

Empowering Intelligent Manufacturing and Business Efficiency

* Design and specifications are subject to change without notice.

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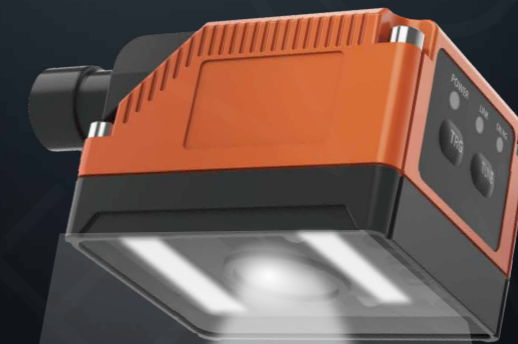


Website

iRAYPLE

AI ENABLED SMART CODE READER

R4000 Series



Meets Complex Scenes Decoding
AI Enabled, Highly Integrated, Rotatable Connectors

www.irayple.com/en



HIGH DECODING RATE

Self-developed AI Algorithms Satisfy
Complex Scenes Code Reading

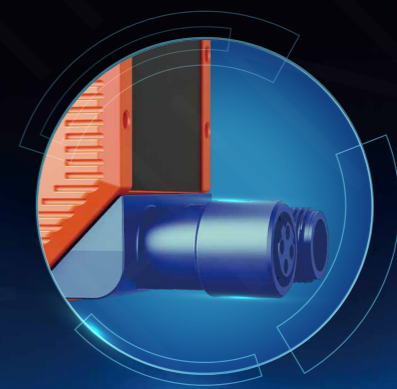


SIMPLE AND INTUITIVE

One-click Training for Easy Configuration,
Intuitive Results Indication in any View

FLEXIBLE DEPLOYMENT

Small Size and Rotatable Connectors
Meet Flexible Installation Demands



47mm

58mm





HIGH DECODING RATE

Self-developed AI Algorithms Satisfy Complex Scenes Code Reading

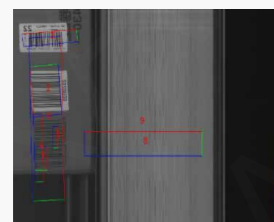
- AI Enable Algorithm, accurate positioning, stable decoding time and accurate decoding
- Multi-configuration Polling
- Fully integrated multi-illumination types and multi-spectrum options

AI Enhanced Algorithms Improve the Decoding Rate in Complex Applications

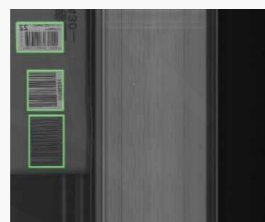
The production application environment is complex and variable. Issues such as reflection, obstruction, distortions, and background interference can seriously affect the decoding rate. Deep learning based AI algorithms can achieve rapid iteration of algorithm models with a small number of on-site images. This approach effectively addresses various complex applications.

Accurate Positioning

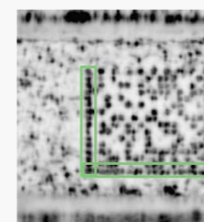
Positioning is a crucial step in code reading, as the accuracy of positioning determines the decoding efficiency and rate. Deep learning algorithms can accurately locate and identify 1D and 2D codes, which significantly reduces the number of proposal regions. Moreover, deep learning algorithms exhibit higher positioning accuracy even when code sections are missing.



TRADITIONAL



DEEP LEARNING



TRADITIONAL



DEEP LEARNING

Stable Decoding Time

The production pace in industrial application is often fixed, and traditional algorithms may require multiple decoding attempts due to the generation of proposal regions, resulting in increased time consumption when the application scene is complex. The deep learning algorithm uses End-to-End technology, based on a pre-trained model, to process all data at once. The same model is executed for each decoding, resulting in stable time consumption.



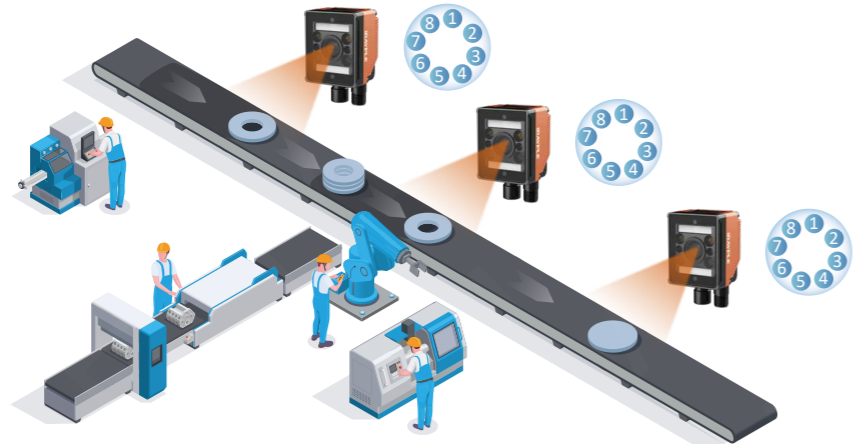
Accurate Decoding

The decoding rate is the most critical indicator of code reading. Deep learning End-to-End Technology uses global features of 1D and 2D codes to accurately locate them. The algorithm accurately determines the module boundary and combines decoding with peripheral module information and global character information of the code. This improves accuracy and reduces interference, distortion, and soiling.



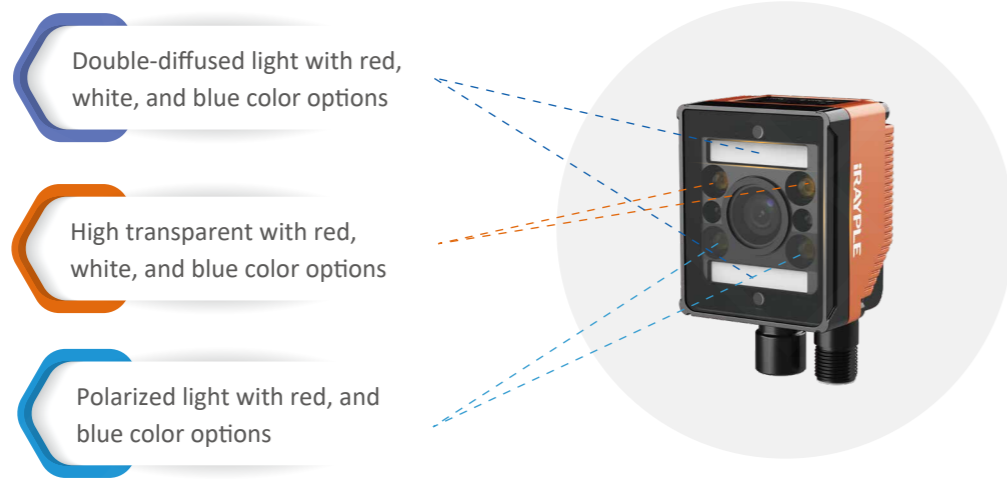
Multi-configuration Polling Ensure the Satisfied Decoding Rate in Variable Applications

In the complex and ever-changing environment of industrial production, Multi-configuration polling function can tailor multiple sets of code reading parameters for customers to adapt to on-site dynamic scenarios and achieve satisfactory code reading rate requirements.



Integrated Multi-type and Multi-spectrum Illumination

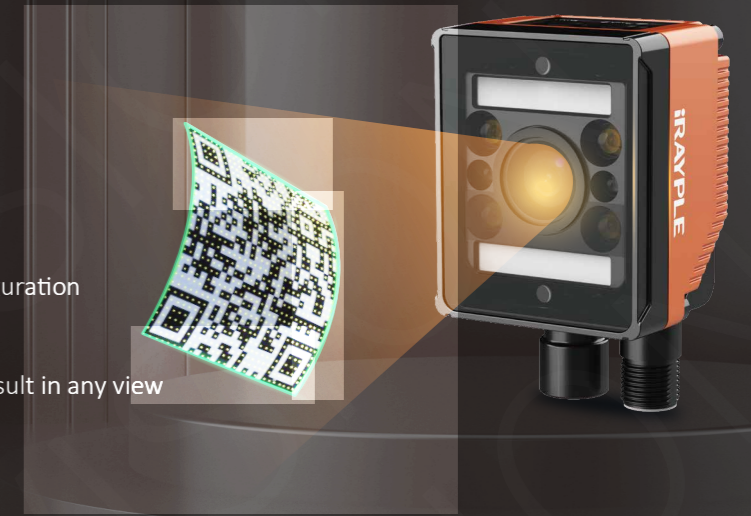
Fully integrated diffused light, polarized light and high transparent light can perfectly adapt to metal, mirror and other object surfaces. Meanwhile, there are Red, white and blue multiple light options.



SIMPLE AND INTUITIVE

One-click Training for Easy Configuration, Intuitive Results Indication in any View

- One-click training, easy for deployment and configuration
- Dual-aimer indicates the center of FOV
- Intuitive red and green lights indicate decoding result in any view



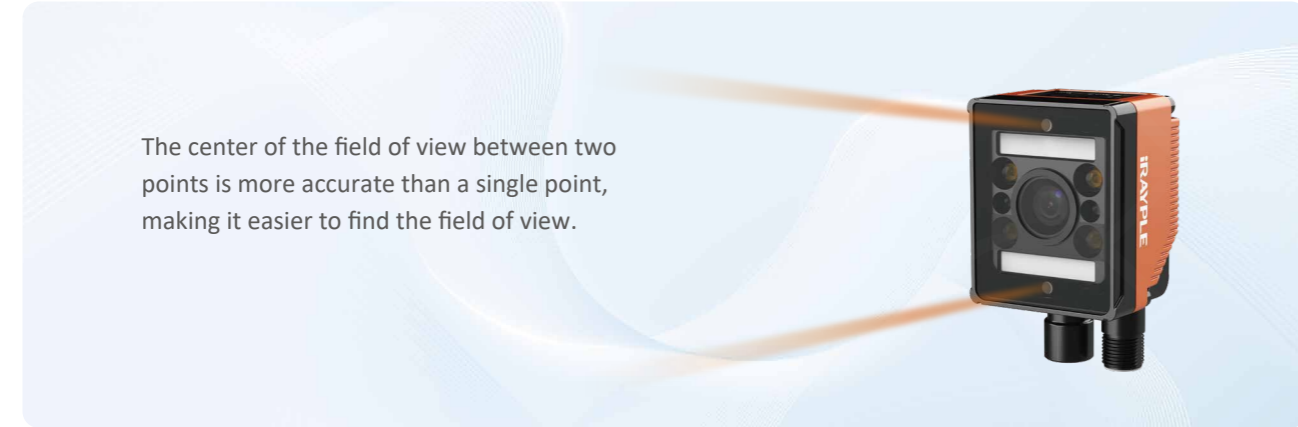
One-click Training, Easy for Deployment

The one-click training function adapts to the environmental conditions of the application scene and automatically adjusts the lighting, focus, image, and code reading algorithm. This significantly reduces the user's tuning time and makes the tuning process more convenient.



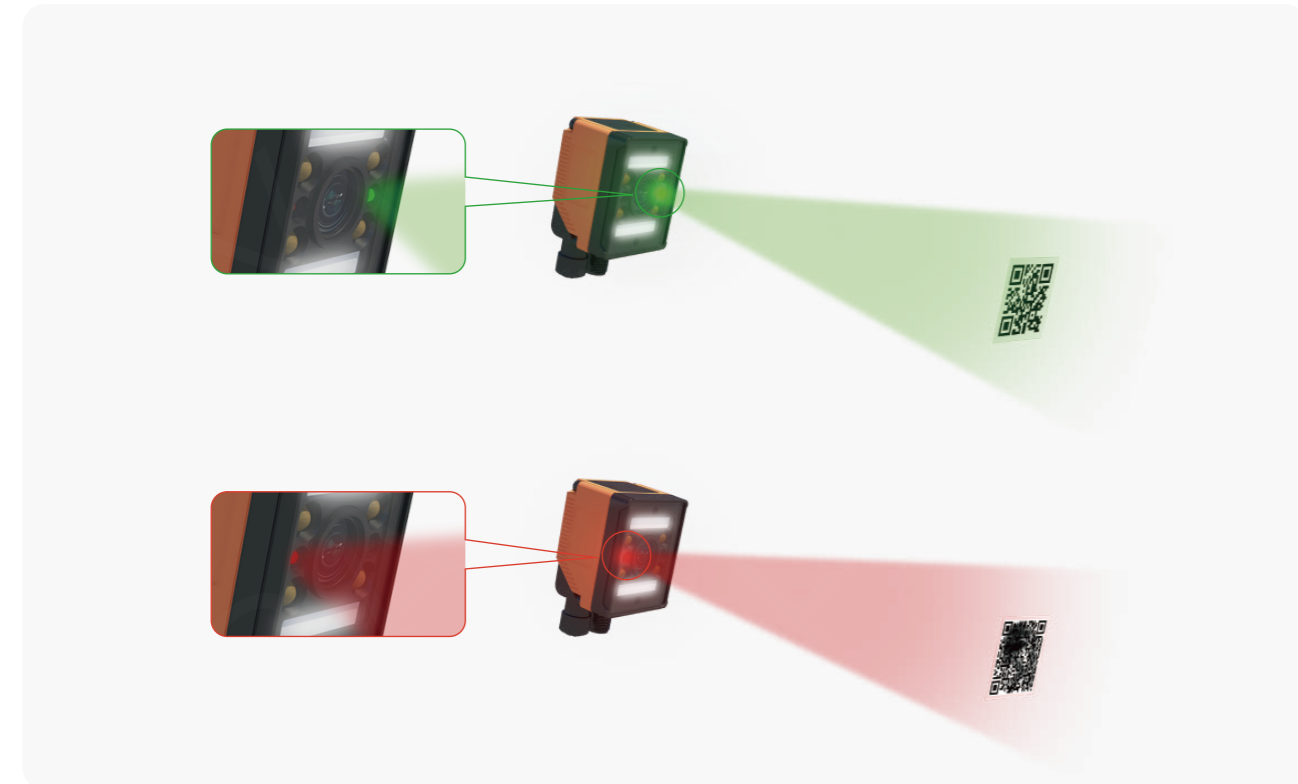
Dual-aimer Indicates Field of View, Easy to Locate Central Area

The center of the field of view between two points is more accurate than a single point, making it easier to find the field of view.



Intuitive Decoding Result Indication in Any View, Easy for Configuration and Result Check without PC

The red and green lights indicate the result of code reading, allowing users to intuitively and effectively judge whether the equipment is working properly from all angles and distances.



FLEXIBLE DEPLOYMENT

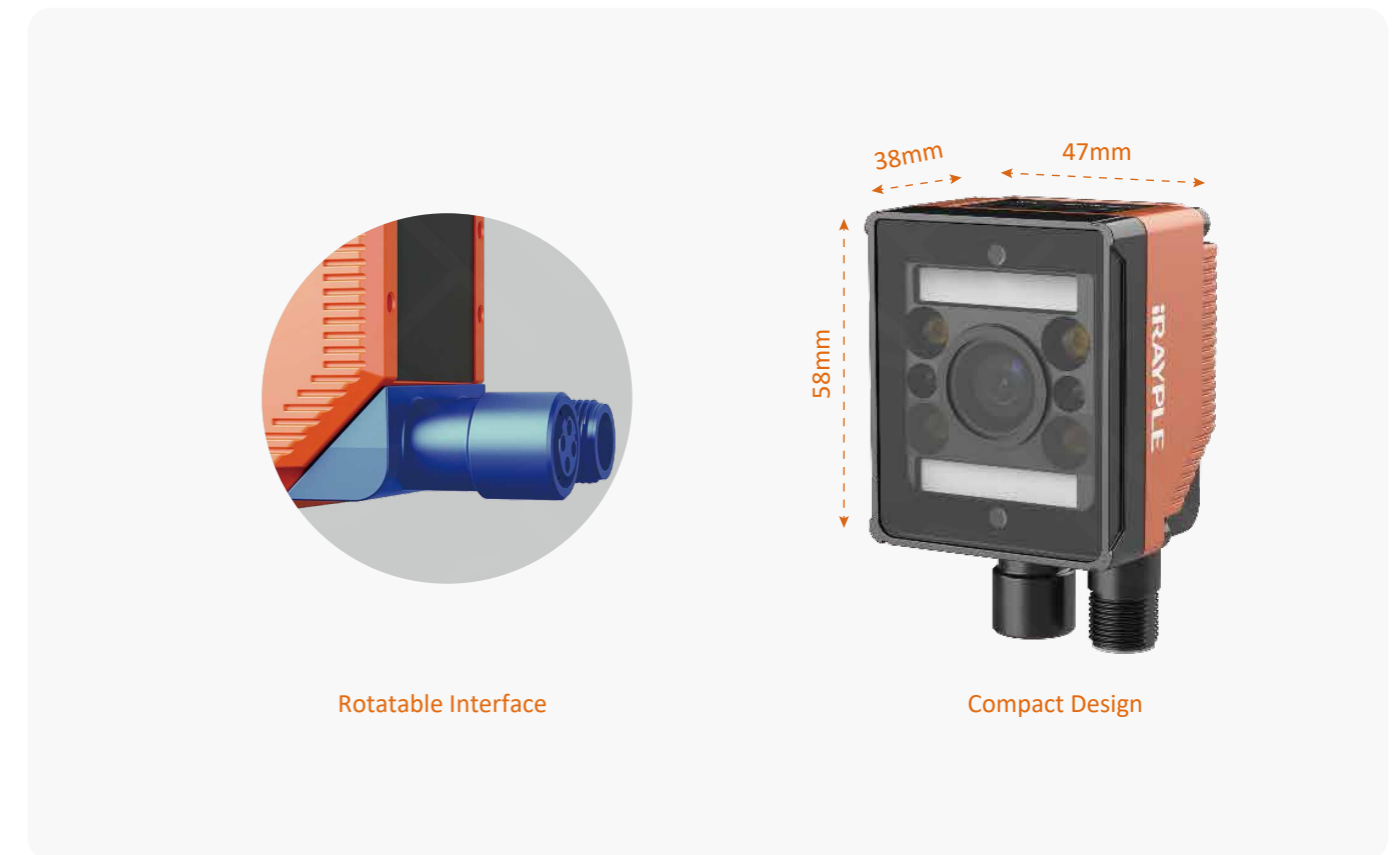
Small Size and Rotatable Connectors Meet Flexible Installation Demands

- Small size, and rotatable connectors flexible for installation
- Multi-camera networking, single camera summary output, easy to operate
- EasyID Setup & Debugging Tool, minimal set up



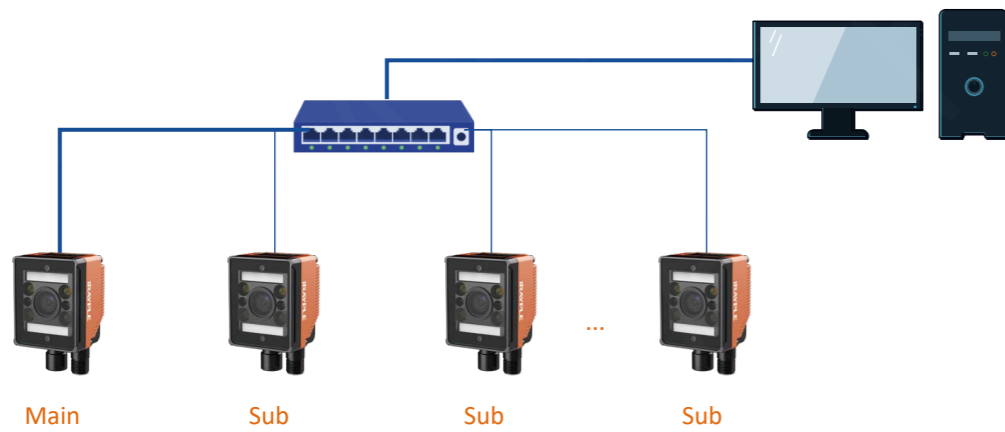
Small Size, Rotatable Connectors Flexible for Installation

Compact is the common requirement for production, especially for machine builders, since the reserved space is very limited, the small size and rotatable interface of the 4000 code reader can well meet the needs of customers with limited installation space.



Multi-camera Networking, Single Camera Summary Output, Easy to Operate

The cascade working mode allows multiple code readers to work together effectively. Subordinate code readers send their results to the master, which aggregates and outputs the final result. This simplifies the customer's application and makes the multiple code readers management easier.



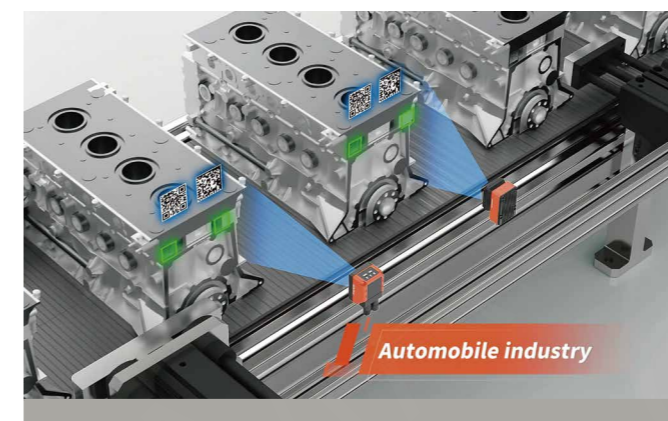
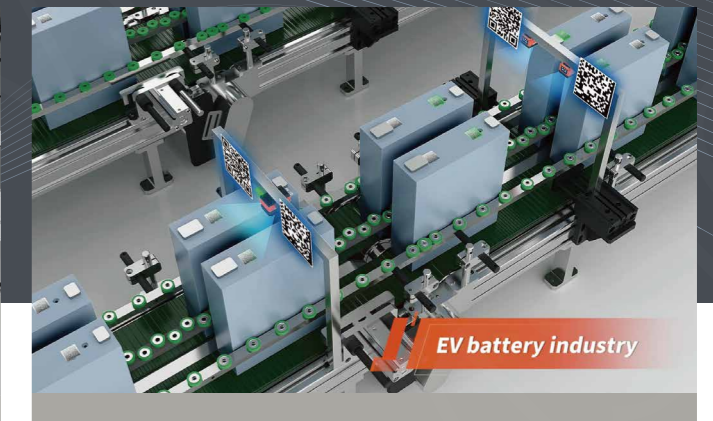
EasyID Setup & Configuration Tool

The EasyID configuration software provides an efficient way to set and configure code reading parameters. With step-by-step guided operations, key parameters are displayed in a categorized format, and shortcut tools can be executed with just one click. Tuning results can be previewed directly, which greatly enhances the tuning efficiency for customers.



APPLICATIONS

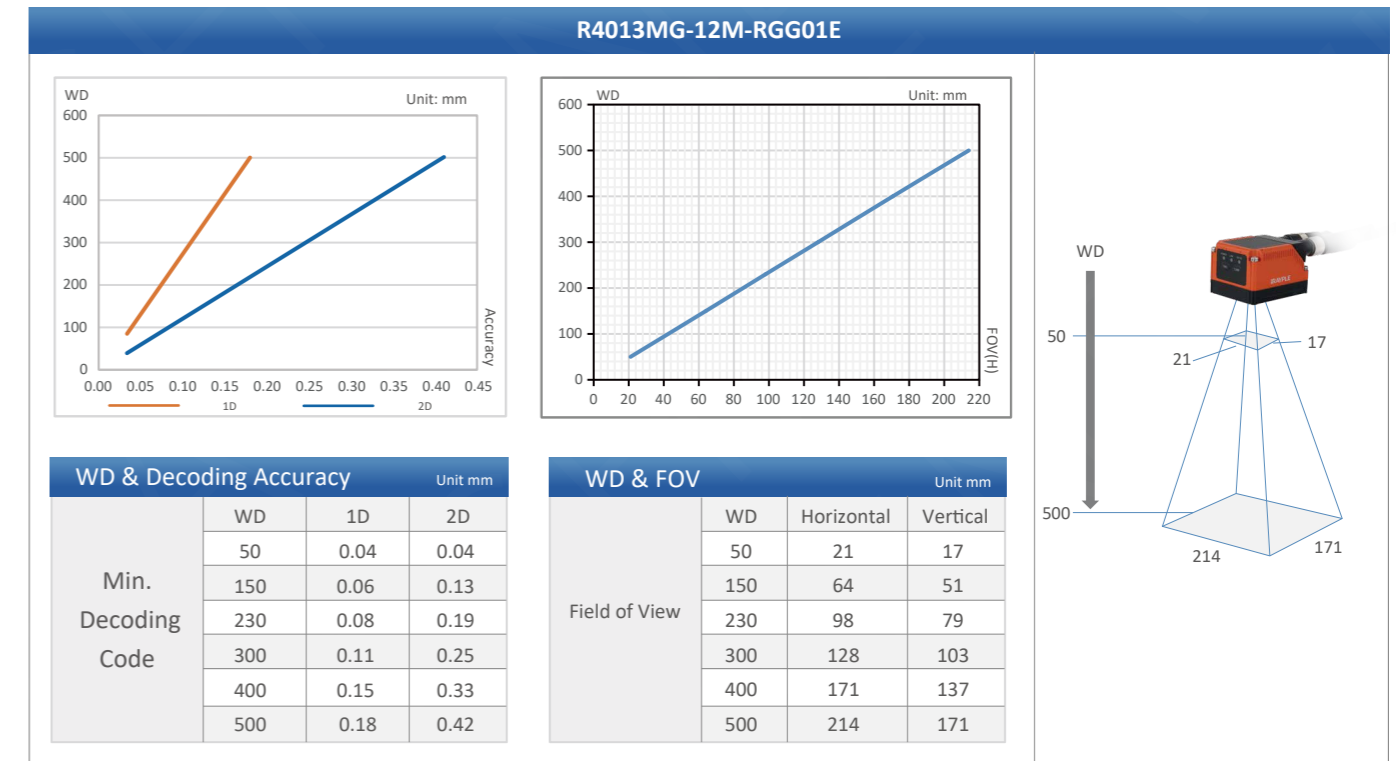
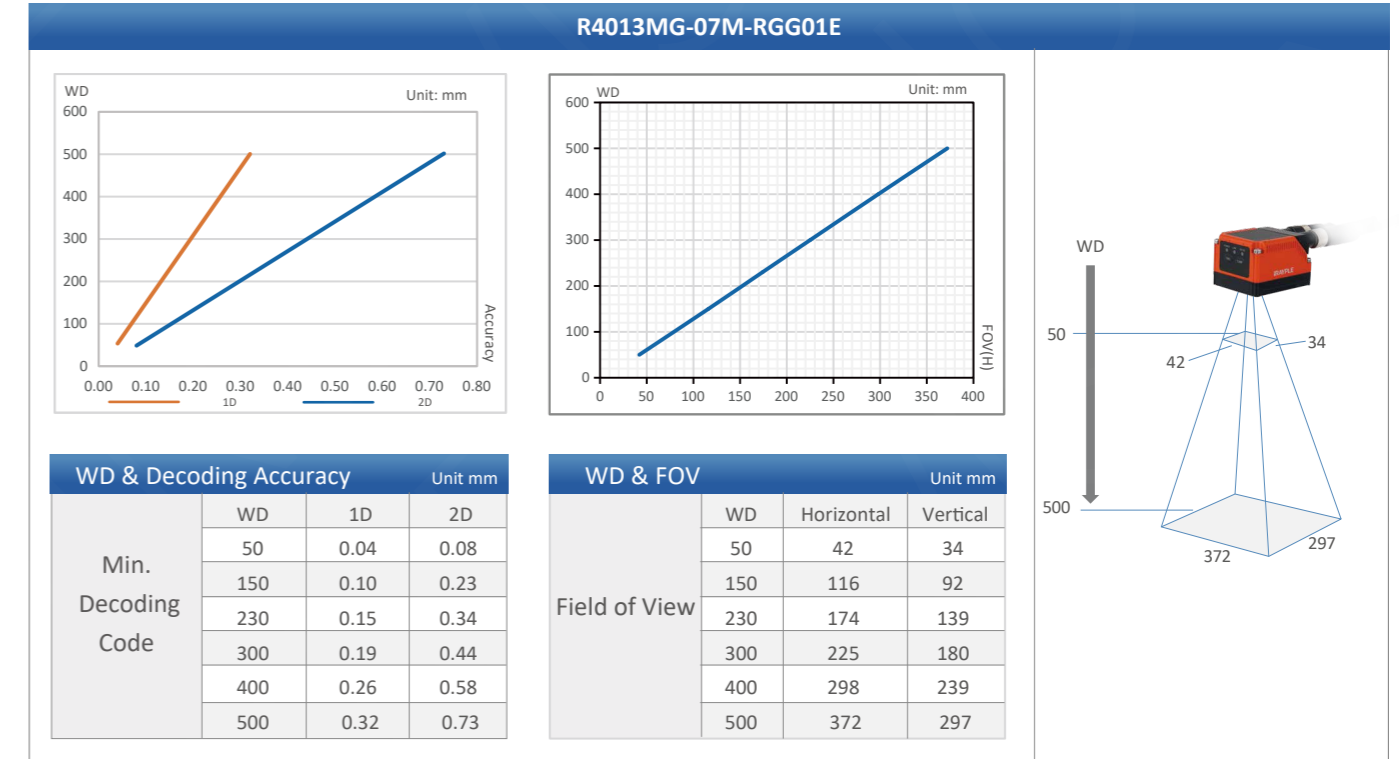
With the rapid development of intelligent manufacturing and the needs of efficiency improvement and quality control, information traceability is being used more and more widely, including raw materials management, production and finished product circulation, after-sales and more. The 1D and 2D codes are the most widely used way of material tracing. The intelligent code reader of iRAYPLE is the the perfect solution to solve traceability problems. It can be applied to different industries.



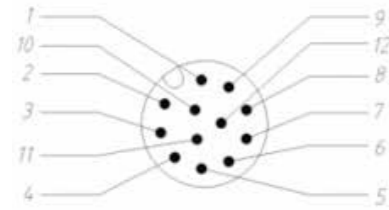
Specifications

R4000 Series						
Model	R4013MG-07M-RGG01E	R4013MG-07M-WGG01E	R4013MG-07M-BGG01E	R4013MG-12M-RGG01E	R4013MG-12M-WGG01E	R4013MG-12M-BGG01E
Resolution	1280×1024					
FPS	60 fps					
Max. Decoding Speed	60 codes/s					
Max. Moving Speed	3m/s					
WD	50~500mm					
Focal	7mm			12mm		
FOV	116×92mm@150mm			64×51mm@150mm		
Min. Decoding Code	1D: 0.04mm/2D: 0.08 mm			1D: 0.04mm/2D: 0.04mm		
Illumination	Red: Polarized/Unpolarized/Uniformed	White: Unpolarized/Uniformed	Blue: Polarized/Unpolarized/Uniformed	Red: Polarized/Unpolarized/Uniformed	White: Unpolarized/Uniformed	Blue: Polarized/Unpolarized/Uniformed
	Integrated Light Design, Red/white/blue options, Multiple Channel Controlled Independently					
Result Indicator	Red and Green Lights					
Aimer	2 × Red Aimers					
Status Indicator	Power, Network and Decoding Result					
Focusing	Motorized Lens and One-click Focus					
Symbologies	1D: Code 39, Code 93, Code 128, CodaBar, EAN8, EAN13, UPCA, UPCE, ITF25, 2of5 (Industrial 2of5), standard25, GS1-128, and more; 2D: QR/DM/MQR/GS1 DM/GS1 QR, and more; Quality Evaluation: (ISO/IEC 29158 (AIM-DPM), ISO/IEC 15415, ISO/IEC 15416)					
Software	Easy ID					
Trigger Mode	Software Trigger, External Trigger and Free Run					
Connector	Industrial Grade M12 Ethernet and GPIO Connectors					
Network	100 Mbps Ethernet					
GPIO	RS232, 2 Opto-isolated Input and 3 Opto-isolated Output					
Communication Ports	RS-232 and Ethernet					
Communication Protocols	SDK, TCP Client, TCP Server, FTP, RS232, Profinet, Modbus, EtherNet/IP, MC (SLMP), FINS/UDP, FINS/TCP					
Power Supply	9-26VDC, 1.5A Input, Suitable for Industrial Voltage					
Power Consumption	<14W					
Protection	IP65					
Anti-Vibration	3M7					
Material	Aluminum Alloy (Excluding front Cover)					
Operating Temperature	-20°C~+50°C					
Operating Humidity	20%~95%, Non-condensing					
Storage Temperature	-30°C~+70°C					
Certification	CE, KC, BIS					
Weight	<180g					
Dimensions	47mm×57.8mm×38mm (Excluding Connectors)					

Decoding Capability LUT (Typical)



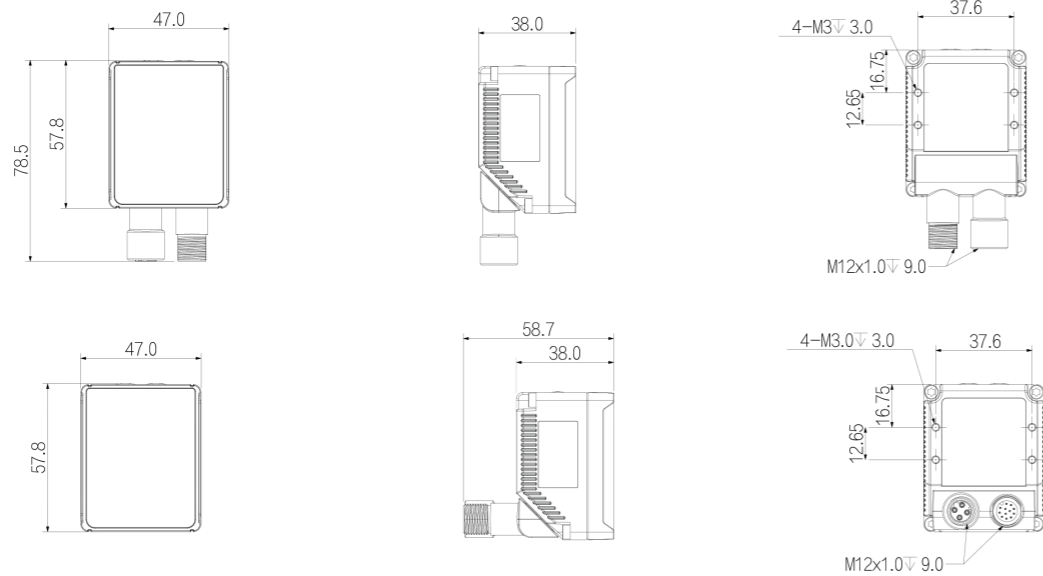
Connector Pin-out



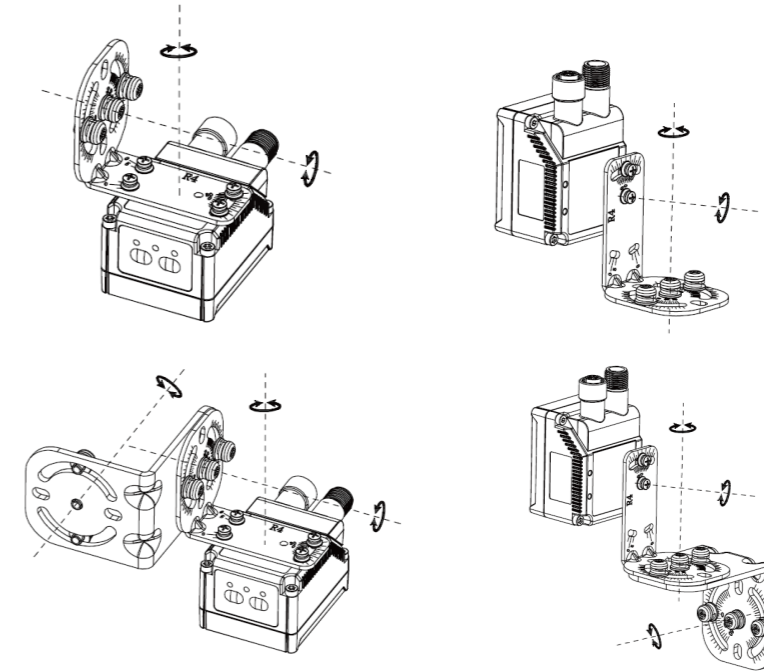
12-pin Assignment on Camera

Pin	Cable Color	Signal	Description
1	Brown and white	OPT_OUT2	Opto-isolated Output 2
2	Grey	RS232_TXD	RS232 Serial Send
3	Purple	RS232_RXD	RS232 Serial Receive
4	Black & White	SIGNAL_GND	RS232 Serial GND
5	Yellow	OPT_IN1	Opto-isolated Input 1
6	Purple & white	OPT_IN_GND	Opto-isolated Input GND
7	Red	POWER	Power
8	Black	POWER_GND	Power GND
9	Green	OPT_OUT_GND	Opto-isolated Output GND
10	Orange	OPT_IN0	Opto-isolated Input 0
11	Blue	OPT_OUT0	Opto-isolated Output 0
12	Brown	OPT_OUT1	Opto-isolated Output 1
--	White	--	Shielding GND

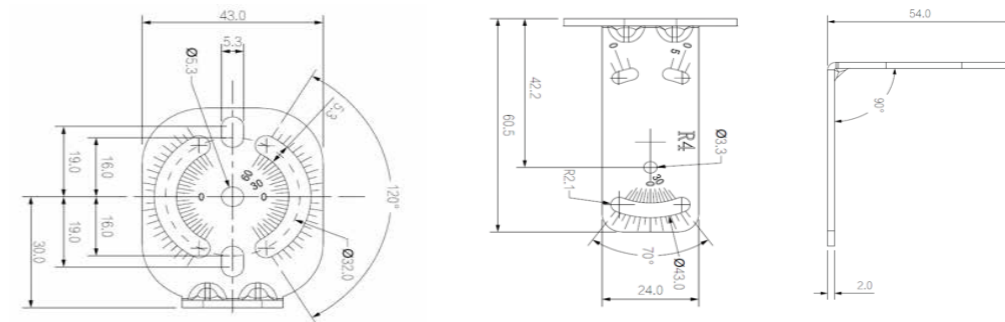
Dimensions



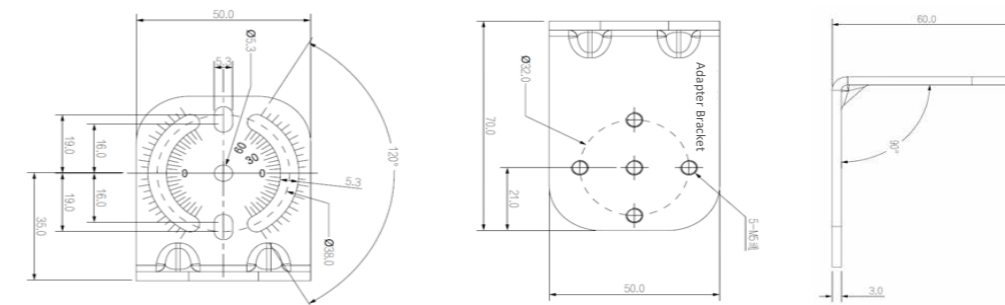
Installation with Brackets



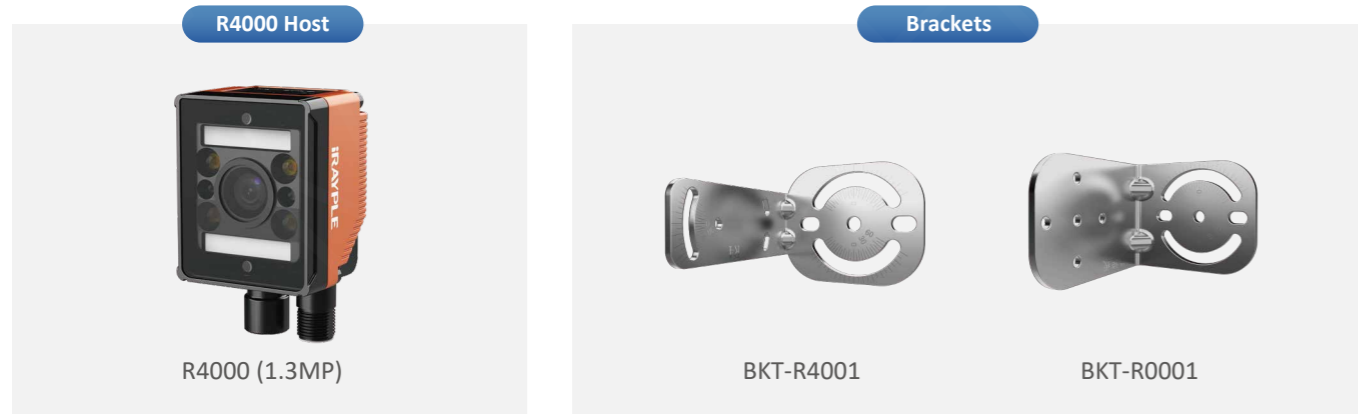
Installation Bracket



Adapter Bracket



System Components



Cables

