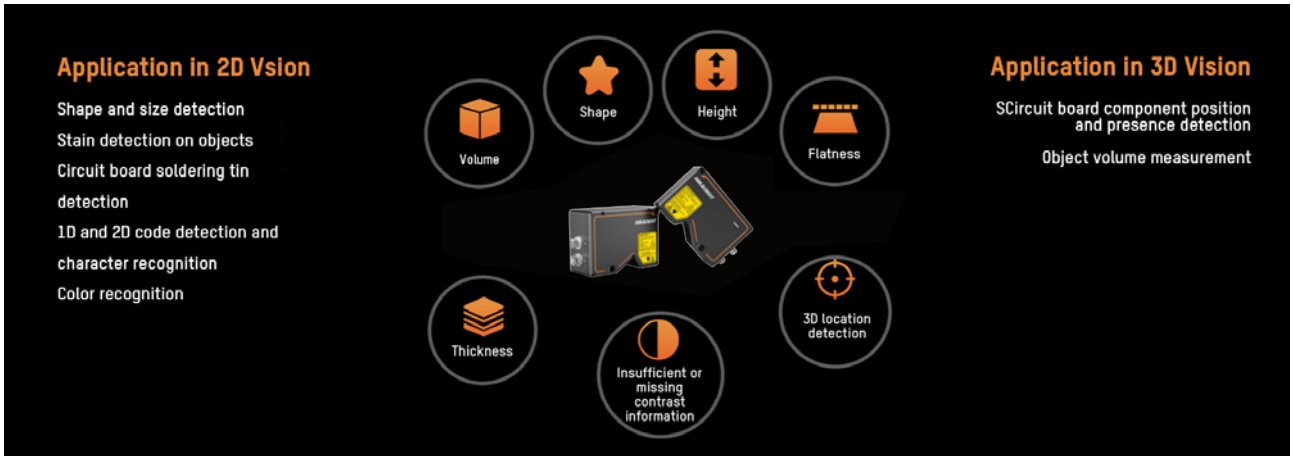
For handheld products, the following communication protocols may be considered.

Device Model	IDH2000	IDH3000	IDH7000	IDH9000
Communication Protocol	USB, RF 2.4G Bluetooth	TCP Client, FTP, TCP Server, UDP, Serial, USB, EthernetIP, Profinet, Modbus	TCP Client, FTP, HTTP, TCP Server, UDP, Serial, USB, Profinet, MELSEC/SLMP, Ethernet/IP, ModBus, Fins	

Performance and Application of 3D Camera

Product Background

In the field of machine vision, upgrading from 2D vision to 3D vision can enable machines to understand the 3D physical world like humans, thus giving more possibilities to machine vision. Hikrobot is committed to accelerating manufacturing automation upgrade with 3D technology, after years of research and development, we have now developed a whole ecosystem consisting of 3D laser profile sensor, line laser 3D camera, and RGB-D Smart Camera. These products are extensively applied in consumer electronics, electronics manufacturing, logistics, and other industries that require high-precision 3D measurement and logistic sensing.

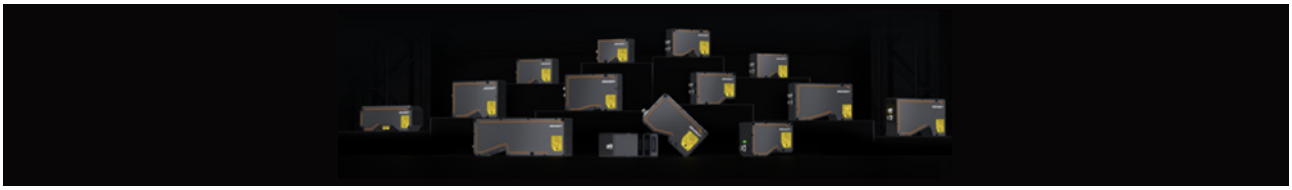


Key Features

With 3D sensor technology at its core, 3D vision supports multi-dimension data acquisition. Focusing on applications in high-precision measurement and logistics sensing fields, 3D vision provides all-in-one solutions that cover both hardware and software. By simplifying conventional mechanical design, 3D vision breaks the limits of traditional applications and assists enterprises in upgrading to smart manufacturing.

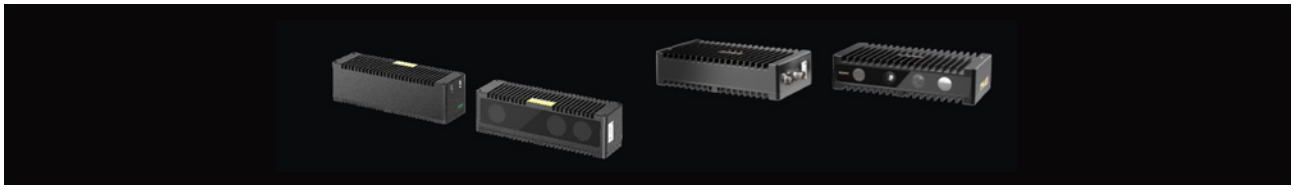
High-precision measurement

Based on laser triangulation measurement, 3D laser profile sensor can output high-frame point clouds, depth image and intensity image at micrometer level in real time. It is widely applicable to non-contact high-precision online 3D measurement scenes in consumer electronics, lithium battery, and PCB industries.



Logistic sensing

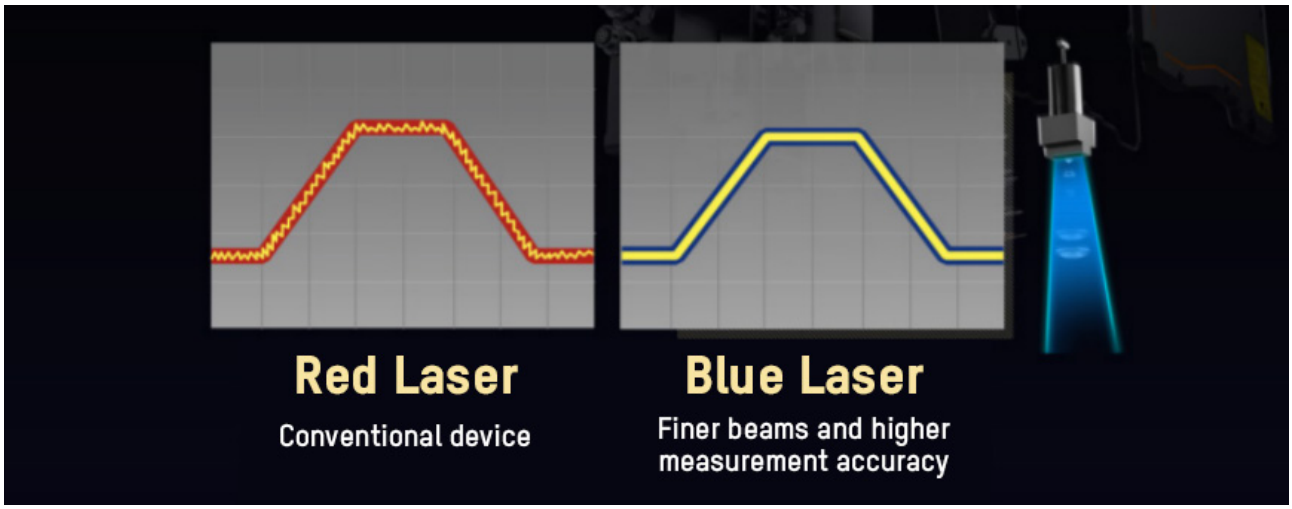
RGB-D smart camera adopts binocular depth image technology, generates deep images with high quality through its advanced image processing technology and high-precision 3D matching algorithm, and supports high-speed synchronized output of RGB and depth image. With a built-in AI large model, the camera can directly output deep learning algorithm results such as instance segmentation. This product is suitable for sensing and measurement, mainly applied in logistics industry.



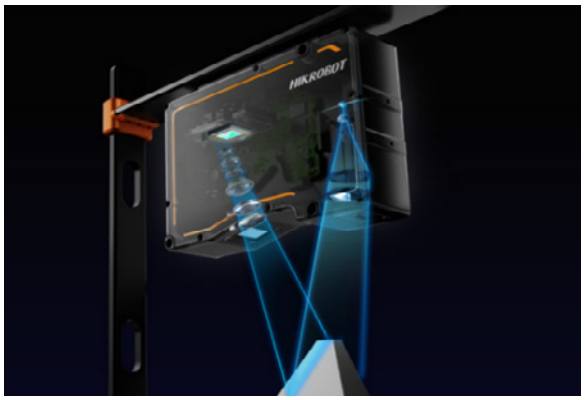
3D Camera

3D Laser Profile Sensor

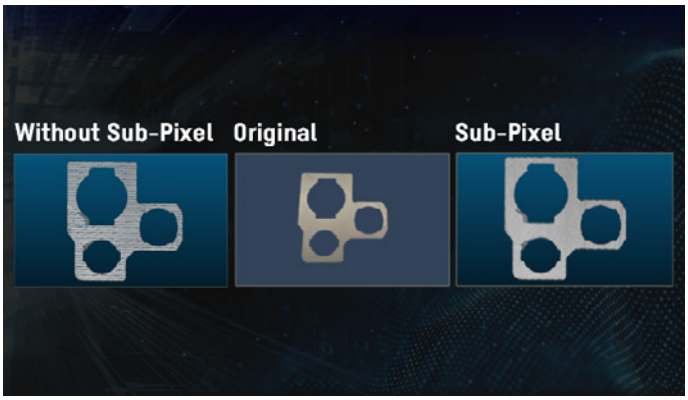
Based on laser triangulation measurement, the 3D laser profile sensor provides point cloud data, depth image, and brightness image with high frame rate and high accuracy up to micron level via the built-in high-precision algorithm. It is widely used in online, non-contact, and high-precision 3D measurement application scenarios in PCB, consumer electronics, and lithium battery industries.



Ultra-Fine Blue Light

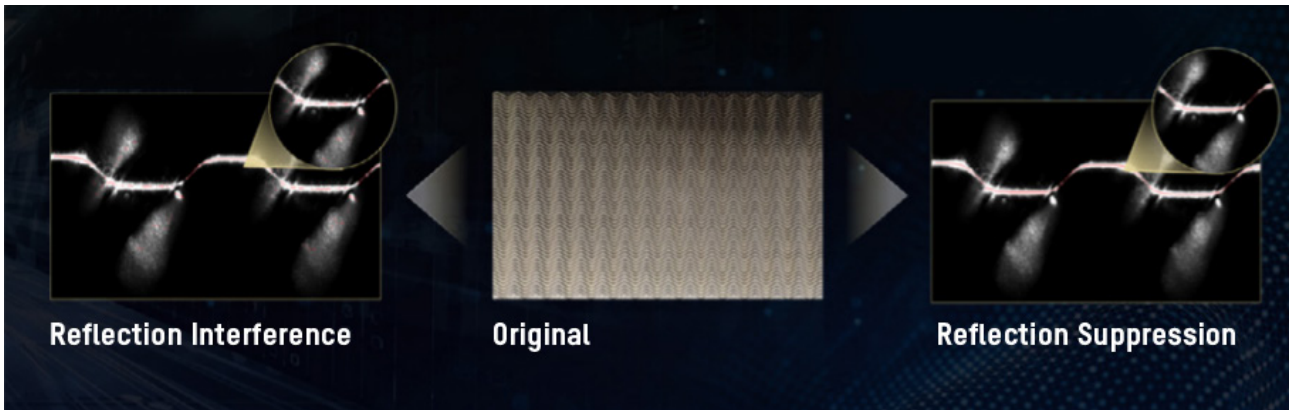


Embedded Product Design

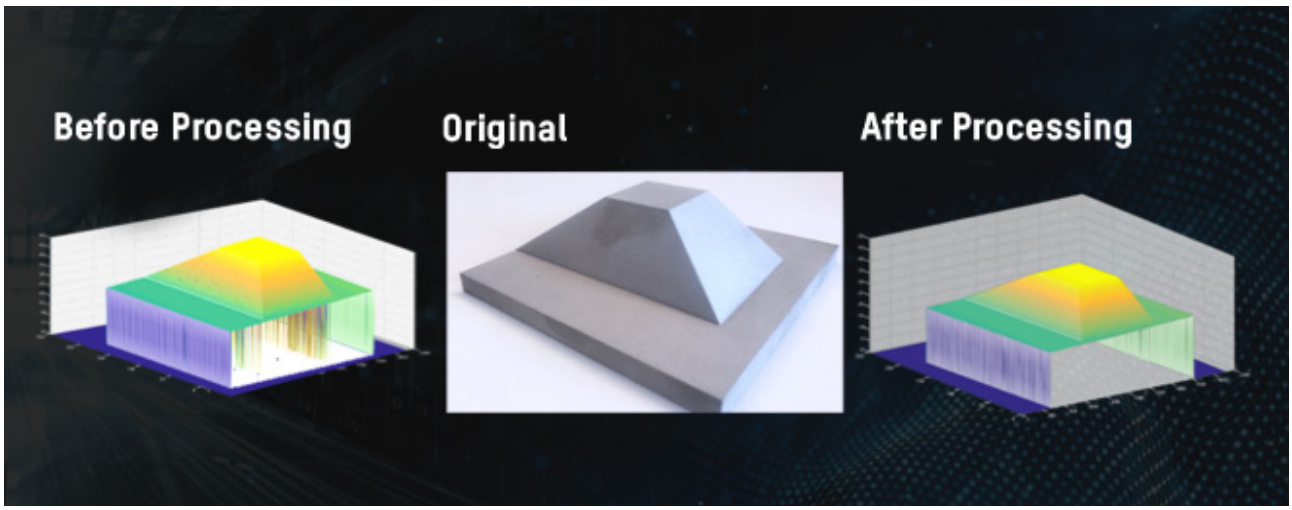


Super-Resolution Sub-Pixel Processing

HDR Mode

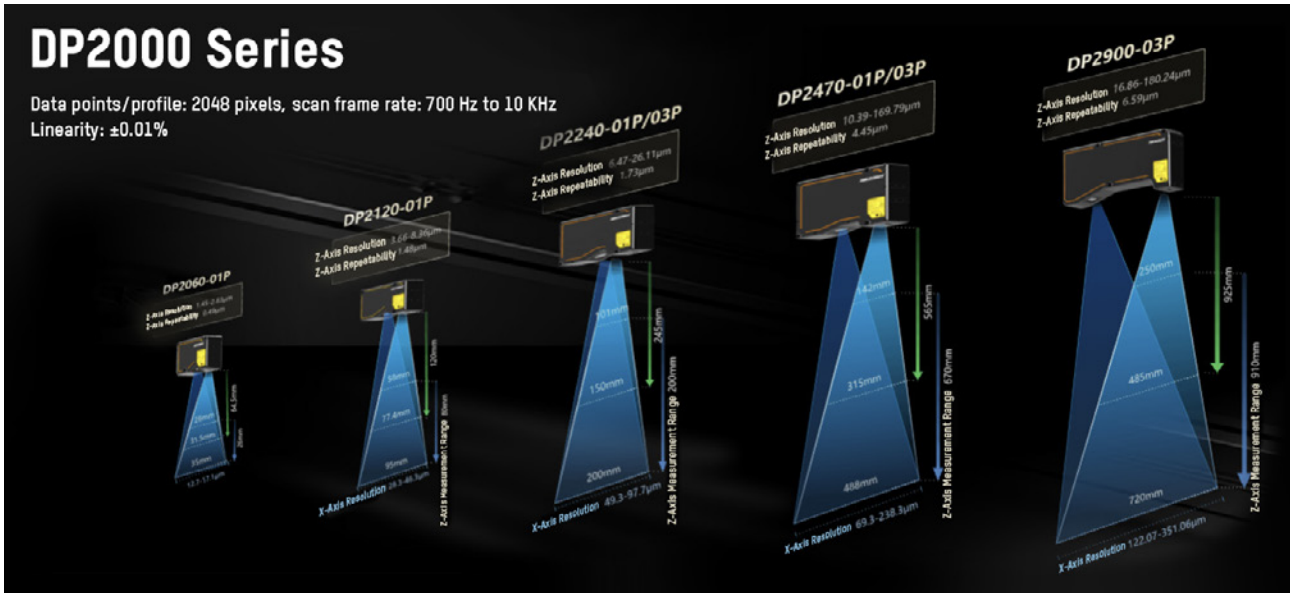


Glow Filter



Multi-Mode Post-Processing

DP2000 Series

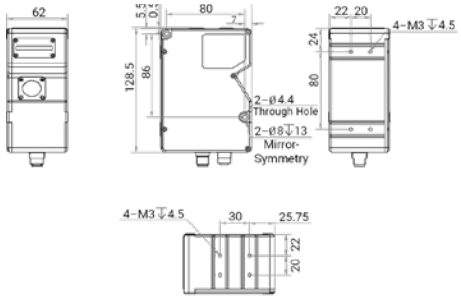


Specifications

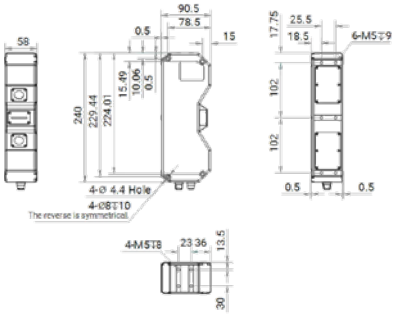
Model	Data points/ profile	Reference distance	Z-axis measurement range	X-axis measurement range	Z-axis resolution	Z-axis repeatability	Profile data interval	Scan frame rate	Laser wavelength	Label
MV-DP2060-01P	2048	64.5 mm	26 mm	31.5 mm@reference distance;26 mm@near field of view;35 mm@ far field of view	1.08 ~ 1.74 μm	0.4 μm	12.7 ~ 17.1 μm	700 Hz~10 KHz	405 nm	A
MV-DP2060-01D *	2048	63.5 mm	26 mm	27 mm@near field of view;32 mm@reference distance;37 mm@far field of view	1.2 ~ 1.6 μm	0.2 μm	13.1 ~ 18.1 μm	660 Hz~10 KHz	405 nm	B
MV-DP2120-01P	2048	120 mm	80 mm	77.4 mm@reference distance;58 mm@near field of view;95 mm@ far field of view	1.54 ~ 3.24 μm	0.6 μm	28.3 ~ 46.3 μm	700 Hz~10 KHz	405 nm	C
MV-DP2120-01D *	2048	118mm	80 mm	75.4mm@reference distance;53mm@near field of view;97.8mm@ far field of view	25.9 ~ 47.8 μm	0.5 μm	3.0 ~ 4.5 μm	660 Hz~10 KHz	405 nm	D
MV-DP2240-01P	2048	245 mm	200 mm	150 mm@reference distance;101 mm@ near field of view;200 mm@far field of view	5.65~11.20 μm	2.8 μm	49.3 ~ 97.7 μm	700 Hz~10 KHz	405 nm	E
MV-DP2240-03P	2048	245 mm	200 mm	150 mm@reference distance;101 mm@ near field of view;200 mm@far field of view	6.60~11.59 μm	2.28 μm	49.3 ~ 97.7μm	700 Hz~10 KHz	650 nm	E
MV-DP2470-01P	2048	565 mm	670 mm	315 mm@reference distance;142 mm@ near field of view;488 mm@far field of view	12.26~72.65 μm	4.9 μm	69.3 ~ 238.3 μm	700 Hz~10 KHz	405 nm	E
MV-DP2470-03P	2048	565 mm	670 mm	315 mm@reference distance;142 mm@ near field of view;488 mm@far field of view	7.41~58.38 μm	4.3 μm	69.3 ~ 238.3 μm	700 Hz~10 KHz	650 nm	E
MV-DP2900-03P	2048	925mm	910mm	485 mm@reference distance;250 mm@ near field of view;720 mm@far field of view	11.70 ~ 82.92 μm	9.0 μm	122.07 ~ 351.56 μm	700 Hz~10 KHz	650 nm	F

Notice:* will be released soon
Z-axis repeatability: This data is obtained via testing gauge blocks in a laboratory, and it is an average from 4096 tests.

Dimension



A



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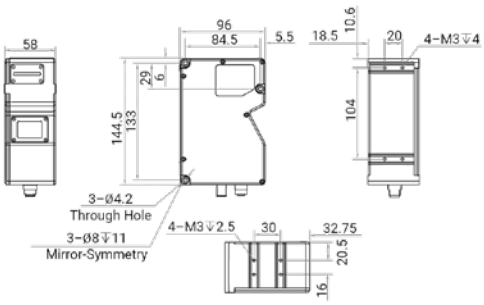
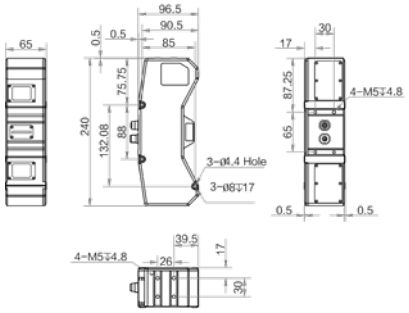
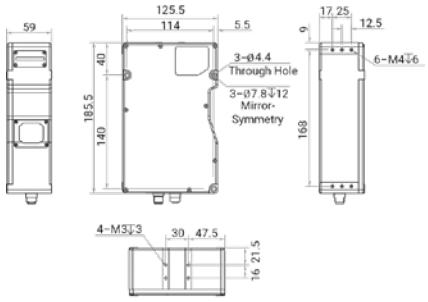


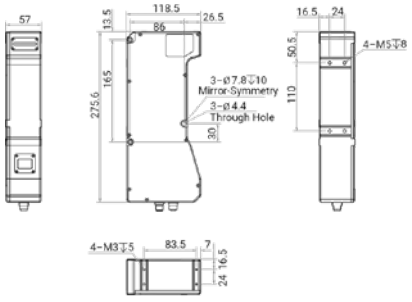
C



D



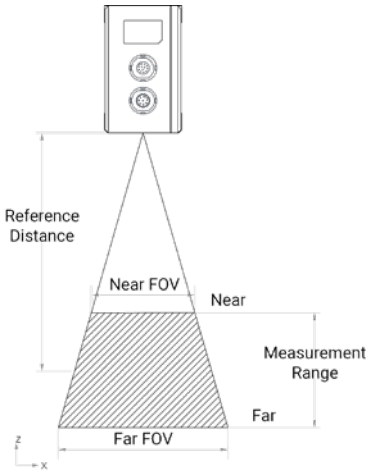
E



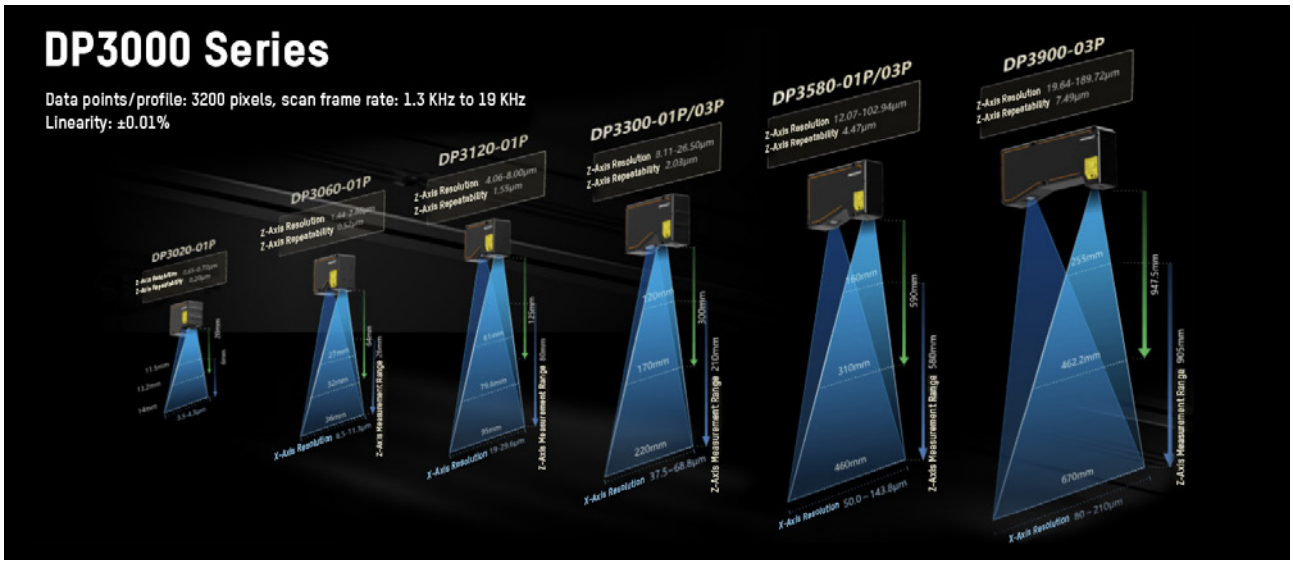
F

Unit:mm

Measurement Range Diagram



DP3000 Series



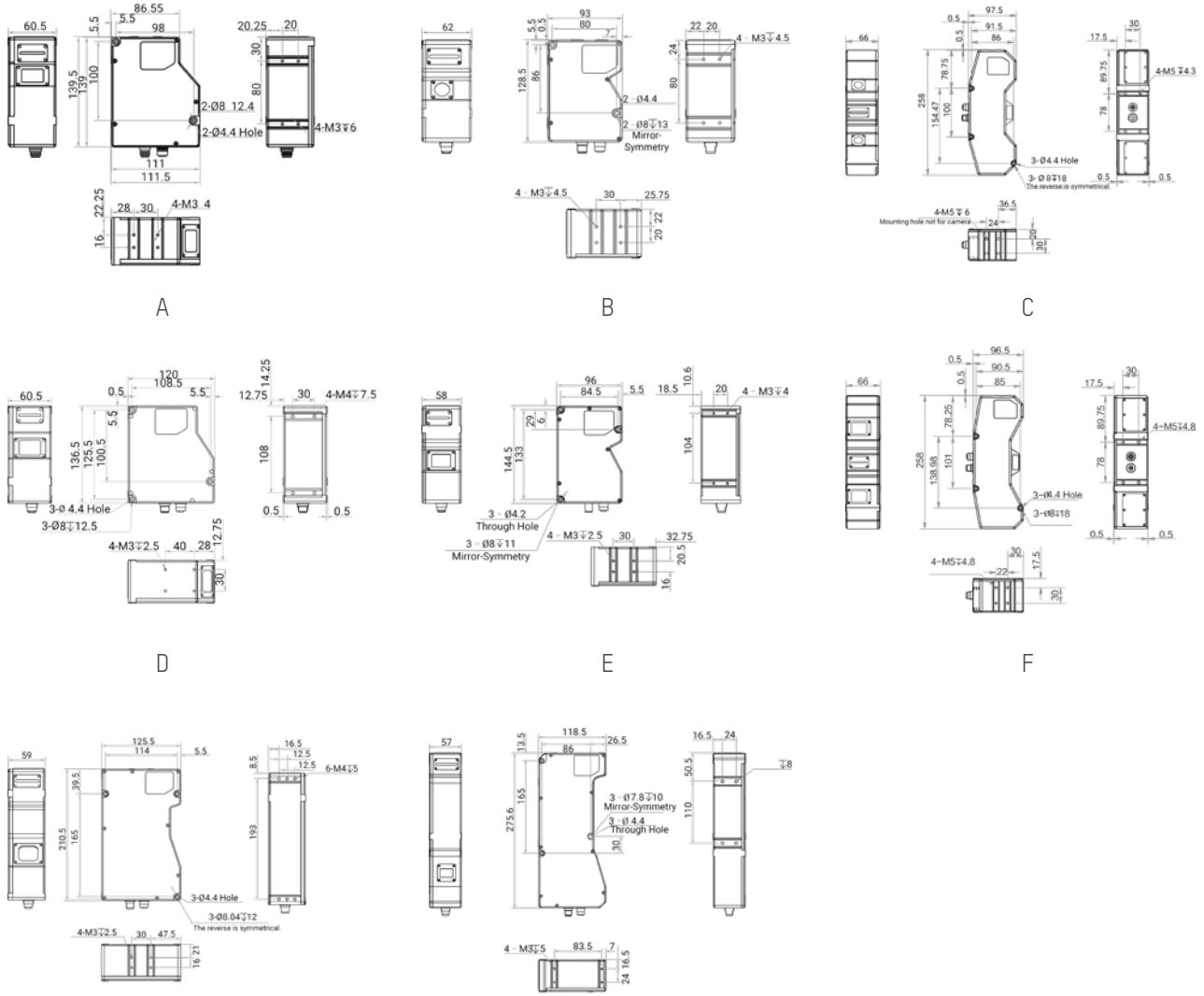
Specifications

CE RoHS

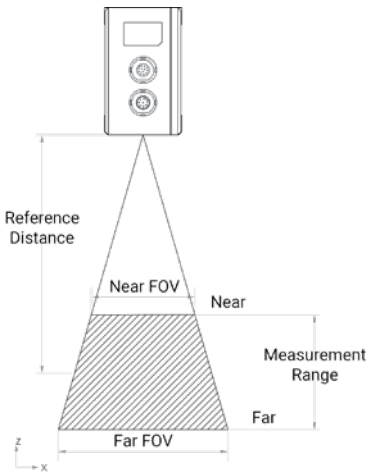
Model	Data points/ profile	Reference distance	Z-axis measurement range	X-axis measurement range	Z-axis resolution	Z-axis repeatability	Profile data interval	Scan frame rate	Laser wavelength	Label
MV-DP3020-01P	3200	20 mm	6 mm	13.2 mm@reference distance;11.5 mm@near field of view;14 mm@far field of view	0.5~1.0 μm	0.15 μm	3.5 ~ 4.3 μm	1.3 KHz~19 KHz	405 nm	A
MV-DP3060-01P	3200	64 mm	26 mm	32 mm@reference distance;27 mm@near field of view;36 mm@far field of view	1.20 ~ 1.82 μm	0.4 μm	8.5 ~ 11.3 μm	1.3 KHz~19 KHz	405 nm	B
MV-DP3060-01D *	3200	60 mm	21 mm	27 mm@reference distance;24 mm@near field of view;30 mm@far field of view	1.2 ~ 1.6 μm	0.2 μm	7.5 ~ 9.3 μm	1.3 KHz~19 KHz	405 nm	C
MV-DP3062-01P	3200	61 mm	10 mm	17.4 mm@reference distance;16 mm@near field of view;18.5 mm@far field of view	0.5 ~ 0.8 μm	0.1 μm	5 ~ 5.8 μm	1.3 KHz~19 KHz	650 nm	D
MV-DP3120-01P	3200	125 mm	80 mm	79.6 mm@reference distance;61 mm@near field of view;95 mm@far field of view	3.0 ~ 4.5 μm	0.5 μm	19 ~ 29.6 μm	1.3 KHz~19 KHz	405 nm	E
MV-DP3120-01D *	3200	125 mm	80 mm	71 mm@reference distance;55mm@near field of view;87 mm@far field of view	3.0 ~ 4.5 μm	0.5 μm	17.2 ~ 27.2 μm	1.3 KHz~19 KHz	405 nm	F
MV-DP3300-01P	3200	300 mm	210 mm	170 mm@reference distance;120 mm@near field of view;220 mm@far field of view	5.11 ~ 8.20 μm	2.9 μm	37.5 ~ 68.8 μm	1.3 KHz~19 KHz	405 nm	G
MV-DP3300-03P	3200	300 mm	210 mm	170 mm@reference distance;120 mm@near field of view;220 mm@far field of view	4.90 ~ 7.83 μm	1.6 μm	37.5 ~ 68.8 μm	1.3 KHz~19 KHz	650 nm	G
MV-DP3580-01P	3200	590 mm	580 mm	310 mm@reference distance;160 mm@near field of view;460 mm@far field of view	5.80 ~ 5.95 μm	1.1 μm	50.0 ~ 143.8 μm	1.3 KHz~19 KHz	405 nm	G
MV-DP3580-03P	3200	590 mm	580 mm	310 mm@reference distance;160 mm@near field of view;460 mm@far field of view	6.43 ~ 6.59 μm	1.2 μm	50.0 ~ 143.8 μm	1.3 KHz~19 KHz	650 nm	G
MV-DP3900-03P	3200	947.5 mm	905 mm	462.5 mm@reference distance;255 mm@near field of view;670 mm@far field of view	8.37 ~ 37.33 μm	3.1 μm	80 ~ 210 μm	1.3 KHz~19 KHz	650 nm	H

Notice:* will be released soon
Z-axis repeatability: This data is obtained via testing gauge blocks in a laboratory, and it is an average from 4096 tests.

Dimension



Measurement Range Diagram



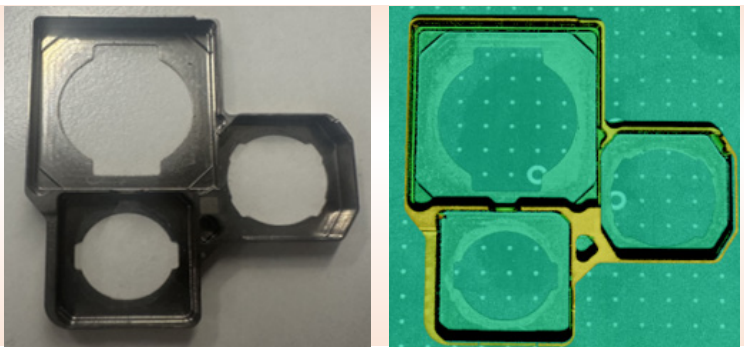
Device and Recommended Accessories

Model	Description	Quantity
MV-DP Series	3D laser profile sensor, select device model as required.	1
MV-3DA-P-M12A12pF-open-HFS-3m/5m/10m/15m/25m	Power and I/O cable with different lengths, purchase separately as needed.	1
MV-3DA-E-M12A8pF-RJ45-HFS-3m/5m/10m/15m/25m	Network cable with different lengths, purchase separately as needed.	1

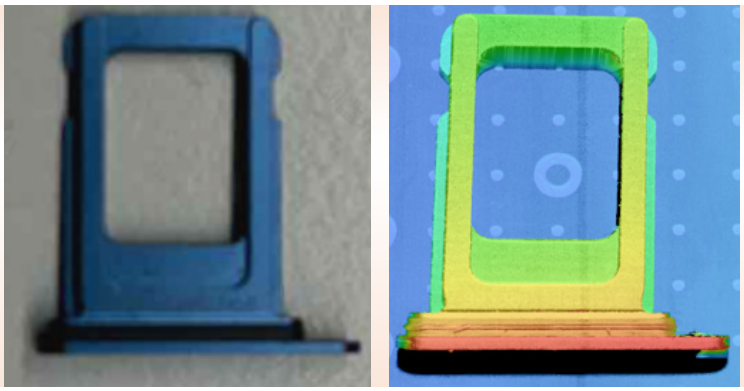
Consumer Electronics Industry

In the manufacturing process of consumer electronics products, from parts production to parts assembly, and to finished products inspection, an ultimate pursuit of quality can be found in each stage.3D laser profile sensor products feature rich-layout hardware and software with complete functions. The product supports adjustable solutions for height difference, flatness, and 3D defect detection, delivering excellent repeated measurement stability to meet the needs of various application scenarios.

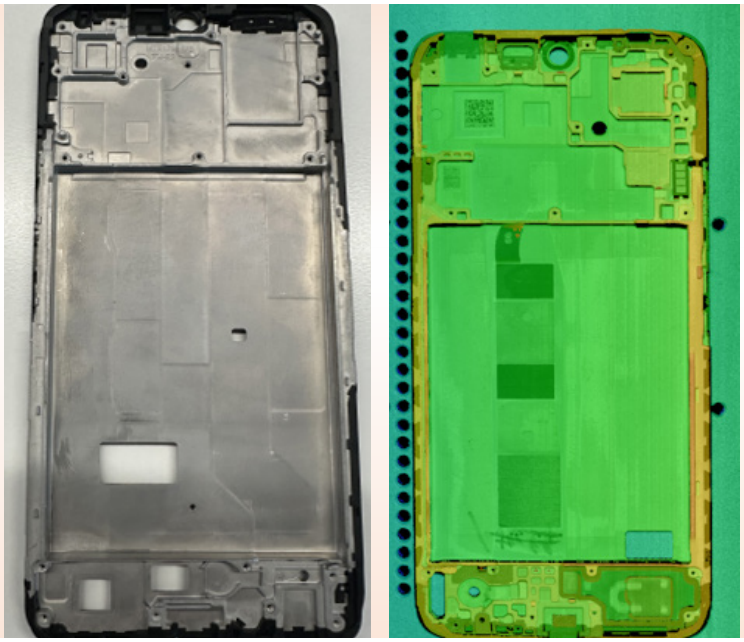
Measurement of step and coplanarity of folds in mobile phone camera modules



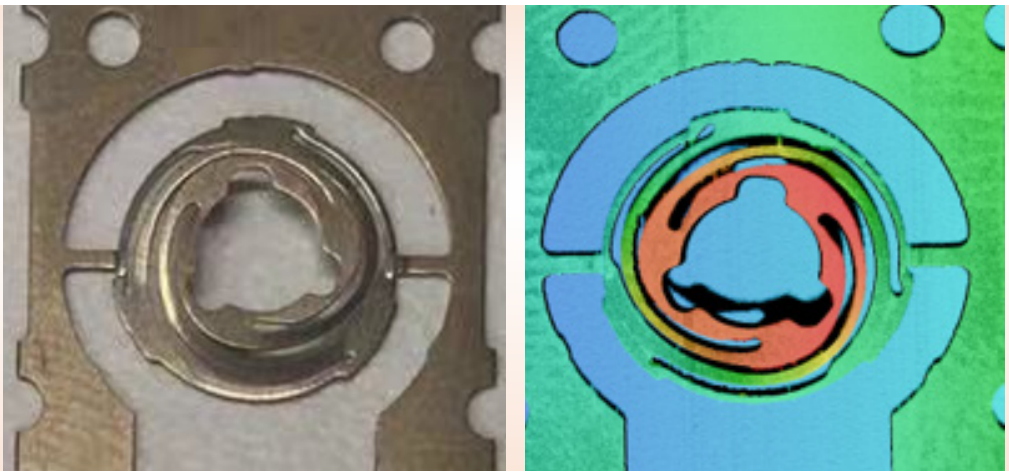
Measurement of step and flatness of mobile phone card slots



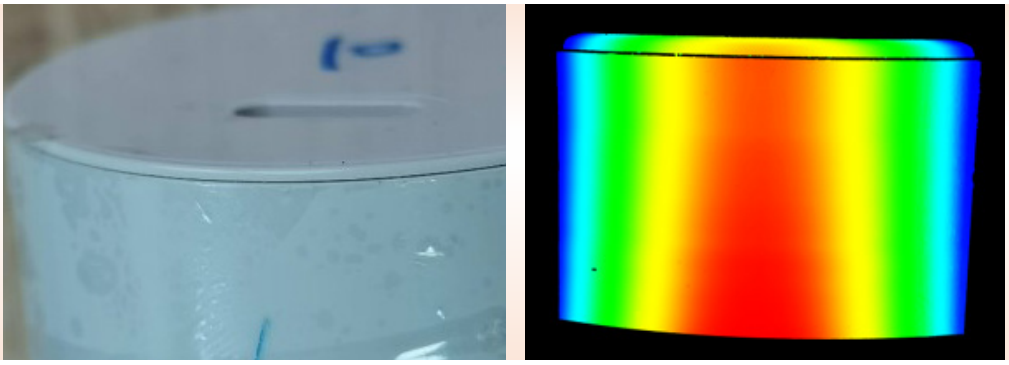
Measurement of mobile phone midplate dimensions



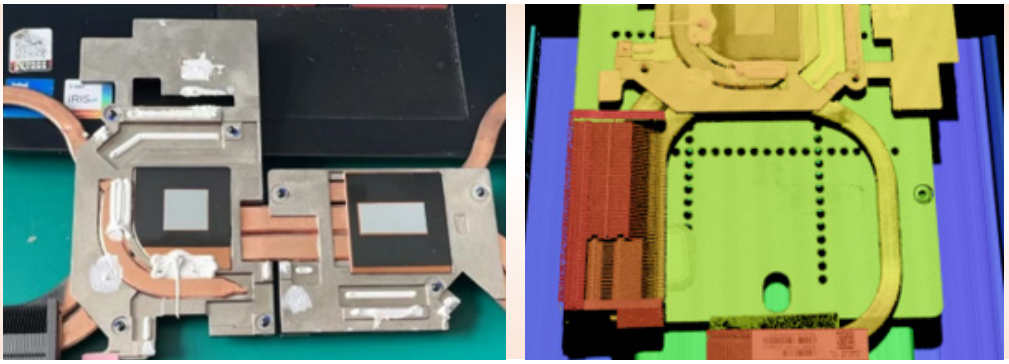
Height measurement of precision parts step



Charger gap detection



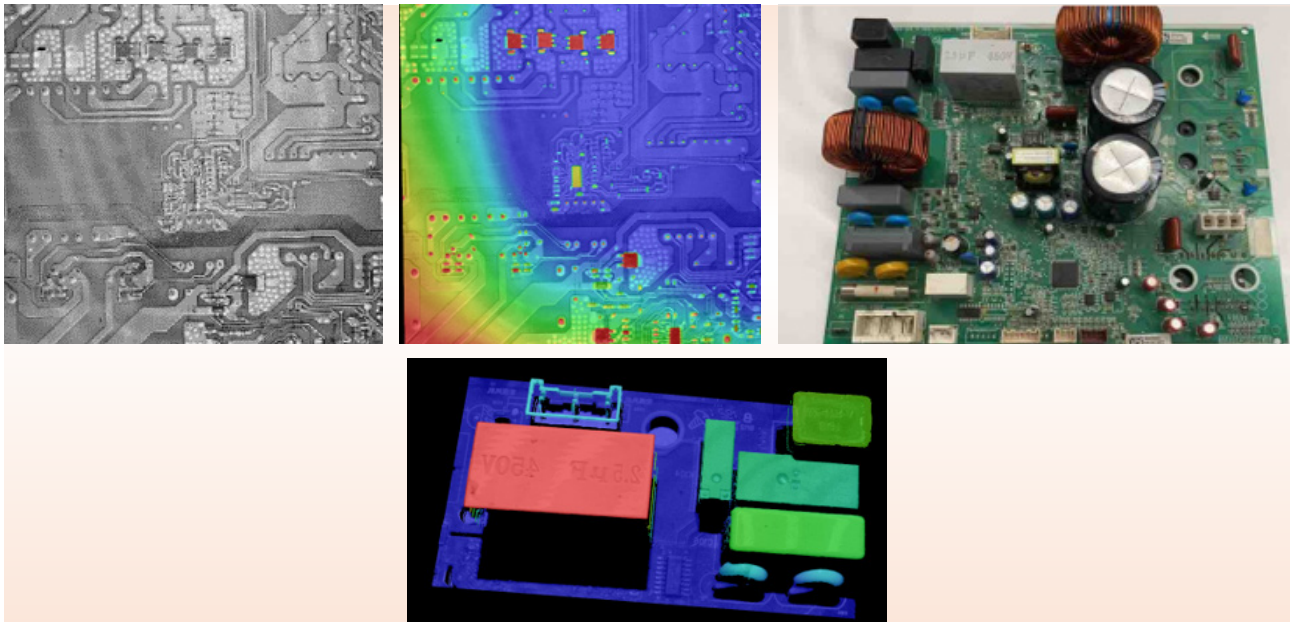
Structural part detection of laptop main boards



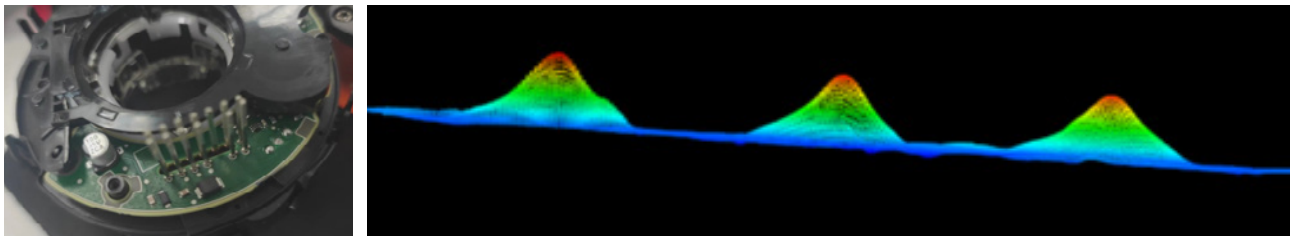
PCB Industry

In the later stages of the PCB manufacturing process, various modules and cable pins are soldered onto the PCB. Any poor soldering can lead to the malfunction of the entire PCB. 3D laser profile sensor products can precisely inspect the soldering quality, as well as the height and presence of the modules.

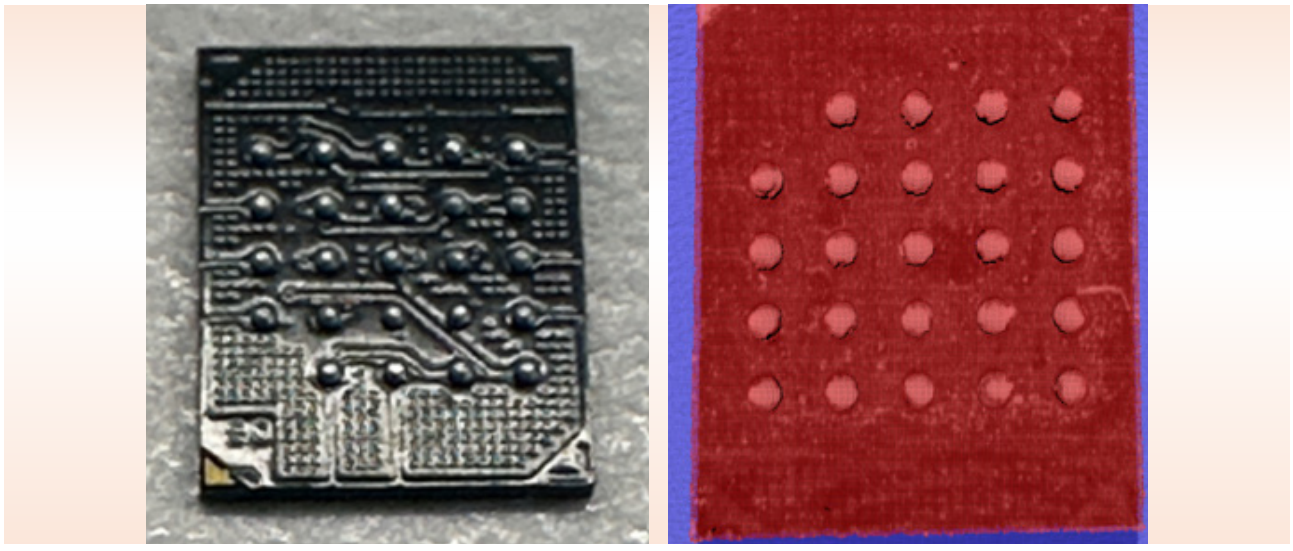
Height detection of the PCB parts



Measurement of soldering height and volume



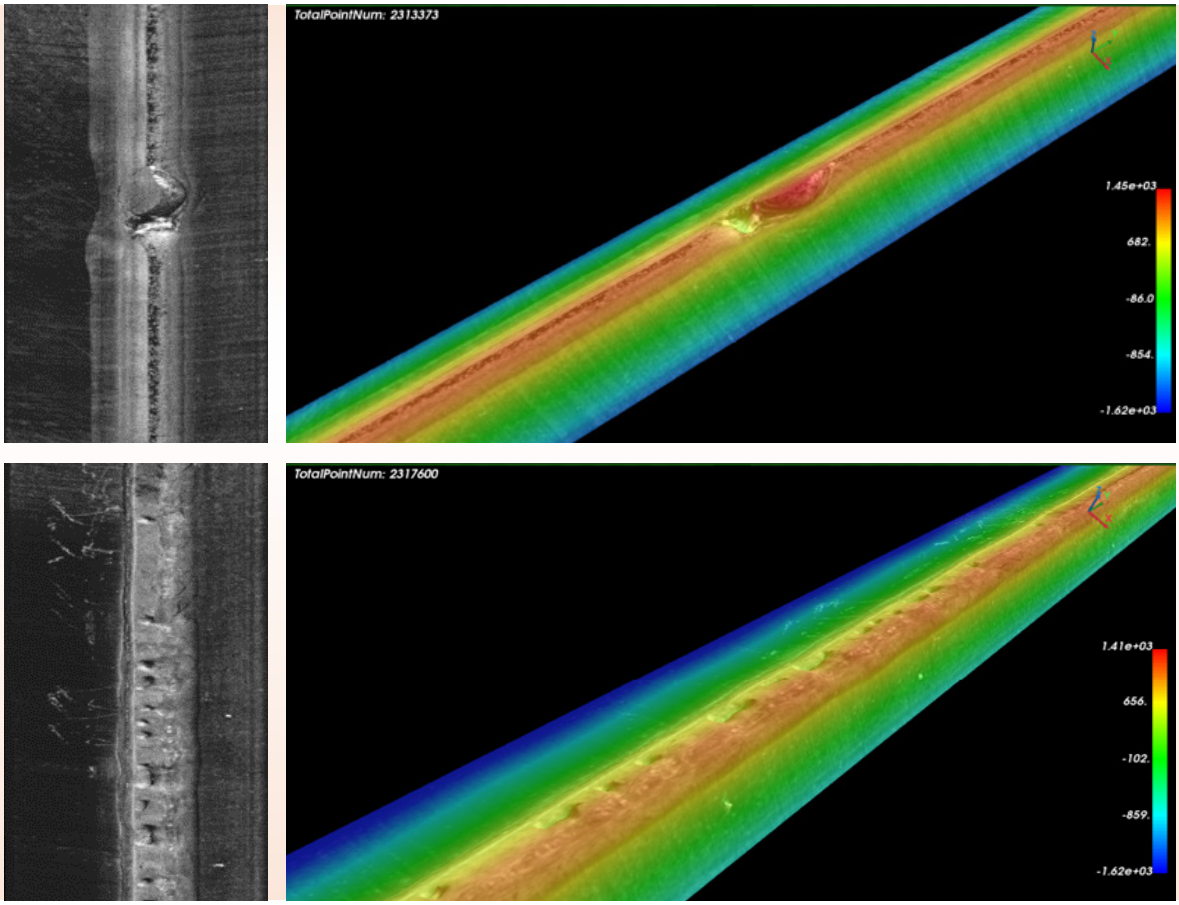
Height detection of the PCB parts



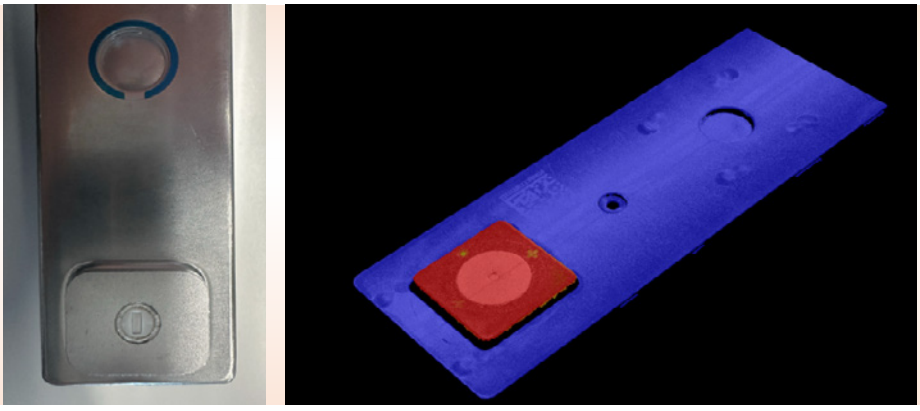
Lithium Battery Industry

In lithium battery production, from cell to battery module, and to pack, strict requirements for process and safety performance can be found in each stage. 3D laser profile sensor products offer comprehensive solutions for all stages of the process, ensuring the safety of lithium battery production.

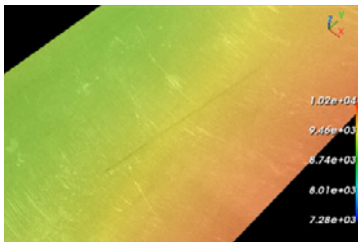
Defect detection of the welding treatment of the top cover perimeter

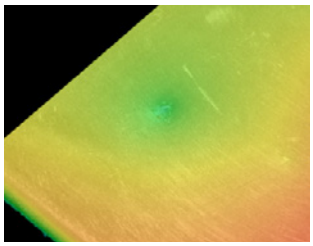


Height measurement of the post terminals on the top cover

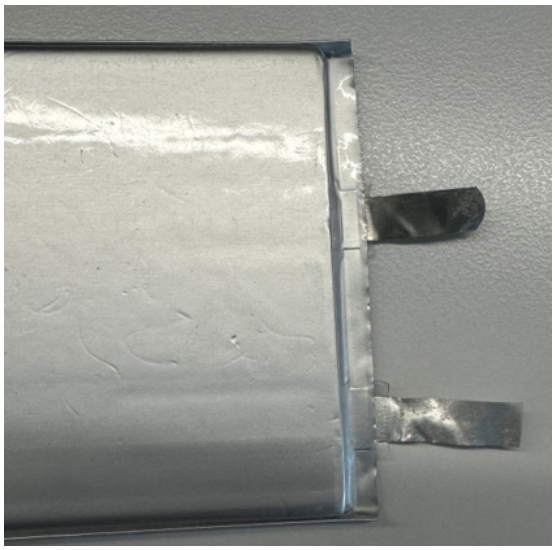


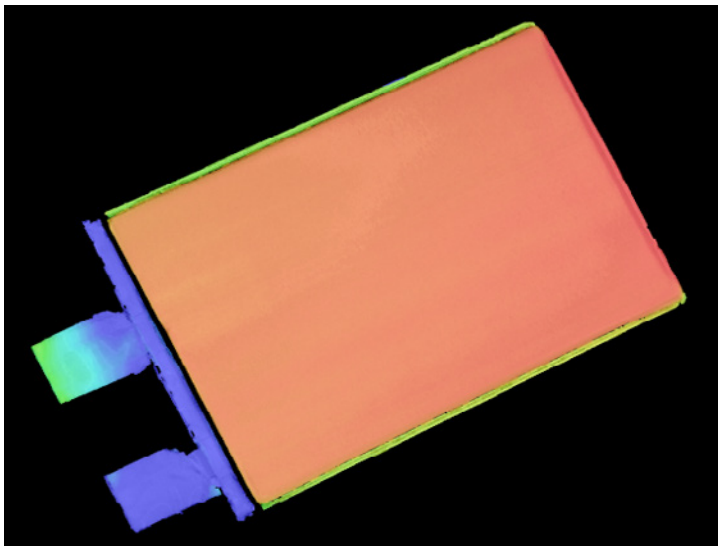
Six-surface defect detection of the lithium battery (scratches and dents)



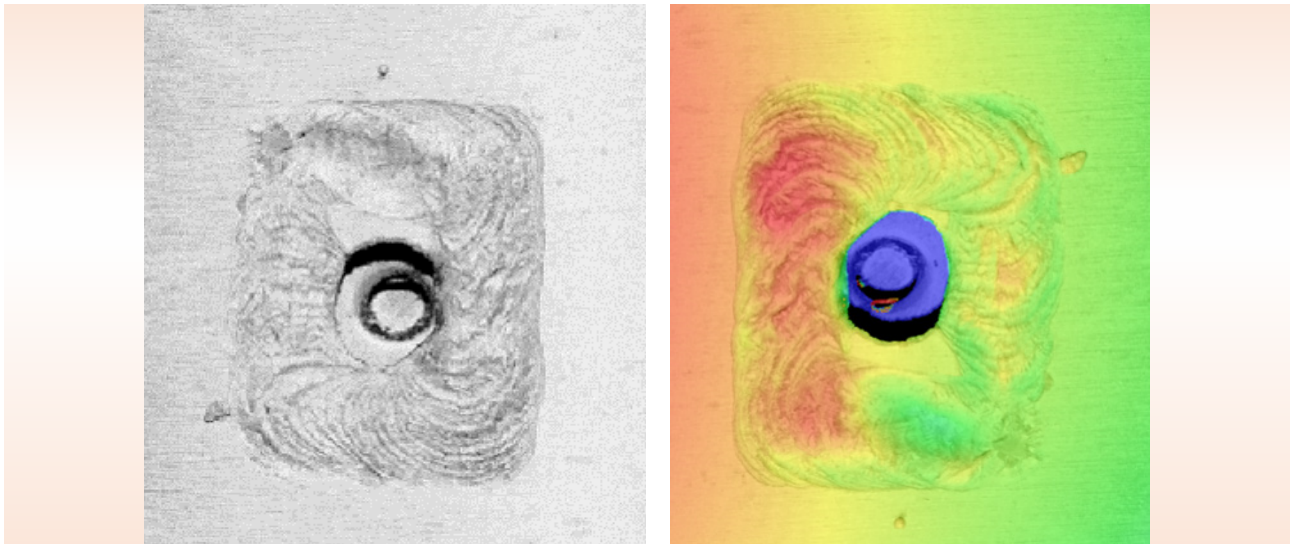


Inspection of pouch cell tab

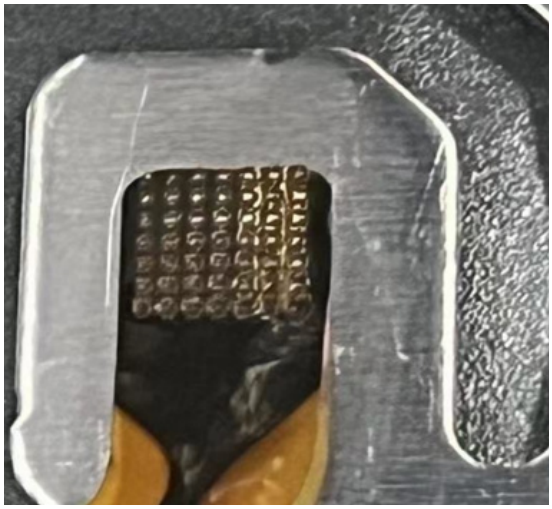


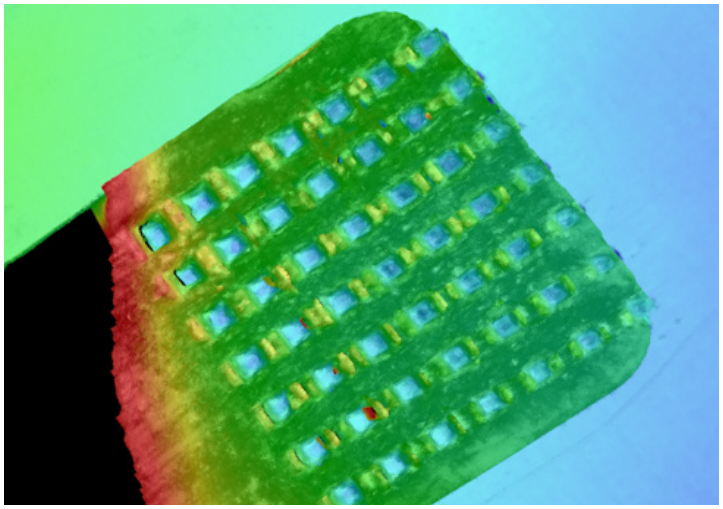


Defect detection of the busbar welding

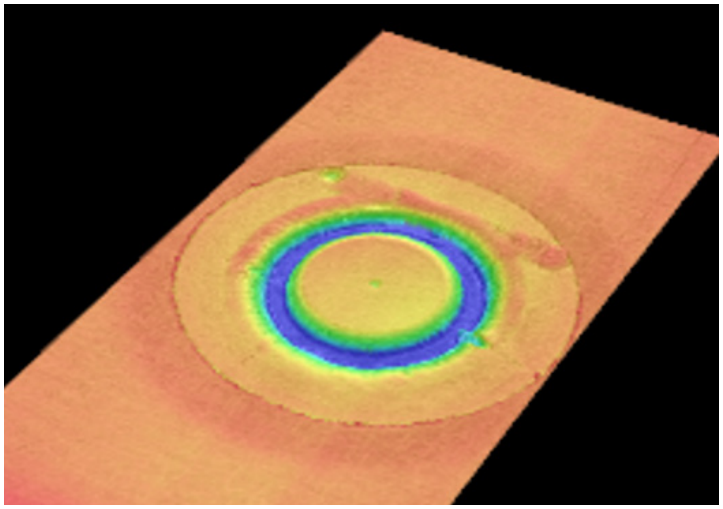


Defect detection of the tab welding





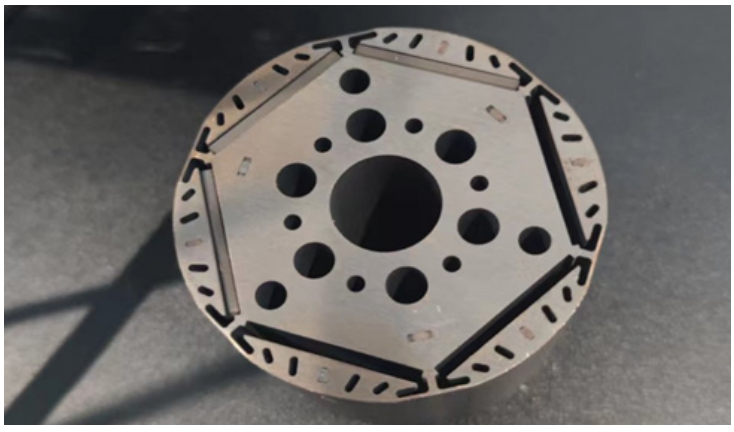
Defect detection of the sealing nail welding

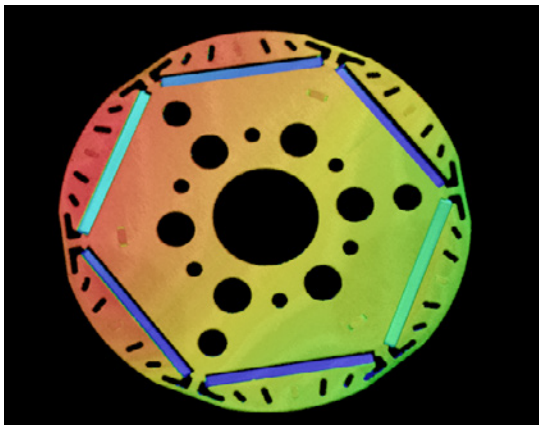


Automotive Parts

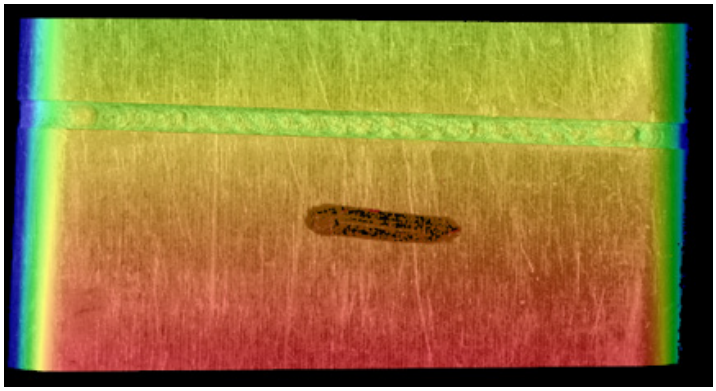
In every stage of the processes from production to assembly of automotive parts, quality is strictly controlled. 3D laser profile sensor products support high-precision and high-stability measurement of accessory dimensions and detection of minute defects.

Inspection of automotive rotor

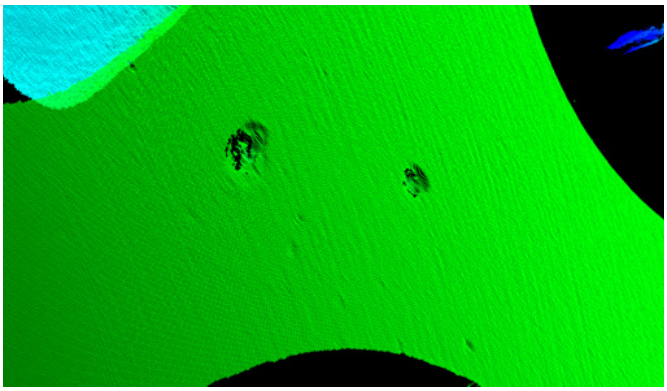




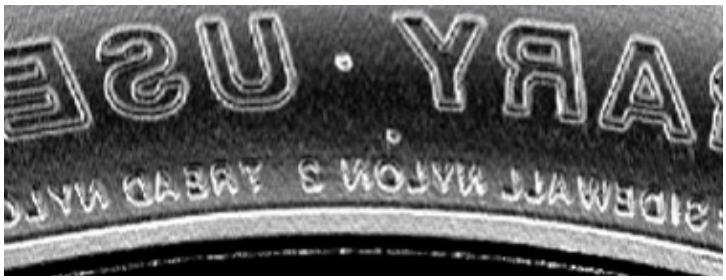
Defect detection of structural part welding seam

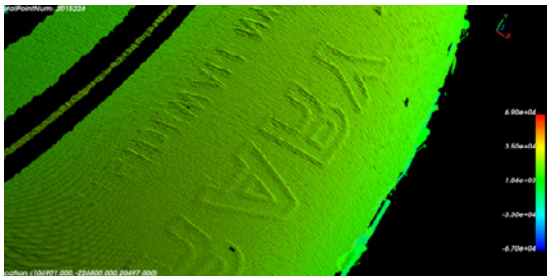


Defect detection of engine steel body

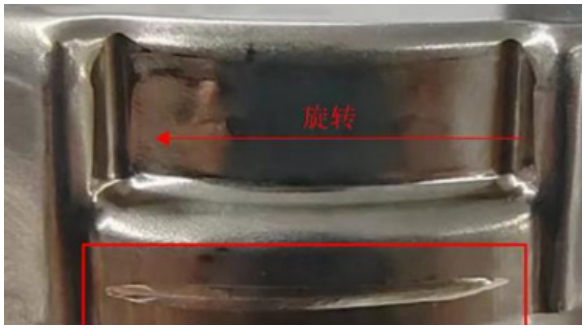


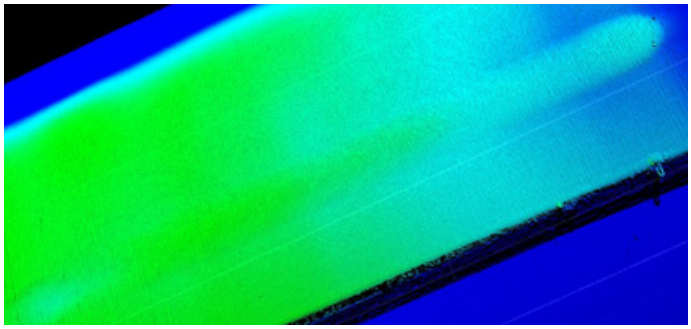
Recognition of automobile tire DOT code



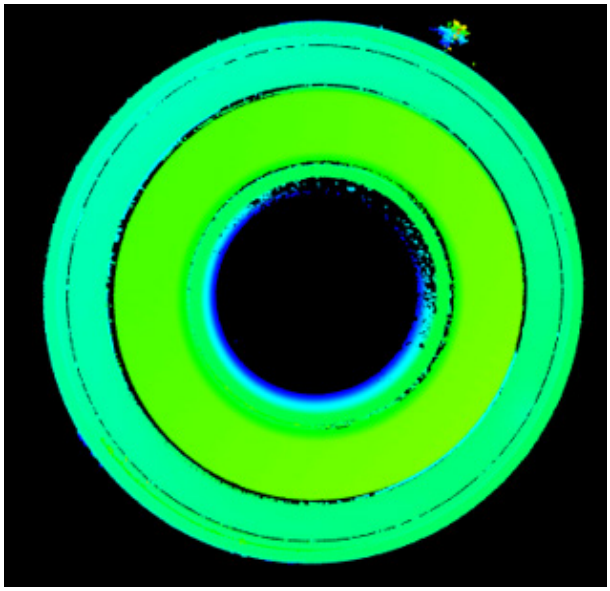


Weld bead defect detection of bearings

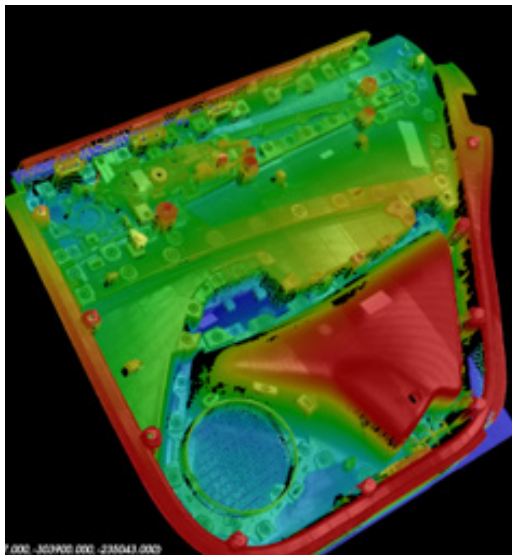




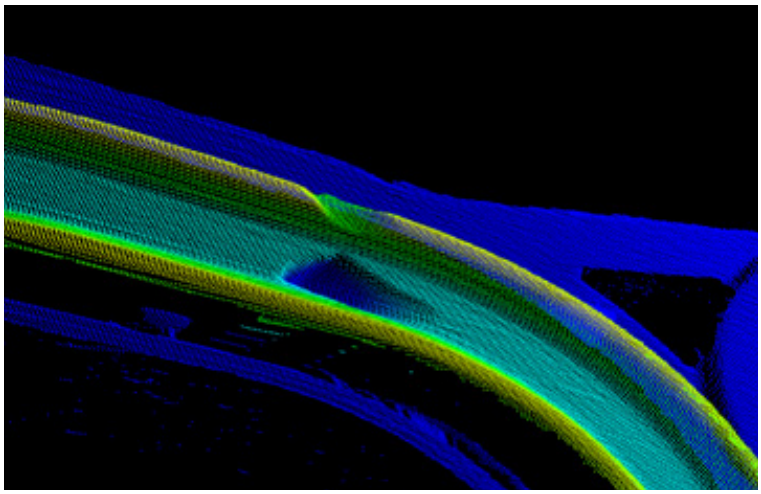
Rubber ring defect detection of bearings

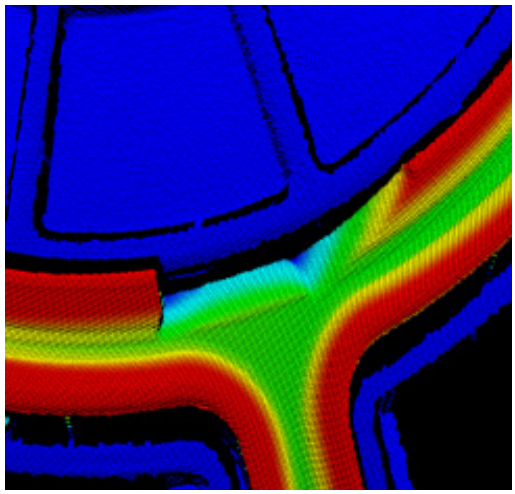


Structural part defect detection of car doors



O-ring defect detection

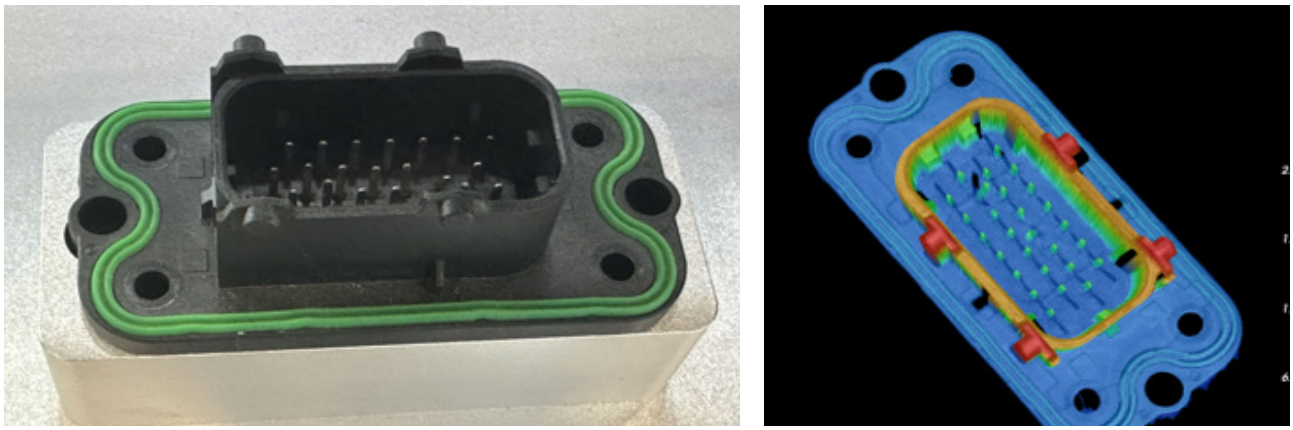




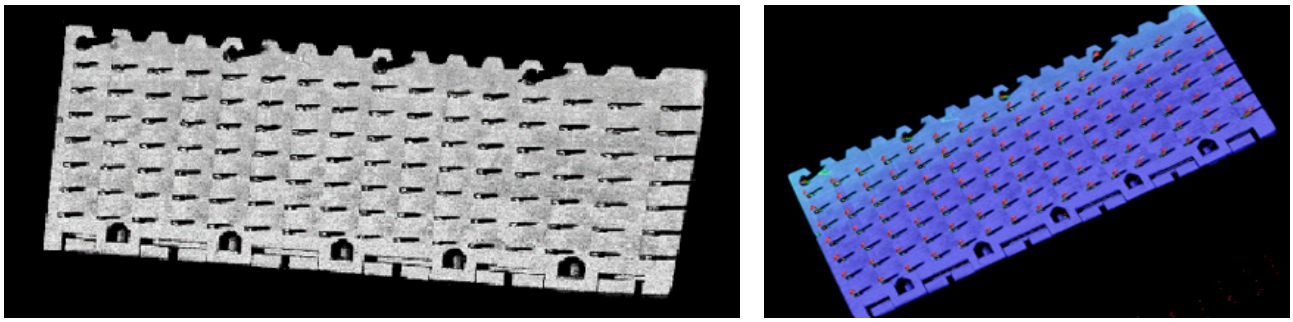
Pin Detection

During the production of connector pins, there may be issues such as broken pins, bent pins, and defective height. Equipped with the VM3D algorithm platform, 3D laser profile sensor products provide outstanding algorithm performance and convenient detection solutions, meeting the requirements for position detection of pins.

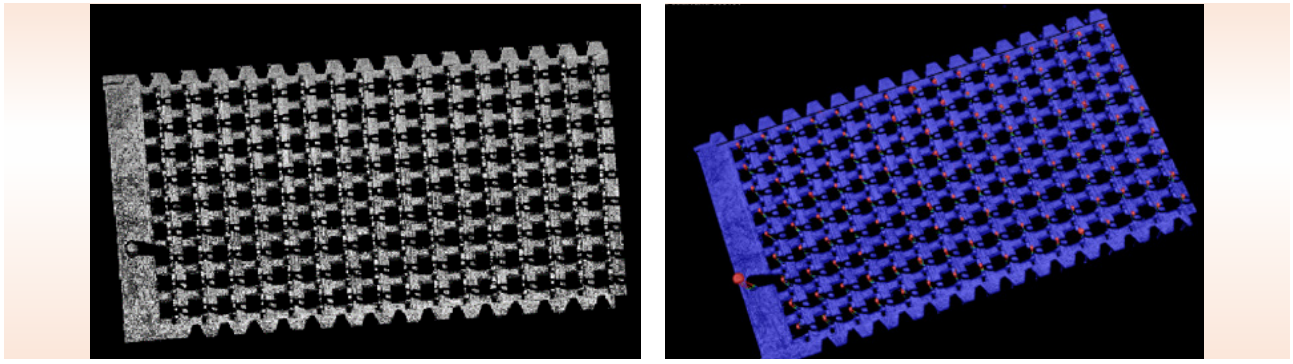
Connector pin position detection



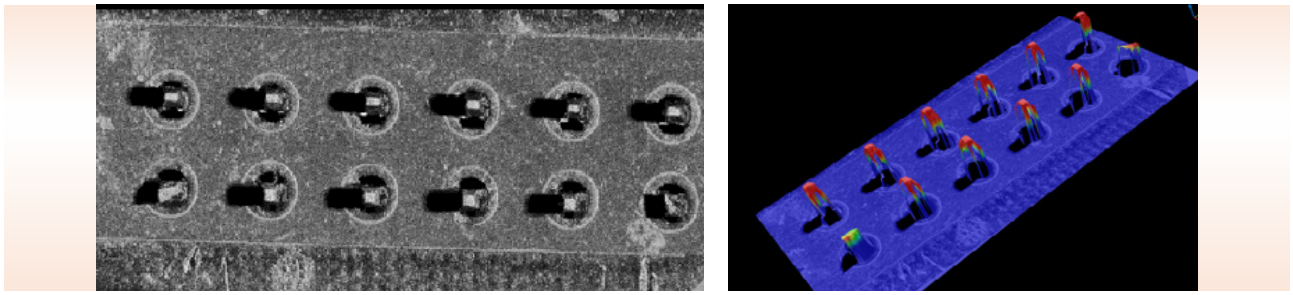
Circuit board pin coplanarity detection



Circuit board pin position detection



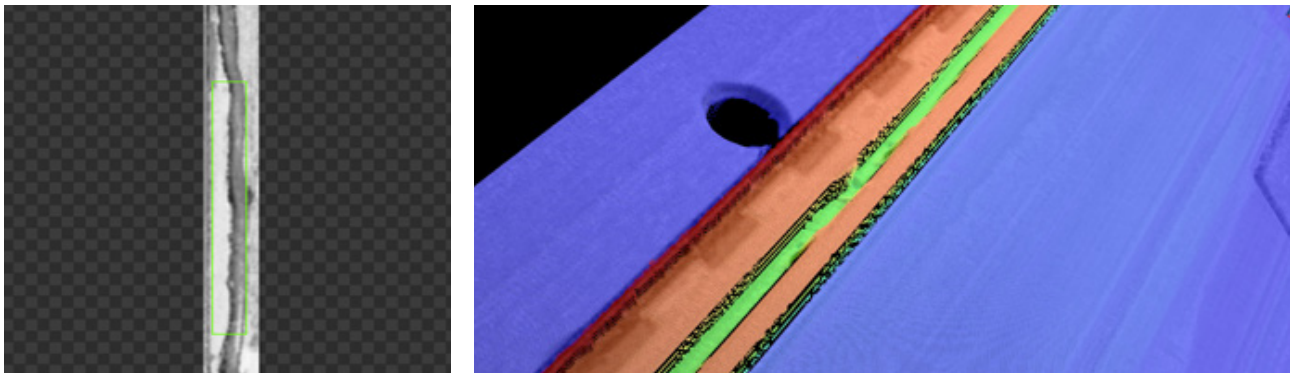
Circuit board pin position detection



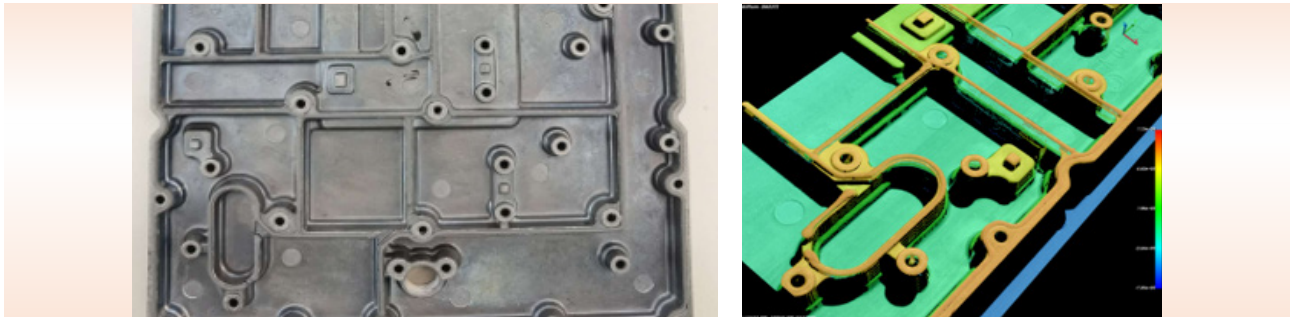
Glue Bead Inspection

In the production processes of consumer electronics, automobile, and automotive parts industries, the quality of adhesive application directly impacts the product's lifetime and safety. However, traditional 2D vision systems fail to inspect the height of the adhesive coating. Thus, the introduction of 3D vision systems aims to address this limitation. These systems can inspect adhesive coating quality based on multiple process standards, providing enterprises with reliable quality control assurances.

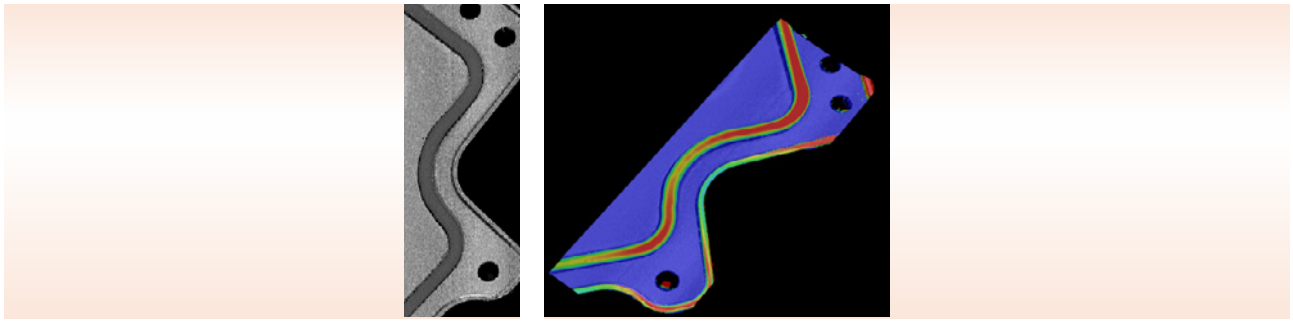
Glue bead inspection of mobile phone midplate



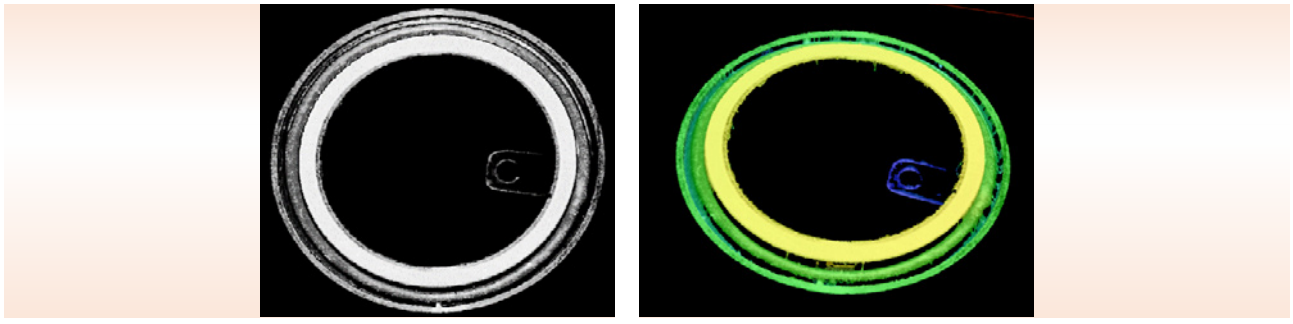
Glue bead inspection of auto parts



Glue bead inspection of auto parts



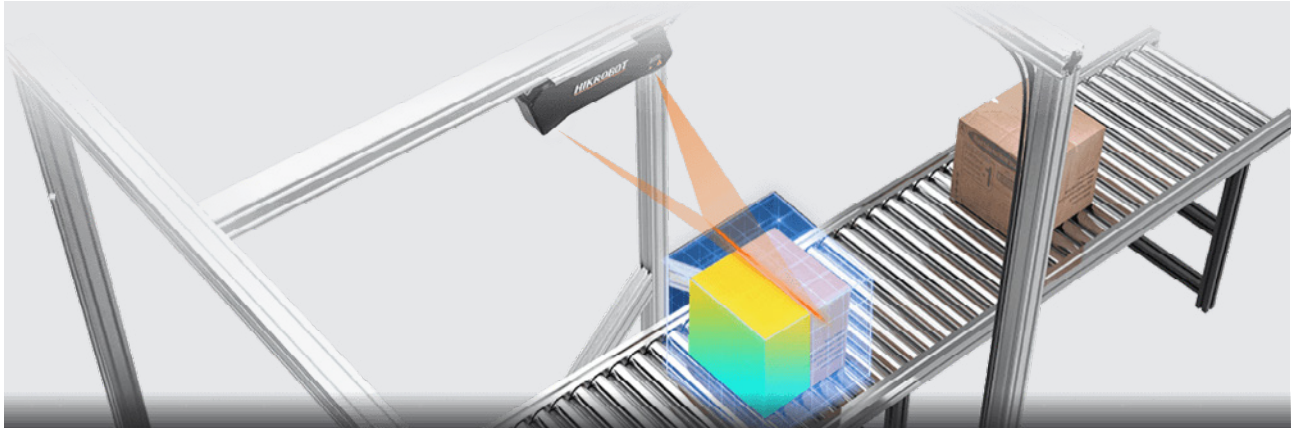
Glue bead inspection of smart phone cameras



3D Camera

Line Laser 3D Camera

Built-in high accuracy measurement algorithm and wider dynamic image processing algorithm, 3D cameras can output objects' size information in logistics and warehousing applications, a wider dynamic detection range, and stronger robustness ability.



- Output real-time point cloud data in high-precision

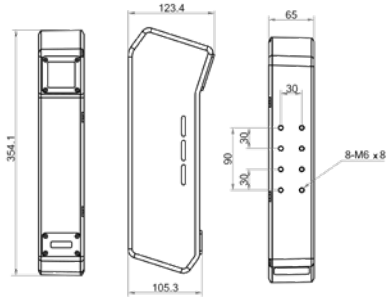
- High-speed scanning with 3m/s speed max

Specifications

CE RoHS

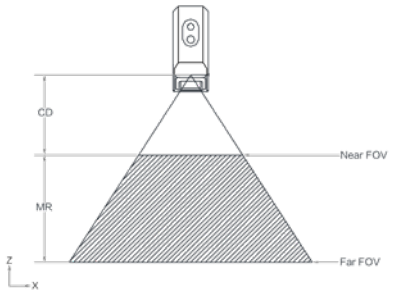
Model	Near FOV	Far FOV	Clearance distance (CD)	Measurement range (MR)	Detection accuracy	Inspection speed	Scan frame rate
MV-DL2125-04H-R	1000 mm	2600 mm	700 mm	1000 mm	± 5 mm	3 m/s @±5 mm Accuracy	600 fps @1 m³ measurement range
MV-DL2125-04P-R	1000 mm	2600 mm	700 mm	1000 mm	± 5 mm	3m/s @±5mm Accuracy	1140 fps@1 m³ measurement range

Dimension



Unit:mm

Measurement Range Diagram

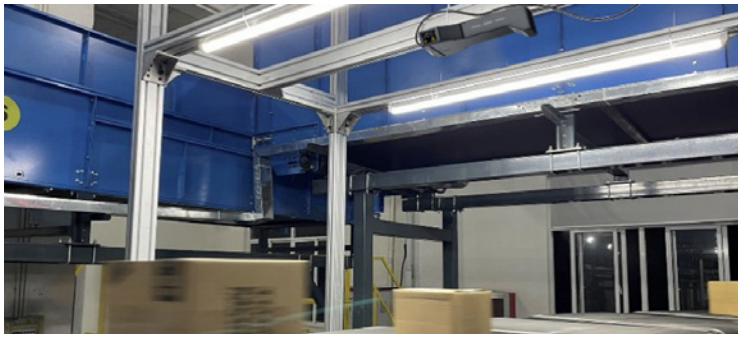


Logistics Industry

In the logistics industry, efficiency is crucial, and the prerequisite of highly-efficient sorting is the acquisition of accurate package information. Based on the principle of triangulation and with built-in wide dynamic image processing algorithm and high-precision measurement algorithm, line laser 3D camera products offer high-precision dimension inspection of target objects with a wider dynamic range and better robustness. Thus, it is widely applied in dynamic 3D measurement of parcels in the logistics industry.

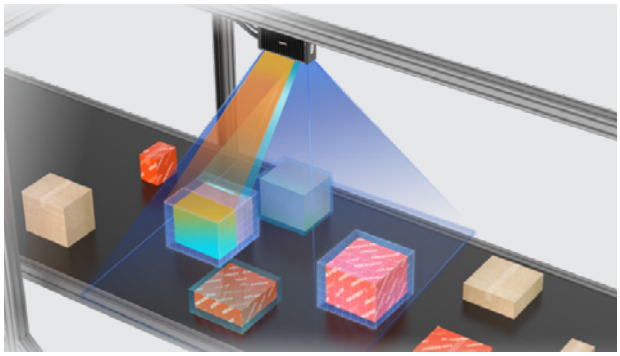
The dynamic DWS system

Dynamic volume measurement of parcels on the cross-belt sorter

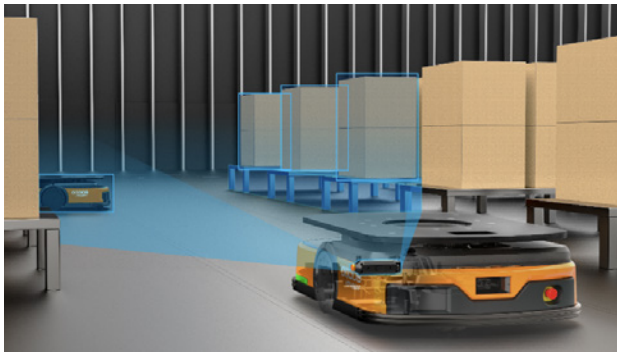


RGB-D smart 3D camera

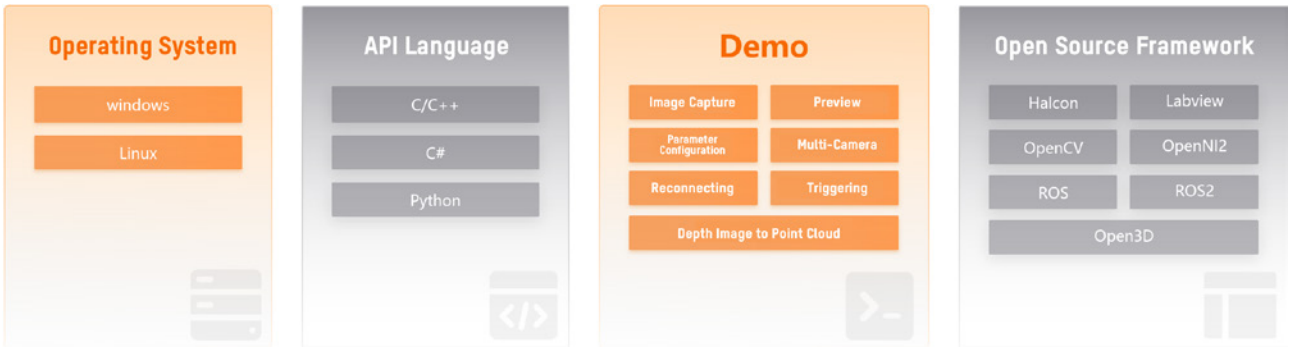
The RGB-D smart camera adopts binocular 3D imaging technology and color camera to output RGB-D images with high frame rate. It has built-in deep learning algorithm to output instance segmentation, and is applicable to the logistics, warehousing, medical treatment, new energy, and other industries.



- High-Speed Simultaneous Multi-Image Output



- Built-In Deep Learning Algorithm



- Comprehensive SDK and Third-Party Framework

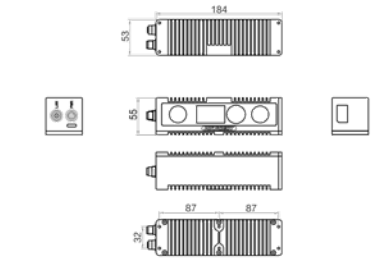
Specifications

CE RoHS

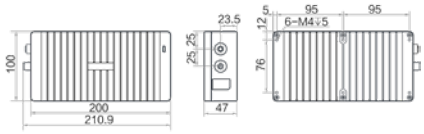
Model	Near FOV	Far FOV	Clearance distance (CD)	Measurement range (MR)	Depth image detection accuracy	Scan frame rate	Data type	Label
MV-DB500S-S	580 mm × 470 mm	2500 mm × 1800 mm	500 mm	1500 mm	3 mm@1 m;8 mm@2 m	MAX.30 fps@ singulation mode	Original image (mono and color images), depth image, object posture information	A
MV-DB500S-C	580 mm × 470 mm	2500 mm × 1800 mm	500 mm	1500 mm	3 mm@1 m;8 mm@2 m	MAX 7 fps@EDP mode	Original image (mono and color images), depth image, EDP detection result	A
MV-DB500S-V	580 mm × 470 mm	2400 mm × 1800 mm	500 mm	1500 mm	3 mm@1 m;8 mm@2 m	MAX 8 fps@ volume measurement mode	Original image (mono and color images), depth image, volume information	B
MV-DB700S-S *	595 mm × 460 mm	2255 mm × 1535 mm	300 mm	700 mm	10 mm@1 m	MAX.30 fps@ singulation mode	Original image (mono and color images), depth image, object posture information	A
MV-DB700S-C	595 mm × 460 mm	2255 mm × 1535 mm	300 mm	700 mm	10 mm@1 m	MAX 7 fps@ EDP mode	Original image (mono and color images), depth image, EDP detection result	A

Notice: * will be released soon.

Dimension



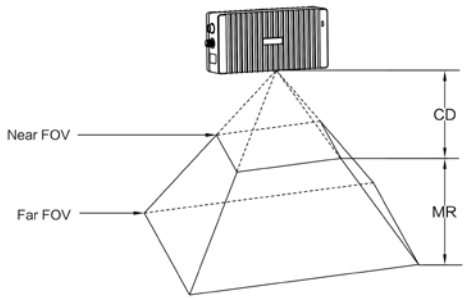
A



B

Unit:mm

Measurement Range Diagram



Logistics Industry

The thriving e-commerce industry has spurred an enormous volume of express delivery business in the logistics industry. In the face of complicated transportation networks and strict demands for rapid response, the RGB-D smart camera can be applied in a rich array of application scenarios. From data collection, recognition and positioning, to parcel inspection on cross-belt sorting system, it enables logistics companies to achieve their goals for precision, automation, and intelligence. By implementing 3D vision and robotic solutions based on RGB-D smart camera, it can replace traditional manual operation.

Volume measurement

Positioning and recognition of goods

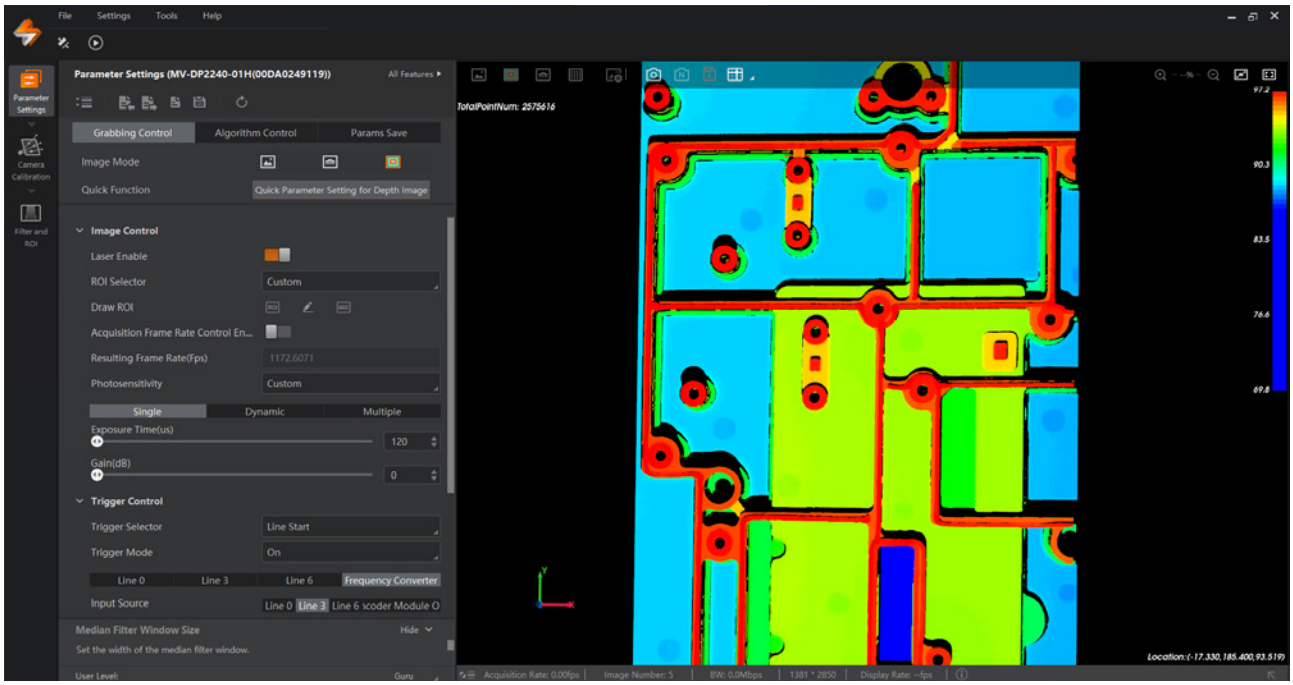
3DMVS Client

3DMVS is an application developed for Hikrobot 3D cameras, compatible with products including line laser 3D camera and 3D laser profile sensor. Features such as real-time preview, parameter configuration, calibration, data saving, and firmware update are supported on the client. You can choose to preview the original image, depth image, contour image, or point cloud image.

Key Features

- Supports easy installation and operation without the need to install other drivers.
- Provides diverse sample codes, source codes, and development documentation to help you get started quickly.
- Provides rich APIs for efficient secondary development.
- Supports image preview, including the original image, depth image, contour image, and point cloud image.
- Adopts user-friendly UI design that realizes convenient operation and intuitive functions.
- Supports operation on multiple platforms, compatible with Windows 7/10 (32-bit and 64-bit).

3DMVS



Download

3DMVS client can be downloaded by visiting the website of Hikrobot.
https://www.hikrobotics.com/en/machinevision/service/download?module=0

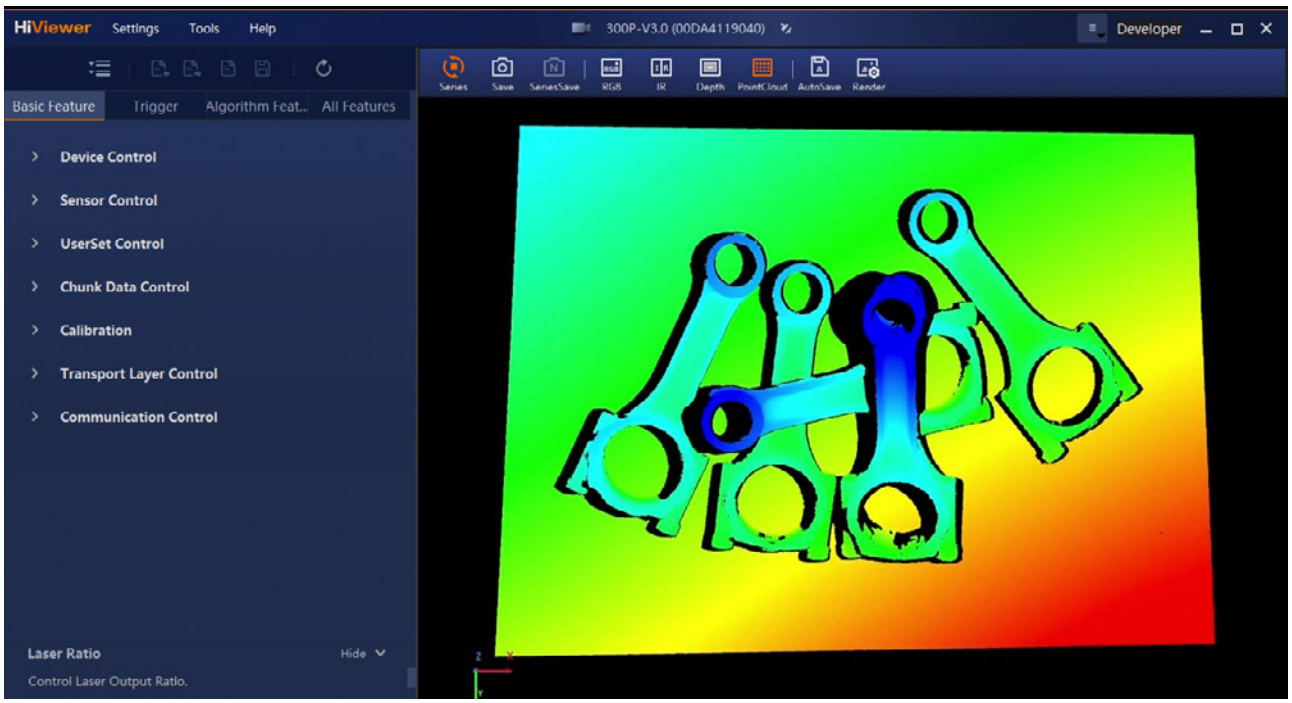
HiViewer Client

HiViewer is a software application designed for connecting, image previewing, attribute configuration, and function debugging of RGB-D cameras. It supports the preview of various types of images, including RGB images, IR images, depth images, and point cloud images, while integrating multiple auxiliary tools to enhance the functionality of the application. The user-centric interface design ensures a friendly and intuitive user experience, making operations simple and straightforward.

Key Features

- Supports the preview and image storage of RGB images, IR images, depth images, and point cloud images from RGB-D cameras.
- Allows operations on RGB-D cameras such as IP modification, firmware upgrades, attribute viewing and modification, parameter configuration, and more.
- Provides various RGB-D camera tools, including image preview tool, depth image automatic exposure, intrinsic parameter calibration, intrinsic parameter inspection, firmware upgrade tool, and log viewing tool,etc.

HiViewer



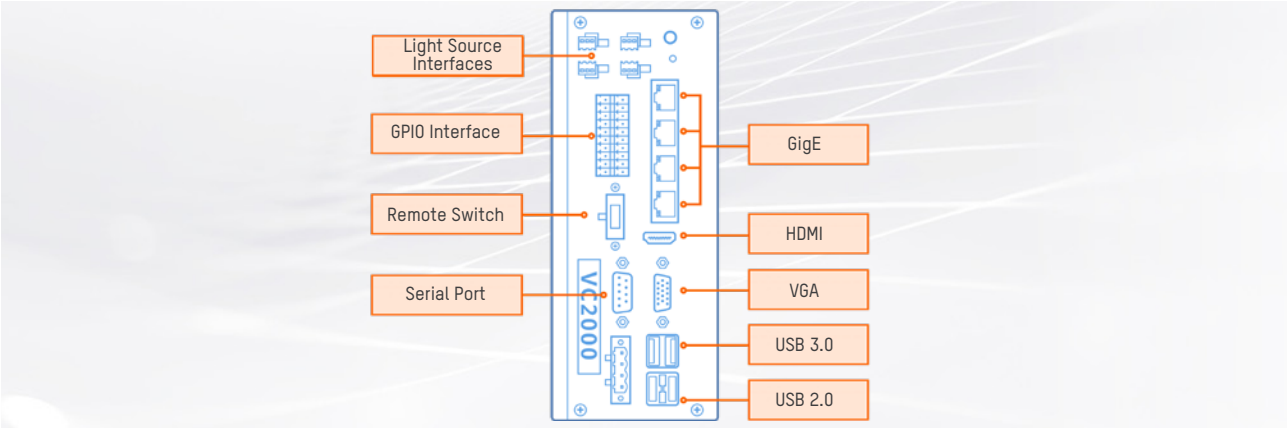
Download

HiViewer client can be downloaded by visiting the website of Hikrobot.
https://www.hikrobotics.com/en/machinevision/service/download?module=0

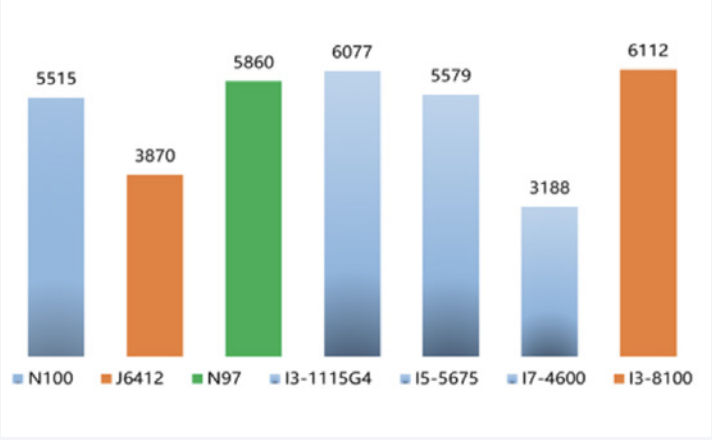
Vision Controller

VC2000 Series Vision Controller

VC2000 series vision controller is equipped with Intel high-performance processing chip and rich data acquisition and control interfaces, including gigabit network port, IO, light source, serial port, etc; The whole machine is compact in structure and excellent in performance, providing a complete solution for simple visual applications of multiple cameras.



- Rich interface and simple application

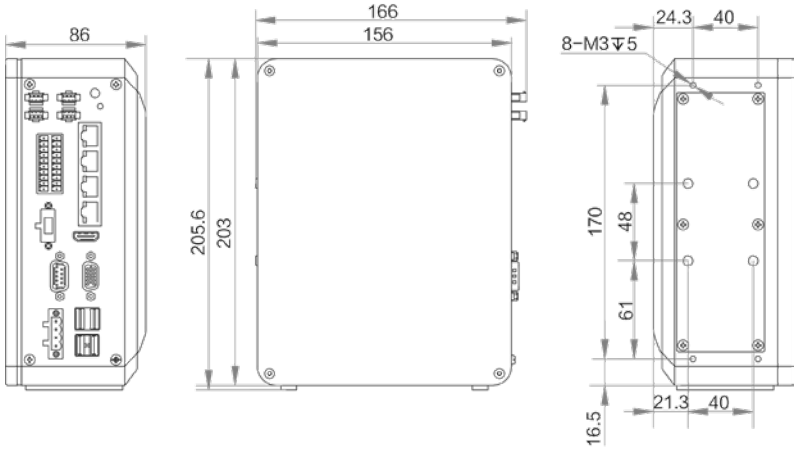


- High performance CPU processor

Specifications

Model	CPU	Memory	Storage	Digital I/O	Light Interface	GigE	USB3.0	USB2.0(+built-in)	Label
MV-VC2140-128G40-NN	Intel® Processor N97	8GB	128GB SSD	Opto-isolated input × 8, opto-isolated output × 8	4	4	2	2 + 1	B
MV-VC2140-128G40-1T	Intel® Processor N97	8GB	128G SSD + 1T HDD	Opto-isolated input × 8, opto-isolated output × 8	4	4	2	2 + 1	B
MV-VC2143-128G40-NN	Intel® Processor N97	8GB	128GB SSD	Opto-isolated input × 8, opto-isolated output × 8	4	4 (POE)	2	2 + 1	B
MV-VC2143-128G40-1T	Intel® Processor N97	8GB	128G SSD + 1T HDD	Opto-isolated input × 8, opto-isolated output × 8	4	4 (POE)	2	2 + 1	B

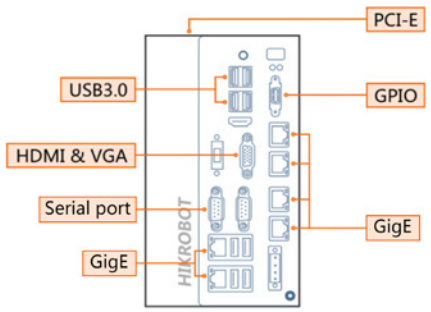
Dimension



Unit:mm

VC3000 Series Vision Controller

VC3000 vision controller is a new generation of IPC for visual inspection, which is characterized with the flagship computing power and comprehensive control/data interface. It has desirable compatibility with machine vision components in common tasks such as positioning, inspection, measurement and recognition.



- Rich interface and simple application

- Compact and convenient installation

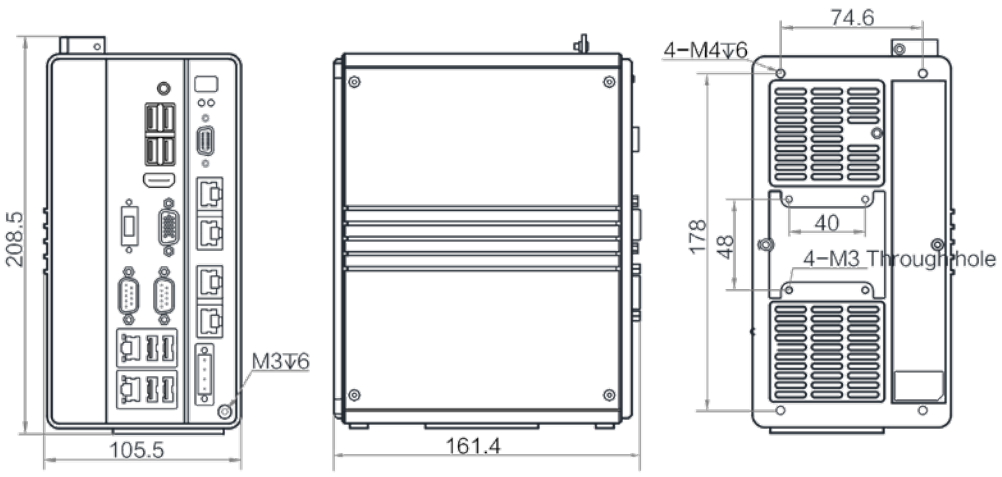
Specifications

Model	CPU	Memory	Storage	Encryption	Digital I/O	GigE	USB3.0	USB2.0 (+built-in)
MV-VC3101H-128G60	Intel® Celeron™ G4900	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3102H-128G60	Intel® Celeron™ G4900	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3201H-128G60	Intel® Pentium™ G5400	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3202H-128G60	Intel® Pentium™ G5400	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1

Model	CPU	Memory	Storage	Encryption	Digital I/O	GigE	USB3.0	USB2.0 (+built-in)
MV-VC3301H-128G60	Intel® Core™ i3-8100	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3302H-128G60	Intel® Core™ i3-8100	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3303H-128G60	Intel® Core™ i3-8100	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	2+4 (POE)	4	4+1
MV-VC3304H-128G60	Intel® Core™ i3-8100	16GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3304H-128G66	Intel® Core™ i3-8100	16GB	128G SSD + 2T HDD	Includes VM6200Pro encryption	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3501H-128G60	Intel® Core™ i5-8500	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3502H-128G60	Intel® Core™ i5-8500	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3503H-128G60	Intel® Core™ i5-8500	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	2+4 (POE)	4	4+1
MV-VC3504H-128G60	Intel® Core™ i5-8500	16GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3701H-128G60	Intel® Core™ I7-8700	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3702H-128G60	Intel® Core™ I7-8700	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3703H-128G60	Intel® Core™ I7-8700	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	2+4 (POE)	4	4+1
MV-VC3704H-128G60	Intel® Core™ I7-8700	16GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1

Model	CPU	Memory	Storage	Encryption	Digital I/O	GigE	USB3.0	USB2.0 (+built-in)
MV-VC3101X-128G60	Intel® Celeron™ G6900	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3102X-128G60	Intel® Celeron™ G6900	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3201X-128G60	Intel® Pentium™ G7400	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3202X-128G60	Intel® Pentium™ G7400	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3301X-128G60	Intel® Core™ 12th-I3	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3302X-128G60	Intel® Core™ 12th-I3	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3303X-128G60	Intel® Core™ 12th-I3	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	2+4 (POE)	4	4+1
MV-VC3304X-128G60	Intel® Core™ 12th-I3	16GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3304X-128G66	Intel® Core™ 12th-I3	16GB	128G SSD + 2T HDD	Includes VM6200Pro encryption	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3501X-128G60	Intel® Core™ 12th-I5	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3502X-128G60	Intel® Core™ 12th-I5	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3503X-128G60	Intel® Core™ 12th-I5	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	2+4 (POE)	4	4+1
MV-VC3504X-128G60	Intel® Core™ 12th-I5	16GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3701X-128G60	Intel® Core™ 12th-I7	8GB	128G SSD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3702X-128G60	Intel® Core™ 12th-I7	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1
MV-VC3703X-128G60	Intel® Core™ 12th-I7	8GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	2+4 (POE)	4	4+1
MV-VC3704X-128G60	Intel® Core™ 12th-I7	16GB	128G SSD + 2T HDD	——	Opto-isolated input × 8, opto-isolated output × 16, Light source control x 4	6	4	4+1

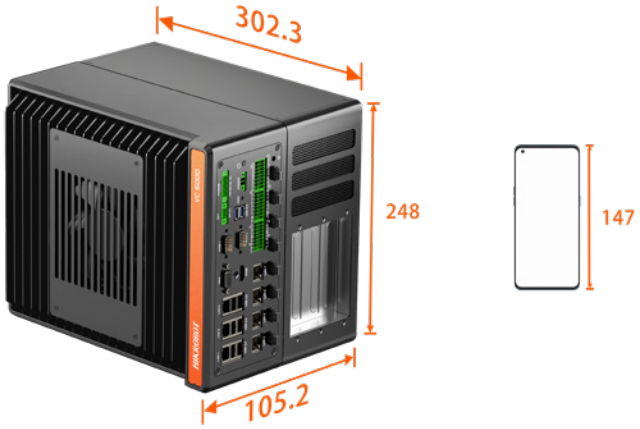
Dimension



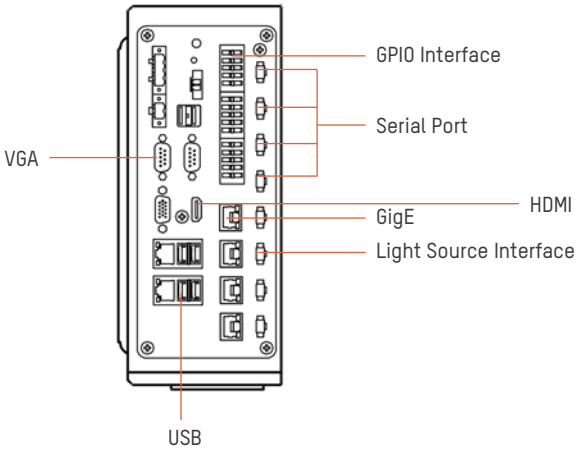
Unit:mm

VC5000 Series Vision Controller

VC5000 vision controller is a high-performance edge vision computing platform that supports AI. It has a compact structure and rich interfaces, and can provide efficient and stable control and data transmission for visual inspection. The flexible modular design meets the expansion needs of common machine vision acquisition interfaces/graphics cards. It can be widely used in scenarios such as multi-station inspection and AI applications. It is the terminal processing equipment of the visual inspection system.



- VC5000 vision controller provides a modular and scalable design, and the configuration of multiple expansion slots allows users to freely match. The host is compact in size and can meet the complex space restriction requirements on site.



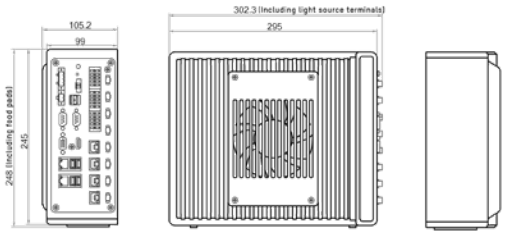
- Equipped with desktop-level Intel 12th/13th generation CPU, it provides powerful computing performance for visual inspection. It has rich interfaces: Gigabit network port, PCIE, serial port, GPIO port, light source control port, etc., which can perfectly meet the application needs of industrial manufacturing.

Specifications

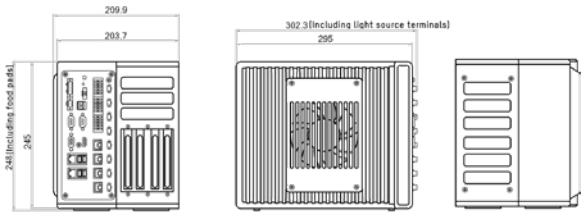
Model	CPU	Memory	Storage	Encryption	Digital I/O	GigE	USB3.0	USB2.0(+built-in)	Label
MV-VC5*1*-***G70-**	G6900/ G7400/12th-i3/12th-i5/12th-i7	8 GB/16 GB/32 GB	256G SSD/256G SSD+2T HDD	——	Opto-isolated input × 12, opto-isolated output × 24, Light source control x 8	3 + 4	4	4 + 2	A
MV-VC5*2*-***G70-**	G6900/ G7400/12th-i3/12th-i5/12th-i7	8 GB/16 GB/32 GB	256G SSD/256G SSD+2T HDD	——	Opto-isolated input × 12, opto-isolated output × 24, Light source control x 8	3 + 4	4 + 4	4 + 2	B

*Represents an extended model, with product models with different processor, memory, storage and other performance options available.

Dimension



A



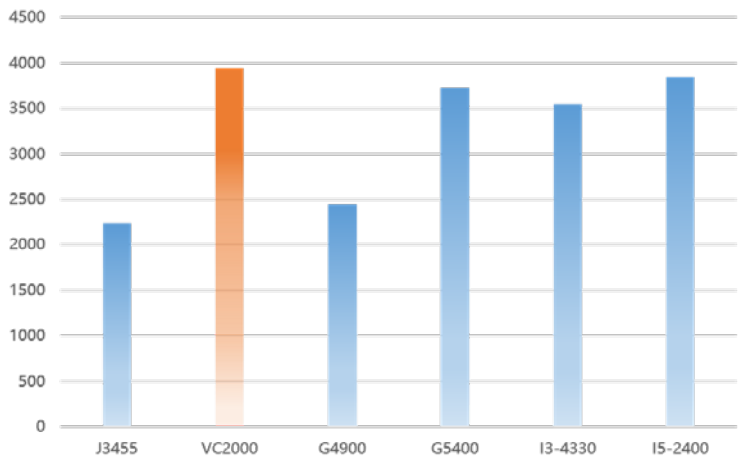
B

Unit:mm

VT2000 Series TouchScreen PC

The all-in-one touch machine is equipped with Intel's high-performance processing chip, with an integrated chassis and screen design. It can be used in simple multi-camera vision applications with a capacitive touchscreen, providing a more flexible choice for visual equipment.

- The 10.1-inch touchscreen all-in-one machine is equipped with a variety of interfaces to adapt to various detection and display needs in small spaces on site, providing users with a more comfortable experience.

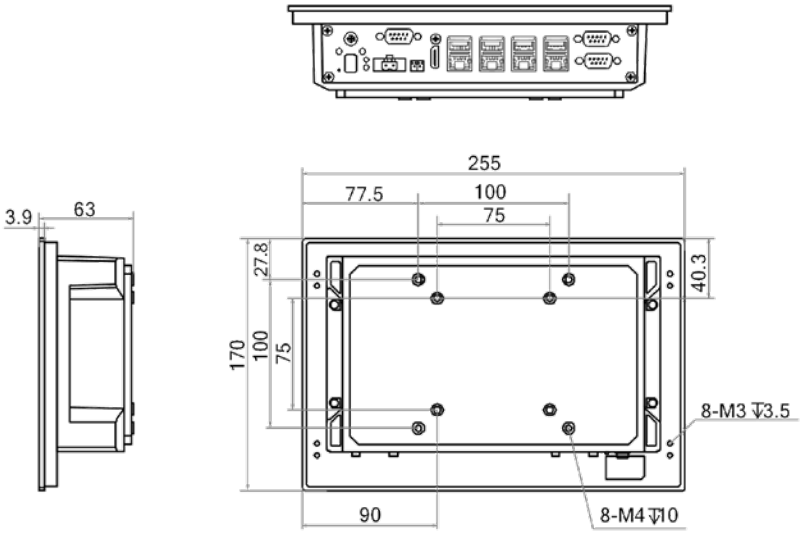


- Compact hardware structure design, rich industrial interface configuration, taking into account both performance and heat dissipation, combined with high-performance CPU processor can implement a conventional visual inspection solution for 3 to 4 cameras to meet the application needs of on-site applications without the need for industrial computers.

Specifications

Model	CPU	Memory	Storage	Digital I/O	GigE	USB3.0	Screen Size
MV-VT2000-128G40-NN	J6412	8GB	128GB SSD	supports up to, opto-isolated input × 7, opto-isolated output × 7	4	2	10.1"
MV-VT2000-128G40-2T	J6412	8GB	128G SSD + 2T HDD	supports up to, opto-isolated input × 7, opto-isolated output × 7	4	2	10.1"

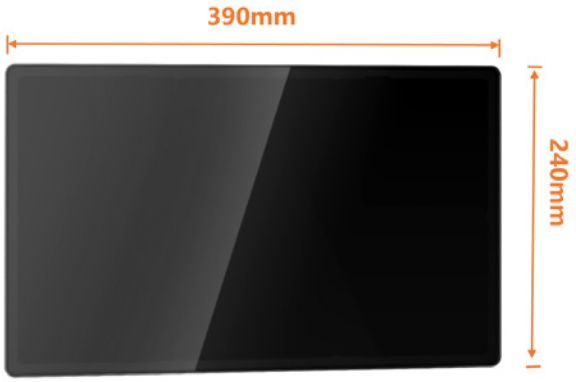
Dimension

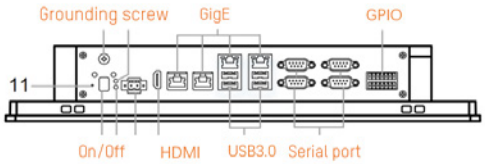


Unit:mm

VT3000 Series TouchScreen PC

VT3000 is equipped with an Intel coffee lake processor and a multi-point capacitive touch screen, ensuring precise operation and sensitive use. It has multiple gigabit network ports, USB, serial ports, and supports rich interfaces such as 11 GPIO. It can be used in simple multi camera visual applications, providing more flexible choices for visual devices.





- The integrated design of the chassis and screen ensures rich data interfaces such as gigabit network port, serial port, GPIO, USB, etc., and directly supports touch operation, bringing users a more comfortable user experience.

Embedded

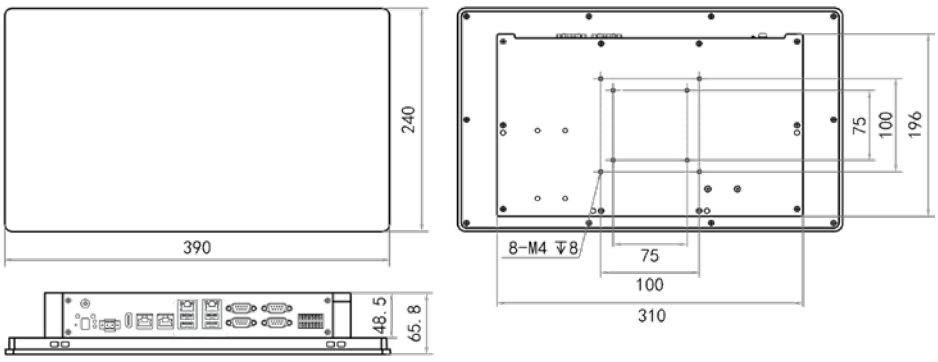
Back facing

- VT3000 supports multiple installation methods, including rail mounted, mounted, open, embedded, etc. It also supports standard VESA brackets and can flexibly adapt to various application scenarios.

Specifications

Model	CPU	Memory	Storage	Digital I/O	GigE	USB3.0	Screen Size
MV-VT3100-128G40-NN	G4900T	8GB	128GB SSD	Opto-isolated input × 3 Opto-isolated output × 8	4	4	15.6"
MV-VT3100-128G40-2T	G4900T	8GB	128G SSD and 2T HDD	Opto-isolated input × 3 Opto-isolated output × 8	4	4	15.6"
MV-VT3300-128G40-NN	I3-8100T	8GB	128GB SSD	Opto-isolated input × 3 Opto-isolated output × 8	4	4	15.6"
MV-VT3300-128G40-2T	I3-8100T	8GB	128G SSD and 2T HDD	Opto-isolated input × 3 Opto-isolated output × 8	4	4	15.6"
MV-VT3500-128G40-NN	I5-8500T	8GB	128GB SSD	Opto-isolated input × 3 Opto-isolated output × 8	4	4	15.6"
MV-VT3500-128G40-2T	I5-8500T	8GB	128G SSD and 2T HDD	Opto-isolated input × 3 Opto-isolated output × 8	4	4	15.6"
MV-VT3700-128G40-NN	I7-8700T	8GB	128GB SSD	Opto-isolated input × 3 Opto-isolated output × 8	4	4	15.6"
MV-VT3700-128G40-2T	I7-8700T	8GB	128G SSD and 2T HDD	Opto-isolated input × 3 Opto-isolated output × 8	4	4	15.6"

Dimension



Unit:mm

List of Vision Controller Accessories

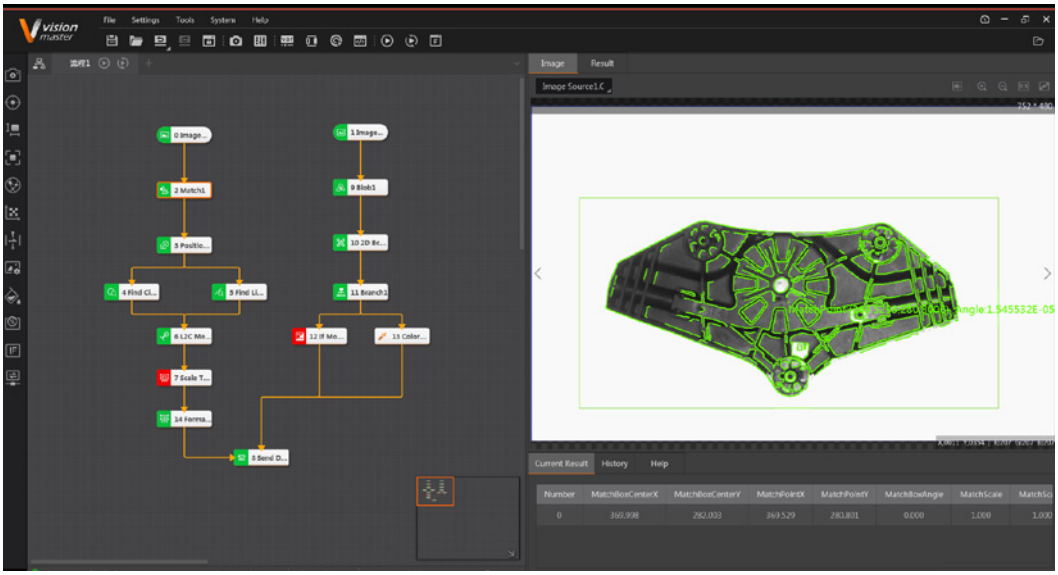
Power Adapter	Adapter	Switching Power Supply	Adaption Series				
			VC2000	VC3000	VC5000	VT2000	VT3000
24V	√	√	√	√	√	√	√

Terminal Head	Power Terminal	Remote Switch Terminal	IO Terminal Head	Adaption Series				
				VC2000	VC3000	VC5000	VT2000	VT3000
2pin	√	√	——	√	√	√	√	√
4pin	√	——	——	×	×	√	×	×
14pin	——	——	√	×	×	×	×	√
16pin			√	×	×	√	×	×
20pin	——	——	√	√	×	×	×	×
30pin	——	——	√	×	√	×	×	×

Install Component	Back Mounted	Rail Hanging	Adaption Series	
			VC2000	VC3000
Accessory Bag	√	√	√	√

VM Algorithm Development Platform

Algorithm development platform is a machine vision software independently developed by Hikrobot, which is dedicated to providing customers with algorithm tools to quickly solve vision applications, and can meet machine vision applications such as visual positioning, size measurement, defect detection and information recognition.



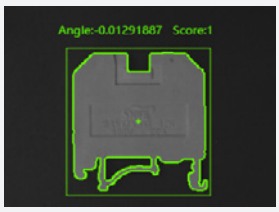
Key Features

- It consists of nearly a thousand completely self-developed image processing operators and a variety of interactive development tools, including 160 + module tools, supporting a variety of operating systems and image acquisition hardware devices, which can meet the needs of positioning, measurement, identification and detection in the field of machine vision applications.
- Fully graphical interactive interface, function icons are intuitive and easy to understand. Dragging operation can quickly set up visual scheme. Module operation status is independently identified and displayed in real time.
- Users can create visual solutions according to their needs, customize the running interface, and integrate background images or company logos on the running interface to meet the personalized needs of customers.
- Compatible with GigE Vision and USB3 Vision protocol standards, allowing access to multiple camera brands. Support local image and camera real-time image processing.
- The secondary development is simple and easy to use. The simplified interface can save 90% of the code. The new tool can be imported into Visual Studio with one key. It supports the interface development of QT, MFC, WPF and WinForm.
- Support the development of user-defined modules. Users can directly drag and use the user-defined algorithm after it is packaged as a VM module.
- Support TCP/IP, ModBus, serial port, UDP, Ethernet/IP and other common industrial communication protocols, compatible with the communication of mainstream PLC models.

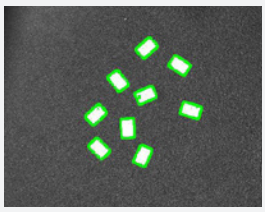
Locating and measuring tools

Accurately and efficiently locate any geometric element in the image with 1/16 pixel accuracy.

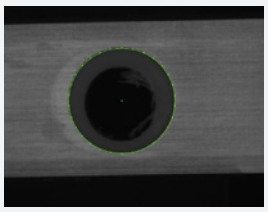
- Efficient template matching tool to overcome differences in sample translation, rotation, scaling, and illumination.
- Quickly and accurately find the position of circles, lines, blobs, edges, vertices, and other geometric objects.
- Accurately measure shapes, dimensions, areas, distances, angles, intersections, and other geometric properties.
- It can be used in robot guidance and other vision tools to provide position information and presence information.



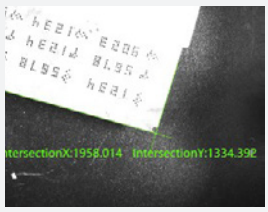
Trait matching



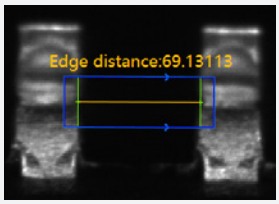
Blob analysis



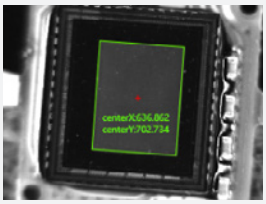
Circle search



Edge intersection

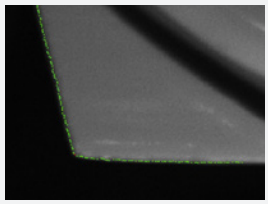


Edge distance measurement



Rectangle search

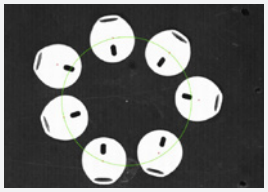
Parallel lines search



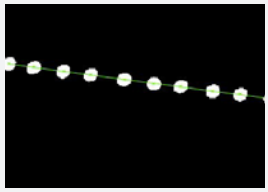
Peak search

C2C measurement

P2C measurement



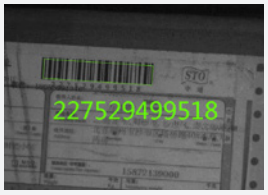
Circle fit



Straight line fit

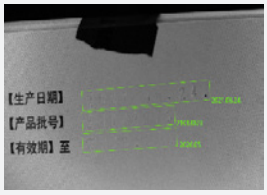
Identification tools

- Fast and accurate reading of digital information code.
- OCR algorithm based on deep learning can adapt to the recognition of complex background, low contrast, deformation and other characters.
- One-dimensional code and two-dimensional code of various types can be identified with different positions, angles and illumination. The influence of image distortion can be effectively overcome.
- Provides continuous, accurate, high-speed reading of ID information for part tracking.
- Support multiple VeriCode accurate identification in case of strong interference.
- It supports CPU and GPU versions of deep learning code reading algorithm, and also carries out accurate positioning and recognition in complex background.

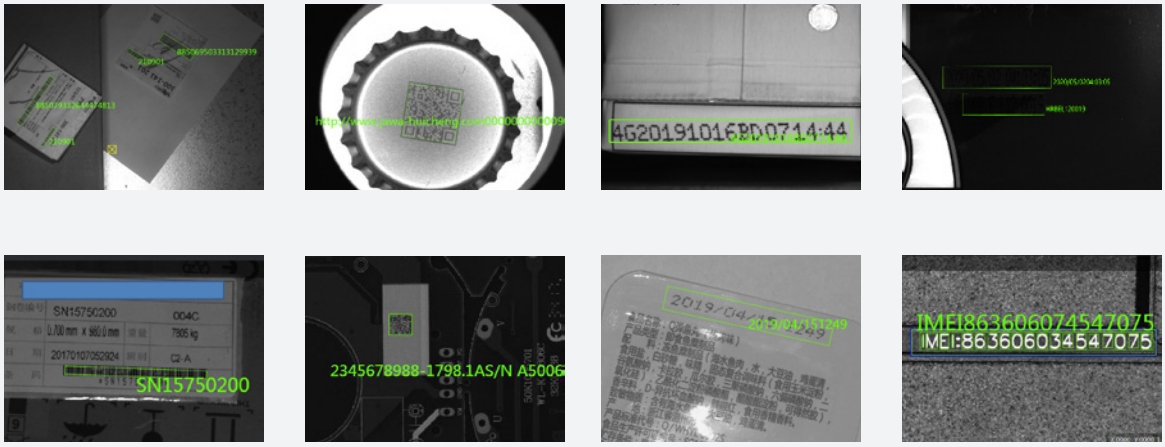


One-dimensional code

Two-dimensional code



OCR

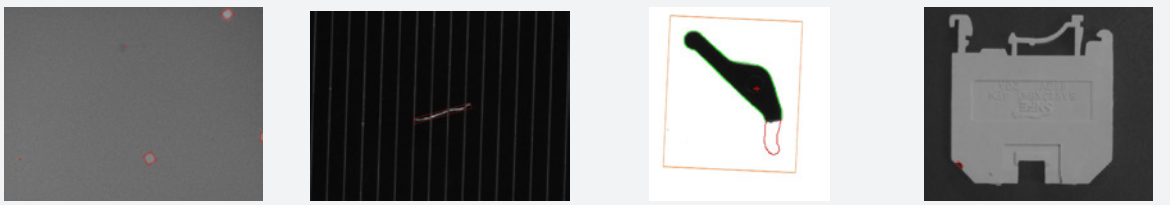


1D Code 2D Code OCR

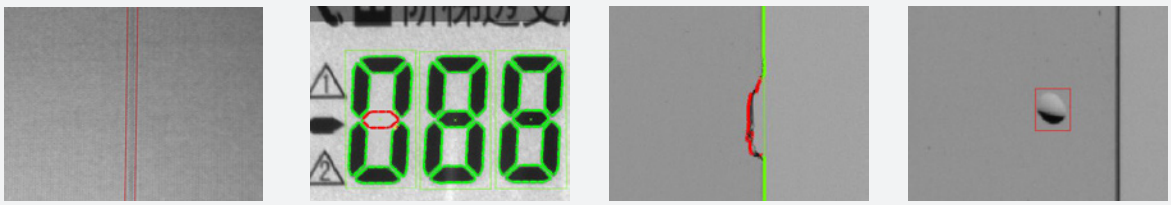
Defect detection tool

Accurately identify defects on the surface, shape and contour of the workpiece.

- Based on deep learning technology, it can detect fine surface scratches and spots, and overcome the interference of surface texture, color and noise.
- Accurate detection of workpiece shape and contour defects, can overcome the interference of burrs, color, noise.
- Reliable tool for comparing standard parts to locate small differences in workpiece.



Surface bright spot Surface scratch Abnormal shape Incomplete contour



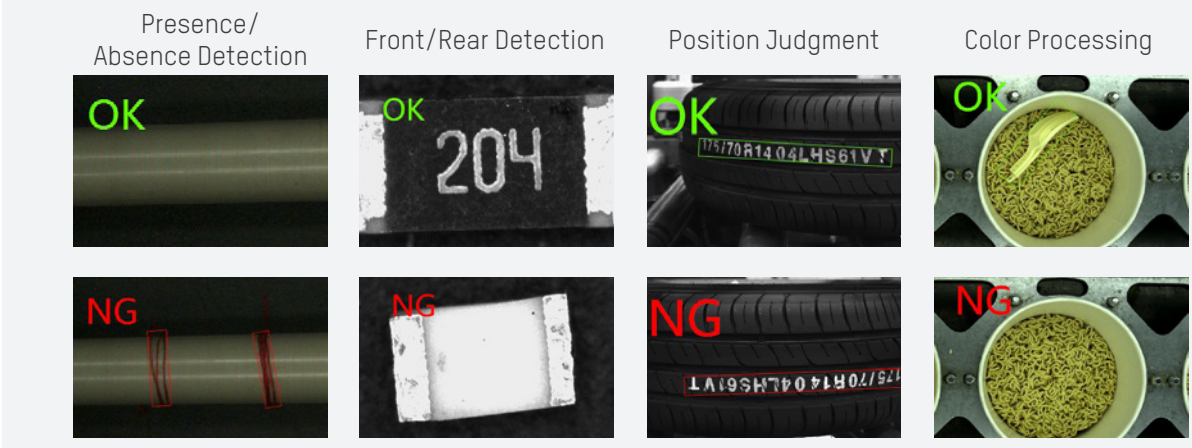
Scratch detection Character defec Broken edge detection Dirt detection

List of algorithm platform tools

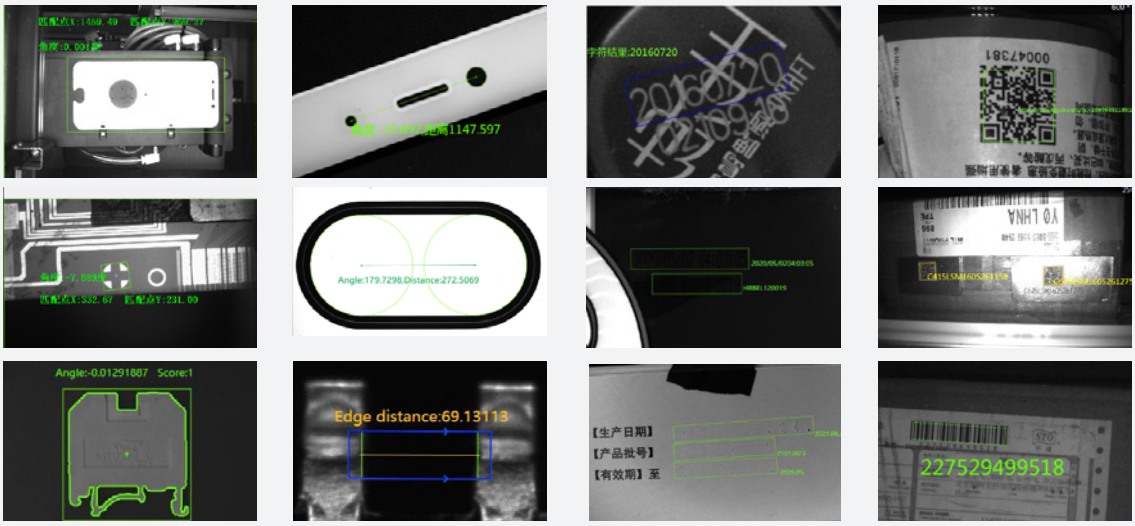
Toolbox	Enumeration Of Tools
Acquisition (5)	Image Source, Multi-Image Acquisition, Image Output, Image Buffer, Light Source
Locating (27)	Contour Match, High-Precision Match, Fast Match, Gray Model Match, Mark Locating, Position Fixture, Blbo Analysis, Blob Label Analysis, Circle Search, Ellipe Find, Matrix Circle Find, Line Search, Line Search Group, Multi-Line Search, Edge Intersection, Quadrilateral Search, Parallel Line Search, Calculate Parallel Line, Rectangle Search, Find Median Line, Find Vertical Line, Caliper, Edge Search, Peak Search, Position Fixture, Target Tracking
Image Generation (3)	Circle Fit, Line Fit, Geometry Generation

Toolbox	Enumeration Of Tools
Measurement (10)	Line-to-Circle Measurement, Circle-to-Circle Measurement, Point-to-Circle Measurement, Point-to-Line Measurement, Line-to-Line Measurement, Point-To-Point Measurement, Intensity Measurement, Edge Distance Measurement, Pixel Count, Histogram
Recognition (12)	BcR, 2D BcR, OCR, DL Character Recognition G/C, DL Code Reading G/C, DL Character Locating G/C, DL Single Character Detection G/C, ML Classifier
Calibration (9)	Calibration Board Calibration, Camera Mapping, N-point Calibration, Translation Calibration, Distortion Calibration, Mapping Calibration, N-image Calibration, Load Calibration, Rotate Calibration
Deep Learning (19)	DL Image Segmentation G/C, DL Classification G/C, DL Object Detection G/C, DL Image Retrieval G/C, DL Anomaly Detection G/C, DL Instance Segmentation G/C, DL Unsupervised Segmentation G, Quick Image Segment, DL Register Classify G/C, Register Segmentation G/C, Register Search G/C, Unsupervised Classification G/C
Calculation (11)	Single Point Alignment, Single Point Grab, Single Point Map Alignment, Single Point Rectify, Calibration Transformation, Point Set Alignment, Rotation Calculate, Line Alignment, Scale Transformation, Variable Calculation, Coordinate Transform
Image Processing (21)	Image Processing Combination, Image Morphology, Image Binarization, Image Filtering, Image Enhancement, Distortion Correction, Image Computing, Image Clarity Estimation, Image Fixture, Shading Correction, Image Resize, Affine Transformation, Ring Expansion, Copy Fill, Frame Mean, Normalization, Image Correction, Geometric Transformation, Image Stitching, Multi-image Fusion, Normalization
Split Combination (6)	Divide Image, 2D Array Correct, Label Filter, Box Merge, Box Overlap, Box Filter
Color Processing (5)	Color Extraction, Color Measurement, Color Transformation, Color Recognition, Color Generation
Defect Detection (13)	OCV, Surface Defect Filter, Arc Edge Defect Detection, Line Edge Defect Detection, Arc-pair Defects Detection, Line-pair Defects Detection, Edge Combination Defect Detection And Edge-pair Combination Defect Detection Respectively, Edge Model Defect Detection, Edge-pair Model Defect Detection, Anomaly Detection, Edge Position Trend Analysis, Edge Pair Position Trend Analysis
Logic Tools (19)	Condition Branch, Condition Detection, Branch, Branch String, Save Text, Logic, Format, String Comparison, Shell, Group, Point Set, Time-consuming Statistics, Data Set, Trigger Module, Graphics Collection, Sorting, Filtering, Classification, Database Storage
Communication (5)	Receive Data, Send Data, Camera IO (Support TCP/IP, Modbus, UDP, Serial Port, Ethernet/IP And Other Common Industrial Protocols; Support Communication With Mainstream Brand PLC), Protocol Analysis, Protocol Assembly

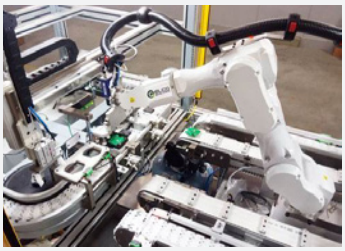
Classic Application



Locating | Measurement | OCR | Code Reading



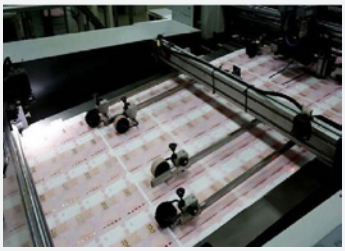
Applicable Industries



3C Manufacturing

Food/Medicine Production

Express Logistics

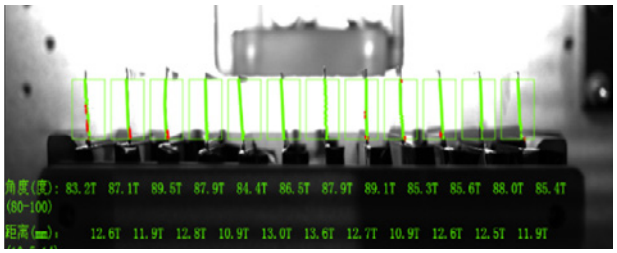


Printing and Textile

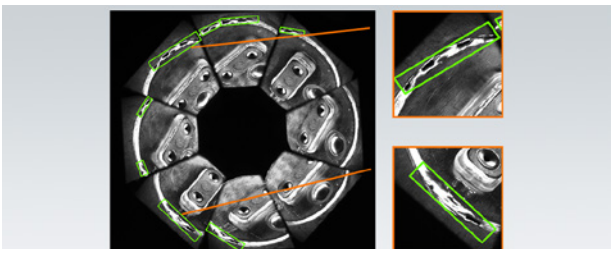
Car Manufacturing

New Energy

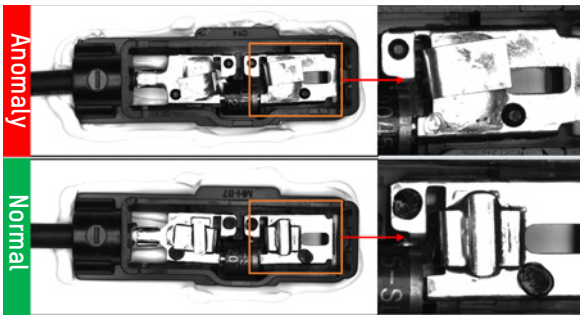
Application Case



Li-ion battery lug measurement: Use the positioning and measurement module to measure the data related to Li-ion battery lugs, and design the software interface through secondary development.

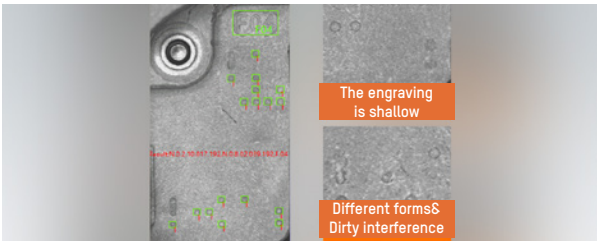


Lithium battery sealing welding defect detection: using deep learning algorithms for lithium battery sealing welding defect detection, can effectively detect welding defects such as welding offset, welding penetration, welding disconnection.

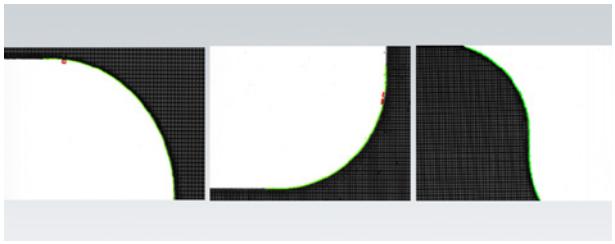


PV module junction box welding scar detection: using deep learning with traditional detection algorithms to detect PV module junction box welding scars.

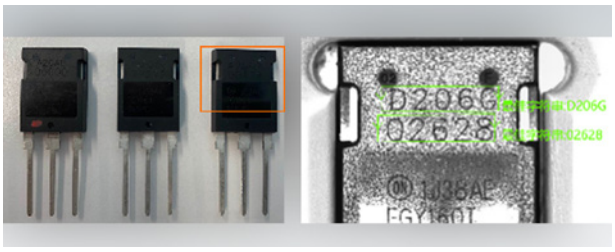
PV panel defect detection: using deep learning with traditional algorithms for defect detection during EL inspection of PV panels.



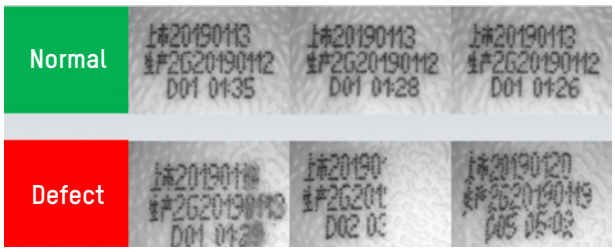
Consumer electronics industry 8421 code reading: using deep learning algorithms to extract the smallest unit of 8421 code from the complex environment, with the script module to decode it.



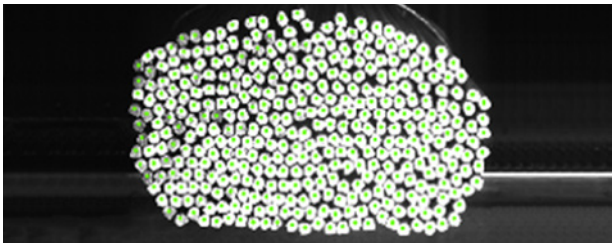
Cell phone screen edge defect detection: the use of traditional defect detection module to achieve the detection of defects on the edge of the cell phone screen.



OCR recognition of electronic components: using deep learning algorithms to cope with OCR recognition of low contrast and complex backgrounds on electronic components



Food packaging character defect detection: using deep learning algorithms to achieve defect detection of spray code characters on food packaging.

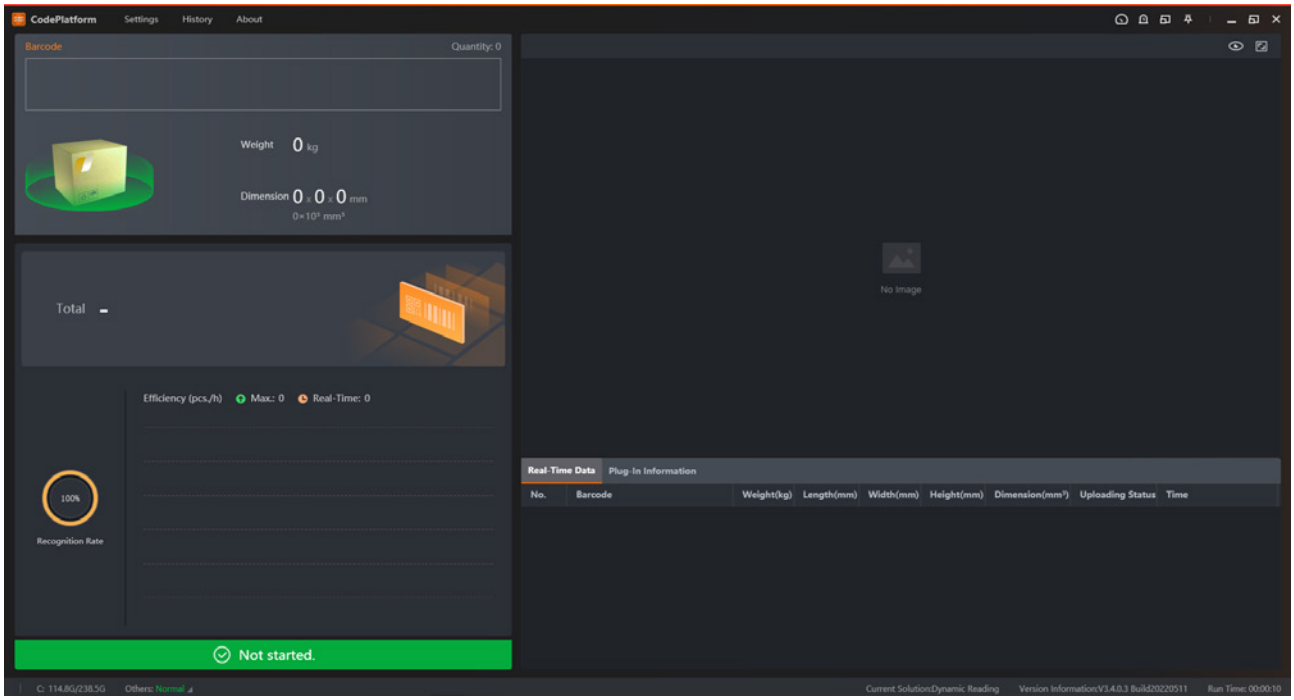


Rebar counting: Use deep learning algorithm to implement counting function when rebar is bundled.

CodePlatform

Hikrobot's CodePlatform is a comprehensive code-reading software platform, including data collection, image processing, communication output, data statistics and other functions. With strong compatibility and rich functions, the platform meets most demands of common code-reading application scenarios.

- **Multi-business scenarios:** Modular software design, high expansion, suitable for multi-business scenarios such as express logistics, pallet access door code reading, and on-site logistics workstations
- **Rich interface information:** Including real-time information area, picture display area, history record area, menu configuration area, running status display, quick function area, user rights management, etc., rich in information
- **Product access:** Can access all series cameras such as code reading cameras, volume cameras, panoramic industrial cameras, and support multi-camera combination applications
- **Convenient data connection:** Supports the upgrade of a separate protocol gateway plug-in, and supports highly customized business output



Appendix

Pixel size

The size of 1 pixel, which is the smallest unit that makes up the image.

Sensor size

The diagonal size of the CMOS, the pixel size and the resolution together determine the size of the camera's sensor.

Resolution

Determine the accuracy of the image, in general, the higher the resolution of the image, the more pixels it contains, the clearer the image will be.

Frame rate

Number of frames per second transmitted, In fps units.

Line rate

The number of horizontal scans per second, in unit of Hz.

Reading speed

Number of codes read per second.

Focal length

Distance from the optical center of the lens to the imaging plane of the CMOS.

Working distance

Refers to the distance from the front of the lens to the surface of the subject, the lens can be clearly imaged at that distance.

FOV

Visible range of the camera.

DOF

The farthest and closest imaging distance at the front of the lens to obtain a clear image of the object being measured.

Acquisition frame rate

The number of images acquired by the device per unit of time.

Clear distance

The minimum distance between the measured object and the device when it is within the measurement range
If the distance between the measured object and the device is less than this value, valid data will not be obtained.

Measurement ranger

Depth range that can be measured by the device
If the measured object is not in the measuring range, valid data cannot be obtained.

Near FOV

The size of the field of view corresponding to the nearest end of the measurement range from the device.

Far FOV

The size of the field of view corresponding to the farthest end of the measurement range from the device.

Hikrobot

Vision for Imagination

MACHINE VISION PRODUCT CATALOG

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