

Empowering Intelligent Manufacturing and Business Efficiency

* Design and specifications are subject to change without notice.

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iRAYPLE

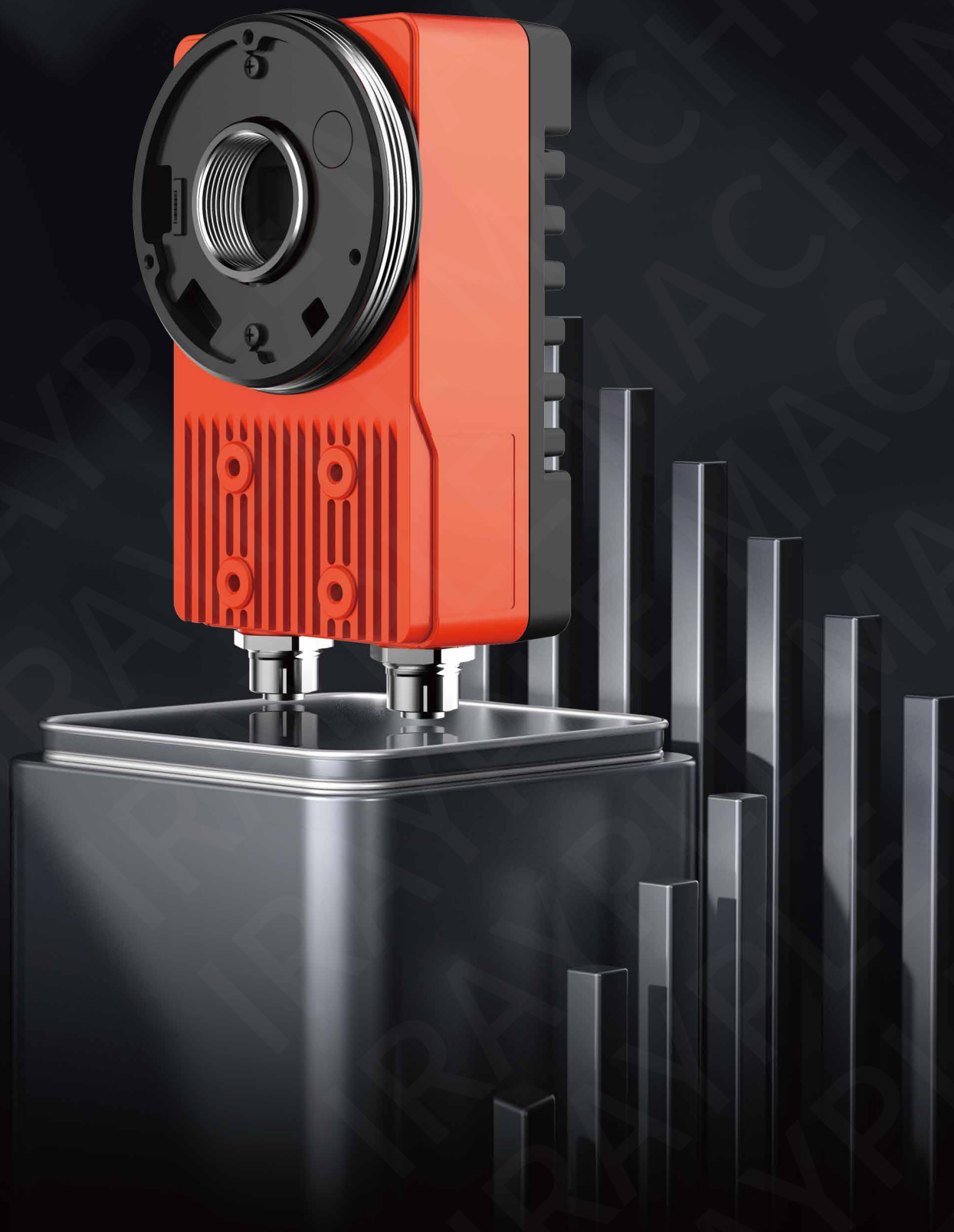
AI ENABLED SMART CODE READER

R7000 Series



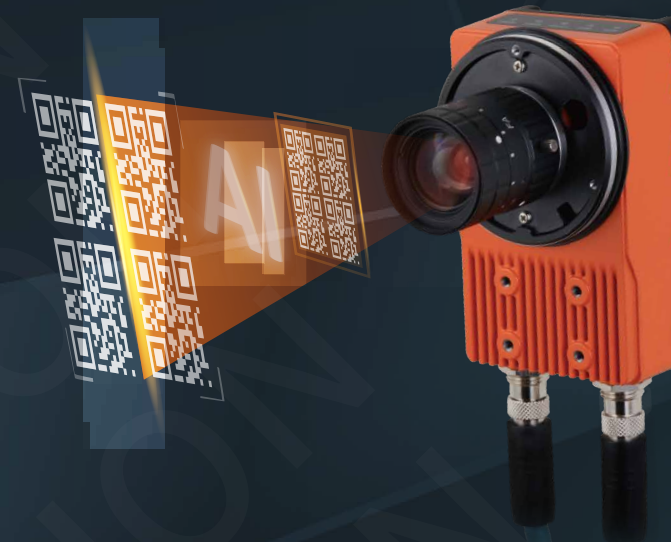
Meets Complex Scenes Decoding
AI Enabled, Ultra High Resolution, Flexible Solution Design

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HIGH DECODING RATE

Self-developed AI Algorithms Satisfy
Complex Scenes Code Reading



ULTRA HIGH-RESOLUTION

20MP & 25MP Resolution Options Suitable for
Large FOV and Minimal Size Code Reading
Applications

FLEXIBLE SOLUTION DESIGN

C-mount and Ultra High-resolution Design Flexible
for Extreme Scenes Solution Design



HIGH DECODING RATE

Self-developed AI Algorithms Satisfy Complex Scene Code Reading

- AI Enable Algorithm, accurate positioning, stable decoding time and accurate decoding
- Multi-configuration Polling
- Failed Images Saving while Reading Enhances the Decoding Rate

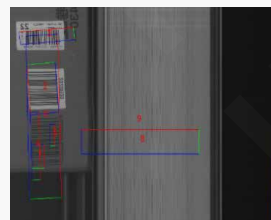


AI Enhanced Algorithms Improve the Decoding Rate in Complex Applications

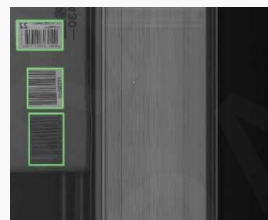
The production application environment is complex and variable. Issues such as reflection, obstruction, distortions, and background interference can seriously affect the decoding rate. Deep learning based AI algorithms can achieve rapid iteration of algorithm models with a small number of on-site images.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

Accurate Positioning

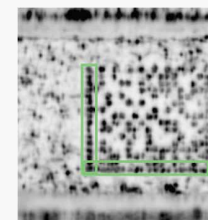
Positioning is a crucial step in code reading, as the accuracy of positioning determines the decoding efficiency and rate. Deep learning algorithms can accurately locate and identify 1D and 2D codes, which significantly reduces the number of proposal regions. Moreover, deep learning algorithms exhibit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



TRADITIONAL



DEEP LEARNING



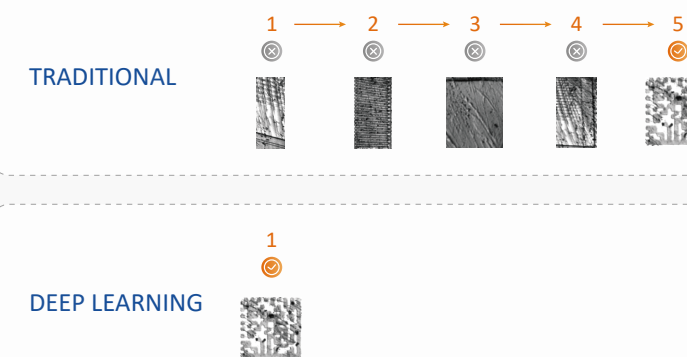
TRADITIONAL



DEEP LEARNING

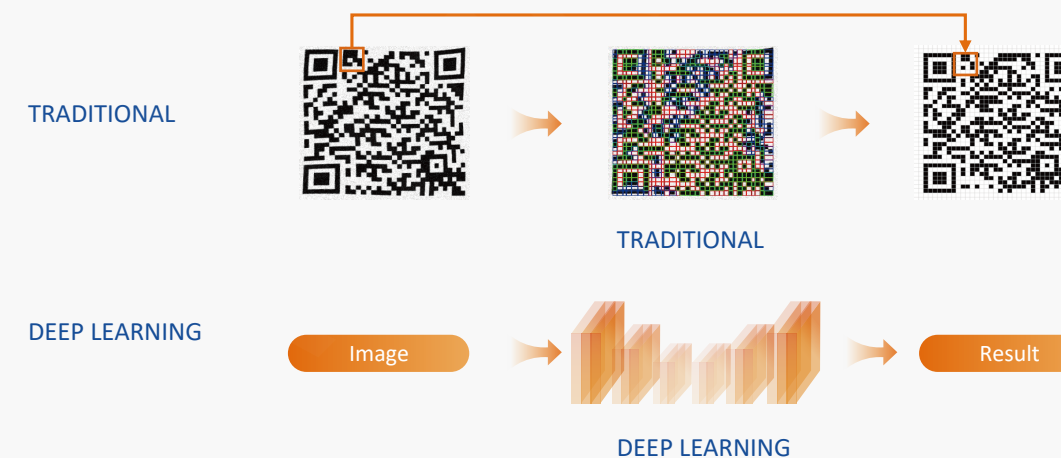
Stable Decoding Time

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.



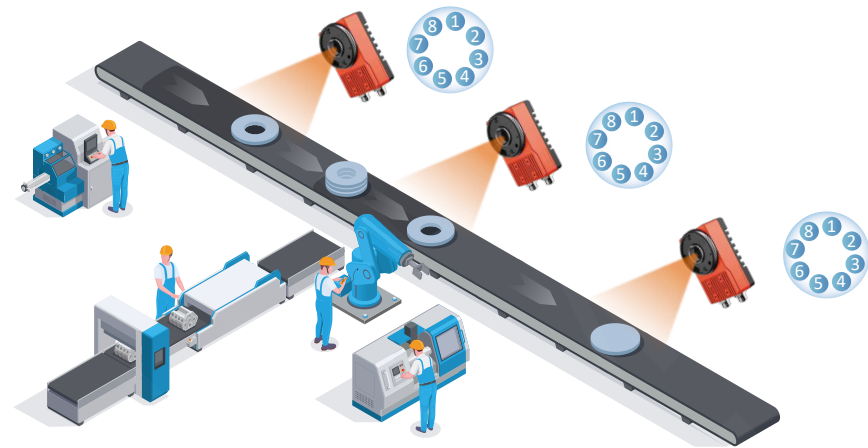
Accurate Decoding

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.



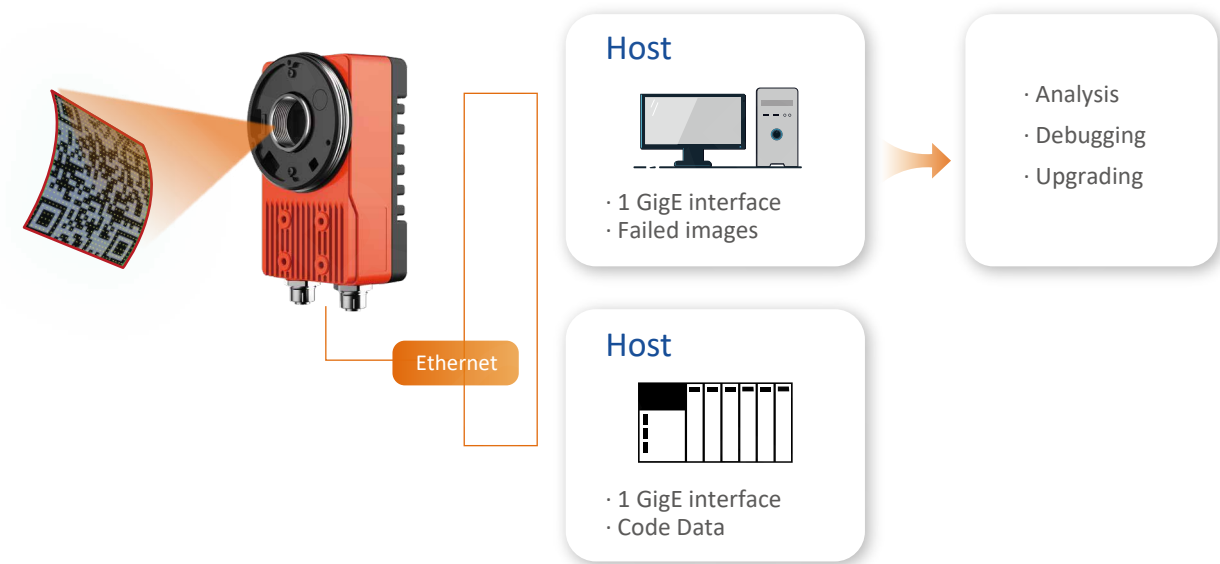
Multi-configuration Polling Ensure the Satisfied Decoding Rate in Variable Applications

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.



Failed Images Saving while Reading Enhances the Decoding Rate

According to the developing trend in code reading industry, challenges include high-speed reading, smaller code size, and higher density code content, and complex applications. The failed images saving function enhances the decoding rate because code reader can save failed images while readings barcodes. A 1-gigabit transmission speed ensures the stability of data transfer even at a high pace.



ULTRA HIGH-RESOLUTION

20MP & 25MP Resolution Options Suitable for Large FOV and minimal Size Code Reading Applications

- 20MP and 25MP resolution
- Large FOV and DOF
- Decoding minimal codes



20MP & 25MP Resolution Options Stuitable for large FOV and minimal size code reading applications

According to the trend of higher decoding rates, smaller codes, and higher encoding density, R7000 series code readers perfectly meet customers' expectation. The 20MP and 25MP resolution addresses the need for wider larger field-of-view capabilities. Additionally, they can decode ultra small codes, including Vericode, and more.



The FOV of R7250 is 15 times that of R5106 at the same PPM, covering much larger objects



The PPM of R7250 is 3.5 times that of R5016 at same horizontal FOV, decoding smaller codes

FLEXIBLE SOLUTION DESIGN

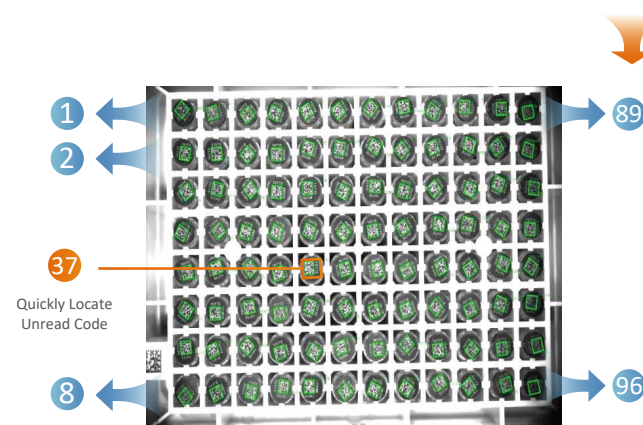
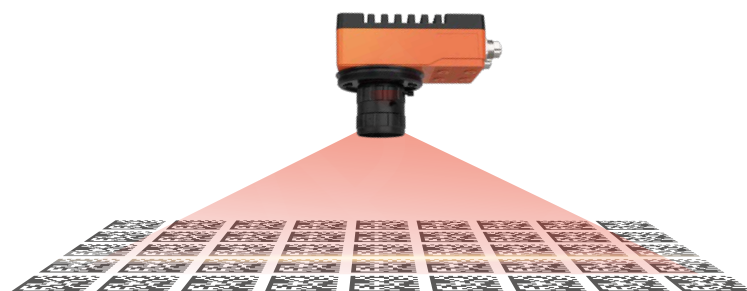
C-mount and Ultra High-resolution Design
Flexible for Extreme Scenes Solution Design

- C-mount design flexible for selection lens
- Multi-AOI and multi-code fast decoding, outputting sequentially by region
- Up to IP67 protection level with lens cover installed



C-mount and Ultra High-resolution Design Flexible for Extreme Scenes Solution Design

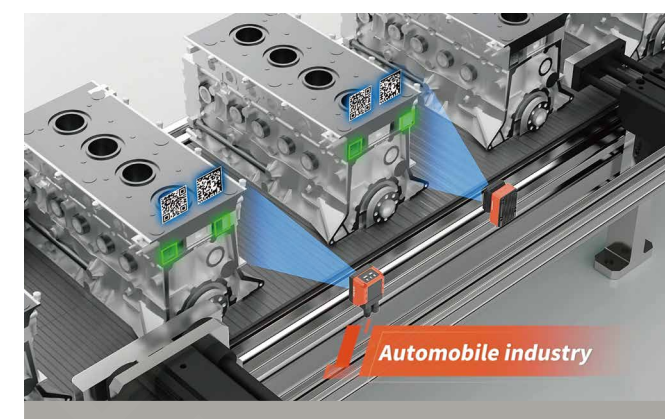
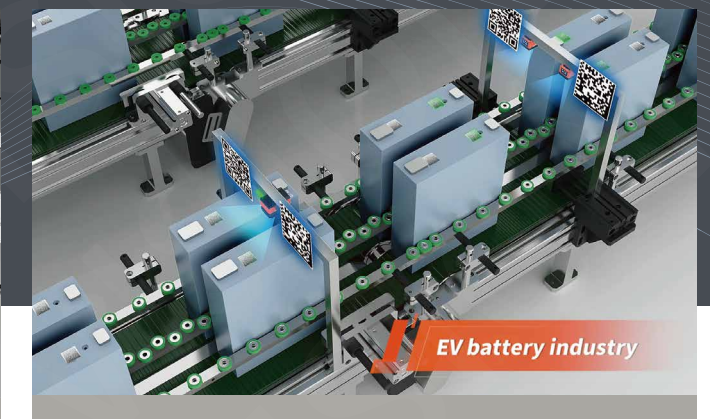
Integrated lenses and lights struggle to meet the diverse needs of code reading tasks, especially for extremely large FOVs, various objects, and minimal codes scenarios. C-mount changeable lens design provides a flexible solution that can be customized to meet specific needs. High quality wide-angle lenses meet the needs for large FOV, while high-resolution telephoto can decode ultra-small codes.



Multi-code Reading: 128
codes/image
Multi-AOI reading, sequential
output by region

APPLICATIONS

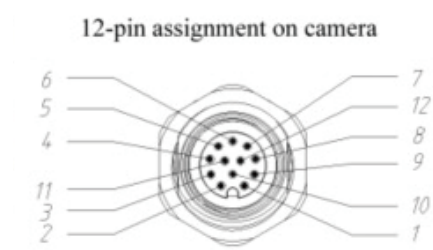
With the rapid development of intelligent manufacturing and the needs of efficiency improvement and quality control, information traceability is being used more and more widely, including raw materials management, production and finished product circulation, after-sales and more. The bar code and two-dimensional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



Specifications

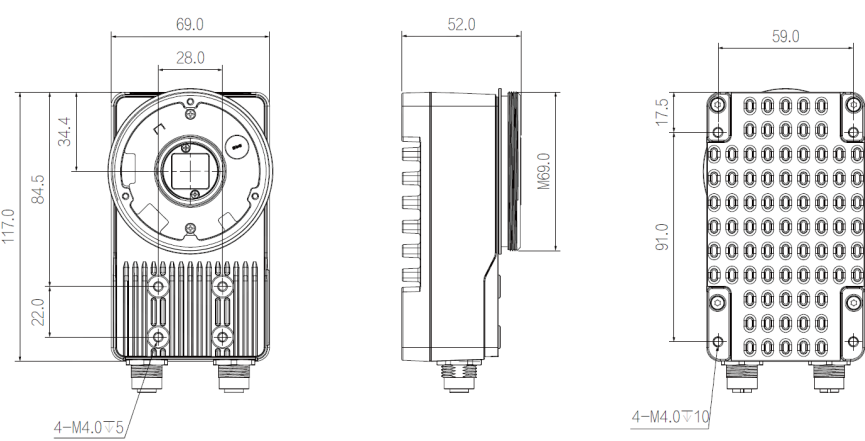
R7000 Series			
Model	R7200MG-00C-NGG01E	R7201MG-00C-NGG01E	R7250MG-00C-NGG01E
Resolution	5440×3648	5120×3840	5120×5104
FPS	15 fps	15 fps	12 fps
Max. Decoding Speed	90 codes/s	90 codes/s	90 codes/s
Pixel Size	2.4×2.4μm	2.5×2.5μm	2.5×2.5μm
Sensor Size	1"	1"	1.1"
Shutter	Rolling	Global	Global
Mount	C-mount		
Status Indicator	Power, Network and Trigger		
Symbologies	1D: Code 39, Code 93, Code128, Codebar, EAN8, EAN13, UPCA, UPCE, ITF25, 2 of 5 Industrial 2 of 5), standard 25, GS1-128, and more. 2D: QR/Data Matrix/Micro QR/GS1 DM/GS1 QR/Vericode*, 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	GigE (Code-A)		
GPIO	12pin IO, RS232, 3 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	DC24V Input, Suitable for Industrial Voltage		
Power Consumption	<8.0 W (Excluding External Devices)		
Protection	IP67 (with Lens Cover)		
Anti-Vibration	3M7		
Material	Aluminum Alloy		
Operating Temperature	-20°C~50°C		
Operating Humidity	20%~95%, Non-condensing		
Storage Temperature	-30°C~70°C		
Certification	CE, FCC, KC, BIS		
Weight	<550 g		
Dimensions	117mm×69mm×43mm (Excluding Connector)		
Note: *Vericode function additional license is needed.			

Connector Pin-out

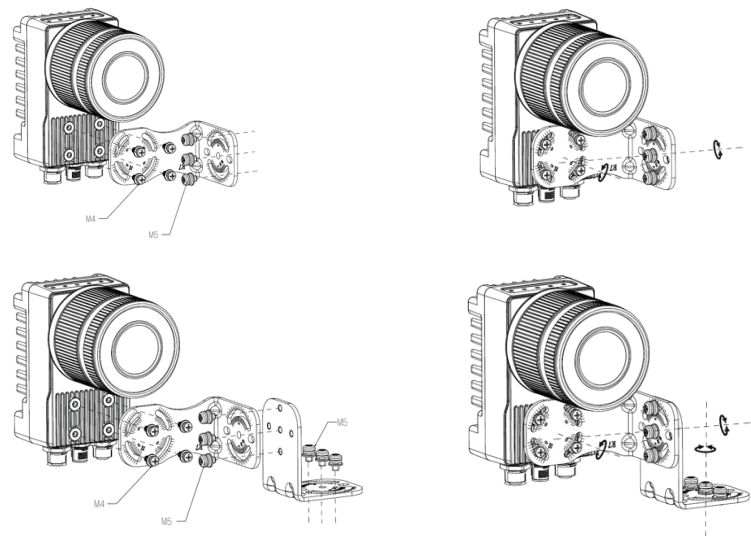


Pin	Cable Color	Signal	Description
1	Yellow	OPT_IN1	Opto-isolated Input 1
2	Yellow & White	OPT_IN2	Opto-isolated Input 2
3	Brown	OPT_OUT1	Opto-isolated Output 1
4	Brown & White	OPT_OUT2	Opto-isolated Output 2
5	Purple	COM_RXD	RS232 Serial Receive
6	Purple & White	OPT_IN_GND	Opto-isolated Input GND
7	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	Grey	COM_TXD	RS232 Serial Send

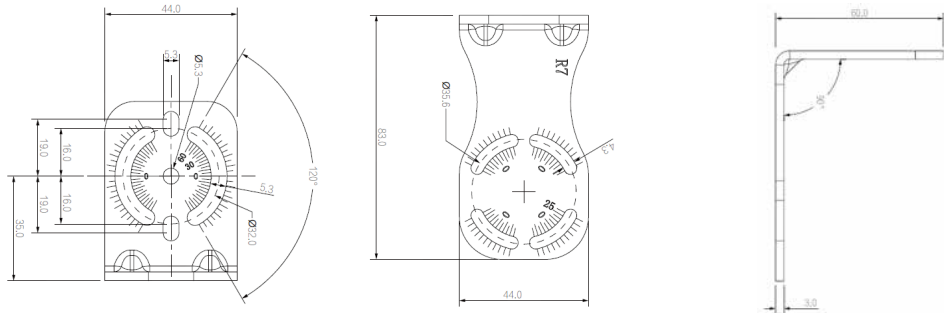
Dimensions



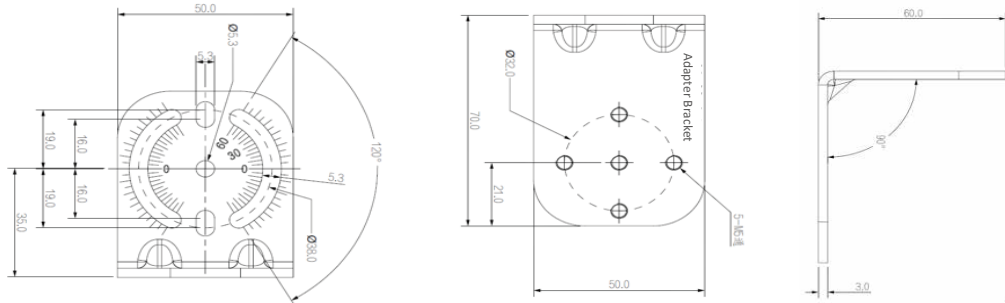
Installation with Brackets



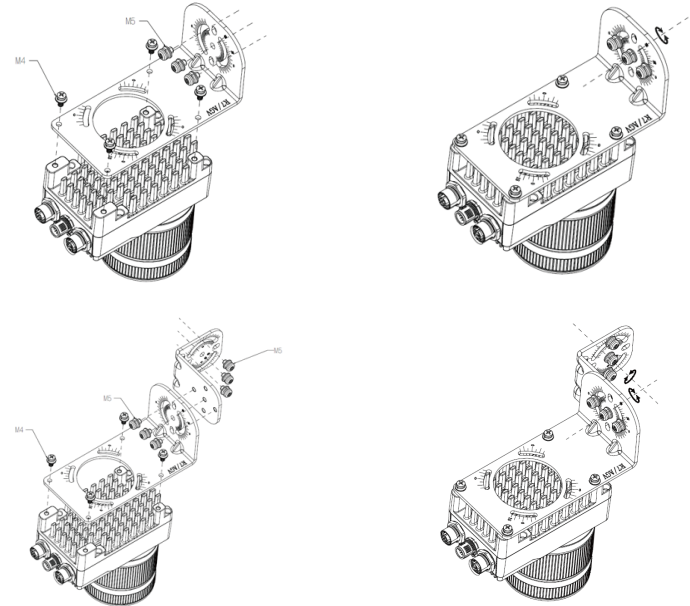
Front Installation Bracket



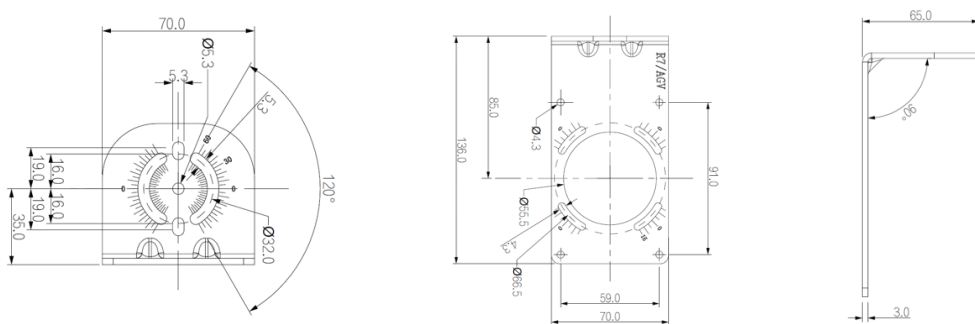
Adapter Bracket



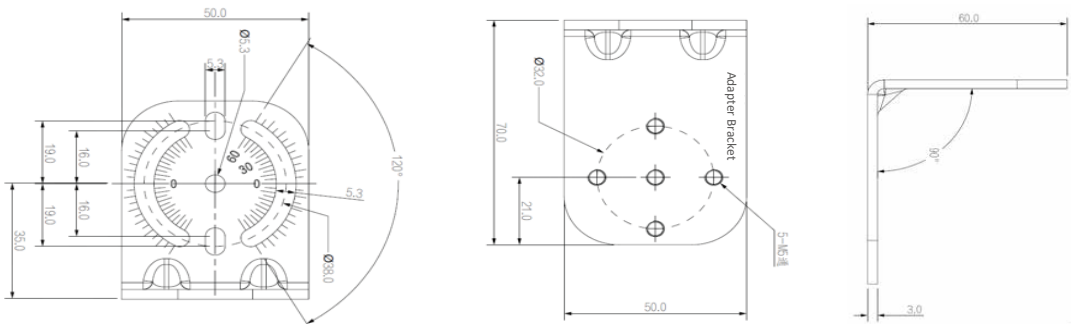
Installation with Brackets



Rear Installation Bracket



Adapter Bracket



System Components

R7000 Host



20MP & 25MP

Brackets



BKT-R7001BKT-R7002BKT-R0001

Cables

	Power & GPIO Cable		Ethernet Cable	
	Static	Flexible	Static	Flexible
5m	CABIO-M12A12-1DB9-05	CABIO-M12A12-1XX-05D	CABNET-M12A8-RJ45-05	CABNET-M12A8-RJ45-05D
10m	CABIO-M12A12-1DB9-10	CABIO-M12A12-1XX-10D	CABNET-M12A8-RJ45-10	CABNET-M12A8-RJ45-10D
				

12~24 VDC

I/O Signal

RS-232

PLC Protocols

Ethernet

Ethernet

Power Supply



12~24 VDC

Host (PLC)


PLC

HMIData CenterFactory

Host (PC)


PC

Data Center

Set Up (PC)


PC

- Debugging
- Monitoring
- SDK
- EDS files
- Image Saving