



# Machine Vision in Automation

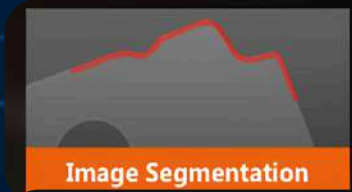


Image Segmentation



Character Training



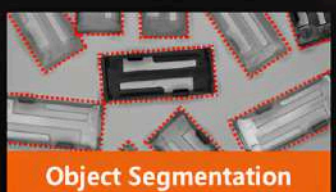
Image Classification



Object Detection



Image Search



Object Segmentation



Registration Learning



Unsupervised Segmentation



Website: [www.tjsolution.com](http://www.tjsolution.com)  
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 Tel: 02-130-6491 to 2  
 Fax: 02-130-6493



Add Line สอบถาม



จองคิว Demo

# Features

## ➤ Self-developed Deep Learning Algorithm

High performance, high precision and high compatibility

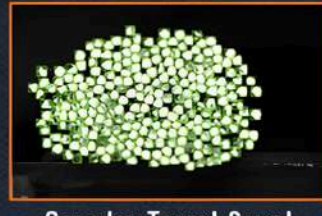
The hardware processing power is equivalent to GTX1660Ti, which can easily realize ultra-high speed visual detection.



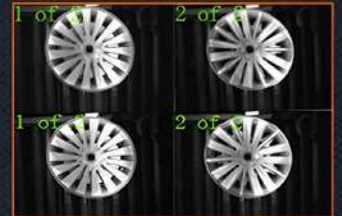
Complex Background



360° Characters



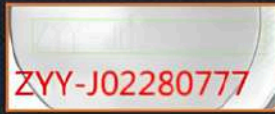
Complex Target Count



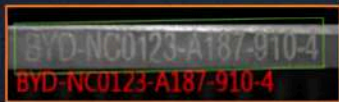
Product Classification



Fuzzy Characters



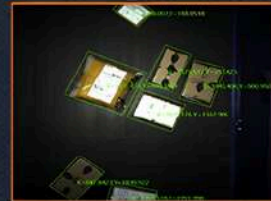
Ultra low-contrast Characters



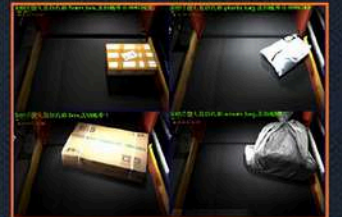
Metal Engraved Characters



Multi-lines of Characters



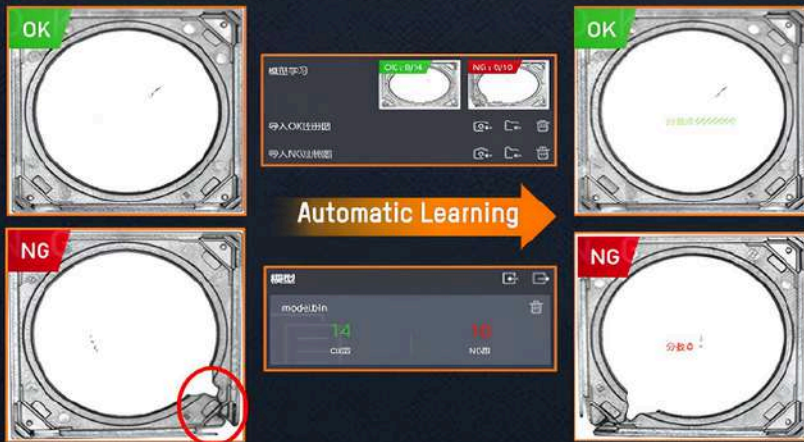
Multi-lines of Characters



Product Classification

## ➤ Automatic Learning for Different Defect Detection Needs

For application scenarios with simple background, uniform texture, and obvious feature, you can register OK and NG pictures, and the camera will automatically learn and train for detection needs.



Model Training Process

When detecting exception, you can add registered pictures to optimize the learning model.



Import OK registration picture



Import NG registration picture

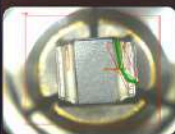


Model Updated

## Product Benefits-Powerful Deep Learning Algorithms

### DL Defect Detection

- Detection of cosmetic defects (e.g. scratches, cracks, chipping, dirt, Defect detection for breakage, lack, etc.)
- Product counting, etc.



Production quality



Label defect



Product packaging



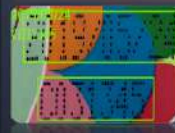
Weld defect

### DL OCR

- Identification of various types of information, such as the date of manufacture;
- Support English letters, numbers, special symbols and other recognition;



Label information identification



Complex background



Etch character

### DL Object Detection

- Target positioning detection
- Target count and existence judgment;
- Differentiation of target types, etc.



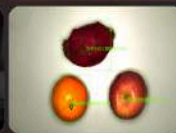
Position detection



Existence judgment



Target Count



Target classification

### DL image Classification

- Product type classification, such as: hub classification, package classification, presence or absence classification, etc.



Wheel hub classification



Logistics package classification



Fruit classification



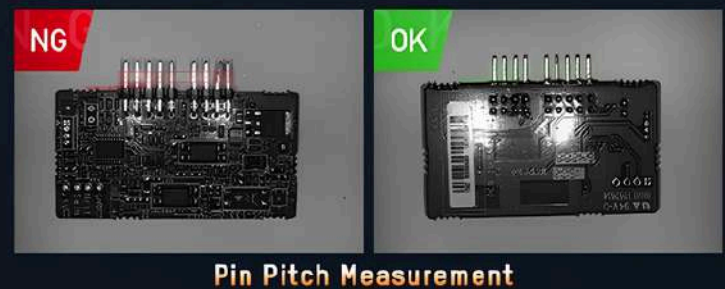
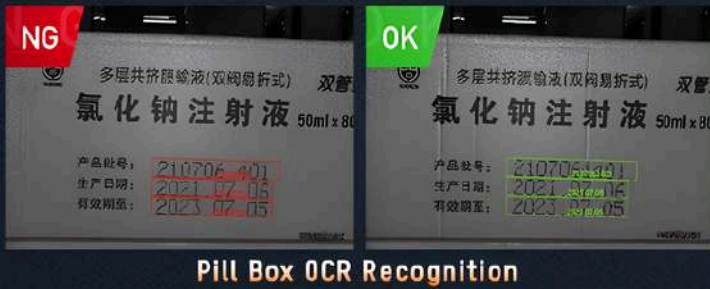
Simple defect

# Abundant Function Modules

Meets the vision requirements of different industries.





 <p><b>Library</b> <b>OK</b></p> <p><b>DL Object Detection</b> detect</p>	 <p><b>Library</b> <b>B</b></p> <p><b>DL Classify</b> dclassify</p>	 <p><b>OK</b> <b>NG</b></p> <p><b>OCR</b> In the detection ROI range, identify the string</p>	 <p>Time: 2020/12/06 12:39</p> <p><b>OK</b> <b>NG</b></p> <p><b>String Compare</b></p>	 <p><b>OK</b> <b>NG</b></p> <p><b>Match Calib</b></p>	 <p><b>OK</b> <b>NG</b></p> <p><b>Match Locate</b> In the detection ROI range, the module matching method is used to find whether the pattern exists</p>	 <p><b>OK</b> <b>NG</b></p> <p><b>Spot Existence</b> In the detection ROI range, use the Blob method to find whether there are spots</p>
 <p><b>OK</b> <b>NG</b></p> <p><b>If Module</b></p>	 <p>D: 80-100</p> <p><b>OK</b> <b>NG</b></p> <p><b>Condition Judge</b></p>	 <p>D: 0-6 L: 0-20 A: 6-12 L: 20-60 D: 12-18 L: 40-60</p> <p><b>Group</b> <b>B</b></p> <p><b>Combination Judge</b></p>	 <p><b>4</b> <b>3</b></p> <p><b>Pattern Count</b> In the detection ROI range, through the module matching method, find the number of patterns</p>	 <p><b>+</b> <b>-</b> <b>x</b> <b>/</b></p> <p><b>Calculator</b></p>	 <p><b>Library</b> <b>OK</b></p> <p><b>Color Recognition</b> In the detection ROI range, identify color information according to the color template (only supports color images)</p>	 <p><b>OK</b> <b>NG</b></p> <p><b>Edge Width Measurement</b> Find multiple edges in the detection ROI and find the distance between the each two edges</p>

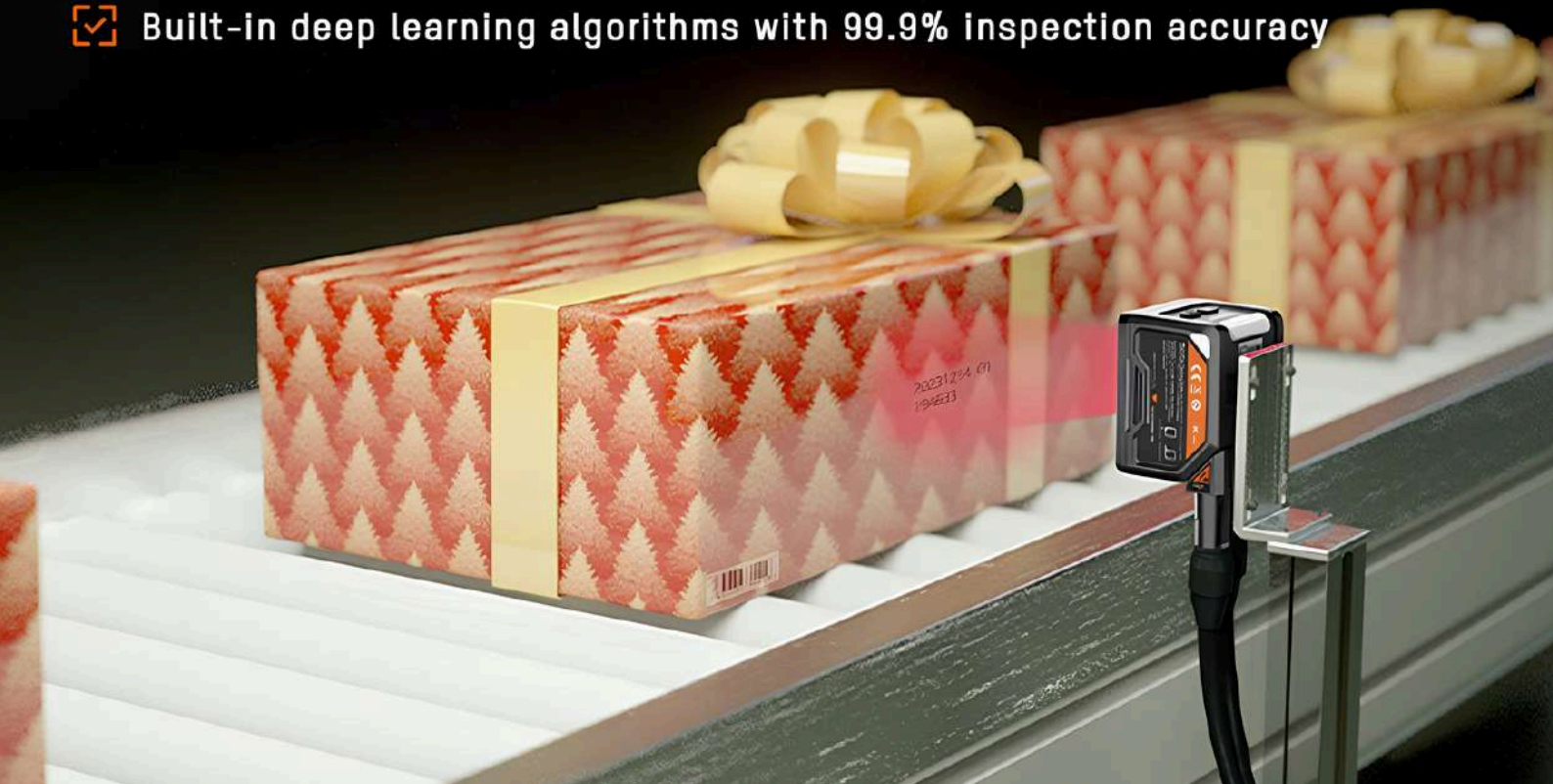
# Applications



## Efficient Inspection in Tight Spaces Made Possible

### SC3000X Series Vision Sensor

-  57\*43\*42mm, compact in size
-  180° rotatable tail cable design to fit in compact space
-  Triple optical design for maximum adaptability to complex scenarios
-  Built-in deep learning algorithms with 99.9% inspection accuracy



## Triple Optical Design

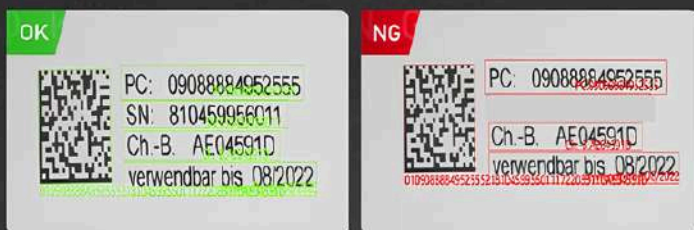
Maximum adaptability to complex scenarios



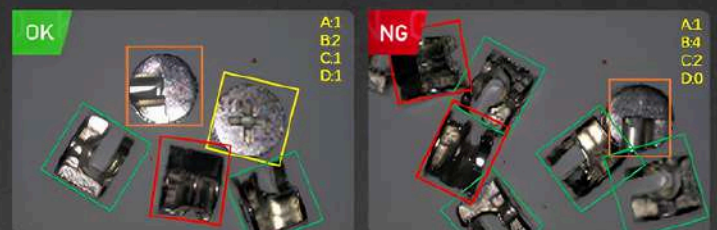
## Versatile and Accurate

Achieving **99.9%** Inspection Precision for Diverse Applications

Character Recognition



Sortation & Counting



Presence/absence Inspection



Defect Inspection



# All-in-One Packaging Vision Solution for Quality & Reputation

SC Series AI-powered Vision Sensor



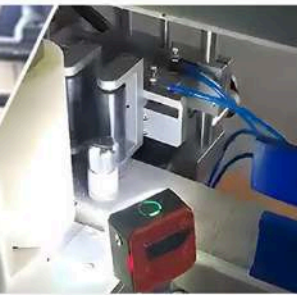
1

Object Inspection



2

Filling Inspection



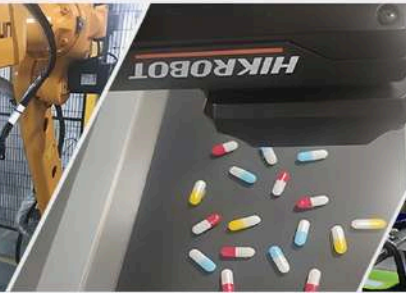
3

Labeling Guidance



6

Positioning Guidance



5

Product Sortation



4

Code Reading



7

Label Quality Inspection



8

Missing Item Inspection



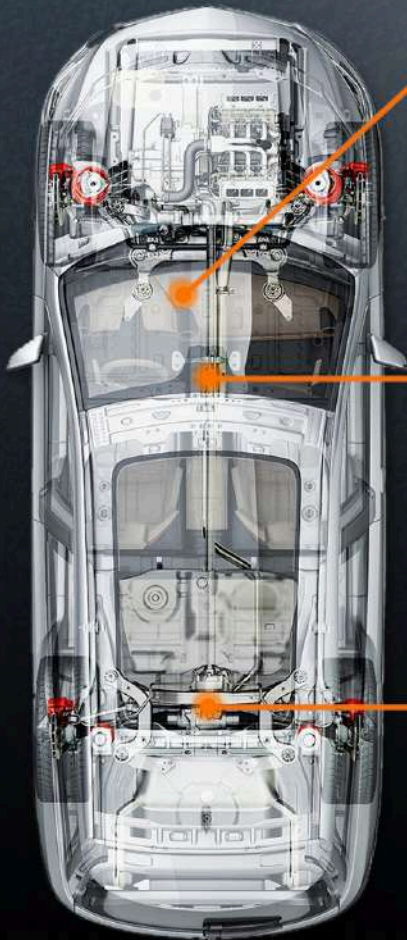
9

Package Quality Inspection

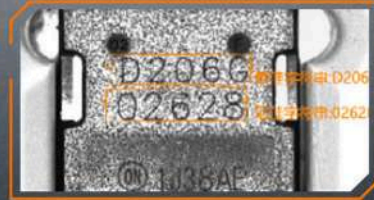
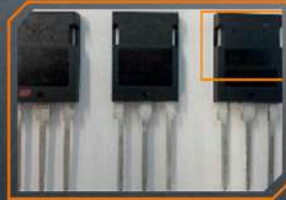
SC Series All-in-One Packaging Vision Solution for Quality & Reputation

## Make Automotive Part Identification Easier & Faster

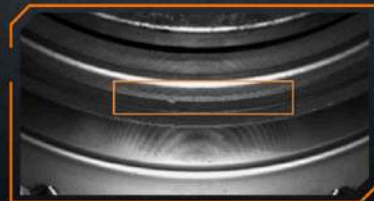
### HIKROBOT Smart Series Camera



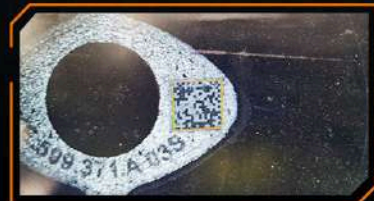
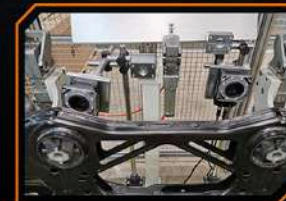
#### 1 Character Recognition on Vehicle Chips



#### 2 Transmission Gear Welding Seam Inspection



#### 3 Axle Barcode Reading & Traceability



Computer

Ethernet Cable



PLC

Ethernet/Serial/  
IO Cable



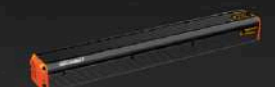
Mouse and  
Keyboard

HDMI or VGA

C-Mount



Light source  
connection line





# SC5000X

HIKROBOT



\* Flat Angle: 112.3mm\*54mm\*60.2mm  
Right Angle: 88.7mm\*54mm\*82.5mm

## Flexible and User-Friendly

- Support 2MP/5MP, mono/color;
- M12-mount lens;
- White/Blue/Red/Infrared light boards and fully transparent/fully polarized/semi-polarized/ESD protection lens covers can be selected;
- Equipped with TOF sensor and support one-click parameter adjustment;
- Compact in size, SC5000X support 180° rotation of output cables for flexible installation, equipped with multi-directional status indicator lights;
- Supports HDMI and USB interfaces to directly connect to peripheral devices.

## Powerful Function

- Equipped with a high-performance AI embedded processor, with 8T computing power, stable algorithm processing time and excellent performance
- Built-in embedded VM platform
- IO x 6, Industrial communication protocol
- Support external light sources for strong scene adaptability



Scan QR ดูรายละเอียดผลิตภัณฑ์



# SC6000

HIKROBOT



\*M12-mount model: 118.7mm\*98mm\*77mm  
 C-mount model: 116.3mm\*88.9mm\*68.6mm

## Rich Configuration

- Support 1.6MP/5MP/25MP, mono/color;
- M12-mount lens/ C-mount series;
- White/Blue/Red/Infrared light boards and polarization/uniform light/ESD protection/YAG protection lens covers can be selected;
- Rich expansion interface: VGA, USB and light source connector

## Powerful Performance

- Equipped with a high-performance AI embedded processor, with 6T computing power, stable algorithm processing time, and excellent performance.
- Built-in embedded VM platform
- HDR multi-frame fusion algorithm provides high-quality, high-contrast images.

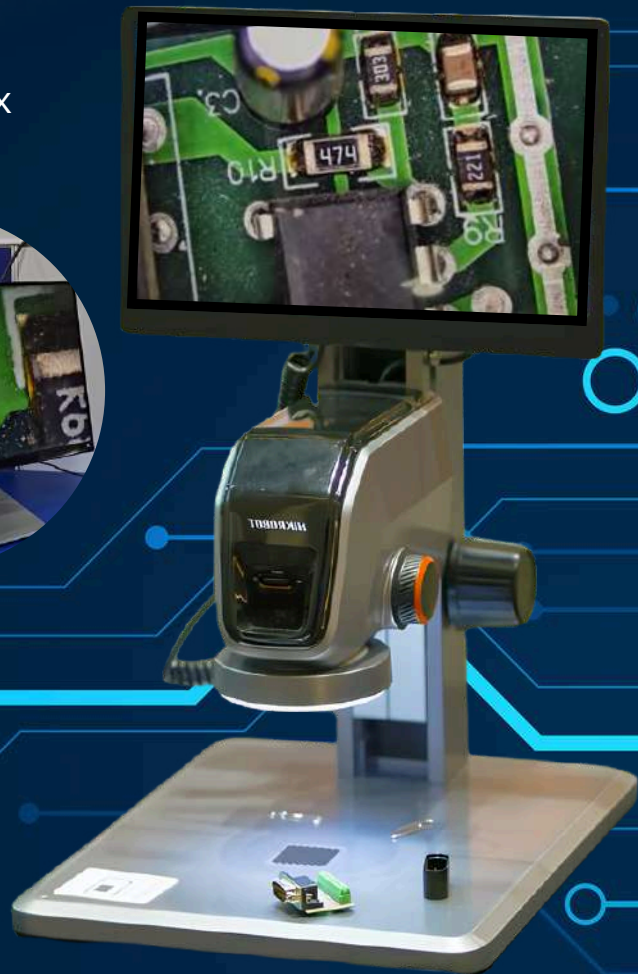


Scan QR ดูรายละเอียดผลิตภัณฑ์

# MV-MZS300H-300

## INTEGRATED ZOOM MICROSCOPE & MEASURING SYSTEM

Digital magnification 9.7 x to 69.2 x  
with a 11.6" monitor



MV-MZS300H-300 integrated zoom microscope system has an embedded operating system to support multi-image processing. It can be directly connected to a monitor without a computer, providing image acquisition and viewing in real time.

Scan QR เพื่อดูรายละเอียดผลิตภัณฑ์



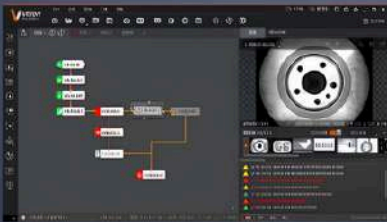
**Applicable Industry**

Electronic semiconductor,  
PCBA, biomedical industry, etc.

# VISION MASTER PLATFORM

## VM ALGORITHM DEVELOPMENT PLATFORM

### VM Algorithm Development Platform



The Vision Master Algorithm Platform is a universal algorithm development platform for Machine Vision developed by HikRobot. Committed to providing customers with fast construction of visual applications, to solve the visual detection challenges of the algorithm tools, it can be used for many machine vision applications such as positioning guidance / measurement / OCR and code reading / defect detection, etc.

### Easy to Use

Graphical Interaction  
Flow Configuration



### Powerful Performance



150+ algorithm tool 1/16 pixel accuracy

### Open Architecture, Benefits Converge



Direct application

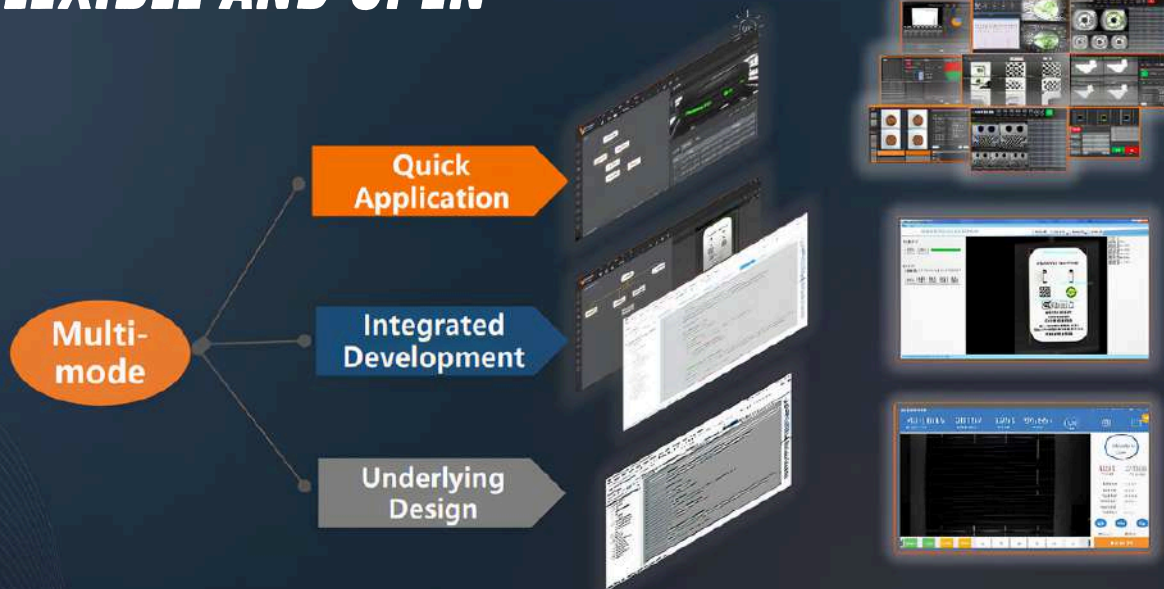


Secondary development



Underlay operator development

## FLEXIBLE AND OPEN



Multiple invocation methods to flexibly address project requirements

- ✓ 1. Flexible and easy to use Open Architecture
- ✓ 2. Mechanism Security Reliable Operation
- ✓ 3. Feature-rich Powerful Performance



# 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.



## RELIABLE READING PERFORMANCE

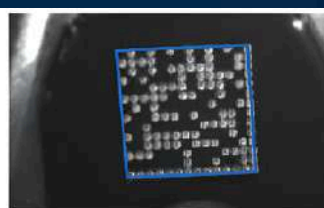
Supports the identification of multiple 1D and 2D codes and DPM codes like laser engraving, inkjet and others. The decoding frame rate can reach up to 20fps and the code reading speed can reach 45 codes/s.



Inkjet DM Code



Product Label



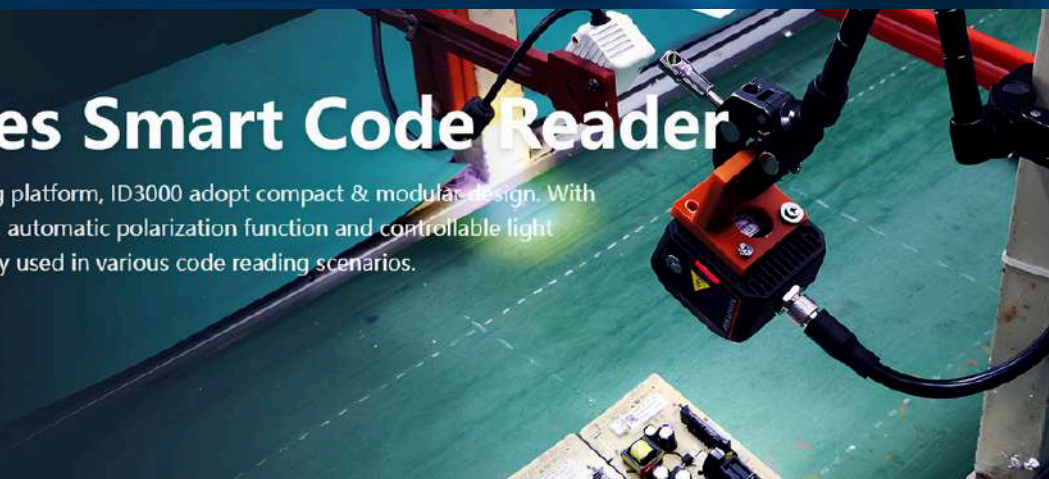
Metal Lattice DPM Code



Food Package Inkjet Code

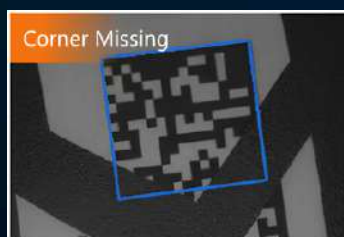
# ID3000 Series Smart Code Reader

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.

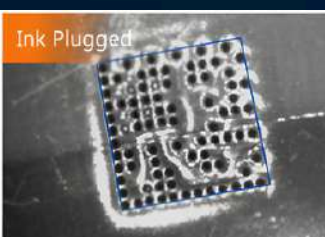


## OUT-STANDING CODE READING EFFECT

The ID3000 series integrates a deep-learning system chip (Soc), which has powerful computing power and lower energy consumption ratio. ID3000 series has a high-speed recognition efficiency and stable recognition for label paper and DPM barcodes.



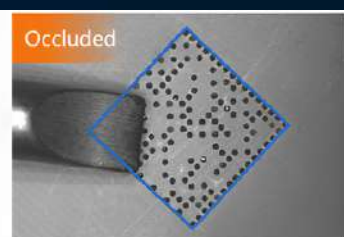
Corner Missing



Ink Plugged



Protruding Background



Occluded