Empowering Intelligent Manufacturing and Business Efficiency

* Design and specifications are subject to change without notice.

Ver. 1, Dec. 2023

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iRAYPLE

AREA SCAN CAMERA

AE Series

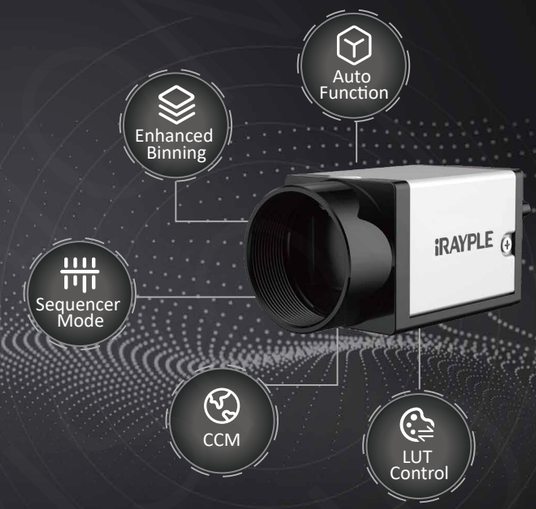
Various Features Applied For Various Applications

AE series area scan camera covers wide range of sensor resolution, full functions including ISP

www.irayple.com/en

VARIOUS FEATURES

Features Auto Function, Enhanced Binning, Sequencer Mode, and CCM.

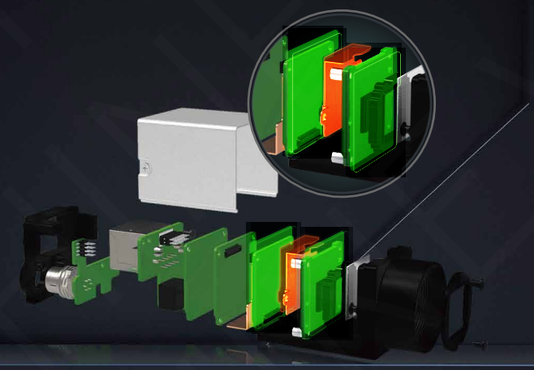


ISP ALGORITHMS

Adopts algorithms to enhance image performance.

STRUCTURE OPTIMIZATION

Enhanced the dust-proof performance and redesigned the structure.

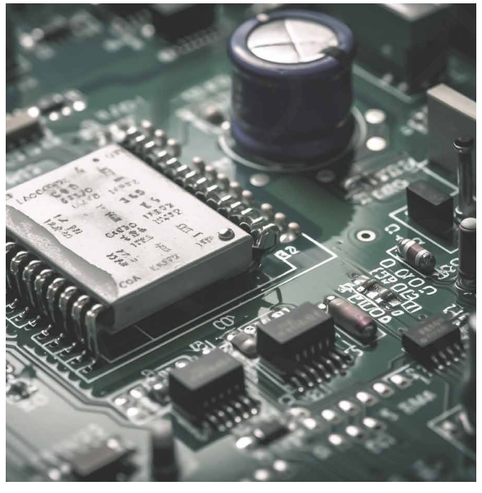


VARIOUS FEATURES

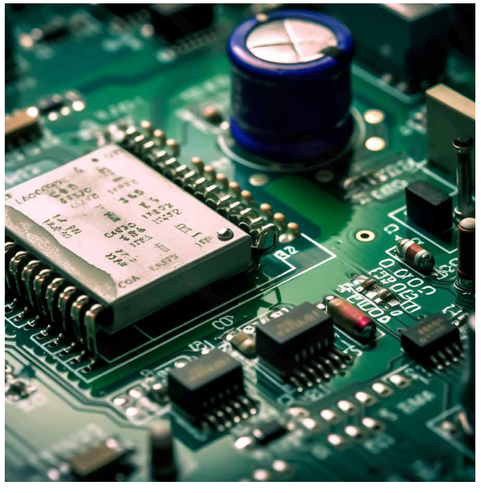
Features auto function, enhanced binning, sequencer mode, and global reset.

Color Correction Matrix (CCM)

Adopts CCM to correct the color offset triggered by white balance, and adjusts RGB channels in a non-linear way to make the color of images more vivid.



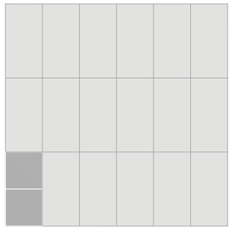
Before



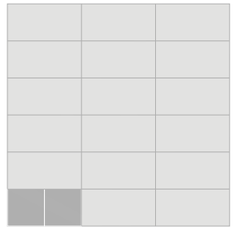
After

Enhanced Binning

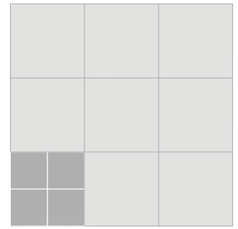
Binning can increase image brightness and signal-to-noise ratio to greatly improve the quality of images. There are up to 12 combinations available: 1×2, 2×1, 2×2, 1×4, 4×1, 2×4, 4×2, 3×3, 4×4, 6×6, 1×6, 6×1.



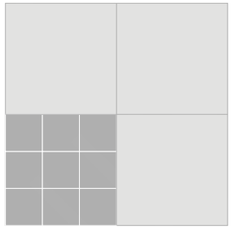
OneByTwo



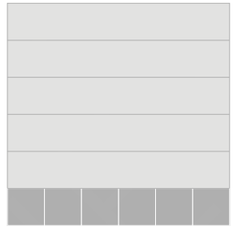
TwoByOne



TwoByTwo

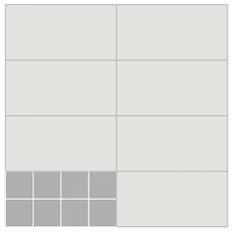


ThreeByThree

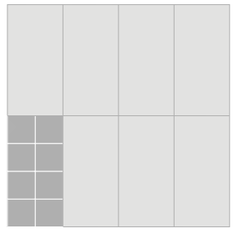


SixByOne

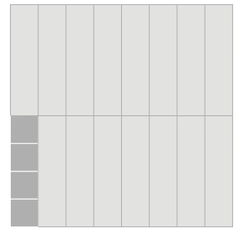
OneBySix



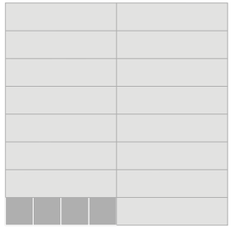
FourByTwo



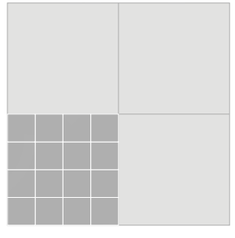
TwoByFour



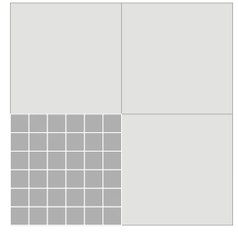
OneByFour



FourByOne



FourByFour



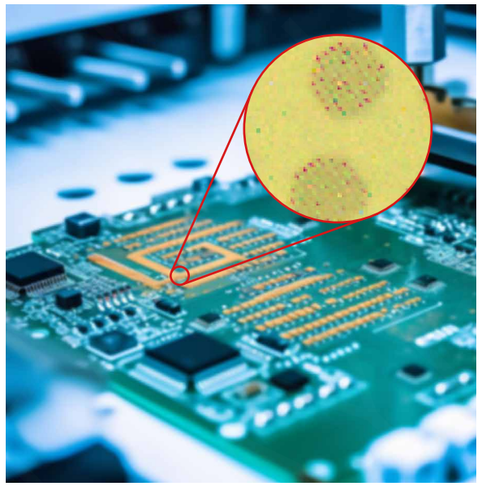
SixBySix

ISP ALGORITHMS

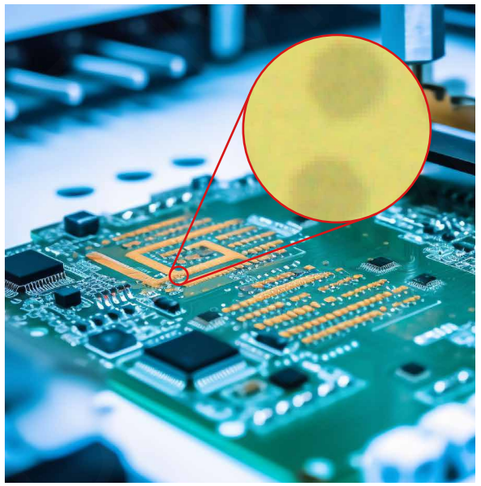
Adopts algorithms to enhance image performance.

Denoising

Filters out noise without affecting the quality of the image and migrates the processing of noise to reduce CPU usage.



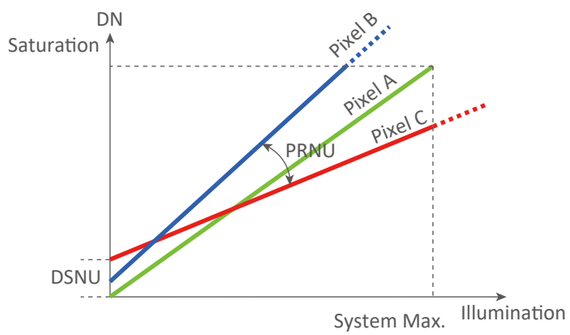
Before



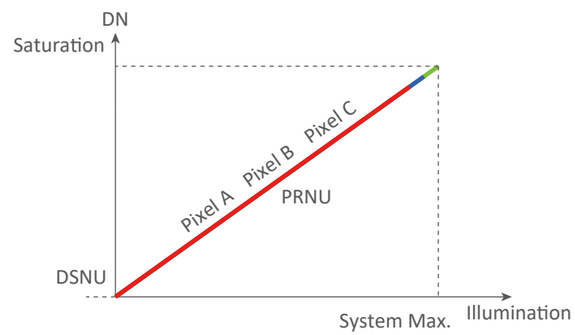
After

FFC (Flat-Field Correction)

Adopts FFC to help ensure that images are uniform. For the image sensor, the camera eliminates the differences in color output that arise during pixel response.

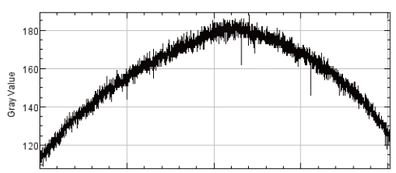


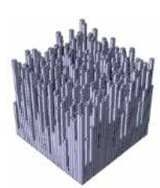
Pixel response curves are inconsistent under the same lighting
=> Negative impact on FPD detection



Consistent pixel response values under the same lighting
=> Suitable for FPD detection

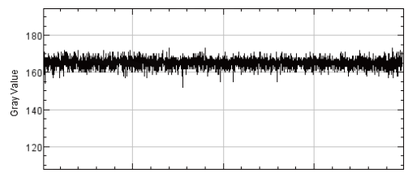
Pixel Consistency Correction

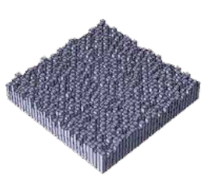




Linear Cross-Section

Before



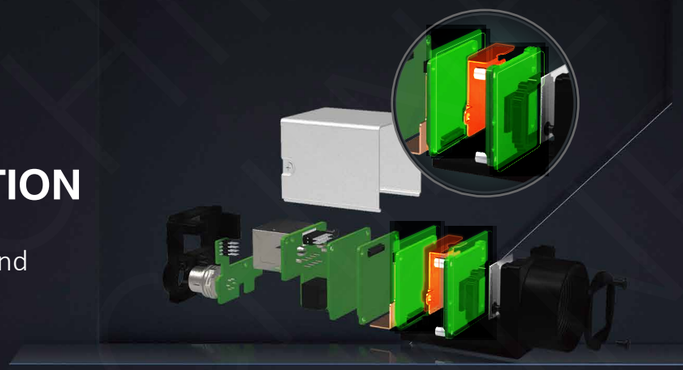


Linear Cross-Section

After

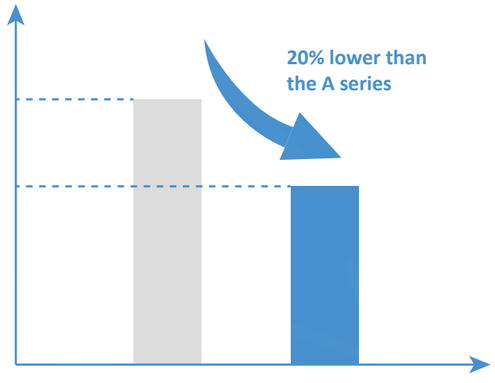
STRUCTURE OPTIMIZATION

Enhanced the dust-proof performance and redesigned the structure.



Low Power Consumption

Upgraded the core hardware, restructured algorithms and reduced power consumption by more than 20% as compared to previous models.



Low power consumption design

Low power comsumption FPGA

Optimized hardware design including power circuit

Optimizaed software

Stucture upgrade

APPLICATION SCENES

With the rapid development of intelligent manufacturing and the need to improve efficiency and quality control, the Industrial Camera has stepped in, bringing to focus the industry's need for informatization and reliability. The camera not only performs outstandingly, but is also highly reliable and durable. It can be used in multiple, complex industrial scenes and is widely used in the EV battery, 3C, semiconductor, and pharmaceutical industries.

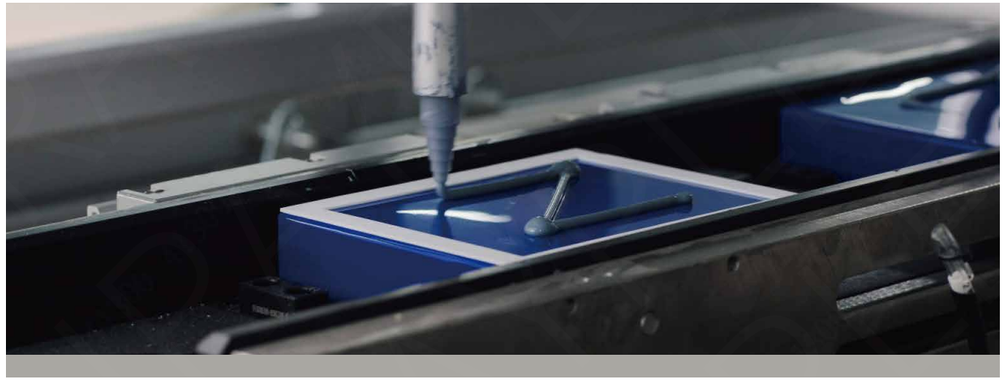
Inspection in the 3C Industry

Inspection in the 3C Industry

APPLICATION SCENES

Inspection in the Semiconductor Industry

Inspection in the Food and Beverage Industry



Inspection in the EV Battery Industry

APPLICATION SCENES

Inspection in the EV Battery Industry

Inspection in the Pharmaceutical Industry

Inspection in the Pharmaceutical Industry

Specifications

AE Series					
	AE3138M/CG010E	AE5137M/CG010E	AE5200M/CG010E	AE5207M/CG010E	AE7500M/CG010E
Basic					
Sensor	SS	—	IMX430	—	IMX264
Image Sensor	1/2.7"CMOS	1/1.7"CMOS	1/1.7"CMOS	1/1.7"CMOS	2/3"CMOS
Shutter	Global	Global	Global	Global	Global
Resolution	1280 × 1024	1280 × 1024	1624 × 1240	2048 × 1200	2448 × 2048
Frame Rate	92 fps	90 fps	60 fps	48 fps	24 fps
Bit Depth	10	12	10	12	12
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Pixel Size	4.0 μm × 4.0 μm	4.0 μm × 4.0 μm	4.5 μm × 4.5 μm	4.0 μm × 4.0 μm	3.45 μm × 3.45 μm
Image					
Pixel	1.3 MP	1.3MP	2.0 MP	2.0MP	5.0 MP
S/N Ratio	38 dB	40dB	38 dB	40dB	38 dB
Dynamic Range	60 dB	66dB	60 dB	66dB	60 dB
Binning	Support				
ROI	Support				
X Flip	Support				
Y Flip	Support				
Gain	1~32				
Gamma	From 0 to 4, support LUT				
Exposure Time	16 μs~1 s	5 μs~1 s	1 μs~1 s	5 μs~1 s	1 μs~1 s
Trigger Mode	Software Trigger/Hardware Trigger/Free Run Mode				
SPC	Support				
Performance					
User Setting	Support two sets of user-defined configurations				
Image Buffer	256MB				
Port					
Interface	GigE, PoE				
GPIO Interface	1× 6 pin Hirose: 1× Opto-isolated input, 1× Opto-isolated output, 1 configurable input and output				
Lens Mount	C-mount				
Power					
Power Supply	PoE/ DC 9V~24V power supply via Hirose interface				
Structure					
Product Dimensions	29 mm × 29 mm × 42.5 mm (not including lens mount and rear case connector)				
Net Weight	98 g	98 g	98 g	98 g	98 g
Environment					
Storage Temperature	-30°C~+80°C				
Operating Temperature	0°C~+50°C				

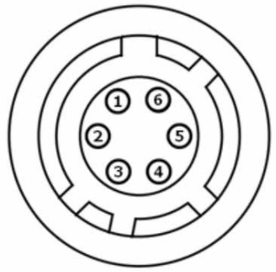
Specifications

AE Series					
	AE3504M/CG010E	AE7501M/CG010E	AE3600M/CG010E	AE3A20M/CG010E	AE3B00M/CG010E
Basic					
Sensor	AR0521	XGS5000	IMX178	IMX226	IMX183
Image Sensor	1/2.5"CMOS	2/3"CMOS	1/1.8"CMOS	1/1.7"CMOS	1"CMOS
Shutter	Rolling	Global	Rolling	Rolling	Rolling
Resolution	2592 × 1944	2592 × 2048	3072 × 2048	4000 × 3000	5472 × 3648
Frame Rate	23 fps	22 fps	19 fps	10 fps	6 fps
Bit Depth	12	12	12	12	12
Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color	Mono/Color
Pixel Size	2.2 μm × 2.2 μm	3.2 μm × 3.2 μm	2.4 μm × 2.4 μm	1.85 μm × 1.85 μm	2.4 μm × 2.4 μm
Image					
Pixel	5.0 MP	5.0 MP	6.0 MP	12.0 MP	20.0 MP
S/N Ratio	>38dB	38 dB	>38dB	38 dB	38 dB
Dynamic Range	66 dB	60 dB	66 dB	60 dB	60 dB
Binning	Support				
ROI	Support				
X Flip	Support				
Y Flip	Support				
Gain	1~32				
Gamma	From 0 to 4, support LUT				
Exposure Time	16 μs~1 s	20 μs~1 s	25 μs~1 s	16 μs~1 s	16 μs~1 s
Trigger Mode	Software Trigger/Hardware Trigger/Free Run Mode				
SPC	Support				
Performance					
User Setting	Support two sets of user-defined configurations				
Image Buffer	256MB				
Port					
Interface	GigE, PoE				
GPIO Interface	1× 6 pin Hirose: 1× Opto-isolated input, 1× Opto-isolated output, 1 configurable input and output				
Lens Mount	C-mount				
Power					
Power Supply	PoE/ DC 9V~24V power supply via Hirose interface				
Structure					
Product Dimensions	29 mm × 29 mm × 42.5 mm (not including lens mount and rear case connector)				
Net Weight	98 g	98 g	98 g	98 g	98 g
Environment					
Storage Temperature	-30°C~+80°C				
Operating Temperature	0°C~+50°C				

Connector Pin-out

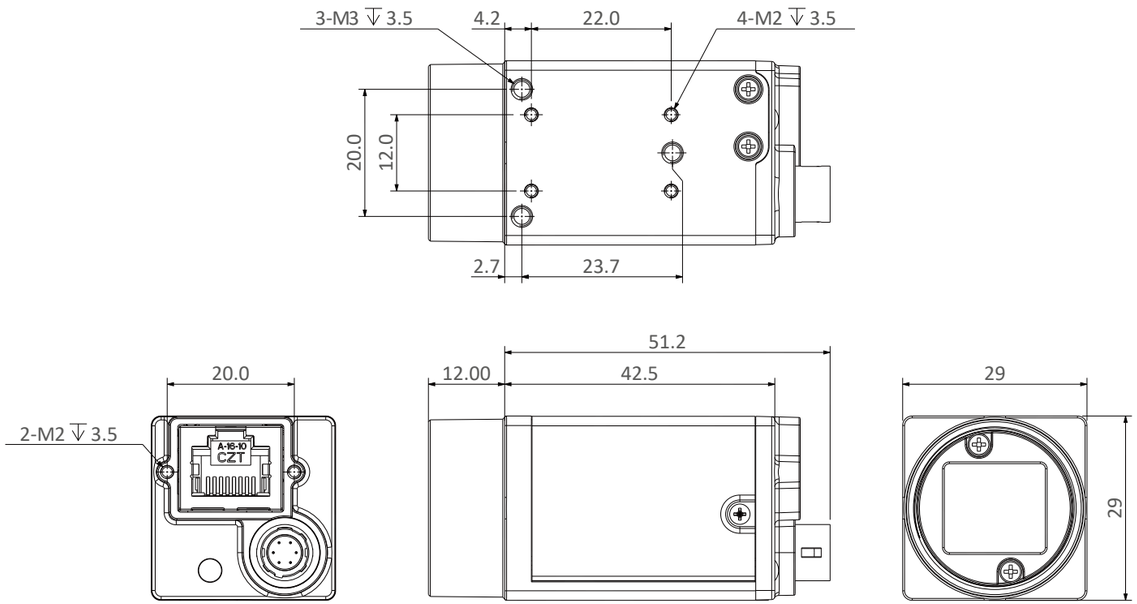
Area scan cameras use the 6-pin cable

Definitions of camera 6-pin ports			
Color	Pin	Description	Features
Blue	1	—	+9VDC to 24VDC power supply
Red	2	Line1	Opto-isolated input
Gray	3	Line2	GPIO (I/O can be configured for non-isolated software)
Black	4	Line0	Opto-isolated output
Green	5	—	Opto-isolated signal ground(ISO_GND)
Brown	6	—	Camera DC power ground and GPIO signal ground(GND)



Definition of 6-pin power port

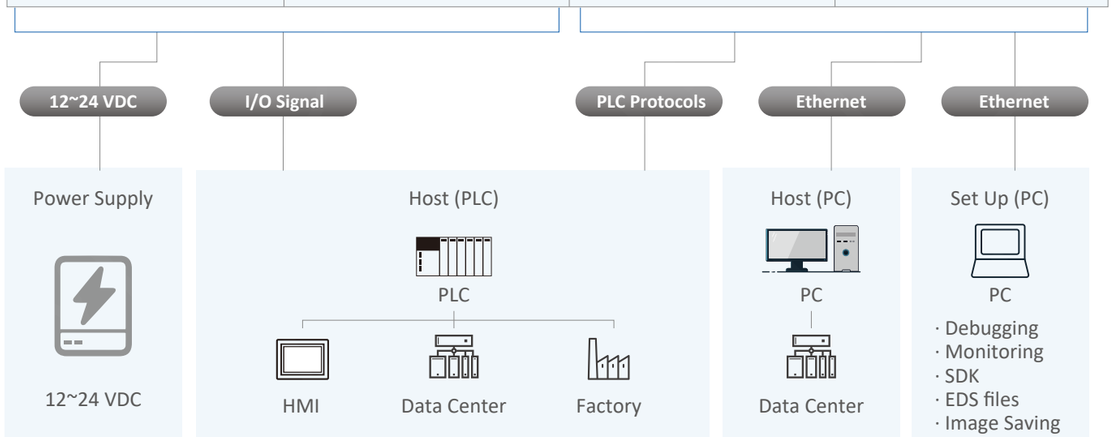
Dimensions



System Components

Compatible Device Models

AE3138M/CG010E,AE5137M/CG010E,AE5200M/CG010E,AE5207M/CG010E,AE3504M/CG010E,AE7500M/CG010E
AE7501M/CG010E,AE3600M/CG010E,AE3A20M/CG010E,AE3B00M/CG010E

Cables

Power & GPIO Cable		Ethernet Cable	
Static	Flexible	Static	Flexible
C02-IO-6PIN-DC-5M-LC	C02-IO-6PIN-DC-FC-10M	C01-GE-RJ45-RJ45-7M	C03-GE-RJ45-RJ45-FC-5M
C02-IO-6PIN-DC-10M-LC	C02-IO-6PIN-DC-FC-15M	C01-GE-RJ45-RJ45-15M	C03-GE-RJ45-RJ45-FC-10M