

Empowering Intelligent
Manufacturing and Business Efficiency

* Design and specifications are subject to change without notice.

Ver. 20250315

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iRAYPLE

**AI ENABLED
CODE READER**



CODE READER

·EMPOWERING INDUSTRY 4.0·

www.irayple.com/en

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COMPANY PROFILE

With a focus on smart manufacturing technologies and logistics innovation, we are committed to creating and delivering value for our customers by enabling a smart factory transformation.

As a national high-tech enterprise, HuaRay aims to bring the latest technological innovations to our valuable customers. More than 60% of its employees are dedicated to R&D, and the company has filed over 600 patent applications.

With its investment in R&D, HuaRay has developed deep know-how in its embedded software, image optimization, recognition algorithms, network transmission, navigation, positioning, scheduling, motion control, and other technical fields. HuaRay's products and solutions are widely applied in various industries such as logistics, automotive, 3C, lithium batteries, photovoltaic, semiconductor, pharmaceutical, and many others.

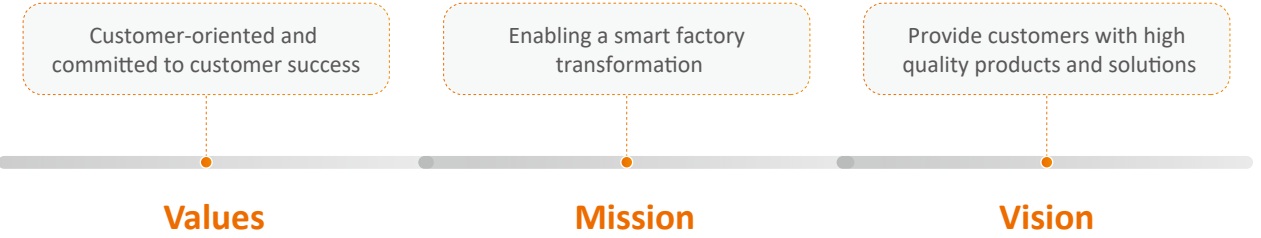
Our machine vision products include industrial area scan cameras, line scan cameras, smart industrial cameras, vision sensors, 3D industrial cameras, and lenses.

These products have been used for code recognition, OCR, vision measurement, positioning, defect detection, etc. In addition, our autonomous mobile robot (AMR) products, including latent lift, towing, forklifts, and sorting robots are widely used for warehouses and material handling applications.

CORPORATE OVERVIEW



CORPORATE CULTURE





INTRODUCTION

The iRAYPLE intelligent code reader has undergone significant advancements in its algorithms, optics, and vari-focal lens, resulting in a remarkable enhancement of decoding accuracy and decoding rate. With a diverse selection of sophisticated models and optical accessories, iRAYPLE code readers excel in supporting one-click training, ensuring easy deployment. Its powerful AI capabilities and outstanding code reading rate make iRAYPLE an ideal solution for a wide range of industries.

FEATURES

AI Enhanced Algorithms

The production application environment is both 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.

1 Dimensional Code

TRADITIONAL

DEEP LEARNING

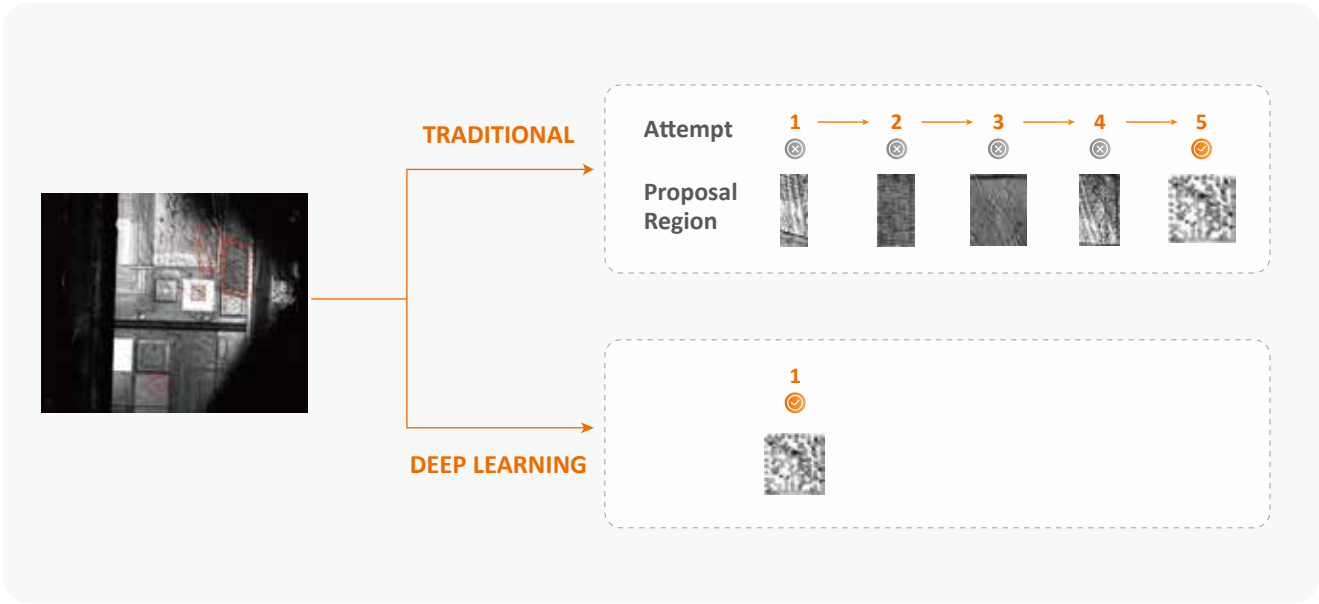
2 Dimensional Code

TRADITIONAL

DEEP LEARNING

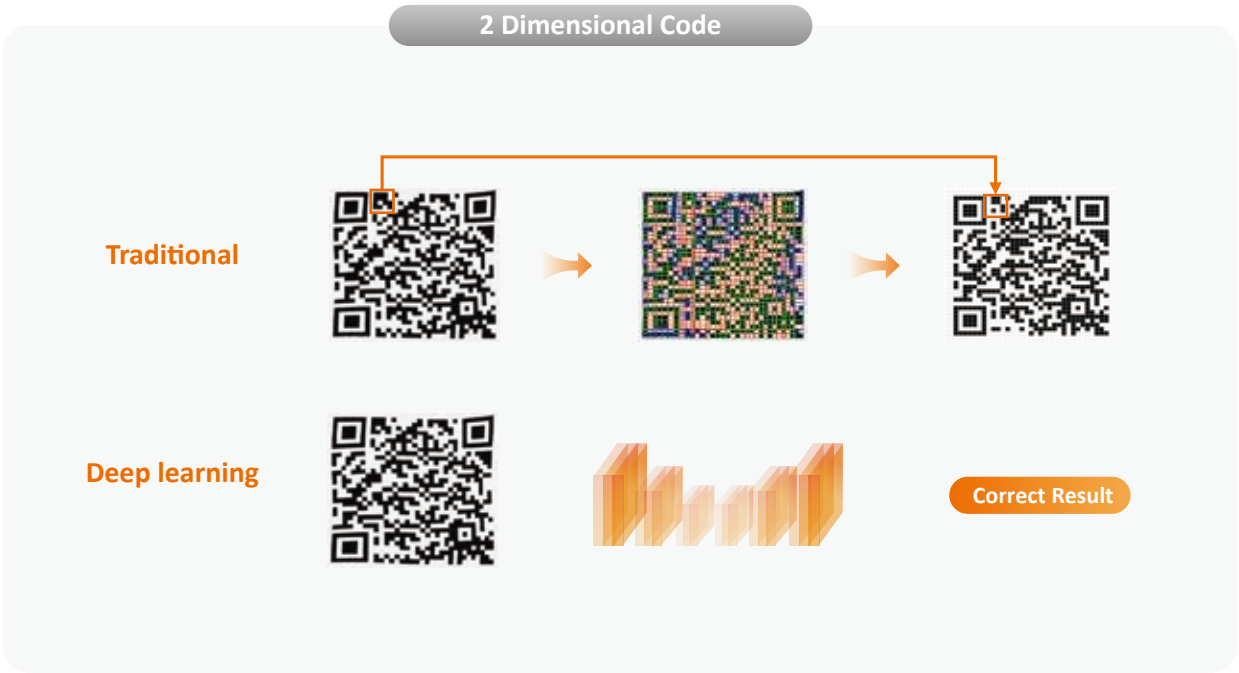
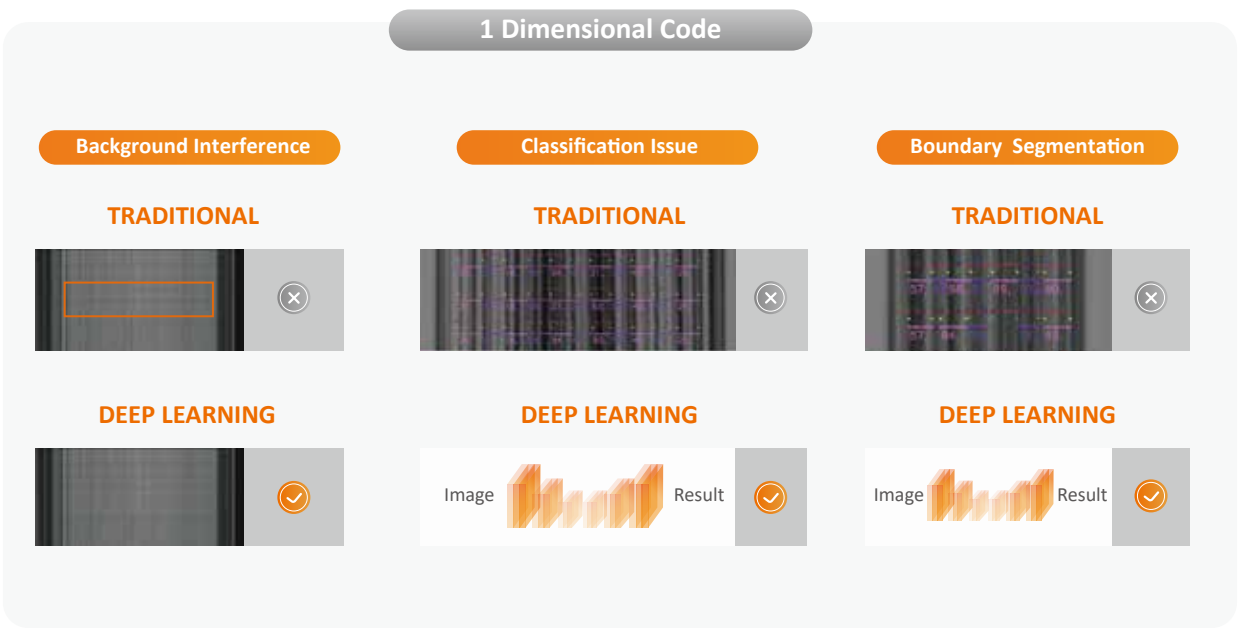
Stable Time Consumption

The product delivery rate in industrial production is often fixed, and traditional algorithms may require multiple decoding attempts due to the generation of proposal regions, resulting in increased time consumption. 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 and increased production efficiency.



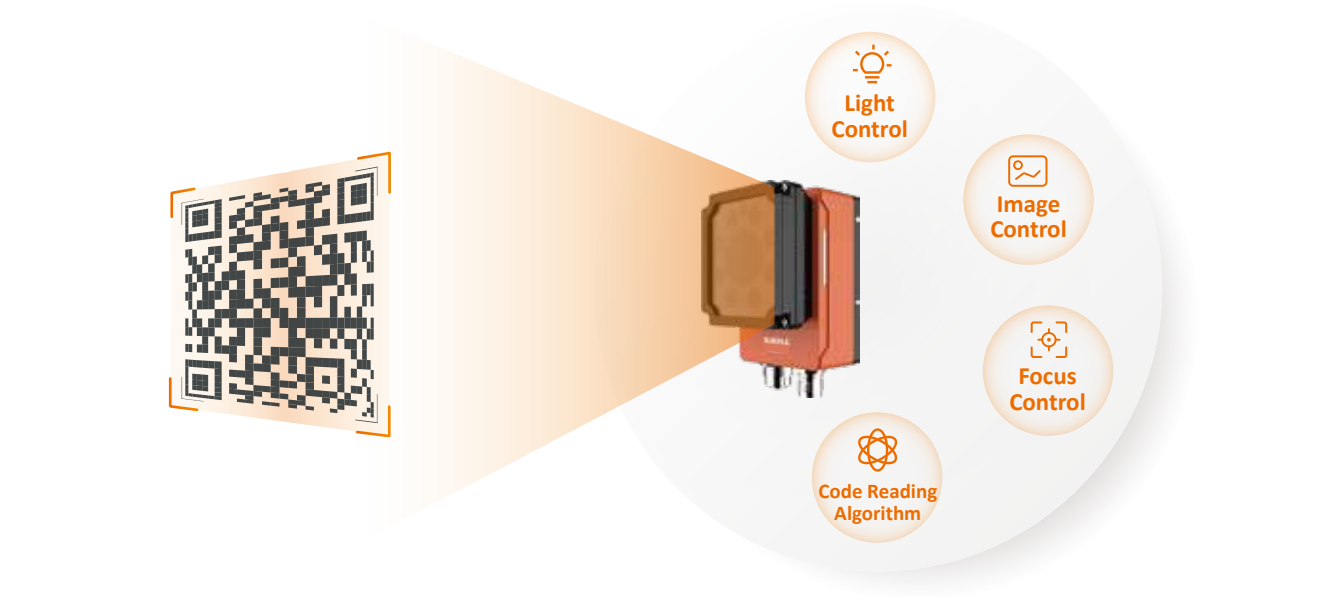
Accurate Decoding

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.



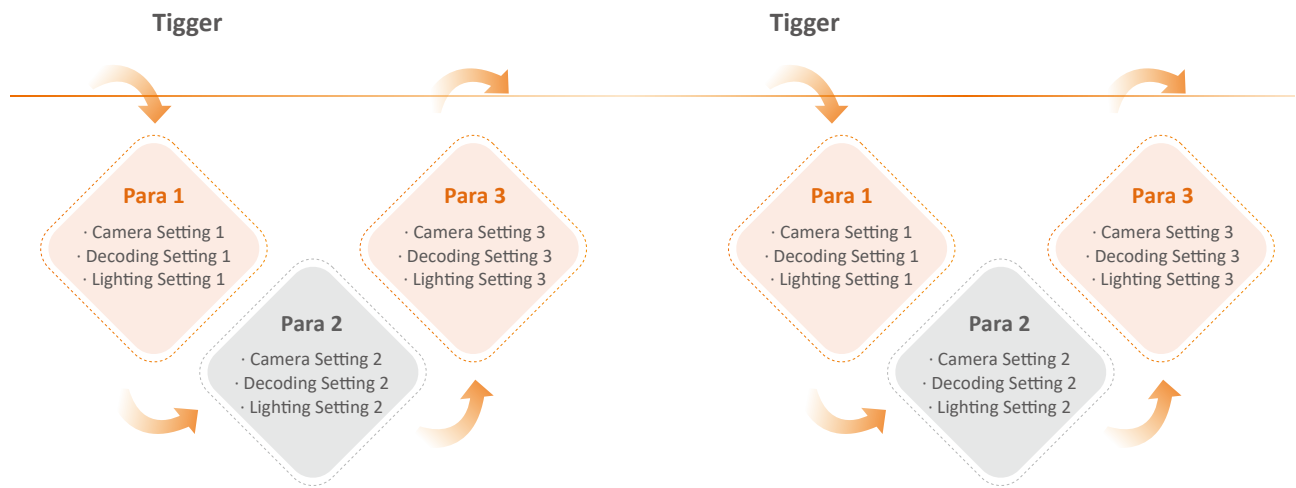
One-click Training

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 debugging time and makes the debugging process more convenient.



Multi-parameter Polling

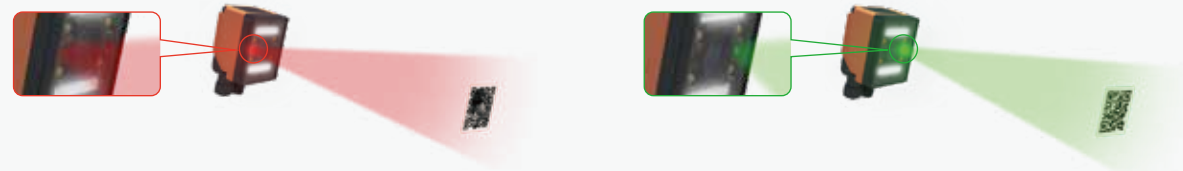
The multi-parameter polling function can configure multiple sets of parameters to try to decode, in order to adapt to changes in the reading object and ensure a high reading rate.



*Up to 8 configurations

Result Indicator

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



Multiple Polarize Options



The polarized light source is suitable for dealing with surface reflection applications. Moreover, the code reader's half-polarized light source design offers users a choice between polarized and transparent light sources.

Multicolor Light Source Option

Red, white, and blue light sources are available to meet customers' application needs for various material colors.



Cascade



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

EasyID Setup & Debugging Tool

The EasyID debugging software provides an efficient way to set and debug 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. Debugging results can be previewed directly, which greatly enhances the debugging efficiency for customers.



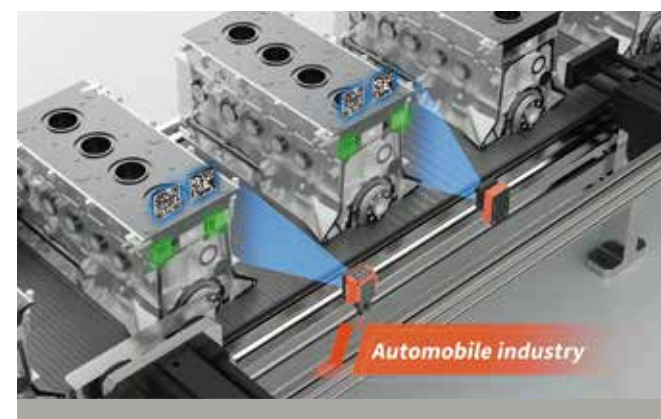
APPLICATION SCENES

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 the areas such as raw materials, production and finished product circulation, after-sales traceability and more.

The bar code and two-dimensional code are the most widely used in information trace back.

The intelligent code reader of iRAYPLE is the vision solution for the scenes. The code reader of iRAYPLE can not only track back information, but also can be more accurate and efficient.

It can be applied to different industries.



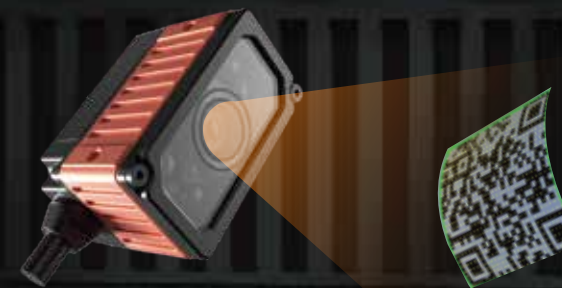
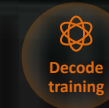
3000 SERIES CODE READER

Compact Design and Cost-Effective



HIGH DECODING RATE

Self-developed AI algorithms enable robust decoding across diverse and challenging scenarios



SIMPLE AND INTUITIVE

One-click training for easy configuration. Intuitively results indication

COMPACT BODY DESIGN

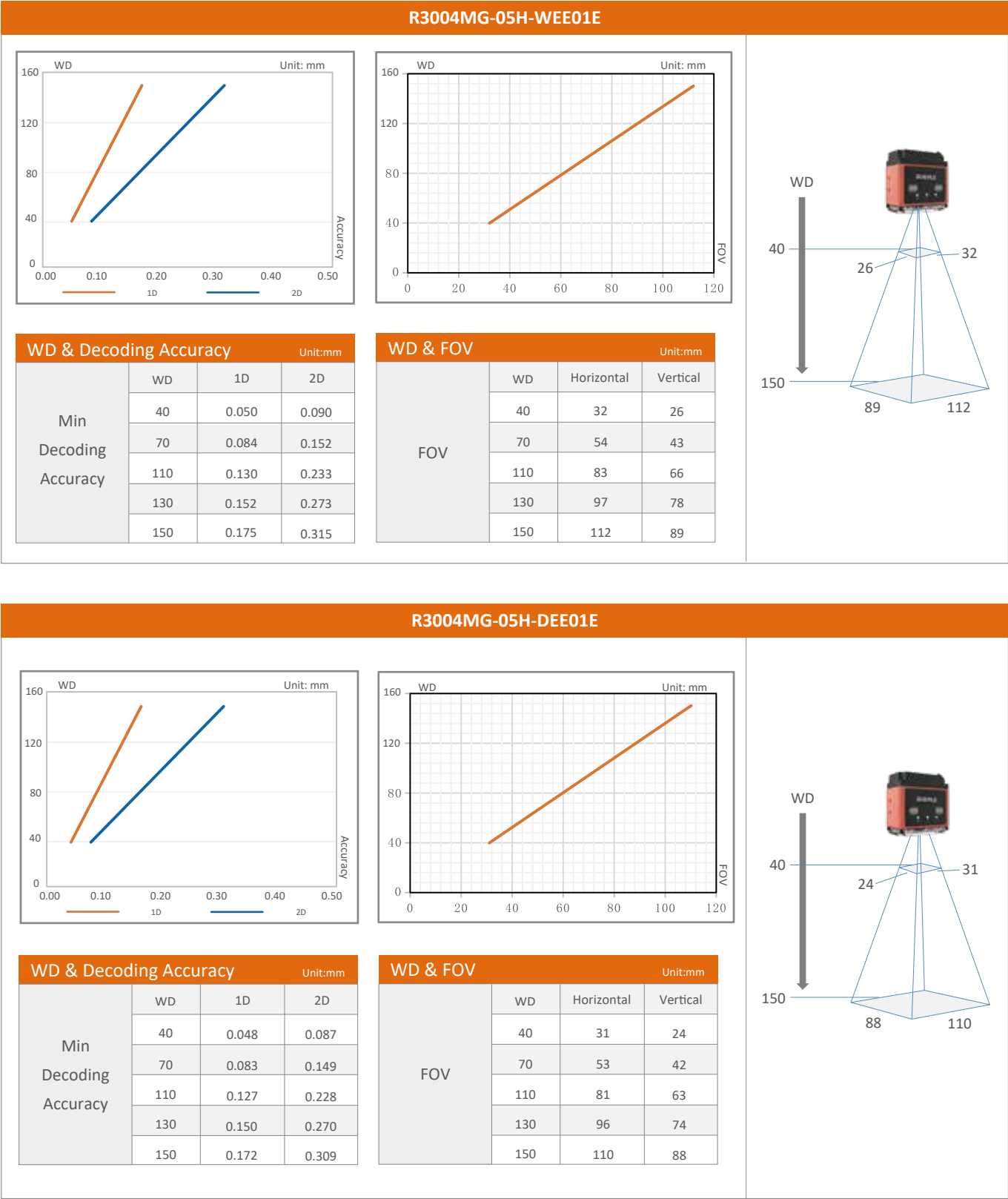
The small size of the device is ideal for installation in tight spaces



Specifications

R3004 Series			
Model	R3004MG-05-DEE110E	R3004MG-05H-WEE01E	R3004MG-05H-DEE01E
Resolution	640×512		
FPS	60 fps		
Max Decoding Speed	45codes/s		
Max Moving Speed	3m/s		
WD	110mm	40~150mm	40~150mm
Focal	4.8mm		
FOV	81×65mm	32×26-112×89mm	31×24-110×88mm
Min Decoding Accuracy	1D: 0.127mm/2D: 0.228 mm	1D: 0.050mm/2D: 0.090 mm	1D: 0.048mm/2D: 0.087 mm
Illumination	Red and White Light	2×White Light	Red and White Light
Result Indicator	Red and Green Lights		
Aimer	Red Aimers		
Status Indicator	Power, Network and Decoding Result		
Focusing	Fixed	Manual	Manual
Symbologies	1D:Code 39/Code93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/2of5 (Industrial2of5) /standard25/ GS1-128 2D:QR/Data Matrix/Micro QR/GS1 DM/GS1QR) ; 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 connector, Ethernet, GPIO interface respectively		
Network	100 Mbps Ethernet		
GPIO	RS-232、1 isolated input、1 isolated output、1 configurable input/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, 0.5A input, Suitable for industrial Voltage		
Power Consumption	<2.5W	<4.5W	<2.5W
Protection	IP65		
Material	Aluminum Alloy(Excluding front Cover)		
Operating Temperature	-15℃~+50℃		
Operating Humidity	20%~95%, Non-condensing		
Storage Temperature	-30℃~+70℃		
Certification	CE/UKCA/KC		
Weight	<130g		
Dimensions	50×50×28.5mm (Excluding Cables)	52×50×28.5mm (Excluding Cables)	50×50×28.5mm (Excluding Cables)
Number	A	B	C
Installation bracket	BKT-R3001		

Decoding Capability LUT (Typical)



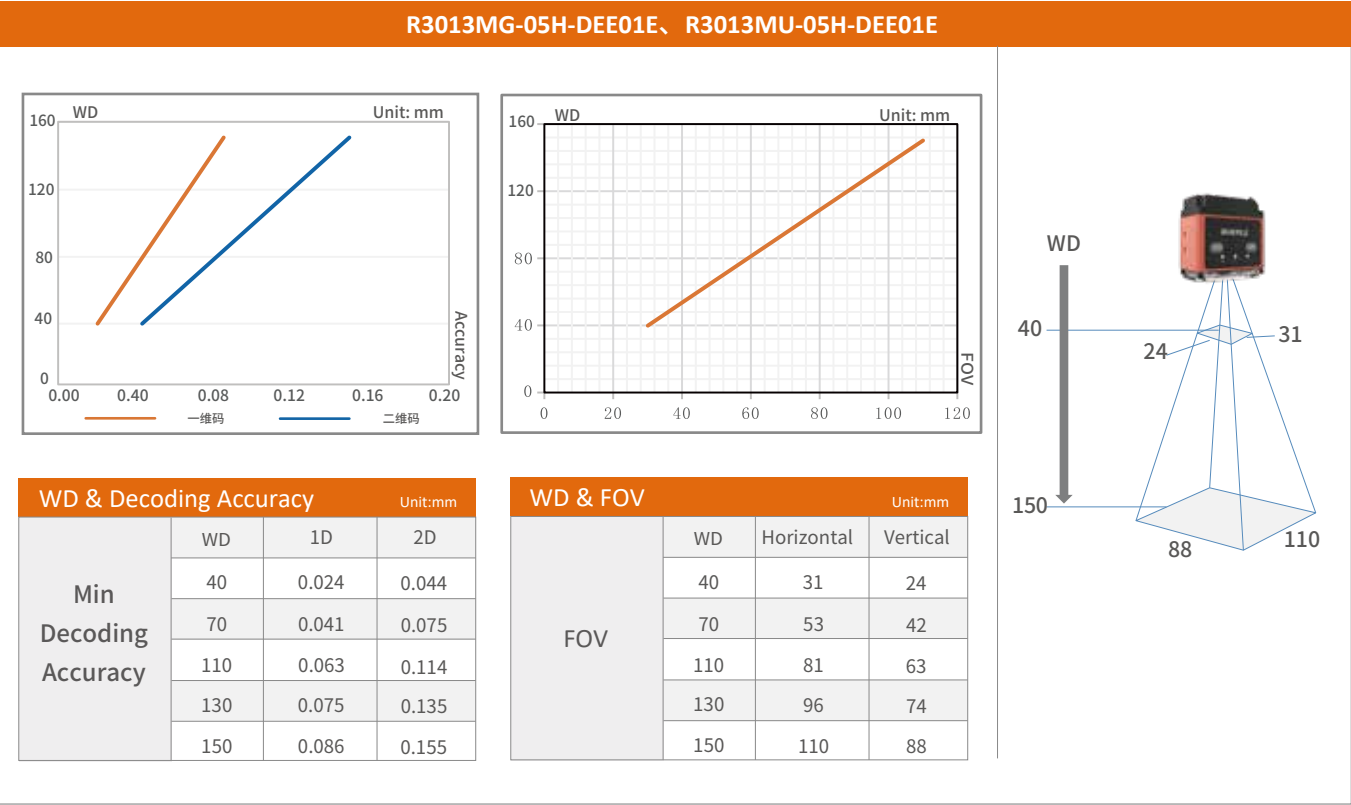
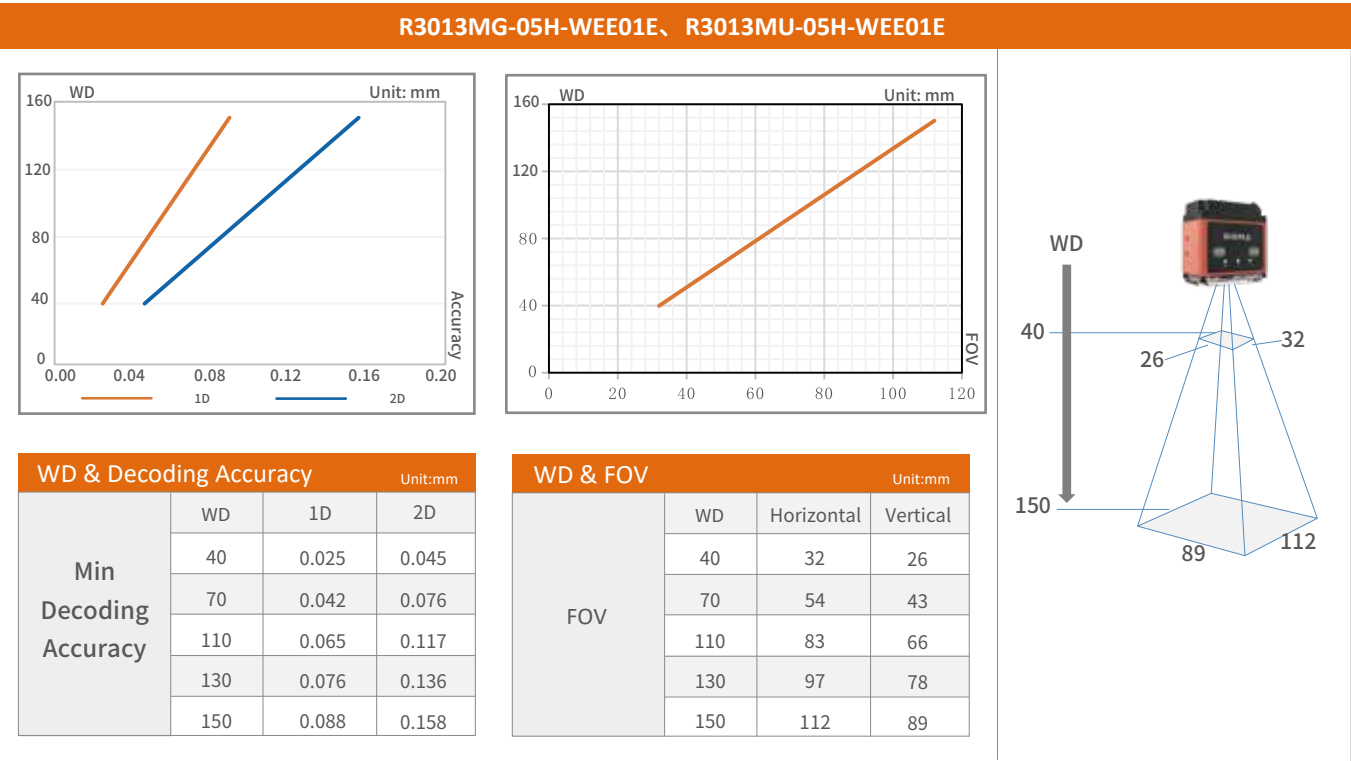
Specifications

R3013 Series			
Model	R3013MG-05-DEE110E	R3013MG-05H-WEE01E	R3013MG-05H-DEE01E
Resolution	1280×1024		
FPS	60 fps		
Max Decoding Speed	31 codes/s		
Max Moving Speed	3m/s		
WD	110mm	40~150mm	40~150mm
Focal	4.8mm		
FOV	81×65mm	32×26-112×89mm	31×24-110×88mm
Min Decoding Accuracy	1D: 0.063mm/2D: 0.114 mm	1D: 0.025mm/2D: 0.045 mm	1D: 0.024mm/2D: 0.044 mm
Illumination	Red and White Light	2×White Light	Red and White Light
Result Indicator	Red and Green Lights		
Aimer	Red Aimers		
Status Indicator	Power, Netwok and Decoding Result		
Focusing	Fixed	Manual	Manual
Symbologies	1D:Code 39/Code93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/ 2of5（Industrial2of5）/standard25/ GS1-128 2D:QR/Data Matrix/Micro QR/GS1 DM/GS1QR ）； 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	RS-232、1 isolated input、1 isolated output、1 configurable input/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, 0.5A input, Suitable for industrial Voltage		
Power Consumption	<2.5W	<4.5W	<2.5W
Protection	IP65		
Material	Aluminum Alloy(Excluding front Cover)		
Operating Temperature	-15°C~+50°C		
Operating Humidity	20%~95%, Non-condensing		
Storage Temperature	-30°C~+70°C		
Certification	CE/UKCA/KC		
Weight	<130g		
Dimensions	50×50×28.5mm (Excluding Cables)	52×50×28.5mm (Excluding Cables)	50×50×28.5mm (Excluding Cables)
Number	A	B	C
Installation bracket	BKT-R3001		

Specifications

R3013 USB Port Series			
Model	R3013MU-05-DEE110E	R3013MU-05H-WEE01E	R3013MU-05H-DEE01E
Resolution	1280×1024		
FPS	60 fps		
Max Decoding Speed	31 codes/s		
Max Moving Speed	3m/s		
WD	110mm	40~150mm	40~150mm
Focal	4.8mm		
FOV	81×65mm	32×26-112×89mm	31×24-110×88mm
Min Decoding Accuracy	1D: 0.063mm/2D: 0.114 mm	1D: 0.025mm/2D: 0.045 mm	1D: 0.024mm/2D: 0.044 mm
Illumination	Red and White Light	2×White Light	Red and White Light
Result Indicator	Red and Green Lights		
Aimer	Red Aimers		
Status Indicator	Power, Netwok and Decoding Result		
Focusing	Fixed	Manual	Manual
Symbologies	1D:Code 39/Code93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/ 2of5（Industrial2of5）/standard25/ GS1-128 2D:QR/Data Matrix/Micro QR/GS1 DM/GS1QR ）； 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 DB15 Ethernet and USB、GPIO Connectors		
Network	USB 2.0		
GPIO	RS-232、1 isolated input、1 isolated output、1 configurable input/output		
Communication Ports	RS232,USB		
Communication Protocols	SmartSDK,USB(HID),RS-232		
Power Supply	5VDC(USB); 9~24VDC(DC terminals)		
Power Consumption	<2.5W	<4.5W	<2.5W
Protection	IP65		
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		
Weight	<130g		
Dimensions	50×50×28.5mm (Excluding Cables)	52×50×28.5mm (Excluding Cables)	50×50×28.5mm (Excluding Cables)
Number	A	B	C
Installation bracket	BKT-R3001		

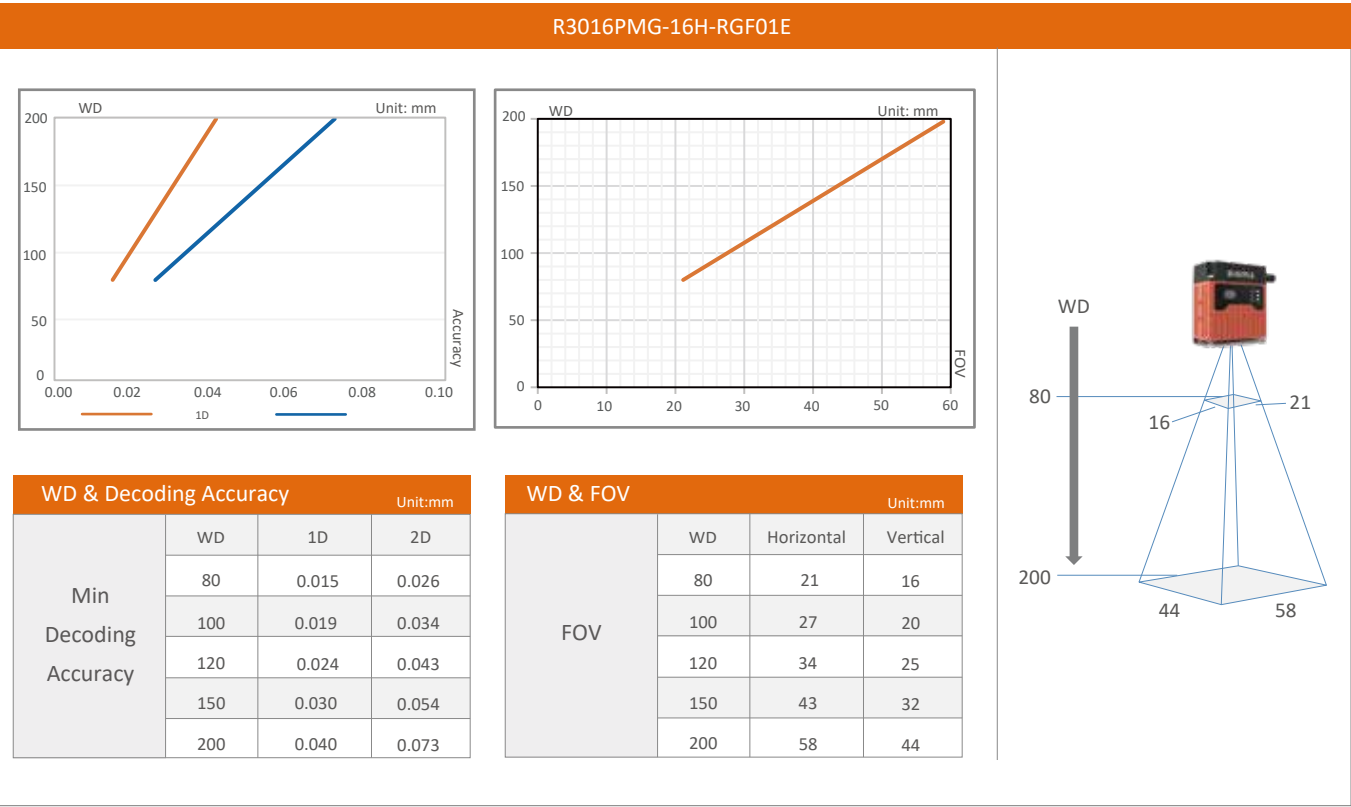
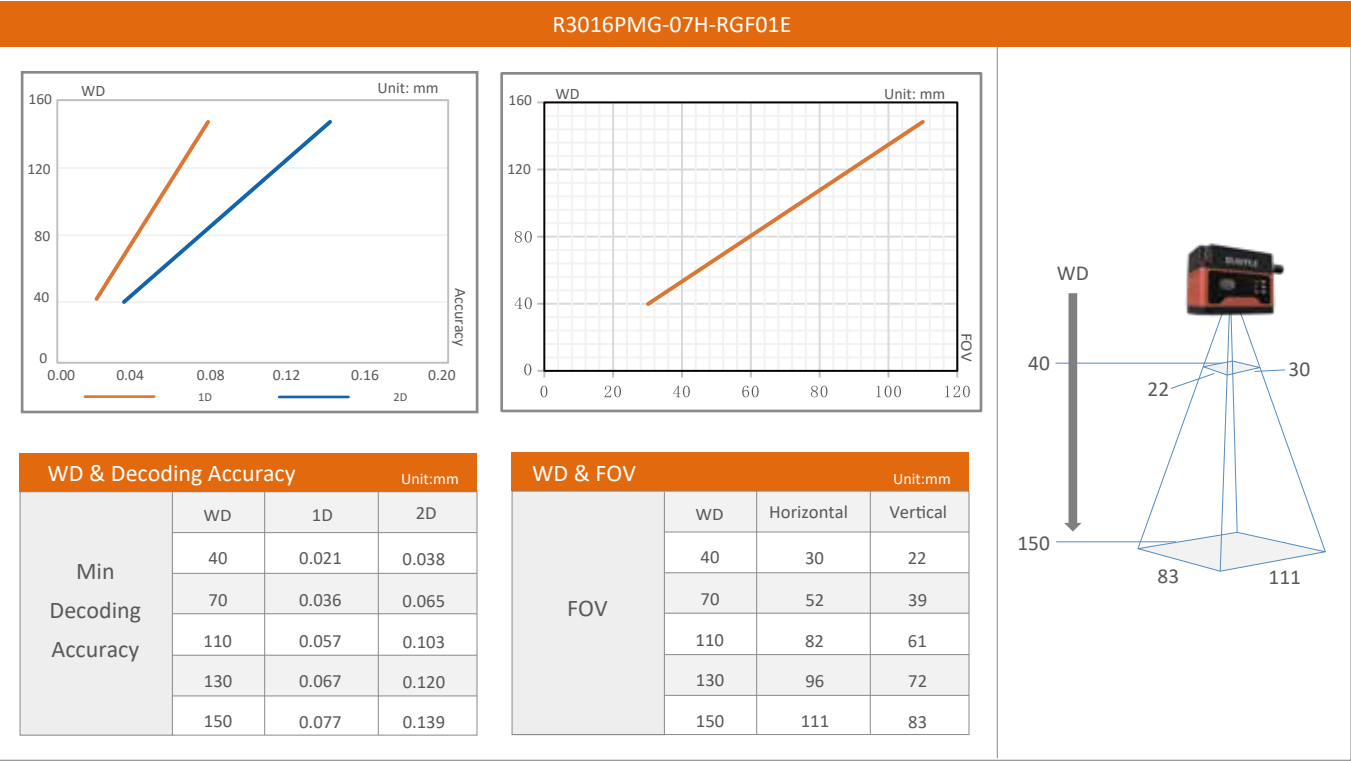
Decoding Capability LUT (Typical)



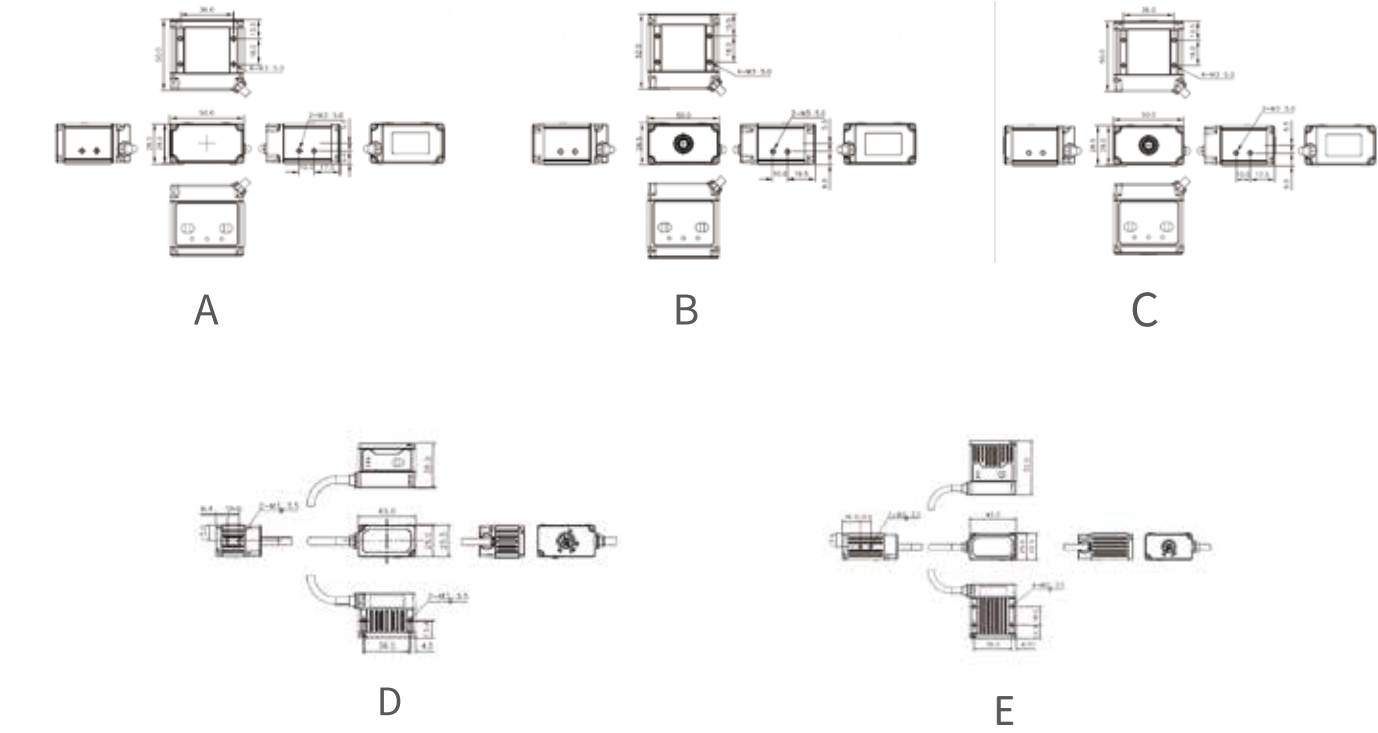
Specifications

R3016 Series				
Model	R3016PMG-07H-RGF01E	R3016PMG-07H-WGN01E	R3016PMG-16H-RGF01E	R3016PMG-16H-WGN01E
Resolution	1440×1080			
FPS	60 fps			
Max Decoding Speed	50 codes/s			
Max Moving Speed	3m/s			
WD	40~150mm	40~150mm	80~200mm	80~200mm
Focal	6.72mm	6.72mm	16mm	16mm
FOV	30×22-111×83mm	30×22-111×83mm	21×16-58×44mm	21×16-58×44mm
Min Decoding Accuracy	1D: 0.021mm/2D: 0.038 mm		1D: 0.015mm/2D: 0.026 mm	
Illumination	2×Red Polarized Light	2×White Light	2×Red Polarized Light	2×White Light
Result Indicator	Orange and Green Lights			
Aimer	Red Aimer			
Status Indicator	Power, Netwok and Decoding Result			
Focusing	Manual			
Symbologies	1D:Code 39/Code93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/2of5（Industrial2of5）； 2D:QR/Data Matrix/Micro QR/PDF417/QRModel1 /DEMCC000-140）； 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	RS-232、1 isolated input、1 isolated output、1 configurable input/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, 1A input, Suitable for industrial Voltage			
Power Consumption	<3.5W			
Protection	IP65			
Material	Aluminum Alloy(Excluding front Cover)			
Operating Temperature	-20℃~+50℃			
Operating Humidity	20%~95%, Non-condensing			
Storage Temperature	-30℃~+70℃			
Certification	CE/UKCA/KC			
Weight	<110g		<140g	
Dimensions	45×35×25.5mm (Excluding Cables)		45×52×25.5mm (Excluding Cables)	
Number	D		E	
Installation bracket	BKT-R3002			

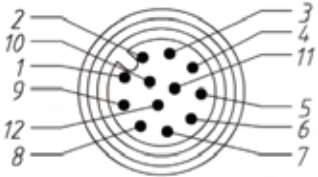
Decoding Capability LUT (Typical)



Dimensions



Connector Pin-out



12-pin Assignment on Camera

Pin	Cable Color	Signal	Description
1	Red	Power	Power
2	Black	POWER_GND	Power_GND
3	Brown	OPT_OUT0	Opto-isolated Output 0
4	Purple and White	OPT_GND	Opto-isolated_GND
5	Yellow	OPT_IN0	Opto-isolated Input 0
6	Blue	GPIO	Configurable IO
7	Green	MD1_P	RJ45 Ethernet Interface
8	Green and White	MD1_N	RJ45 Ethernet Interface
9	Orange	MD0_P	RJ45 Ethernet Interface
10	Orange and White	MD0_N	RJ45 Ethernet Interface
11	Purple	RS232_RXD	RS232 Receive
12	Gray	RS232_TXD	RS232 Transmit

4000 SERIES CODE READER

Integrated, High Performance



HIGH DECODING RATE

Self-developed AI Algorithms Satisfy
Complex Scenes Code Reading

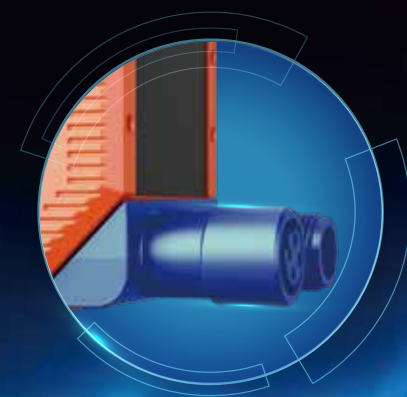


SIMPLE AND INTUITIVE

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

FLEXIBLE DEPLOYMENT

Small Size and Rotatable Connectors
Meet Flexible Installation Demands



58mm

47mm

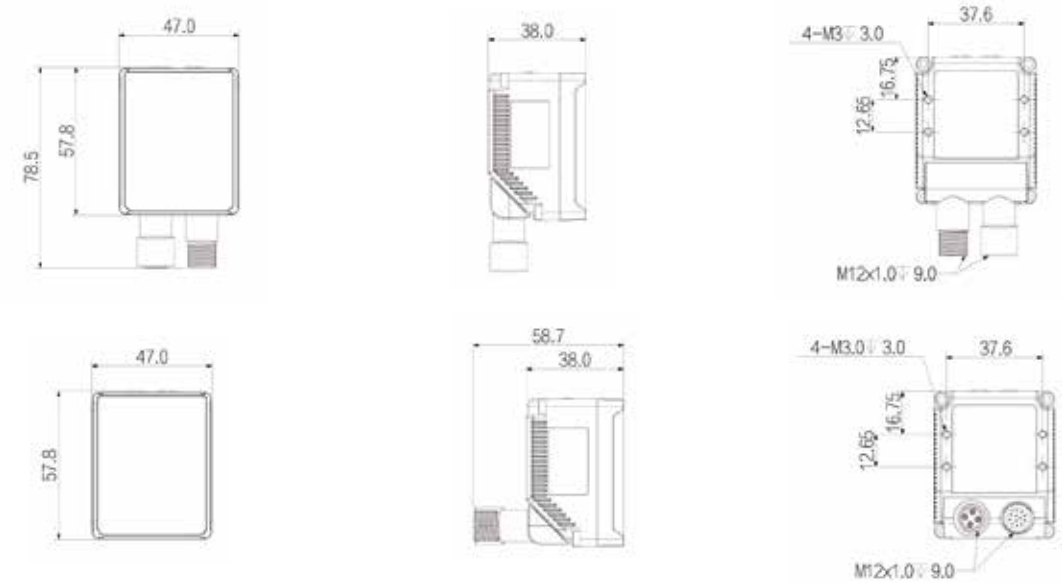
Specifications

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)					

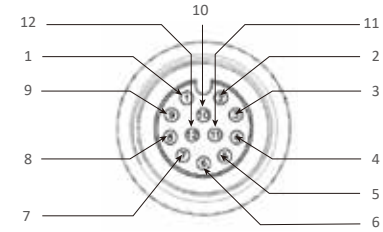
Decoding Capability LUT (Typical)



Dimensions (Unit: mm)



Connector Pin-out



Pin	Cable Color	Signal	Description
1	Brown and white	OPT_OUT2	Opto-isolated Output 2 (LINE 4)
2	Grey	RS232_TXD	Transmit Data
3	Purple	RS232_RXD	Received Data
4	Black & White (Casing)	SIGNAL_GND	Serial Singal GND
5	Yellow	OPT_IN1	Opto-isolated Input 1 (LINE 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 (LINE 0)
11	Blue	OPT_OUT0	Opto-isolated Output 0 (LINE 2)
12	Brown	OPT_OUT1	Opto-isolated Output 1 (LINE 3)
--	White (Casing)	--	Shielding GND

5000 SERIES CODE READER

High Speed, High Resolution



HIGH DECODING RATE

Self-developed AI Algorithms Satisfy
Complex Scenes Code Reading

HIGH PERFORMANCE

High-speed & High-resolution Enhance the
High Pace and Small Size Code Decoding

FLEXIBLE DEPLOYMENT

Extremely Easy Operational Functions Enhance
the Flexible Deployment

Specifications

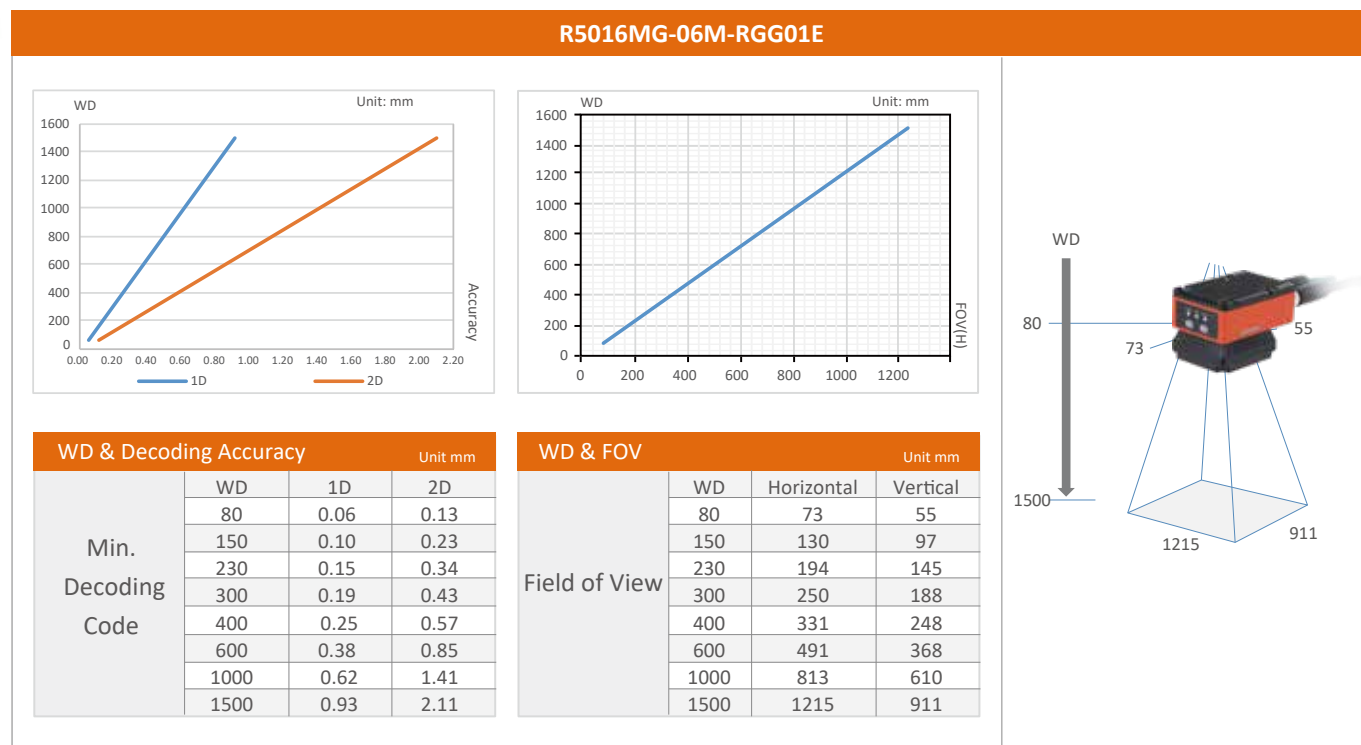
R5016 Series				
Model	R5016MG-06M-RGG01E	R5016MG-12M-RGG01E	R5016MG-16M-RGG01E	R5016MG-25M-RGG01E
Resolution	1440×1080			
FPS	60 fps			
Max. Decoding Speed	90 codes/s			
Max. Moving Speed	3m/s			
Focal Length	6mm	12mm	16mm	25mm
WD	80~1500mm	80~1500mm	80~1500mm	150~250mm
FOV	170×127mm@200mm	85×64mm@200mm	61×46mm@200mm	36×27mm@200mm
Min. Decoding Code	1D: 0.06 mm/2D: 0.13 mm	1D: 0.04 mm/2D: 0.06 mm	1D: 0.04 mm/2D: 0.04 mm	1D: 0.04 mm/2D: 0.05 mm
Illumination	Integrated Light Design, Red, Multiple Channel Controlled Independently			
Result Indicator	Case Sides Red & Green LED Bars			
Aimer	1× Red Aimer			
Status Indicator	Power, Network and Status			
Focusing	Motorized Lens, One-click Focus			
Symbologies	1D: Code 39/Code 93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/2of5(Industrial2of5)/standard25/GS1-128 and more; 2D: Data Matrix/MQR/GS1 DM/GS1QR 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			
GPIO	RS-232, 2 Opto-isolated Input, 3 Opto-isolated Output			
Communication Ports	RS232, Ethernet			
Communication Protocols	SDK, TCP Client, TCP Server, FTP, RS232, Profinet, Modbus, EtherNet/IP, MC(SLMP), FINS/UDP, FINS/TCP			
Power Supply	9-26 VDC, 2A Input, Suitable for Industrial Voltage			
Power Consumption	<18W			
Protection Level	IP65			
Anti-Vibration	3M7			
Housing 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, FCC, KC,BIS			
Weight	<350g			
Dimensions	82 mm×55mm×53mm (Excluding Connectors)			

Appendix*:

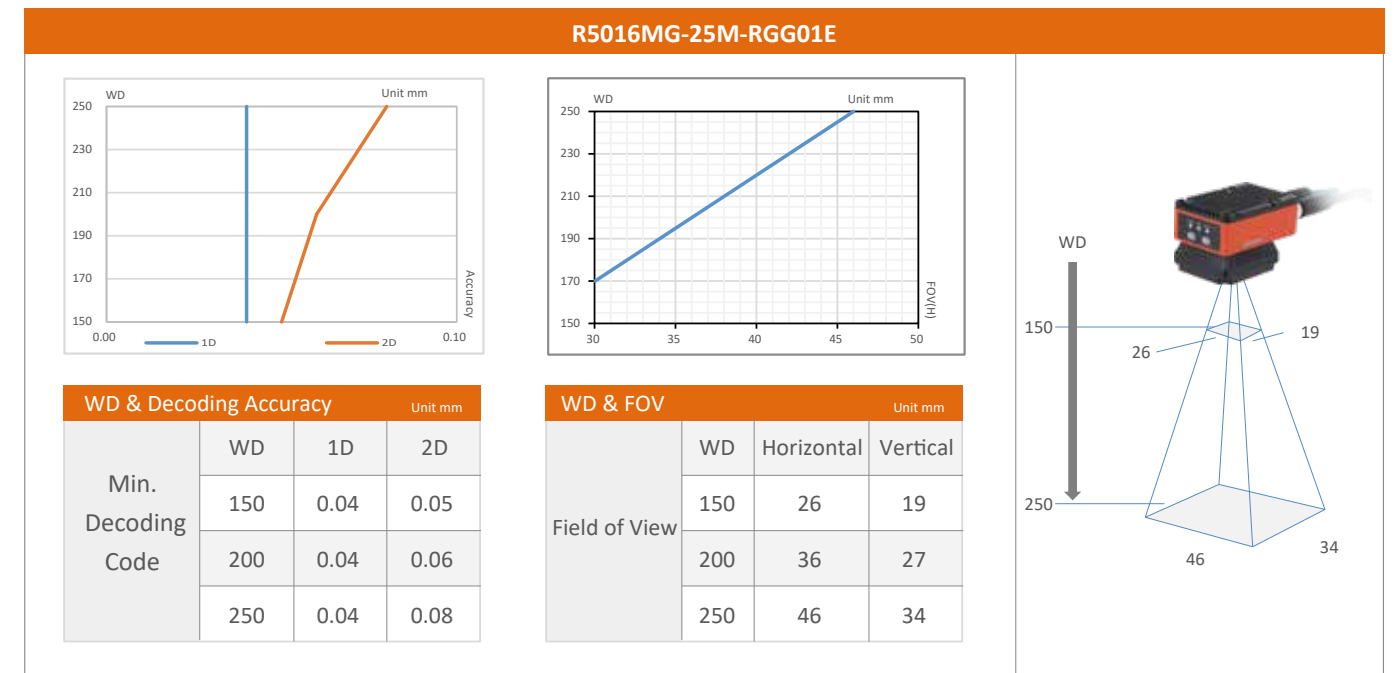
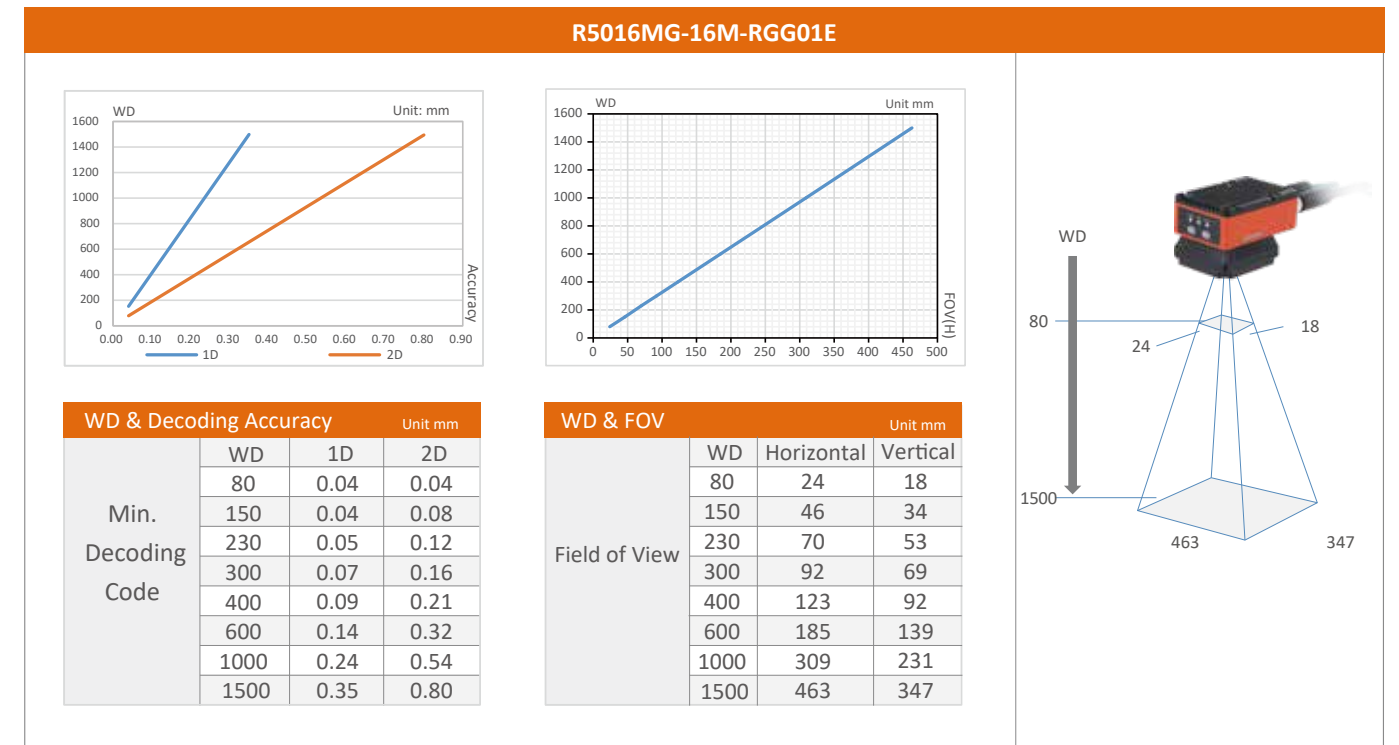
Model	R5016MG-06M-WGG01E	R5016MG-12M-WGG01E	R5016MG-16M-WGG01E	R5016MG-25M-WGG01E
Illumination	Integrated Light Design, White, Multiple Channel Controlled Independently			

Model	R5016MG-06M-BGG01E	R5016MG-12M-BGG01E	R5016MG-16M-BGG01E	R5016MG-25M-BGG01E
Illumination	Integrated Light Design, Blue, Polarized/Unpolarized, Multiple Channel Controlled Independently			

Decoding Capability LUT (Typical)



Decoding Capability LUT (Typical)



Note : Default WD is 150~250mm, 200~1500mm WD needs to customize.

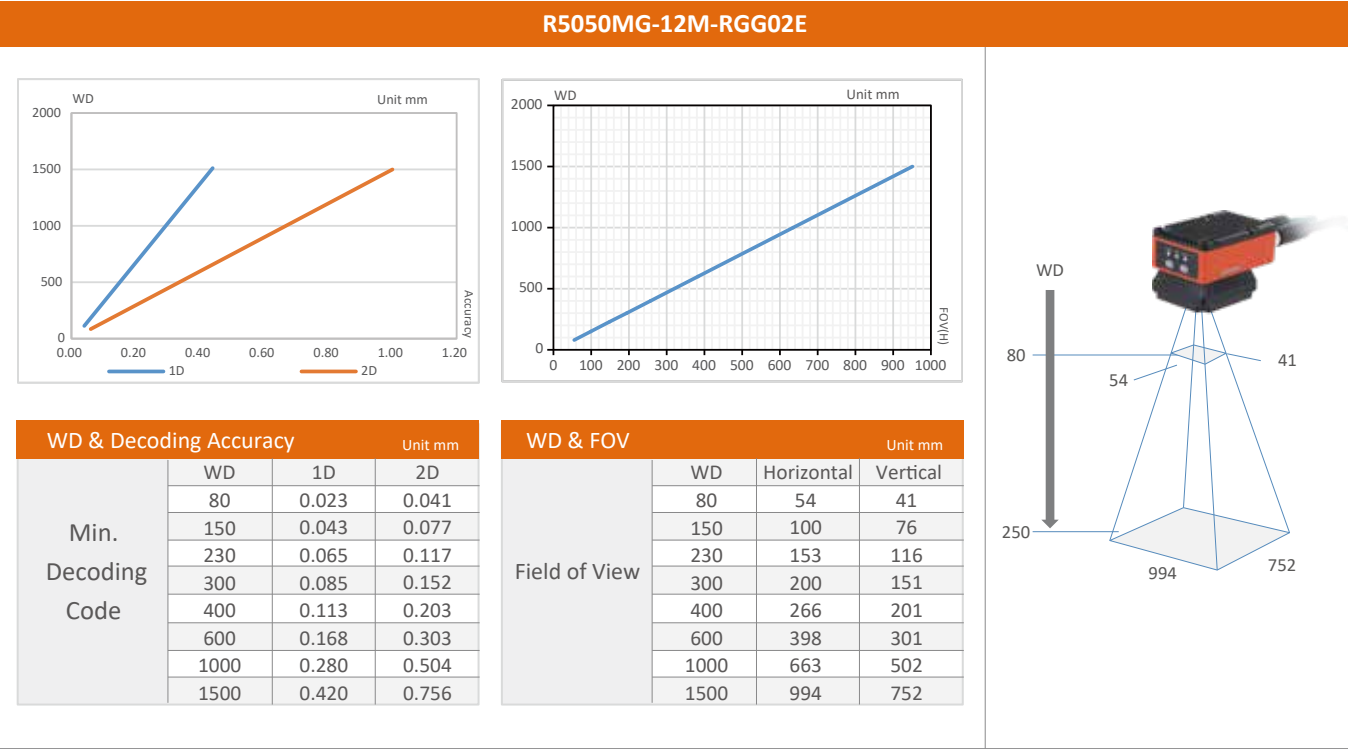
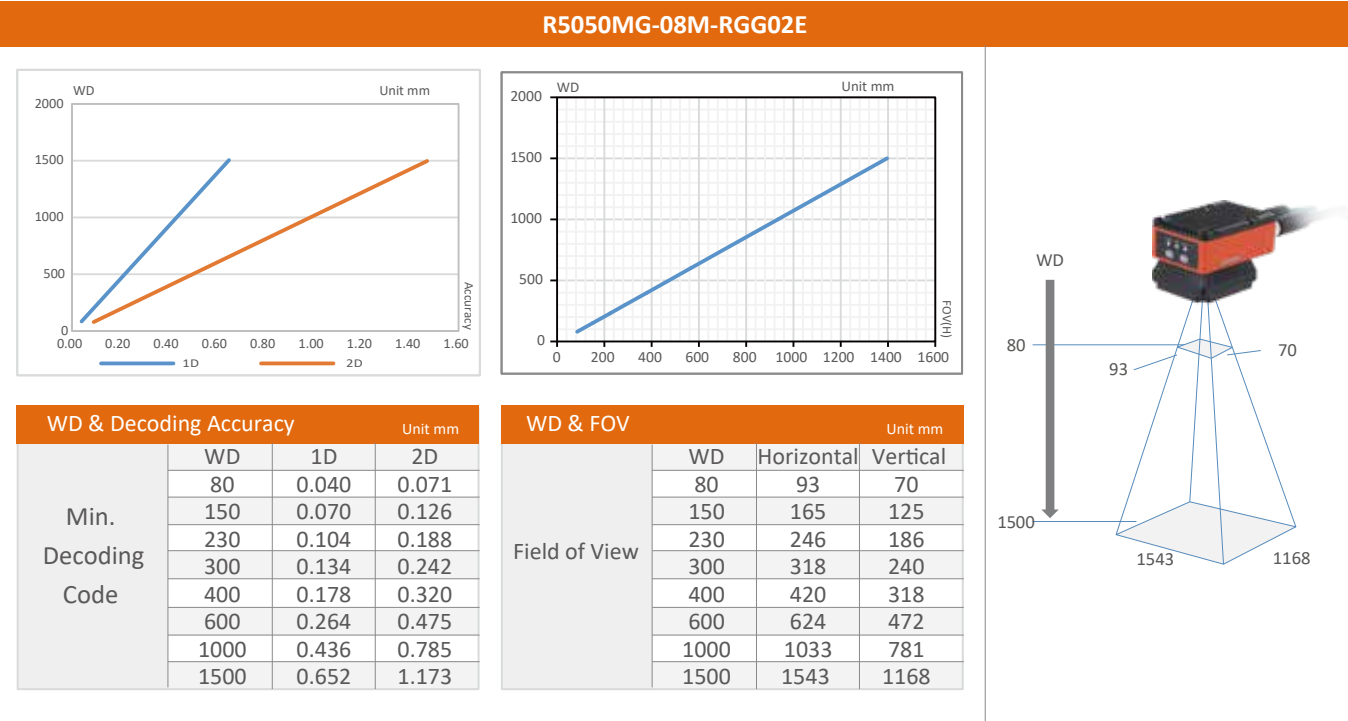
Specifications

R5050 Series			
Model	R5050MG-08M-RGG02E	R5050MG-12M-RGG02E	R5050MG-16M-RGG02E
Resolution	2368×1792		
FPS	45 fps		
Max. Decoding Speed	90 codes/s		
Max. Moving Speed	3m/s		
Focal Length	8mm	12mm	16mm
WD	80-1500mm	80-1500mm	100-1500mm
FOV	196×148mm@200mm	131×99mm@200mm	94×71mm@200 mm
Min. Decoding Code	1D: 0.04mm/2D: 0.09mm	1D: 0.04mm/2D: 0.06mm	1D: 0.04mm/2D: 0.04mm
Illumination	Integrated Light Design, Red, Multiple Channel Controlled Independently		
Result Indicator	Case Sides Red and Green LED Bars		
Aimer	1 × Red Aimer		
Status Indicator	Power, Network and Status		
Focusing	Motorized Lens and One-click Focus		
Symbologies	1D: Code 39/Code 93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/2of5(Industrial2of5)/standard25/GS1-128 and more; 2D: Data Matrix/MQR/GS1 DM/GS1QR 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		
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, 2A Input and Suitable for Industrial Voltage		
Power Consumption	<18W		
Protection Level	IP65		
Anti-Vibration	3M7		
Housing 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, FCC, KC, BIS		
Weight	<350g		
Dimensions	82mm×55mm×53mm (Excluding Connectors)		
Number	B		

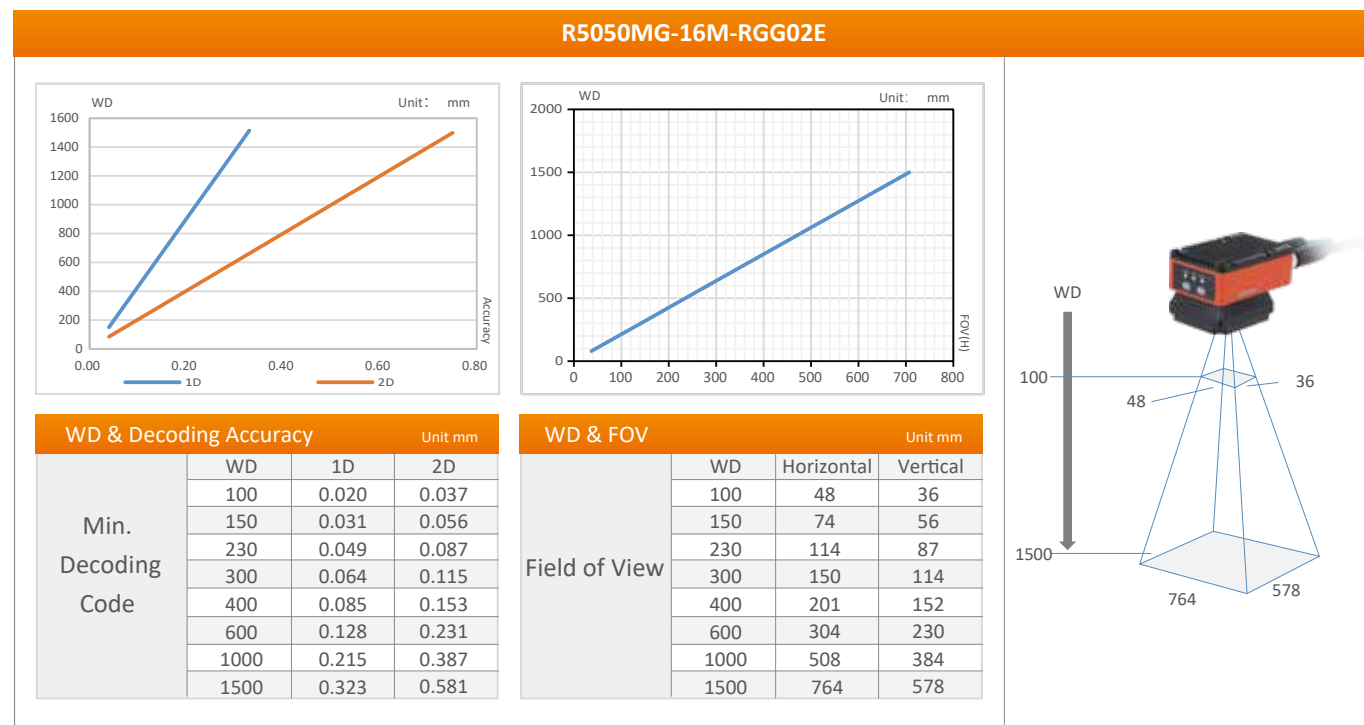
Appendix*:

Model	R5050MG-08M-WGG02E	R5050MG-12M-WGG02E	R5050MG-16M-WGG02E
Illumination	Integrated Light Design, White, Multiple Channel Controlled Independently		

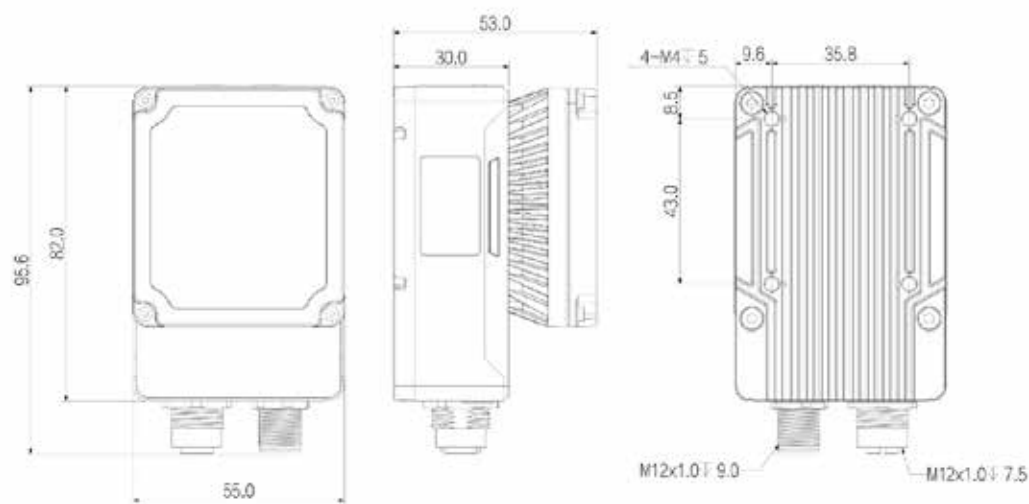
Decoding Capability LUT (Typical)



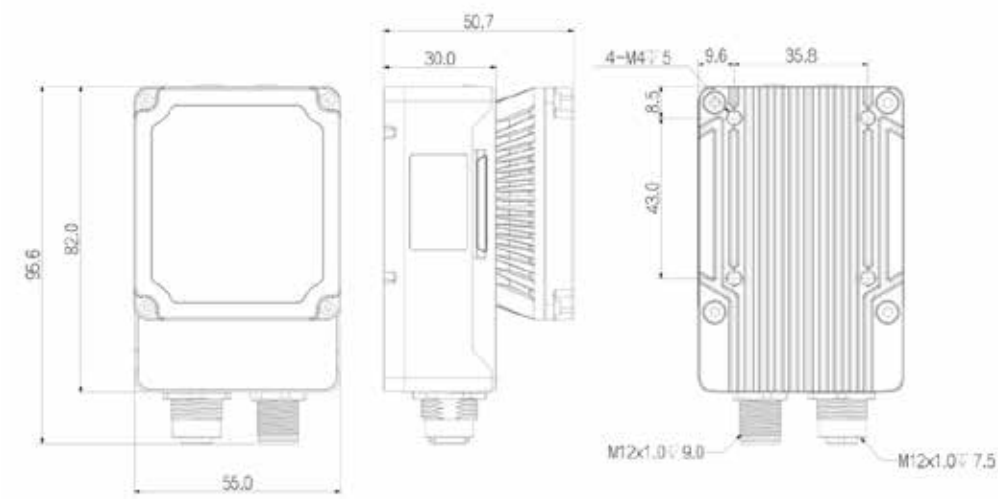
Specifications



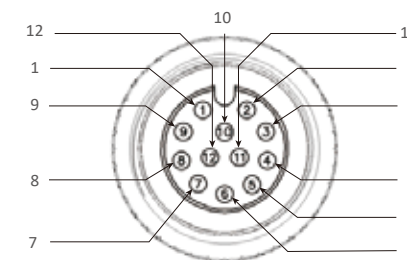
R5016 Dimensions (Unit: mm)



R5050 Dimensions (Unit: mm)



Connector Pin-out

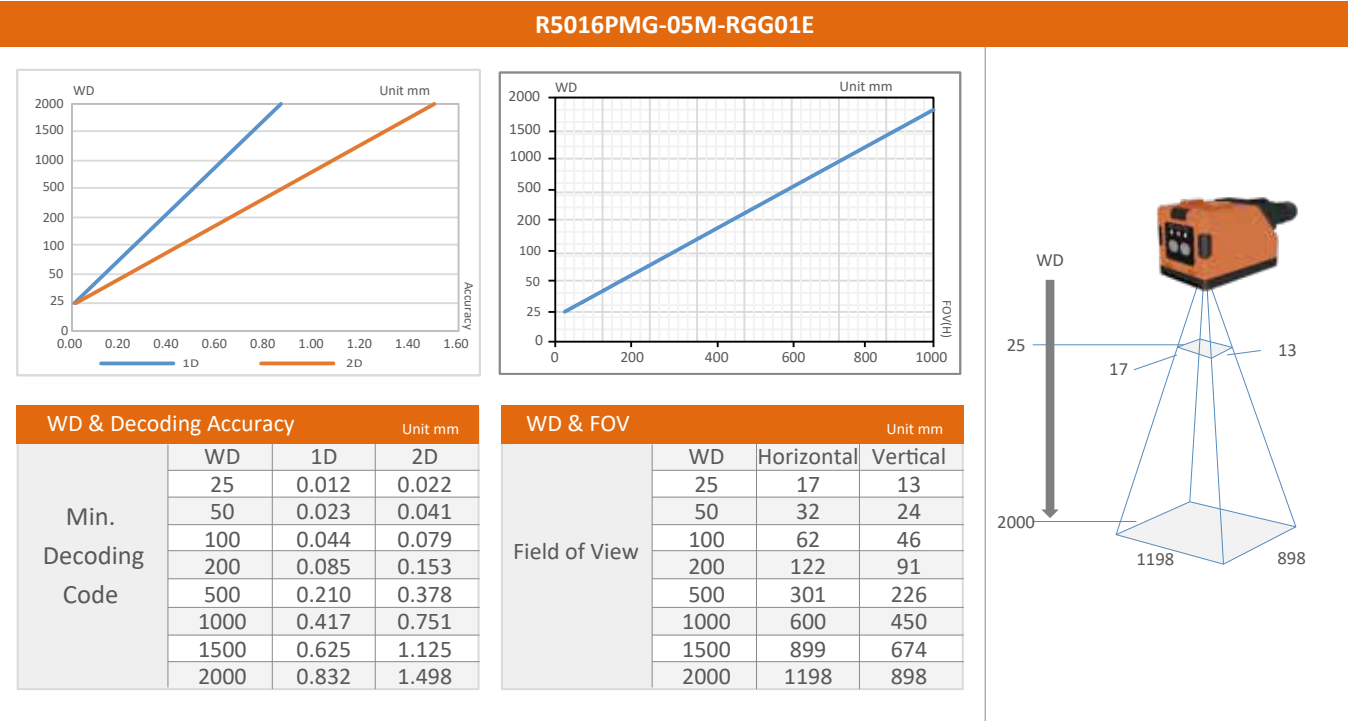


Pin	Cable Color	Signal	Description
1	Brown & White	OPT_OUT2	Opto-isolated Output 2 (LINE 4)
2	Grey	RS232_TXD	Transmit Data
3	Purple	RS232_RXD	Received Data
4	Black & White (Casing)	SIGNAL_GND	Serial Singal GND
5	Yellow	OPT_IN1	Opto-isolated Input 1 (LINE 1)
6	Purple & white	OPT_IN_GND	Opto-isolated Input 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 (LINE 0)
11	Blue	OPT_OUT0	Opto-isolated Output 0 (LINE 2)
12	Brown	OPT_OUT1	Opto-isolated Output 1 (LINE 3)
--	White (Casing)	--	Shielding GND

Specifications

R5016P Series				
Model	R5016PMG-05M-RGG01E	R5016PMG-05M-WGG01E	R5016PMG-12M-RGG01E	R5016PMG-12M-WGG01E
Resolution	1440×1080			
FPS	60 fps			
Max. Decoding Speed	120 codes/s			
Max. Moving Speed	3m/s			
Focal Length	5mm		12mm	
WD	25-2000mm		50-2000mm	
FOV	17×13mm-1198×898mm		12×9mm-516×387mm	
Min. Decoding Code	1D: 0.012mm/2D: 0.022mm		1D: 0.008mm/2D: 0.014mm	
Illumination	Red:Polarized & Un-Polarized White:Diffused	White:Polarized & Un-Polarized White:Diffused	Red:Polarized & Un-Polarized White:Diffused	White:Polarized & Un-Polarized White:Diffused
Result Indicator	Case Sides Red and Green LED Bars			
Aimer	Green Aimer			
Status Indicator	Power, Network and Status			
Focusing	Motorized Lens and One-click Focus			
Symbologies	1D: Code 39/Code 93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/2of5(Industrial2of5)/standard25/GS1-128 and more; 2D: Data Matrix/MQR/GS1 DM/GS1QR 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	100M 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	16~26VDC, 1A Input and Suitable for Industrial Voltage			
Power Consumption	<6W			
Protection Level	IP67			
Housing 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			
Weight	<160g			
Dimensions	57mm×37mm×39mm (Excluding Connectors)			

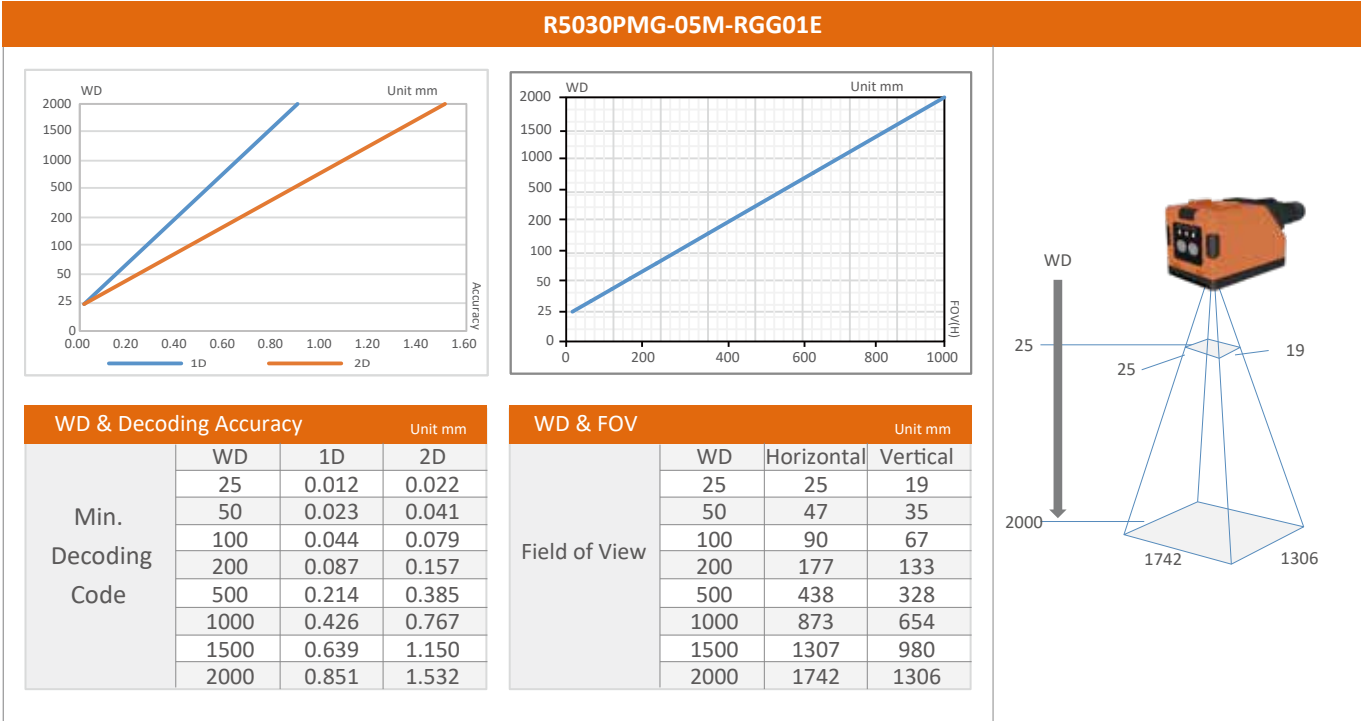
Decoding Capability LUT (Typical)



Specifications

R5030P Series				
Model	R5030PMG-05M-RGG01E	R5030PMG-05M-WGG01E	R5030PMG-12M-RGG01E	R5030PMG-12M-WGG01E
Resolution	2048×1536			
FPS	60 fps			
Max. Decoding Speed	100 codes/s			
Max. Moving Speed	3m/s			
Focal Length	5mm		12mm	
WD	25-2000mm		50-2000mm	
FOV	25×19mm-1742×1306mm		17×13mm-750×560mm	
Min. Decoding Code	1D: 0.012mm/2D: 0.022mm		1D: 0.009mm/2D: 0.016mm	
Illumination	Red:Polarized & Un-Polarized White:Diffused	White:Polarized & Un-Polarized White:Diffused	Red:Polarized & Un-Polarized White:Diffused	White:Polarized & Un-Polarized White:Diffused
Result Indicator	Case Sides Red and Green LED Bars			
Aimer	Green Aimer			
Status Indicator	Power, Network and Status			
Focusing	Motorized Lens and One-click Focus			
Symbologies	1D: Code 39/Code 93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/2of5(Industrial2of5)/standard25/GS1-128 and more; 2D: Data Matrix/MQR/GS1 DM/GS1QR 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	100M 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	16~26VDC, 1A Input and Suitable for Industrial Voltage			
Power Consumption	<6W			
Protection Level	IP67			
Housing 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			
Weight	<160g			
Dimensions	57mm×37mm×39mm (Excluding Connectors)			

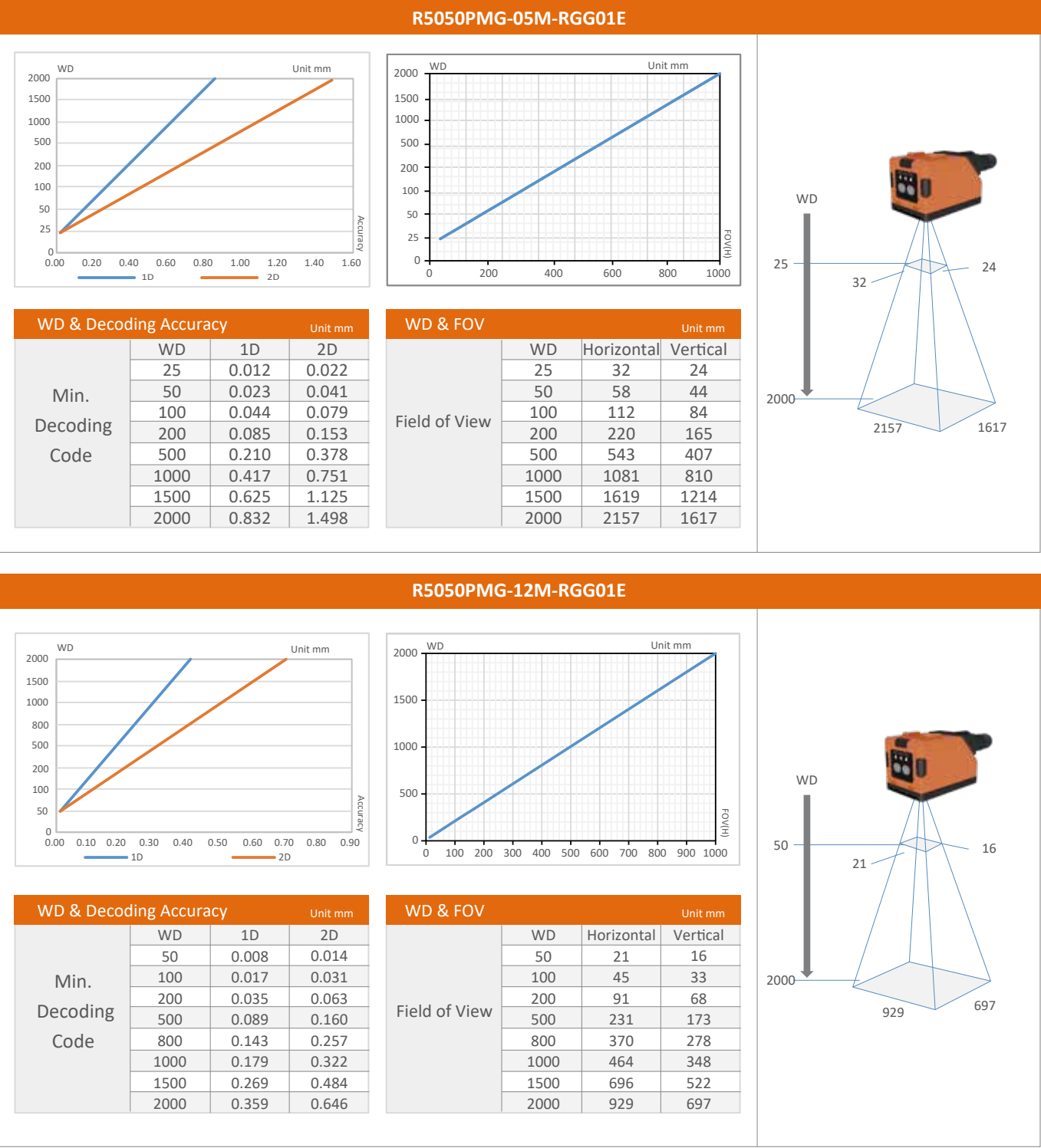
Decoding Capability LUT (Typical)



Specifications

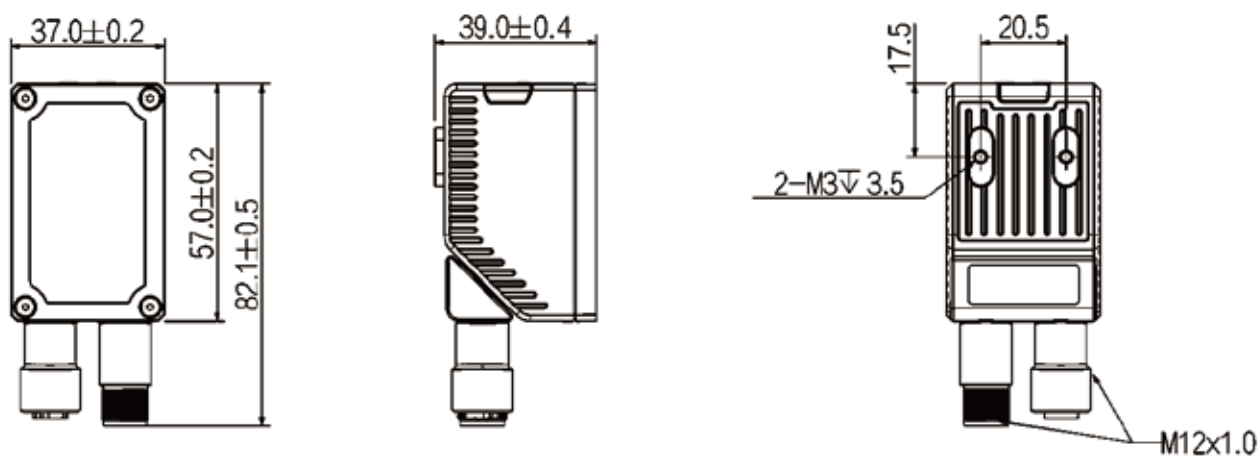
R5050P Series				
Model	R5050PMG-05M-RGG01E	R5050PMG-05M-WGG01E	R5050PMG-12M-RGG01E	R5050PMG-12M-WGG01E
Resolution	2592×1944			
FPS	50 fps			
Max. Decoding Speed	100 codes/s			
Max. Moving Speed	3m/s			
Focal Length	5mm		12mm	
WD	25 - 2000mm		50 - 2000mm	
FOV	32×24mm - 2157×1617mm		21×16mm - 929×697mm	
Min. Decoding Code	1D: 0.012mm/2D: 0.022mm		1D: 0.008mm/2D: 0.014mm	
Illumination	Red:Polarized & Un-Polarized White:Diffused	White:Polarized & Un-Polarized White:Diffused	Red:Polarized & Un-Polarized White:Diffused	White:Polarized & Un-Polarized White:Diffused
Result Indicator	Case Sides Red and Green LED Bars			
Aimer	Green Aimer			
Status Indicator	Power, Network and Status			
Focusing	Motorized Lens and One-click Focus			
Symbologies	1D: Code 39/Code 93/Code128/CodaBar/EAN8/EAN13/UPCA/UPCE/ITF25/2of5(Industrial2of5)/standard25/GS1-128 and more; 2D: Data Matrix/MQR/GS1 DM/GS1QR 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	100M 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	16~26VDC, 1A Input and Suitable for Industrial Voltage			
Power Consumption	<6W			
Protection Level	IP67			
Housing 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			
Weight	<160g			
Dimensions	57mm×37mm×39mm (Excluding Connectors)			

Decoding Capability LUT (Typical)

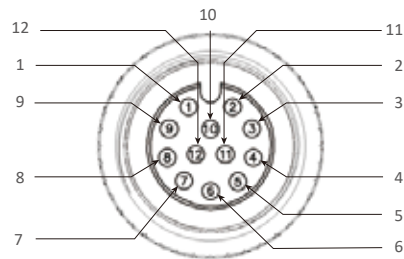




R5000P Dimenions (Unit: mm)



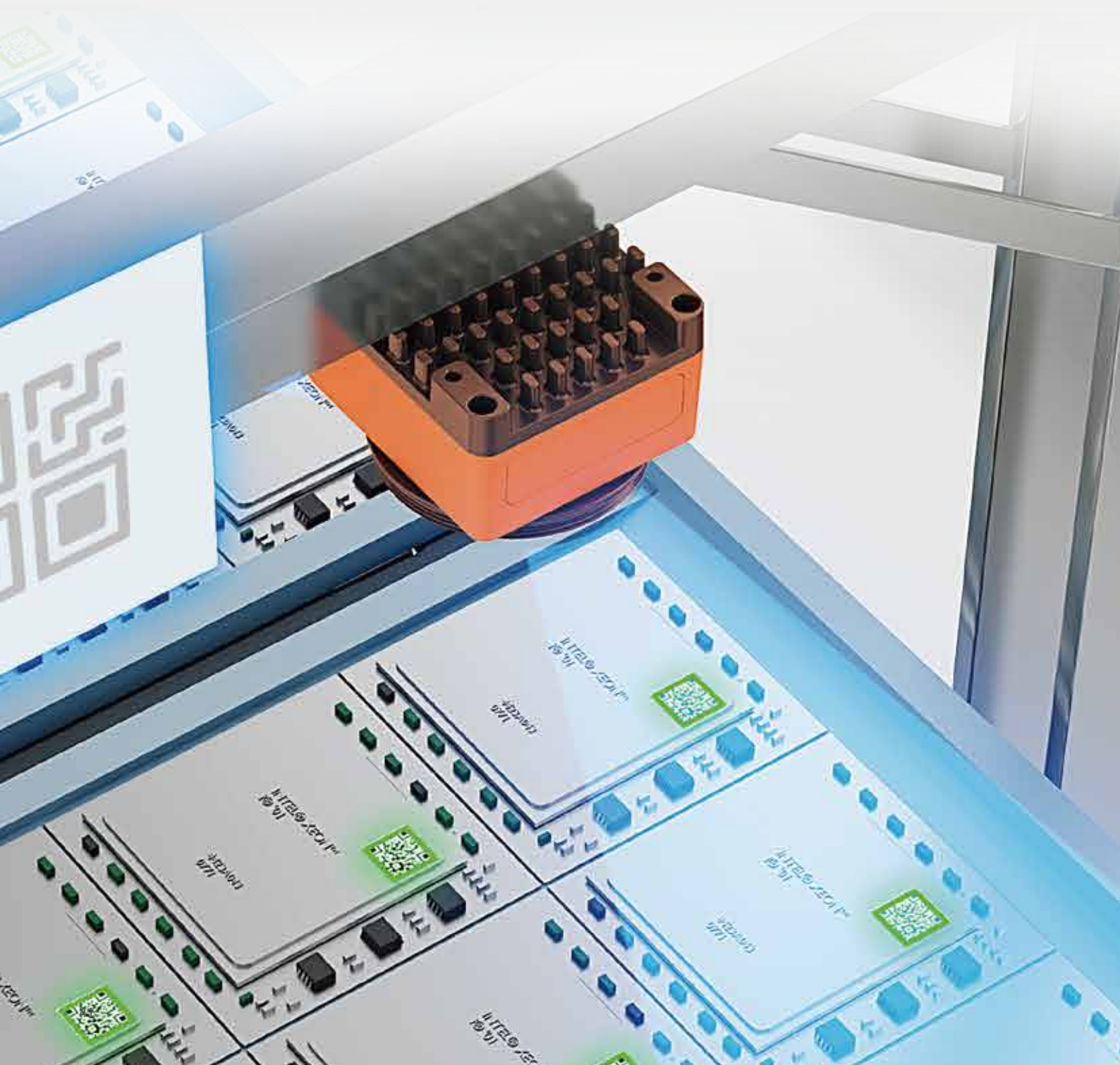
Connector Pin-out



Pin	Cable Color	Signal	Description
1	Brown & White	OPT_OUT2	Opto-isolated Output 2 (LINE 4)
2	Grey	RS232_TXD	Transmit Data
3	Purple	RS232_RXD	Received Data
4	Black & White (Casing)	SIGNAL_GND	Serial Singal GND
5	Yellow	OPT_IN1	Opto-isolated Input 1 (LINE 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 (LINE 0)
11	Blue	OPT_OUT0	Opto-isolated Output 0 (LINE 2)
12	Brown	OPT_OUT1	Opto-isolated Output 1 (LINE 3)
--	White (Casing)	--	Shielding GND

7000 SERIES CODE READER

Ultra High Resolution, Large FOV & DOV



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

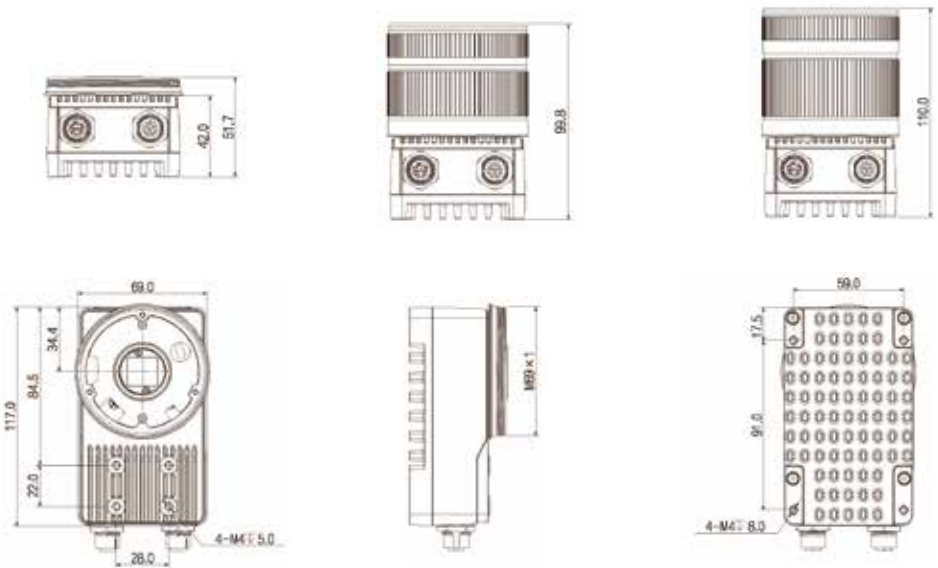
C-mount and Ultra High-resolution Design Flexible
for Extreme Scenes Solution Design



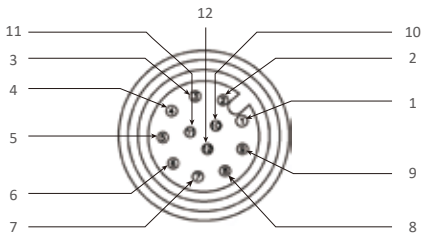
Specifications

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.			

Dimensions (Unit: mm)



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	Received Data
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	Transmit Data
Casing	White	--	Shielding GND

R5000 SERIES CODE READER C-MOUNT MODEL

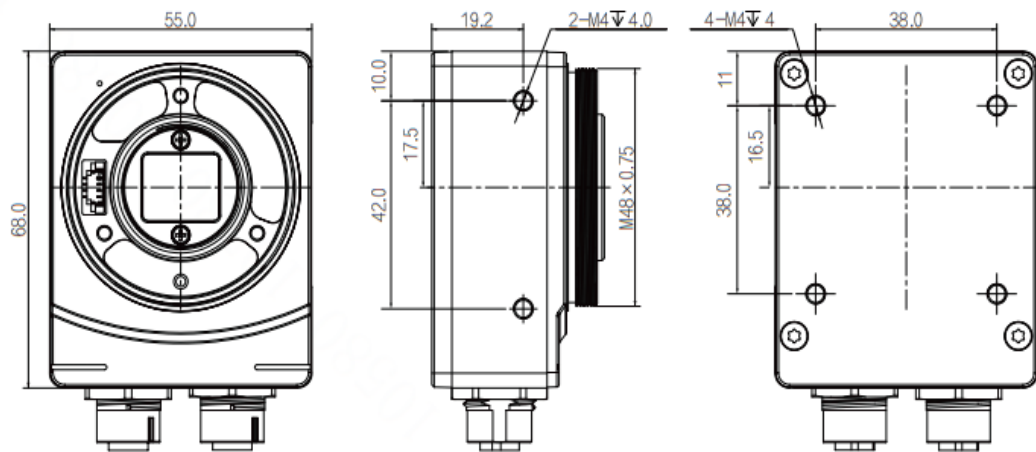
CMOS series products

- Support software trigger/external trigger/free run and other trigger modes.
- Gigabit industrial Ethernet port.
- 10 ports support RS232,isolated input and isolated output.
- Industrial-grade M12 connector, rich industrial communication protocol.
- Support rich code types such as barcode CODE 128/EAN , matrix code QR code Data Matrix/QR,etc

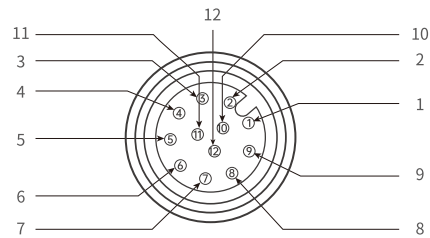


R5000 Series Code Reader C-mount Model				
Model	R5013MG-00C-NGG01E	R5050MG-00C-NGG01E	R5060MG-00C-NGG01E	R5120MG-00C-NGG01E
Resolution	1280×1024	2432×2048	3072×2048	4000×3000
Max. Frame rate (fps)	60 fps	40 fps	30 fps	15 fps
Pixel Size(μm)	4.0×4.0μm	3.45×3.45μm	2.4×2.4μm	1.85×1.85μm
Sensor Type	1/2.7"	1/1.5"	1/1.8"	1/1.7"
Shutter Mode	Global	Global	Rolling	Rolling
Lens Mount	C			
LED Indicator	Power,Ethernet,Trigger			
Symbologies	1D: Code128/Code39/Code93/EAN13/EAN8/UPCA/UPCE/ITF25/CODEBAR, and more. 2D: QR/MQR/CQR/QRModel1/DM/DMECC000-140/PDF417, and more. Quality Evaluation: (ISO/IEC 29158 (AIM-DPM), ISO/IEC 15415, ISO/IEC 15416)			
Software	EasyID			
Trigger Mode	Software Trigger, External Trigger and Free Run			
Connector	2 Industrial connectors support GigE and GPIO			
Network	Code-A,GigE			
GPIO	12Pins GPIO , RS232, 2 Opto-isolated inputs and 3 Opto-isolated outputs			
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			
Power Consumption	<4.0(W)			
Protection	IP67 (with lens cover)			
Material	Aluminum alloy			
Product Dimensions	68×55×28(mm×mm×mm)			
Operating Temperature	-20℃～+50℃			
Operating Humidity	20%～95%, no condensation			
Storage Temperature	-30℃～+80℃			
Certifications	CE, KC			
Net Weight	<200 g			
Compatible Lens	A9-6MP			

Dimensions (Unit: mm)



Connector Pin-out



Pin	Cable Color	Signal	Description
1	Brown & White	OPT_OUT2	Opto-isolated Output 2
2	Grey	RS232_TXD	RS232 Serial Send
3	Purple	RS232_RXD	RS232 Serial Receive
4	Brown & 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

AGV CODE READER

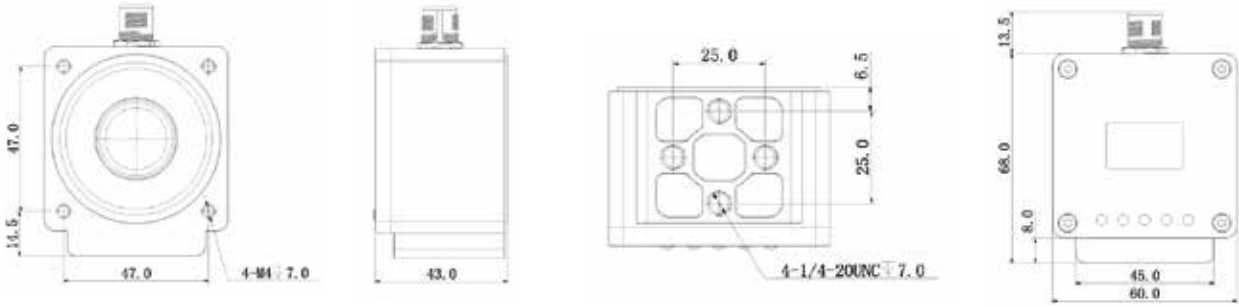
High Speed, Accurate Positioning

- Advanced algorithms that effectively decode dirty, defective and low contrast codes.
- Advanced code reading algorithms that have a high recognition rate and work at high speeds.
- Effectively reads DM-12 and DM-14 codes.
- Built-in aviation plug and rich IO interface.
- 5 lights that indicate the status of debugging and function.
- Adopt M12 fixed-focus lens and performs large FOV code reading and positioning.
- Efficiently manages light source to ensure the uniformity of supplementary light.

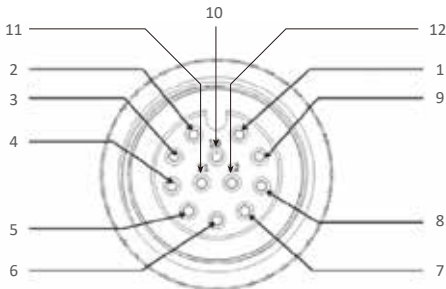


AGV Series			
Model		R3138MG010E	R3138MG011E
Basic	FPS	120 fps	
	Mount	M12	
	Trigger Mode	Software Trigger, External Trigger, Free Run	
	Software	SV Studio	
	Certification	CE, KC	
	Symbologies	DM-12&DM-14, DM4×4 Array	
Performance	Focal	3.37mm	3mm
	WD	100mm	100mm
	FOV	104×85mm	132×110mm
	Decoding Speed	125 codes/S	
	Max. Moving Speed	3m/s	
	Focusing	Fixed	
	Illumination	White LED	
Ports	Connector	1 Industrial Grade M12 Ethernet and GPIO Connector	
	Network	100 Mbps Ethernet	
	GPIO	1 opto-isolated Input, 1 Opto-isolated Output and 1 RS485	
	Communication Ports	RS-485 and Ethernet	
	Communication Protocols	SDK, Serial, TCP Server, TCP Client	
	Indicator	Power, Network, Trigger, Running Status and Error	
Power	Power Supply	DC24V±10%	
	Power Consumption	<7.5W	
Structure	Dimensions	60mm×60mm×43mm (Excluding Connector)	
	Weight	<225g	
	Protection	IP64	
	Anti-Vibration	3M7	
	Material	Aluminum Alloy	
Operating	Operating Temperature	-20°C~50°C	
	Operating Humidity	20%~95%, Non-condensing	
	Storage Temperature	-30°C~80°C	

Dimensions (Unit: mm)



Connector Pin-out



Pin	Cable Color	Signal	Description
1	Red	DC24V	Power
2	Black	GND	Power GND
3	Green	OPTO_OUT	Opto-isolated Output
4	White	OUT_COM	Opto-isolated Output GND
5	Grey	OPTO_IN	Opto-isolated Input
6	--	IN_COM	Opto-isolated Input GND
7	--	MDI1+	100M Network Signal MDI 1+
8	--	MDI1-	100M Network Signal MDI 1-
9	--	MDI0+	100M Network Signal MDI 0+
10	--	MDI0-	100M Network Signal MDI 0-
11	Yellow	RS485+/CAN+ (Optional)	RS-485 Signal +/CAN Signal +
12	Orange	RS485-/CAN+ (Optional)	RS-485 Signal -/CAN Signal -

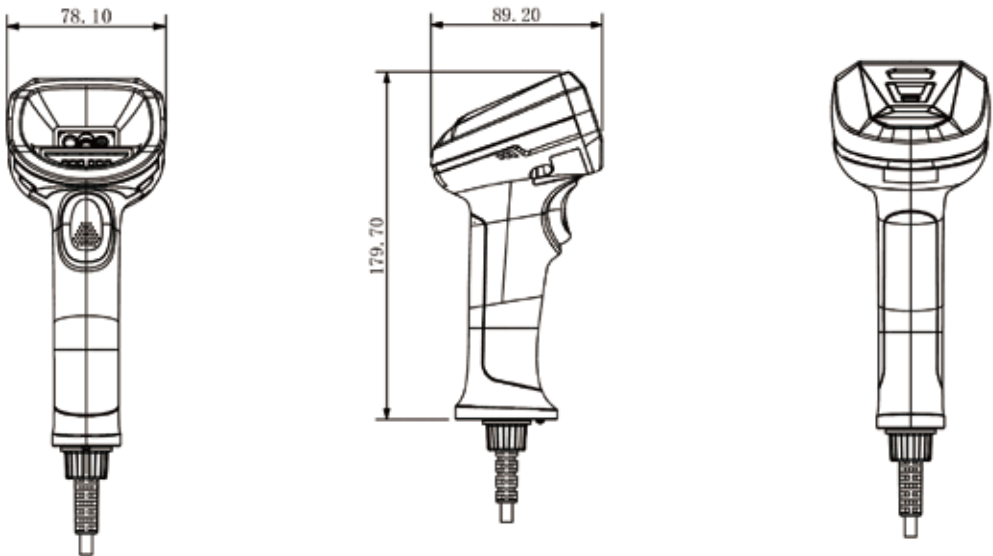
RS3000 Series Handheld Code Reader

- Built-in highly efficient self-developed AI algorithm can guarantee recognition performance of complex scenes and fast and accurate decoding
- Built-in Red/white/blue three-color integrated light source, integrated design, active memory and intelligent switching of the best decoding light source
- With 1280 * 1024 high resolution and high frame rate image sensor, barcode with higher accuracy can be quickly recognized
- In line with ergonomic design, comfortable operation, in line with the product design under the industrial environment, more durable
- In the intelligence commissioning mode, the direct component marking (DPM) barcode for laser carving,dotting, etc. Is set in the line scanning mode. Provide optimal decoding settings for fixed apply scenarios
- A variety of communication interface options, can quickly replace the data line, plug and play more convenient to use

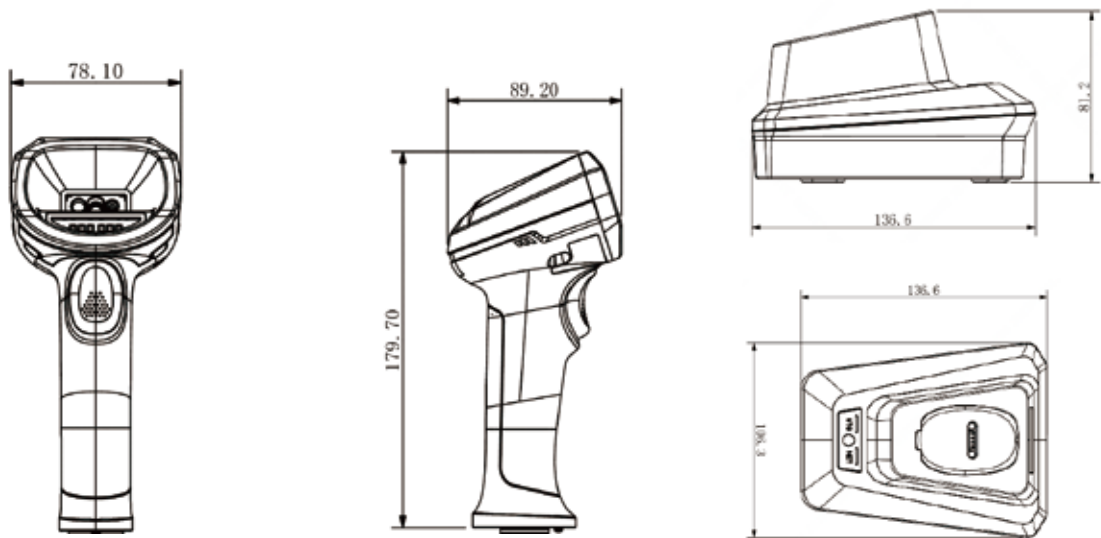


RS3000 Series Handheld Code Reader						
Model	RS3013MG-05-MGGN1	RS3013MG-05-MGGF1	RS3013MU-05-MGGN1	RS3013MU-05-MGGF1	RS3013MB-05-MGGN1	RS3013MB-05-MGGF1
Resolution	1280×1024					
Frame rate (fps)	60 fps					
Shutter Mode	Global					
Focal Length	4.7mm					
Min. Resolution	3mil	4mil	3mil	4mil	3mil	4mil
DOF	Code128 (10 mil): 10~ 170 mm	Code128 (10 mil): 10~ 400 mm	Code128 (10 mil): 10~ 170 mm	Code128 (10 mil): 10~ 400 mm	Code128 (10 mil): 10~ 170 mm	Code128 (10 mil): 10~ 400 mm
	Data Matrix (10 mil): 5~ 115 mm	Data Matrix (10 mil): 30~ 200 mm	Data Matrix (10 mil): 5~ 115 mm	Data Matrix (10 mil): 30~ 200 mm	Data Matrix (10 mil): 5~ 115 mm	Data Matrix (10 mil): 30~ 200 mm
Connector	Ethernet、RS232		USB、RS232		Ethernet、USB、RS232	
Wireless communication	--				Bluetooth (BT 5.0)	
Communicationprotocol	SDK, TCP Client, TCP Server, FTP, RS232, Profinet、Modbus、EtherNet/IP、MC (SLMP)、FINS/UDP、FINS/TCP		SmartSDK, USB (HID), RS-232		SDK, TCP Client, TCP Server, FTP, RS232, Profinet、Modbus、EtherNet/IP、MC (SLMP)、FINS/UDP、FINS/TCP SmartSDK, USB (HID), RS-232	
Scanning Mode	Key scan, Auto sensing scan					
Function	1D: Code 39, Code 93, Code 128, ITF 14/25, CodaBar, EAN8, EAN13, UPCA, UPCE, Pharmacode 2D: QR Code, Data Matrix, QR Model1, Micio QR, PDF417					
Light Source Type	Red/white/blue three-color integrated light					
Print Contrast	15%					
Angle of Detection	Tilt angle ± 60°, skew angle ± 60°, rotation angle 360°					
Sight	Red light indication					
Prompt Mode	Buzzer, LED indicator, Vibration					
LED indicator	Power indicator, code reading result display indicator					
Ingress protection	IP54					
Fall height	1.8M					
Working temperature	-20℃～+50℃					
Working humidity	5%～95%, no condensation					
Storage temperature	-40℃～+70℃					

RS3000MG、RS3000MU Dimenions(Unit:mm)



RS3000MB Dimenions(Unit:mm)



Appendix 1

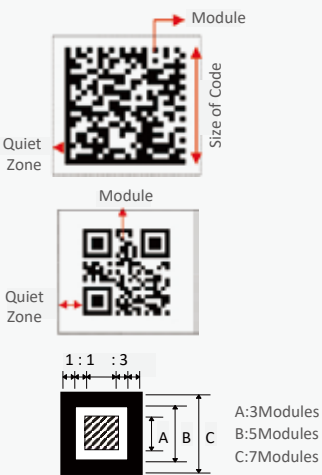
Barcode Introduction

Barcode is a kind of graphic identifier, which arranges multiple black and white bars of varying widths according to certain coding rules, to express information. The barcode can express numbers, letters and characters. The space of its blank area should be 10 times bigger than the thin bar.



Wide Bar is usually 2-3 times wider than the Narrow Bar;
For example: the ratio of the bar width and space width between Narrow Bar (NB), Wide Bar (WB), Narrow Space (NS), Wide Space (WS) is NB: WB:NS: WS=1 : 2-1 : 3

2D Code Introduction



Data Matrix: DM code

- **Module Resolution:** Size of a single module
- **Quiet Zone:** Blank area of the four sides.
The width of DM quiet zone should be the size of 1 module at least.
- **Finder Pattern:** L pattern

QR Code

- **Module Resolution:** Size of a single module
- **Quiet Zone:** Blank area of the four sides. The width of the QM quiet zone should be the size of 4 modules at least. The width of the MicroQR quiet zone should be the size of 2 modules at least.
- **Finder Pattern:** 3 patterns for QR and 1 pattern for MicroQR.

Barcode Grade Evaluation Criteria

- **ISO/IEC 15416**
Made by the International Organization for Standardization, it is mainly used for the evaluation of one dimensional codes printed on labels.
- **ISO/IEC 15415**
Made by the International Organization for Standardization, it is mainly used for the evaluation of two-dimensional codes printed on labels.
- **ISO/IEC TR 29158 (AIM DPM-1-2006)**
2D code quality evaluation standard for direct metal parts marking technology, made by Automatic Identification Manufacturers, it is based on ISO/IEC 15415. The International Organization for Standardization completed the standardization in 2011.

Appendix 2

Step 1

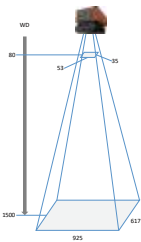
Confirm the Barcode Accuracy:
The most important thing is to confirm the "resolution" of the barcode, also known as: barcode accuracy and barcode module accuracy, etc. If it is a 2D code, confirm the size of the smallest unit module.



Step 2

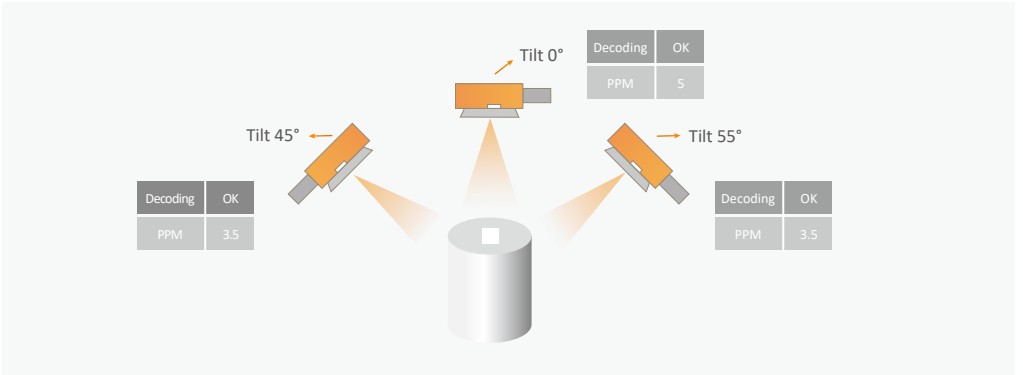
Confirm the WD and FOV:
Combined with the barcode accuracy mentioned in step 1, select the most suitable barcode reader according to the decoding capability lookup table of each barcode reader.
Note: The larger the WD and FOV, the lower the decoding accuracy, and the larger the required minimum module size.

WD & Decoding Accuracy				WD & FOV			
		Unit: mm				Unit: mm	
Decoding Accuracy	WD	1D	2D	Field of View	WD	Horizontal	Vertical
	80	0.04	0.04		80	53	35
	150	0.04	0.08		150	96	64
	230	0.05	0.12		230	145	97
	300	0.07	0.15		300	188	125
	400	0.09	0.20		400	250	166
	600	0.13	0.30		600	373	248
	1000	0.22	0.50		1000	618	412
	1500	0.33	0.75		1500	925	617



Step 3

Verification:
Based on the data from step 2, perform a read test under actual operating conditions.
The barcode quality evaluation function can be turned on during the test, and the margin of the barcode reading can be clarified through PPM. The larger the PPM, the higher the barcode level will be and the better the effect.

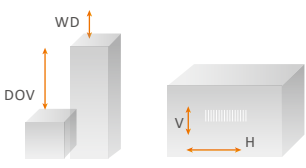


 Consultant Sheet

· Code Basic Information

Type		☐ 1D (☐ Code 128 ☐ Code 39 ☐ Others ____)			
		☐ 2D (☐ DM ☐ QR ☐ MQR ☐ Others ____)			
Resolution (mm)					
Size (mm)					
Production Process		☐ Laser Marking ☐ Ink Jet Printing ☐ Printing / Label ☐ Others____			

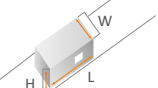
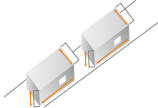
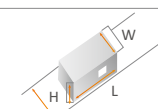
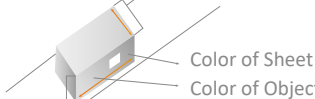
· Installation

	DOV (mm)				
	WD (mm)				
	FOV (mm)	Horizontal		Vertical	

· Multiple Codes Decoding

	Multiple Codes Decoding				
	Number of Decoding Sides				

· Dynamic Decoding

	Moving Speed				
	Object Dimension				
	Welt or Not	☐ Yes ☐ No			
	Spacing of Objects (mm)				
	Width of Belt (mm)				
	Color of Code & Object				

 Common Codes

Type	Code 128		Code 39		
Code					
Content	code 128		Test 123		
Type	EAN		UPC-A		
Code					
Content	(01)01234567890128(15)051128		123456789012		
Type	DM	QR	GS1DM	pdf417	
Code					
Content	test123	test123	t(01)00012345678905	Test123\92800000\000\922	