HIKVISION

NEW VISION NEW WORLDS
HIKVISION LOGISTIC VISION SOLUTIONS

www.hikrobotics.com

CONTENTS

HIKVISION®

Hikvision is the world's leading provider of innovative video surveillance products and solutions. Featuring the industry's strongest R&D workforce, Hikvision advances core technologies of audio and video encoding, video image processing, and related data storage, as well as forward-looking technologies such as cloud computing, big data, and deep learning. In addition to the video surveillance industry, Hikvision extends its reach to smart home tech, industrial automation, and automotive electronics industries to achieve its long-term vision. Always creating value for its customers, Hikvision operates 33 regional subsidiaries all over the world to achieve a truly global presence.

01 AS AN INDUSTRY PIONEER

- Topped the world's largest supplier of CCTV & Video Surveillance Equipment for six consecutive years (2011-2016) (Reference: iHS)
- Retains No.1 market share position in virtually all individual equipment categories, including network cameras, analog and HD CCTV cameras, DVR/NVRs, and video encoders
- Ranks No.1 in the a&s 'Security 50 Ranking and Reports 2017' for the second consecutive year

02 TOP-TIER ENGINEERS AND R&D TEAMS

- More than 25,000 employees, over 10,000 of which are R&D engineers Invests 7-8% annual sales revenue to research and development for continued product innovation
- Established a complete, multi-level R&D system, includes every operation from research to design, development, testing, technical support, and service
- Operates R&D teams globally, including Montreal, Canada and Silicon Valley, California in North America, as well as Beijing, Shanghai, Chongqing, and Wuhan in China

03 EXEMPLARY QUALITY CONTROL AND MANUFACTURING FACILITIES

- Three manufacturing facilities: Hangzhou, more than 100,000 square meters; Tonglu, 350,000 square meters; Chongqing, more than 10,000 square meters
- Uses fully automatic SMT equipment, clean rooms, and mobile robots for intelligent warehouse management, and meets all UL, CUL, FCC, CE, CCC, C-tick, RoHS, WEEE, and ISO standards

04 GLOBAL SALES NETWORKS AND SERVICES

- Established one of the most extensive marketing networks in the industry, comprising 33 overseas regional subsidiaries and 35 branches throughout China mainland, ensuring quick responses to the needs of customers, users and partners
- Hikvision products serve a diverse set of vertical markets covering more than 100 countries, such as the Philadelphia Recreation center in the USA, the safe city project in Seoul, South Korea, Dun Laoghaire Harbour in Ireland, Milan's Malpensa Airport, and the Bank of India, etc.

Hangzhou Hikrobot Technology Co.,Ltd.

Hangzhou Hikrobot Technology Co., Ltd. (Hikrobot) originated from the Machine Vision business unit of Hikvision, Hikrobot has become a global developer and supplier of mobile robot, machine vision products and algorithm platforms. It is committed to continuous intelligence of robots and leadership in smart manufacturing.

Hikrobot has nearly 1,000 employees across the world (by May 2018), of which about 800 are research staff. Meanwhile, it also shares technology with more than 10 thousand research fellows of Hikvision and Hikvision Research Institute. Supported by Hikvision's accumulated technology in image sensing, AI, and big data analysis, Hikrobot develops business areas including Mobile Robot, Machine Vision, and Industrial Unmanned Aerial Vehicle (UAV).

Machine Vision

With effort in industrial vision sensing application and underlying algorithm software and hardware technology, the company provides customers with leading machine vision products and algorithm platforms. The products cover industrial cameras, lenses, visual software platforms, vision boxes, and industrial smart cameras. All products are tested by the EMVA1288 standard and verification to ensure that the highest quality images, and through rigorous EMC testing, safety testing and environmental reliability testing. Relying on mature DFMEA technology, Hikrobot ensure that the use of each product with high precision, high efficiency and high environmental performance. The machine vision products are widely used in manufacturing, electronic semiconductors, logistics, and other industrial automation sectors, to realize positioning guidance, measurement, defect detection, code reading, and OCR. Offering stable, reliable operation and the potential for customization, they help users to significantly improve productivity and accuracy.

Mobile Robot

With focus on core robotics technology, Hikrobot serves customers with leading intelligent mobile robots and systems, which are widely applied in warehouse, production line, and sorting center. In addition to its independently developed intelligent warehousing robot system, Hikrobot has also introduced intelligent carrying robot that automatically connect to the production line, intelligent sorting robot for sorting small packages, and intelligent parking robot that significantly increase parking space utilization based on mobile robots and mature application of its core technology. These products are widely applied in manufacturing, automobile manufacturing, e-commerce logistics, third-party logistics, retail, food and beverages, photovoltaic industry, medical care, tobacco, and clothing. The company has set its course to serve intelligent manufacturing and in-plant logistics intelligent solutions.

Unmanned Aerial Vehicle

Based on rich experience of video technology, Hikrobot has independently developed Industrial UAVs and UAV jammers for low-attitude airspace security, and launched an extensive range of products featuring security-based solutions specifically for the industry. These products are widely used in fire prevention, emergency commanding, anti-terrorist operation, traffic management, facility inspection, and activity security.

Solution Overview

As the demand rockets from clients, global logistics industry are facing rising pressure. All express companies are seeking to replace manual work with automation solutions, among which the automatic information collection system is indispensable. Barcode, volume and weight are the 3 most important information of a parcel. Barcode is the identification of a parcel, while volume and weight are important billing criteria. In response to the demand of modern logistics industry, Hikvision provides various products and solutions regarding different situations.

Concerning the barcode reading, Hkvision has released Smart Barcode Reader series, which adopts the exceptional Sensor platform to provide high-speed image data acquisition performance. It also has embedded code reading algorithm that supports efficient reading of various barcode types, including 1D codes like Code128, Code 39, Code 93, EAN, ITF25 and 2D codes like QR and Datamatrix.

In regard to the volume measurement, Hikvision 3D Camera series adopt leading 3D imaging technology, which means high accuracy and vast field of measurement. As for the hardware design, the full aluminum structure and seamless design, efficiently enhances the stability. Conform to IP65 protection level, long service life is guaranteed in severe industry environment.

For the weighing part, Hikvision provides complete interface, SDK and transmission protocol, to cooperate with leading weighing equipment manufacturers in the sector. Those equipment are perfectly integrated into HIkvision's systems, acquiring weight of the parcel with other information simultaneously.

Hikvision logistic vision solutions, composed of smart barcode reader, 3D camera, special designed light source 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, satisfying the need of automation and informatization. That's how Hikvision helps you to increase your work efficiency and reduce your cost.

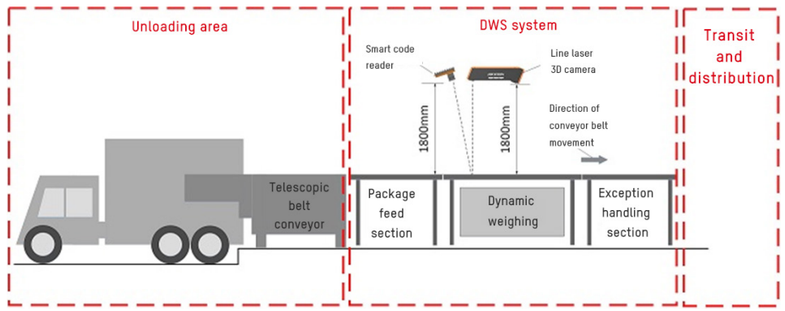
Dynamic DWS (Dimensioning Weighing Scanning) System

Industry background

With the rapid development of the express industry, the average daily delivery of express parcels has exceeded 100 million in China since 2017. Such a huge volume has put great pressure on all transit and distribution centers. Currently, leading distribution centers are using cross-belt sorters, matrices, sorting AGVs and other systems to realize sorting based on barcode identification. However, since the information collection is done by human labor, there are inefficiencies and omissive data, which affect delivery efficiency and rate calculations.

Solution

The Hikvision dynamic DWS system addresses the current difficulties in gathering accurate data in the express industry. It uses independently developed high-resolution smart code readers and a line laser 3D camera, coupled with a dynamic weighing module, to quickly gather and integrate the three basic data points for each item: barcode, weight, and volume. The system works with a transfer center's existing sorting equipment, automating the process of collecting and sorting for greater efficiency and data accuracy.



System schematic diagram

Advantages

- **High throughput:** data is collected dynamically during non-stop transport.
- **Precision:** to ensure the data accuracy, the entire data collection and integration process is automated, without any human intervention.
- **Sound-light Alarm:** special light and sound warning for overlong items, overweight items and unlabeled items. Support real-time handling to avoid repeating process.
- **Traceability:** data and images are stored on-site, and can be uploaded to a server, with image and label data linked and searchable, saving searching time costs.
- **Labor saving:** the savings in unloading and sorting are obvious, it is estimated to save 50% manpower in each line.
- **High scalability:** compatible with Telescopic belt conveyor, swing arms and other moving and sorting equipment to complete the system, can also work with CCTV system to achieve visual traceability.

Parameter	Hikvision equipment	Manual
Barcode coverage	Code128, Code39	
Operation rate	1800-2400 pcs/hour	800-1000 pcs/hour
Scanning accuracy	99.9%	99.9%
Memory image upload	Supported	Not supported
Measurement accuracy	±5mm	Unavailable

Multi-surface Scanning System

Industry background

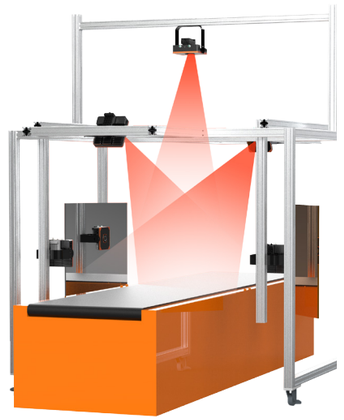
In order to achieve fast unloading, the express industry normally has multiple workers carrying items off the truck at the same time. Because the shapes of the items are not standard and the labels are attached abnormally, it is necessary to maneuver each package, which seriously affects operational efficiency. In this situation, top-reading systems are not suitable, while multi-surface scanning system can ensure efficiency.

Solution

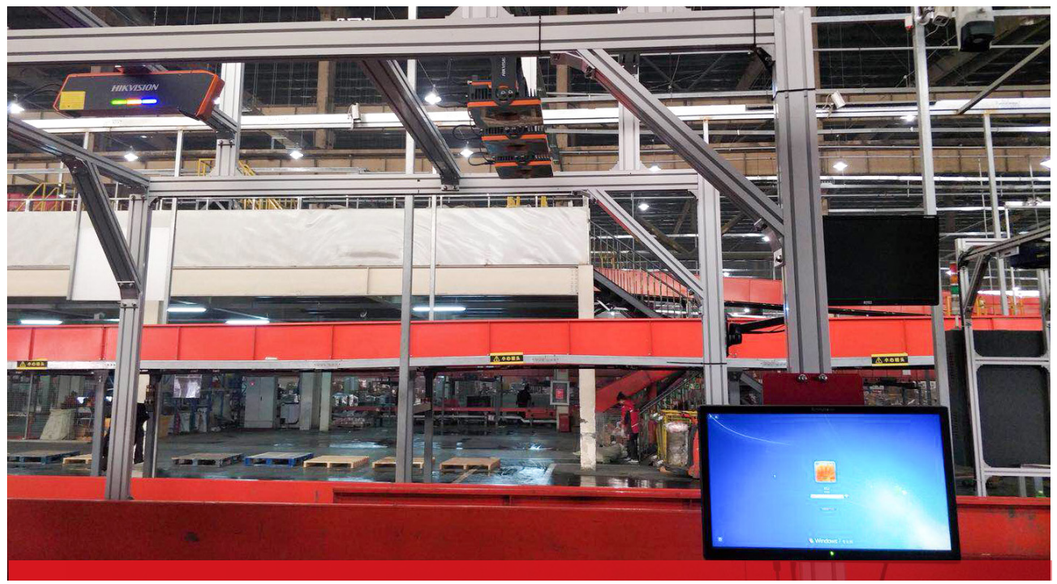
The Hikvision multi-surface scanning system uses a flexible array of ultra-high resolution smart code readers to meet a variety of customer requirements, reading codes on all faces except subface. Independently developed scanning software filters, integrates and uploads the data, minimizing the need to maneuver items, thereby improving efficiency and reducing labor costs.

Advantages

- **Flexible system:** it uses 8.9MP smart code readers with horizontal resolution up to 4096 pixels, satisfying customers' diverse needs through different combinations. The solution is so flexible that it can be easily set up and debugged.
- **User-friendly:** the software features simple operation, clear interface and perfect functions.
- **Robust:** the independently developed decoding algorithm boasts an ultra-high rate of scanning and strong adaptability to bar code distortion, folding, laminating and other special conditions.



Dynamic Scanning and Positioning System



Industry background

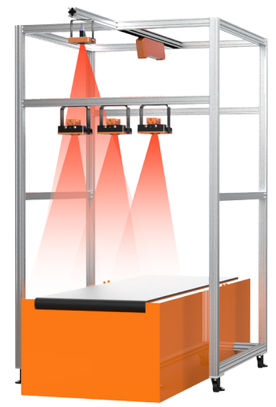
In view of the explosive growth of global logistics, a huge amount of express packages use dynamic scanning to collect the basic information, but at least 2% package information cannot be read or input due to irregular package shape or label alignment. On a high-speed conveyor belt, it is difficult to identify packages which have not been read properly, resulting in downstream reprocessing or data gaps.

Solution

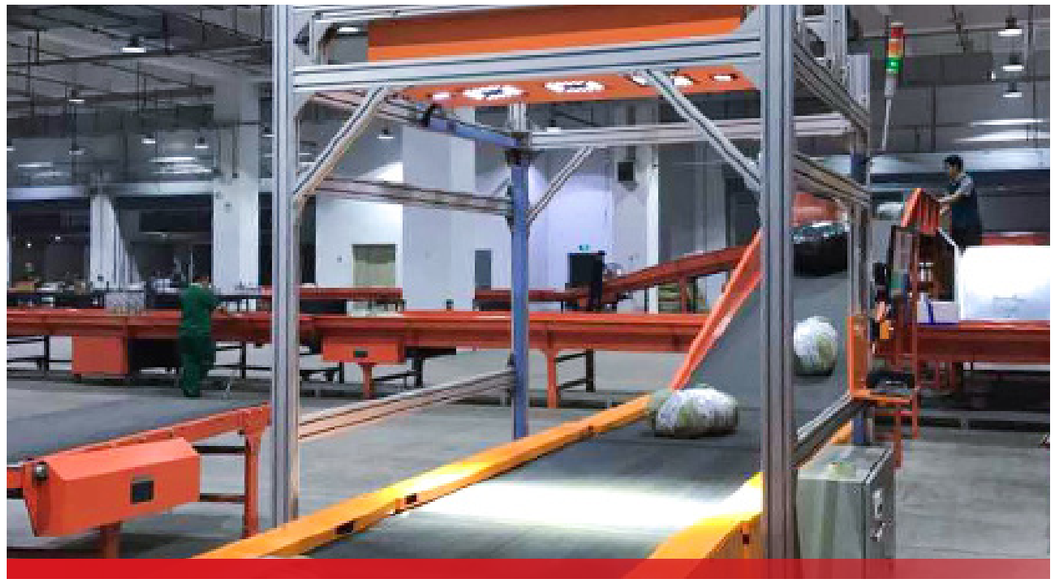
The Hikvision dynamic scanning and positioning system uses line laser 3D camera, smart code reader and ultra-high resolution industrial camera, to differentiate packages on the conveyor belt, read each code respectively and identify unreadable packages. When it fails to read, system will record the failure data and give a visual reminder at the back end, showing workers to manually complete the exception handling.

Advantages

- **Parallel processing:** it is able to read codes and record positions of multiple items in the field of vision for accurate localization and pre-warning of rejected items.
- **Visualization:** the system can locate the rejected packages and works together with back-end display devices to guide manual sorting.
- **High scalability:** expandable functions including manual sorting prompts and automatic data entry of rejected packages by OCR.



Inbound Packages Scanning System



Industry background

With the development of e-commerce, the daily processing quantity in small express hubs is also booming. The traditional method by workers with scanners can be scaled up by increasing the number of workers, but the labor costs will be higher.

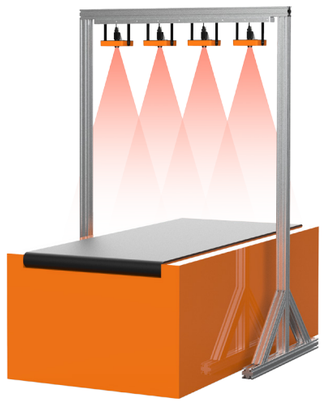
Solution

The Hikvision inbound packages scanning system uses multiple industrial cameras, to scan over 10,000 packages with label on the top surface per hour. One set of equipment can replace 4-5 workers with scanners, greatly reducing costs, and improving data traceability.

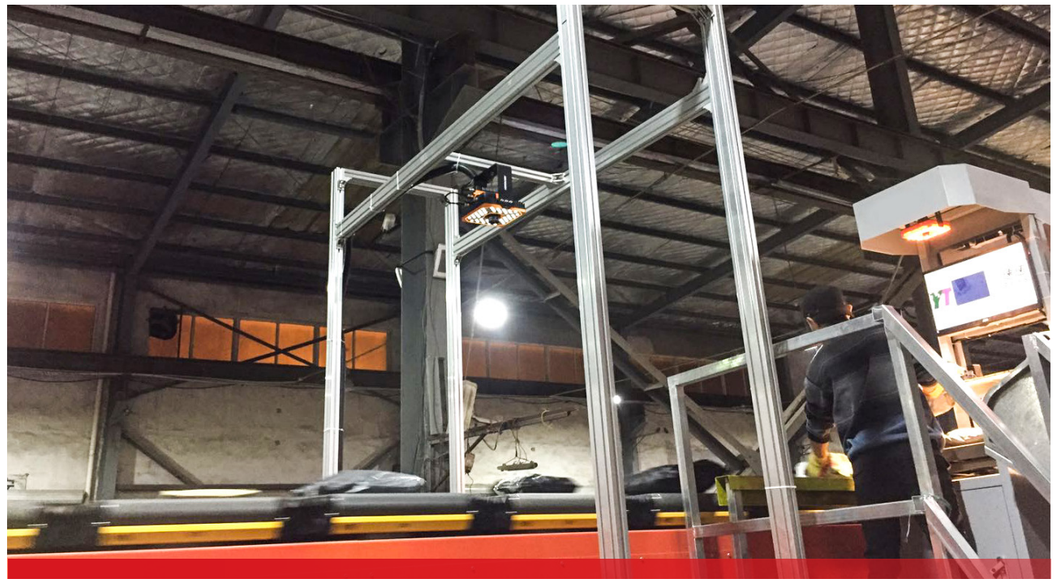
Advantages

- **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	Hikvision equipment	Manual
Barcode coverage	Code128, Code39	
Operation rate	10000 pcs/hour	800-1000 pcs/hour
Scanning accuracy	99.9%	99.9%
Memory image upload	Supported	Not supported



Cross-belt Sorter Dynamic Scanning System



Industry background

As the core equipment for high-speed sorting in the logistics industry, the cross-belt sorter is widely used in large distribution centers. Due to their great performance in sorting, the requirements of the reader in scanning system are high, which means high price, long period of delivery and customization.

Solution

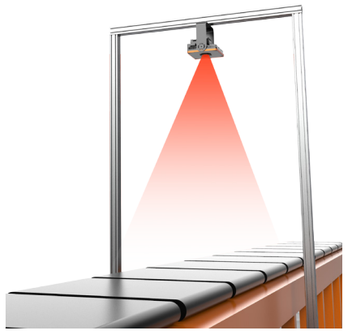
The cross-belt sorter dynamic scanning system uses an array of ultra-high resolution smart code readers equipped with 4K horizontal resolution sensors. With a high-speed processing chip, a single camera can cover a 740x390mm* field of vision with a depth of field of up to 400mm, thus satisfying the optical requirements of small cross-belt sorters.

Advantages

- **System stability:** a single camera can cover the whole field of view without integration.
- **High scanning rate:** standard labels scanning accuracy can be over 99%.
- **High-speed application:** it can be used in situations requiring high-speed scanning (reach 2.5m/s).
- **Customizable:** its communication protocol can be customized and special functions like OCR of labels can be expanded.

Parameter	Hikvision equipment
Barcode coverage	Code128, Code39
Scanning accuracy	99% (standard labels)
Communication mode	Gigabit Ethernet port
Recorded image upload	Supported

*The field of vision calculated based on barcode density of 10mil.



Static DWS (Dimensioning Weighing Scanning) System

Industry background

In the express industry, the scanning, weighing and dimensioning of small packages is traditionally done manually. Longtime manual work leads to deviation during weighing and dimensioning, and also measuring every single package would be a time-consuming and laborious task. Therefore, weighing every item but measuring and recording volumes by sampling is the most adopted method, which is subjective and difficult to standardize.

Solution

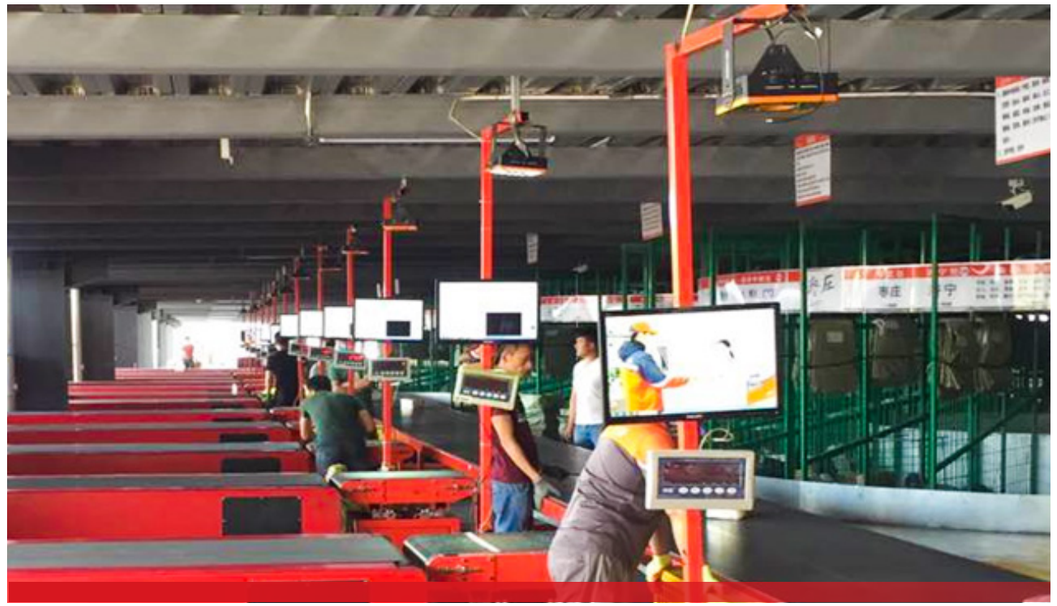
The Hikvision static DWS system integrated with smart code reader and binocular 3D camera can complete the collection of volume, barcode and weight information. The system performs through non-contact measurement, which contributes to objective, accurate and comprehensive data result.

Advantages

- **Efficiency and objective:** the information collection has no influence by people, data is objective; moreover, the operating procedure is simple and quick, easy to learn.
- **Data comprehensiveness:** the barcode, weight and volume data is accurate and stable.
- **Appropriate charging:** it can provide a basis for pricing according to the parcel weight and volume.

Parameter	Hikvision equipment	Manual
Barcode coverage	Code128, Code39	
Operation rate	30-40 pcs/minute	15-20 pcs/minute
Scanning accuracy	99.9%	99.9%
Memory image upload	Supported	Not supported
Measurement accuracy	±10mm	Unavailable

Static Weighing Scanning System



Industry background

The traditional method of charging in the express industry is by weight, which means matching the weight to the package becomes a key element. Admittedly, manual operation is inefficient; the weighing process is prone to interference, and the weight results are biased.

Solution

The Hikvision Static Weighing Scanning System adopts standard industrial cameras matched with industrial light source to efficiently and accurately read the information on the package. Meanwhile, it can integrate electronic platform scale collecting weight data, storing and uploading. It seamlessly connects with the express system, exchanging data with MES, ERP, CRM, OA and other systems, achieving digitalization of the express operations.

Advantages

- **Objective and accurate:** high weighing accuracy, free of manual influence.
- **Image traceability:** the images and data collected can be stored locally and uploaded to achieve reliable traceability.
- **Integrated design:** elegant and easy to install.
- **Humanized interface:** simple software interface, easy to configure and operate.
- **High scalability:** larger static scales and more cameras can be used to cope with customers' requirements for large bulk static weighing and scanning.

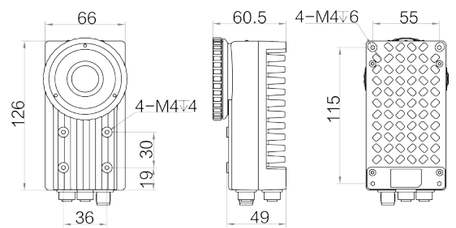
Parameter	Hikvision equipment	Manual
Barcode coverage	Code128, Code39	
Operation rate	45-60 pcs/minute	15-20 pcs/minute
Scanning accuracy	99.9%	99.9%
Memory image upload	Supported	Not supported

Code Reader

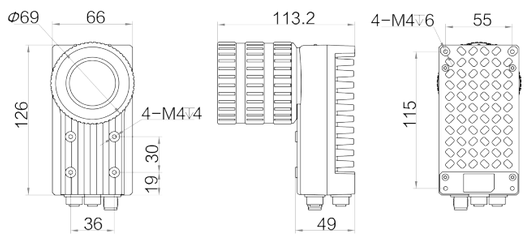
X86 Smart Code Reader

Key Features

- Excellent sensor for high-speed image data acquisition
- With embedded code-reading algorithm, efficiently read barcode types below
  1D Codes: Code 39, Code 93, Code 128, Coda Bar, etc.
  2D Codes: QR code, Datamatrix, etc.
  DPM format supported
- GigE interface, with the maximum transmission distance of 100m (without repeater)
- Various IO interfaces provide access for multiple input and output signals, support RS232 or RS485 serial port transmission protocol, and industrial bus standard to connect with industrial equipment on site
- Various light source, including additional on-camera light or external extended light control
- Support multiple trigger mode (single frame and burst), chosen based on the application
- Support master-slave mode, to realize multi-cam linkage control
- Support LED status indicator, log can be saved and exported
- IP67 protection level, meeting the requirement of strict industrial environment
- CE, FCC, RoHS certification



Unit:mm



Unit:mm

Specs

Feature \ Model	MV-SI602-31GM	MV-SI612-01GM	MV-SI622-30GM MV-SI622-31GM	MV-SI642-00GM
Function Modules	Barcode reading (1D code: Code 39, Code 93, Code 128, Coda Bar, etc.; 2D code: QR code, Datamatrix, etc.; DPM format)			
System Structure	Intel X86 with Intel E3845 inside, 1.9GHz			
Pixel Format	Mono8			
GPIO	12-pin I/O interface, GPI x3, GPO x3, RS232 serial port input x1, RS232 serial port output x1			
Memory	DDR3L Memory 4GB			
Storage	32GB SSD			
Power Consumption	<24W@24VDC	<28W@24VDC	MV-SI622-30GM: <15W@24VDC MV-SI622-31GM:< 34W@24VDC	<15W@24VDC
Power Supply	Power supply voltage range 9~24VDC			
Lens Mount	C-mount			
Camera Control	SmartMVS			
IP Protection Level	IP67 (in case of correct installation of appropriate lens cover)			
Light Source, Lens Cover and Optical Interface	00GM&31GM don't include light source or lens cover, but include external optical interface 01GM&31GM include light source and lens cover, and external optical interface			
Dimension	MV-SI622-30GM, MV-SI642-00GM: 126mm*66mm*60.5mm MV-SI602-31GM, MV-SI612-01GM, MV-SI622-31GM: 126mm*66mm*113.2mm			
Weight	MV-SI622-30GM, MV-SI642-00GM: <550g MV-SI602-31GM, MV-SI612-01GM, MV-SI622-31GM: <750g			
Temperature	Working temperature 0~50°C, storage temperature -30~70°C			
Humidity	20%~95%RH without condensation			

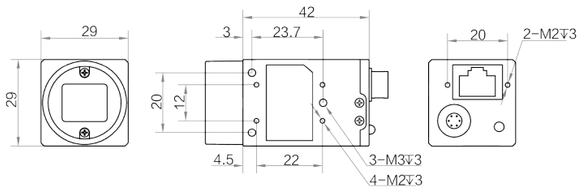
Area Scan Camera

Key Features

- Support automatic or manual adjustment of gain, exposure time, white balance, gamma correction, LUT, etc.
- Support HDR polling, to ensure different exposure time and gain cyclical adjustment under different light source
- Support hardware trigger, software trigger and free run mode
- Support user defined ROI, to improve frame rate by reducing the resolution, and support mirror output
- Support Binning modes, which could improve camera sensitivity
- GigE interface, with the maximum transmission distance of 100m (without delay)
- 128 MB on-board buffer, which enables to cache multiple pictures for data transmission or image retransmission in Burst mode
- Compatible with GigE Vision protocol and GenICam standard and can be seamlessly connected to third-party software platforms
- CE, FCC, RoHS certification

Specs

Feature \ Model	MV-CA050-20GM	MV-CA060-10GC MV-CA060-11GM
Resolution	2592*2048	3072*2048
Pixel Size	4.8um*4.8um	2.4um*2.4um
Frame Rate	22fps	17fps
Exposure Range	65μs-10sec	27μs-2.5sec
Dynamic Range	>60dB	>65dB
SNR	>40dB	>40dB
Pixel Format	Mono8/10/10p/12/12p Bayer BG 8/10/10p/12/12p	Mono8/10/10p/12/12p Bayer RG 8/10/10p/12/12p
GPIO	6-pin Hirose interface for power supply and I/O, including opto-isolated input x1, opto-isolated output x1, bi-directional non-isolated I/O x1	
Power Consumption	<3.3W@12VDC	<3.5W@12VDC
Power Supply	Power supply voltage 5~15V, PoE supported	
Dimension	29mm*29mm*42mm	
Weight	<68g	
Lens Mount	C-mount	
Temperature	Working temperature 0~50°C, storage temperature -30~70°C	



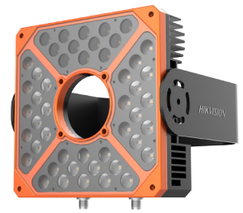
Unit:mm

Light Source

MV-LB-200-200 Series

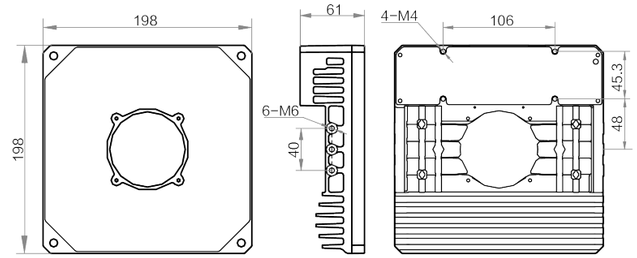
Key Features

- Adopts integrated design to work with Hikvision smart camera
- Adopts industrial design to provide accurate luminous intensity
- Adopts professionally-designed structural parts, drive circuit, light and etc. to have long lifespan
- Adopts high-end materials for the whole body to have optimal performance
- Centralized light and high luminescent efficiency
- Ingenious design and simple installation
- Meets with RoHS standards



Specs

Feature \ Model	MV-LB-200-200-20WF	MV-LB-200-200-20WL
Max. power	<300W	60W
Input voltage	24 VDC	
Light power	4.3W/each light – 48LED	0.27W/each light – 48LED
Center illumination	40000lux@880mm	8400lux@880mm
Illumination uniformity	0.35	
Luminous flux	>20000lm	>4500lm
CRI	>65	>70
Wavelength	420nm to 730nm	
Beam angle	±20 °	
Color temperature	6000K	
Best lighting range	0.7m to 4m	
Shell material	Aluminum Alloy	
Protection level	IP54	
Working temperature	0°C to 50°C (32°F to 122°F)	
Working humidity	20% to 80% RH	



Unit:mm

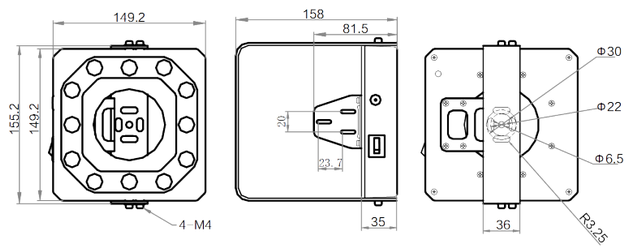
MV-LB-102-102 Series

Key Features

- Adopts integrated design to work with Hikvision smart camera
- Adopts industrial design to provide accurate luminous intensity
- Adopts professionally-designed structural parts, drive circuit, light and etc. to have long lifespan
- Adopts high-end materials for the whole body to have optimal performance
- Centralized light and high luminescent efficiency
- Ingenious design and simple installation
- Meets with RoHS standards

Specs

Feature \ Model	MV-LB-102-102-32WF
Max. power	<12W
Input voltage	12VDC
Light power	1 W/each light – 12 LED
Center illumination	1600lux@850mm
Illumination uniformity	0.5
Luminous flux	>1000lm
CRI	>70
Wavelength	420nm to 730nm
Beam angle	±15°
Color temperature	4000-6000K
Best lighting range	850 mm
Shell material	Aluminum Alloy
Protection level	IP44
Working temperature	0°C to 50°C (32°F to 122°F)
Working humidity	20% to 80% RH



Unit:mm

3D Camera

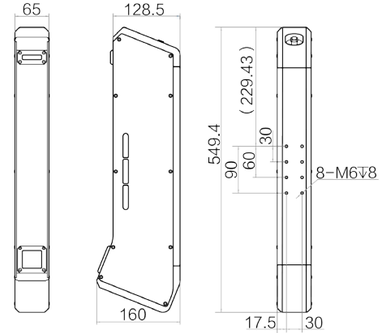
Line Laser 3D Camera

Key Features

- High precision line laser, high stability
- High frame rate, stable profile
- Wider detection range, apply to logistics industry
- IP65 protection level, apply to harsh industrial environment
- CE, FCC and RoHS certificated

Specs

Feature \ Model	MV-DL1617-05L
Scan Frequency	230Hz~2KHz
Detection Accuracy	±5mm
Focal Length	6mm
Height Detection Range	1000mm
Width Detection Range	1000mm
Speed Range	1.5m/s
Output Data	Depth or dimension data
Data Interface	Gigabit Ethernet
GPIO	5-pin Amphenol connector, bi-directional configurable I/O x1, serial port input x1
Sync Signal Mode	External or encoder trigger
Laser Safety Class	3B@200mw
Dimension	549.4mm*65mm*160mm
Weight	<5Kg
Power Consumption	<7.0W@12VDC
IP Protection Level	IP65
Temperature	Working temperature 0~50°C, storage temperature -30~80°C
Humidity	20%~85%RH without condensation



Unit:mm

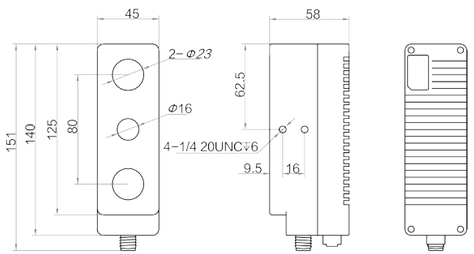
Binocular 3D Camera

Key Features

- NIR, restrain visible light
- Support different working distance, applicable to logistics industry
- Real-time depth data output
- IP65 protection level, meeting the requirement of strict industrial environment
- Support several kinds of SDK and OS
- CE, FCC and RoHS certificated

Specs

Feature \ Model	MV-DS135-06GM-L
Resolution	1280*960
3D Output Frame Rate	Raw data: 14fps; Depth map: 4fps
Baseline Distance	80mm
Lens Focal Distance	6mm
Detection Range	500mm*500mm*500mm
Detection Accuracy	±10mm
Data Interface	Gigabit Ethernet
GPIO	12-pin I/O interface, GPI x3, GPO x3, RS232 serial port input x1, RS232 serial port output x1
Laser Safety Class	2M
Dimension	45mm*140mm*58mm
Weight	<600g
Power Consumption	8W@12VDC
IP Protection Level	IP65
Temperature	Working temperature 0~50°C, storage temperature -30~80°C
Humidity	20%~85%RH without condensation



Unit:mm

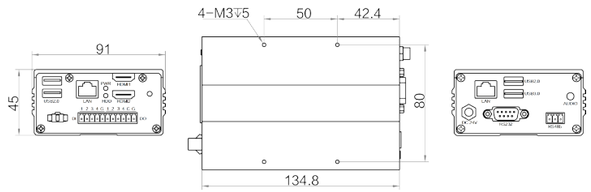
Vision Box

Key Features

- On-board Intel E3845 SoC, 1.91GHz CPU, providing more than 200% CPU and 350% GPU performance of the last generation
- Gen7 GPU, optimizing the image processing algorithms to improve image processing performance
- 4GB DDR3L memory, optional SSD capacity
- Intel chip GigE port, enhanced anti-surge design
- 2 independent HDMI output
- Support GPIO input and output
- Optional 24W light source control interface, enable to control light source
- CE, FCC, RoHS certification

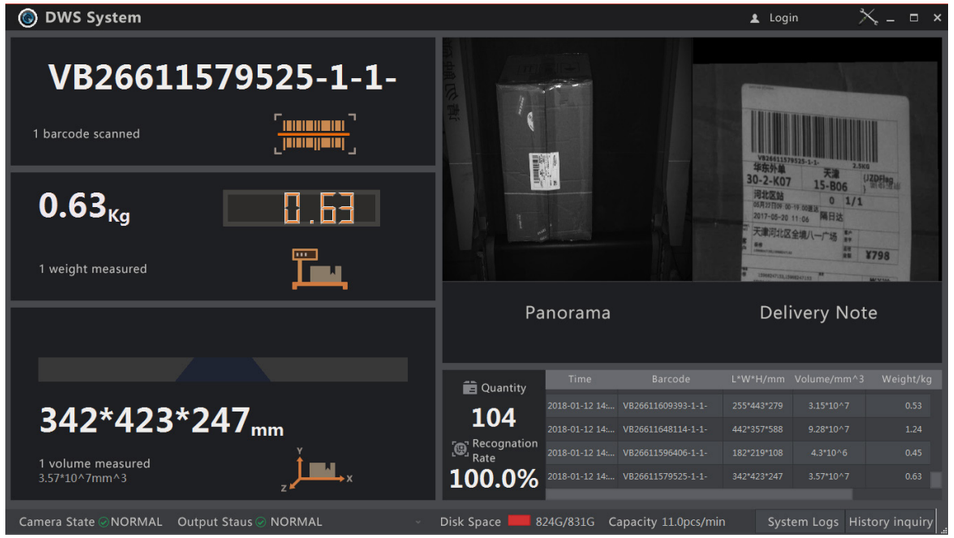
Specs

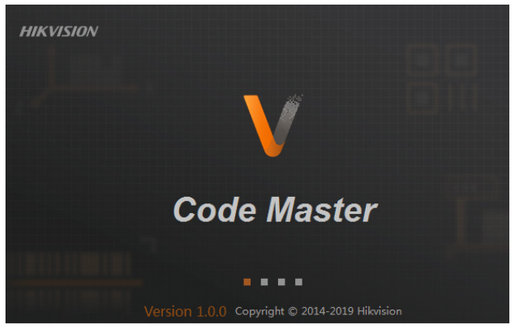
Feature \ Model	MV-VB2100-032G	MV-VB2100-120G	MV-VB2110-120G	MV-VB2120-120G	MV-VB2210-120G	MV-VB2220-120G
Image/Video	Integrated Gen7 GPU Support hardware-accelerated various video format decoding and H.264 video coding					
Display	HDMI port x2, support independent display output, maximum resolution 2560*1600					
Network	RJ45 self-adaptive Ethernet port (10-1000Mb/s) x2, enhanced anti-surge and anti-lightning protection				RJ45 self-adaptive Ethernet port x3, enhanced anti-surge and anti-lightning protection	
USB	USB 3.0 host port x1, USB 2.0 host port x3		USB 3.0 host port x1, USB 2.0 host port x2 (embedded Vericode Regular code authentication)		USB 3.0 host port x1, USB 2.0 host port x3	
Serial Port	half-deplex RS485 port (non-isolated) x1, RS232 x1					
GPIO	8×GPIO(4-In, 4-Out)					
Audio	HDA stereo Line-out and mono Mic-in					NA
Power Supply	DC 24V/1A					
Dimension	135mm*91mm*45mm					
Power Consumption	Total power consumtion≤14W					
Working Temperature/ Humidity	-10~50°C, no air flow, 20%~80%RH without condensation					
Operation System	Win7, Win10					



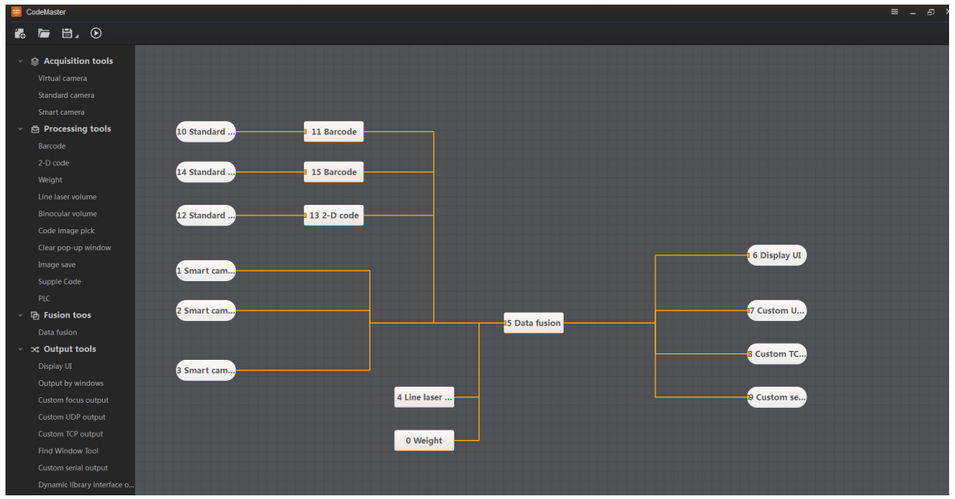
Unit:mm

CodeMaster Scanning Platform





- Drag-and-drop program design
- Able to directly connect multiple smart code readers and industrial cameras
- Integrated output of scanning results from multiple cameras
- Volume data rendering and output
- Related serial port equipment connection setting
- System status display
- Historical traceability
- Local storage space management

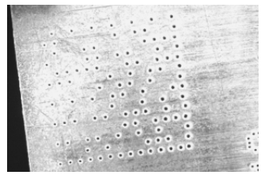


Algorithm details

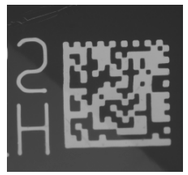
Scanning algorithm

Supports the full range of code systems
1D code: Code 128, Code 39, Code 93, Codebar, EAN/UPC, ITF25, etc.
2D code: DM (DPM), QR

The algorithm is powerful and can recognize bar codes with many kinds of defects



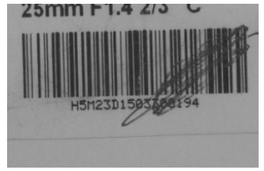
Poor image quality



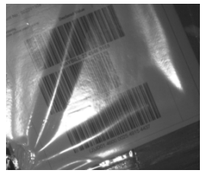
Small image size

Poor printing quality

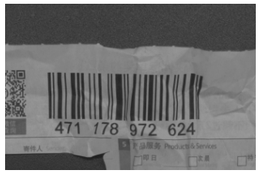
Image distortion



Dirty surface



Reflective surface



Wrinkled surface

Film covering

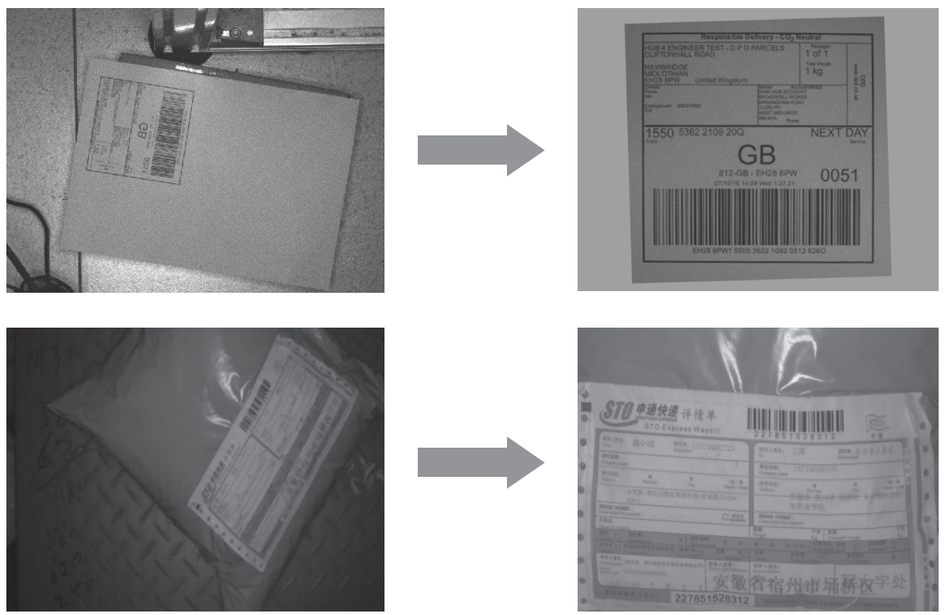
OCR

Reads the digital information on express mail labels quickly and accurately.

- The OCR algorithm based on deep learning can accurately recognize characters with complex backgrounds, low contrast and deformation.
- Recognizes chara cters regardless of position, angle and illumination, and effectively overcomes the effects from of image distortion.
- Continuously, accurately and rapidly reads the ID information for parcel tracking.

Deep Learning Algorithm

The independently-developed Hikvision Deep Learning Algorithm has been applied to the express industry. After an extensive learning, while processing the image of the whole package, can quickly locate, extract, and align the label. The intelligent image processing ensures that the information on the label is clearly seen.



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HIKVISION®
No.700 Dongliu Road, Binjiang District,
Hangzhou 310052, China
Tel: +86-400-800-5998
www.hikrobotics.com
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