



Make Factory Smarter

MACHINE VISION

· PRODUCT MANUAL ·

* Design and specifications are subject to change without notice.

Ver. 1, Jul. 2024

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MACHINE VISION



COMPANY PROFILE

Zhejiang HuaRay Technology Co., Ltd. is a company dedicated in research & development, manufacturing, and sales & marketing of machine vision and autonomous mobile robot (AMR) products. With focus in 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 in R&D, and the company has filed over 500+ 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 battery, photovoltaic, semiconductor, pharmaceutical, and so on. Our machine vision products include industrial area scan cameras, line scan cameras, smart cameras, vision sensors, 3D 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 include latent lift, forklifts, and sorting robots are widely used for warehouses and material handling applications.

CORPORATE OVERVIEW



600 +
R&D Engineers

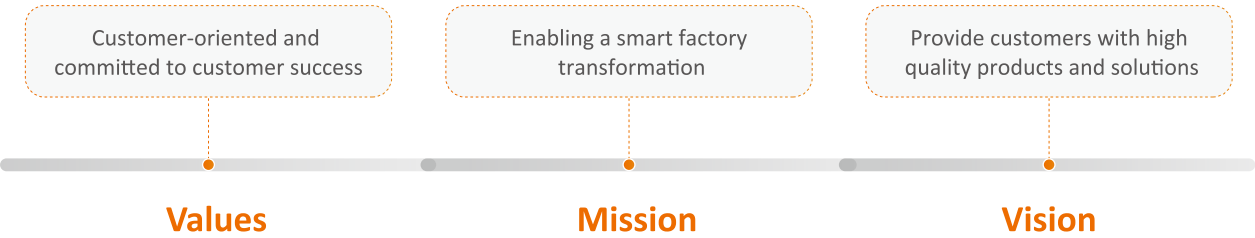


600 +
Patent Applications



50 +
Covering Countries and Regions

CORPORATE CULTURE



CONTENTS

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AREA SCAN CAMERA

AE Series

Universal

With stability and necessary functions enhance imaging quality and optimize images without dropping frames, catering to lots of different application scenarios

Product feature

Abundant ISP Algorithms & Image Quality Optimization

Through developing via high-performance FPGA platform and rich integrated ISP algorithms, functions like AWB (automatic white-balance) for wider color temperature range, CCM correction, Cache for Trigger, Pause Frame, Flow Managing and Controlling will guarantee image transmission stability.



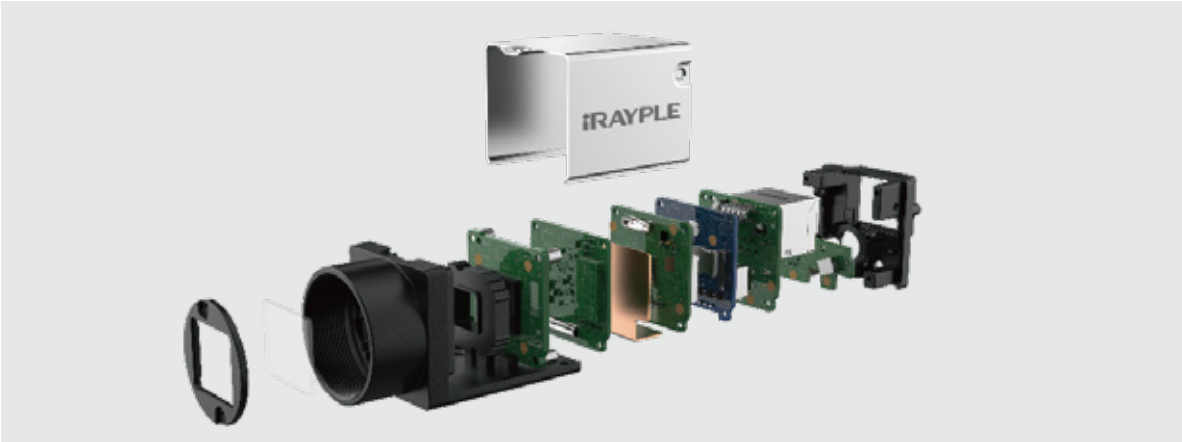
Before



After

Structure With Modulized Design & Economical High-efficiency FPGA Platform

Cameras combining high-efficiency platform functions with a plentiful ISP algorithms, along with a compact structure design and modulized hardware components, can economically and efficiently output images with less noise and high quality, compared with other cameras with same resolution.



Gige

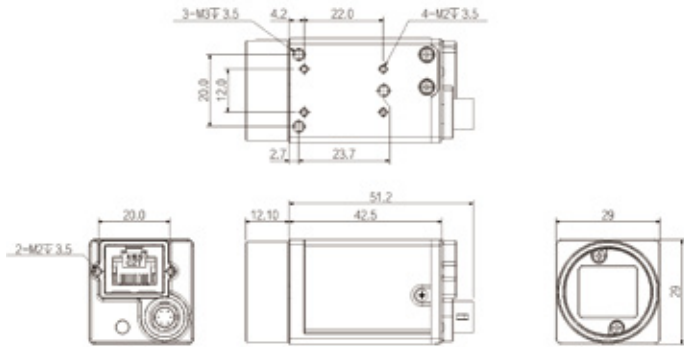
Specifications



Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
5	AE3504M/CG010E	2592*1944	23	12	AR0521	CMOS	2.2*2.2	1/2.5"	Rolling	M/C	NE:19 μs~1sec	GigE,PoE	29*29*42	C	A9 series	9-24 VDC,PoE
6	AE3600M/CG010E	3072*2048	19	12	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	M/C	NE:25.5μs~1sec	GigE,PoE	29*29*42	C	A9 series	9-24 VDC,PoE
12	AE3A20M/CG010E	4000*3000	10	12	IMX226	CMOS	1.85*1.85	1/1.7"	Rolling	M/C	NE:28.4 μs~1sec	GigE,PoE	29*29*42	C	A9 series	9-24 VDC,PoE
20	AE3B00M/CG010E	5472*3648	6	10	IMX183	CMOS	2.4*2.4	1"	Rolling	M/C	NE:43.76 μs~1sec	GigE,PoE	29*29*42	C	MH-X/MT-X series	9-24 VDC,PoE
0.4	AE7040M/CG010E	720*540	300	12	IMX287	CMOS	6.9*6.9	1/2.9"	Global	M/C	NE:1 μs ~ 1sec	GigE,PoE	29*29*42	C	A9 series	9-24 VDC,PoE
1.3	AE3138M/CG010E	1280*1024	92	10	SS	CMOS	4.0*4.0	1/2.7"	Global	M/C	NE:16.72 μs~1sec	GigE,PoE	29*29*42	C	A9 series	9-24 VDC,PoE
1.3	AE5137M/CG010E	1280*1024	90	12	GMAX4002	CMOS	4.0*4.0	1/2.7"	Global	M/C	NE:5μs~1sec	GigE,PoE	29*29*42	C	A9 series	9-24 VDC,PoE

Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
1.3	AE5137M/CG010E	1280*1024	90	12	GMAX4002	CMOS	4.0*4.0	1/2.7"	Global	M/C	NE:5μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
1.6	AE7160M/CG010E	1440*1080	77	12	IMX273	CMOS	3.45*3.45	1/2.9"	Global	M/C	NE:16 μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
2	AE5207M/CG010E	2048*1200	48	12	GMAX4002	CMOS	4.0*4.0	1/1.7"	Global	M/C	NE:5μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
2	AE5200M/CG010E	1624*1240	60	10	IMX430	CMOS	4.5*4.5	1/1.7"	Global	M/C	NE:1 μs ~ 1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
2	AE7200M/CG010E	1920*1200	38	12	IMX249	CMOS	5.86*5.86	1/1.2"	Global	M/C	NE:14 μs ~ 1sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE
2.3	AE7230M/CG010E	1920*1200	38	10	IMX392	CMOS	3.45*3.45	1/2.3"	Global	M/C	NE:1 μs ~ 1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
3	AE7300M/CG010E	2048*1536	38	12	MX265	CMOS	3.45*3.45	1/1.8"	Global	M/C	NE:1 μs ~ 1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
5	AE7500M/CG010E	2448*2048	24	12	IMX264	CMOS	3.45*3.45	2/3"	Global	M/C	NE:1 μs ~ 1sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE
5	AE7501M/CG010E	2592*2048	22	12	XGS5000	CMOS	3.2*3.2	2/3"	Global	M/C	NE:20μs~1sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE

Dimensions



Specifications

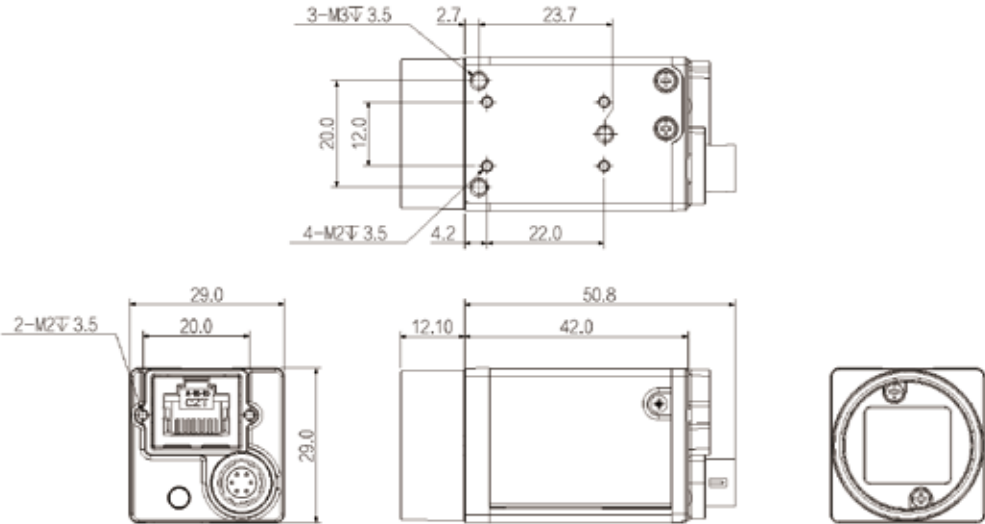


Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
5	*AE3504M/CG000E	2592*1944	24	12	AR0521	CMOS	2.2*2.2	1/2.5"	Rolling	M/C	NE:19μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
6	*AE3600M/CG000E	3072*2048	19	12	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	M/C	NE:25.5μs~2.5sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
12	*AE3A20M/CG000E	4024*3036	9.7	12	IMX226	CMOS	1.85*1.85	1/1.7"	Rolling	M/C	NE:28.4μs~2sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE

Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
0.4	*AE7040M/CG001E	720*540	123	10	IMX297	CMOS	6.9*6.9	1/2.9"	Global	M/C	USE:1μs~14μs NE:15μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
0.4	*AE5048M/CG000E	720*540	300	12	SS	CMOS	6.9*6.9	1/2.9"	Global	M/C	USE:1μs~14μs NE:15μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
1.3	*AE3138M/CG000E	1280*1024	92	10	SS	CMOS	4.0*4.0"	1/2.7"	Global	M/C	NE:12μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
1.3	*AE3139M/CG000E	1280*1024	80	10	—	CMOS	4.8*4.8"	1/2"	Global	M/C	NE:16.72 μs ~ 10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
1.6	*AE5168M/CG000E	1440*1080	65.8	10	SS	CMOS	3.45*3.45"	1/2.9"	Global	M/C	NE:16 μs ~ 10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
1.6	*AE7160M/CG001E	1440*1080	65.8	10	IMX296	CMOS	3.45*3.45"	1/2.9"	Global	M/C	NE:12μs ~ 10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
2	*AE5207M/CG000E	2048*1200	49	12	GMAX4002	CMOS	4.0*4.0"	1/1.7"	Global	M/C	USE:1μs~14μs NE:15μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
2	*AE5208M/CG000E	1600*1200	53.5	12	SS	CMOS	3.45*3.45"	1/2.6"	Global	M/C	NE:5μs ~ 10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE
5	*AE7500M/CG000E	2448*2048	24	12	IMX264	CMOS	3.45*3.45"	2/3"	Global	M/C	NE:12μs~10sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE

Note: USE: Ultra short exposure mode, some require upgrading specific camera firmware; NE: Standard exposure mode
All cameras in AE series support customized CS interface
Products with* refer to upcoming new ones

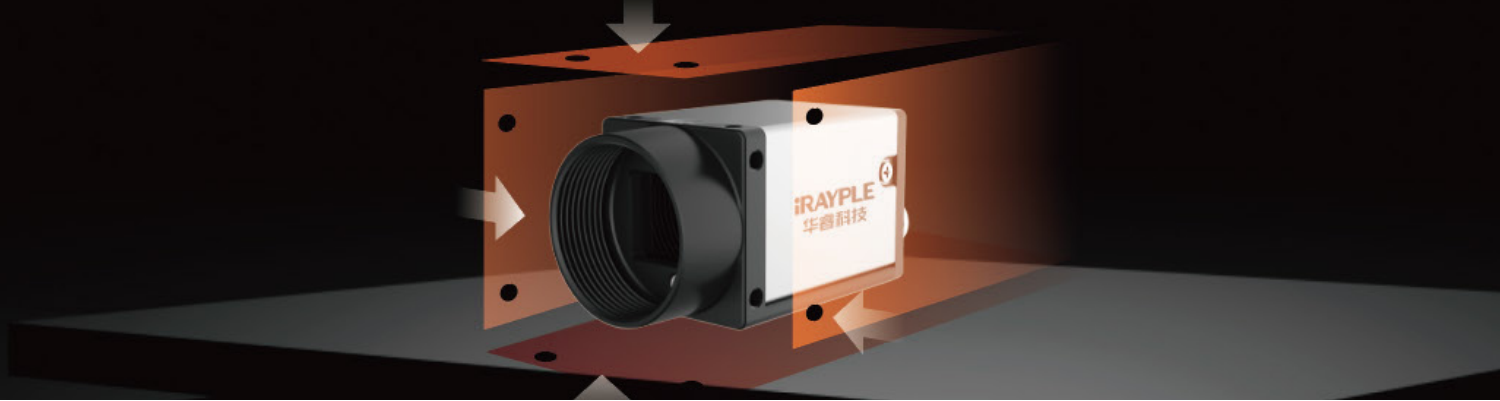
Dimensions



AREA SCAN CAMERA

A Pro Series

Stable functionality and Four sides structural reinforcement

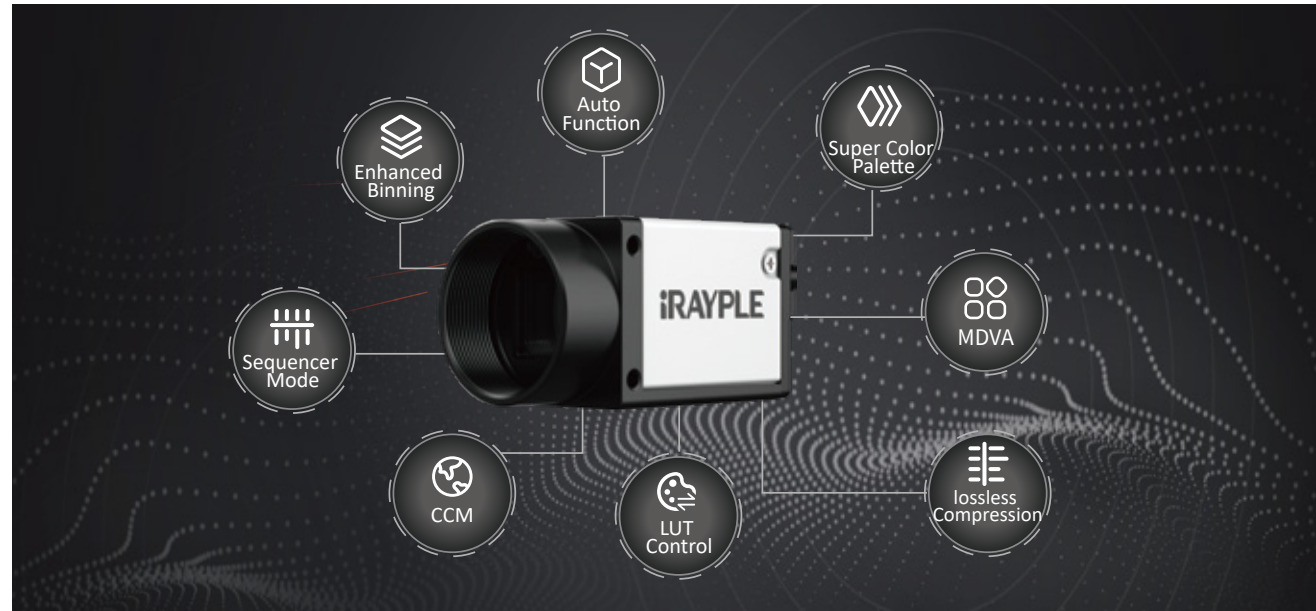


AH series features a wealth of ISP algorithms, full-function baselined design, lower power consump on, and the ability to simultaneously meet the requirements of various complex application scenarios. Thus ensuring both imaging quality and stability.

Product Feature

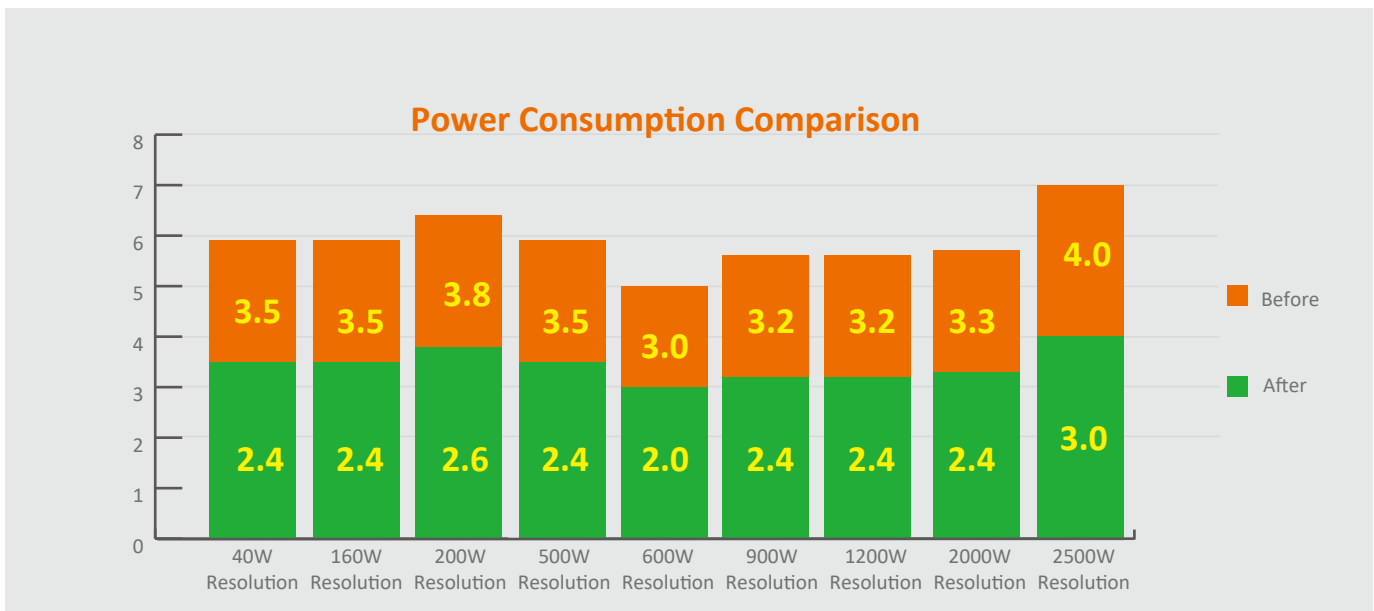
—Abundant Features Inserted In All Baseline Products & Richer Integrated Algorithms—

Equipped with a comprehensive set of algorithms in its built-in full-featured baseline, including Multifunctional Difference Value Algorithm , Active Alignment (AA) , Lossless Compression, FFC calibra on, AWB (automatic white-balance) for wider color temperature range, CCM, Super Color Palette, Auto Function, LUT, Enhanced Binning, and Sequencer , etc.



—Lower Power Consuming Cesign, Core Hardwares Upgrade & Restructure Of Algorithms —

With low power consump on upgrade on core hardware, restructure on software coding, the power consump on is reduced by more than 30% on average compared to the previous genera on of products, which makes all the products with an full-featured baseline in the premise of low power consumption and high stability.



Specifications

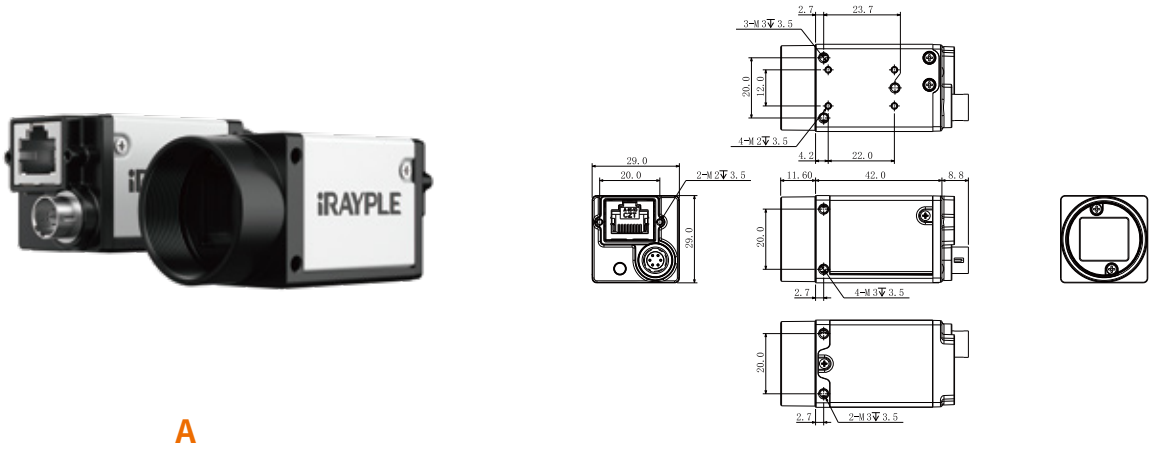
Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply	Label
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color							
6	*AH3600M/CG000E	3072*2048	19(32fps @ Burst Mode)	12	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	M/C	NE:25.5μs~2.5sec	GigE,POE	29x29x42	C	A9 series	9-24 VDC,PoE	A
12	*AH3A20M/CG000E	4024*3036	9.7(32fps @ Burst Mode)	12	IMX226	CMOS	1.85*1.85	1/1.7"	Rolling	M/C	NE:28.4 μs~2s	GigE,POE	29x29x42	C	A9 series	9-24 VDC,PoE	A
20	*AH3B00M/CG000E	5472*3648	5.9 (10fps @ Burst Mode)	12	IMX183	CMOS	2.4*2.4	1"	Rolling	M/C	NE:43.76μs~2.5sec	GigE,POE	29x29x42	C	MH-X/MT-X series	9-24 VDC,PoE	A



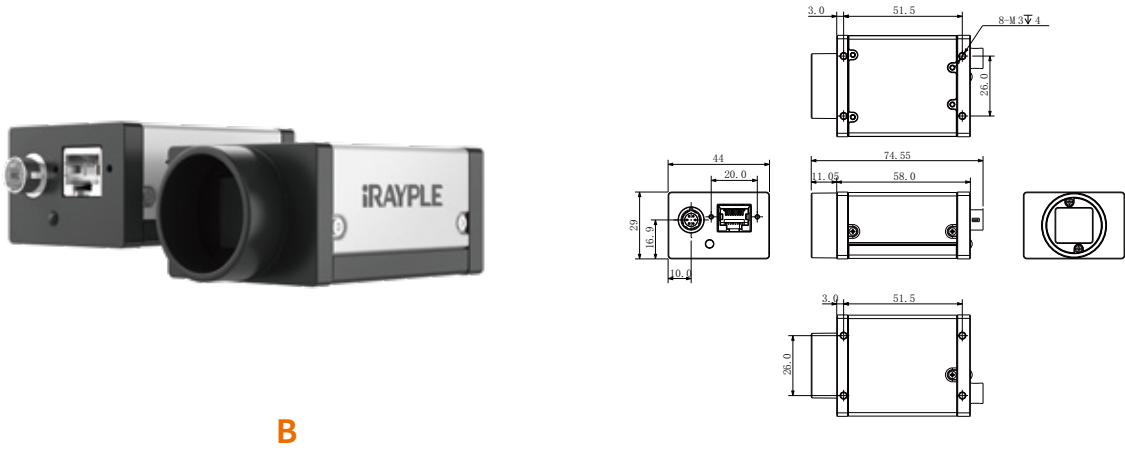
Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply	Label
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color							
0.4	*AH7040M/CG000E	720*540	310(315fps @ Burst Mode)	12	IMX287	CMOS	6.9x6.9	1/2.9"	Global	M/C	USE:1μs~14us; NE:15μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
0.4	*AH7040M/CG001E	720*540	123	10	IMX297	CMOS	6.9x6.9	1/2.9"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.6	*AH7160M/CG000E	1440*1080	77(135fps @ Burst Mode)	12	IMX273	CMOS	3.45x3.45	1/2.9"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.6	*AH7160M/CG001E	1440*1080	65.2	10	IMX296	CMOS	3.45x3.45	1/2.9"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
2	*AH5200M/CG000E	1624*1240	60(86.8fps @ Burst Mode)	10	IMX430	CMOS	4.5x4.5	2/3"	Global	M/C	USE:1μs~4μs; NE:5μs~10sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A
2	*AH5207M/CG000E	2048*1200	49(81fps @ Burst Mode)	12	GMAX4002	CMOS	4.0x4.0	1/1.7"	Global	M/C	NE:5μs~10sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A
5	*AH7500M/CG000E	2448*2048	24(36fps @ Burst Mode)	12	IMX264	CMOS	3.45x3.45	2/3"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A
9	*AH7900M/CG000E	4096*2160	13 (22fps @ Burst Mode)	12	IMX267	CMOS	3.45x3.45	1"	Global	M/C	NE:5μs~10sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	A
12	*AH7A20M/CG000E	4096*3000	9.4 (16fps @ Burst Mode)	12	IMX304	CMOS	3.45x3.45	1.1"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	A
20	*AH7B0AM/CG000E	4504*4504	5 (8fps @ Burst Mode)	12	IMX541	CMOS	2.74x2.74	1.1"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	A
24.4	*AH7B4AM/CG000E	5328*4608	4 (7fps @ Burst Mode)	12	IMX540	CMOS	2.74x2.74	1.2"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	A
25	*AH5B57M/CG200E	5120*5120	4.5(7fps @ Burst Mode)	12	GMAX0505	CMOS	2.5x2.5	1.1"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	GigE,POE	29*44*58	C	MT-X series	9-24 VDC,PoE	B

Note: USE: Ultra short exposure mode, some require upgrading specific camera firmware; NE: Standard exposure mode
All cameras in AE series support customized CS interface
Products with* refer to upcoming new ones

Dimensions



A



B

USB3.0

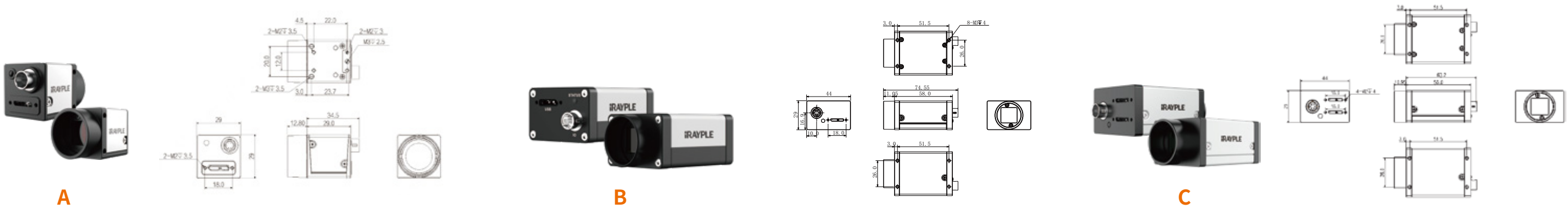
Specifications



Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Label
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
6	*AH3600M/CU000E	3072*2048	60	12	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	M/C	NE:25μs~2.5sec	USB3.0	29*29*30	C	A9 series	A
12	*AH3A20M/CU000E	4024*3036	30	12	IMX226	CMOS	1.85*1.85	1/1.7"	Rolling	M/C	NE:28.4 μs~1sec	USB3.0	29*29*30	C	MH-R* series	A
20	*AH3B00M/CU000E	5472*3648	19.2	10	IMX183	CMOS	2.4*2.4	1"	Rolling	M/C	NE:43.76μs~2.5sec	USB3.0	29*29*30	C	MH-X series	A
0.4	*AH7040M/CU000E	720*540	526.5	12	IMX287	CMOS	6.9*6.9	1/2.9"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	USB3.0	29*29*30	C	A9 series	A
1.6	*AH7160M/CU000E	1440*1080	249.1	12	IMX273	CMOS	3.45*3.45	1/2.9"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	USB3.0	29*29*30	C	A9 series	A
2	*AH5200M/CU000E	1624*1240	90	12	IMX430	CMOS	4.5*4.5	2/3"	Global	M/C	USE:1μs~4μs; NE:5μs~10sec	USB3.0	29*29*30	C	MH-M series	A
2	*AH5207M/CU000E	2048*1200	150	12	GMAX4002	CMOS	4.0*4.0	1/1.7"	Global	M/C	NE:5μs~10sec	USB3.0	29*29*30	C	A9 series	A
5	*AH7500M/CU000E	2448*2048	68	12	IMX264	CMOS	3.45*3.45	2/3"	Global	M/C	NE:1μs~1sec	USB3.0	29*29*30	C	MH-M series	A
9	*AH7900M/CU000E	4096*2160	40	12	IMX267	CMOS	3.45*3.45	1"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	USB3.0	29*29*30	C	MH-X series	A
12	*AH7A20M/CU000E	4096*3000	30.5	12	IMX304	CMOS	3.45*3.45	1.1"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	USB3.0	29*29*30	C	MH-X series	A
20	*AH7B0AM/CU000E	4504*4504	18	12	IMX541	CMOS	2.74*2.74	1.1"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	USB3.0	29*29*30	C	MH-X series	A
24.4	*AH7B4AM/CU000E	5328*4608	15	12	IMX540	CMOS	2.74*2.74	1.2"	Global	M/C	USE:1μs~14μs; NE:15μs~10sec	USB3.0	29*29*30	C	MH-X series	A
25	*AH5B57M/CU200E	5120*5120	14	12	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	NE:5μs~10sec	USB3.0	29*44*58	C	MT-X series	B
25	*AH5B57M/CV200E	5120*5120	30	12	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	NE:5μs~10sec	USB3.0*2	29*44*58	C	MT-X series	C

Note: USE: Ultra short exposure mode, some require upgrading specific camera firmware; NE: Standard exposure mode
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Dimensions



AREA SCAN CAMERA

A Series

Superior image quality & high attention to details



Specifications

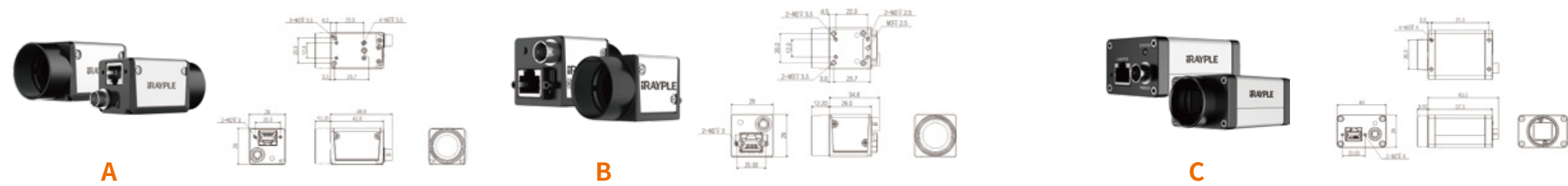


Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply	Label
					Sensor	Sensor Type	Pixel Size _(um*um)	Sensor Size	Shutter	Mono/Color							
2	A3200MG004E	1920*1080	22	10	IMX290	CMOS	2.9*2.9	1/2.8"	Rolling	M	NE:17.5μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
2	A3200CG000E	1920*1080	22	10	IMX290	CMOS	2.9*2.9	1/2.8"	Rolling	C	NE:17.5μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
5	A3504M/CG100E	2592*1944	23	12	AR0521	CMOS	2.2*2.2	1/2.5"	Rolling	M/C	NE:21.5μs~1sec	GigE	29*29*29	C	A9 series	9-24 VDC,PoE	B
6	A3600M/CG18E	3072*2048	19	12	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	M/C	NE:25μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
12	A3A20M/CG8E	4000*3000	10	12	IMX226	CMOS	1.85*1.85	1/1.7"	Rolling	M/C	NE:16μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
20	A3B00M/CG000E	5472*3648	6	10	IMX183	CMOS	2.4*2.4	1"	Rolling	M/C	NE:16μs~1sec	GigE,POE	29*29*42	C	MH-X/MT-X series	9-24 VDC,PoE	A
0.3	A5031M/CG300E	640*480	300	10	PYTHON300	CMOS	4.8*4.8	1/4"	Global	M/C	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
0.4	A7040M/CG000E	720*540	300	12	IMX287	CMOS	6.9*6.9	1/2.9"	Global	M/C	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
0.4	A7040MG001E	720*540	123	10	IMX297	CMOS	6.9*6.9	1/2.9"	Global	M	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
0.5	A3051MG000E	800*600	120	10	PYTHON480	CMOS	4.8*4.8	1/3.6"	Global	M	NE:1μs~1sec	GigE	29*29*29	C	A9 series	9-24 VDC	B
1.2	A3124M/CG100E	1280*960	54	12	AR0135	CMOS	3.75*3.75	1/3"	Global	M/C	NE:18.7μs~1sec	GigE	29*29*29	C	A9 series	9-24 VDC	B
1.3	A3131MG100E	1280*1024	60	10	PYTHON1300	CMOS	4.8*4.8	1/2"	Global	M	NE:1μs~1sec	GigE	29*29*29	C	A9 series	9-24 VDC	B
1.3	A3131CG000E	1280*1024	60	10	PYTHON1300	CMOS	4.8*4.8	1/2"	Global	M/C	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.3	A3138M/CG000E	1280*1024	92	10	SS	CMOS	4.0*4.0	1/2.7"	Global	M/C	NE:10μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.3	A5131M/CG75E	1280*1024	75	10	PYTHON1300	CMOS	4.8*4.8	1/2"	Global	M/C	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.3	A5131MG75E-NIR	1280*1024	75	10	PYTHON1300-NIR	CMOS	4.8*4.8	1/2"	Global	NIR	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.6	A7160MG000E	1440*1080	77	12	IMX273	CMOS	3.45*3.45	1/2.9"	Global	M	NE:16 μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.6	A7160MG001E	1440*1080	65	10	IMX296	CMOS	3.45*3.45	1/2.9"	Global	M	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.6	A7160MG011E	1440*1080	65	10	IMX296	CMOS	3.45*3.45	1/2.9"	Global	M	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
1.7	A7170M/CG200E	1604*1100	66	12	IMX432	CMOS	9.0*9.0	1.1"	Global	M/C	USE:1μs~5μs; NE:6μs~1sec	GigE,POE	29*44*58	C	MH-X series	9-24 VDC,PoE	C
2	A5200M/CG000E	1624*1240	60	10	IMX430	CMOS	4.5*4.5	1/1.7"	Global	M/C	NE:1μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
2	A5201M/CG50E	1920*1200	50	10	PYTHON2000	CMOS	4.8*4.8	2/3"	Global	M/C	NE:1μs~1sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A
2	A5201MG50E-NIR	1920*1200	50	10	PYTHON2000-NIR	CMOS	4.8*4.8	2/3"	Global	NIR	NE:1μs~1sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A
2	A7200M/CG30E	1920*1200	38	12	IMX249	CMOS	5.86*5.86	1/1.2"	Global	M/C	NE:14μs~1sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	A
2	A7201MG010E	1920*1200	52	12	XGS2000	CMOS	3.2*3.2	1/2.2"	Global	M	USE:1μs~14μs; NE:15μs~1sec	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
3	A7300M/CG30E	2048*1536	38	12	IMX265	CMOS	3.45*3.45	1/1.8"	Global	M/C	USE:1μs~14μs;	GigE,POE	29*29*42	C	A9 series	9-24 VDC,PoE	A
5	A5501M/CG20E	2592*2048	20	10	PYTHON5000	CMOS	4.8*4.8	1"	Global	M/C	NE:1μs~1sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	A
5	A5501MG20E-NIR	2592*2048	20	10	PYTHON5000-NIR	CMOS	4.8*4.8	1"	Global	NIR	NE:1μs~1sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	A
5	A7500M/CG20E	2448*2048	24	12	IMX264	CMOS	3.45*3.45	2/3"	Global	M/C	USE:1μs~14μs; NE:15μs~1sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A

Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply	Label
					Sensor	Sensor Type	Pixel Size _(um*um)	Sensor Size	Shutter	Mono/Color							
5	A7500PG400E	2448*2048	24	12	IMX250MZR	CMOS	3.45*3.45	2/3"	Global	P	NE:32.73μs~1sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A
5	A7501M/CG010E	2592*2048	21	12	XGS5000	CMOS	3.2*3.2	2/3"	Global	M/C	NE:25μs ~ 1sec	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A
7.1	A7710M/CG200E	3208*2200	17	12	IMX428	CMOS	4.5*4.5	1.1"	Global	M/C	USE:1μs~14μs; NE:15μs~1sec	GigE,POE	29*44*58	C	MH-X series	9-24 VDC,PoE	C
8	A7801MG400E	4096*2160	13	12	XGS8000	CMOS	3.2*3.2	1/1.1"	Global	M	NE:69 μs~1 s	GigE,POE	29*29*42	C	MH-M series	9-24 VDC,PoE	A
8.9	A7900M/CG13E	4096*2160	13	12	IMX267	CMOS	3.45*3.45	1"	Global	M/C	NE:48μs~1sec	GigE,POE	29*44*58	C	MH-X series	9-24 VDC,PoE	C
9	A5907MG200E	4200*2160	11	12	GMAX2509	CMOS	2.5*2.5	2/3"	Global	M	NE:5μs~1sec	GigE,POE	29*44*58	C	MK-M series	9-24 VDC,PoE	C
12	A7A20M/CG9E	4096*3000	9	12	IMX304	CMOS	3.45*3.45	1.1"	Global	M/C	NE:48μs~1sec	GigE,POE	29*44*58	C	MH-X series	9-24 VDC,PoE	C
12	A7A20M/CG400E	4096*3000	9	12	IMX304	CMOS	3.45*3.45	1.1"	Global	M/C	USE:1μs~14μs; NE:15μs~1sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	C
12	A7A21MG400E	4096*3072	9	12	XGS12000	CMOS	3.2*3.2	1"	Global	M	NE:69 μs~1sec	GigE,POE	29*29*42	C	MH-X series	9-24 VDC,PoE	A
12	A7A21M/CG200E	4096*3072	9	12	XGS12000	CMOS	3.2*3.2	1"	Global	M/C	NE:69 μs~1sec	GigE,POE	29*44*58	C	MH-X series	9-24 VDC,PoE	C
25	A5B57M/CG200E	5120*5120	4	12	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	NE:5μs~1sec	GigE,POE	29*44*58	C	MT-X/MH-X series	9-24 VDC,PoE	C

Note: USE: Ultra short exposure mode, some require upgrading specific camera firmware; NE: Standard exposure mode
(all AH cameras support customized CS interfaces)
Products with*refer to upcoming new products

Dimensions



USB3.0

Specifications

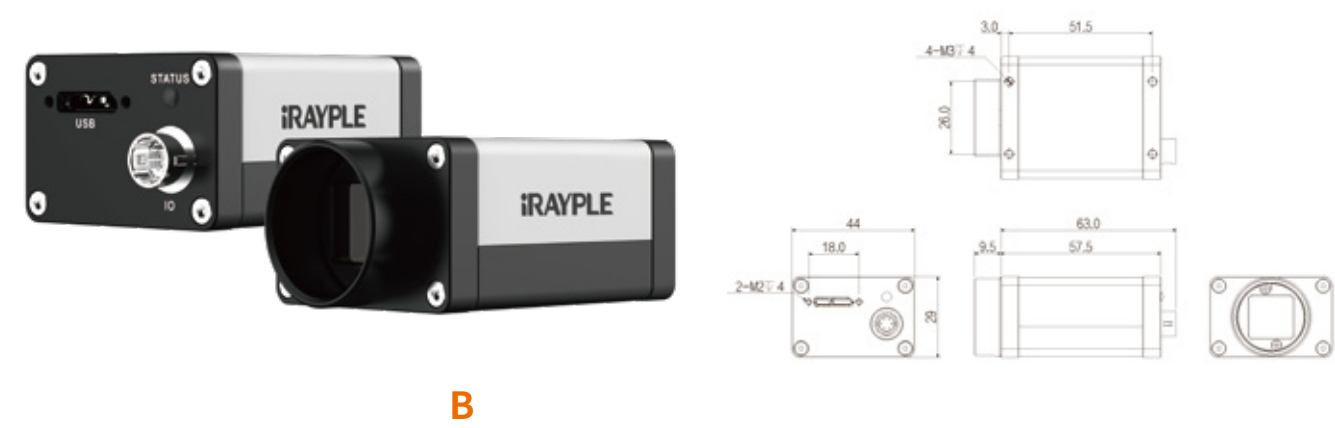
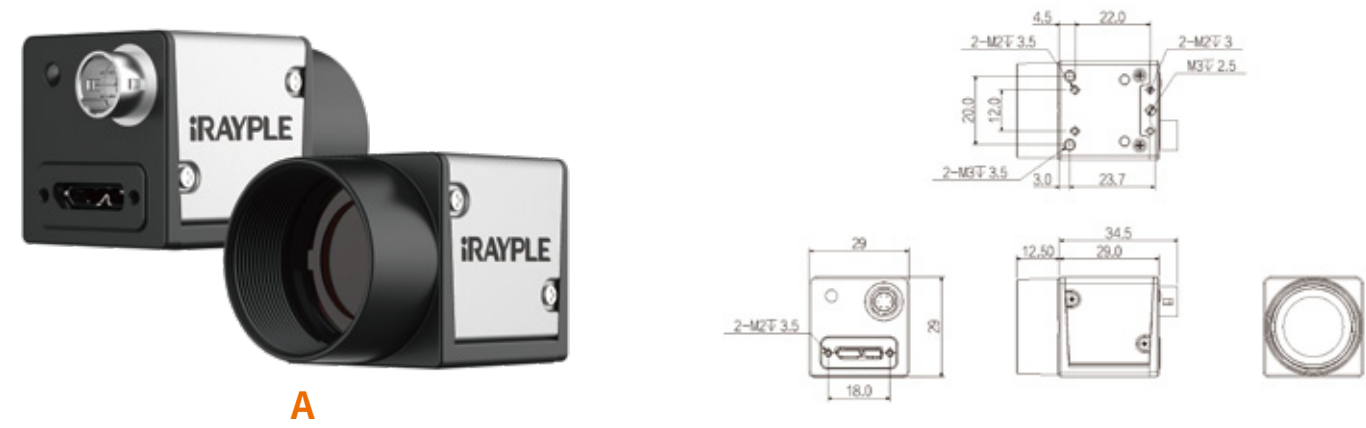


Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (fps)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Label
					Sensor	Sensor Type	Pixel Size _(um*um)	Sensor Size	Shutter	Mono/Color						
2.3	A3200CU000E	1920*1080	120	10	IMX290	CMOS	2.9*2.9	1/2.8"	Rolling	C	NE:8μs~1sec	USB3.0	29*29*29	C	A9 series	A
5	A3504M/CU000E	2592*1944	48	12	AR0521	CMOS	2.2*2.2	1/2.5"	Rolling	M/C	NE:11μs~1sec	USB3.0	29*29*29	C	A9 series	A
6	A3600M/CU60E	3072*2048	60	10	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	M/C	NE:11μs~1sec	USB3.0	29*29*29	C	A9 series	A
12	A3A20M/CU24E	4000*3000	30	10	IMX226	CMOS	1.85*1.85	1/1.7"	Rolling	M/C	NE:55μs~1sec	USB3.0	29*29*29	C	MH-R* series	A
20	A3B00M/CU000E	5472*3648	19.66	10	IMX183	CMOS	2.4*2.4	1"	Rolling	M/C	NE:53μs~1sec	USB3.0	29*29*29	C	MH-X series /MT-X series	A
0.3	A5031M/CU815E	640*480	815	10	PYTHON300	CMOS	4.8*4.8	1/4"	Global	M/C	NE:40μs~1sec	USB3.0	29*29*29	C	A9 series	A
0.4	A7040M/CU000E	720*540	437	10	IMX287	CMOS	6.9*6.9	1/2.9"	Global	M/C	NE:18μs~1sec	USB3.0	29*29*29	C	A9 series	A
0.5	A5051M/CU545E	800*600	545	10	PYTHON500	CMOS	4.8*4.8	1/3.6"	Global	M/C	NE:40μs~1sec	USB 3.0	29*29*29	C	A9 series	A

Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Label
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
1.3	A3135M/CU000E	1280*960	33	14	RJ33J4/3CA0DT	CMOS	3.75*3.75	1/3"	Global	M/C	NE:1μs~1sec	USB3.0	29*29*29	C	A9 series	A
1.3	A3138M/CU000E	1280*1024	201	10	SS	CMOS	4.0*4.0	1/2.7"	Global	M/C	NE:10μs~1sec	USB3.0	29*29*29	C	A9 series	A
1.3	A5131MU001E	1280*1024	90	10	PYTHON1300	CMOS	4.8*4.8	1/2"	Global	M	NE:40μs~1sec	USB 3.0	29*29*29	C	A9 series	A
1.3	A5131M/CU210E	1280*1024	208	10	PYTHON1300	CMOS	4.8*4.8	1/2"	Global	M/C	NE:40μs~1sec	USB 3.0	29*29*29	C	A9 series	A
1.6	A7160M/CU000E	1440*1080	249	12	IMX273	CMOS	3.45*3.45	1/2.9"	Global	M/C	NE:18μs~1sec	USB3.0	29*29*29	C	A9 series	A
2	A5200M/CU000E	1624*1240	89	12	IMX430	CMOS	4.5*4.5	1/1.7"	Global	M/C	NE:18μs~1sec	USB3.0	29*29*29	C	A9 series	A
2.3	A5201M/CU150E	1920*1200	150	10	PYTHON2000	CMOS	4.8*4.8	2/3"	Global	M/C	NE:60μs~1sec	USB 3.0	29*29*29	C	MH-M series	A
2.3	A7200M/CU001E	1920*1200	38.7	12	IMX249	CMOS	5.86*5.86	1/1.2"	Global	M/C	NE:34μs~1sec	USB 3.0	29*29*29	C	MH-X series	A
2.3	A7200M/CU130E	1920*1200	164	10	IMX174	CMOS	5.86*5.86	1/1.2"	Global	M/C	NE:20μs~1sec	USB3.0	29*29*29	C	MH-X series	A
2.3	A7230M/CU000E	1920*1200	167	10	IMX392	CMOS	3.45*3.45	1/2.3"	Global	M/C	NE:16μs~1sec	USB3.0	29*29*29	C	A9 series	A
2.3	A7201M/CU000E	1920*1200	72	12	XGS2000	CMOS	3.2*3.2	1/2.2"	Global	M/C	NE:7μs~1sec	USB 3.0	29*29*29	C	A9 series	A
3	A7300CU001E	2048*1536	55	12	IMX265	CMOS	3.45*3.45	1/1.8"	Global	M/C	NE:16μs~1sec	USB3.0	29*29*29	C	A9 series	A
3	A7300M/CU90E	2048*1536	120	10	IMX252	CMOS	3.45*3.45	1/1.8"	Global	M/C	NE:20μs~1sec	USB3.0	29*29*29	C	A9 series	A
4	A5402M/CU90E	2048*2048	90	10	CMV4000	CMOS	5.5*5.5	1"	Global	M/C	NE:16μs~1sec	USB 3.0	29*29*29	C	MH-X series	A
5	A5501M/CU60E	2592*2048	60	10	PYTHON5000	CMOS	4.8*4.8	1"	Global	M/C	NE:60μs~1sec	USB 3.0	29*29*29	C	MH-X series	A
5	A7500M/CU35E	2448*2048	68	12	IMX264	CMOS	3.45*3.45	2/3"	Global	M/C	NE:28μs~1sec	USB3.0	29*29*29	C	MK-M series	A
5	A7500MCU201E	2448*2048	68	12	IMX264	CMOS	3.45*3.45	2/3"	Global	C	USE:1μs~14μs; NE:15μs~1sec	USB3.0	29*44*58	C	MK-M series	B
5	A7500M/CU75E	2448*2048	75	10	IMX250	CMOS	3.45*3.45	2/3"	Global	M/C	NE:21μs~1sec	USB 3.0	29*29*29	C	MH-M series	A
5	A7501M/CU001E	2592*2048	43	12	XGS5000	CMOS	3.2*3.2	2/3"	Global	M/C	NE:28μs~1sec	USB3.0	29*29*29	C	MK-M series	A
5	A7501MU000E	2592*2048	71	12	XGS5000	CMOS	3.2*3.2	2/3"	Global	C	NE:28μs~1sec	USB3.0	29*29*29	C	MK-M series	A
8	A780AMU000E	2840*2840	47	10	IMX546	CMOS	2.74*2.74	2/3"	Global	M	USE:1μs~14μs; NE:15μs~1sec	USB3.0	29*29*29	C	A9 series	A
9	A7900M/CU200E	4096*2160	40	10	IMX255	CMOS	3.45*3.45	1"	Global	M/C	NE:26μs~1sec	USB3.0	29*44*58	C	MH-X/MT-X series	B
9	A7900M/CU201E	4096*2160	32	12	IMX267	CMOS	3.45*3.45	1"	Global	M/C	NE:29μs~1sec	USB3.0	29*44*58	C	MH-X/MT-X series	B
12	A7A20M/CU201E	4096*3000	30.5	10	IMX304	CMOS	3.45*3.45	1.1"	Global	M/C	NE:29μs~1sec	USB3.0	29*44*58	C	MH-X/MT-X series	B
12	A7A21MU200E	4096*3072	28.6	12	XGS12000	CMOS	3.2*3.2	1"	Global	C	NE:54μs~1sec	USB3.0	29*44*58	C	MH-X/MT-X series	B
12	A7A2AMU000E	4096*3000	31	10	IMX545	CMOS	2.74*2.74	1/1.1"	Global	M/C	USE:1μs~14μs; NE:15μs~1sec	USB3.0	29*29*29	C	MH-X/MT-X series	A
25	A5B57M/CU200E	5120*5120	14	12	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	NE:5μs~1sec	USB 3.0	29*44*58	C	MH-X/MT-X series	B

Note: USE: Ultra short exposure mode, some require upgrading specific camera firmware; NE: Standard exposure mode
(all cameras in this series support customized CS interfaces)
Products with*refer to upcoming new products

Dimensions



CameraLink

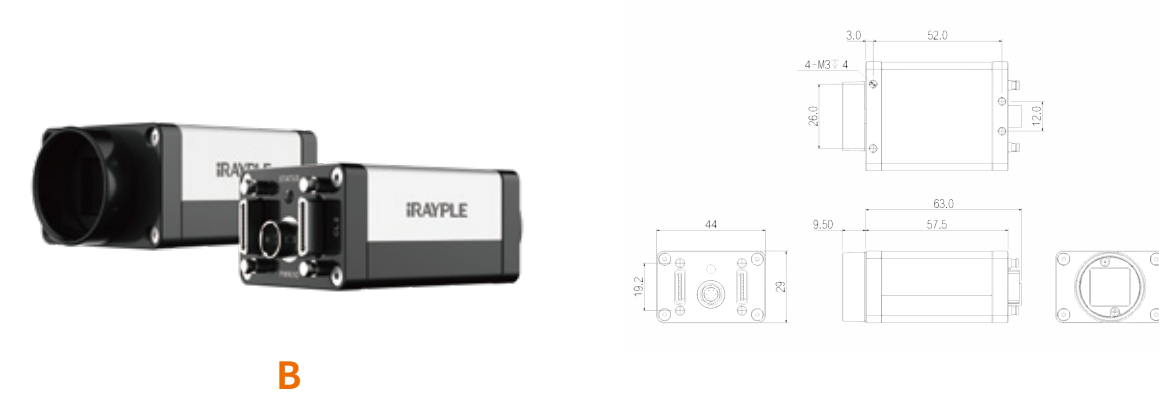
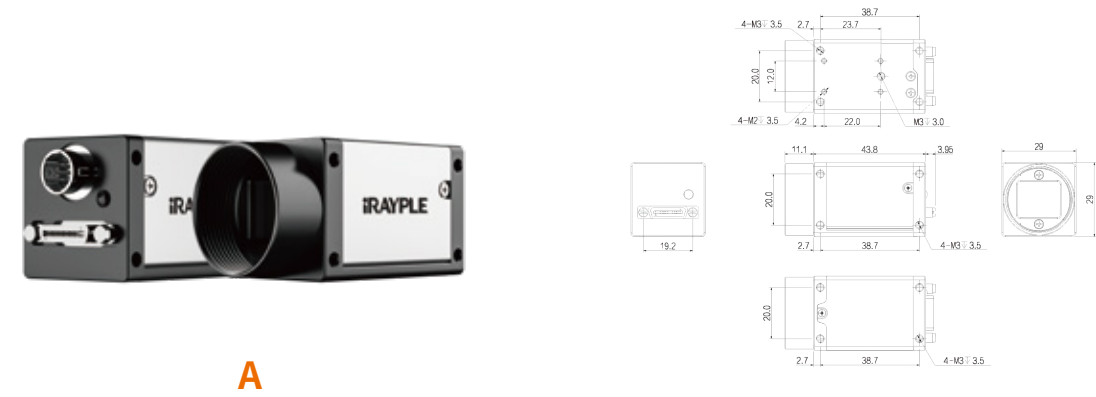
Specifications



Pixel	Model	Resolution	Max.Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Port	Dimension (mm*mm*mm)	Lens Mount	Lens	Label
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
0.4	A7040M/CK402E	720*540	349	10	IMX287	CMOS	6.9*6.9	1/2.9"	Global	M/C	NE:16μs~1sec	CameraLink	29*29*43.8	C	A9 series	A
2.3	A5201M/CK402E	1920*1200	37.8	10	PYTHON2000	CMOS	4.8*4.8	2/3"	Global	M/C	NE:45μs~1sec	CameraLink	29*29*43.8	C	MH-M series	A
3	A7300MK200E	2048*1536	188	10	IMX252	CMOS	3.45*3.45	1/1.8"	Global	M	NE:16μs~1sec	CameraLink	29*44*58	C	A9 series	B
5	A7500M/CK200E	2448*2048	150	10	IMX250	CMOS	3.45*3.45	2/3"	Global	M/C	NE:16μs~1sec	CameraLink	29*44*58	C	MH-M series	B
5	A7500MK402E	2448*2048	37.2	12	IMX264	CMOS	3.45*3.45	2/3"	Global	M	NE:16μs~1sec	CameraLink	29*29*43.8	C	MH-M series	A
9	A7900CK401E	4096*2160	27	8	IMX267	CMOS	3.45*3.45	1"	Global	C	NE:29μs~1sec	CameraLink	29*29*43.8	C	MH-X/MT-X series	A
12	A7A20M/CK401E	4096*3000	20	10	IMX304	CMOS	3.45*3.45	1.1"	Global	M/C	NE:29μs~1sec	CameraLink	29*29*43.8	C	MH-X/MT-X series	A
12	A7A21M/CK401E	4096*3072	18	10	XGS12000	CMOS	3.2*3.2	1"	Global	M/C	NE:17μs~1sec	CameraLink	29*29*43.8	C	MH-X/MT-X series	A
12	A7A21MK200E	4096*3072	56	10	XGS12000	CMOS	3.2*3.2	1"	Global	M	NE:52μs~1sec	CameraLink	29*44*58	C	MH-X/MT-X series	B
25	A5B57MK200E	5120*5120	30	10	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M	NE:35μs~1sec	CameraLink	29*44*58	C	MT-X series	B

Note: USE: Ultra short exposure mode, some require upgrading specific camera firmware; NE: Standard exposure mode
All cameras in this series support customized CS interfaces
Products with*for upcoming new product release

Dimensions



LARGE AREA SCAN CAMERA

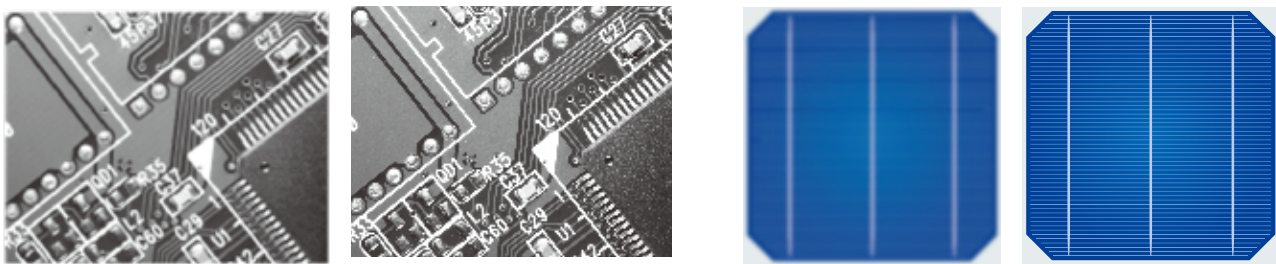
Large Area Scan Industrial Camera

High resolution and High frame rate

Product feature

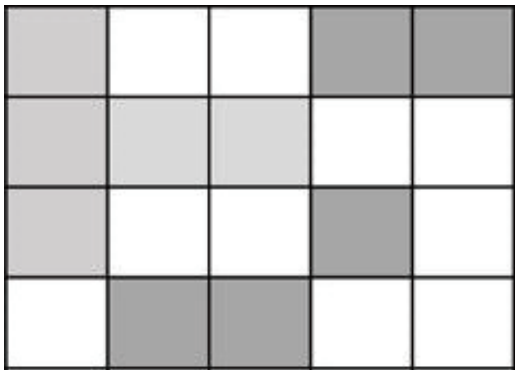
Ultra-high Resolution To Meet The Needs Of High-precision Inspection

With ultra-high resolution, the large area scan camera series is especially suitable for high-end LCD panel and SMT inspection applications, detecting product defects with high precision and improving product yield and quality.

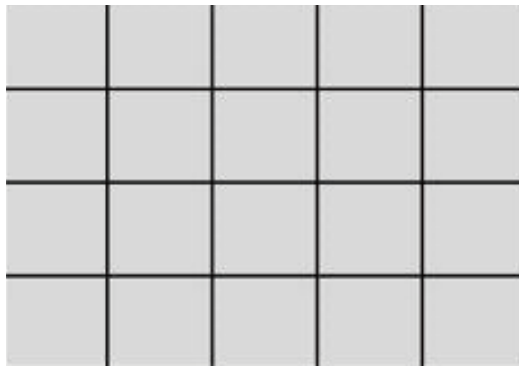


Excellent ISP Algorithm To Ensure Image Effect

With ultra-high resolution, the large area scan camera series is especially The point-by-point FFC correction algorithm, which is used to eliminate the output response difference of each pixel point in the sensor, can correct the dark field non-uniformity and response non-uniformity between pixels, and it is very effective in correcting the fixed noise of the sensor to ensure the consistency of the image.



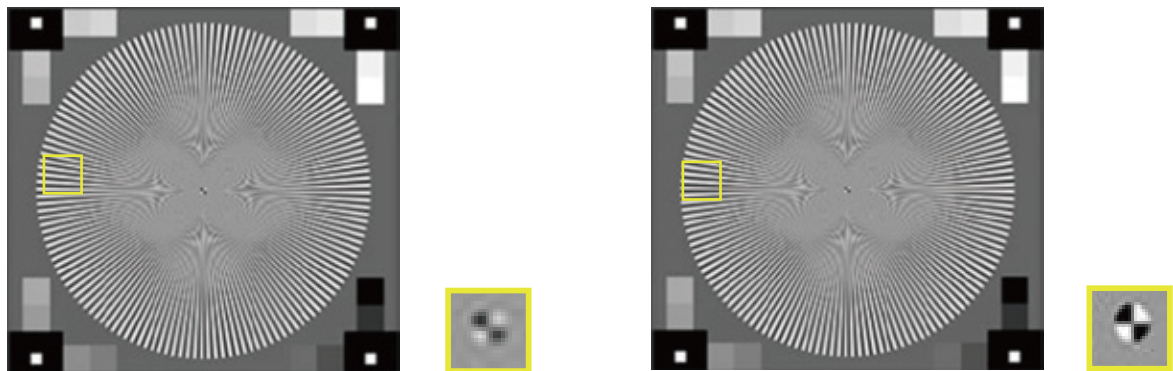
Before Optimization



After Optimization

Pixel Shift

A voltage driver module is installed on top of the sensor to enable the sensor to realize multiple shifts at the pixel level, e.g., 150 million pixels can reach 600 million pixels through four shifts, obtaining extremely high resolution and high image quality, which is especially suitable for FPD screen inspection.

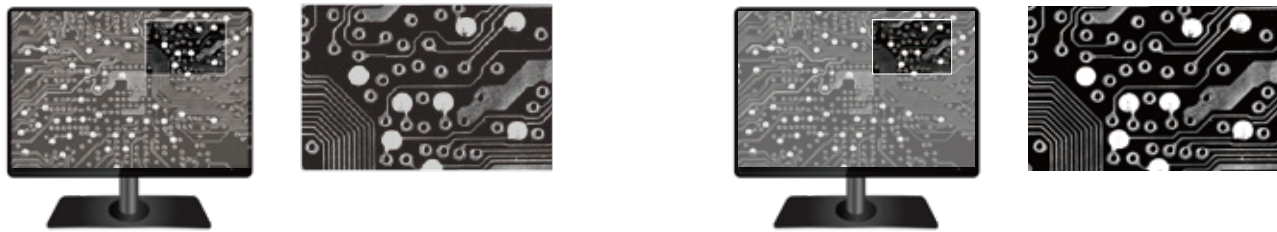


Pixel shift off

Pixel shift on

Efficient Cooling With Stable Details

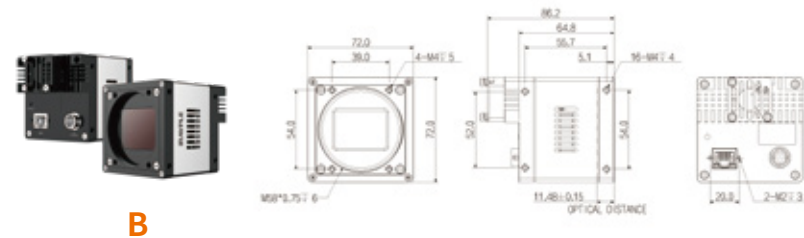
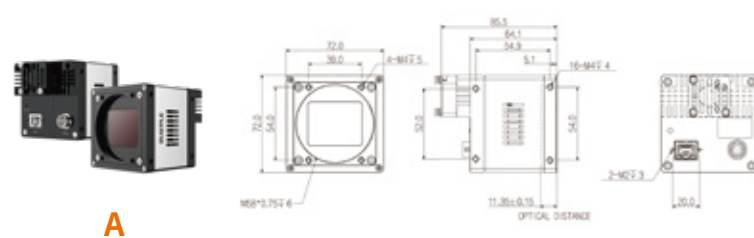
Superior refrigeration technology guarantees more stable imaging and clearer image details.



Specifications



Pixel	Model	Resolution	Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Interface	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply	Label
					Sensor	Sensor Type	Pixel Size _(um*um)	Sensor Size	Shutter	Mono/Color							
31	AX7C10M/CG250E	6464*4852	3.6	12	IMX342	CMOS	3.45*3.45	22.3*16.7	Global	M/C	3μs~15s	GigE	72*72*64.1	M58*0.75 (FBL 12)	F46-6035-M58	24VDC	A
50	AX5E07M/CG250EE	9344*5000	2.6	12	Custom made	CMOS	3.2*3.2	29.9*16.0	Global	M/C	16μs~15s	GigE	72*72*64.8	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC	B
65	AX5F57M/CG250E	9344*7000	1.7	12	GMAX3265	CMOS	3.2*3.2	29.9*22.4	Global	M/C	16μs~15s	GigE	72*72*64.8	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC	B



Specifications



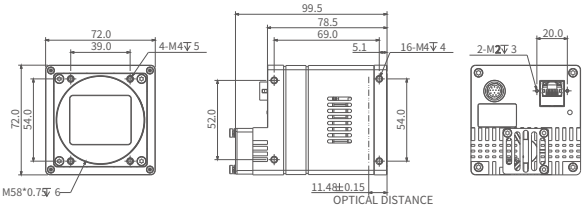
Pixel	Model	Resolution	Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Interface	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply	Label
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color							
12	AX7A20M/CT250E	4096*3000	68	10	IMX253	CMOS	3.45*3.45	1.1"	Global	M/C	1μs~15s	10GigE	72*72*78	M58*0.75 (FBL 12)	F46-6035-M58	24VDC	A
25	*AX5B57M/CT200E	5120*5120	41	12	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	35μs~15s	10GigE	72*72*85.1	C	MT-X	24VDC	B
25	AX5B57M/CT250E	5120*5120	41	12	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	35μs~15s	10GigE	72*72*79	M58*0.75 (FBL 12)	F46-6035-M58	24VDC	C
25	AX5B51M/CT250E	5120*5120	43	10	PYTHON25K	CMOS	4.5*4.5	23.0*23.0	Global	M/C	35μs~15s	10GigE	72*72*78.5	M58*0.75 (FBL 12)	F46-6035-M58	24VDC	D
50	*AX5E07M/CT250E	7008*7000	17.4	12	Custom made	CMOS	3.2*3.2	22.4*22.4	Global	M/C	16μs~15s	10GigE	72*72*80.5	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC	E
65	AX5F57M/CT250E	9344*7000	17.4	12	GMAX3265	CMOS	3.2*3.2	29.9*22.4	Global	M/C	16μs~15s	10GigE	72*72*80.1	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC	F
103	*AX5K37MT250E	11264*9200	11.25	12	GMAX32103	CMOS	3.2*3.2	36.1*29.4	Global	M	20μs~15s	10GigE	72*72*80.1	M58*0.75 (FBL 12)	F46-6035-M58	24VDC	F
152	*AX7Q27M/CT470E	16552*9200	7.6	12	GMAX32152	CMOS	3.2*3.2	53.0*29.4	Global	M/C	38μs~15s	10GigE	100*100*99.4	M72*0.75(FBL 20.4)	F67-5545-M72	24VDC	G

Note: The items with * are new products

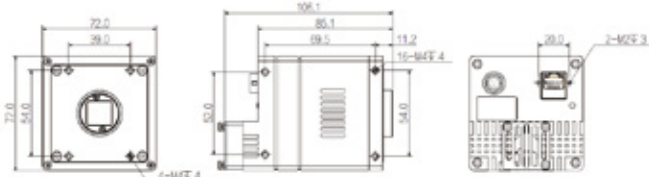
Dimensions



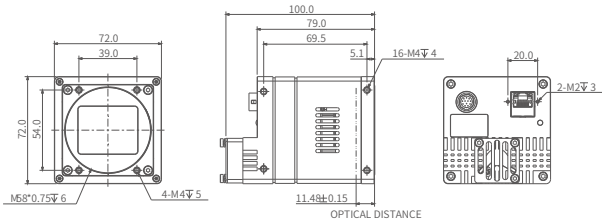
A



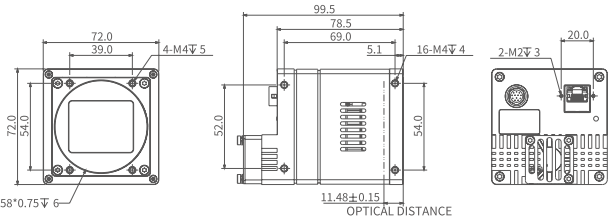
B



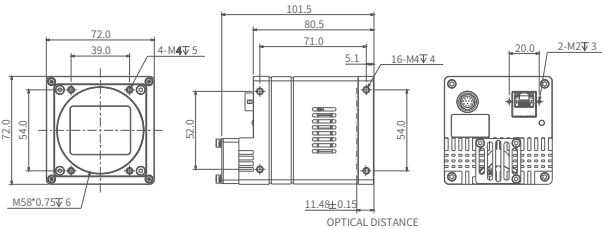
C



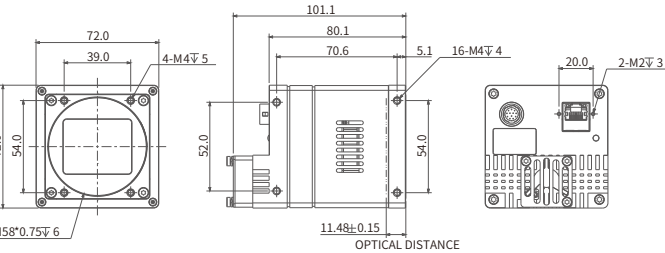
D



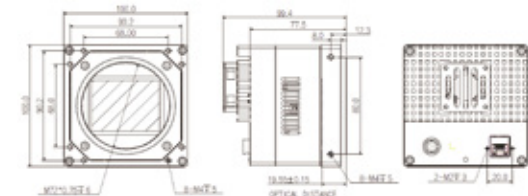
E



F



G



CameraLink

Specifications

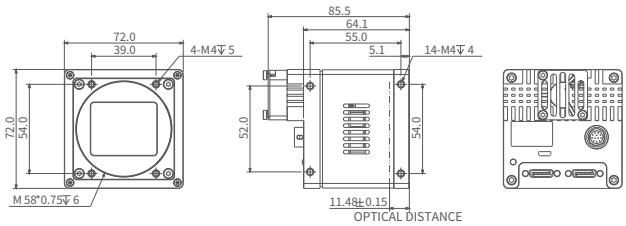


Pixel	Model	Resolution	Frame Rate	Bit Depth	Sensor Model						Exposure Time	Interface	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply	Label
					Sensor	Sensor Type	Pixel Size	Sensor Size	Shutter	Mono/Color							
31	AX7C10M/CK250E	6240*4848	24.8	10	IMX342	CMOS	3.45*3.45	22.3*16.7	Global	M/C	3μs~15s	CameraLink	72*72*64.1	M58*0.75 (FBL 12)	F46-6035-M58	24VDC	A
50	AX5E07M/CK250E	9280*4992	17.5	12	Custom made	CMOS	3.2*3.2	29.9*16.0	Global	M/C	16μs~15s	CameraLink	72*72*64.8	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC	B
65	AX5F57M/CK250E	9280*6992	12.5	12	GMAX3265	CMOS	3.2*3.2	29.9*22.4	Global	M/C	16μs~15s	CameraLink	72*72*64.8	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC	B
151	AX7Q00MK470E	14160*10640	5.1	12	IMX411	CMOS	3.76*3.76	53.4*40.0	Rolling	M	3μs~15s	CameraLink	100*100*65.7	M72*0.75 (FBL 19.3)	F67-5545-M72	24VDC	C

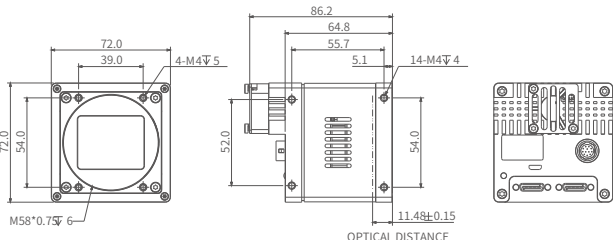
Dimensions



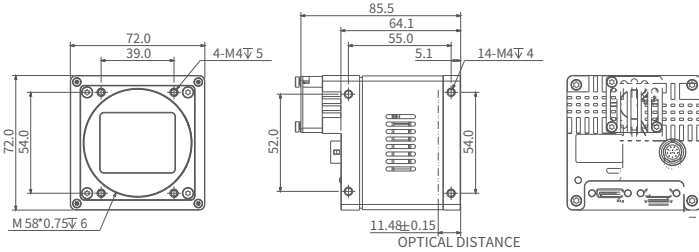
A



C



B



CoaXPress

Specifications



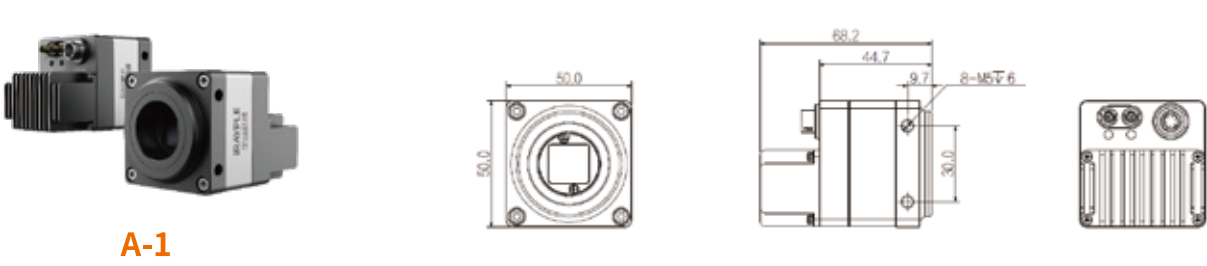
Pixel	Model	Resolution	Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Interface	Dimension (mm*mm*mm)	Lens Mount	Lens	Power Supply	Label
					Sensor	Sensor Type	Pixel Size _(um*um)	Sensor Size	Shutter	Mono/Color							
5	A9507M/CX703E	2592*2160	210	12	GMAX2505	CMOS	2.5*2.5	6.5*5.4	Global	M/C	2μs~5s	CXP-6	50*50*44.7	C	MK-M	24VDC,PoCXP	A-1
5	AX0057MX1E-000	2448*2048	118	10	GMAX3405	CMOS	3.4*3.4	2/3"	Global	M	1μs~15s	CXP-6	50*50*63.5	C	MK-M	24VDC,PoCXP	A-2
5	AX0057MX2E-000	2448*2048	164	10	GMAX3405	CMOS	3.4*3.4	2/3"	Global	M	1μs~15s	CXP-6	50*50*63.5	C	MK-M	24VDC,PoCXP	A-3
9	A9907MX703E	4192*2160	120	12	GMAX2509	CMOS	2.5*2.5	10.5*5.4	Global	M	2μs~5s	CXP-6	50*50*44.7	C	MH-X	24VDC,PoCXP	A-1
12	A9A27M/CX703E	4096*3072	85	12	Custom made	CMOS	2.5*2.5	11.27*10.24	Global	M/C	8μs~5s	CXP-6	50*50*44.8	C	MT-X	24VDC,PoCXP	A-4
12	AX5A22M/CX050E	4096*3072	188	10	CMV12000	CMOS	5.5*5.5	22.5*16.9	Global	M/C	50μs~5s	CXP-6	72*72*72.1	M58*0.75 (FBL 12)	F46-6035-M58	24VDC,PoCXP	C-1
12	AX5A22M/CX060E	4096*3072	188	10	CMV12000	CMOS	5.5*5.5	22.5*16.9	Global	M/C	50μs~5s	CXP-6	72*72*72.1	F (FBL 47.1)	F45-3528-F	24VDC,PoCXP	C-2
12	AX5A22M/CX340E	4096*3072	188	10	CMV12000	CMOS	5.5*5.5	22.5*16.9	Global	M/C	50μs~5s	CXP-6	80*80*47.3	M42*1 (FBL 11.9)	F30-2045-M42	24VDC,PoCXP	D-1
12	AX0127MX2E-000	4096*3072	94	10	GMAX3412	CMOS	3.4*3.4	1.1"	Global	M	6μs~15s	CXP-6	50*50*63.5	C	MT-X	24VDC,PoCXP	A-3
18	A9A87M/CX703E	4496*4096	64	12	GMAX2518	CMOS	2.5*2.5	11.27*10.24	Global	M/C	8μs~5s	CXP-6	50*50*44.8	C	MT-X	24VDC,PoCXP	A-4
25	A9B57M/CX703E	5120*5120	41.8	12	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	25μs~5s	CXP-6	50*50*45	C	MT-X	24VDC,PoCXP	A-5
25	A9B57M/CX200E	5120*5120	90	10	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	15μs~5s	CXP-6	72*72*74.8	C	MT-X	24VDC,PoCXP	C-3
25	A9B57M/CX250E	5120*5120	90	10	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	15μs~5s	CXP-6	72*72*68.7	M58*0.75 (FBL 12)	F46-6035-M58	24VDC,PoCXP	C-4
50	AX5E07M/CX250E	9344*5000	44	12	Custom made	CMOS	3.2*3.2	29.9*16.0	Global	M/C	27μs~5s	CXP-6	72*72*69.8	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC,PoCXP	C-5
65	AX5F57M/CX250E	9344*7000	31	12	GMAX3265	CMOS	3.2*3.2	29.9*22.4	Global	M/C	27μs~5s	CXP-6	72*72*69.8	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC,PoCXP	C-5
151	AX7Q10M/CX470E	14192*10640	6.1	12	IMX411	CMOS	3.76*3.76	53.4*40.0	Rolling	M/C	30μs~6.5s	CXP-6	100*100*65.7	M72*0.75 (FBL 19.3)	F67-5545-M72	24VDC,PoCXP	E-1
151	AX7Q10M/CX770E	14192*10640	6.1	12	IMX411	CMOS	3.76*3.76	53.4*40.0	Rolling	M/C	30μs~5s	CXP-6	110*110*90.1	M72*0.75 (FBL 19.4)	F67-5545-M72	24VDC,PoCXP	F-1
604	AX7Q10MX670E	28384*21280	1.55	8	IMX411	CMOS	3.76*3.76	53.4*40.0	Rolling	M	30μs~5s	CXP-6	100*100*88.4	M72*0.75 (FBL 19.3)	F67-5545-M72	24VDC,PoCXP	E-2
5	AX0057MP1E-000	2448*2048	164	10	GMAX3405	CMOS	3.4*3.4	2/3"	Global	M	1μs~15s	CXP-6	50*50*63.5	C	MK-M	24VDC,PoCXP	A-6
12	AX5A22M/CP050E	4096*3072	330	8	CMV12000	CMOS	5.5*5.5	22.5*16.9	Global	M/C	50μs~5s	CXP-12	80*80*72.3	M58*0.75 (FBL 12)	F46-6035-M58	24VDC,PoCXP	D-2
12	AX0127MP1E-000	4096*3072	94	10	GMAX3412	CMOS	3.4*3.4	1.1"	Global	M	6μs~15s	CXP-12	50*50*63.5	C	MT-X	24VDC,PoCXP	A-6

12	AX0127MP2-000E	4096*3072	149	10	GMAX3412	CMOS	3.4*3.4	1.1"	Global	M	6μs~15s	CXP-12	50*50*63.5	C	MT-X	24VDC,PoCXP	A-7
21	AX5B17MP050E	5120*4096	219	12	GSPRINT4521	CMOS	4.5*4.5	23.0*18.4	Global	M	4μs~5s	CXP-12	80*80*74.8	M58*0.75 (FBL 12.2)	F46-6035-M58	24VDC,PoCXP	D-3
25	A9B57M/CP050E	5120*5120	150	10	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	15μs~5s	CXP-12	80*80*72.3	M58*0.75 (FBL 12)	F46-6035-M58	24VDC,PoCXP	D-4
25	A9B57M/CP340E	5120*5120	150	10	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M/C	15μs~5s	CXP-12	80*80*65.3	M42*1 (FBL 12)	F30-2528-M42	24VDC,PoCXP	D-5
25	*AX0257MP4-100E	5120*5120	150	10	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M	15μs~5s	CXP-12	60*60*72.5	C	MT-X	24VDC,PoCXP	B-1
25	*AX0257MP4-150E	5120*5120	150	10	GMAX0505	CMOS	2.5*2.5	1.1"	Global	M	15μs~5s	CXP-12	60*60*75.5	M58*0.75 (FBL 11.48)	F46-6035-M58	24VDC,PoCXP	B-2
65	AX5F57M/CP050E	9344*7000	71	10	GMAX3265	CMOS	3.2*3.2	29.9*22.4	Global	M/C	27μs~5s	CXP-12	80*80*73.4	M58*0.75 (FBL 11.8)	F46-6035-M58	24VDC,PoCXP	D-6
65	*AX0657MP4-150E	9344*7000	71	10	GMAX3265	CMOS	3.2*3.2	29.9*22.4	Global	M	27μs~5s	CXP-12	60*60*75.5	M58*0.75 (FBL 11.48)	F46-6035-M58	24VDC,PoCXP	B-2
152	*AX7Q27M/CP470E	16544*9200	16	12	GMAX32152	CMOS	3.2*3.2	53*29.4	Global	M/C	19μs~15s	CXP-12	100*100*89.4	M72*0.75(FBL 20.4)	F67-5545-M72	24VDC,PoCXP	E-3
245	AX2450M/CP4-670-FE	19200*12800	12.4	12	IMX811	CMOS	2.81*2.81	53.95*35.97	Rolling	M/C	30μs~60s	CXP-12	100*100*89.83	M72*0.75(FBL 19.55)	F67-5545-M72	24VDC,PoCXP	E-4

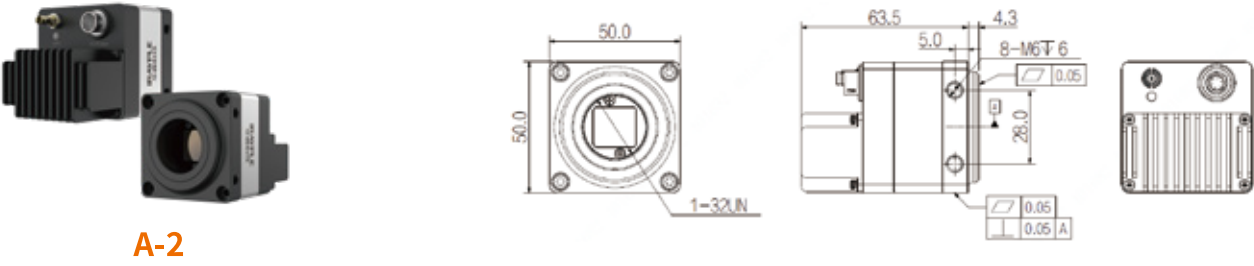
Note: USE: ultra-short exposure mode
NE: standard exposure mode
The items with * are new products

CoaXPress

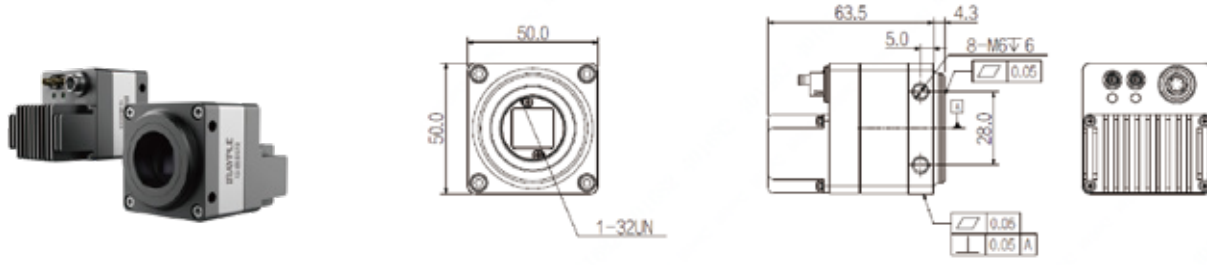
Specifications



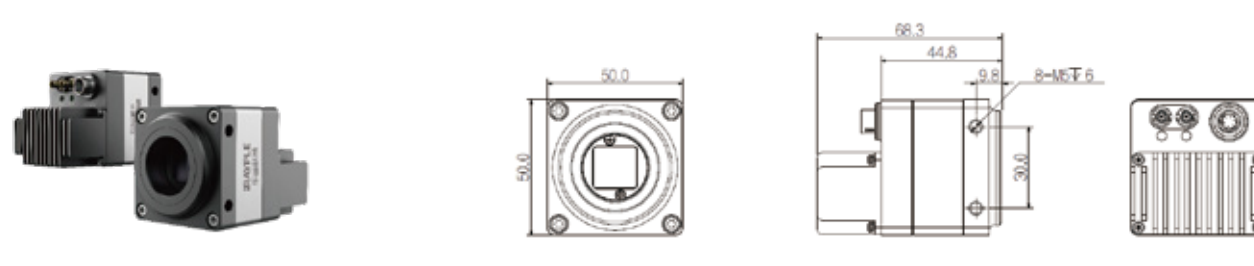
A-1



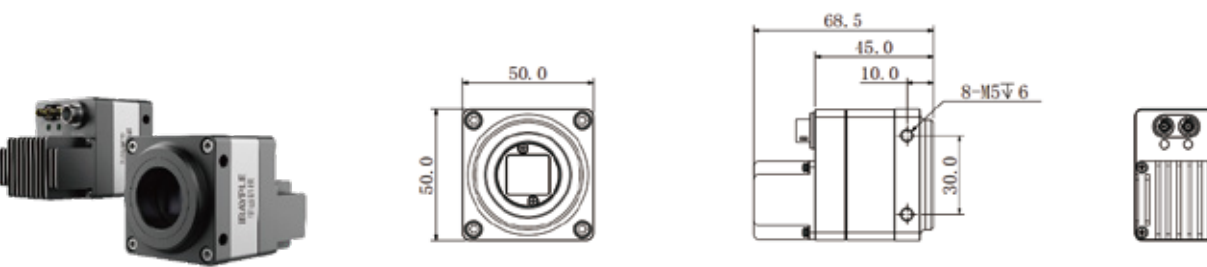
A-2



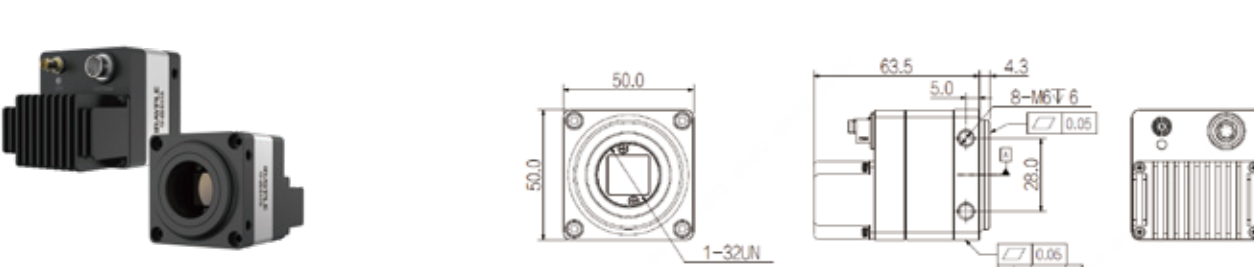
A-3



A-4



A-5

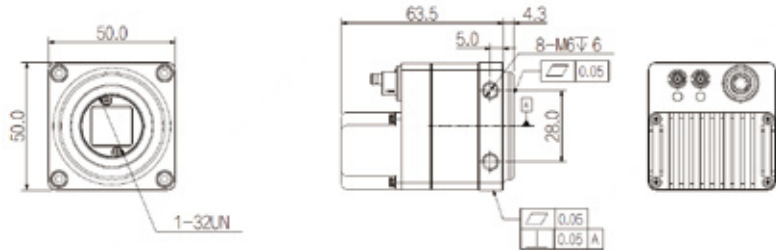


A-6

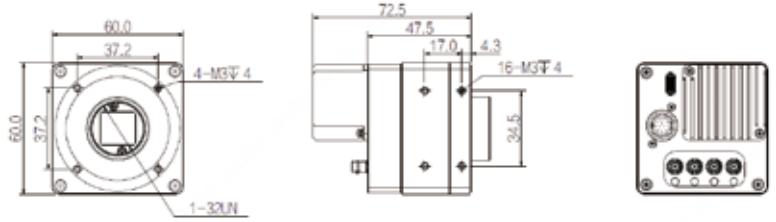
Dimensions



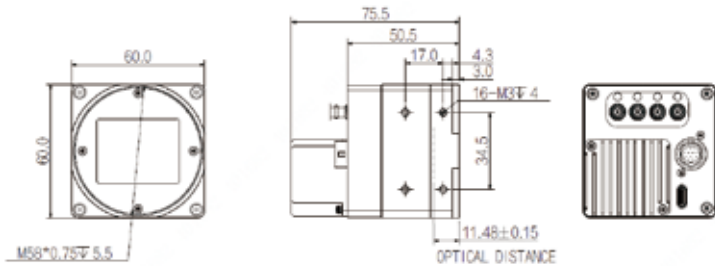
A-7



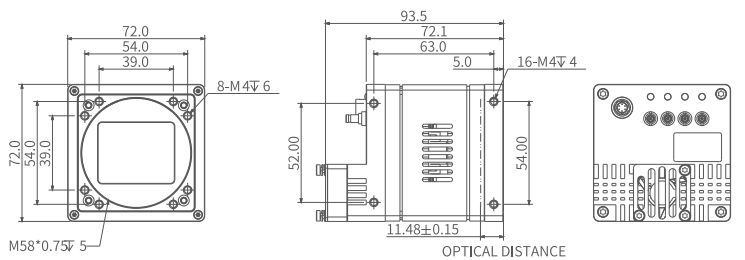
B-1



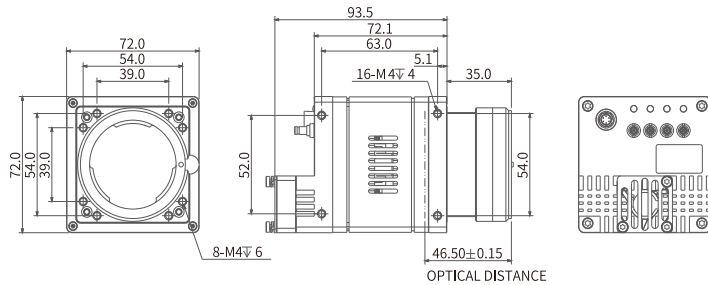
B-2



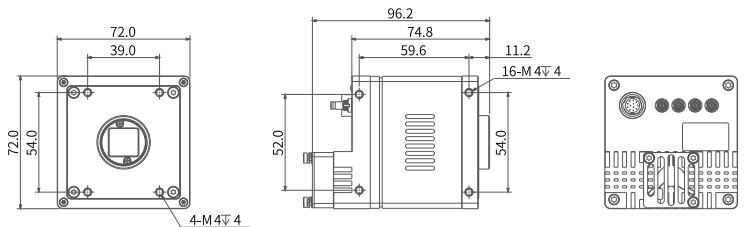
C-1



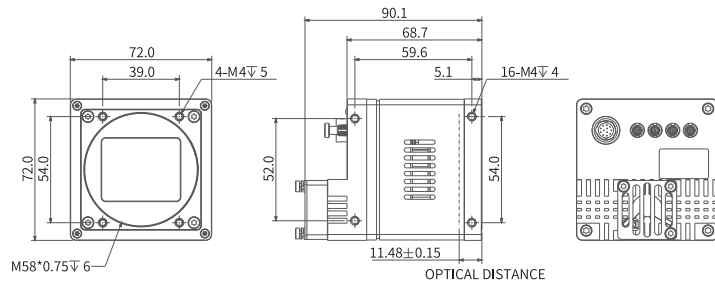
C-2



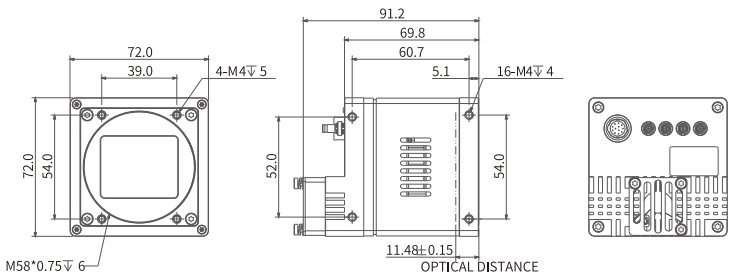
C-3



C-4

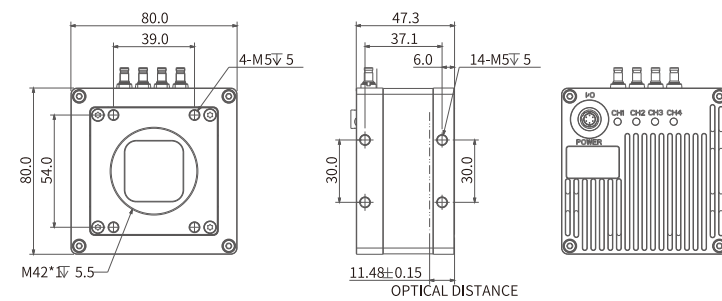


C-5

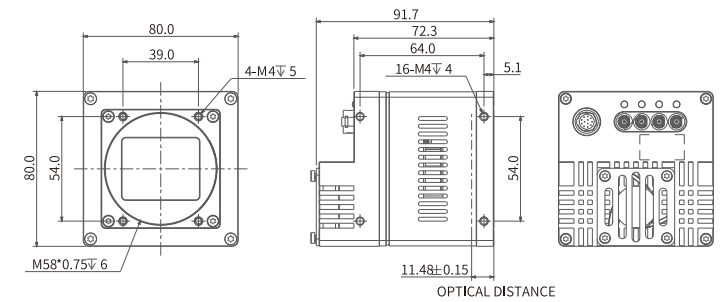




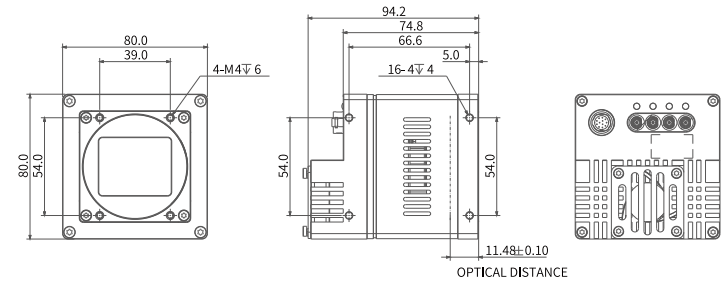
D-1



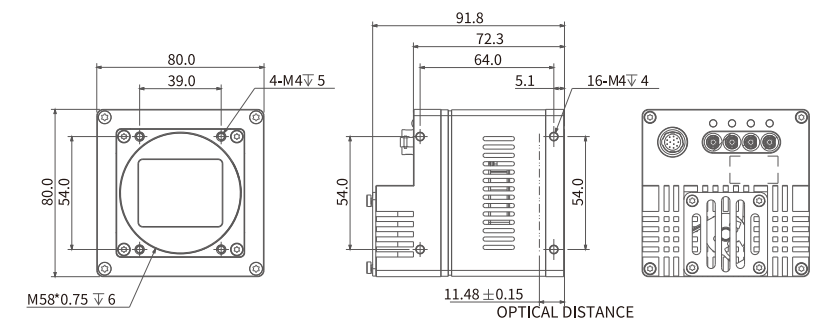
D-2



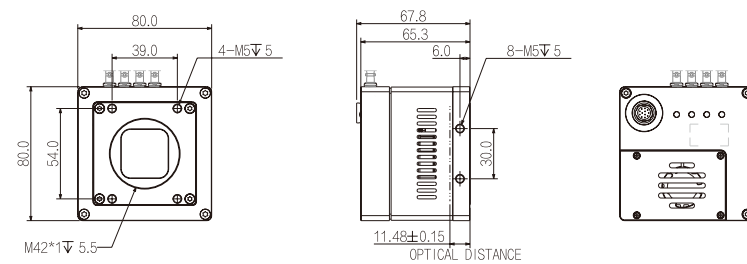
D-3



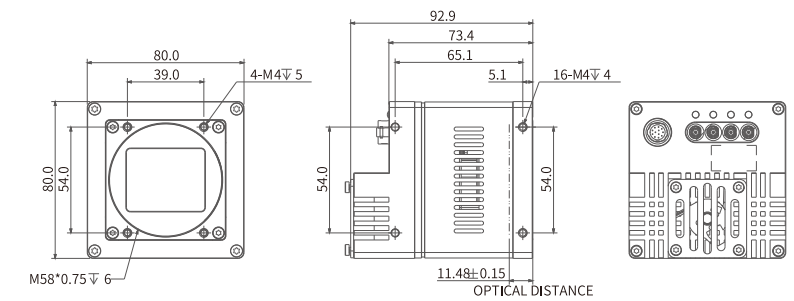
D-4



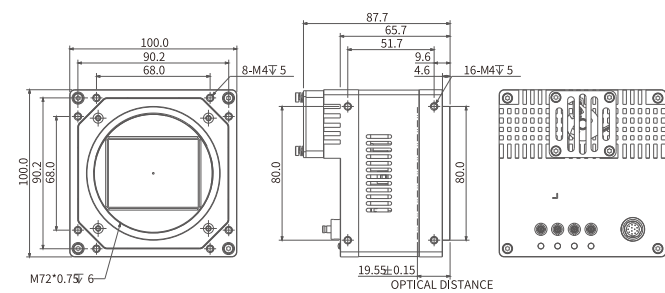
D-5



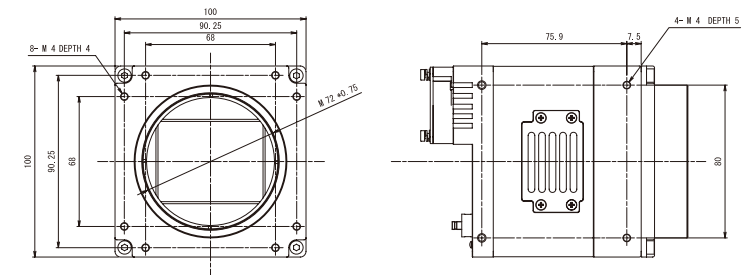
D-6



E-1

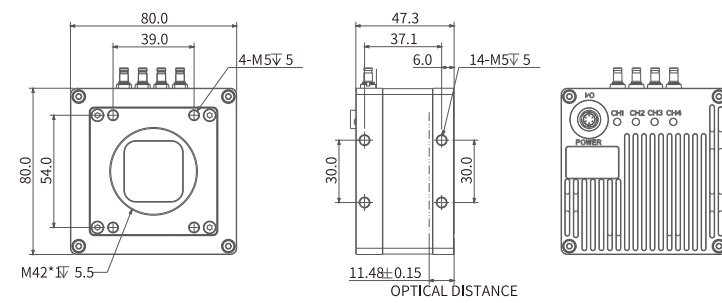


E-2

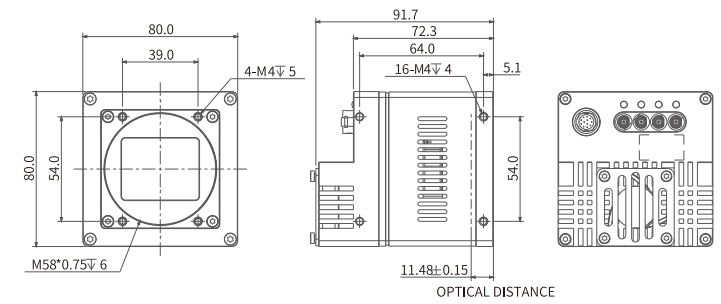




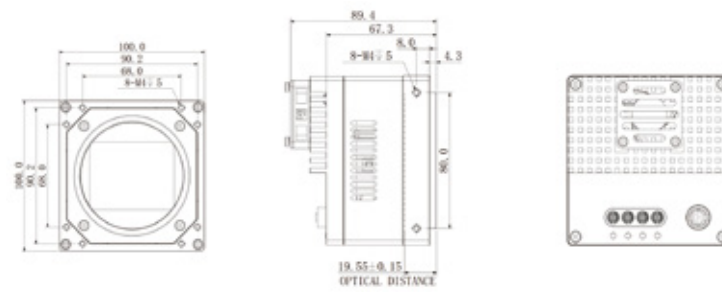
D-1



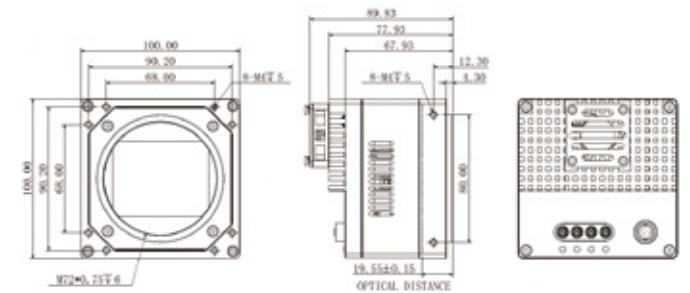
D-2



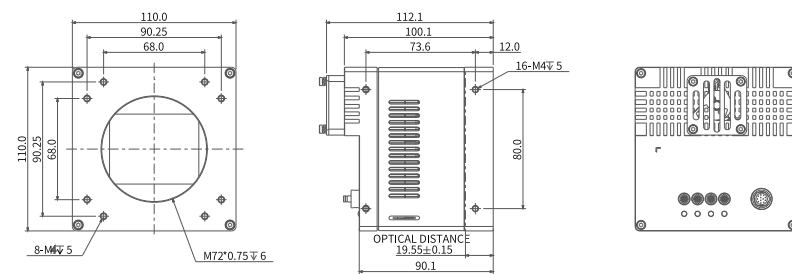
E-3



E-4



F-1



LINE SCAN INDUSTRIAL CAMERA

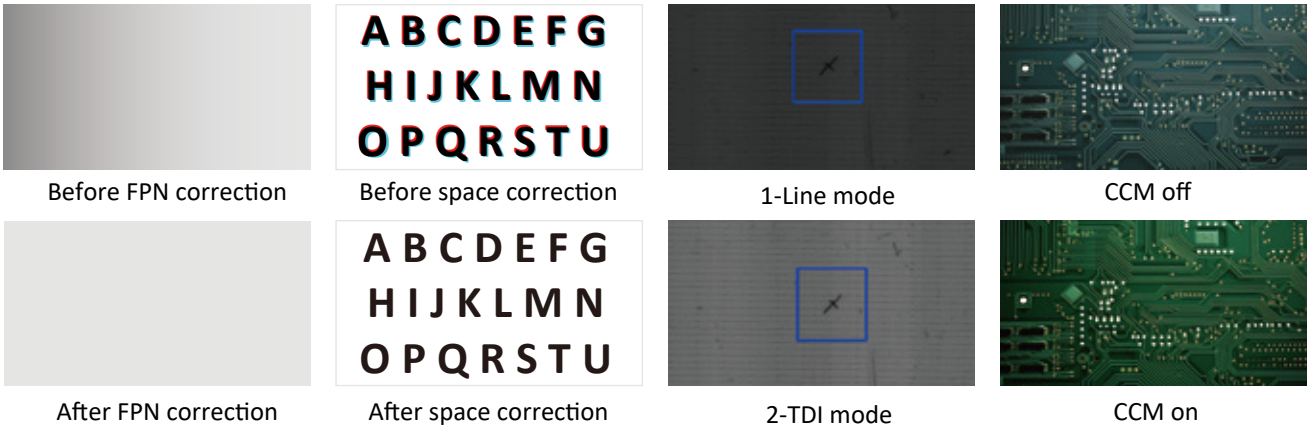
Line Scan Industrial Camera

High resolution and high line frequency

Product feature

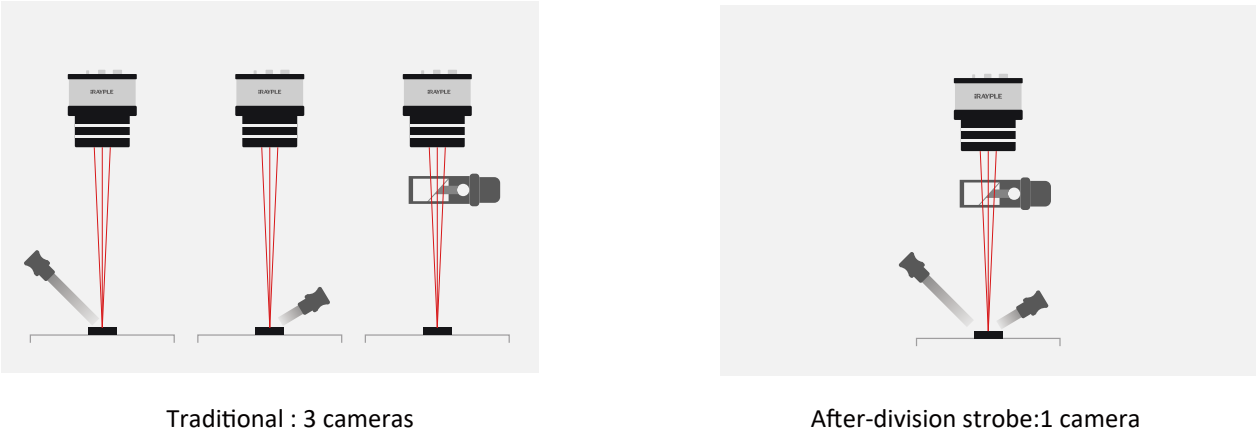
Superior ISP Processing Algorithms

Superior ISP processing algorithms to provide better imaging results, FPN algorithm, CCM algorithm, spatial correction algorithm, TDI technology, etc. to restore more details and show better image quality.



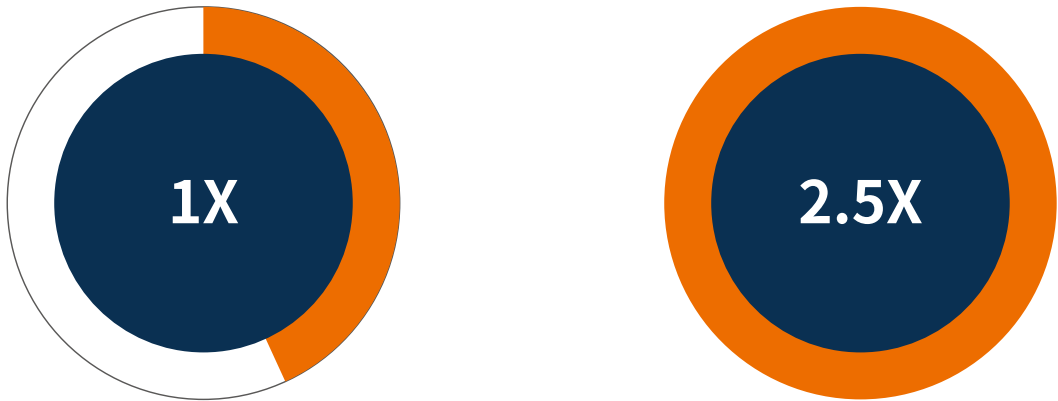
Time-sharing Strobe

In practice, it is often necessary to obtain multiple sets of images based on different complementary light programs. In order to save the number of cameras or space constraints, it is hoped that the camera can be time-division multiplexing, time-division stroboscopic, for each line of exposure can be switched to a different configuration of the camera parameters or the configuration of the external light source, and then the same configuration of the line of data is combined into a single frame image.



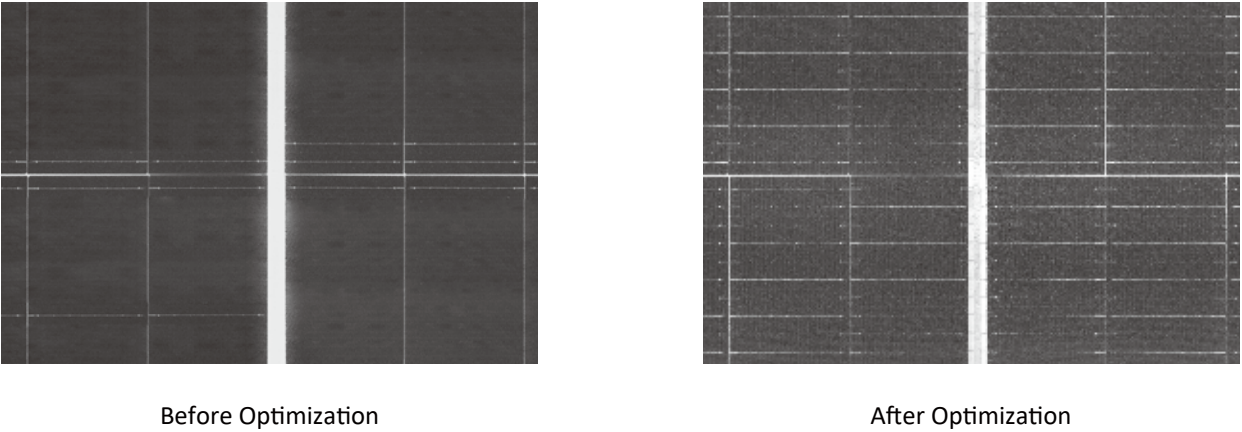
Lossless Compression To Improve Camera Line Rate

With lossless compression on, line rate output can be further increased up to 2.5x, reducing network bandwidth limitations. After enabling lossy compression, the maximum 4K network port throughput can reach 100K.



Exposure Polling For HDR

HDR: High Dynamic Range The main function of HDR is to make a picture more adaptable to the light and darkness of different areas of the subject, so that all areas can be clearly imaged. The HDR effect can be realized by line scan camera through the long and short exposure of odd and even rows.



GigE

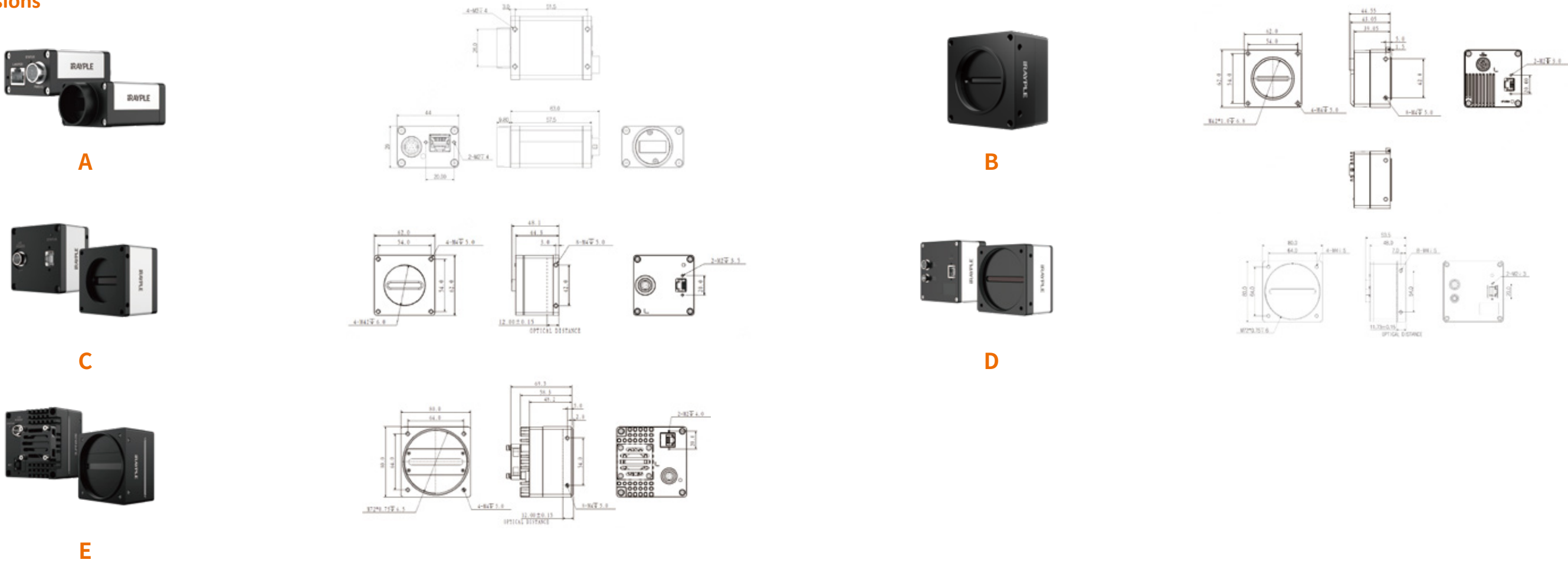
Specifications



Model	Resolution	Line Rate	Bit Depth (bit)	Sensor Model			Exposure Time	Interface	Dimension (mm*mm*mm)	Lens Mount	Power Supply	Label
				Sensor Type	Pixel Size(um*um)	Mono/Color						
L5027MG400E	2048*4	59	8/10/12	CMOS	7*7	M	8μs~100ms	GigE	29*44*72.8	C (FBL 17.526)	24VDC	A
L5027CG300E	2048*3	44.7	8/10/12	CMOS	7*7	C	8μs~100ms	GigE	29*44*72.8	C (FBL 17.526)	24VDC	A
L5047MG100E	4096*2	#29~58	8/10/12	CMOS	3.5*3.5	M	8μs~100ms	GigE	29*44*72.8	C (FBL 17.526)	24VDC	A
L5047MG440E	4096*4	#28~59	8/10/12	CMOS	7*7	M	4μs~100ms	GigE	62*62*44.6	M42*1.0 (FBL 12)	24VDC	B
L5047CG440E	4096*3	#28~59	8/10/12	CMOS	7*7	C	4μs~100ms	GigE	62*62*44.6	M42*1.0 (FBL 12)	24VDC	B
L5027MG140E	2048*1	#49-63	8/10/12	CMOS	14*14	M	8μs~100ms	GigE	62*62*48.1	M42*1.0 (FBL 12)	24VDC	C
L5027CG140E	2048*2	#49-63	8/10/12	CMOS	14*14	C	8μs~100ms	GigE	62*62*48.1	M42*1.0 (FBL 12)	24VDC	C
L5047MG140E	4096*2	#28~59	8/10/12	CMOS	7*7	M	8μs~100ms	GigE	62*62*48.1	M42*1.0 (FBL 12)	24VDC	C
L5047CG140E	4096*2	#28~59	8/10/12	CMOS	7*7	C	8μs~100ms	GigE	62*62*48.1	M42*1.0 (FBL 12)	24VDC	C
L5082MG170E	8192*1	#13~30	8/10/12	CMOS	7*7	M	8μs~100ms	GigE	80*80*53.5	M72*0.75 (FBL 11.73)	24VDC	D
L5087MT270E	8192*2	148.8	8/10	CMOS	7*7	M	4μs~100ms	10GigE	80*80*69.5	M72*0.75 (FBL 12)	24VDC	E
L5087CT370E	8192*3	48	8	CMOS	7*7	C	4μs~100ms	10GigE	80*80*69.5	M72*0.75 (FBL 12)	24VDC	E
*L5016NG100E	1024*1	36	8	InGaAs	12.5*12.5	SWIR	15μs~100ms	GigE	62*62	C (FBL 17.526)	24VDC	--
*L5167MT270E	16384*2	74	8	CMOS	3.5*3.5	M	3μs~100ms	10GigE	80*80*69.5	M72*0.75 (FBL 12)	24VDC	E

Note: # Indicates the highest line rate under standard line rate and lossless compression. Products with*for upcoming new product release.

Dimensions



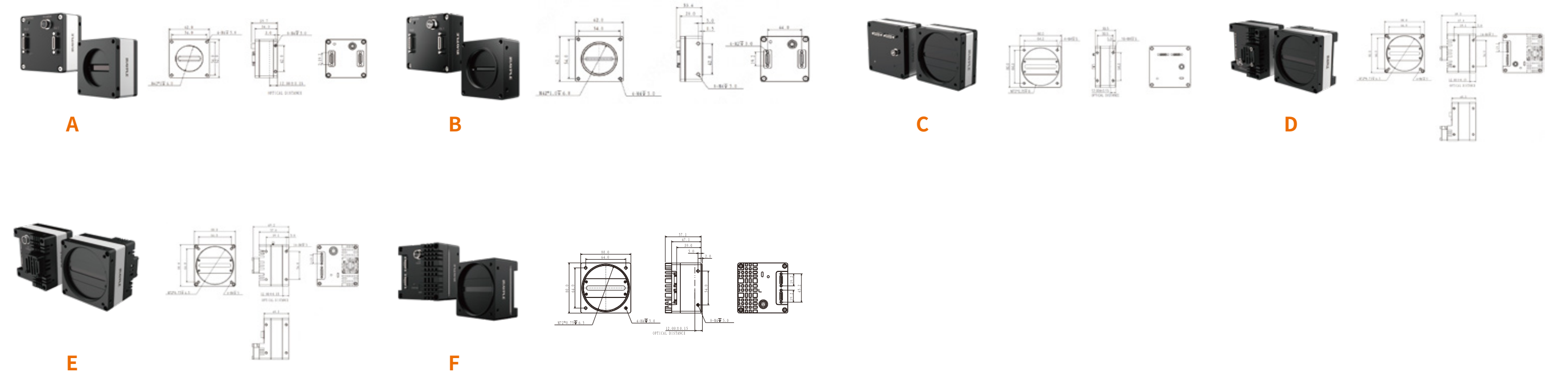
 Specifications



Model	Resolution	Line Rate	Bit Depth (bit)	Sensor Model			Exposure Time	Interface	Dimension (mm*mm*mm)	Lens Mount	Power Supply	Label
				Sensor Type	Pixel Size (um*um)	Mono/Color						
L5047MK141E	4096*2	180	8/10	CMOS	7*7	M	4μs~100ms	CameraLink	62*62*39.7	M42*1.0 (FBL 12)	24VDC	A
L5047CK141E	4096*2	92	8/10	CMOS	7*7	C	4μs~100ms	CameraLink	62*62*39.7	M42*1.0 (FBL 12)	24VDC	A
*L5047MK440E	4096*4	200	8/10	CMOS	7*7	M	4μs~100ms	CameraLink	62*62*33.4	M42*1.0 (FBL 12)	24VDC	B
L5047CK440E	4096*3	66	8/10	CMOS	7*7	C	4μs~100ms	CameraLink	62*62*33.4	M42*1.0 (FBL 12)	24VDC	B
*L5047CK441E	4096*4	40	8	CMOS	7*7	NIR	4μs~100ms	CameraLink	62*62*33.4	M42*1.0 (FBL 12)	24VDC	B
L5082MK170E	8192*1	80	8/10	CMOS	7*7	M	2μs~100ms	CameraLink	80*80*39.5	M72*0.75 (FBL 12)	24VDC	C
L5087MK470E	8192*4	100	8/10	CMOS	5*5	M	3μs~100ms	CameraLink	80*80*69.3	M72*0.75 (FBL 12)	24VDC	D
L5087CK670E	8192*6	33	8	CMOS	5*5	C	3μs~100ms	CameraLink	80*80*69.3	M72*0.75 (FBL 12)	24VDC	D
L5087MKA70E	8192*4	100	8/10	CMOS	5*5	M	3μs~100ms	CameraLink	80*80*69.2	M72*0.75 (FBL 12)	24VDC	E
L5087CKA70E	8192*6	33	8	CMOS	5*5	C	3μs~100ms	CameraLink	80*80*69.2	M72*0.75 (FBL 12)	24VDC	E
L5087MK471E	8192*4	100	8/10/12	CMOS	7*7	M	4μs~100ms	CameraLink	80*80*57.1	M72*0.75 (FBL 12)	24VDC	F
*L5087CK370E	8192*3	33	8	CMOS	7*7	C	4μs~100ms	CameraLink	80*80*57.1	M72*0.75 (FBL 12)	24VDC	F
L5162MK170E	16384*1	50	8/10	CMOS	3.5*3.5	M	3μs~100ms	CameraLink	80*80*39.5	M72*0.75 (FBL 12)	24VDC	C

Note: Products with*for upcoming new product release.

 Dimensions



CameraLink

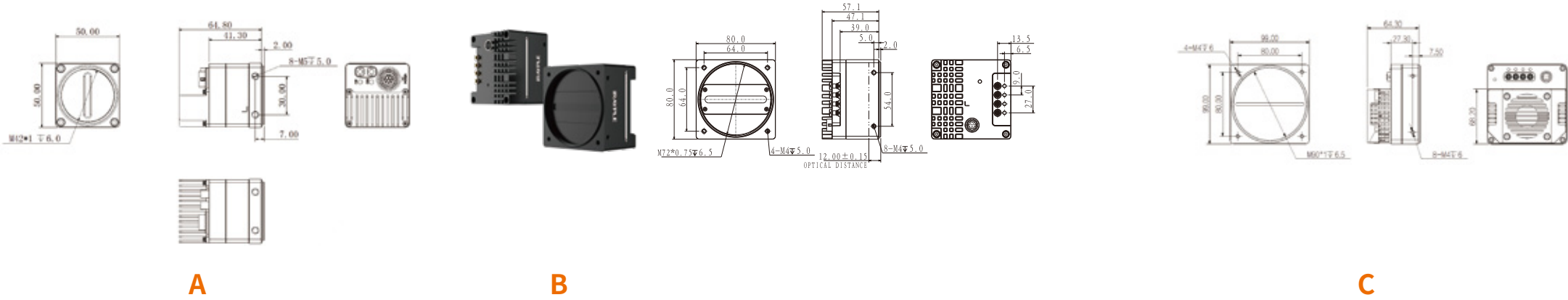
Specifications



Model	Resolution	Line Rate	Bit Depth (bit)	Sensor Model			Exposure Time	Interface	Dimension (mm*mm*mm)	Lens Mount	Power Supply	Label
				Sensor Type	Pixel Size (um*um)	Mono/Color						
*L5047MX440E	4096 x 4	250	8/10	CMOS	7*7	黑白	3μs~100ms	CXP-6	50*50*64.8	M42*1.0 (FBL 12)	24VDC	A
*L5087MX470E	8192 x 4	200	8/10	CMOS	7*7	黑白	4μs~100ms	CXP-6	80*80*57.1	M72*0.75 (FBL 12)	24VDC	B
*L5167MX270E	16384 x 2	120	8/10	CMOS	3.5*3.5	黑白	4μs~100ms	CXP-6	80*80*57.1	M72*0.75 (FBL 12)	24VDC	B
*L5167CPA90E	16384 x 16	92	8/10	CMOS	5*5	彩色	4μs~100ms	CXP-12	99*99*64.3	M90*1 (FBL 12)	24VDC	C

Note: Products with*for upcoming new product release.

Dimensions



BOARD CAMERA

AB Series

Compact and easy to integrate

GigE

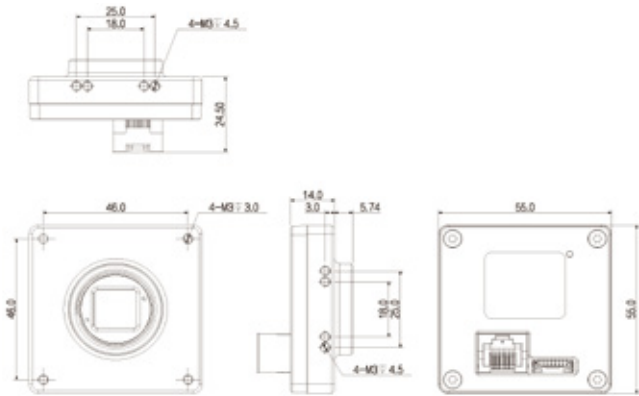
Specifications

Pixel	Model	Resolution	Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Interface	Dimension (mm*mm*mm)	Operating Temperature	Label	Matching Wire
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
5	AB3051MG020E	800*600	120	10	PYTHON480	CMOS	4.8*4.8	1/3.6"	Global	M	NE:1μs~1sec	GigE	55*55*14	0~50℃	A	C01-IO-8PIN-DC-1M/ C01-IO-8PIN-DC-3M
5	AB3051MG023E	800*600	120	10	PYTHON480	CMOS	4.8*4.8	1/3.6"	Global	M	NE:1μs~1sec	GigE	55*55*14	0~50℃	A	
1.3	AB3131MG020E	1280*1024	60	10	PYTHON1300	CMOS	4.8*4.8	1/2"	Global	M	NE:1μs~1sec	GigE	55*55*14	0~50℃	A	
1.3	AB3131MG023E	1280*1024	60	10	PYTHON1300	CMOS	4.8*4.8	1/2"	Global	M	NE:1μs~1sec	GigE	55*55*14	0~50℃	A	
1.3	AB3138MG000E	1280*1024	86.5	10	SS	CMOS	4.0*4.0	1/2.7"	Global	M	NE:10μs~1sec	GigE	55*55*14	0~50℃	B	
6	AB3600M/CG000E	3072*2048	19	12	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	M/C	NE:25μs~1sec	GigE	55*55*14	0~50℃	A	
12	AB3A20M/CG000E	4000*3000	9	12	IMX226	CMOS	1.85*1.85	1/1.7"	Rolling	M/C	NE:143μs~1sec	GigE	55*55*14	0~50℃	A	

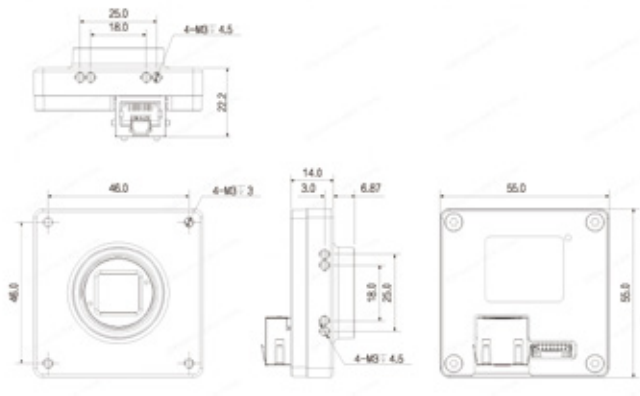
Dimensions



A



B



USB3.0

Specifications

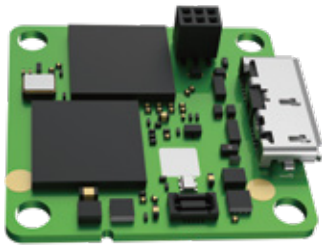
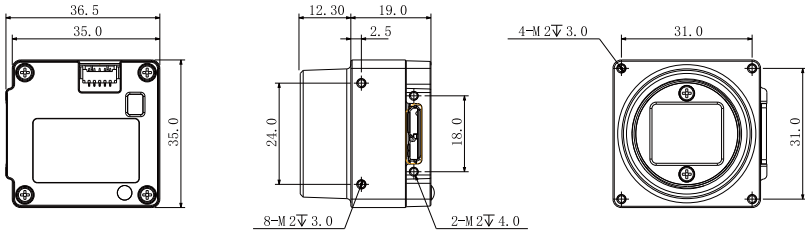
Pixel	Model	Resolution	Frame Rate (fps)	Bit Depth (bit)	Sensor Model						Exposure Time	Interface	Dimension (mm*mm*mm)	Operating Temperature	Label	Matching Wire
					Sensor	Sensor Type	Pixel Size (um*um)	Sensor Size	Shutter	Mono/Color						
1.3	AB3138M/CU000E	1280*1024	201	10	SS	CMOS	4.0*4.0	1/2.7"	Global	M	NE:10μs~1sec	USB3.0	35*35*19	0~50°C	A	C01-IO-5PIN-0.3M
1.3	AB3138M/CU102E	1280*1024	201	10	SS	CMOS	4.0*4.0	1/2.7"	Global	M	NE:10μs~1sec	USB3.0	35*35*19	0~50°C	C	
1.3	AB5131M/CU000E	1280*1024	208	10	PYTHON1300	CMOS	4.8*4.8	1/2"	Global	M/C	NE:1μs~1sec	USB3.0	35*35*19	0~50°C	A	
1.3	AB3134CU210E	1280*960	54	12	AR0134	CMOS	3.75*3.75	1/3"	Global	C	NE:16μs~1sec	USB3.0	27*27*1.6	0~50°C	B	
1.6	AB7160M/CU102E	1440*1080	249	10	IMX273	CMOS	3.45*3.45	1/2.9"	Global	M/C	USE:1μs~14μs; NE:15μs~1sec	USB3.0	35*35*19	0~50°C	C	
2.3	AB7200M/CU102E	1920*1200	164	10	IMX174	CMOS	5.86*5.86	1/1.2"	Global	M/C	USE:1μs~14μs; NE:15μs~1sec	USB3.0	35*35*19	0~50°C	C	
2.8	AB7280MU102E	1936*1464	125	10	IMX421	CMOS	4.5*4.5	2/3"	Global	M	USE:1μs~14μs; NE:15μs~1sec	USB3.0	35*35*19	0~50°C	C	
3	AB7300M/CU102E	2048*1536	120	10	IMX252	CMOS	3.45*3.45	1/1.8"	Global	M/C	USE:1μs~14μs; NE:15μs~1sec	USB3.0	35*35*19	0~50°C	C	
5	AB3504CU210E	2592*1944	48	12	AR0521	CMOS	2.2*2.2	1/2.5"	Rolling	C	NE:10μs~1sec	USB3.0	27*27*1.6	0~50°C	B	
6	AB3600M/CU000E	3072*2048	60	10	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	M/C	NE:25μs~1sec	USB3.0	35*35*19	0~50°C	A	
6	AB3600CU010E	3072*2048	60	10	IMX178	CMOS	2.4*2.4	1/1.8"	Rolling	C	NE:25μs~1sec	USB3.0	35*35*19	0~50°C	A	
12	AB3A20M/CU000E	4000*3000	30	10	IMX226	CMOS	1.85*1.85	1/1.7"	Rolling	M/C	NE:16μs~1sec	USB3.0	35*35*19	0~50°C	A	
12	AB7A20M/CU102E	4096*3000	23.4	12	IMX304	CMOS	3.45*3.45	1.1"	Global	M/C	"USE:1μs~14μs; NE:15μs~1sec"	USB3.0	35*35*19	0~50°C	C	

Note: USE: ultra-short exposure mode
NE: standard exposure mode

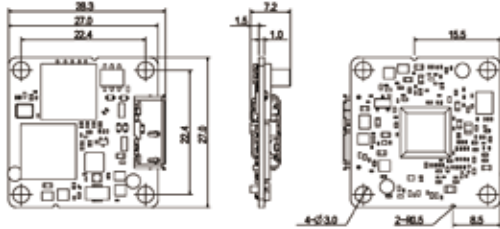
Dimensions



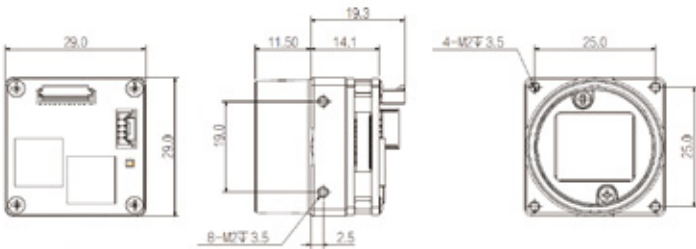
A



B



C



FRAME GRABBER CARD

Frame Grabber Card

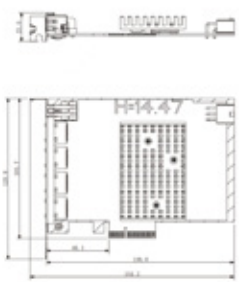
Rich interfaces and high stability



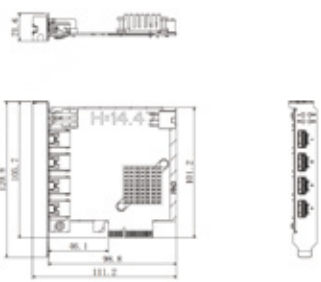
Specifications

Model	Bus Interface	Connector	Camera Types	Number of Cameras	Interface Rate	Power Consumption	Temperature	Dimension (mm*mm*mm)	Label
GE-5G40E	PCI-E Gen2 x4	4*RJ45	GigE Interface industrial camera	Up to 4	1Gbps/2.5Gbps	3.6W	0~50° C	151.2*120.8*21.6	A
GU3-5U41RE	PCI-E Gen2 x4	4*USB3.0	USB3.0 Interface industrial camera	Up to 4	5Gbps	25W (USB power)	0~50° C	111.2*120.8*21.6	B
GCL-5F21E	PCI-E Gen2 x4	2*SDR	CameraLink Interface industrial camera	Up to 2	6.8Gbps	8W (No POCL power)	0~50° C	151.6*126.3*21.6	C
GCL-5F40E	PCI-E Gen2 x8	4*SDR	CameraLink Interface industrial camera	Up to 4	6.8Gbps	9.2W	0~50° C	151.1*126.3*41.9	G
GCL-5B40E	PCI-E Gen2 x8	4*SDR	CameraLink Interface industrial camera	Up to 4	6.8Gbps	9.2W	0~50° C	151.1*126.3*41.9	G
GT-7G10E	PCI-E Gen2 x4	1*RJ45	10GigE Interface industrial camera	Up to 1	10Gbps	8W	0~50° C	137.5*120.8*21.6	D
GT-6G10E	PCI-E Gen2 x4	1*RJ45	10GigE Interface industrial camera	Up to 1	10Gbps	7W	0~50° C	--	--
GT-6G20E	PCI-E Gen2 x4	2*RJ45	10GigE Interface industrial camera	Up to 2	10Gbps	12W	0~50° C	--	--
GX3-6D40	PCI-E Gen3 x4	4*DIN 1.0/2.3	CXP-6 Interface industrial camera	Up to 4	1.25/2.5/3.125/5/6.25Gbps	20W	0~50° C	167.5*68.9*21.6	E
GX3-6D41E	PCI-E Gen3 x4	4*DIN 1.0/2.3	CXP-6 Interface industrial camera	Up to 4	1.25/2.5/3.125/5/6.25Gbps	20W	0~50° C	144.8 *104.9*21.6	H
GX3-12HD40	PCI-E Gen3 x8	4*Micro-BNC	CXP-12 Interface industrial camera	Up to 4	1.25/2.5/3.125/5/6.25/10/12.5Gbps	20W	0~50° C	167.5*68.9*21.6	F
GX3-12HD41E	PCI-E Gen3 x8	4*Micro-BNC	CXP-12 Interface industrial camera	Up to 4	1.25/2.5/3.125/5/6.25/10/12.5Gbps	20W	0~50° C	144.8 *104.9*21.6	I

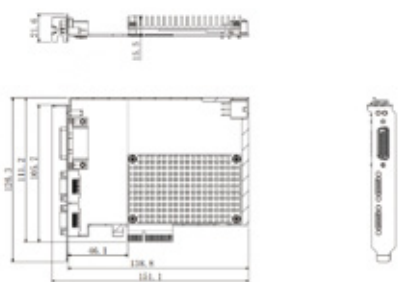
Dimensions



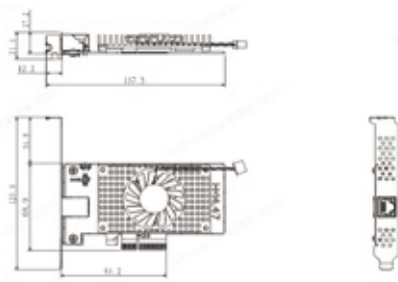
A



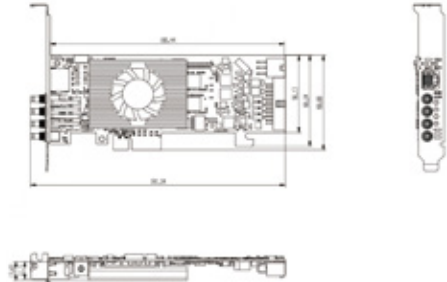
B



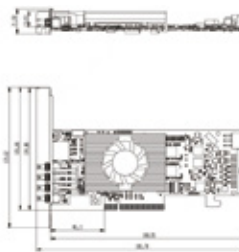
C



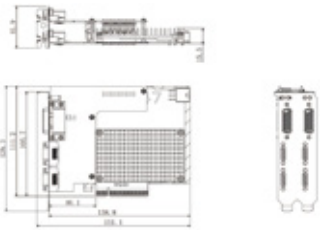
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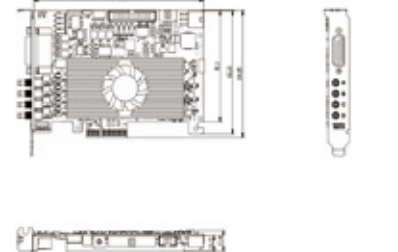
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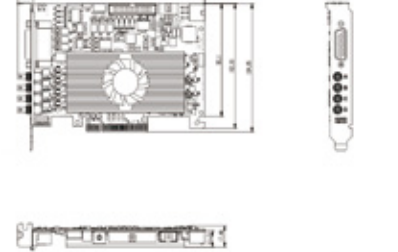
F



G



H



I

CODE READER

Industrial Code Reader

Full product series and high recognition accuracy



Code Reader Family Tree

HuaRay Technology's code readers consists of 3000 series, 4000 series, 5000 series, 7000 series, or by scanning method, there are line scan reader module, area scan code readers. Resolution ranges within 0.4~25MP. They have been widely used in many industries such as lithium batteries, photovoltaic cells, logistics, 3C, robots, etc.



3000 Series Code Reader

Product Feature

- Two built-inillumination support red/white color incompactdesign
- Support multiple trigger modes such as software trigger/external trigger/free run
- Industrial-level Ethernet connector provides 100M bandwidth
- IO pins supports RS232 and other GPIO function
- 9~26VDC power supply, power consumption is lower than 4.5W
- Supports multiple codes formats, barcode types includes CODE128/EAN8/EAN13/CODE39/ CODE93/ CODEBAR/ITF25/UP- CA/UPCE, etc., matrix code includes Data Matrix/QR/Micro QR, etc



A



B



C



D



E

 Specifications

Pixel	Model	Resolution	Frame Rate (fps)	Max.Scanning Rate	Focal Length	Focusing Control	Distance	Field Of View	Illumination Color	Result Indication	Aimer	Port connector	Power Consumption	Dimension (mm*mm*mm)	Label
0.4	R3004MG-05-DEE110E	640*512	60	45	4.8	Fixed	110	81×65	Dual-channel Red & White Light	--	Red Aimer	Fast Ethernet,RS-232, DC terminal	<2.5	50*50*28.5	A
0.4	R3004MG-05H-WEE01E	640*512	60	45	4.8	Manual	40-150	32×26 - 112×89	Dual-channel White Light	Green Indicator	Red Aimer	Fast Ethernet,RS-232, DC terminal	<4.5	52*50*28.5	B
0.4	R3004MG-05H-DEE01E	640*512	60	45	4.8	Manual	40-150	31×24 - 110×88	Dual-channel Red & White Light	--	Red Aimer	Fast Ethernet,RS-232, DC terminal	<2.5	50*50*28.5	C
1.3	R3013MG-05-DEE110E	1280*1024	60	31	4.8	Fixed	110	81×65	Dual-channel Red & White Light	--	Red Aimer	Fast Ethernet,RS-232, DC terminal	<2.5	50*50*28.5	A
1.3	R3013MG-05H-WEE01E	1280*1024	60	31	4.8	Manual	40-150	32×26 - 112×89	Dual-channel White Light	Green Indicator	Red Aimer	Fast Ethernet,RS-232, DC terminal	<4.5	52*50*28.5	B
1.3	R3013MG-05H-DEE01E	1280*1024	60	31	4.8	Manual	40-150	31×24 - 110×88	Dual-channel Red & White Light	--	Red Aimer	Fast Ethernet,RS-232, DC terminal	<2.5	50*50*28.5	C
1.3	R3013MU-05-DEE110E	1280*1024	60	31	4.8	Fixed	110	81×65	Dual-channel Red & White Light	--	Red Aimer	USB2.0, RS-232, DC terminal	<2.5	50*50*28.5	A
1.3	R3013MU-05H-WEE01E	1280*1024	60	31	4.8	Manual	40-150	32×26 - 112×89	Dual-channel White Light	Green Indicator	Red Aimer	USB2.0, RS-232, DC terminal	<4.5	52*50*28.5	B
1.3	R3013MU-05H-DEE01E	1280*1024	60	31	4.8	Manual	40-150	31×24 - 110×88	Dual-channel Red & White Light	--	Red Aimer	USB2.0, RS-232, DC terminal	<2.5	50*50*28.5	C
1.6	R3016MG-07H-RPF01E	1440*1080	60	50	6.72	Manual	40-150	30×22 - 111 x 83	Dual-channel Red Polarized Light	Green/ Red Indicator	Red/Green Aimer	Fast Ethernet,RS-232, DC terminal	<4.5	45*35*25.5	D
1.6	R3016MG-07H-WPG01E	1440*1080	60	50	6.72	Manual	40-150	30×22 - 111 x 83	Dual-channel White Light	Green/ Red Indicator	Red/Green Aimer	Fast Ethernet,RS-232, DC terminal	<4.5	45*35*25.5	D
1.6	R3016MG-16H-RPF01E	1440*1080	60	50	16	Manual	80-200	21×16 - 59 x 44	Dual-channel Red Polarized Light	Green/ Red Indicator	Red/Green Aimer	Fast Ethernet,RS-232, DC terminal	<4.5	45*55*25.5	E
1.6	R3016MG-16H-WPG01E	1440*1080	60	50	16	Manual	80-200	21×16 - 59 x 44	Dual-channel White Light	Green/ Red Indicator	Red/Green Aimer	Fast Ethernet,RS-232, DC terminal	<4.5	45*55*25.5	E

 Standard Parameter

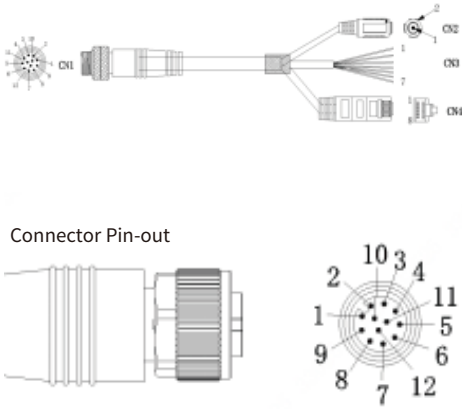
Status Indicator	Power, Network and Decoding Result
Types	1D: Code128/Code39/Code93/EAN13/EAN8/UPCA/UPCE/ITF25/CODEBAR, and more. 2D: QR/MQR/CQR/QRModel1/DM/DMECC000-140/PDF417, and more. Quality Evaluation: (ISO/IEC 29158 (AIM-DPM), ISO/IEC 15415, ISO/IEC 15416)
Software	EasyID
Trigger Mode	Support software trigger/external trigger/free run and other trigger modes
Connector	Industrial-grade M12 connector, Ethernet and GPIO interfaces
Ethernet	100 Mbps Ethernet
GPIO	RS232, 1 isolated enter, 1 isolated output, 1 configurable enter output
Communication	RS232, ethernet
Protocols	SDK, TCP Client, TCP Server, FTP, RS232, Profinet、Modbus、EtherNet/IP、MC(SLMP)、FINS/UDP、FINS/TCP\、MELSEC
Power Supply	Support 9~26VDC, 0.5Aenter, fit for industrial power compression ring environment
Material	Aluminum alloy + front cover
Operating Environment Temperature	-20° C ~ +50° C
Operating Environment Humidity	20%~95%, Non-condensing
Storage Environment Temperature	-30° C ~ +70° C
Certification	CE

 Accessory Manifest

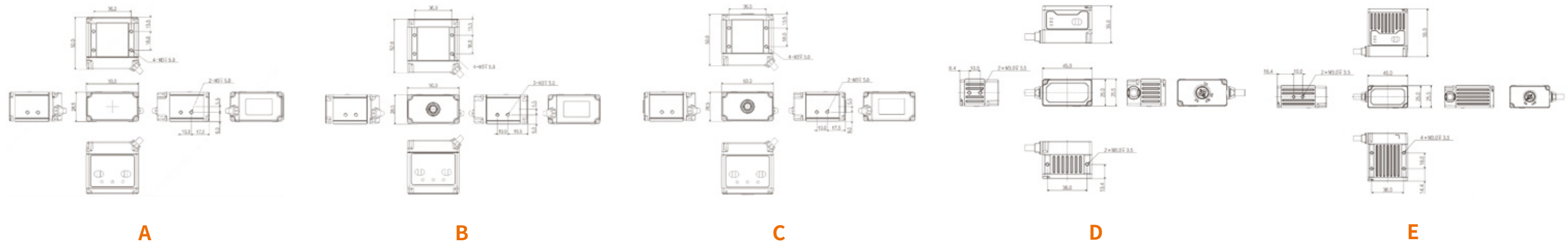
	Necessity	Model			Structure Type
Power Cord Network Cable	Must	Length	Static Cable	Flexible Cable	A、B、C、D、E
		3m	CABIO-M12A12-XXRJP-03	CABIO-M12A12-XX-03D	
		5m	CABIO-M12A12-XXRJP-05	CABIO-M12A12-XX-05D	
		10m	CABIO-M12A12-XXRJP-10	CABIO-M12A12-XX-10D	
		15m	CABIO-M12A12-XXRJP-15	CABIO-M12A12-XX-15D	
System Components	Optional	BKT-R3001			A、B、C
	Optional	BKT-R0001			A、B、C
Dimming Mask	Optional	MVSO07-02-3000A			A、B、C
Long Handle Focusing Wrench	Optional	MVSO07-02-3000			B、C

 Connector Pin-out

Pin	Signal	Description	Cable Color
1	VCC_EXTPWR	Power	Red
2	PGND	Power GND	Black
3	OPT_OUT0	Opto-isolated Output	Brown
4	OPT_GND	Opto-isolated GND	Purple & white
5	OPT_IN0	Opto-isolated Input	Yellow
6	DIRECT_IO	Configurable IO	Blue
7	MD1_P	--	Green
8	MD1_N	--	Green & white
9	MD0_P	--	Orange
10	MD0_N	--	Orange & white
11	RS232_RXD	Received Data	Purple
12	RS232_TXD	Transmit Data	Grey



Dimensions



4000 Series Code Reader

Product Feature

- Built-in light source design, optional red/white/blue multi-color light source, multiple light sources can be controlled independently
- Optional multiple focal lengths, support electric focus, one-key auto focus (AF) mode
- 100M industrial Ethernet port, IP65 protection level
- Support rich code types, support code quality evaluation
- Built-in deep learning code reading algorithm, support sequence function. Recognition performance in multiple and complex scenarios are better guaranteed



Specifications

Pixel	Model	Resolution	Frame Rate (fps)	Max.Scanning Rate (fps)	Focal Length	Distance	Field Of View	Illumination Type	Result Indicator	Quality Evaluation	Power Consumption	Dimension (mm*mm*mm)
1.3	R4013MG-07M-RGG01E	1280*1024	60	60	7	50-500	42°34~372°297	Red: Polarized/Unpolarized/Uniformed	Green/ Red Indicator	Support	<14	47°58*38
1.3	R4013MG-07M-WGG01E	1280*1024	60	60	7	50-500	42°34~372°297	White: Unpolarized/Uniformed	Green/ Red Indicator	Support	<14	47°58*38
1.3	R4013MG-07M-BGG01E	1280*1024	60	60	7	50-500	42°34~372°297	Blue: Polarized/Unpolarized/Uniformed	Green/ Red Indicator	Support	<14	47°58*38
1.3	R4013MG-12M-RGG01E	1280*1024	60	60	12	50-500	21°17~214°171	Red: Polarized/Unpolarized/Uniformed	Green/ Red Indicator	Support	<14	47°58*38
1.3	R4013MG-12M-WGG01E	1280*1024	60	60	12	50-500	21°17~214°171	White: Unpolarized/Uniformed	Green/ Red Indicator	Support	<14	47°58*38
1.3	R4013MG-12M-BGG01E	1280*1024	60	60	12	50-500	21°17~214°171	Blue: Polarized/Unpolarized/Uniformed	Green/ Red Indicator	Support	<14	47°58*38

Standard Parameter

Aimer	Red light dual-point indication
Status Indicator	Power, Network and Decoding Result
Focus Control	Motorized Lens and One-click Focus
Code Types	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	Easy ID
Trigger Mode	Software Trigger, External Trigger and Free Run
Connector	Industrial Grade M12 Ethernet and GPIO Connectors
Etherne	100 Mbps Ethernet
GPIO	RS232, 2 Opto-isolated Input and 3 Opto-isolated Output
Communication Ports	RS-232 and Ethernet
Protocol	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
Protection	IP65
Housing Material	Aluminum Alloy (Excluding front Cover)
Operating Environment Temperature	-20° C ~ +50° C
Operating Environment Humidity	20% ~ 95%, Non-condensing
Storage Environment Temperature	-30° C ~ +70° C
Weight	<180g

Connector Pin-out

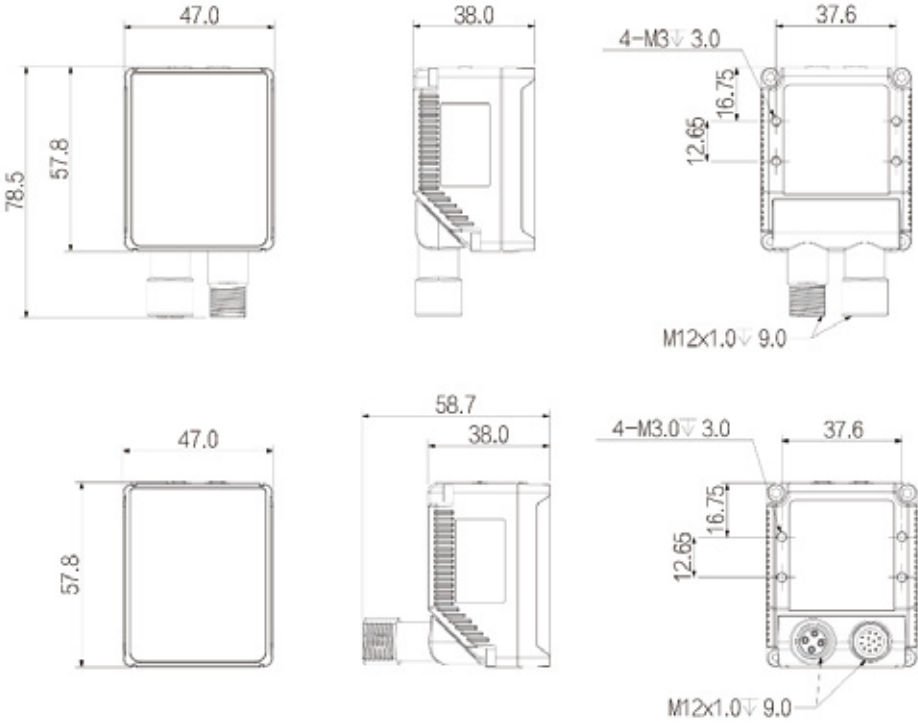
Pin	Signal	Description	Cable Color
1	OPT_OUT2	Opto-isolated Output 2	■ Brown & white
2	RS232_TXD	RS232 Serial Send	■ Grey
3	RS232_RXD	RS232 Serial Receive	■ Purple
4	SIGNAL_GND	RS232 Serial GND	■ Black & white
5	OPT_IN1	Opto-isolated Input 1	■ Yellow
6	OPT_IN_GND	Opto-isolated Input GND	■ Purple & white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



Accessory manifest

	Necessity	Model		
		Length	Static Cable	Flexible Cable
Power & GPIO Cable	Must	5m	CABIO-M12A12F-DCXX-05	CABIO-M12A12F-XX-05D
		10m	CABIO-M12A12F-DCXX-10	CABIO-M12A12F-DCXX-10D
		15m	CABIO-M12A12F-DCXX-15	CABIO-M12A12F-DCXX-15D
Ethernet Cable	Must	5m	CABNET-M12A4-RJ45-05	CABNET-M12A4-RJ45-05D
		10m	CABNET-M12A4-RJ45-10	CABNET-M12A4-RJ45-10D
		15m	CABNET-M12A4-RJ45-15	CABNET-M12A4-RJ45-15D
System Componentst	Optional	BKT-R4001		
	Optional	BKT-R0001		

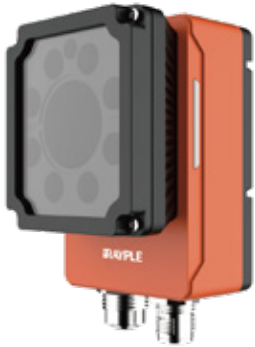
Dimensions



5000 Series Code Reader

Product Feature

- Integrated light source design, optional red/white/blue multi-color light sources, different light sources can be controlled independently
- Different focal lengths support electric focus, Support one-key auto focus (AF) mode
- GigE port, iP65 protection level
- Support rich code types, support code quality evaluation
- Built-in deep learning algorithm, support sequence function, recognition performance in multiple and complex scenarios can be guaranteed



A



B

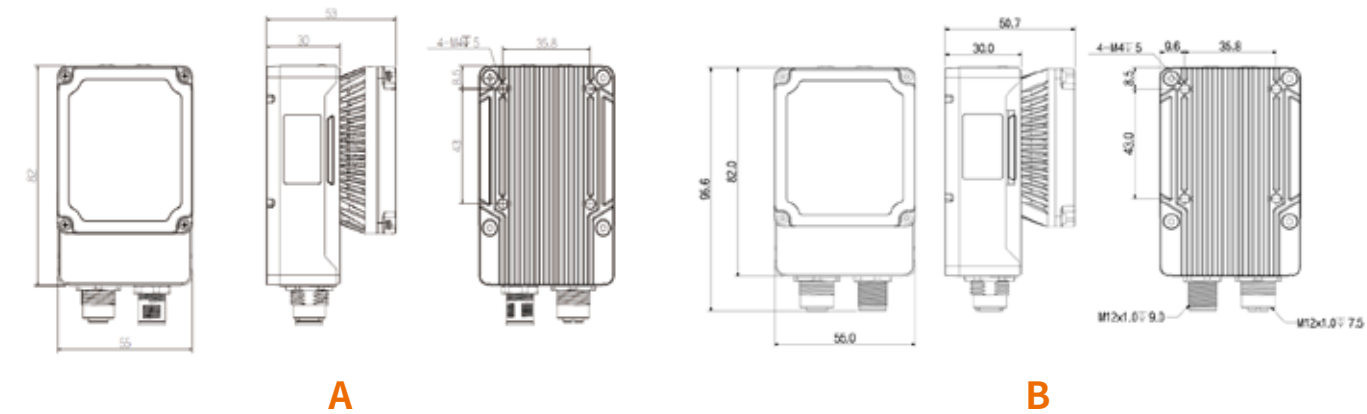
Specifications

Pixel	Model	Resolution	Max. Frame Rate (fps)	Max. Read Speed	Focal Length	Focus Control	Distance	Field Of View	Illumination Type	Result Indication	Sighting Device	Power Consumption	Dimension (mm*mm*mm)	Label
1.6	R5016MG-06M-RGG01E	1440*1080	60	90	6	Motorized Lens	80-1500	73°55~1215°911	Red	Red/Green Indicator	Support	<18	82°55*53	A
1.6	R5016MG-06M-WGG01E	1440*1080	60	90	6	Motorized Lens	80-1500	73°55~1215°911	White	Red/Green Indicator	Support	<18	82°55*53	A
1.6	R5016MG-12M-RGG01E	1440*1080	60	90	12	Motorized Lens	80-1500	36°27~623°467	Red	Red/Green Indicator	Support	<18	82°55*53	A
1.6	R5016MG-12M-WGG01E	1440*1080	60	90	12	Motorized Lens	80-1500	36°27~623°467	White	Red/Green Indicator	Support	<18	82°55*53	A
1.6	R5016MG-12M-BGG01E	1440*1080	60	90	12	Motorized Lens	80-1500	36°27~623°467	Blue	Red/Green Indicator	Support	<18	82°55*53	A
1.6	R5016MG-16M-RGG01E	1440*1080	60	90	16	Motorized Lens	80-1500	24°18~463°347	Red	Red/Green Indicator	Support	<18	82°55*53	A
1.6	R5016MG-16M-WGG01E	1440*1080	60	90	16	Motorized Lens	80-1500	24°18~463°347	White	Red/Green Indicator	Support	<18	82°55*53	A
1.6	R5016MG-25M-RGG01E	1440*1080	60	90	25	Motorized Lens	150-250	26°19~46°34	Red	Red/Green Indicator	Support	<18	82°55*53	A
1.6	R5016MG-25M-WGG01E	1440*1080	60	90	25	Motorized Lens	150-250	26°19~46°34	White	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-08M-RGG01E	2368*1792	45	90	8	Motorized Lens	80-1500	85°64~1396°1056	Red	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-08M-WGG01E	2368*1792	45	90	8	Motorized Lens	80-1500	85°64~1396°1056	White	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-12M-RGG01E	2368*1792	45	90	12	Motorized Lens	80-1500	55°41~951°720	Red	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-25M-BGG01E	2368*1792	45	90	12	Motorized Lens	80-1500	55°41~951°720	Blue	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-12M-WGG01E	2368*1792	45	90	12	Motorized Lens	80-1500	55°41~951°720	White	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-16M-RGG01E	2368*1792	45	90	16	Motorized Lens	80-1500	37°28~707°535	Red	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-16M-WGG01E	2368*1792	45	90	16	Motorized Lens	80-1500	37°28~707°535	White	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-25M-RGG01E	2368*1792	45	90	25	Motorized Lens	150-250	40°30~70°53	Red	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-25M-WGG01E	2368*1792	45	90	25	Motorized Lens	150-250	40°30~70°53	White	Red/Green Indicator	Support	<18	82°55*53	A
5	R5050MG-08M-RGG02E	2304*1728	45	90	8	Motorized Lens	80-1500	88°66~1457°1092	Red	Red/Green Indicator	Support	<18	82°55*50.7	B
5	R5050MG-08M-WGG02E	2304*1728	45	90	8	Motorized Lens	80-1500	88°66~1457°1092	White	Red/Green Indicator	Support	<18	82°55*50.7	B
5	R5050MG-12M-RGG02E	2304*1728	45	90	12	Motorized Lens	80-1500	53°39~987°725	Red	Red/Green Indicator	Support	<18	82°55*50.7	B
5	R5050MG-12M-WGG02E	2304*1728	45	90	12	Motorized Lens	80-1500	53°39~987°725	White	Red/Green Indicator	Support	<18	82°55*50.7	B
5	R5050MG-16M-RGG02E	2304*1728	45	90	16	Motorized Lens	100-1500	47°35~743°557	Red	Red/Green Indicator	Support	<18	82°55*50.7	B
5	R5050MG-16M-WGG02E	2304*1728	45	90	16	Motorized Lens	100-1500	47°35~743°557	White	Red/Green Indicator	Support	<18	82°55*50.7	B

Standard Parameter

Aimer	1× Red Aimer
Status Indicator	Power, Network and Decoding Result
Focus Control	Motorized Lens and One-click Focus
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	Industrial Grade M12 Ethernet and GPIO Connectors
Network	Gige
GPIO	RS232, 2 Opto-isolated Input and 3 Opto-isolated Output
Communication	RS-232 and Ethernet
Protocol	SDK, TCP Client, TCP Server, FTP, RS232, Profinet, Modbus, EtherNet/IP、MC(SLMP)、FINS/UDP、FINS/TCP
Power Supply	9-26VDC, 2A Input, Suitable for Industrial Voltage
Protection	IP65
Material	Aluminum Alloy (Excluding front Cover)
Operating Environment Temperature	-20℃～+50℃
Operating Environment Humidity	20%～95%, No condensation
Storage Environment Temperature	-30℃～+70℃
Certification	CE、KC
Weight	<350 g

Dimensions



Accessory Manifest

	Necessity	Model		
Power & GPIO Cable	Must	Length	Static Cable	Flexible Cable
		5m	CABIO-M12A12F-DCXX-05	CABIO-M12A12F-XX-05D
		10m	CABIO-M12A12F-DCXX-10	CABIO-M12A12F-DCXX-10D
		15m	CABIO-M12A12F-DCXX-15	CABIO-M12A12F-DCXX-15D
Ethernet Cable	Must	5m	CABNET-M12A8-RJ45-05	CABNET-M12A8-RJ45-05D
		10m	CABNET-M12A8-RJ45-10	CABNET-M12A8-RJ45-10D
		15m	CABNET-M12A8-RJ45-15	CABNET-M12A8-RJ45-15D
System Components	Optional	BKT-R5001		
	Optional	BKT-R0001		

Connector Pin-out

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



7000Series Code Reader

Product Feature

- CMOS series products, excellent image
- Built-in deep learning algorithm, highly efficient and powerful algorithm performance
- Support software trigger/external trigger/free run and other trigger modes
- GigE po rt provides 1Gbps b and width
- IO in ter face suppo rt 1 RS 232, 3 isolated inputs and 3 isol ated out puts
- Industrial-grade M12 connector, IP67 protection level

Specifications

Pixel	Model	Resolution	Frame Rate (fps)	Max. Scanning Rate	Pixel Size (um*um)	Sensor Size	Shutter	Lens Mount	Power Consumption	Dimension (mm*mm*mm)
20	R7200MG-00C-NGG01E	5440*3648	15	90	2.4*2.4	1"	Rolling	C	<8.0	117*69*43
20	R7201MG-00C-NGG01E	5120*3840	15	90	2.5*2.5	1"	Global	C	<8.0	117*69*43
25	R7250MG-00C-NGG01E	5120*5104	12	90	2.5*2.5	1.1"	Global	C	<8.0	117*69*43



Standard Parameter

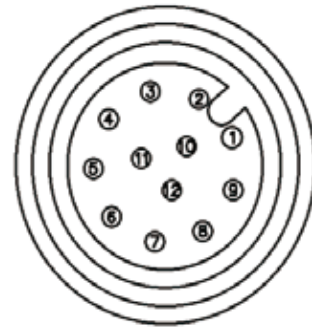
LED Indicator	Power, Network, Trigger
Code types	1D: Code128/Code39/Code93/EAN13/EAN8/UPCA/UPCE/ITF25/CODEBAR, and more. 2D: QR/MQR/CQR/QRModel1/DM/DMECC000-140/PDF417, and more. Quality Evaluation: (ISO/IEC 29158 (AIM-DPM), ISO/IEC 15415, ISO/IEC 15416)
Software	EasyID
Trigger Mode	Software Trigger, 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	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
Protection	24VDC, 1A input, suitable for industrial environment
Material	IP67 (with lens cover)
Operating Temperature	-20℃~+50℃
Operating Humidity	20%~95%, No condensation (when properly installed with appropriate lens shade)
Storage Temperature	-30℃~+80℃
Certification	CE,KC
Net Weight	<550 g

Accessory manifest

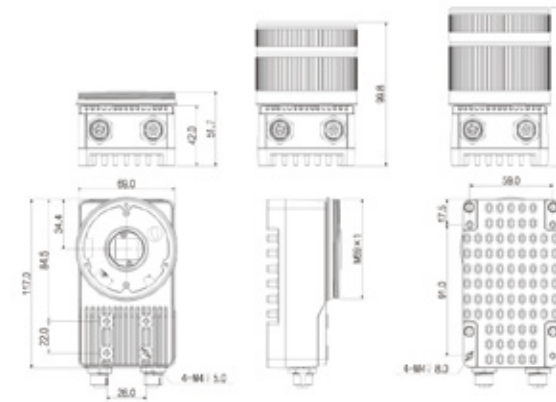
	Necessity	Model		
		Length	Static Cable	Flexible Cable
Power & GPIO Cable	Must	5m	CABIO-M12A12-1DB9-05	CABIO-M12A12F-XX-05D
		10m	CABIO-M12A12-1DB9-10	CABIO-M12A12F-DCXX-10D
		15m	CABIO-M12A12-1DB9-15	CABIO-M12A12F-DCXX-15D
Ethernet Cable	Must	5m	CABNET-M12A8-RJ45-05	CABNET-M12A8-RJ45-05D
		10m	CABNET-M12A8-RJ45-10	CABNET-M12A8-RJ45-10D
		15m	CABNET-M12A8-RJ45-15	CABNET-M12A8-RJ45-15D
Lens	Optional	MT-X Series		
System Components	Optional	BKT-R7001		
	Optional	BKT-R7002		
	Optional	BKT-R0001		

Connector pin-out

Pin	Signal	Description	Cable Color
1	OPT_IN1	Opto-isolated Input 1	 Yellow
2	OPT_IN2	Opto-isolated Input 2	 Yellow & White
3	OPT_OUT1	Opto-isolated Output 1	 Brown
4	OPT_OUT2	Opto-isolated Output 2	 Brown & White
5	COM_RXD	RS232 Serial Receive	 Purple
6	OPT_IN_GND	Opto-isolated Input GND	 Purple & White
7	POWER	Power	 Red
8	POWER_GND	Power GND	 Black
9	OPT_OUT_GND	Opto-isolated Output GND	 Green
10	OPT_IN0	Opto-isolated Input 0	 Orange
11	OPT_OUT0	Opto-isolated Output 0	 Blue
12	COM_TXD	RS232 Serial Send	 Grey
Iron Shell	-	Shielded Ground	 White



Dimensions



R5000 Series Code Reader C-mount Model

Product Feature

- CMOS series products
- Support software trigger/external trigger/free run and other trigger modes
- Gigabit industrial Ethernet port
- IO 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



Specifications

Pixel	Model	Resolution	Frame Rate (fps)	Pixel Size (um*um)	Sensor Size	Shutter	Lens Mount	Power Consumption	Dimension (mm*mm*mm)	Compatible Lens
1.3	R5013MG-00C-NGG01E	1280*1024	60	4.0*4.0	1/2.7"	Global	C	<4.0	68*55*28	A9-6MP
5	R5050MG-00C-NGG01E	2432*2048	40	3.45*3.45	1/1.5"	Global	C	<4.0	68*55*28	A9-6MP
6	R5060MG-00C-NGG01E	3072*2048	30	2.4*2.4	1/1.8"	Rolling	C	<4.0	68*55*28	A9-6MP
12	R5120MG-00C-NGG01E	4000*3000	15	1.85*1.85	1/1.7"	Rolling	C	<4.0	68*55*28	A9-6MP

Standard Parameter

LED Indicator	Power, Network, Trigger
Code Types	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
Protocol	SDK, TCP Client, TCP Server, FTP, RS232, Profinet、Modbus、EtherNet/IP、MC(SLMP)、FINS/UDP、FINS/TCP
Power Supply	DC24V
Protection	IP67 (with lens cover)
Material	Aluminum alloy
Operating Environment Temperature	-20℃~+50℃
Operating Environment Humidity	20%~95%, no condensation
Storage Environment Temperature	-30℃~+80℃
Certification	CE,KC
Net Weight	<200g

Connector Pin-out

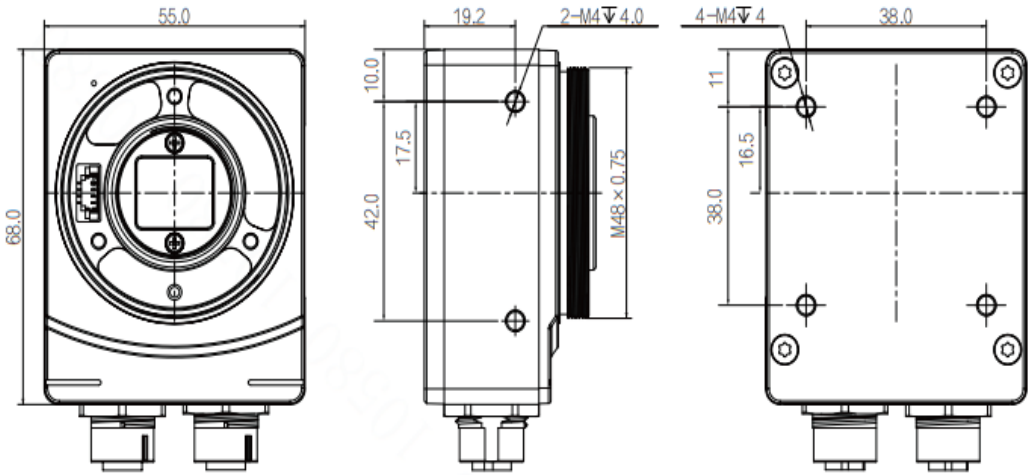
Pin	Signal	Description	Cable Color
1	OPT_OUT2	Opto-isolated Output 2	■ Brown & white
2	RS232_TXD	RS232 Serial Send	■ Grey
3	RS232_RXD	RS232 Serial Receive	■ Purple
4	SIGNAL_GND	RS232 Serial GND	■ Black & white
5	OPT_IN1	Opto-isolated Input 1	■ Yellow
6	OPT_IN_GND	Opto-isolated Input GND	■ Purple & white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



Accessory Manifest

	Necessity	Model		
		Length	Static Cable	Flexible Cable
Power & GPIO Cable	Must	5m	CABIO-M12A12F-DCXX-05	CABIO-M12A12-1XX-05D
		10m	CABIO-M12A12F-DCXX-10	CABIO-M12A12-1XX-10D
		15m	CABIO-M12A12F-DCXX-15	--
Ethernet Cable	Must	5m	CABNET-M12A8-RJ45-05	CABNET-M12A8-RJ45-05D
		10m	CABNET-M12A8-RJ45-10	CABNET-M12A8-RJ45-10D
		15m	CABNET-M12A8-RJ45-15	CABNET-M12A8-RJ45-15D

Dimensions

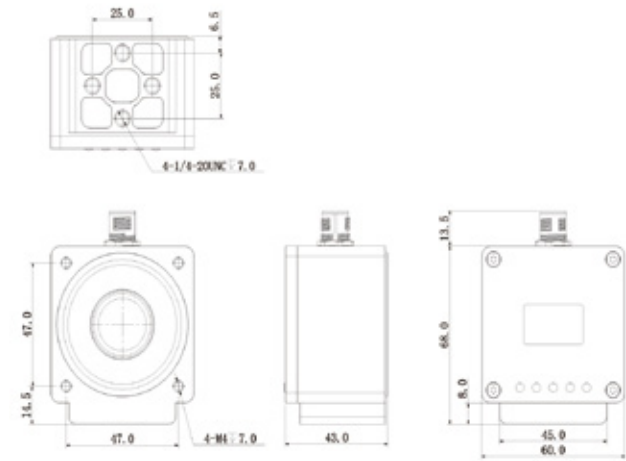


AGV Code Reader

Product Feature

- Excellent algorithm supports effectively dealing with the situation of dirty , defective and low contrast barcode
- Support higher efficient reading DM-12&DM-14 and other QR codes
- 5 indicators for debugging and and function displays
- Support saving/loading/switching multiple sets of user parameters
- Adopt M12 fixed-focal lens, support code reading in large FOV
- Excellent light source design to ensure uniform fill light

Dimensions



Specifications

Model	Frame Rate (fps)	Lens Mount	Focal Length	Working Distance	DOF	Field Of View	Max. Scanning Rate	Max. Object Speed	Illumination Type	Power Consumption	Dimension
R3138MG010E	120	M12	3.37	100	±20	104°85	125	3	White LED	< 7.5	60°60°43

Standard Parameter

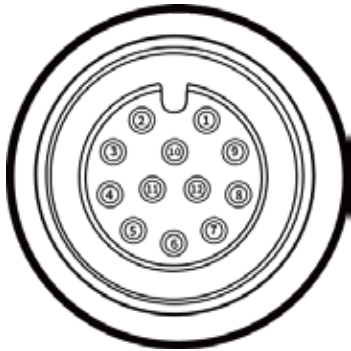
Focus Control	Fixed
LED Indicator	5LEDindicator, SYS、NET、Triggerand2user-definedLED
Function	DM-12&DM-14, DM4x4
Software	SVStudio
Trigger Mode	Single Frame trigger/Software trigger/Free run mode
Connector	1eaM12connector
Network Port	100M Ethernet
GPIO Interface	1 opto-isolated input, 1 opto-isolated output
Communication	100MEthernet, RS485
Protocol	SDK, Serial, TCP Server, TCP Client
Power Supply	DC24V±10%
Protection	IP64
Material	Aluminum alloy
Operating Environment Temperature	-20°C~+50°C
Operating Environment Humidity	20%~95%, No condensation
Storage Environment Temperature	-30°C~+80°C
Certification	CE,KC
Net Weight	<225g

Accessory Manifest

	Necessity	Category	Standard wire
Power Cord Ethernet Cable Combo	Must	straight head	CABIO-M12A12F-XXRJ-005
	Optional	bent head	CABIO-M12A12L-XXRJ-Z6

Connector Pin-out

Pin	Signal	Description	Cable Color
1	DC24V	DC power supply positive	Red
2	GND	Power ground	Black
3	OPTO_OUT	Opto-isolated output	Green
4	OUT_COM	Opto-isolated output ground	White
5	OPTO_IN	Opto-isolated input	Blue
6	IN_COM	Opto-isolated input ground	Grey
7	MDI1+	100M network signal MDI1+	-
8	MDI1-	100M network signal MDI1-	-
9	MDI0+	100M network signal MDI0+	-
10	MDI0-	100M network signal MDI0-	-
11	RS485+/CAN+	RS485+/CAN signal+	Yellow
12	RS485-/CAN-	RS485-/CAN signal-	Orange
Iron Shell	-	Shielded Ground	White



Handheld Code Reader

Product Feature

- 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

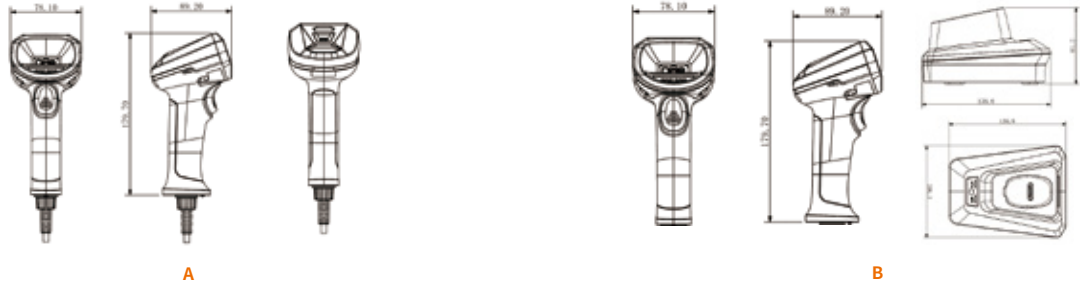
Specifications

Model	Resolution	Frame rate	Connector	Wireless Communication	Sensor					DOF	Power Consumption	Dimension (mm*mm*mm)	Power Supply	Label
					Shutter Mode	Pixel Size(um*um)	Sensor Type	Min. Resolution	Focal Length(mm)					
RS3013MG-05-MGGN1E	1280*1024	60	Ethernet(100 Mbit/s)、RS232	--	Global	2.7*2.7	1/4"	3	4.7	Code128 (10 mil) : 10~ 170 mm Data Matrix (10 mil) : 5~ 115 mm	2W	89*78*180	DC 9V~26V wide range voltage input	A
RS3013MG-05-MGGF1E	1280*1024	60	Ethernet(100 Mbit/s)、RS232	--	Global	2.7*2.7	1/4"	4	4.7	Code128 (10 mil) : 10~ 400 mm Data Matrix (10 mil) : 30~ 200 mm	2W	89*78*180	DC 9V~26V wide range voltage input	A
RS3013MU-05-MGGN1E	1280*1024	60	USB、RS232	--	Global	2.7*2.7	1/4"	3	4.7	Code128 (10 mil) : 10~ 170 mm Data Matrix (10 mil) : 5~ 115 mm	2W	89*78*180	5 VDC(USB); DC 9V~24V wide range voltage input	A
RS3013MU-05-MGGF1E	1280*1024	60	USB、RS232	--	Global	2.7*2.7	1/4"	4	4.7	Code128 (10 mil) : 10~ 400 mm Data Matrix (10 mil) : 30~ 200 mm	2W	89*78*180	5 VDC(USB); DC 9V~24V wide range voltage input	A
RS3013MB-05-MGGN1E	1280*1024	60	Ethernet (100 Mbit/s)、USB、RS232	Bluetooth (5.0)	Global	2.7*2.7	1/4"	3	4.7	Code128 (10 mil) : 10~ 170 mm Data Matrix (10 mil) : 5~ 115 mm	2W	89*78*180	DC 9V~26V wide range voltage input	B
RS3013MB-05-MGGF1E	1280*1025	60	Ethernet (100 Mbit/s)、USB、RS232	Bluetooth (5.0)	Global	2.7*2.7	1/4"	4	4.7	Code128 (10 mil) : 10~ 400 mm Data Matrix (10 mil) : 30~ 200 mm	2W	89*78*180	DC 9V~26V wide range voltage input	B

Standard Parameter

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℃

Dimensions



Accessory manifest

Name	Necessity	Model	Adaptation
Network,3m Cable	Include	CABNET-RJ50-DB9-03	Wired network port type handheld
Network,5m Cable	Optional	CABNET-RJ50-DCF-05	Wired network port type handheld
USB port,2.5m Cable	Include	CABUSB-RJ50-DB9-025	Wired USB Handheld
3-In-1 3m base cable	Include	CABUSB-RJ50-DB9-03	Wireless handheld
USB port,2.5M base cable	Optional	CSC-HH-B-USBD9-02	Wireless handheld
Network port,5m base cable	Optional	CSC-HH-B-ENET-05	Wireless handheld

SMART CAMERA

AI Detection: Precise and Efficient

SS3000 Series Vision Sensor

Product Feature

- Ultra-compact body design, adaptable to various tight installation spaces and perfectly integrated with machine equipment.
- Flexible and convenient manual focusing method, suitable for various close-range application scenarios.
- 100-Mbps industrial Ethernet interface with IP65 protection rating.
- Cross-platform web access and guided configuration process, making device debugging more convenient.
- Rich I/O interfaces, including Ethernet, RS232, and GPIO, supporting multiple communication protocols.
- Built-in simple and easy-to-use operator tools for quickly implementing various detection tasks such as presence/absence, orientation, measurement, and recognition.



Specifications

Resolution (MP)	Product Model	Resolution	Max. Frame rate (fps)	Focal Length (mm)	Mono/Color	Working Distance (mm)	Focus Control	Light Source Type	Field of View (mm)	Lens Mount	Result Indication	Power Consumption (W)	Product Dimensions (mm*mm*mm)	Label
1.6	SS3016PMG-07H-RGF01E	1440*1080	60	7	M	40-150	Manual	Red, Polarized	30.4*22.8~111.8*83.8	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	A
1.6	SS3016PMG-07H-WGF01E	1440*1080	60	7	M	40-150	Manual	White, Polarized	30.4*22.8~111.8*83.8	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	A
1.6	SS3016PMG-07H-WGN01E	1440*1080	60	7	M	40-150	Manual	White, Non-polarized	30.4*22.8~111.8*83.8	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	A
1.6	SS3016PMG-16H-RGF01E	1440*1080	60	16	M	80-200	Manual	Red, Polarized	21.7*16.3~59.0*44.2	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	B
1.6	SS3016PMG-16H-WGF01E	1440*1080	60	16	M	80-200	Manual	White, Polarized	21.7*16.3~59.0*44.2	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	B
1.6	SS3016PMG-16H-WGN01E	1440*1080	60	16	M	80-200	Manual	White, Non-polarized	21.7*16.3~59.0*44.2	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	B
1.6	SS3016PCG-07H-WGF01E	1440*1080	60	7	C	40-150	Manual	White, Polarized	30.4*22.8~111.8*83.8	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	A
1.6	SS3016PCG-07H-WGN01E	1440*1080	60	7	C	40-150	Manual	White, Non-polarized	30.4*22.8~111.8*83.8	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	A
1.6	SS3016PCG-16H-WGF01E	1440*1080	60	16	C	80-200	Manual	White, Polarized	21.7*16.3~59.0*44.2	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	B
1.6	SS3016PCG-16H-WGN01E	1440*1080	60	16	C	80-200	Manual	White, Non-polarized	21.7*16.3~59.0*44.2	M8	Orange/Green	<3.5	45*35*25.5 (Without cable)	B

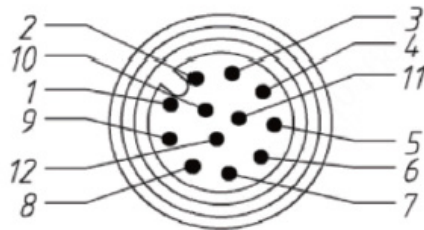
Standard Parameter

Aimer	Orange/Green dual-point indication
LED Indicator	Power, Ethernet, Result
Focus Control	Manual control
Function	Location tools: PatternMatch AI tools: AI classification Exist tools: FindLine, FindCircle, BlobExist Count Tools: BlobCount Measure Tools: Grayscale area, Contrast, Brightness, EdgeWidthTool Decton Tools: ContourCompare Recognition Tools: DataCode, BarCode, OCR, ColorRecog Logic Tools: LogicCheck, ConditionCheck, Mathermatical, StringComparison
Solution Capability	Supports solution import/export, with the ability to store up to 32 solutions
Software	Easy VS, Web
Trigger Mode	Internal trigger/External trigger/ Network/Serial port trigger/ Industrial ethernet trigger
Connector	Industrial-grade M12 connectors are Ethernet and GPIO interfaces
Network Port	100M Ethernet
GPIO	1× RS232 interface, 1× Opto-isolated input, 1× Opto-isolated output, 1 configurable input and output
Communication Mode	RS232, Ethernet
Communication Protocol	RS232,TCP Client,TCP Server,Profinet,ModubusServer,Ethernet/IP,UDP,FTP
Power Supply	Support 9~26VDC, 1A input
Protection	IP65
Casing Material	Aluminum alloy (excluding front cover)
Operating Temperature	-20° C ~ +50° C
Operating Humidity	20%~95%, non-condensing
Storage Temperature	-30° C ~ +70° C
Net Weight	<140 g

Connector Pin-out

Pin	Signal	Description	Cable Color
1	power	Power	Red
2	POWER_GND	Power GND	Black
3	OPT_OUTO	Opto-isolated output	Brown
4	OPT_GND	Opto-isolated GND	Purple white
5	OPT_INO	Opto-isolated input	Yellow
6	GPIO	Configurable IO	Blue
7	MD1_P	RJ45 Port	Green
8	MD1_N	RJ45 Port	Green white
9	MD1_P	RJ45 Port	Orange
10	MD1_N	RJ45 Port	Orange white
11	RS232_PXD	Received data	Purple
12	RS232_TXD	Transmit data	Grey

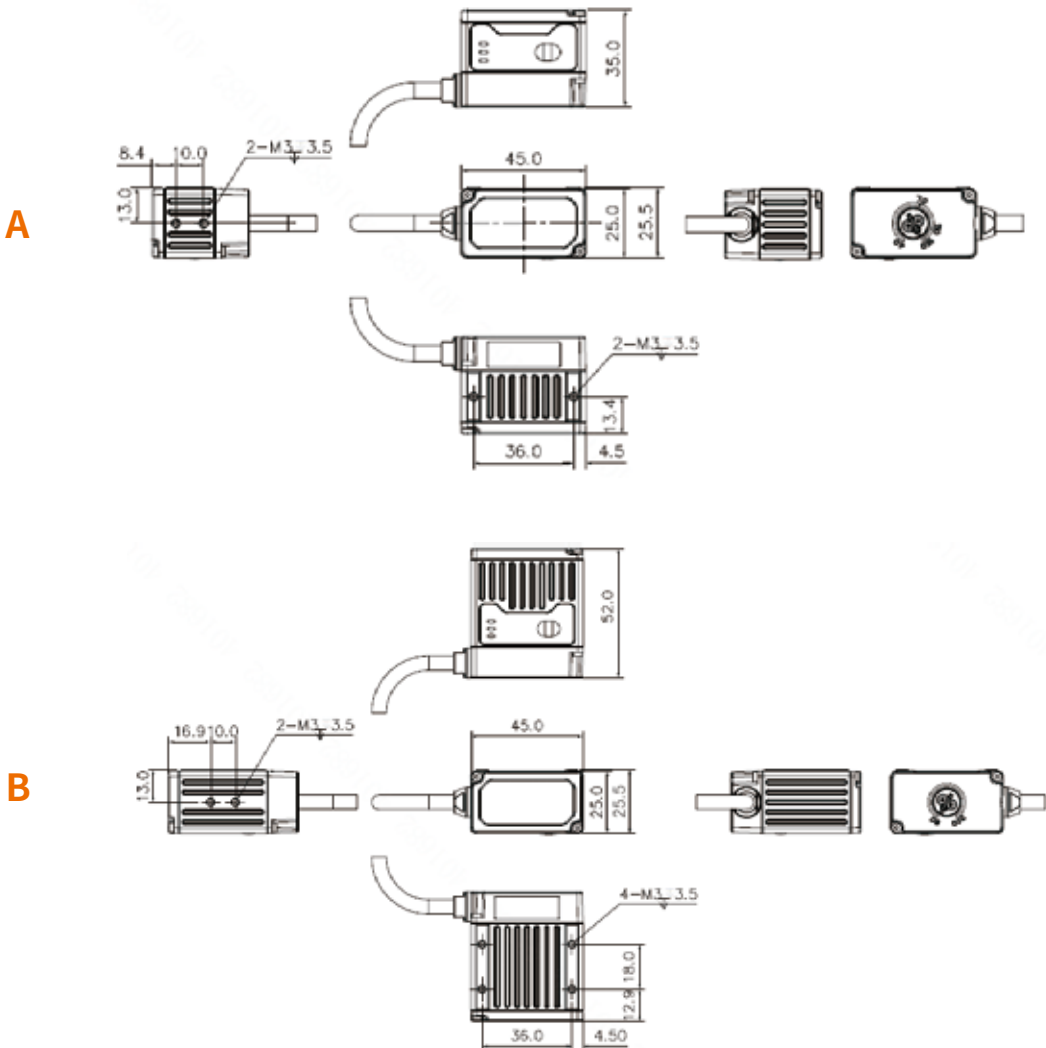
12 pin assignment on camera



Accessory Manifest

	Necessity	Model		
		Length	Standard Cable	High Flexible Cable
Power & GPIO Cable	Must	5m	CABIO-M12A12-XXRJP-05	CABIO-M12A12-XX-05D
		10m	CABIO-M12A12-XXRJP-10	CABIO-M12A12-XX-10D
		15m	CABIO-M12A12-XXRJP-15	CABIO-M12A12-XX-15D
Installation Bracket	Optional		BKT-R3002	
Adapter Bracket	Optional		BKT-R0001	

Dimensions



SS4000 Series Vision Sensor

Product Feature

- High-performance AI processing chips with multi-core parallel processing capabilities to realize complex image processing
- Built-in rich algorithm tools for object positioning, feature recognition, defect inspection, edge learning-based classification, etc.
- Compact design with rotatable rear connectors, suitable for narrow spaces
- Integrated design with built-in auto focus lens and multiple type multiple channel light sources, with super environmental adaptability
- Powerful image processing algorithms with simple and efficient one-click configuration
- Cross-platform Web access and guided configuration process, flexible for tuning and deployment
- Abundant IO interfaces such as Ethernet, RS232, and GPIO, support multiple communication protocols



Specifications

Pixel	Model	Resolution	Mono/Color	Max. Frame Rate	Lens Mount	Focal Length	Focus Control	Working Distance	Field Of View (mm)	Light Source Type	Result Indication	Power Consumption	Product Dimension
1.3	SS4013MG-07M-RGG01E	1280*1024	M	60	M12	7	Auto focus	50-500	42.8*34.3~372.2*297.7	Red , 1-channel diffused and 1-channel polarized and 1-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013MG-07M-WGG01E	1280*1024	M	60	M12	7	Auto focus	50-500	42.8*34.3~372.2*297.7	White , 1-channel diffused and 1-channel polarized and 1-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013MG-12M-RGG01E	1280*1024	M	60	M12	7	Auto focus	50-500	42.8*34.3~372.2*297.7	White , 1-channel diffused and 2-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013MG-12M-WGG01E	1280*1024	M	60	M12	12	Auto focus	50-500	21.7*17.3~214.5*171.6	Red , 1-channel diffused and 1-channel polarized and 1-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013MG-12M-WGG01E	1280*1024	M	60	M12	12	Auto focus	50-500	21.7*17.3~214.5*171.6	White , 1-channel diffused and 1-channel polarized and 1-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013MG-12M-WGN01E	1280*1024	M	60	M12	12	Auto focus	50-500	21.7*17.3~214.5*171.6	White , 1-channel diffused and 2-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013CG-07M-WGG01E	1280*1024	C	60	M12	7	Auto focus	50-500	42.8*34.3~372.2*297.7	White , 1-channel diffused and 1-channel polarized and 1-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013CG-07M-WGN01E	1280*1024	C	60	M12	7	Auto focus	50-500	42.8*34.3~372.2*297.7	White , 1-channel diffused and 2-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013CG-12M-WGG01E	1280*1024	C	60	M12	12	Auto focus	50-500	21.7*17.3~214.5*171.6	White , 1-channel diffused and 1-channel polarized and 1-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)
1.3	SS4013CG-12M-WGN01E	1280*1024	C	60	M12	12	Auto focus	50-500	21.7*17.3~214.5*171.6	White , 1-channel diffused and 2-channel transparent light	Red/Green	<14	47*57.8*38 (excluding connectors)

Accessory Manifest

	Necessity	Model		
		Length	Standard Cable	High Flexible Cable
Power & GPIO Cable	Must	5m	CABIO-M12A12F-DCXX-05	CABIO-M12A12F-DCXX-05D
		10m	CABIO-M12A12F-DCXX-10	CABIO-M12A12F-DCXX-10D
		15m	CABIO-M12A12F-DCXX-15	CABIO-M12A12F-DCXX-15D
Ethernet Cable	Must	5m	CABNET-M12A4-RJ45-05	CABNET-M12A4-RJ45-05D
		10m	CABNET-M12A4-RJ45-10	CABNET-M12A4-RJ45-10D
		15m	CABNET-M12A4-RJ45-15	CABNET-M12A4-RJ45-15D
Installation Bracket	Optional		BKT-R4001	
Adapter Bracket	Optional		BKT-R0001	

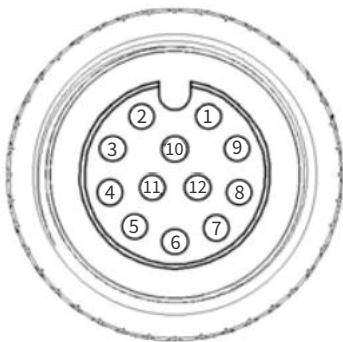
Standard Parameter

Aiming Device	Red light with dual point indication
LED Indicator	Power, Ethernet, Result
Lens Mount	M12, auto focus
Function	Location tools: PatternMatch AI tools: AI classification Exist tools: FindLine, FindCircle, BlobExist Count Tools: BlobCount Measure Tools: Grayscale area, Contrast, Brightness, EdgeWidthTool Decton Tools: ContourCompare Recognition Tools: DataCode, BarCode, OCR, ColorRecog Logic Tools: LogicCheck, ConditionCheck, Mathermatical, StringComparison
Switch Settings (programs)	Support to import/export programs , can store up to 32 programs
Software	Easy VS, Web
Trigger Mode	Internal trigger/External trigger/ Network/Serial port trigger/ Industrial ethernet trigger
Connector	2 industrial M12 connectors, Ethernet and GPIO
Network Port	100M Ethernet
GPIO	RS232, 2 Opto-isolated inputs, 3 Opto-isolated outputs
Communication Mode	RS232, Ethernet
Communication Protocol	TCP Client, TCP Server, FTP, RS232, profinet, Ethernet/IP, UDP
Power Supply	Support 9~26VDC, 1.5A input
Protection	IP65
Casing Material	Aluminum alloy (excluding front cover)
Operating Temperature	-20° C ~ +50° C
Operating Humidity	20%~95%, non-condensing
Storage Temperature	-30° C ~ +70° C
Weight	<180g

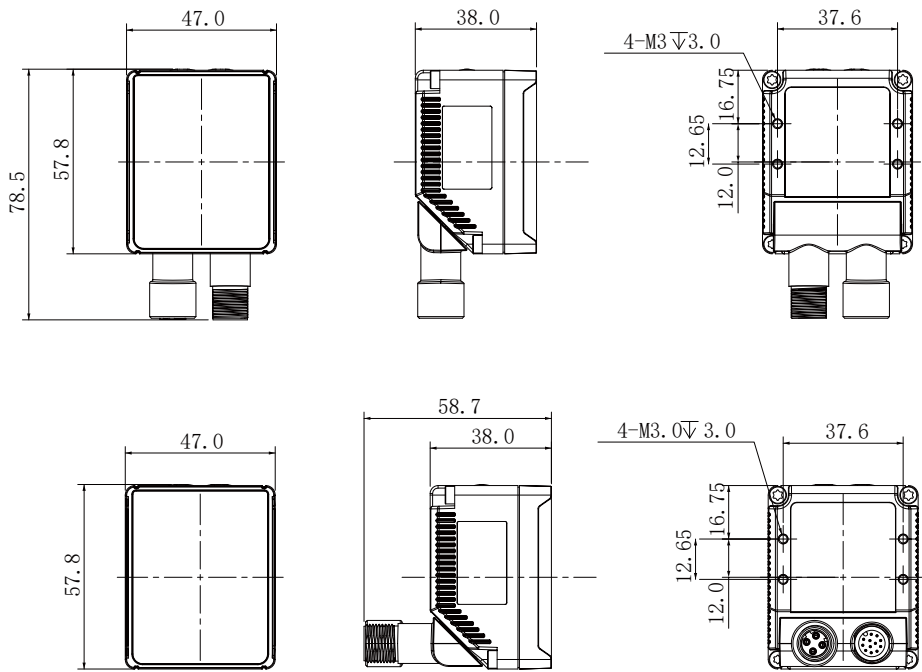
Connector Pin-out

Pin	Signal	Description	Cable Color
1	OPT_OUT2	Opto-isolated output2	Brown & white
2	RS232_TXD	RS232 serial send	Grey
3	RS232_RXD	RS232 serial receive	Purple
4	SIGNAL_GND	RS232 serial GND	Black & white
5	OPT_IN1	Opto-isolated input1	Yellow
6	OPT_IN_GND	Opto-isolated input GND	Purple & white
7	POWER	Power	Red
8	POWER_GND	Power GND	Black
9	OPT_OUT_GND	Opto-isolated output GND	Green
10	OPT_IN0	Opto-isolated input0	Orange
11	OPT_OUT0	Opto-isolated output0	Blue
12	OPT_OUT1	Opto-isolated output1	Brown
—	—	Shielded GND	White

12 pin assignment on camera



Dimensions



SS5000 Series Vision Sensor

Product Feature

- Equipped with an ultra-high-performance AI processing chip, it enhances processing efficiency while maintaining ease of use and flexibility.
- Integrated design with a built-in zoom lens across the entire series, enabling one-touch focusing for easy and convenient operation.
- Integrated high-power light source module, supporting optional red/white/blue/IR light sources to adapt to various near/mid/far detection scenarios.
- Cross-platform web access and guided configuration process, ensuring a smooth and convenient user experience.
- Gigabit industrial Ethernet interface, providing 1Gbps bandwidth.
- Rich I/O interfaces, including Ethernet, RS232, and GPIO, supporting multiple communication protocols.
- Built-in rich algorithm tools, capable of object positioning, feature recognition, defect detection, and classification based on deep learning.



Specifications

Resolution (MP)	Product Model	Resolution	Max. Frame rate (fps)	Focal Length (mm)	Mono/Color	Working Distance (mm)	Focus Control	Light Source Type	Field of View (mm)	Lens Mount	Result Indication	功耗 (W)	产品尺寸 (mm*mm*mm)	Label
1.6	SS5016MG-08M-WGG01E	1440*1080	60	8	M	80-1500	Auto focus	White, Polarized/Non-polarized	56.1*42.1~915.6*686.7	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016MG-12M-WGG01E	1440*1080	60	12	M	80-1500	Auto focus	White, Polarized/Non-polarized	36.3*27.2~623.8*467.8	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016MG-16M-WGG01E	1440*1080	60	16	M	100-1500	Auto focus	White, Polarized/Non-polarized	30.7*23.0~463.9*347.9	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016MG-25M-WGG01E	1440*1080	60	25	M	250-1500	Auto focus	White, Polarized/Non-polarized	46.5*34.9~295.7*221.8	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016MG-08M-RGG01E	1440*1080	60	8	M	80-1500	Auto focus	Red, Polarized/Non-polarized	56.1*42.1~915.6*686.7	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016MG-12M-RGG01E	1440*1080	60	12	M	80-1500	Auto focus	Red, Polarized/Non-polarized	36.3*27.2~623.8*467.8	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016MG-16M-RGG01E	1440*1080	60	16	M	100-1500	Auto focus	Red, Polarized/Non-polarized	30.7*23.0~463.9*347.9	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016MG-25M-RGG01E	1440*1080	60	25	M	250-1500	Auto focus	Red, Polarized/Non-polarized	46.5*34.9~295.7*221.8	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016CG-08M-WGG01E	1440*1080	60	8	C	80-1500	Auto focus	White, Polarized/Non-polarized	56.1*42.1~915.6*686.7	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016CG-12M-WGG01E	1440*1080	60	12	C	80-1500	Auto focus	White, Polarized/Non-polarized	36.3*27.2~623.8*467.8	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016CG-16M-WGG01E	1440*1080	60	16	C	100-1500	Auto focus	White, Polarized/Non-polarized	30.7*23.0~463.9*347.9	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
1.6	SS5016CG-25M-WGG01E	1440*1080	60	25	C	250-1500	Auto focus	White, Polarized/Non-polarized	46.5*34.9~295.7*221.8	M12	Red/Green	<18	82*55*53 (excluding connectors)	A
5	SS5050MG-08M-WGG01E	2304*1728	45	8	M	80-1500	Auto focus	White, Polarized/Non-polarized	88.9*65.9~1462.0*1097.2	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050MG-12M-WGG01E	2304*1728	45	12	M	80-1500	Auto focus	White, Polarized/Non-polarized	56.7*42.5~996.7*747.5	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B

5	SS5050MG-16M-WGG01E	2304*1728	45	16	M	100-1500	Auto focus	White, Polarized/Non-polarized	38.3*28.7~741.2*555.9	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050MG-25M-WGG01E	2304*1728	45	25	M	250-1500	Auto focus	White, Polarized/Non-polarized	19.6*14.7~472.5*354.4	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050MG-08M-RGG01E	2304*1728	45	8	M	80-1500	Auto focus	Red, Polarized/Non-polarized	88.9*65.9~1462.0*1097.2	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050MG-12M-RGG01E	2304*1728	45	12	M	80-1500	Auto focus	Red, Polarized/Non-polarized	56.7*42.5~996.7*747.5	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050MG-16M-RGG01E	2304*1728	45	16	M	100-1500	Auto focus	Red, Polarized/Non-polarized	38.3*28.7~741.2*555.9	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050MG-25M-RGG01E	2304*1728	45	25	M	250-1500	Auto focus	Red, Polarized/Non-polarized	19.6*14.7~472.5*354.4	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050CG-08M-WGG01E	2304*1728	45	8	C	80-1500	Auto focus	White, Polarized/Non-polarized	88.9*65.9~1462.0*1097.2	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050CG-12M-WGG01E	2304*1728	45	12	C	80-1500	Auto focus	White, Polarized/Non-polarized	56.7*42.5~996.7*747.5	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050CG-16M-WGG01E	2304*1728	45	16	C	100-1500	Auto focus	White, Polarized/Non-polarized	38.3*28.7~741.2*555.9	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B
5	SS5050CG-25M-WGG01E	2304*1728	45	25	C	250-1500	Auto focus	White, Polarized/Non-polarized	19.6*14.7~472.5*354.4	M12	Red/Green	<18	82*55*50.7 (excluding connectors)	B

Standard Parameter

Aimer	1×Red Aimer
LED Indicator	Power, Ethernet, Result
Focus Control	Auto focus
Function	Location tools: PatternMatch AI tools: AI classification Exist tools: FindLine, FindCircle, BlobExist Count Tools: BlobCount Measure Tools: Grayscale area, Contrast, Brightness, EdgeWidthTool Dection Tools: ContourCompare Recognition Tools: DataCode, BarCode, OCR, ColorRecog Logic Tools: LogicCheck, ConditionCheck, Mathermatical, StringComparison
Solution Capability	Supports solution import/export, with the ability to store up to 32 solutions
Software	Easy VS, Web
Trigger Mode	Internal trigger/External trigger/ Network/Serial port trigger/ Industrial ethernet trigger
Connector	2 industrial M12 connectors, Ethernet and GPIO
Network Port	GigE
GPIO	RS232, 2 Opto-isolated inputs, 3 Opto-isolated outputs
Communication Mode	RS232, Ethernet
Communication Protocol	RS232,TCP Client,TCP Server,Profinet,ModubusServer,Ethernet/IP,UDP,FTP
Power Supply	Support 9~26VDC, 2A input
Protection	IP65
Casing Material	Aluminum alloy (excluding front cover)
Operating Temperature	-20° C ~ +50° C
Operating Humidity	20%~95%, non-condensing
Storage Temperature	-30° C ~ +70° C
Net Weight	<350g

Connector Pin-out

Pin	Signal	Description	Cable Color
1	OPT_OUT2	Opto-isolated output2	■ Brown & white
2	RS232_TXD	RS232 serial send	■ Grey
3	RS232_RXD	RS232 serial receive	■ Purple
4	SIGNAL_GND	RS232 serial GND	■ Black & white
5	OPT_IN1	Opto-isolated input1	■ Yellow
6	OPT_IN_GND	Opto-isolated input GND	■ Purple & white
7	POWER	Power	■ Red
8	POWER_GND	Power GND	■ Black
9	OPT_OUT_GND	Opto-isolated output GND	■ Green
10	OPT_IN0	Opto-isolated input0	■ Orange
11	OPT_OUT0	Opto-isolated output0	■ Blue
12	OPT_OUT1	Opto-isolated output1	■ Brown
—	—	Shielded GND	■ White

12 pin assignment on camera



Accessory Manifest

	Necessity	Model		
		Length	Standard Cable	High Flexible Cable
Power & GPIO Cable	Must	5m	CABIO-M12A12F-DCXX-05	CABIO-M12A12F-DCXX-05D
		10m	CABIO-M12A12F-DCXX-10	CABIO-M12A12F-DCXX-10D
		15m	CABIO-M12A12F-DCXX-15	CABIO-M12A12F-DCXX-15D
Network Cable	Must	5m	CABNET-M12A4-RJ45-05	CABNET-M12A4-RJ45-05D
		10m	CABNET-M12A4-RJ45-10	CABNET-M12A4-RJ45-10D
		15m	CABNET-M12A4-RJ45-15	CABNET-M12A4-RJ45-15D
Installation Bracket	Optional		BKT-R5001	
Adapter Bracket	Optional		BKT-R0001	

X86 Smart Cameras Series

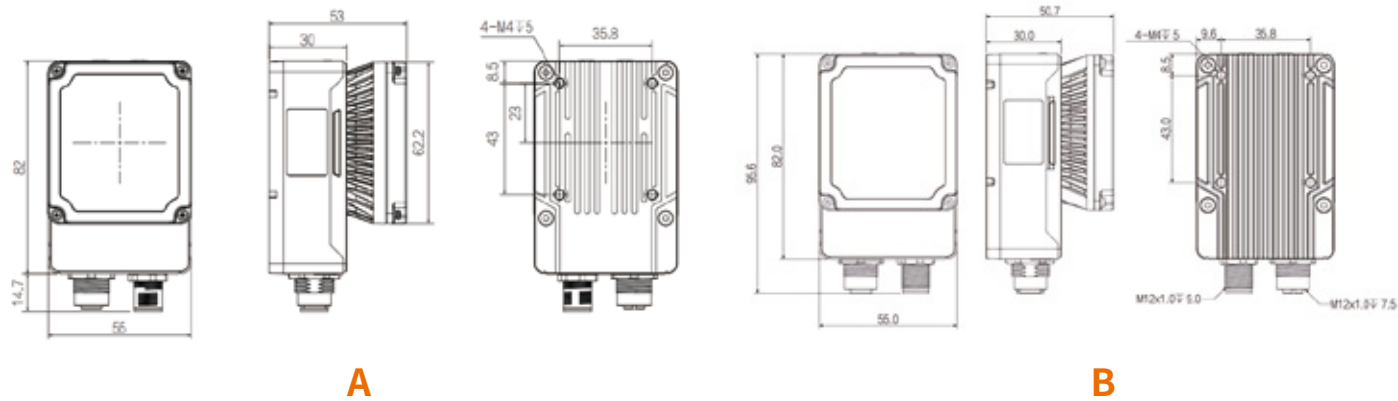
Product Feature

- Support Win10, support secondary development
- Support VGA/USB interface and extended keyboard/mouse connection
- CMOS series product covering 5MP-20MP resolution
- 4G RAM & 64G SSD
- Support software trigger/hardware trigger/free run mode
- Support C-mount and optional built-in illumination
- GigE interface provides maximum 1G bps bandwidth
- Industrial-grade M12 connector, IP67 protection level
- Embedded self-developed algorithm platform, with a wealth of algorithm tools, Can be used for presence detection, positive and negative detection, positioning guidance, defect detection, size measurement and other scenarios

Specifications

Resolution (MP)	Product Model	Resolution	Max. Frame rate (fps)	Lens Mount	Network Port	Sensor					Product Dimensions (mm*mm*mm)	Recommended Lens	Power Consumption (W)
						Type	Pixel Size (μm)	Sensor Type	Shutter Mode	Mono/Color			
5	DH-MV-SI5500MG002E	2448*2048	35	C-Mount	GigE	CMOS	3.45*3.45	2/3"	Global	M	132.2*69*62	MH-M/MK-M	≤30
5	SI5501CG002E	2592*2048	35	C-Mount	GigE	CMOS	4.8*4.8	1"	Global	C	132.2*69*62	MH-X	≤30
6	DH-MV-SI5600MG002E	3072*2048	30	C-Mount	GigE	CMOS	2.4*2.4	1/1.8"	Rolling	M	132.2*69*62	A9-6MP	≤30
12	DH-MV-SI5A20MG002E	4000*3000	20	C-Mount	GigE	CMOS	1.85*1.85	1/1.7"	Rolling	M	132.2*69*62	MH	≤30
20	DH-MV-SI5B00MG002E	5472*3648	21	C-Mount	GigE	CMOS	1.85*1.85	1"	Rolling	M	132.2*69*62	MT-X	≤30

Dimensions



Accessory Manifest

	Necessity	Model		
		Type	Standard Cable	High Flexible Cable
Power&GPIO Cable	Must	5m	CABIO-M12A12-1XX-05	CABIO-M12A12-1XX-05D
		5m+DCfemale head+DB female head	CABIO-M12A12-1DB9-05	--
		10m	CABIO-M12A12-1D89-10	CABIO-M12A12-1XX-10D
Network Cable	Must	5m	CABNET-M12A8-RJ45-05	CABNET-M12A8-RJ45-05D
		10m	CABNET-M12A8-RJ45-10	CABNET-M12A8-RJ45-10D
		15m	CABNET-M12A8-RJ45-15	CABNET-M12A8-RJ45-15D
VGA Cable	Must	3m	CABVGA-M12A12F-USBVGA-03	CABVGA-M12A12F-USBVGA-03D
USB Hub	Optional	1 to 4	W1HUB-4U2	
Lens Cover	Optional		LC01-02-01	

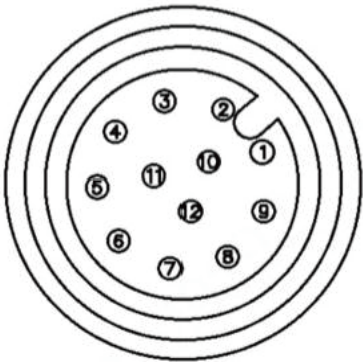
Standard Parameter

LED Indicator	5 status indicators: 1 system, 2 network and 2 user configurable indicators
Function	Built-in MVviewer industrial camera client, which allows users to conduct secondary development based on the Huarui SDK and supports customer-designed software. Embedded with the MVP algorithm platform software, it features a rich set of algorithm tools that can be used for presence/absence detection, orientation detection, positioning guidance, defect detection, dimensional measurement, and other applications.
Trigger Mode	Software trigger/Hardware trigger/Free run mode
Connector	3 physical interface: 1 GigE, 1 GPIO, 1 VGA & 1 USB port
Network Port	GigE
GPIO	RS232, 3 Opto-isolated inputs, 3 Opto-isolated outputs
Communication Mode	RS232, Ethernet
Communication Protocols	SDK, Serial, TCPServer, TCPClient, Profinet, Modbus TCP
Power Supply	DC24V
Protection	IP67
Casing Material	Aluminum alloy
Operating Temperature	-20℃~+50℃
Operating Humidity	20%~95%,non-condensing
Storage Temperature	-30℃~+70℃
Net Weight	<600 g

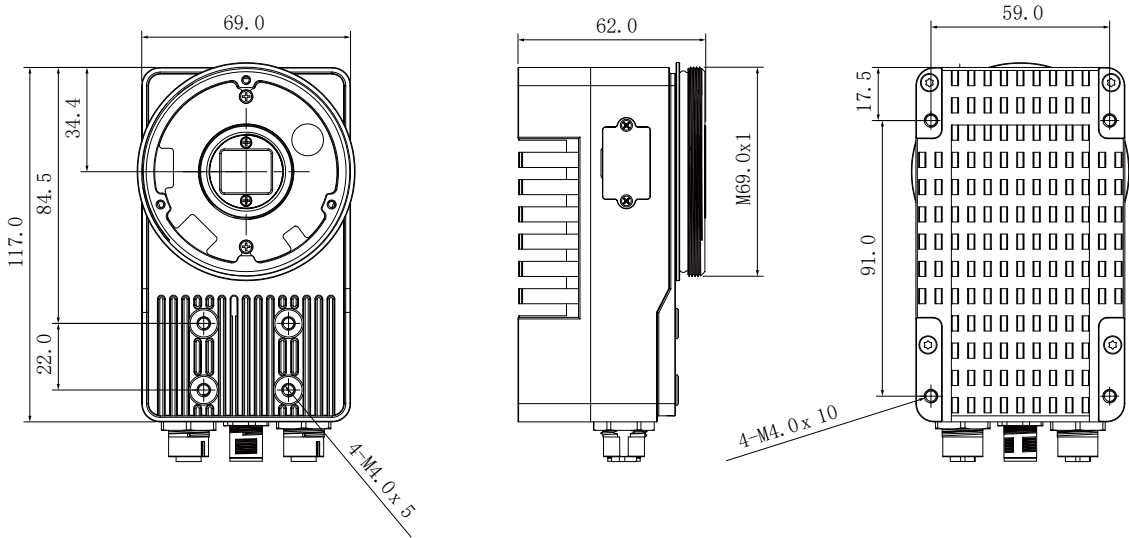
Connector Pin-out

Pin	Signal	Description	Cable Color
1	NA	NA	Yellow
2	NA	NA	Yellow & white
3	OPT_OUT1	Opto-isolated Output 1	Brown
4	OPT_OUT2	Opto-isolated Output 2	Brown & white
5	COM_RXD	RS232 Serial Receive	Purple
6	OPT_IN_GND	Opto-isolated Input GND	Purple & white
7	POWER	Power	Red
8	POWER_GND	Power GND	Black
9	OPT_OUT_GND	Opto-isolated output GND	Green
10	OPT_IN0	Opto-isolated Input 0	Orange
11	OPT_OUT0	Opto-isolated Output 0	Blue
12	COM_TXD	Serial port sending	Grey
—	—	Shielded GND	White

12 pin-out on camera



Dimensions



3D Cameras

3D Line Laser Profile Sensor

3D Line Laser Stereo Camera

Product Feature

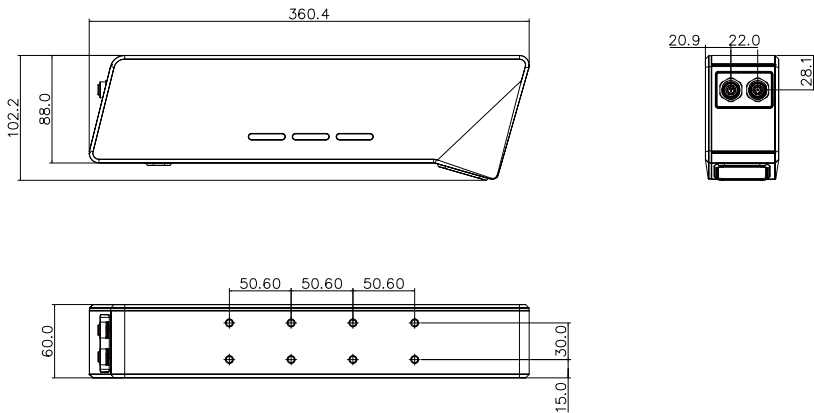
- 3D measurement result in millimeter level with high scanning speed after factory calibration
- Flexibiity of working distance and FOV configuration
- Integrated 3D calibration tool
- Measurable object range 1000mm*1000mm*2000mm (W*H*L)
- High-accuracy 3D measurement, accuracy 5mm*5mm*5mm
- Point-cloud image, L/W/H, Volume measurement and Volume Integral Output
- Rich interfaces, including network port/IO/encoder
- Industrial-grade M12connector, iP65 protection level
- Support wide voltage input, fitting industrial DC 12/24V environment



Specifications

Model	Reference Distance	Near Field Of View	Far Field Of View	Measurement Range	Measurement Accuracy	Detection Speed
D5201MG100E	830 mm	1000 mm	2200 mm	800~1000 mm	±5mm	2m/s
*D7200MG200E	700 mm	1100 mm	2600 mm	700~1800mm	±5mm	3m/s

Dimensions



3D Binocular Stereo Camera

Product Feature

- Built-in high-accuracy volume measurement and 3D positioning algorithm
- Small dimension and high integration make better cost performance and smalle
- Speckle-module illumination makes light uniform and reliable
- Superior filter design, strong ability to suppress ambient light
- Built-in aviation connector, rich IO interface
- Industrial-grade M12 connector, IP65 protection level
- Support multi-cameras cascade



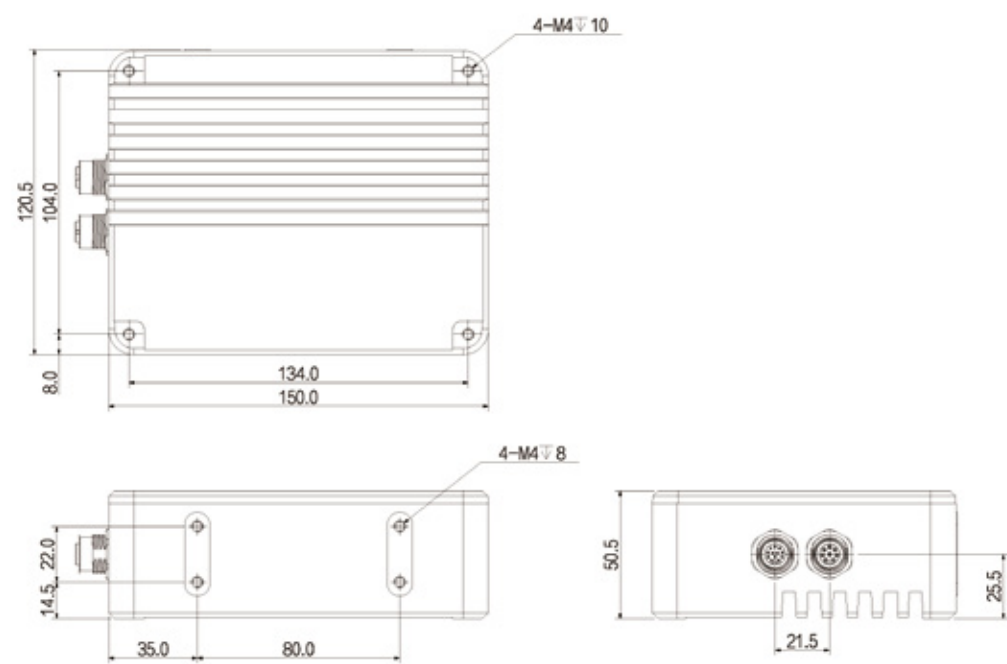
Specifications

Model	Near Field Of View	Far Field Of View	Working Distance	Laser Category	Interface	For Industry
DS5131MG30CE	680*620	4000*3200	600-3500	CLASS 1	Ethernet	Logistics single piece separation

Install Parameter

Installation Height	Field Of View	*Y Accuracy	Z Accuracy	Dimension
800	950*830	5	5	20*20*8
1100	1300*1100	5	5	30*30*10
1400	1700*1400	8	8	40*40*15
1700	2100*1700	10	10	50*50*30
2000	2500*2000	10	10	60*60*40
2300	2900*2300	15	15	70*70*50

▬ Dimensions



📋 Accessory Manifest

	Necessity	Model	Industry
Calibrate Paper	Optional	Checkerboard calibration sheet 2080×1170mm	Logistics single piece separation
Dongle	Optional	HR-EK01-A	Logistics single piece separation

⚙️ Standard Parameter

Near Field Of View	680mm*620mm
Far Field Of View	4000mm*3200 mm
Working Distance	600mm-3500mm
Data Type	Color image, depth image, point cloud, volume data
Light Source Type	Speckle laser module
Laser Level	CLASS 1
Connector	2 Industrial-grade M12 connectors, Ethernet and GPIO interfaces
Network Interface	Code-A, gigabit ethernet
GPIO	1 Isolated output, 2 isolated inputs, 1 differential input
Way Of Communication	Ethernet
Communication Protocol	SDK, TCPServer, TCPClient
LED Indicator	Power supply, network, trigger, laser
Power Supply	Support DC12V~24V wide voltage input, fitting industrial DC12V/24V environment
Power Consumption	<10.0W
Product Dimension	150mm*120mm*50.5mm(Excluding interface height)
Packaging Dimensions	369mm*257mm*148 mm
Product Weight	1500g
Package Weight	<3200g
Protection Grade	IP65
Housing Material	Aluminum alloy
Operating Temperature	0-50℃
Operating Humidity	20%~95%,No condensation
Storage Temperature	-30℃~+80℃
Software	SCV
Certification	CE

Vision Controller

Product Feature

- A wide variety of CPU choices
- Abundant interface design, including Gigabit Ethernet interface, USB 3.0 interface, GPIO , and light source interface
- Efficient heat dissipation design to meet industrial application demands
- Supports VGA, HDMI, DP, etc

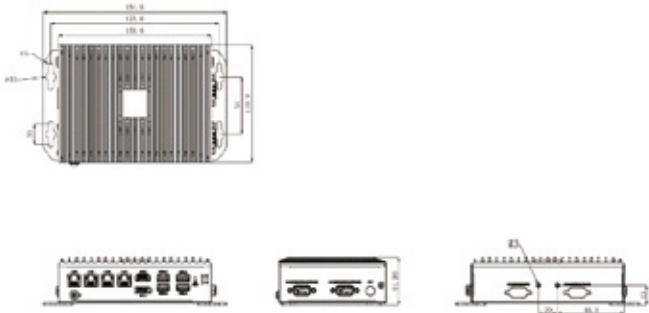


Specifications

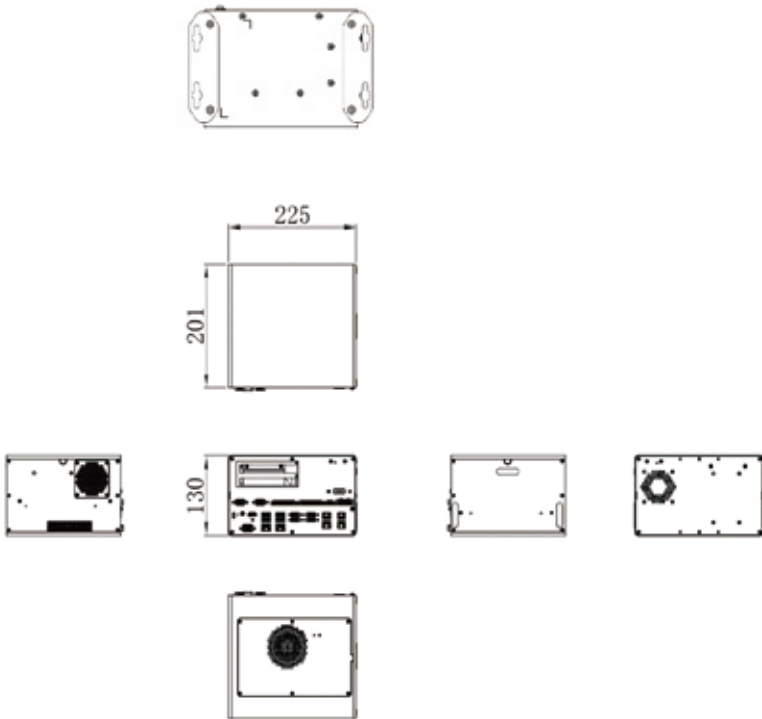
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CPU	Intel® Celeron® J6412 processor	Intel® Core™ i3-10100 processor	Intel® Core™ i5-10500 processor	Intel® Core™ i7-10700 processor	Intel® Core™ i5-12500 processor
RAM	8G	16G	16G	32G	16G
ROM	128GSSD	128GSSD+2THDD	128GSSD+2THDD	128GSSD+2THDD	128GSSD+2THDD
LAN	6 x Intel®RJ45	4 x Intel®RJ45			4 x Intel®RJ45
USB	4xUSB 3.2、4xUSB 2.0	4xUSB 3.2			4xUSB 3.1
IO	/	8-Way in, 8-way out GPIO			8 GPIOs
Display Port	1×HDMI、1×VGA	1×HDMI、1×DP++			1×HDMI
Serial Port	1×COM (RS232/422/485)、 1xRS232	2 × COM(RS232/422/485)、1 x RS232			1xRS485、1xRS232
Light Port	/	/			4-Way light source control output
Dimension	A	B			C
Operating Temperature	0~40℃				
Operating Humidity	5%~95%, Non-condensation state				
Storage Temperature	-20℃ -60℃				
Storage Humidity	5%~95%, Non-condensation state				

Dimensions

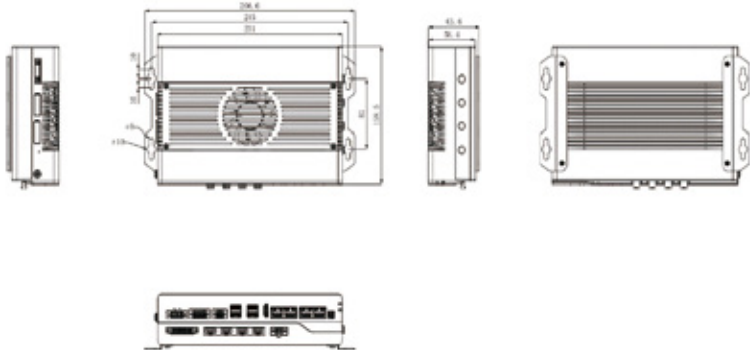
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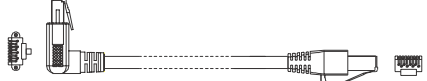
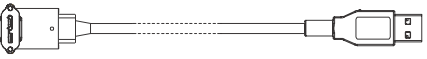
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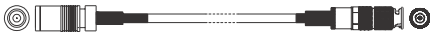
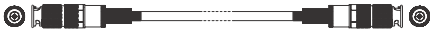


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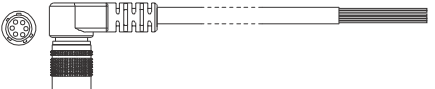
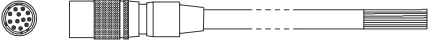
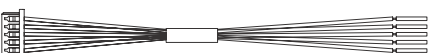


Specifications

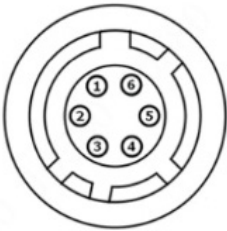
Interface Type	Wire Type	Other Type	End A Connector	End B Connector	Cable Diagram	Length X(M)	Model
GigE Cables	Standard	Standard	RJ45 (with locking stud)	RJ45		1.5/2/3/5/7/10/15/20/30/50/70	GE-RJ45-RJ45-XM
		Standard (angled)	RJ45 (with locking stud) (angled)	RJ45		5/10	GE-RJ45-RJ45-U-XM
			RJ45 (with locking stud) (angled)	RJ45		5/10	GE-RJ45-RJ45-D-XM
	High flexible	High flexible	RJ45 (with locking stud)	RJ45		3/5/7/10/15/20/30	GE-RJ45-RJ45-FC-XM
		High flexible (angled)	RJ45 (with locking stud) (angled)	RJ45		10	GE-RJ45(U)-RJ45-FC-XM
			RJ45 (with locking stud) (angled)	RJ45		10	GE-RJ45(D)-RJ45-FC-XM
10GigE Cables	High flexible	High flexible	RJ45 (with locking stud)	RJ45		3/5/7/10/15	10GE-RJ45-RJ45-FC-XM
USB3.0 Cables	Standard	Standard	Micro-B male (with screw)	A male		1.5/2	U3-AM-MicroB-XM
		High performance cables	Micro-B male (with screw)	A male		3	U3-AM-MicroB-HC-XM
	High flexible	High flexible	Micro-B male (with screw)	A male		3	U3-AM-MicroB-FC-XM
	Optical fiber	Optical fiber	Micro-B male (with screw)	A male		5/10	U3-AM-MicroB(N)-OF-XM
		Optical fiber(angled)	Micro-B male (with screw)	Micro-B male (with screw)		5	U3-AM-MicroB(D)-OF-XM
Camera Link Cables	High flexible	High flexible	SDR	SDR		3/5/7	CL-SDR-SDR-PoCL-FC-XM
		High flexible	MDR	SDR		3/5/7	CL-SDR-MDR-PoCL-FC-XM
		High flexible	MDR	MDR		3/5/7	CL-MDR-MDR-PoCL-FC-XM

Interface Type	Wire Type	Other Type	End A Connector	End B Connector	Cable Diagram	Length X(M)	Model
CoaXPress Cables	Standard	Standard	DIN	DIN		3/5	CXP6-DIN-DIN- $\times$ M
	High flexible	High flexible	DIN	DIN		3/5/7/10	CXP6-DIN-DIN-FC- $\times$ M
		High flexible	DIN	HDBNC		2/3/5	CXP-DIN-HDBNC- $\times$ M
		High flexible	HDBNC	HDBNC		2/3/5	CXP-HDBNC-HDBNC- $\times$ M

 Camera Power Supply And IOwire

Interface Type	Wire Type	Other Type	End A Connector	End B Connector	Cable Diagram	Length X(M)	Model
6pin I/O & Power Cables	Standard	Without DC	6pin female	Open		0.6/1/3/5/7/10/15	IO-6PIN- $\times$ M-LC
		With DC	6pin female	Open+With DC		0.5/3/5/10/15	IO-6PIN-DC- $\times$ M-LC
		Standard (angled)	6pin female (angled)	Open+With DC		5	IO-6PIN(L)-DC- $\times$ M
			6pin female (angled)	Open		8	IO-6PIN(L)-DC- $\times$ M
	High flexible	Without DC	6pin female	Open		1/3/5/10/15/20	IO-6PIN-FC- $\times$ M
		With DC	6pin female	Open+With DC		3/5/10/15/20	IO-6PIN-DC-FC- $\times$ M
		High flexible (angled)	6pin female (angled)	Open+With DC		6/10	IO-6PIN(L)-DC-FC- $\times$ M
			6pin female (angled)	Open		10	IO-6PIN(R)-FC- $\times$ M
12pin I/O & Power Cables	Standard	Without DC	12pin female	Open		0.5/3/5/7/10	IO-12PIN- $\times$ M
		With DC	12pin female	Open+With DC		3/5/7/10/15	IO-12PIN-DC- $\times$ M
	High flexible	With DC	12pin female	Open+With DC		5/7/10/15/20/30	IO-12PIN-DC-FC- $\times$ M
8pin I/O & Power Cables	Standard	--	--	--		1	IO-8PIN-DC- $\times$ M
						3	IO-8PIN-DC- $\times$ M
5pin I/O & Power Cables	Standard	--	--	--		0.3	IO-5PIN- $\times$ M
Camera Link I/O Cables	Standard	--	--	--		3	CL-IO-DB26F-DB26M- $\times$ M
CXP Power Cables	Standard	--	--	--	--	0.1	HX-CXP6-SATA-100

Connector Pin-out



Definition of 6-pin power port

Pin	Signal	Description
1	-	+9VDC~24VDC camera power supply
2	LINE1	Opto-isolated input
3	LINE2	GPIO (I/O can be configured for non.isolated software)
4	LINE0	Opto-isolated output
5	-	Opto-isolated signal ground (ISO_GND)
6	-	Camera DC power ground and GPIO signal ground (GND)

Note: The wiring standard is subject to actual conditions.

Wiring Standard	Color	Function Definition
1	Blue	Power
2	Brown	GND
3	Gray	IN/OUT
4	Red	Opto-isolated input
5	Black	Opto-isolated output
6	Green	Opto-isolated GND
7	Yellow	RXD RS232
8	Purple	TXD RS232

Note: The wiring standard is subject to actual conditions.

Port definitions of 8-pin signals

Color	Function Definition
Gray	LINE2(GPIO)
Brown	GND
Green	OPT_GND
Black	LINE0(OPT_OUT)
Red	LINE1(OPT_IN)

Note: The wiring standard is subject to actual conditions.

Port definitions of 5-pin signals



Port definitions of 12-pin signals

Number	Area Scan Camera		Line Scan Camera	
	Signal	Description	Signal	Description
1	GND	Power and signal GND	Power GND	power ground
2	Power	Power supply	Camera Power	Camera power supply (signal ground)
3	RXD RS232	Serial receive	IN Line5+	input Line5+
4	TXD RS232	Serial send	IN Line5-	input Line5-
5	Line3	Opto-isolated input	OPT GND	Opto-isolated ground point
6	Line4	Opto-isolated input	OPT IN Line1	Optocoupler input 1
7	Line5	Opto-isolated input	OPT IN Line2	Optocoupler input 2
8	OPT_IN_GND	Opto-isolated input GND	GPIO Line4	Bidirectional GPIO Line4
9	Line0	Opto-isolated output	OUT Line6+	output Line6+
10	Line1	Opto-isolated output	OUT Line6-	output Line6-
11	Line2	Opto-isolated output	IN Line3+	input Line3+
12	OPT_OUT_GND	Opto-isolated output GND	IN Line3-	input Line3-

Note: The wiring standard is subject to actual conditions.

LENS

FA product series, low distortion



A9-6MP SERIES (1/1.8"6MP)

- Supports image sensor size up to 1/1.8 Inches
- The whole series has 6 focal length types, including 8-50
- High resolution, full field of view 6MP resolution, matching 2.4μm pixel
- Low distortion design, optimized chromatic aberration design

Specifications

Model	Focal Length	Image Circle	F#	Angle Of View		Minimum Of WD	TV Distortion	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
				1/1.8"	1/2"								
A9-0828-6MP	8	1/1.8"(Φ9.4mm)	F2.8 - F16	58.9° *50.4° *34.8°	54.1° *44.4° *34.0°	100	-0.28%	C	35.4 * Φ30	M27*P0.5	45 g	-20° C~50° C	A
A9-1228-6MP	12	1/1.8"(Φ9.4mm)	F2.8 - F16	42.9° *35.5° *23.7°	37.1° *30.1° *22.8°	100	-0.10%	C	30 * Φ30	M27*P0.5	48 g	-20° C~50° C	B
A9-1628-6MP	16	1/1.8"(Φ9.4mm)	F2.8 - F16	31.3° *25.9° *17.2°	28.1° *22.6° *17.1°	100	-0.08%	C	36.9 * Φ30	M27*P0.5	56 g	-20° C~50° C	C
A9-2528-6MP	25	1/1.8"(Φ9.4mm)	F2.8 - F16	20.7° *17.3° *11.6°	18.7° *15.0° *11.3°	150	-0.02%	C	33.5 * Φ30	M27*P0.5	47 g	-20° C~50° C	D
A9-3528-6MP	35	1/1.8"(Φ9.4mm)	F2.8 - F16	15.2° *12.6° *8.3°	13.5° *10.8° *8.1°	200	-0.10%	C	39.8 * Φ30	M27*P0.5	60 g	-20° C~50° C	E
A9-5028-6MP	50	1/1.8"(Φ9.4mm)	F2.8 - F16	10.1° *8.4° *5.6°	9.1° *7.3° *5.5°	250	0.12%	C	48 * Φ30	M27*P0.5	67 g	-20° C~50° C	F

Dimensions



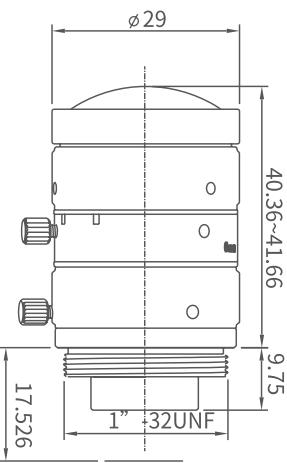
MH-SP SERIES (1/1.8" 6MP)

- Supports image sensor size up to 2/3 Inches
- Resolution up to 250lp/mm, suitable for 2μm pixels
- Full field definition and brightness consistency high
- Small dimension, easy to integrate and install

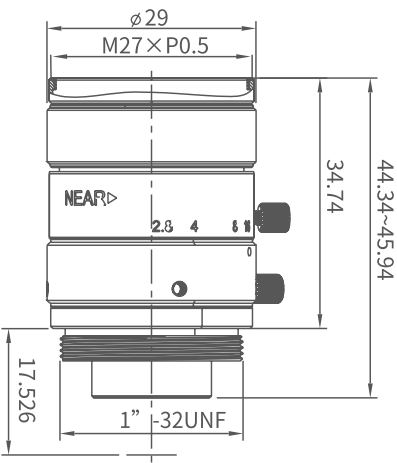
Specifications

Model	Focal Length	Image Circle	F#	Angle Of View		Minimum Of WD	TV Distortion	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
				1/1.8"	1/2"								
MH0628SP	6	1/1.8"(Φ9.4mm)	F2.8 - F16	74.8° *63.5° *44.8°	68.0° *56.6° *43.8°	80	-0.04%	C	40.36*Φ29	No	67 g	-10° C~50° C	A
MH0828SP	8	1/1.8"(Φ9.4mm)	F2.8 - F16	58.5° *49.3° *34.0°	53.4° *43.5° *33.2°	100	-0.55%	C	34.74*Φ29	M27*P0.5	56 g	-10° C~50° C	B
MH1228SP	12	1/1.8"(Φ9.4mm)	F2.8 - F16	41.2° *34.4° *23.4°	37.2° *30.2° *22.8°	100	-0.04%	C	35.36*Φ29	M27*P0.5	54 g	-10° C~50° C	C
MH1628SP	16	1/1.8"(Φ9.4mm)	F2.8 - F16	31.0° *25.7° *17.5°	28.0° *22.3° *16.9°	100	-0.08%	C	33.12*Φ29	M27*P0.5	46 g	-10° C~50° C	D
MH2528SP	25	1/1.8"(Φ9.4mm)	F2.8 - F16	19.8° *16.4° *11.0°	17.7° *14.2° *10.7°	100	-0.02%	C	34.34*Φ29	M25.5*P0.5	48 g	-10° C~50° C	E
MH3528SP	35	1/1.8"(Φ9.4mm)	F2.8 - F16	13.8° *11.3° *7.6°	12.3° *9.8° *7.4°	150	-0.02%	C	42.62*Φ29	M27*P0.5	58 g	-10° C~50° C	F
MH5028SP	50	1/1.8"(Φ9.4mm)	F2.8 - F16	9.7° *8.0° *5.4°	8.7° *7.0° *5.2°	300	0.11%	C	43.89*Φ29.4	M25.5*P0.5	56 g	-10° C~50° C	G

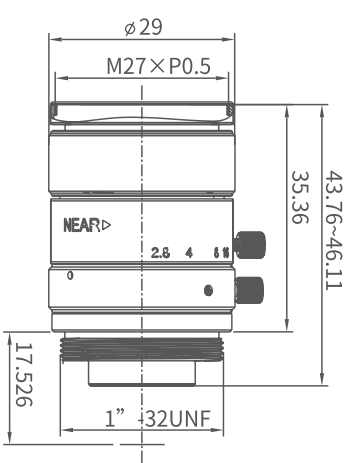
Dimensions



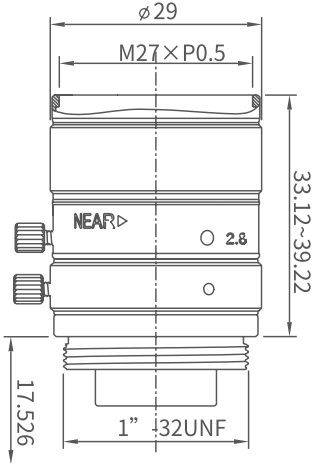
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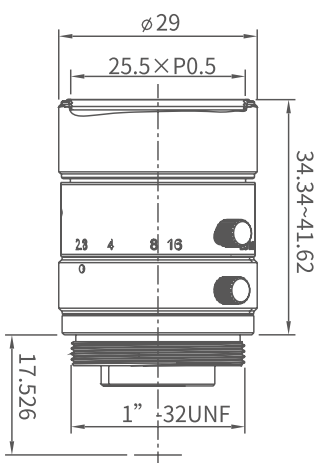
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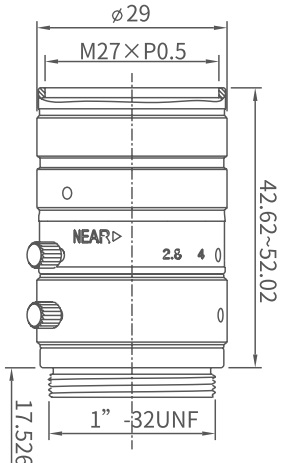
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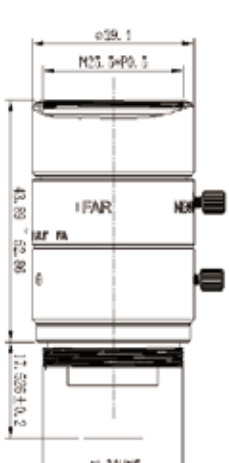
D



E



F



G

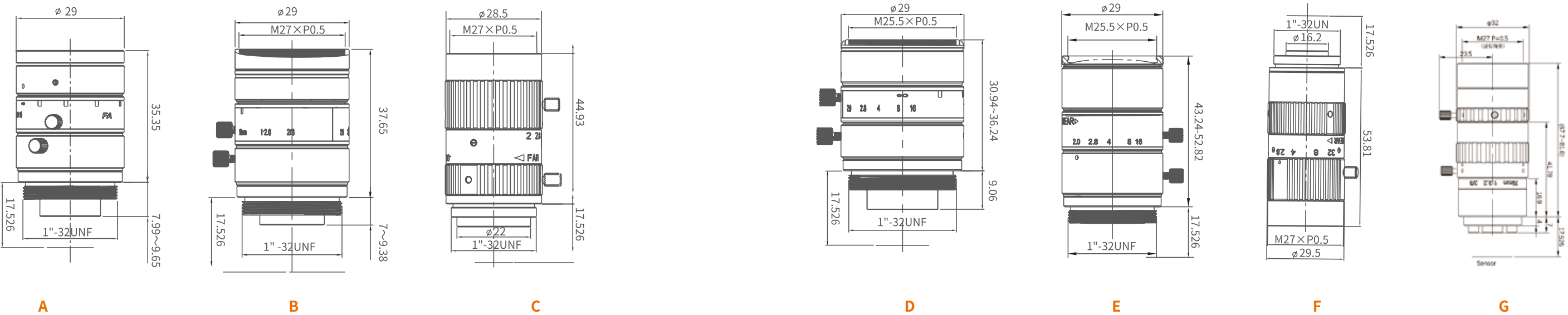
MH-M SERIES (2/3" 8MP)

- Supports image sensor size up to 2/3 inches
- Low distortion design
- Resolution up to 200lp/mm, suitable for 2.4μm pixel
- Small dimension, easy to integrate and install
- Full field definition consistency high

Specifications

Model	Focal Length	Image Circle	F#	Angle Of View		Minimum Of WD	TV Distortion	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
				2/3"	1/1.8"								
MHR0828M	8	2/3"(Φ11.4mm)	F2.8 - F16	67.2° *53.2° *46.0°	56.5° *47.7° *34.1°	100	-0.77%	C	35.35*Φ29	- -	68 g	-20° C~50° C	A
MHR1220M	12	2/3"(Φ11.4mm)	F2.0 - F16	48.8° *38.4° *32.5°	39.9° *33.6° *22.8°	150	-0.01%	C	37.65*Φ29	M27*P0.5	61 g	-20° C~50° C	B
MH1620M	16	2/3"(Φ11.4mm)	F2.0 - F16	37.3° *30.3° *22.9°	30.1° *26.2° *15.8°	200	0.10%	C	44.93*Φ29	M25.5*P0.5	56 g	-20° C~50° C	C
MHR2520M	25	2/3"(Φ11.4mm)	F2.0 - F16	23.9° *18.3° *15.4°	19.4° *15.8° *10.7°	200	-0.04%	C	36.25*Φ29	M25.5*P0.5	58 g	-20° C~50° C	D
MHR3520M	35	2/3"(Φ11.4mm)	F2.0 - F16	16.5° *12.8° *10.7°	13.5° *11.7° *7.4°	200	-0.01%	C	52.82*Φ29.4	M25.5*P0.5	62 g	-20° C~50° C	E
MH5028M	50	2/3"(Φ11.4mm)	F2.8 - F32	10.6° *8.5° *6.4°	8.5° *7.4° *4.4°	400	0.05%	C	53.81*Φ29.5	M25.5*P0.5	69 g	-20° C~50° C	F
MH7532M	75	2/3"(Φ11.4mm)	F3.2 - F16	8.5° *6.5° *5.4°	4.0° *3.1° *2.6°	150	0.07%	C	82.1*Φ32	M27*P0.5	120 g	-20° C~50° C	G

Dimensions



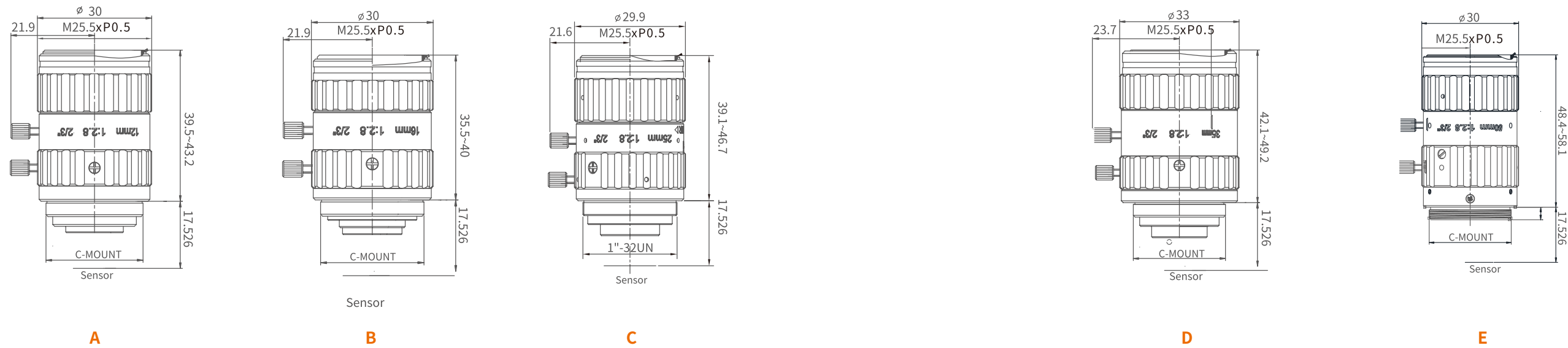
MK-M SERIES (2/3" 10MP)

- Supports image sensor size up to 2/3 inches
- Resolution up to 250lp/mm, suitable for 2μm pixels
- Full field definition and brightness consistency high
- Small dimension, easy to integrate and install

Specifications

Model	Focal Length	Image Circle	F#	Angle Of View		Minimum Of WD	TV Distortion	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
				2/3"	1/1.8"								
MK1228M	12	2/3"(Φ11.4mm)	F2.8 - F16	49.2° *40.2° *30.8°	36.9° *29.9° *22.6°	100	-0.20%	C	43.2*Φ30	M25.5*P0.5	70 g	-20° C~50° C	A
MK1628M	16	2/3"(Φ11.4mm)	F2.8 - F16	37.9° *30.8° *23.3°	31.2° *25.3° *18.9°	100	-0.20%	C	40*Φ30	M25.5*P0.5	58 g	-20° C~50° C	B
MK2528M	25	2/3"(Φ11.4mm)	F2.8 - F16	24.8° *20.0° *15.0°	18.2° *14.6° *11.0°	150	-0.30%	C	46.7*Φ30	M25.5*P0.5	66 g	-20° C~50° C	C
MK3528M	35	2/3"(Φ11.4mm)	F2.8 - F16	17.9° *14.3° *10.8°	13.0° *10.4° *7.8°	200	0.07%	C	49.2*Φ33	M25.5*P0.5	99 g	-20° C~50° C	D
MK5028M	50	2/3"(Φ11.4mm)	F2.8 - F16	12.6° *10.1° *7.6°	9.1° *5.5° *4.3°	200	-0.01%	C	58.1*Φ33	M25.5*P0.5	86 g	-20° C~50° C	E

Dimensions



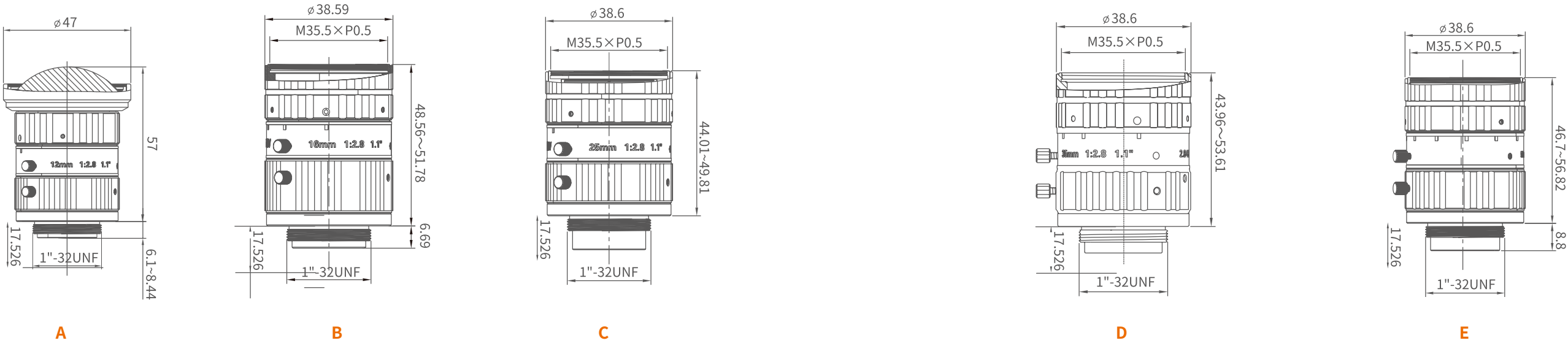
MH-X SERIES (1.1" 12MP)

- Supports image sensor size up to 1.1 Inches (Φ17.6mm)
- Resolution up to 145lp/mm, suitable for 3.45μm pixels
- Full field definition consistency high
- Low distortion design, TV distortion less than 0.5%

Specifications

Model	Focal Length	Image Circle	F#	Angle Of View		Minimum Of WD	TV Distortion	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
				1.1"	1"								
MH1228X	12	1.1"(Φ17.6mm)	F2.8 - F16	70.5° *59.8° *46.3°	65.7° *53.5° *43.3°	100	-0.22%	C	56.99*Φ47	No	186 g	-20° C~50° C	A
MH1628X	16	1.1"(Φ17.6mm)	F2.8 - F16	57.8° *47.6° *36.5°	52.8° *42.5° *34.1°	100	-0.18%	C	51.78*Φ38.59	M35.5*P0.5	180 g	-20° C~50° C	B
MH2528X	25	1.1"(Φ17.6mm)	F2.8 - F16	37.3° *30.4° *23°	33.9° *26.9° *21.4°	150	-0.20%	C	49.81*Φ38.6	M35.5*P0.5	133 g	-20° C~50° C	C
MH3528X	35	1.1"(Φ17.6mm)	F2.8 - F16	26.7° *21.4° *15.9°	24.1° *18.9° *15.1°	200	-0.02%	C	53.61*Φ38.6	M35.5*P0.5	136 g	-20° C~50° C	D
MH5028X	50	1.1"(Φ17.6mm)	F2.8 - F16	18.4° *14.8° *11.2°	16.7° *13.2° *10.5°	300	-0.02%	C	56.82*Φ38.6	M35.5*P0.5	134 g	-20° C~50° C	E

Dimensions



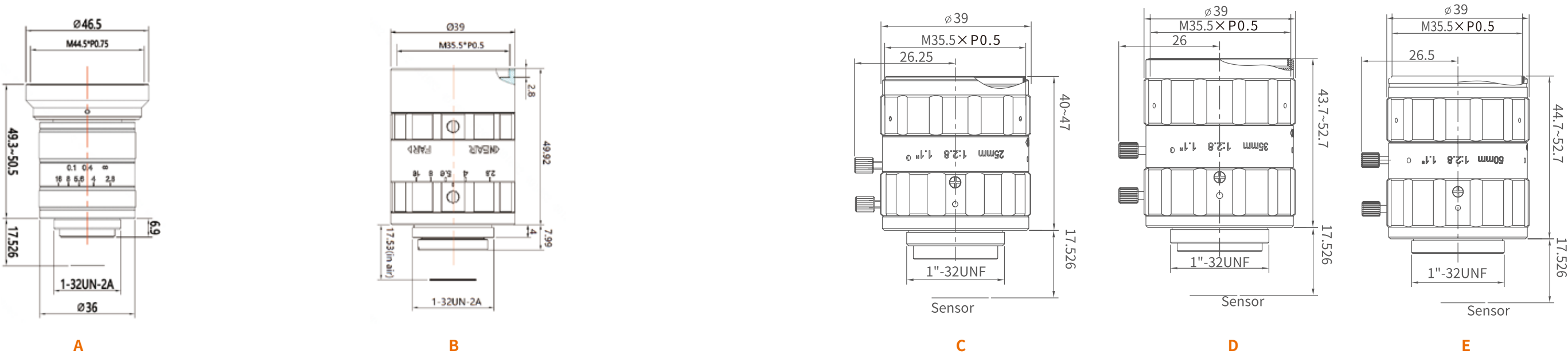
MT-X SERIES (1.1" 25MP)

- Supports image sensor size up to 1.1 Inches (Φ17.6mm)
- Resolution up to 200lp/mm, suitable for 2.4μm pixels
- Full field definition consistency high
- Low distortion design, TV distortion is less than 0.1%

Specifications

Model	Focal Length	Image Circle	F#	Angle Of View		Minimum Of WD	TV Distortion	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
				1.1"	1"								
MT1228X	12	1.1"(Φ17.6mm)	F2.8-F16	73.4° x55.6° x55.6°	66.8° x56.8° x39.7°	100	-0.60%	C	50.5*Φ46.5	M44.5*P0.75	130 g	-20° C~50° C	A
MT1628X	16	1.1"(Φ17.6mm)	F2.8-F16	56.7° x47.1° x35.4°	51.9° x44.1° x30.2°	150	-0.20%	C	49.9*Φ39	M35.5*P0.5	132 g	-20° C~50° C	B
MT2528X	25	1.1"(Φ17.6mm)	F2.8 - F16	38.8° *34.7° *23.5°	35.5° *28.7° *21.7°	150	-0.02%	C	47.5*Φ39	M35.5*P0.5	124 g	-20° C~50° C	C
MT3528X	35	1.1"(Φ17.6mm)	F2.8 - 16	28.2° *22.9° *16.9°	25.8° *20.7° *15.6°	200	-0.07%	C	52.7*Φ39	M35.5*P0.5	125 g	-20° C~50° C	D
MT5028X	50	1.1"(Φ17.6mm)	F2.8 - F16	20.0° *16.2° *11.9°	18.2° *14.6° *11.0°	250	0.07%	C	52.7*Φ39	M35.5*P0.5	117 g	-20° C~50° C	E

Dimensions



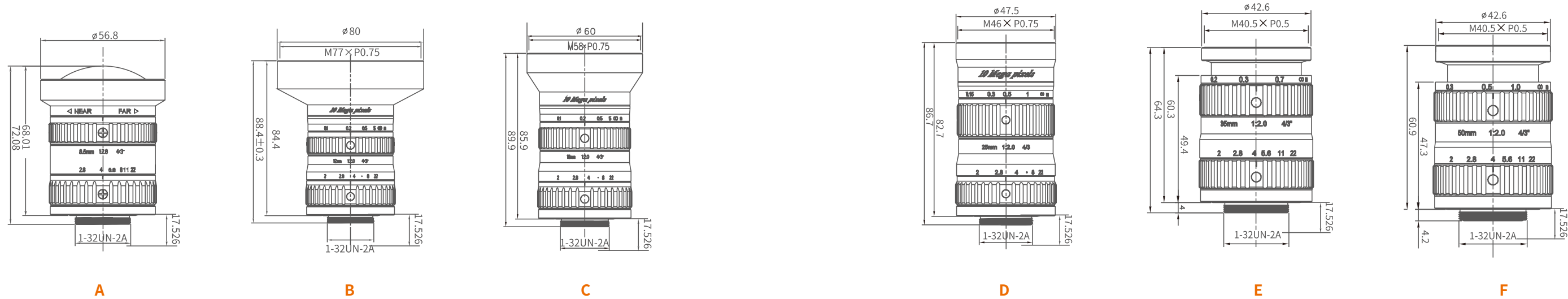
MH-K SERIES(4/3" 10MP)

- Supports image sensor size up to 4/3 inches (Φ23mm)
- The whole series has 6 focal length types, including 8.5-50
- High resolution, full field of view 10MP resolution, adapted to 4.5μm pixels
- Low distortion design, F2.0Large aperture design

Specifications

Model	Focal Length	Image Circle	F#	Angle Of View		Minimum Of WD	TV Distortion	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
				4/3"	1"								
MH08528K	8.5	4/3''(Φ23mm)	F2.8 - F22	107.4° *94.9° *80.1°	86.6° *73.6° *58.1°	500	-0.94%	C	72.1*Φ56.8	No	317 g	-20° C~50° C	A
MH1220K	12	4/3''(Φ23mm)	F2.0 - F22	89.0° *75.5° *61.1°	68.9° *57.3° *44.2°	150	0.04%	C	84.4*Φ80	M77*P0.75	447 g	-20° C~50° C	B
MH1620K	16	4/3''(Φ23mm)	F2.0 - F22	72.9° *60.9° *47.3°	54.0° *44.2° *33.6°	100	-1.27%	C	85.9*Φ60	M58*P0.75	338 g	-20° C~50° C	C
MH2520K	25	4/3''(Φ23mm)	F2.0 - F22	49.7° *40.6° *31.0°	35.7° *28.8° *21.8°	150	-0.25%	C	82.7*Φ47.5	M46*P0.75	251 g	-20° C~50° C	D
MH3520K	35	4/3''(Φ23mm)	F2.0 - F22	36.6° *29.6° *22.4°	25.9° *20.8° *15.7°	200	-0.22%	C	64.3*Φ44.6	M40.5*P0.5	173 g	-20° C~50° C	E
MH5020K	50	4/3''(Φ23mm)	F2.0 - F22	25.9° *20.9° *15.7°	18.2° *14.6° *11.0°	300	-0.11%	C	60.9*Φ42.6	M40.5*P0.5	170 g	-20° C~50° C	F

Dimensions



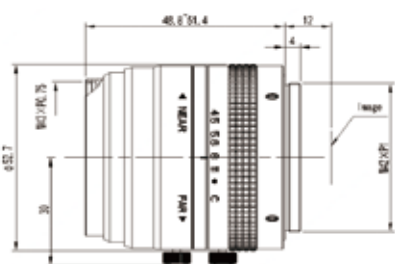
Line Scan & Large Target Surface Lens

- Image sensor size covers $\Phi 30\text{mm}\sim\Phi 60\text{mm}$
- High definition, image resolution 100~160lp/mm
- Low distortion, distortion <0.2%

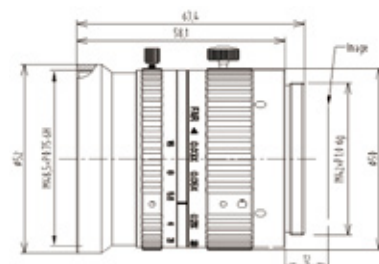
Specifications

Series	Model	Focal Length	Image Circle	F#	Resolution	TV Distortion	Relative Illumination	Minimum Of WD	Magnification Range	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
4K7u	F30-2045-M42	20	$\Phi 30$	F4.5-C	MTF>0.35 @100lp/mm	0.50%	55%	200	0.02~0.1x	M42*P1	51.4* $\Phi 52$	M43*P0.75	234.2	-20° C~50° C	A
	F30-2528-M42	25	$\Phi 30$	F2.8-16	MTF>0.3 @100lp/mm	0.94%	80%	115	0.03~0.2x	M42*P1	63.4* $\Phi 53$	M49*P0.75	265.4	-20° C~50° C	B
	F30-2840-M42	28	$\Phi 30$	F4.0-C	MTF>0.4 @100lp/mm	0.18%	63%	100	0.05~0.3x	M42*P1	54.85* $\Phi 48$	NA	161.4	-20° C~50° C	C
	F30-3528-F	35	$\Phi 30$	F2.8 - F11	MTF>0.35 @100lp/mm	-0.20%	77%	200	0.01-0.157x	F 接口	67.8* $\Phi 55$	M52*P0.75	350±5	-20° C~50° C	D
	F32-5035-M43	50	2''($\Phi 32$)	F3.5 - F11	MTF>0.4 @145lp/mm	0.15%	58%	200	0~0.25x	M43*P0.5	80.94* $\Phi 49$	M38*P0.5	406±5	-20° C~50° C	E
8K7u	F60-4040A-M72	40	$\Phi 60$	F4.0-22	MTF>0.4 @100lp/mm	0.20%	58%	250	0.02~0.16x	M72*P0.75	118.75* $\Phi 75$	M72*P0.75	659.4	-20° C~50° C	F
	F60-6056-F	60	$\Phi 60$	F5.6	MTF>0.4 @80lp/mm	-1.70%	60%	300	0.04~0.2x	F 接口	65* $\Phi 52.5$	M47*P0.75	276.0	-20° C~50° C	G
	F60-6040A-M72	60	$\Phi 60$	F4.0 - F16	MTF>0.4 @100lp/mm	-0.20%	62%	340	0.04-0.18x	M72*P0.75	114.8* $\Phi 78$	M58*P0.75	680±5	-20° C~50° C	H
	F60-6040B-M72	60	$\Phi 60$	F4.0 - F16	MTF>0.4 @100lp/mm	-0.20%	62%	200	0.15-0.33x	M72*P0.75	114.8* $\Phi 78$	M58*P0.75	680±5	-20° C~50° C	I
	F80-8040-02X-M72-D76	80	$\Phi 80$	F4.0-22	MTF>0.4 @100lp/mm	0.02%	80%	303	0.04~0.33x	M72*P0.75	111.7* $\Phi 76$	NA	260	-20° C~50° C	J
16K	F64-9040-M72	90	$\Phi 64$	F4.0-16	MTF>0.35 @125lp/mm	0.15%	84%	722	0.08~0.14x	M72*P0.75	127.3* $\Phi 83$	M58*P0.75	402.9	-20° C~50° C	K
	F62-9540-0.05X-M72	95	$\Phi 62$	F4.0-16	MTF>0.3 @125lp/mm	0.01%	83%	1253	0.03~0.08x	M72*P0.75	129.9* $\Phi 83$	M58*P0.75	456.7	-20° C~50° C	L
	F66-11638-05X-M58	116	$\Phi 66$	F3.8-16	MTF>0.35 @160lp/mm	0.001%	92%	279	0.46~0.54x	M58*P0.75	191* $\Phi 83$	NA	336.7	-20° C~50° C	M
65MP	F46-6035-M58	60	$\Phi 46$	F3.5 - F16	MTF>0.4 @160lp/mm	-0.20%	62%	350	0~0.16x	M58*P0.75	101.3* $\Phi 61$	-	503±5	-20° C~50° C	N
151MP	F67-5545-M72	55	$\Phi 67$	F4.5-22	MTF>0.3 @140lp/mm	0.09%	85%	98	0.01~0.5x	M72*P0.75	132.3* $\Phi 79.2$	NA	1600	-20° C~50° C	O

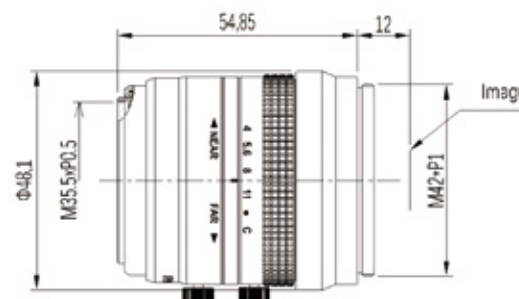
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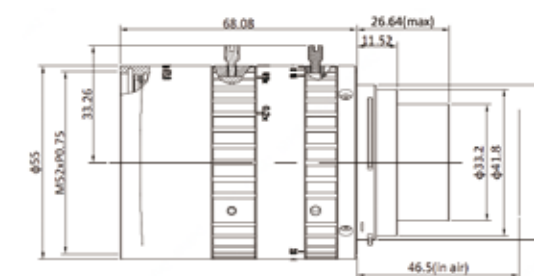
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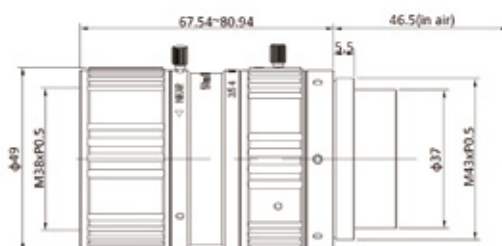
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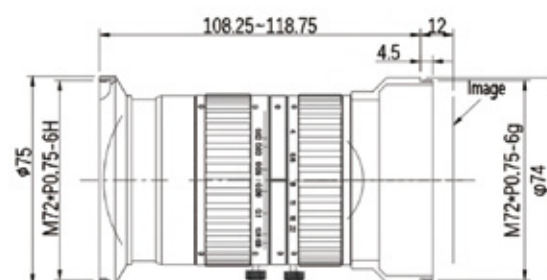
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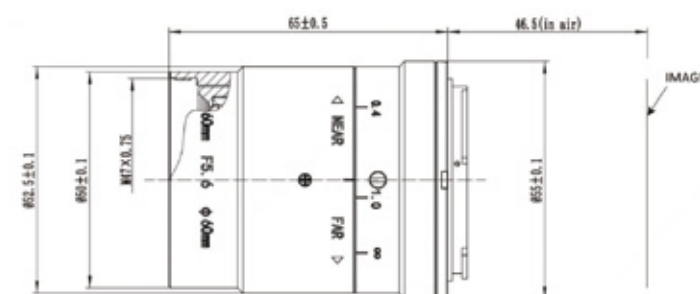
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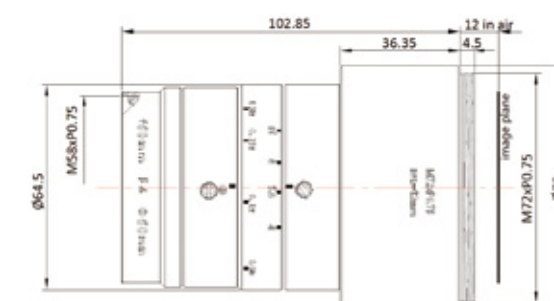
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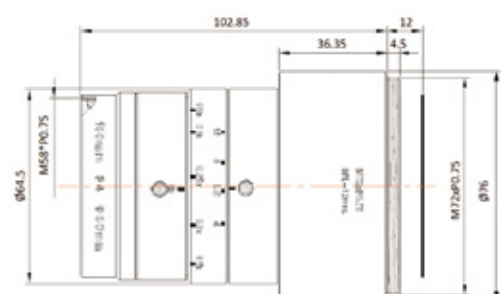
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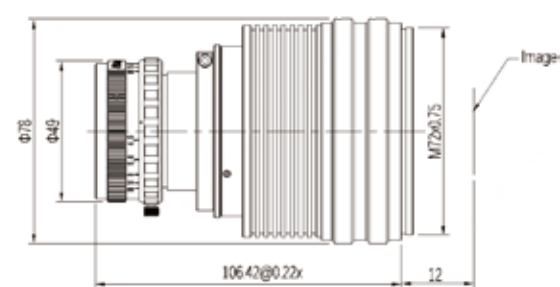
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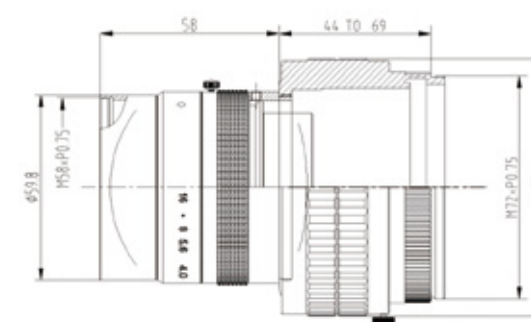
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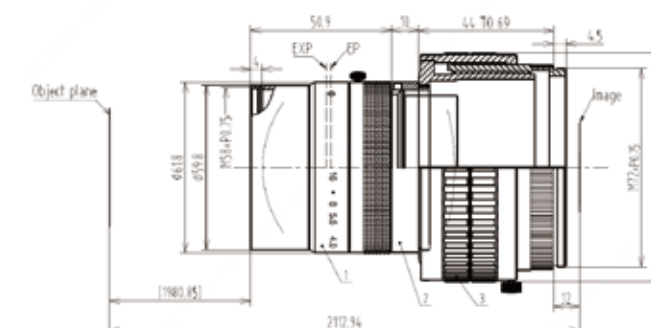
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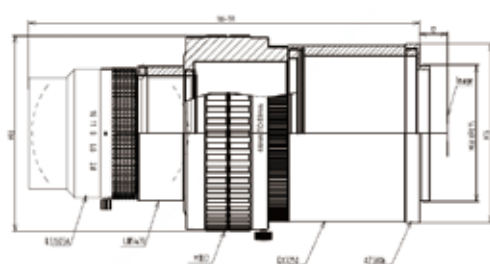
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K



L



M



N



O

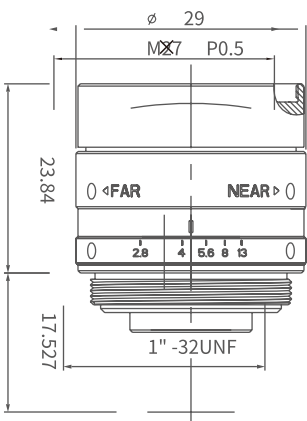
Industry Lens

- Customized lens for code reading and other recognition scenarios, high cost performance
- Maximum image area 1 inch, compatible with 20MP and 25MP code readers
- High resolution, up to 1.85μm pixel
- Low distortion design, TV distortion is less than 1%
- Small dimension, easy to integrate and install

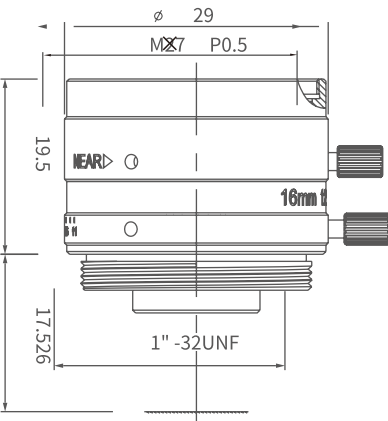
Specifications

Model	Focal Length	Image Circle	F#	Angle Of View		Minimum Of WD	TV Distortion	Mount	Dimensions	Filter Thread	Weight	Working Temperature	Label
				1/1.7"(Φ9.4)	1" (13.13*8.76mm)								
MH1228R	12	1/1.7"(Φ9.4mm)	F2.8 - F13	42.2° *34.2° *26.0°	/	0.2m to inf	0.34%	C-Mount	23.8*Φ29	M27*P0.5	38g	-20° C~50° C	A
MH1628R	16	1/1.7"(Φ9.4mm)	F2.8 - F11	33.2° *26.8° *20.3°	/	0.15m to inf	-0.30%	C-Mount	19.5*Φ29	M27*P0.5	38g	-20° C~50° C	B
MH1656XR	16	1"(Φ16mm)	F5.6 - F11	32.7° *26.4° *19.9°	52.5° *44.5° *30.6°	0.3m to inf	-0.80%	C-Mount	39.8*Φ32	M27*P0.5	72g	-20° C~50° C	C
MH2056XR	20	1"(Φ16mm)	F5.6 - F11	26.4° *21.2° *15.9°	43.1° *36.3° *24.7°	0.5m to inf	-0.80%	C-Mount	30.96*Φ31.2	M27*P0.5	70g	-20° C~50° C	D
MH2556XR	25	1"(Φ16mm)	F5.6 - F11	21.3° *17.1° *12.8°	35° *29.4° *19.9°	0.5m to inf	-0.80%	C-Mount	35.7*Φ31	M27*P0.5	80g	-20° C~50° C	E

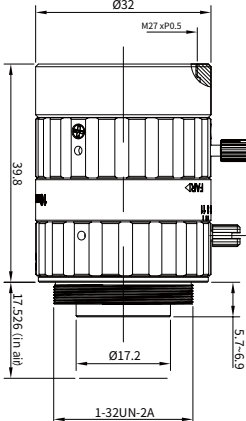
Dimensions



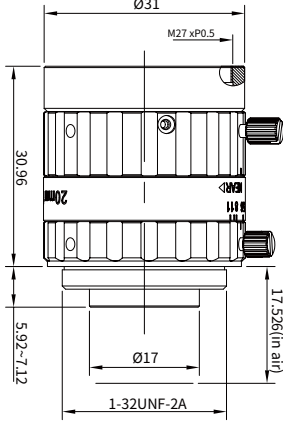
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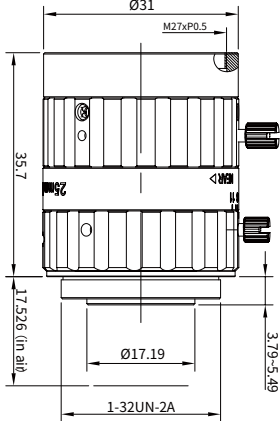
B



C



D



E

Lens Accessories

Polarizing filter

Polarizing filter

Polarization filters can selectively filter light with a specific polarization direction.

Model	Thread Parameters	Transmittance	Working Band	Extinction Ratio
PZ-M25.5P0.5	M25.5×P0.5mm	Tave>40%	380-780mm	>1000
PZ- M27P0.5	M27×P0.5mm	Tave>40%	380~780mm	>1000
PZ-M30.5P0.5	M30.5×P0.5mm	Tave>40%	380~780mm	>1000
PZ-M35.5P0.5	M35.5×P0.5mm	Tave>40%	380~780mm	>1000

Description: Supports polarizer customization specification
Description rules: Example: PZ-M25P0.5
PZ: polarization filter
M25P0.5: Thread specification

Extension ring Adapter ring

When the lens working distance is smaller than its normal focusing range, you need to use an extension ring to increase the lens rear focus.

Model	Camera Interface	Lens Mount	Thread Specification	Rear Focus Length
EXR-C-E0.5	C	C	C	0.5
EXR-C-E1	C	C	C	1
EXR-C-E5	C	C	C	5
EXR-C-E10	C	C	C	10
EXR-C-E15	C	C	C	15
ADR-F-M42-E34.5	M42×P1.0	F	M42×P1	34.5
ADR-F-M58-E10.2	M58×P0.75	F	M58×P0.75	10.2
ADR-F-M72-E35.4	M72×P0.75	F	M72×P0.75	35.4
ADR-C-M12-E5	C	M12	C /M12	5
ADR-C-M42-E5.526	M42×P1.0	C	M42×P1/C	5.526
ADR-C-M58-E5.526	M58×P0.75	C	M58×P0.75/C	5.526

Lens Working Distance And Magnification

 Table I: A9-6MP Series

WD/mm	A9-0828-6MP	A9-1228-6MP	A9-1628-6MP	A9-2528-6MP	A9-3528-6MP	A9-5028-6MP	
	Mag.	Mag.	Mag.	Mag.	Mag.	Mag.	Ext.
K	5.0211	8.1802	13.476	14.666	24.19	115.09	115.09
α	-0.926	-0.943	-0.971	-0.918	-0.945	-1.127	-1.127
800	0.010	0.015	0.020	0.032	0.044	0.062	0
750	0.011	0.016	0.022	0.034	0.046	0.066	0
700	0.012	0.017	0.023	0.036	0.050	0.072	0
650	0.012	0.018	0.025	0.038	0.053	0.078	0
600	0.013	0.020	0.027	0.041	0.057	0.085	0
550	0.015	0.021	0.029	0.045	0.062	0.094	0
500	0.016	0.023	0.032	0.049	0.068	0.104	0
450	0.018	0.026	0.036	0.054	0.075	0.117	0
400	0.020	0.029	0.040	0.060	0.084	0.133	0
350	0.022	0.033	0.046	0.068	0.095	0.156	0
300	0.025	0.038	0.053	0.078	0.110	0.186	0
250	0.030	0.045	0.064	0.092	0.131	0.232	0
200	0.038	0.055	0.079	0.113	0.162	0.295	5
150	0.049	0.073	0.104	0.147	--	--	--
100	0.070	0.106	0.152	--	--	--	--

Remarks: "/" indicates that the lens needs an extension ring to ensure near field focus

 Table 2: MH-SP Series

WD/mm	MH0628SP	MH0828SP	MH1228SP	MH1628SP	MH2528SP	MH3528SP		MH5028SP	
	Mag.	Mag.	Mag.	Mag.	Mag.	Mag.	Ext.	Mag.	Ext.
1000	0.006	0.008	0.012	0.015	0.024	0.034	0	0.048	0
900	0.007	0.009	0.013	0.017	0.027	0.038	0	0.053	0
800	0.008	0.010	0.015	0.019	0.031	0.043	0	0.060	0
700	0.009	0.011	0.017	0.022	0.035	0.049	0	0.069	0
600	0.010	0.013	0.019	0.025	0.041	0.057	0	0.082	0
500	0.012	0.016	0.023	0.030	0.049	0.069	0	0.100	0
400	0.015	0.019	0.028	0.038	0.060	0.086	0	0.127	0
300	0.020	0.025	0.037	0.050	0.080	0.116	0	0.176	0
200	0.029	0.037	0.055	0.072	0.119	0.176	0	0.263	4
100	0.054	0.067	0.102	0.134	0.224	0.346	6	0.500	17

Remarks: "/" indicates that the lens needs an extension ring to ensure near field focus

☉ Table 3: MH-M Series

WD/mm	MHR0828M	MHR1220M	MH1620M	MHR2520M		MHR3520M		MH5028M	
	Mag.	Mag.	Mag.	Mag.	Ext.	Mag.	Ext.	Mag.	Ext.
1000	0.008	0.012	0.016	0.025	0	0.035	0	0.052	0
900	0.009	0.013	0.018	0.027	0	0.039	0	0.058	0
800	0.010	0.015	0.020	0.031	0	0.044	0	0.066	0
700	0.012	0.017	0.023	0.035	0	0.051	0	0.076	0
600	0.014	0.019	0.026	0.040	0	0.060	0	0.089	0
500	0.016	0.023	0.031	0.049	0	0.072	0	0.110	0
400	0.020	0.029	0.038	0.061	0	0.092	0	0.140	0
300	0.027	0.038	0.051	0.081	0	0.125	0	0.194	3
200	0.039	0.056	0.074	0.121	0	0.196	1	0.312	10
100	0.073	0.106	--	0.224	3	0.355	5	--	--

☉ Table 4: MK-M Series

WD/mm	MK1228M	MK1628M	MK2528M	MK3528M		MK5028M	MK7532M
	Mag.	Mag.	Mag.	Mag.	Ext.	Mag.	--
1000	0.012	0.016	0.025	0.035	0	0.051	--
900	0.013	0.018	0.028	0.039	0	0.057	--
800	0.015	0.020	0.032	0.044	0	0.064	--
700	0.017	0.023	0.036	0.051	0	0.073	--
600	0.020	0.026	0.042	0.059	0	0.086	--
500	0.024	0.031	0.051	0.071	0	0.104	0.104
400	0.029	0.039	0.063	0.087	0	0.131	0.131
300	0.039	0.052	0.084	0.119	0	0.176	0.176
200	0.057	0.076	0.126	0.182	0	0.271	0.271
100	0.108	0.145	0.243	0.401	8	--	--

Remarks: "/" indicates that the lens needs an extension ring to ensure near field focus

☉ Table 5: MH7532M Macro lens

Magnification	Working Distance/mm	Viewable Range/mm(29.9× 22.4mm)		Ext.Ring
		H	V	
0.16	521.1	49.65	41.53	0
0.2	454.8	42.20	35.30	
0.227	405.9	36.70	30.70	
0.26	368.3	32.46	27.15	
0.29	338.4	29.10	24.34	
0.32	314.2	26.38	22.06	
0.357	300	24.11	20.17	
0.38	277.8	22.21	18.58	
0.41	265.1	20.59	17.22	5
0.44	252.5	19.18	16.05	
0.47	243.4	17.96	15.02	10
0.5	233.6	16.88	14.12	
0.53	226.6	15.92	13.32	15
0.56	218.8	15.07	12.61	
0.59	211.9	14.31	11.97	
0.62	206.9	13.61	11.39	20
0.65	201.1	12.98	10.86	
0.68	197.1	12.41	10.38	25
0.71	192.4	11.89	9.94	
0.74	189	11.41	9.54	30
0.77	184.8	10.96	9.17	
0.8	180.9	10.55	8.83	
0.83	178.3	10.17	8.51	35
0.86	174.9	9.81	8.21	
0.89	172.6	9.48	7.93	40
0.92	169.7	9.17	7.67	
0.95	167.7	8.88	7.43	45
0.98	165.1	8.61	7.20	
1.01	162.7	8.36	6.99	

Remarks: "/" indicates that the lens needs an extension ring to ensure near field focus

🕒 Table 6: MH-X Series

WD/mm	MH1228X	MH1628X	MH2528X		MH3528X		MH5028X	
	Mag.	Mag.	Mag.	Ext.	Mag.	Ext.	Mag.	Ext.
1000	0.012	0.016	0.025	0	0.034	0	0.049	0
900	0.014	0.017	0.027	0	0.037	0	0.055	0
800	0.015	0.019	0.031	0	0.042	0	0.061	0
700	0.017	0.022	0.035	0	0.048	0	0.071	0
600	0.020	0.026	0.040	0	0.056	0	0.083	0
500	0.024	0.031	0.048	0	0.068	0	0.100	0
400	0.029	0.038	0.060	0	0.085	0	0.126	0
300	0.039	0.050	0.078	0	0.114	0	0.171	0
200	0.056	0.073	0.114	0	0.171	0	0.257	5
100	0.103	0.137	0.211	2	0.333	5	0.530	18

🕒 Table 7: MT-X Series

WD/mm	MT2528X		MT3528X		MT5028X	
	Mag.	Ext.	Mag.	Ext.	Mag.	Ext.
1000	0.025	0	0.036	0	0.051	0
900	0.028	0	0.040	0	0.057	0
800	0.031	0	0.044	0	0.064	0
700	0.036	0	0.051	0	0.074	0
600	0.042	0	0.059	0	0.087	0
500	0.050	0	0.072	0	0.105	0
400	0.062	0	0.090	0	0.133	0
300	0.083	0	0.121	0	0.182	0
200	0.124	0	0.184	0	0.283	5
100	0.235	5	0.360	7	0.634	20

🕒 Table 8: MH-K Series

WD/mm	MH1220K	MH1620K	MH2520K	MH3520K	MH5020K
	Mag.	Mag.	Mag.	Mag.	Mag.
1000	0.012	0.016	0.026	0.036	0.050
900	0.013	0.019	0.029	0.041	0.055
800	0.015	0.022	0.032	0.047	0.062
700	0.016	0.023	0.036	0.053	0.071
600	0.020	0.027	0.042	0.062	0.083
500	0.023	0.032	0.051	0.074	0.100
400	0.028	0.039	0.063	0.096	0.125
300	0.039	0.051	0.081	0.123	0.168
200	0.057	0.079	0.117	0.210	--
150	0.096	0.107	0.145	--	--
100	0.12	0.139	--	--	--

Remarks: "/" indicates that the lens needs an extension ring to ensure near field focus

🕒 Table 9: F32-5035-M43

Magnification	Working Distance/mm	Viewable Range/mm(29.9× 22.4mm)	
		H	V
0.25	201.2	89.20	66.96
0.23	218.7	96.60	72.78
0.21	239.6	106.69	79.71
0.19	264.9	117.37	88.11
0.17	296.1	131.18	98.47
0.15	335.7	148.67	111.60
0.13	387.4	171.54	128.77
0.11	458.0	202.73	152.18
0.09	560.0	247.78	186.00
0.07	720.4	318.57	239.14
0.05	1009.2	446.00	334.80
0.03	1683.8	743.33	558.00
0.01	5062.5	2230.00	1674.00

🕒 Table 10: F46-6035-M58

Magnification	Working Distance/mm	Viewable Range/mm(29.9× 22.4mm)	
		H	V
0.177	320.1	168.93	126.55
0.160	354.8	186.88	140.00
0.150	378.9	199.33	149.33
0.140	406.5	213.57	160.00
0.130	438.4	230.00	172.31
0.120	475.7	249.17	186.67
0.110	519.8	271.82	203.64
0.100	572.8	299.00	224.00
0.090	637.7	332.22	248.89
0.080	719.1	373.75	280.00
0.070	823.9	427.14	320.00
0.060	964.0	498.33	373.33
0.050	1160.8	598.00	448.00
0.040	1457.2	747.50	560.00
0.030	1953.6	996.67	746.67
0.020	2953.0	1495.00	1120.00
0.100	574.8	299.99	224.74

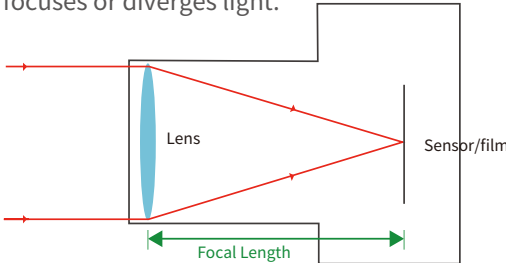
Remarks: "/" indicates that the lens needs an extension ring to ensure near field focus

Basic Knowledge And Selection Methods Of Lens

Lens Technical Specifications

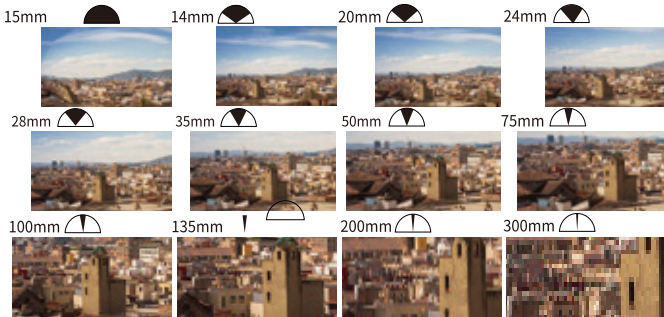
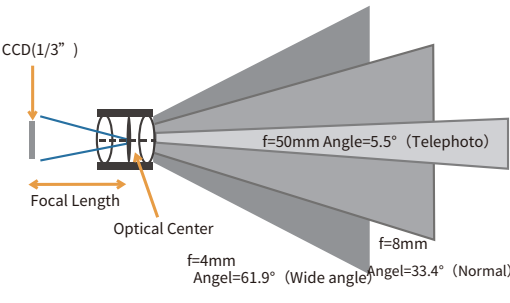
1 Focal Length

When the incident light is incident parallel to the lens optical axis, the distance from the principal point behind the lens to the imaging surface is called focal length, which measures the degree to which the optical system focuses or diverges light.



2 Field Of View (FoV)

Field of view (FOV) refers to the angle of the lens relative to the imaging surface. Field of view (FOV) is determined by the focal length of the lens and the size of the image sensor. The larger the focal length, the smaller the field of view (FOV), and the shorter the focal length, the larger the field of view (FOV). If Y is the dimension of the short side of the sensor, then the short side field of view (FOV) $2\theta=2\arctan(y/2/f)$

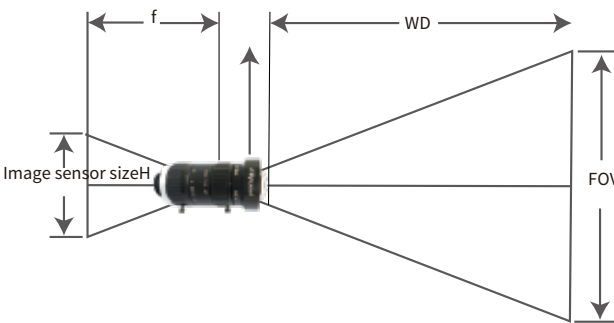


3 Working Distance

When the lens is focused clearly, the distance between the measured surface and the front end of the lens is called the working distance of the lens.

4 Field Of View

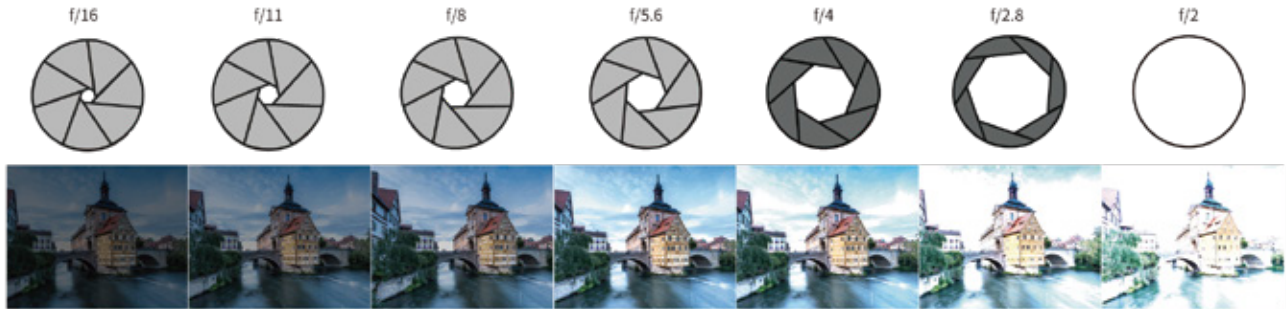
The field of view refers to the actual range of objects that are imaged.



$$\text{Magnification} = \frac{H}{\text{FOV}} = \frac{f}{\text{WD}}$$

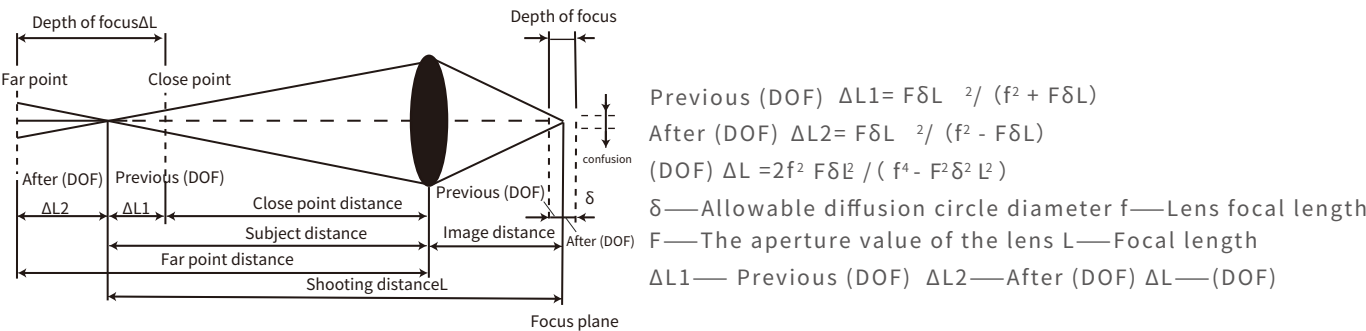
5 Aperture

The aperture number, also known as the F number, is the ratio of the image side focal length to the lens entrance pupil diameter. The larger the aperture number, the smaller the relative aperture of the lens, the less light enters, the darker the image brightness, and the greater the depth of field (DOF).



6 Depth Of Field (DOF)

The distance range before and after the subject can be clearly imaged. Without refocusing, the image can still be clear within a certain working distance. This distance at which the image is clear is the depth of field (DOF).

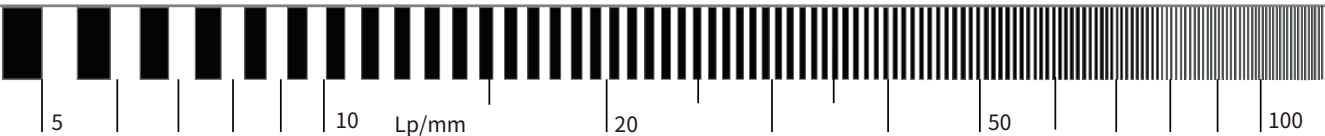


From the depth of field (DOF) calculation formula we can get

- (1) The larger the lens aperture, the smaller the depth of field (DOF)
- (2) The longer the lens focal length, the smaller the depth of field (DOF)
- (3) The closer the lens is to the focal length, the smaller the depth of field (DOF)
- (4) The rear depth of field (DOF) is greater than the front depth of field (DOF)

7 Resolution

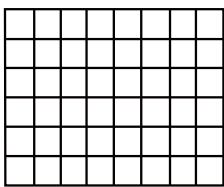
The image space resolution is generally used to describe the resolution of the lens, and the unit is the number of black & white line pairs per mm (lp/mm). When used with a camera, the width of the black & white line pairs that the lens can distinguish should be less than or equal to the dimension of two adjacent pixels. In actual applications, it is recommended that the resolution of the lens be higher than the resolution of the camera. Camera resolution = 1mm/(2*pixel dimension).



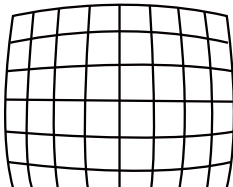
8 Distortion

Distortion represents the degree of distortion between the image of an object captured by the lens and its actual shape. Common types include barrel distortion and pincushion distortion.

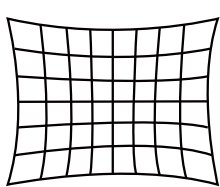
- (1) The size of lens distortion is related to the field of view (FoV) and has nothing to do with the lens aperture;
- (2) Distortion helps achieve a large field of view (FoV), but it is not conducive to detection due to high distortion.



No distorted image



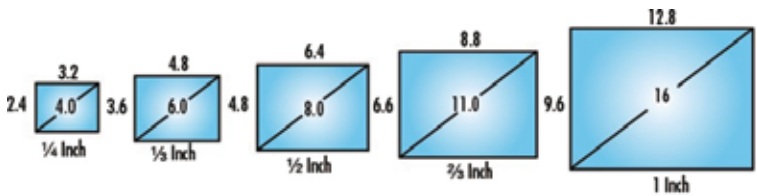
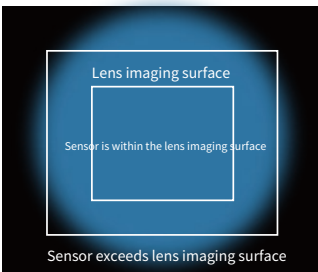
Barrel distortion



Pincushion distortion

9 Target Surface Size

The maximum imaging surface of the lens refers to the maximum range of the image after passing through the lens. When it is smaller than the image sensor dimension, vignetting or black edges will appear.



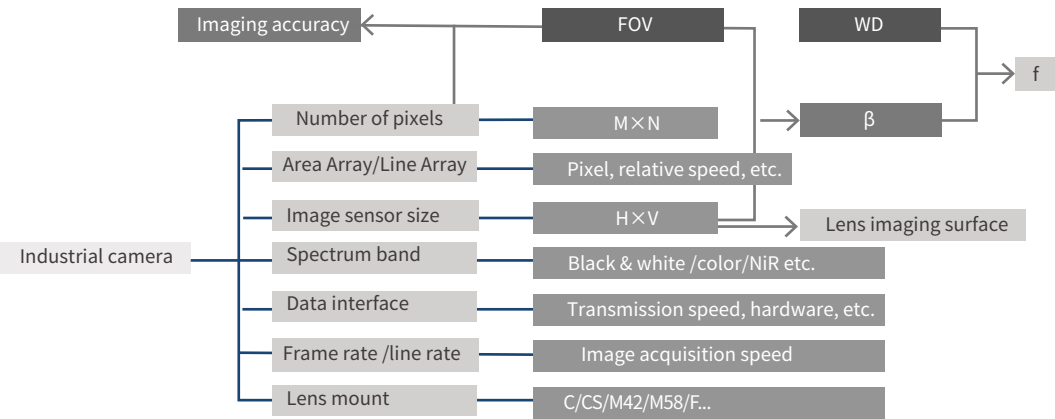
10 Camera Interface

The camera interface is the connection mode between the camera and the lens, ensuring that the lens is installed firmly and does not loosen and that the lens has the required rear focus. The lens flange, i.e. The distance between the lens mounting support surface and the imaging surface, is called the flange rear focus. The flange rear focus of different lenses is different, which affects the focal length and definition of the lens.

Category	Port type	Flange rear focus	Common lenses
Threaded mouth	C-Mount	17.526mm	Less than 4/3 inch
	CS-Mount	12.5mm	2/3 Inch or less
	S-Mount(M12)	--	1/1.8 Inches or less
	M42×1/M42×0.75	--	4K 7μm line scan lens
	M58×0.75mm	--	Large rake surface and 4K 7μm line scan lens
	M72×0.75mm	--	8K 7μm line scan lens
Checkpoint	F-Mount	46.5mm	Large target surface lens
Other	V-Mount	--	Line scan lens



Lens Selection Process



Lens Selection Case

Calculate lens focal length

For example: If you choose an A7500MG20 camera with a pixel count of 2448×2048 and a pixel size of 3.45Mm, and require a working distance within 400mm and a detection range of 120×100mm, what is the focal length of the lens?

Image size: 2448×3.45μm=8.45mm

Use
$$\text{Magnification} = \frac{H}{\text{FOV}} = \frac{f}{\text{WD}} = \frac{8.45}{120} = 0.07 \quad f = \frac{H \times \text{WD}}{\text{FOV}} = \frac{8.45 \times 400}{120} = 28\text{mm}$$

According to the focal length calculation result, an optional lens with a focal length of 25mm is used. Choosing a focal length smaller than the calculated result can better cover the detection range.

Calculate the lens image plane

According to the selected camera A7500MG20, the target surface size is 2/3 inches, and the image surface of the lens should be larger than or equal to the target surface of the camera, so the lens needs to have an image surface larger than 2/3 inches. Preliminary selection of lens model MH2520M/MK2528M

Calculate the camera field of view and lens field of view (FoV)

Example: Using an A7500MG20 camera with 2448×2048 pixels, 3.45Mm pixel size, 25mm lens focal length, and 400mm working distance, calculate the camera's field of view and lens field of view (FoV)?

Image size: H=2448×3.45μm=8.4456mm, V=2448×3.45μm=7.0656mm

Use
$$\text{Magnification} = \frac{H}{\text{FOV}} = \frac{f}{\text{WD}}$$

Calculate the camera's field of view:

$$X=8.4456 \times 400/25=135.1296\text{mm}; Y=7.0656 \times 400/6=113.0496\text{mm}$$

Calculate the lens field of view (FoV):

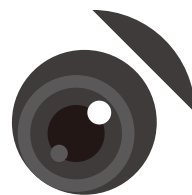
Use:
$$2\theta=2 \times \arctan(y/2/f)$$

$$2\theta_x=2 \times \arctan(8.4456/2/25)=19^\circ; 2\theta_y=2 \times \arctan(7.0656/2/25)=16^\circ$$

Note: When the working distance is close, there will be a certain variance between the calculated results and the measured results. The calculated data can only be used for reference, and the actual measurement is the main consideration.

SDK Camera Software Suite

- iRAYPLE SDK fully conforms to GenICam standards
- Transport layer is provided in manner of plug-ins, which is not visible to the applications, and more scalable
- Adequate API interfaces support secondary development with high efficiency
- Support Halcon, Sherlock, Labview and some other 3rd-party playiorms
- GigE Vision high-performance driver improves the capability of integrating and processing of image data packet while reducing the CPU usage of computer
- USB3 Vision driver supports USB3.0 Vision standards, and enables high-speed image data transmission at USB3.0 bandwic
- Users can use the MV Viewer to configure the camera parameters, grab, display and save the images



MACHINE VISION

Camera Sotiware Development Kit supports all iRAYPLE Area/Line Scan Industrial Cameras. It enables achieving stable and reliable data exchange between the industrial cameraand computer, facilitating rapid secondary development for users.

iRAYPLE SDK supports Windows/Linux 32bit/64bit platforms and includes the following modules

- GigE Vision high-performance driver
- USB3 Vision high-performance driver
- SDK(Support C,C++,C#,VB.NET,Python,Delphi,Java and etc
- MV Viewer

