VISION, SEEING INFINITY

Logistic Vision Solutions

www.hikrobotics.com

HIKROBOT

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Hangzhou Hikrobot Technology Co.,Ltd.

Hikrobot is a global manufacturer and supplier of mobile robot and machine vision products. Relying on the over 1000 R&D staff, Hikrobot develops business areas including mobile robots, machine vision, etc. Adhering to the innovation of hardware, software and platforms, it is committed to continuously promoting the intelligentization and leading the intelligent manufacturing process.

Machine Vision

With efforts in industrial vision sensing application and hardware technology, Hikrobot provides customers with leading machine vision products. The products cover industrial camera, smart camera, 3D camera, code reader, lens, vision controller, software platform 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.

Overview

Background

According to statistics, with the booming development of e-commerce, express delivery logistics presents rapid growth every year. Millions consumers across the world shop using e-commerce each day and brings billions pieces parcels. To meet the soaring demand, all the express companies are seeking to replace manual work with automation solutions, among which the automatic information collection system is indispensable.
Automatic information collection system can provide accurate charging basis, real-time sorting information, reasonable vehicle management, and long-acting historical data. As the core system of the express transport phase, it hopes to be stable, efficient, accurate and timely

Solution

Hikrobot logistic vision solutions, composed of smart barcode reader, 3D camera, special designed lightsource and self-developed code reading software, have been deployed in every logistics process, such as inbound, distribution, sorting, outbound, etc. They give a perfect answer to the problem that modern logistics industry is facing. With high efficiency, high accuracy and traceability, Hikrobot logistic vision solutions satisfy the need of automation and informatization. That's what we can do to help you bring your business to next level.

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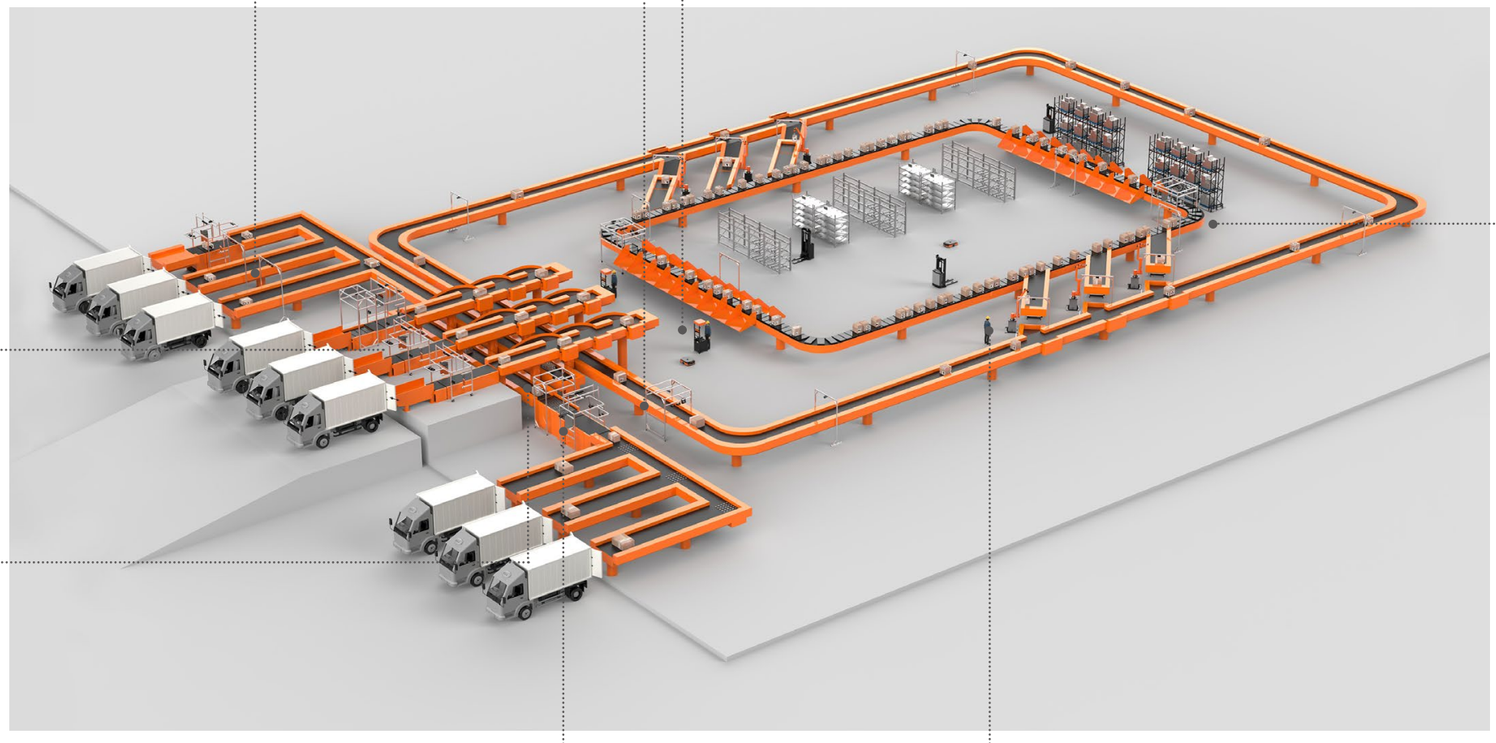

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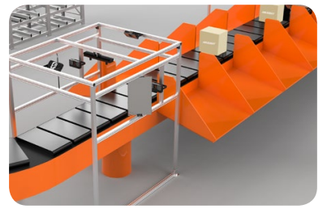
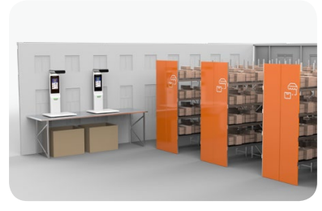


Cross-belt Five-sided Scanning System



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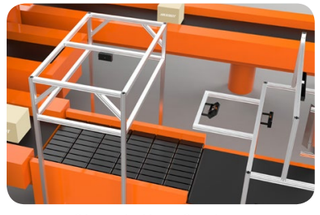

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Dynamic DWS System

Solution

Hikrobot dynamic DWS system addresses the difficulties in gathering accurate parcel information in express industry. Composed of self-developed high-resolution smart code reader, line laser 3D camera and dynamic weighing module, the system can gather and integrate in real-time the three basic information of each parcel: barcode, volume, and weight. The dynamic DWS system can be seamlessly integrated into existing sorting equipment in distribution centers, automating the process of data collection and parcel sorting.

Advantages

- **High throughput**
  Data is collected dynamically during non-stop transport. The maximum working rhythm reaches up to 3600 pcs/hour.

- **Traceability**
  Combined data and images are either saved locally or uploaded to pre-defined server to realize parcel information retrieval, reducing errors during transport.

- **Precision**
  To ensure data accuracy, the entire data collection and integration process is automated without any human intervention.

- **Labor saving**
  It is estimated to save 50% manpower in unloading and sorting section.

- **Real-time alarm**
  System halts on error with sound/light alarm for real-time handling if overlong, overweight or unlabeled parcel is detected.

- **High scalability**
  The system is compatible with telescopic belt conveyor, swing arms and other sorting equipment. It also works with CCTV system to achieve better visual traceability.

Parameter	Hikrobot Equipment	Manual
Symbologies	Code128, Code39, QR, etc.	
Max. operation rate	3600 pcs/hour	1000 pcs/hour
Save/upload images	Supported	Not supported
Weighing accuracy	±20 g	Unwarrantable
Volume measurement accuracy	±5 mm	Unwarrantable

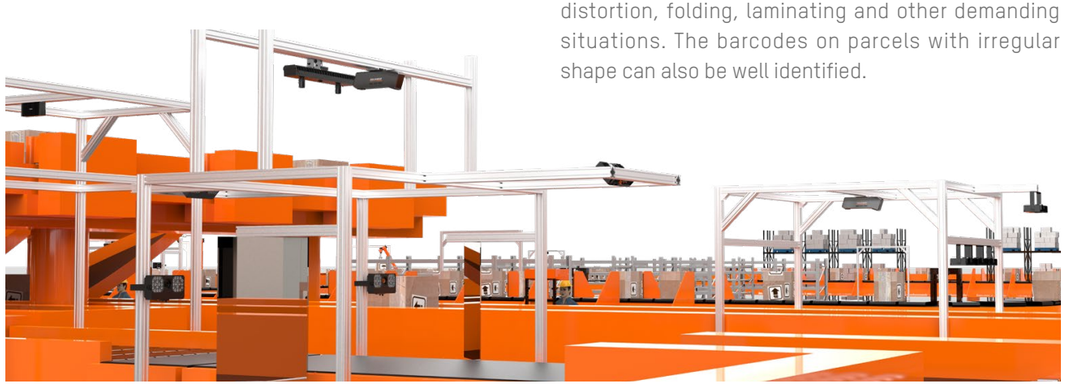
Six-sided Code Reading System

Solution

Hikrobot six-sided code reading system is composed of ID6000 series smart code readers and an ID7000 series smart line scan code reader, realizing dynamic code-reading on all faces (top/bottom/left/right/front/back) of the parcel, minimizing the need to adjust the parcel manually.

Advantages

- **High scalability**
  - The system supports 8.9MP smart code readers with horizontal resolution up to 4096 pixels and frame rate up to 30 fps, satisfying customers' diversified need in high-speed application scenarios.
  - The system supports 20MP smart code readers with ultra-high resolution up to 5472 x 3648. Combined with specially designed code reading light, it is able to cover an extremely large FOV, thereby contributing to a system solution with better cost-performance ratio.
  - The bottom code-reading is realized by smart line scan code reader. 8K resolution provides ultra-wide FOV, satisfying customers' diversified need in high-speed application scenarios.
- **User-friendly**
  The software features simple operation, clear interface and complete functions.
- **Robust**
  The self-developed decoding algorithm boasts short decoding time and strong adaptability to barcode distortion, folding, laminating and other demanding situations. The barcodes on parcels with irregular shape can also be well identified.

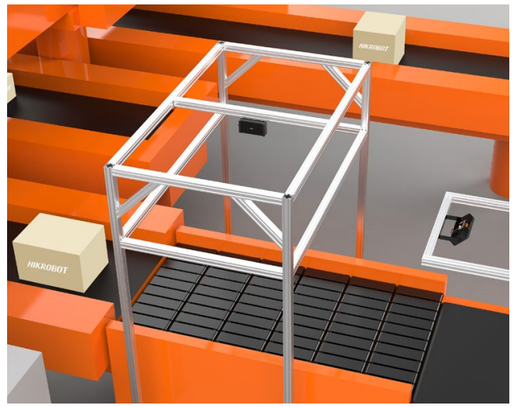


Singulation System

Solution

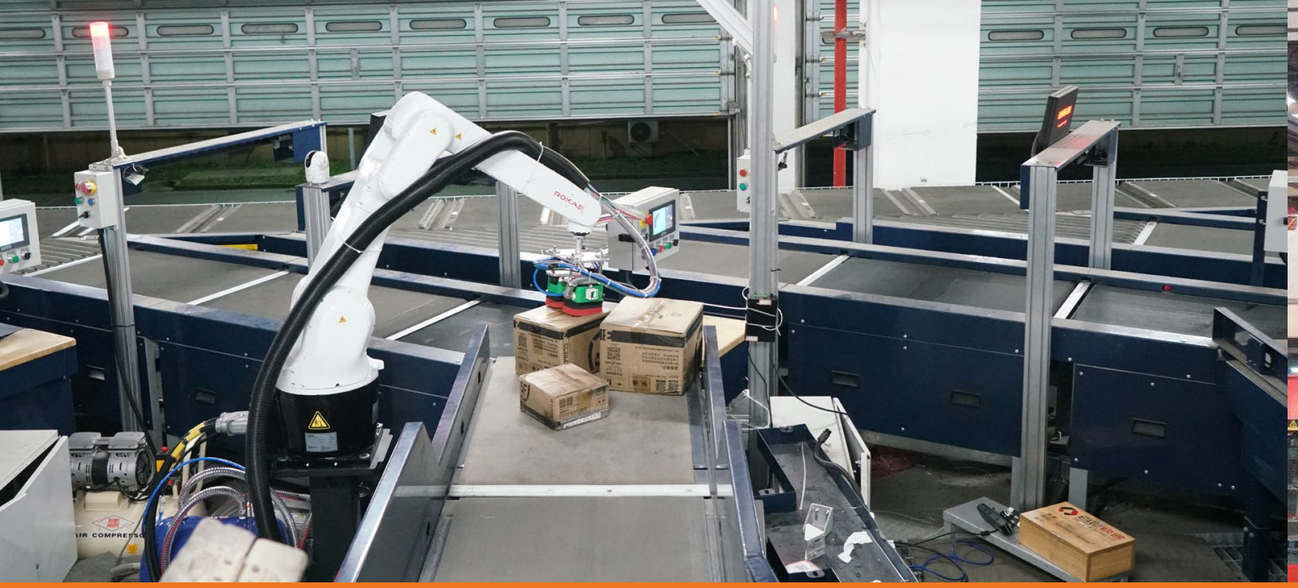
Hikrobot Singulation system uses RGB-D smart 3D camera as the core of its vision system. Based on in-built 3D processing and deep-learning instance segmentation algorithms, the camera is able to accurately locate each parcel in real-time. The system also provides singulation control software with integrated PLC control algorithm to realize precise control of modular belt-actuators so that parcels can be separated with predefined intervals.

Parameters	Hikrobot System	Manual
Max. Efficiency	10000 pph	~2000 pph
Interval Error	±30mm	N/A
Singulation Accuracy	99.9%	N/A



Advantages

- **Powerful algorithms**
  Based on the combination of 2D deep-learning instance segmentation algorithm and 3D image processing algorithm, the system is able to accurately identify and locate all kinds of parcels, including challenging forms such as envelopes, black parcels and sealed bags.
- **Intelligent hardcore**
  The RGB-D smart 3D camera integrates image processing related algorithms, which calculate parcels' position information inside the camera and output results directly with supreme frame rate.
- **Flexible implementation**
  The vision system can be adjusted flexibly according to singulator size. In fact, the only thing needs to be modified is camera's number. The system calibration can be achieved by a single click.
- **Strong robustness**
  High performance IPC with independent graphical card is no longer required thanks to the introduction of smart 3D camera with IP65 ingress protection level, which makes the overall system more robust.



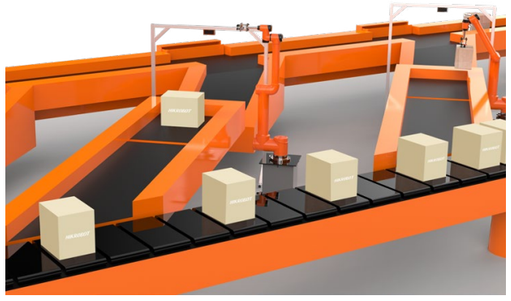
Parcel Picking System

Solution

Hikrobot parcel picking system addresses notably the current difficulties in manual parcel feeding process in CEPs, including higher labor cost, harder recruitment and limited working time. Based on RGB-D smart 3D camera, the system combines deep learning algorithms and traditional image processing algorithms, guiding robot to work full time with high efficiency.

Parameters	Hikrobot System
Max. efficiency*	1600 pph
Max. parcel size	300mm × 300mm × 100mm
Min. parcel size	100mm × 50mm × 10mm
Max parcel weight	Hard -5kg; Soft - 3kg
Success rate of picking	>99%
Double rate	< 3‰
Manual intervention	< 1 time/hour

*Max operation efficiency is related to work cycle of the downstream sorting process and site layout.



Advantages

- **High efficiency**
  Single system achieves 1600pcs/hour efficiency, which realize full capacity of a typical loop cross-belt sorter counting 12-14 induction points. Besides, robot picking system works 24h non-stop, perfectly reducing the investment on human resources.
- **Stable and reliable**
  Deep learning based recognition algorithms makes parcel identification and location easier than ever, thus increasing the success rate of picking. The state-of-the-art motion planning algorithm ensures the avoidance of collision and singularity.
- **Intelligent hardcore**
  The RGB-D smart 3D camera uses in-built algorithms to calculate parcels' position information and can be connected to robot controller directly to save the cost of extra IPC.
- **Friendly HMI**
  The system is easy to use through the step-by-step configuration wizard and single-click hand-eye calibration.

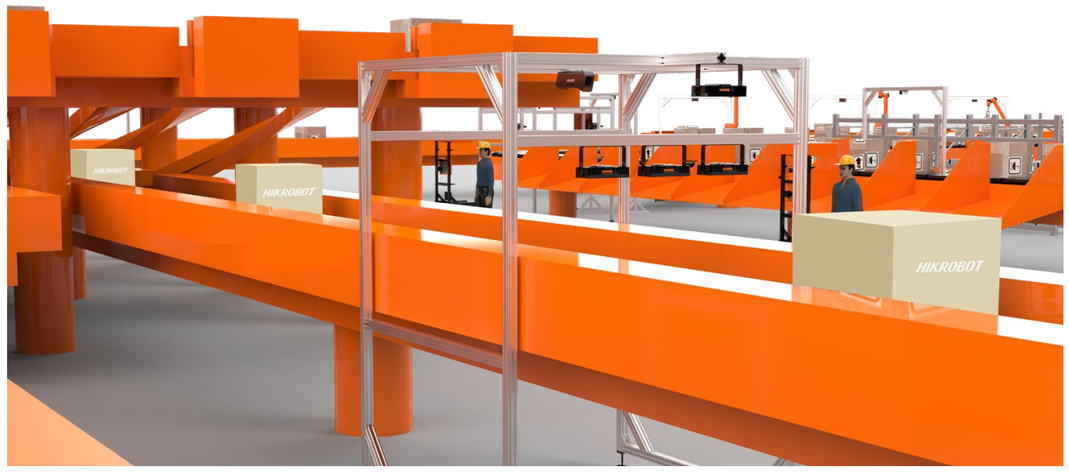
Dynamic Scanning and Locating System

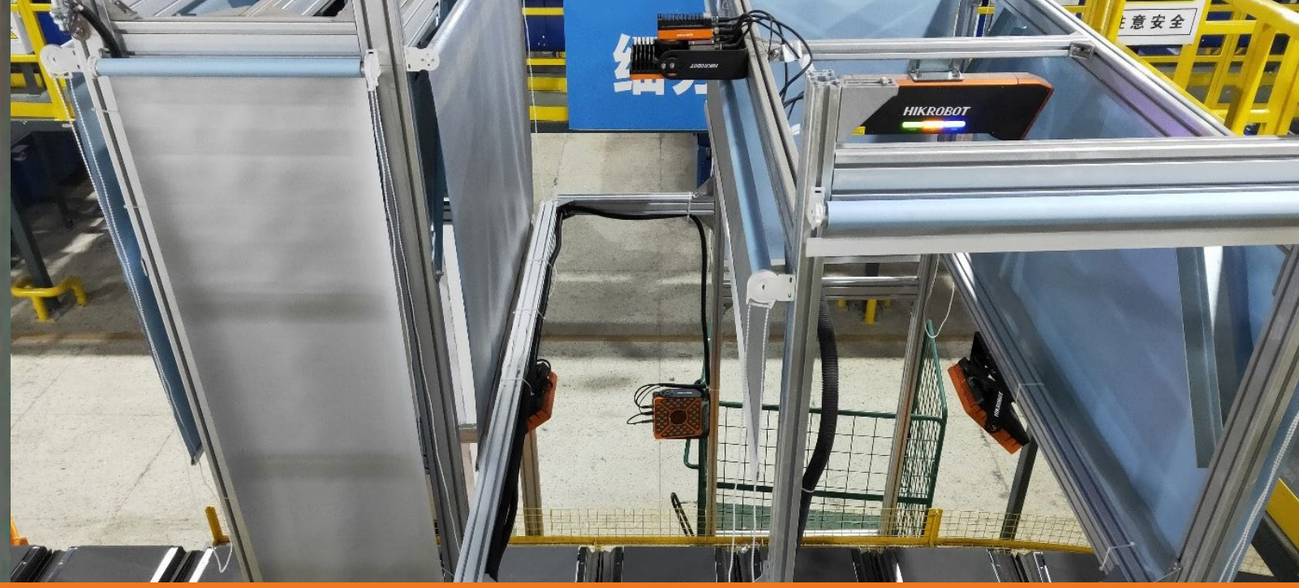
Solution

Hikrobot dynamic scanning and locating system uses line laser 3D camera, smart code reader and ultra-high resolution industrial camera, to differentiate parcels in the same FOV, reading each code respectively and locating unreadable parcels. When a parcel is rejected due to code reading failure, system will record the failure data and send a visual reminder on software interface, guiding operators to manually handle the exception.

Advantages

- **Parallel processing**
  The system is able to locate and scan multiple parcels simultaneously in the FOV. A pre-warning signal will be sent to the operator if rejected parcel is detected.
- **Visualization**
  Once a rejected parcels is located, the system will guide operators of the subsequent process to do manual sorting via a display.
- **High scalability**
  Functions including manual sorting alarm and automatic data entry of rejected parcels by OCR are expandable.





Inbound Parcel Scanning System

Solution

Hikrobot inbound parcel scanning system adopts integration code readers, coupled with a vision controller, to realize the parallel code reading of a large amount of parcels and record the image of each shipment waybill in the same time. Another possibility is to use ID6000 series smart code readers and an Android code reading controller to constitute the system. This system is capable of scanning over 10,000 parcels per hour, which provides better efficiency than a conventional inbound scanning system with multiple operators manually scanning barcodes by handheld barcode scanners.

Advantages

- Efficient and stable
  Simultaneous reading of multiple barcodes on different packages is supported.
- Cost-effective
  the number of labor is significantly reduced, leading to high ROI.

Parameter	Hikrobot Equipment	Manual
Symbologies	Code128, Code39,QR,DM,etc.	
Max. operation rate	Over 10000 pcs/hour	1800 pcs/hour/ person
Save/upload images	Supported	Not supported

Cross-belt Five-sided Scanning System

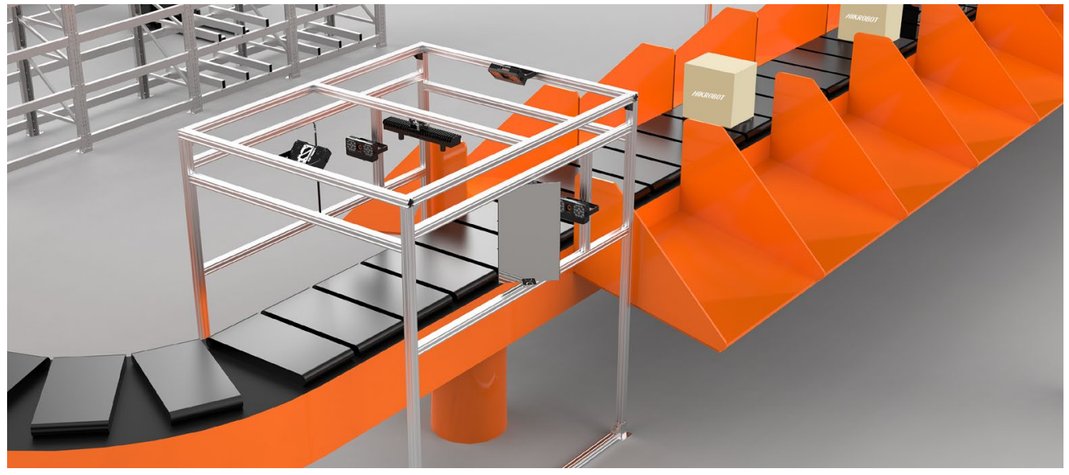
Solution

The cross-belt sorter dynamic scanning system uses single smart code reader with 4K horizontal resolution and a high-speed processor. A single smart code reader can cover 740mm x 390mm FOV and up to 400mm DOF, which meets the optical requirement of small cross-belt sorters.

Parameter	Hikrobot Equipment
Symbologies	Code128,Code39,QR,DM,etc.
Communication mode	Gigabit Ethernet port
Save/upload images	Supported

Advantages

- Efficient and stable
  One single smart code reader can cover the whole FOV without data integration, making the system more stable.
- High speed
  The system is adept at high-speed applications and support up to 2.5m/s.
- Flexible customization
  The communication protocol and special functions like OCR can be customized.



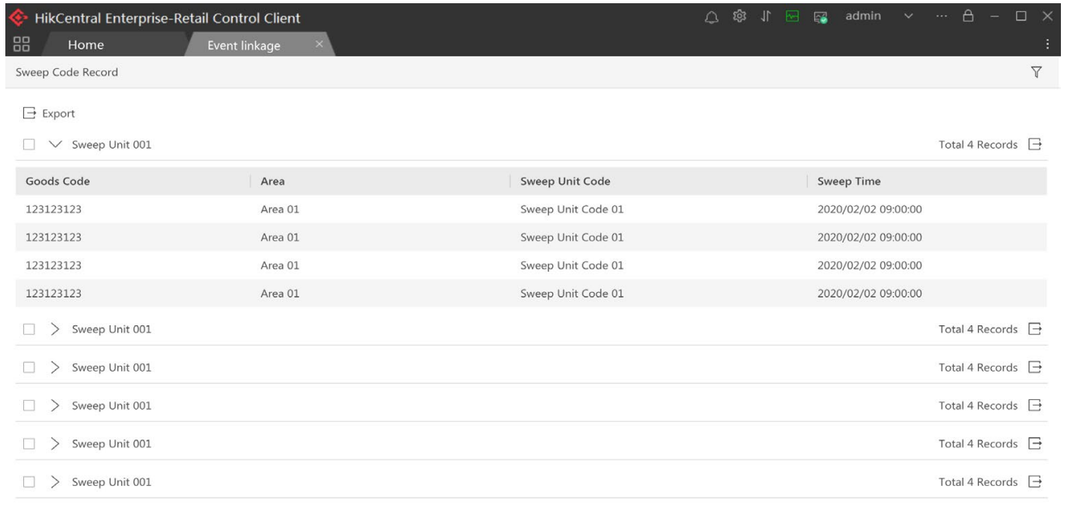
Logistics Visualization Management Platform

Solution

Through the linkage of logistics scanning system and security platform HC-E, logistics visualization management platform realizes video traceability of goods in the key circulation links. Benefitted by real-time preview, recording, and data statistics of goods in transportation, problem of goods lossing can be solved.

Advantages

- **Convenient supervision**
  Scan events are generated and can be previewed in the monitoring center in real time.
- **Auxiliary analysis**
  Data statistics contains detailed records of goods flow.
- **Operational intelligence**
  Goods retrieval and playback query are convenient, all videos can be called by entering the barcode of the goods.



Static Applications

Static DWS System

Solution

Hikrobot static DWS system, integrated with integration code reader, binocular 3D camera and a static scale, can realize the collection of volume, barcode and weight information through non-contact measurement, which contributes to objective and accurate data result.

Parameter	Hikrobot equipment	Manual
Symbologies	Code128,Code39,QR,DM,etc.	
Max. operation rate	1800~2400 pcs/hour	900~1200 pcs/hour
Save/upload image	Supported	Not supported
Weighing accuracy	±10 g	Unwarrantable
Volume measurement accuracy	±10mm	Unwarrantable

Advantages

- **Efficient and objective**
  The information collection process is not influenced by human intervention, thus can provide an objective data result.
- **Data comprehensiveness**
  The barcode, weight and volume data are accurate and stable.
- **Appropriate charging**
  The collected volume and weight data can serve as basis for pricing.

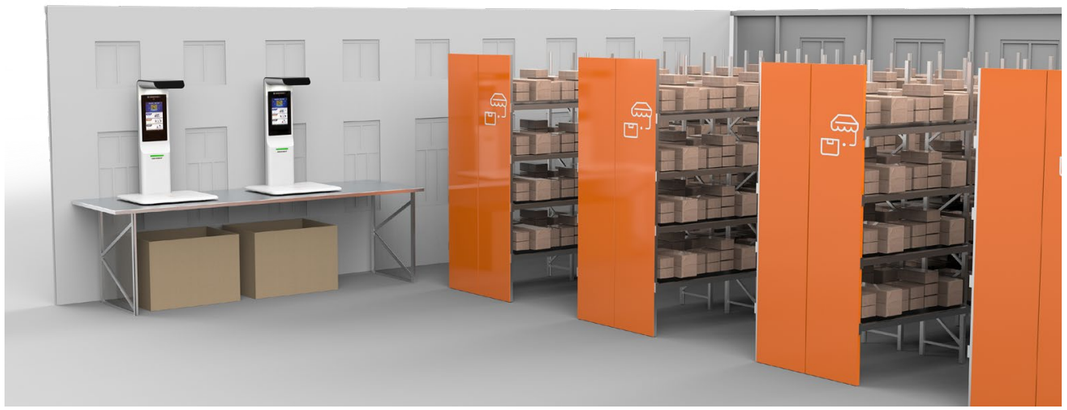
Self-service Terminal System

Solution

Hikrobot Self-service Terminal System is an integrated code reading system. Based on industrial grade image sensor, high performance processor and Android OS, the system is able to realize multiple functions such as code reading, data transmission, information processing and display. The Self-service Terminal System can be widely used in express stations, company mailrooms, warehouses, etc.

Advantages

- **Compact Structure**
  All-in-one design
- **Strong Performance**
  6-Core processor, self-developed high performance decoding algorithms, all mainstream symbologies supported
- **Security function**
  Optional facial-recognition function for fast identification



Smart Code Reader

ID6000 Series Smart Code Reader

Key Features

- Provide 20MP and 12MP ultra-high resolution specifications, covering a large field of view
- Provides 8.9MP high-resolution global shutter specification adapted to high-speed scenes and provides 4K horizontal resolution
- Provide logistics-specific deep learning algorithms that can deal with various types of distortion, wrinkles, dirty, and damaged barcodes in logistics scenarios
- Support multiple barcode recognition and waybill picking
- Gigabit transmission, support original image output and archive
- Support reader clustering/networking, complete multi-code reader system construction through Codemaster
- IP67 protection level, meeting the requirement of harsh industrial enviroment

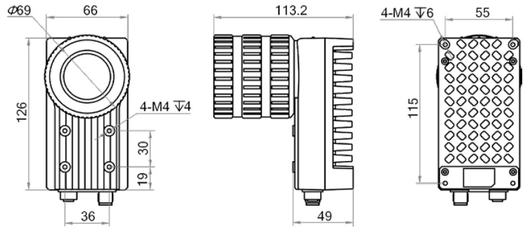
Specifications

Parameter \ Model	MV-ID6089M-00C-NNG	MV-ID6120M-00C-NNG *
Symbologies	1D Codes: Code 39, Code 93, Code 128, CodaBar, EAN, ITF25, etc. 2D Codes: QR, DM, etc.	
Max.Frame Rate	30 fps	20 fps
Max.Reading Speed	90 codes/s	60 codes/s
Pixel Size	3.45μm×3.45μm	1.85μm×1.85μm
Sensor Size	1"	1/1.7"
Resolution	4096×2160	4096×3000
Communication Protocols	SmartSDK, TCP Client, Serial, FTP, HTTP, TCP Server	
Software	IDMVS	
Data Interface	Gigabit Ethernet （1000Mbit/s）	
I/O	12-pin M12 connector provides power and I/O, including 3 opto-siolated input, 3 opto-isolated output and 1 RS-232 serial port	
Power Supply	12~24VDC	
Power Consumption	< 12W@24VDC	
Lens Mount	C-Mount	
Lens Cap	Transparent lens cover	
Dimension	126mm×66mm×113.2mm	
Weight	Approx.750g	
IP Protection Level	IP67 (with lens cover appropriately mounted)	
Temperature/Humidity	Working temperature 0~50°C, storage temperature -30~70°C, 20%~95%RH without condensation	

Notice:* will be released soon.

Parameter \ Model	MV-ID6200M-00C-NNG	MV-ID6200EM-00C-NNG*
Symbologies	1D Codes: Code 39, Code 93, Code 128, CodaBar, EAN, ITF25, etc. 2D Codes: QR, DM, etc.	
Max.Frame Rate	20 fps	10 fps
Max.Reading Speed	60 codes/s	30 codes/s
Pixel Size	2.4μm×2.4μm	2.4μm×2.4μm
Sensor Size	1"	
Resolution	5440×3648	5440×3648
Communication Protocols	SmartSDK, TCP Client, Serial, FTP, HTTP, TCP Server	
Software	IDMVS	
Data Interface	Gigabit Ethernet(1000Mbit/s)	
I/O	12-pin M12 connector provides power and I/O, including 3 opto-isolated input, 3 opto-isolated output and 1 RS-232 serial port	
Power Supply	12-24VDC	
Power Consumption	< 12W@24VDC	
Lens Mount	C-Mount	
Lens Cap	Transparent lens cover	Not included
Dimension	126mm×66mm×113.2mm	126mm×66mm×55.3mm
Weight	Approx.750g	Approx.550g
IP Protection Level	IP67 (with lens cover appropriately mounted)	IP65
Temperature/Humidity	Working temperature 0~50°C, storage temperature -30~70°C, 20%~95%RH without condensation	

Notice: * will be released soon.



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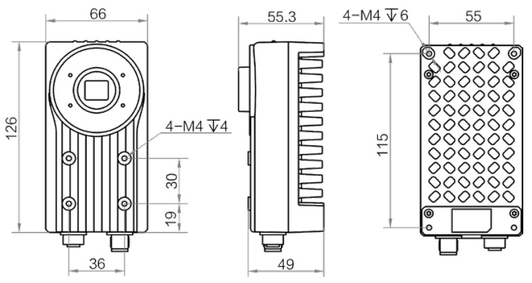

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ID7000 Series Smart Code Reader

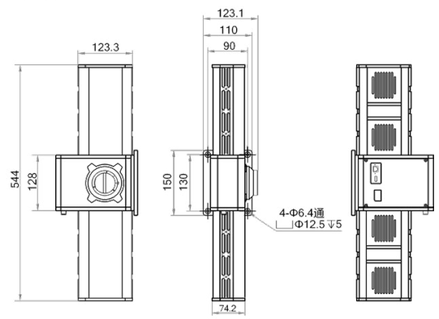
Key Features

- Use 8K Sensor to achieve 1.2m wide coverage in narrow visual space
- Embedded deep learning code-reading algorithm efficiently reads multiple types of code
- Support real-time varialbe speed stitching, support the entire picture transmission
- Wide-angle coverage through integrated double-side 48 LED, uniform illumination and high light source utilization
- Rich IO interface provide access for mutiple input and output signals, support encoder and RS232 serial port transmission protocol
- Optional bottom reflector for easy adjustment and maintenance, optional reflector cleaner to ensure long-term stable use

Specifications

Parameter \ Model	MV-ID7080M-35F-WHA *	MV-ID7080M-50F-WHA*
Symbologies	1D Codes: Code 39, Code 93, Code 128, CodaBar, EAN, ITF25, etc. 2D Codes: QR code, DataMatrix, etc.	
Max.Line Rate	15kHz	15kHz
Pixel Size	5um×5um	5um×5um
Resolution	8192×1	
Communication Protocols	SmartSDK, TCP Client, Serial, FTP, HTTP, TCP Server	
Focal Length	35mm	50mm
Working Distance	1000mm	1500mm
FOV	1200mm@10mil	1200mm@10mil
Client Software	IDMVS	
Data Interface	Gigabit Ethernet(1000Mbit/s)	
I/O	12-pin M12 connector provides power and I/O, including 3 opto-siolated input, 2 opto-isolated output and 1 RS-232 serial port	
Power Supply	48VDC	
Power Consumption	< 190W@48VDC	
Lens Interface	F-Mount,back focal length 46.5mm	
Dimension(Without Lens)	544mm×123.1mm×185mm	
Weight(Without Lens)	Approx.6.5kg	
Temperature/Humidity	Working temperature 0~50°C, storage temperature -30~70°C, 20%~95%RH without condensation	

Notice: * will be released soon.



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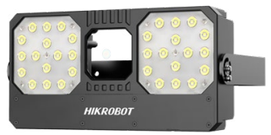
Code Reading Light

Key Features

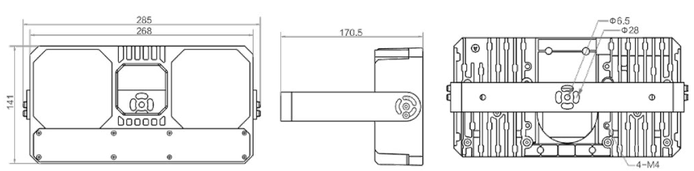
- Integrated design to work with smart coder reader, the light source can be directly controlled by camera
- Concentrated light with high luminous efficiency
- Industrial design, using acrylic transparent material to ensure brightness while reducing eye discomfort
- Professional structure drive and light distribution design, long service life
  No harmful metal such as lead and mercury, green and environmental protection



Specifications

Feature \ Model	MV-LB-270-140-4030WL-A *
Light Type	Constant 32 LED
Center Illumination	25000 lux@1000 mm
Uniformity	0.5
Luminous Flux	11700 lm
CRI	>70
Wavelength	380~780 nm
Beam Angle	40°X30°
Color Temperature	6500K
Working Distance	1.8m
Power Supply	24VDC
Power Consumption	130W(24VDC)
Dimension	141 mm × 268 mm × 170.5 mm
Weight	Approx. 2 kg
Shell Material	Aluminum alloy
Wire Length	10 m
Ingress Protection	IP40
Temperature/Humidity	Working temperature 0~50°C, storage temperature -30~70°C, 20%~80%RH without condensation

Notice:* will be released soon.



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Integration Code Reader

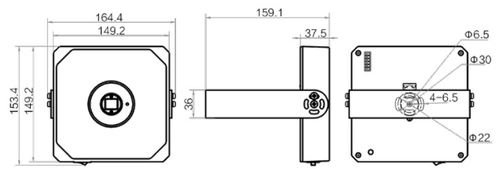
Key Features

- Integrated structure design of camera lens light source,with high integration. Out of the box, the product is easy to install and debug
- The integration code reader has a built-in deep learning barcode reading algorithm, can efficiently read a variety of logistics bar codes
- Realize the collection and integration of images and data, which can be stored and uploaded locally to provide traceability
- Adopt professional light path design with high energy utilization rate, lamp bead particle has stable performance and long life
- Adjustable light source brightness, strong environmental adaptability
- Seamlessly connect with common express logistics management systems to provide real-time and effective data for logistics and production enterprises

Specifications

Parameter \ Model	MV-PD010003-21	MV-PD010003-23	MV-PD010003-26S*
Symbologies	1D Codes: Code 39, Code 93, Code 128, CodaBar, EAN, ITF25, etc. 2D Codes: QR Code, Datamatrix, etc.		1D Codes: Code 128,Code 39,Code93,Codabar,EAN,etc. 2D Codes: QR,DM,etc.
Max.Frame Rate	15fps	9.6fps	13.9fps
Resolution	3072× 2048	4024 × 3036	3840 × 2160
DOF	550mm	650mm	500mm
FOV	550mm × 340mm@10 mil	730mm × 550mm@10 mil	670mm×375mm@10 mil
Focal Length	12mm	16mm	12mm
Evenness	0.53	0.56	0.53
Luminous Flux	2500lm	5900lm	2500lm
Color Temperature	5700K	6500K	5700K
Working Distance	900mm	1550mm	1050mm
Data Interface	Gigabit Ethernet(1000Mbit/s)		
I/O	6-pin terminal including 1 opto-siolated input, 1 opto-isolated output and 1 bidirectional I/O		
Power Supply	24 VDC	24VDC	24VDC
Power Consumption	<40 W@24VDC	<60 W@24VDC	< 18 W@24VDC
Dimension	153.4 mm×164.4 mm×159.1 mm		164.2 mm×153.6 mm×168.3 mm
Weight (Without Lens)	Approx. 990 g	Approx. 1500 g	Approx. 1140 g
Temperature/Humidity	Working temperature 0~50°C, storage temperature -30~70°C, 20%~80%RH without condensation		

Notice:* will be released soon.



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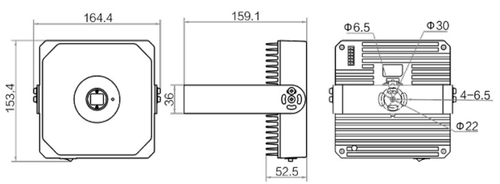


Unit:mm

3D Camera

Line Laser 3D Camera

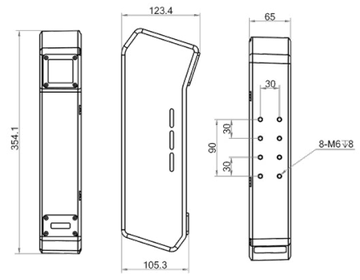
Key Features

- Built-in HDR and volume measure algorithm
- Sub-pixel algorithm technology, accuracy up to 5mm
- High power laser module, wider dynamic range
- Narrow band filter, stronger anti-interference ability
- Support Origin image, point cloud data or volume result output

Specifications

Parameter \ Model	MV-DL1617-05L	MV-DL2025-04H-H*
Near FOV	1000mm	
Far FOV	2235mm	2600mm
Clearance Distance (CD)	750mm	650mm
Measurement Range (MR)	1000mm	
Accuracy (X/Y/Z)	±5mm	
Detection Speed	1.5m/s@±5mm Accuracy	3m/s@±5mm Accuracy
Max. Scan Frame Rate	200Hz@1m³ MR	600Hz@1m³ MR
Data Type	Origin image, point cloud data	Point cloud data, length/wide/height, integral volume, top characteristic coordinates
Trigger Mode	External trigger, encoder input trigger	
Data Interface	Gigabit Ethernet(1000M bit/s)	
Digital I/O	12-pin M12 interface provides I/O, including opto-isolated input × 1, opto-isolated output × 1, and RS-232 × 1	12-pin M12 interface provides I/O, including opto-isolated input × 3, opto-isolated output × 3, and RS-232 × 1
Power Consumption	<10 W@12VDC	
Laser Safety Level	3B @500 mw	
Dimension	549.4 mm×65 mm×160 mm	354.1 mm×65 mm×123.4 mm
Weight	5 Kg	1.6 Kg
Temperature/Humidity	Working temperature 0~45°C, storage temperature -30~80°C, 20%~85%RH without condensation	

Notice:* will be released soon.



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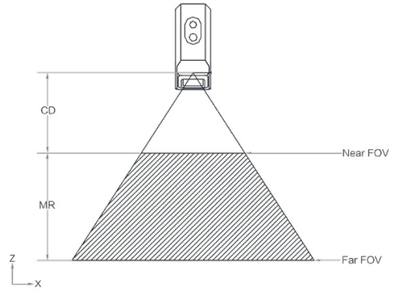


RGB-D Smart 3D Camera

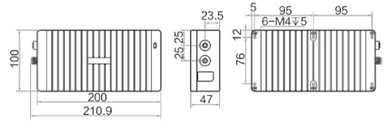
Key Features

- In-built deep learning instance segmentation algorithms combining with 3D processing algorithm, generating more accurate location result
- Large FOV, perfect adaption to multiple applications such as singulation and robot picking
- Support simultaneous output of RGB and depth image, and multi-camera system calibration by single click
- Laser module with high energy efficiency provide more stable performance and wider dynamic range, realizing accurate exposure synchronisation
- Equipped with narrow band filter with better anti-interferrence capability
- GigE based configuration ensures stable data transmission
- IP65 protection level, support 12~24V wide voltage supply and multiple trigger modes

Specifications

Parameter \ Model	MV-DB1608-05C-H-S*	MV-DB1608-05C-H-R*
Near FOV	740 mm×560 mm	
Far FOV	2400mm×1800 mm	
Clearance Distance(CD)	600 mm	
Measurement Range(MR)	1400 mm	
Object Detection Range	50 mm×50 mm×10 mm ~1000 mm×1000 mm×1000 mm	
Accuracy(Depth Image)	X,Y:5 mm@1 m; 10 mm@2 m Z:5 mm@1 m; 10 mm@2 m	
Accuracy (RGB Image)	X,Y:2.6mm@1m; 5.5 mm@2m	
Output Frame Rate	7 fps@1408×1024 20 fps@704x512 30 fps@Singulation Mode	
Data Format	Raw Image, Depth Image, RGB Image, RGB-D Image	
Laser Safety Level	Class 1	
Interface	Gigabit Ethernet(1000Mbit/s)	
I/O	12-pin M12 connector provides power and I/O, including 3 opto-siolated input, 3 opto-isolated output	
Power Consumption	<7 W@24 VDC	
Dimension	200 mm×47 mm×100 mm	
Weight	Approx.1kg	
Temperature/Humidity	Working temperature 0~45°C, storage temperature -30~80°C, 20%~85%RH without condensation	

Notice:* will be released soon.



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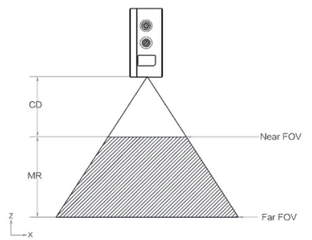


Binocular 3D Camera

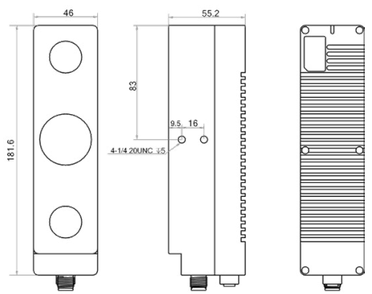
Key Features

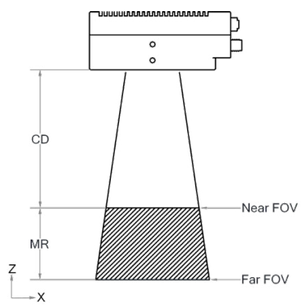
- Built-in high-precision algorithms of measurement
- NIR laser module, wider dynamic range
- Narrow-band filter design effectively suppresses ambient light interference
- Support depth data or volume measurement data output

Specifications

Parameter \ Model	MV-DB1308-05H *	MV-DB1612-05H *
Near FOV	500 mm×500 mm	1100mm×950mm
Far FOV	1000 mm×1000 mm	2050mm×1750mm
Clearance Distance (CD)	500 mm	1000mm
Measurement Range (MR)	500 mm	800mm
Accuracy (X/Y/Z)	±5mm	
Detection Speed	14 fps @depth image, 5 fps @volume data	11 fps @depth image, 4 fps @volume data
Data Type	Origin image, depth image, volume data	
Data Interface	Gigabit Ethernet(1000Mbit/s)	
Digital I/O	12-pin M12 interface provides power and RS-232 × 1	12-pin M12 interface provides power and RS-232 × 1
Power Consumption	< 10W@12VDC	
Laser Safety Level	3R	
Dimension	45 mm×140 mm×61 mm	46 mm×181.6 mm×55.2 mm
Weight	700 g	800 g
Temperature/Humidity	Working temperature 0~45°C, storage temperature -30~80°C, 20%~85%RH without condensation	

Notice:* will be released soon.





Unit:mm

Vision Controller

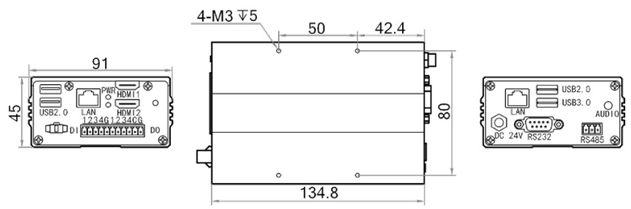
VB2000 Series Vision Controller

Key Features

- On-board Intel E3845 SoC, 1.91GHz CPU
- 4GB DDR3L memory, reliable SSD storage
- 3 Intel chip GigE ports with enhanced anti-surge design to ensure the stability of vision system
- Multiple opto-isolated input and opto-isolated output
- Provide light interface for external light control
- 2 independent HDMI output

Specifications

Parameter \ Model	MV-VB2210-120G
CPU	Intel E3845, Quad-core 1.91GHz
Memory	4GB DDR3L-1333
Storage	128GB SSD
GPU	Integrated Gen7 GPU Support hardware-accelerated 3D imaging Support hardware-accelerated decoding of multiple video formats
Operating System	Windows 7/10
Video Output	HDMI port x2, support independent display output, maximum resolution 2560*1600
GPIO	opto-isolated input x4, opto-isolated output x4
Light Interface	1 voltage-control interface: 0-24 VDC output voltage with Max. 24W power consumption
Network Interface	3 standard RJ45 Intel I210 GigE Ethernet ports
USB Interface	USB 3.0 x1, USB 2.0 x3, optional built-in USB 2.0 x1
Serial Port	half-duplex RS485 port (non-isolated) x1, RS232 x1
Power Supply	24VDC
Power Consumption	≤34W
Dimension	134.8 mm×91 mm×45 mm
Weight	Approx. 650g
Temperature /Humidity	0~50°C, 20%~80%RH without condensation



Unit:mm

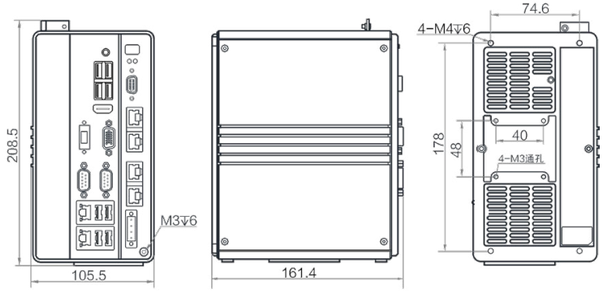
VC3000 Series Vision Controller

Key Features

- Equipped with desktop Intel CPU, providing powerful computing performance
- Provides extended slot to connect with image frame grabbers
- Supports 11-channel GPIO and NPN/PNP switching for output
- Adopts Intel® GigE interfaces for stable data transmission
- Built-in USB 3.0 dongle slot for on-site maintenance
- Light source, serial port, and IO extended modules are optional

Specifications

Parameter \ Model	MV-VC3201-128G60	MV-VC3301-128G60	MV-VC3501-128G60
CPU	Intel G5400T 3.1GHz	Intel i3-8100T 3.1GHz	Intel® i5-8500T, 2.1 GHz, max. 3.5 GHz
Memory	8GB DDR4		
Storage	128G SSD		
GPU	Intel® HD Graphics 610	Intel® HD Graphics 630	Intel® HD Graphics 630
Operating System	Windows 10		
Video output	HDMI interface × 1, VGA interface × 1 Supports dual display outputs, max. resolution 4096 × 2304 @24Hz		
GPIO	Opto-isolated input × 3, opto-isolated output × 8 Output supports NPN/PNP switch		
Network Interface	Intel® GigE interface × 6		
USB Interface	USB2.0×4, USB 3.0×4		
Serial Port	RS-232 × 2 (can be configured to RS-485 and RS-422 according to actual demands)		
Power Supply	24VDC		
Power Consumption	60W		
Dimension	161.4mm×208.5mm×105.5mm		
Weight	Approx.2.1kg		
Temperature /Humidity	0~48°C, 20%~95%RH without condensation	0~42°C, 20%~95%RH without condensation	0~60°C, 20%~95%RH without condensation



Unit:mm

Express Self-service Terminal

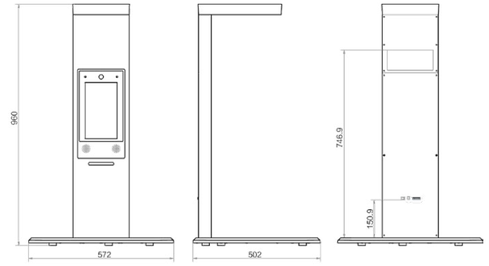
Key Features

- Adopt 6-core processor, 1.8Ghz main frequency with powerful performance, and integrate multiple common interfaces
- Realize the collection and integration of images and data, local storage and upload can be realized, and traceability can be achieved
- Self-developed high-performance barcode recognition technology
- Diversified SDK applications can be used for code reading, face detection, etc.
- Support multiple communication methods, such as dual-band WIFI, Bluetooth and Gigabit Ethernet, etc.
- Seamlessly connection with common express logistics management systems, provide real-time and effective data for logistics and production enterprises

Specifications

Parameter \ Model	MV-PD010003-08E-H(Android)*
	Whole machine (without base)
Processor	6-core processor, Cortex-A72×2, Cortex-A53×4
Memory	RAM 2 GB+ROM 8 GB
Sensor Type	CMOS, Rolling shutter
Resolution	3840×2160
Sensor Size	1/2"
Interface	USB3.0
Symbologies	1D Code: Code 39,Code 93,Code 128,CodaBar,EAN,ITF25,etc. 2D Code: QR,DM,etc.
Max.Reading Speed	40 codes/min
Focal Length	12mm
Working Distance	890mm
FOV	480mm×260mm
DOF	420mm@12 mil
Softwore	Express Self-service Terminal
Operating System	Android V7.1
I/O	HDMI×1, GigE×1, USB 3.0×1, USB 2.0×1, RS-485×1, UART TTL×1
Power Supply	12VDC
Power Consumption	<30W
Dimension	572 mm×502 mm×960 mm
Weight	Approx.15kg
Temperature/Humidity	Working temperature 0~45°C, storage temperature -30~70°C, 20%~80%RH without condensation

Notice:* will be released soon.



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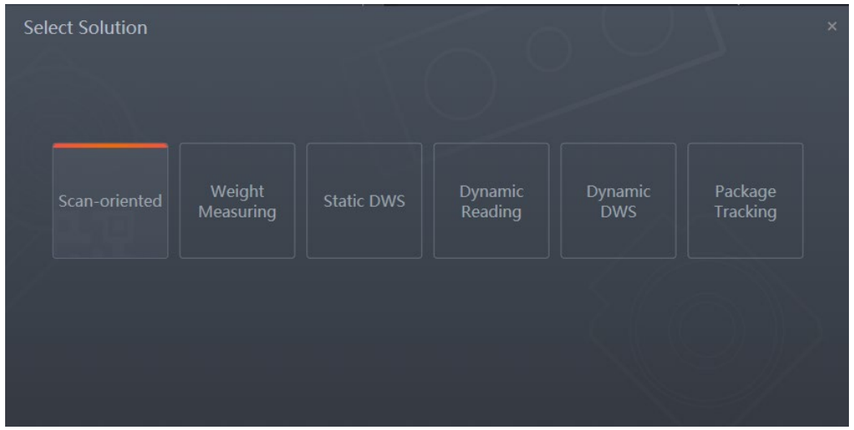
CodePlatform

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.

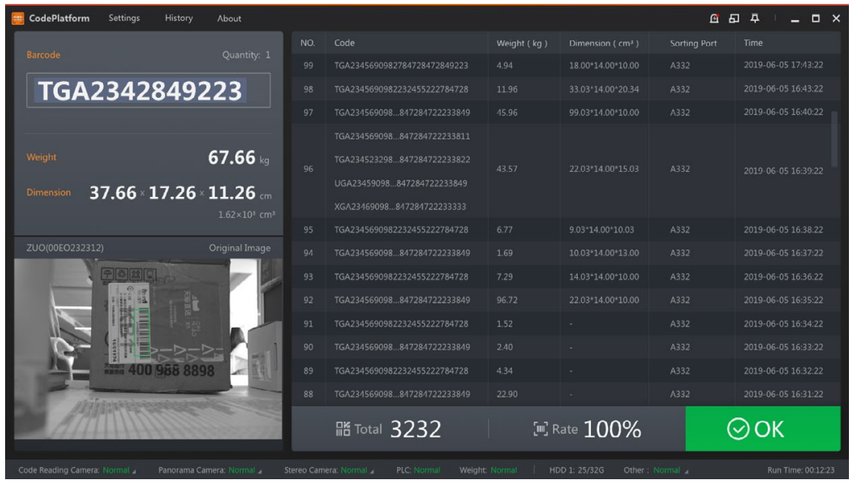
Diversified Solutions

- 6 typical solutions are provided for users to select based on their actual application scenarios.
- Support user-defined solution configuration: different tool modules can be combined and extended to create new solutions



Informative Main Interface

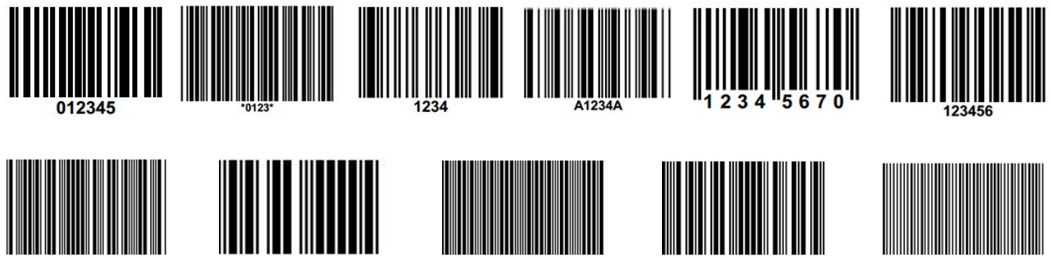
The main interface of new style is rich and clear in information, including real-time information area, picture display area, history area, menu configuration area, and quick list area.



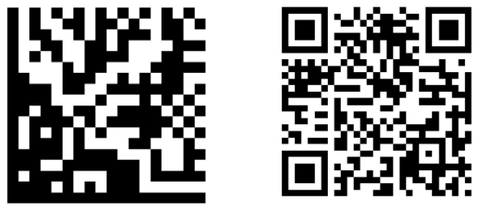
Algorithms Introduction

Code-reading Algorithms

All mainstream codes supported
1D Code: Code128,Code39,Code93,Code11,Codabar,EAN/UPC-A,MSI,Matrix 2 of 5,ITF25,INDUSTRIAL25,CHINAPOST, etc.



2D Code: QR Code, DataMatrix (DPM)



Stacking code: PDF417

Powerful decoding in demanding situations

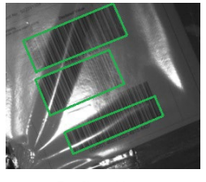
Incline

Partial fold

Blur

Distortion

Stains



Reflection

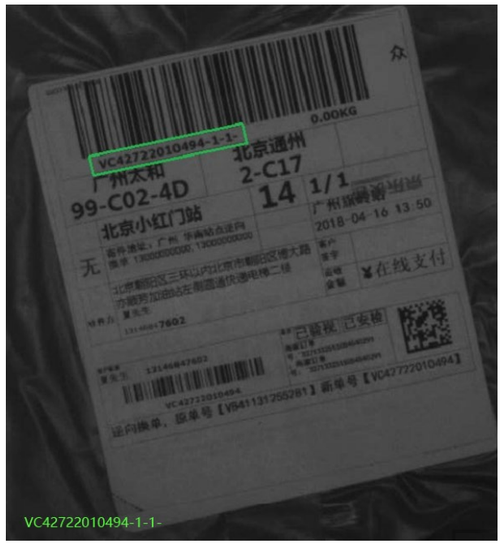
Wrinkles

Film cover

OCR

Fast and accurate information collection from shipment waybill

- The OCR algorithms based on deep learning can adapt complex background, low contrast and character distortion.
- Robust algorithms makes characters identifiable under different position, angle and lighting environment.
- Coupled with code reading algorithms, Hikrobot's system is able to provide fast, stable and accurate information collection for parcel tracking.



Deep Learning Algorithm

The Hikrobot self-developed deep learning algorithm has also been applied to image processing for logistic industry. After training based on huge amount of samples, the algorithm is able to locate parcel or shipment waybill in the image rapidly, and automatically crop, rotate and enhance the image. The intelligent image processing algorithms makes the information clearer for users while lowering the requirement on storage capacity.

Original Image

Image Cropping

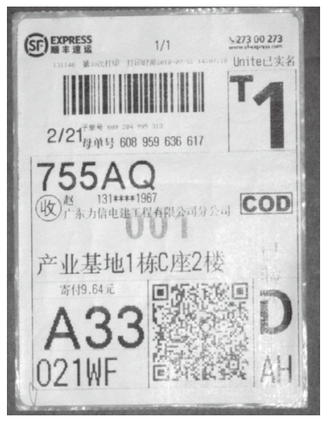


Image Enhancement

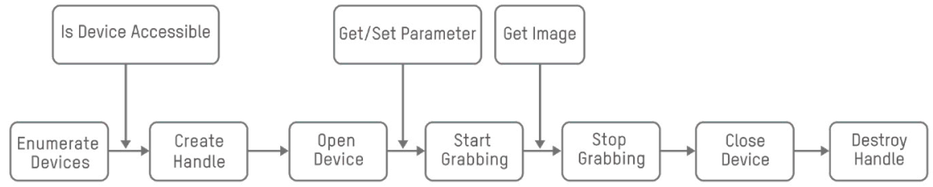
Client Software and Development Kit for Smart Code Readers

Hikrobot client software for smart code readers (IDMVS) and related development kit are designed for users to easily connect and configure Hikrobot smart code readers. IDMVS allows users to realize image acquisition, parameter setting and reading performance display. Meanwhile, the development kit includes SDK and demos, satisfying the diversified needs of users who wish to do second development.

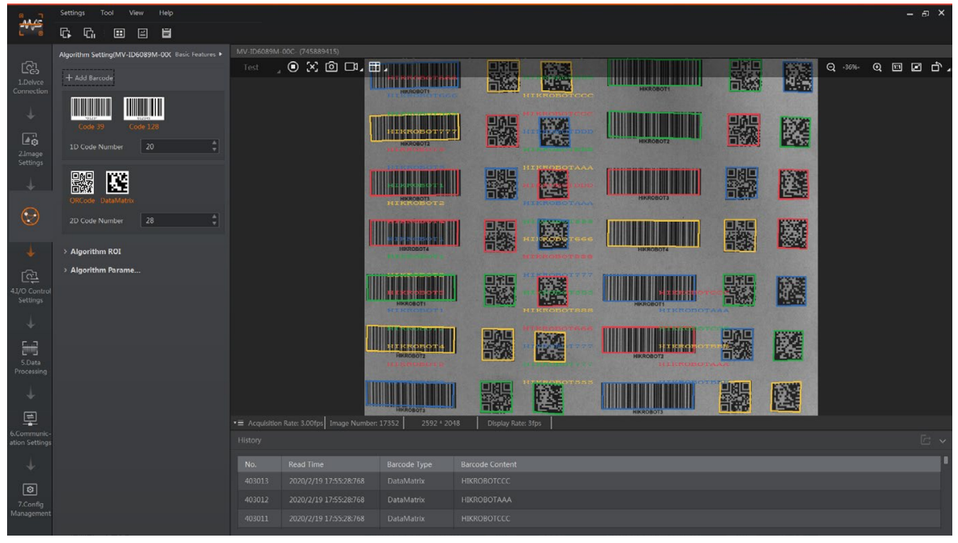
Key Features

- Step-by-step configuration wizard provides more intuitive operating experience
- Provide status monitoring tool for smart code readers
- Independent function module design with user-friendly interface
- Rich API interfaces for users to realize more efficient second development
- Diversified demos, source code and development documents allow users to have a quick start

SDK Calling Process



IDMVS Main Interface



Hikrobot

VISION, SEEING INFINITY

Logistics Vision Solution

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