



MACHINE VISION

Turning Vision Into Productivity



Zhejiang HuaRay Technology Co., Ltd.





COMPANY INTRODUCTION

Zhejiang HuaRay Technology Co., Ltd. is a professional company focusing on R&D, production, and sales of machine vision and autonomous mobile robot (AMR) products and solutions. Concentrating on smart manufacturing and logistics, we have always insisted on satisfying customers' needs, creating value to help customers reduce costs, and making factories smarter.

As a national high-tech enterprise, HuaRay has always insisted on technological innovation. More than 60% of our employees are dedicated in R&D, and the company has nearly 300 patent applications. HuaRay is a leading company in the industries of embedded software, image optimization, recognition algorithms, network transmission, navigation, positioning, scheduling, motion control, and other technical fields.

HuaRay's products and solutions are widely used in the logistics, automotive, 3C, lithium battery, photovoltaic, semiconductor, and pharmaceutical industries. Our machine vision products include industrial area scan cameras, line scan cameras, smart industrial cameras, vision sensors, 3D industrial cameras, and lenses. These products have been used for code recognition, OCR, vision measurement, location, defect detection, and providing customers with one-stop product purchases. Our autonomous mobile robot (AMR) products include latent lift, towing, forklifts, and sorting robots, mainly used for logistics warehouses and material handling, to provide end-to-end intelligent handling solutions.

Relying on years of AI technology accumulation in the industrial field and the established industrial IoT ecosystem, HuaRay has been developing with company's technological advantages and continues to provide global customers with better products and more professional services. We have helped bring about the digitalization of industry and have become experts in improving industrial intelligence and efficiency.

*See the website: <http://www.irayple.com/en/home>



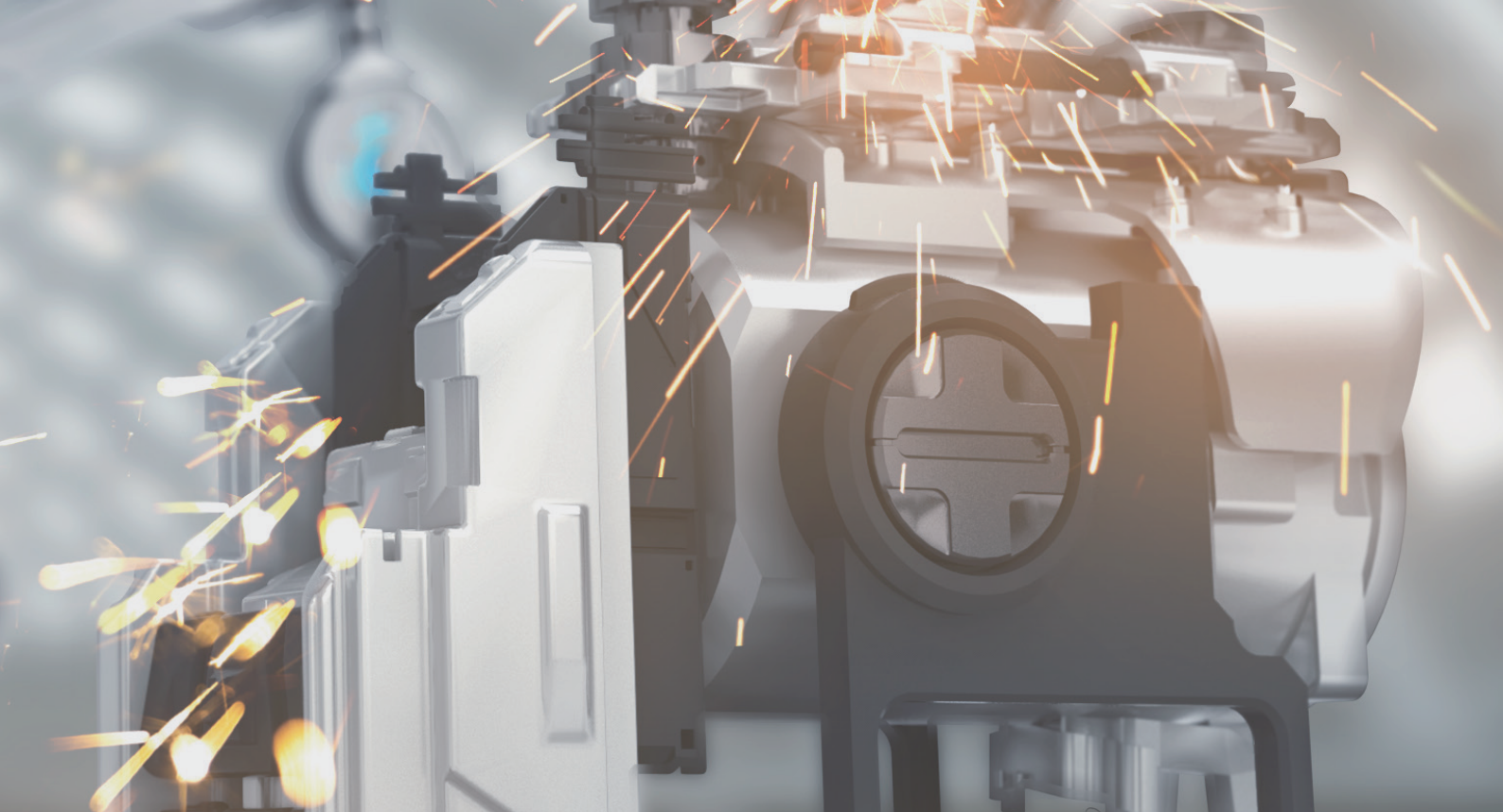


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3000 Series Area Scan Cameras

 Superior cost efficiency



29mm×29mm×29mm



| Model | Resolution | FPS | Bit depth | Interface | Sensor | | | | | | Dimension (mm) | Recommended lens |
|---------------|------------|-------|-----------|-----------|---------------|------|-----------------|--------|---------|------------|----------------|------------------|
| | | | | | Model | Type | Pixel size (μm) | Size | Shutter | Mono/Color | | |
| A3051MG100E | 800x600 | 120 | 10 | GigE | PYTHON480 | CMOS | 4.8x4.8 | 1/3.6" | Global | M | 29x29x29 | MH-S |
| A3051M/CG000E | 800x600 | 120 | 10 | GigE,POE | PYTHON480 | CMOS | 4.8x4.8 | 1/3.6" | Global | M/C | 29x29x42 | MH-S |
| A3135M/CG000E | 1280x960 | 30 | 14 | GigE,POE | RJ33J4/3CA0DT | CCD | 3.75x3.75 | 1/3" | Global | M/C | 29x29x42 | MH-S |
| A3124M/CG100E | 1280x960 | 54 | 12 | GigE | AR0135 | CMOS | 3.75x3.75 | 1/3" | Global | M/C | 29x29x29 | MH-S |
| A3131MG100E | 1280x1024 | 60 | 10 | GigE | PYTHON 1300 | CMOS | 4.8x4.8 | 1/2" | Global | M | 29x29x29 | MH-S |
| A3131M/CG000E | 1280x1024 | 60 | 10 | GigE,POE | PYTHON 1300 | CMOS | 4.8x4.8 | 1/2" | Global | M/C | 29x29x42 | MH-S |
| A3200MG004E | 1920x1080 | 22 | 10 | GigE,POE | IMX290 | CMOS | 2.9x2.9 | 1/2.8" | Rolling | M | 29x29x42 | MH-SP |
| A3200CG000E | 1920x1080 | 22 | 10 | GigE,POE | IMX290 | CMOS | 2.9x2.9 | 1/2.8" | Rolling | C | 29x29x42 | MH-SP |
| A3514MG000E | 2592x1944 | 14 | 10 | GigE,POE | MT9P031 | CMOS | 2.2x2.2 | 1/2.5" | Rolling | M | 29x29x42 | MH-SP |
| A3504M/CG100E | 2592x1944 | 23 | 12 | GigE | AR0521 | CMOS | 2.2x2.2 | 1/2.5" | Rolling | M/C | 29x29x29 | MH-SP |
| A3600MG100E | 3072x2048 | 18 | 12 | GigE | IMX178 | CMOS | 2.4x2.4 | 1/1.8" | Rolling | M | 29x29x29 | MH-SP |
| A3600M/CG18E | 3072x2048 | 18 | 12 | GigE,POE | IMX178 | CMOS | 2.4x2.4 | 1/1.8" | Rolling | M/C | 29x29x42 | MH-SP |
| A3A04MG10E | 3840x2748 | 10 | 12 | GigE,POE | MT9J003 | CMOS | 1.67x1.67 | 1/2.3" | Rolling | M | 29x29x42 | MK-M |
| A3A20M/CG8E | 4000x3000 | 9 | 12 | GigE,POE | IMX226 | CMOS | 1.85x1.85 | 1/1.7" | Rolling | M/C | 29x29x42 | MH-SP |
| A3B00M/CG000E | 5472x3648 | 5.8 | 10 | GigE,POE | IMX183 | CMOS | 2.4x2.4 | 1" | Rolling | M/C | 29x29x42 | MH-X/MT-X |
| A3138M/CU000E | 1280x1024 | 201 | 10 | USB3.0 | SS | CMOS | 4.0x4.0 | 1/2.7" | Global | M/C | 29x29x29 | MH-S |
| A3135M/CU000E | 1280 x 960 | 33 | 14 | USB 3.0 | RJ33J4/3CA0DT | CCD | 3.75x3.75 | 1/3" | Global | M/C | 29x29x29 | MH-S |
| A3200CU000E | 1920x1080 | 120 | 10 | USB 3.0 | IMX290 | CMOS | 2.9x2.9 | 1/2.8" | Rolling | C | 29x29x29 | MH-S |
| A3600M/CU60E | 3072x2048 | 60 | 10 | USB 3.0 | IMX178 | CMOS | 2.4x2.4 | 1/1.8" | Rolling | M/C | 29x29x29 | MH-SP |
| A3A20M/CU24E | 4000x3000 | 30 | 10 | USB 3.0 | IMX226 | CMOS | 1.85x1.85 | 1/1.7" | Rolling | M/C | 29x29x29 | MK-M/MH-SP |
| A3B00M/CU000E | 5472x3648 | 19.66 | 10 | USB 3.0 | IMX183 | CMOS | 2.4x2.4 | 1" | Rolling | M/C | 29x29x29 | MT-X |

Note: Models with symbol “*” are latest-released products



29mm×29mm×42mm

- Support wide resolution range, covering 0.5MP~20MP
- Apply CMOS, CCD sensor. Support global/rolling shutter
- Support powerful ISP algorithms
- Support FPN, SPC
- Compatible with GigE Vision protocol, USB3.0 Vision protocol and GenICam standard
- Conform to CE, FCC and RoHS
- Superior cost efficiency



29mm×29mm×42mm



29mm×29mm×29mm

5000 Series Area Scan Cameras

 Outstanding image quality



29mm×29mm×42mm



| Model | Resolution | FPS | Bit depth | Interface | Sensor | | | | | | Dimension (mm) | Recommended lens |
|---------------|------------|------|-----------|------------|------------|------|-----------------|--------|---------|------------|----------------|------------------|
| | | | | | Model | Type | Pixel size (μm) | Size | Shutter | Mono/Color | | |
| A5031M/CG300E | 640x480 | 300 | 10 | GigE,POE | PYTHON300 | CMOS | 4.8x4.8 | 1/4" | Global | M/C | 29x29x42 | MH-S |
| A5051M/CG200E | 800x600 | 200 | 10 | GigE,POE | PYTHON500 | CMOS | 4.8x4.8 | 1/3.6" | Global | M/C | 29x29x42 | MH-S |
| A5131M/CG75E | 1280x1024 | 75 | 10 | GigE,POE | PYTHON1300 | CMOS | 4.8x4.8 | 1/2" | Global | M/C | 29x29x42 | MH-S |
| *A5200MG000E | 1624X1240 | 56 | 10 | GigE,POE | IMX430 | CMOS | 4.5 x 4.5 | 1/1.7" | Global | M | 29X29X42 | MH-S |
| A5201M/CG50E | 1920x1200 | 50 | 10 | GigE,POE | PYTHON2000 | CMOS | 4.8x4.8 | 2/3" | Global | M/C | 29x29x42 | MH-M |
| A5501M/CG20E | 2592x2048 | 20 | 10 | GigE,POE | PYTHON5000 | CMOS | 4.8x4.8 | 1" | Global | M/C | 29x29x42 | MH-X |
| A5B57M/CG200E | 5120x5120 | 4 | 12 | GigE,POE | GMAX0505 | CMOS | 2.5x2.5 | 1.1" | Global | M/C | 29x44x58 | MT-M/MH-X |
| A5031M/CU815E | 640x480 | 815 | 10 | USB 3.0 | PYTHON300 | CMOS | 4.8x4.8 | 1/4" | Global | M/C | 29x29x29 | MH-S |
| A5051M/CU545E | 800x600 | 545 | 10 | USB 3.0 | PYTHON500 | CMOS | 4.8x4.8 | 1/3.6" | Global | M/C | 29x29x29 | MH-S |
| A5131M/CU210E | 1280x1024 | 208 | 10 | USB 3.0 | PYTHON1300 | CMOS | 4.8x4.8 | 1/2" | Global | M/C | 29x29x29 | MH-S |
| A5201M/CU150E | 1920x1200 | 150 | 10 | USB 3.0 | PYTHON2000 | CMOS | 4.8x4.8 | 2/3" | Global | M/C | 29x29x29 | MH-M |
| A5501M/CU60E | 2592x2048 | 60 | 10 | USB 3.0 | PYTHON5000 | CMOS | 4.8x4.8 | 1" | Global | M/C | 29x29x29 | MH-X |
| A5B57M/CU200E | 5120x5120 | 14 | 12 | USB3.0 | GMAX0505 | CMOS | 2.5x2.5 | 1.1" | Global | M/C | 29x44x58 | MH-X/MT-X |
| A5201M/CK402E | 1920x1200 | 37.8 | 10 | CameraLink | PYTHON2000 | CMOS | 4.8x4.8 | 2/3" | Global | M/C | 29x29x43.8 | MH-M |

Note: Models with symbol “*” are latest-released products



29mm×44mm×58mm

- Support wide resolution range, covering 0.3MP~25MP
- Apply CMOS sensor with global shutter and high frame rate
- Support powerful ISP algorithms
- Support FPN, SPC
- Support GigE Vision protocol, USB3.0 Vision protocol, CameraLink protocol and GenICam
- Conform to CE, FCC and RoHS
- Excellent image quality



29mm×29mm×42mm



29mm×29mm×29mm

7000 Series Area Scan Cameras

Extraordinary image quality and performance



29mm × 29mm × 42mm



| Model | Resolution | FPS | Bit depth | Interface | Sensor | | | | | | Dimension (mm) | Recommended lens |
|---------------|------------|------|-----------|------------|-----------|------|-----------------|--------|---------|------------|----------------|------------------|
| | | | | | Model | Type | Pixel size (μm) | Size | Shutter | Mono/Color | | |
| A7040M/CG000E | 720x540 | 300 | 12 | GigE,POE | IMX287 | CMOS | 6.9x6.9 | 1/2.9" | Global | M/C | 29x29x42 | MH-S |
| A7160M/CG000E | 1440x1080 | 77 | 12 | GigE,POE | IMX273 | CMOS | 3.45x3.45 | 1/2.9" | Global | M/C | 29x29x42 | MH-S |
| A7170M/CG200E | 1604x1100 | 66 | 12 | GigE,POE | IMX432 | CMOS | 9.0x9.0 | 1.1" | Global | M/C | 29x44x58 | MH-X |
| A7200M/CG30E | 1920x1200 | 38.7 | 12 | GigE,POE | IMX249 | CMOS | 5.86x5.86 | 1/1.2" | Global | M/C | 29x29x42 | MH-X |
| A7300M/CG30E | 2048x1536 | 36 | 12 | GigE,POE | IMX265 | CMOS | 3.45x3.45 | 1/1.8" | Global | M/C | 29x29x42 | MH-S |
| A7500M/CG20E | 2448x2048 | 20 | 12 | GigE,POE | IMX264 | CMOS | 3.45x3.45 | 2/3" | Global | M/C | 29x29x42 | MH-M |
| A7500PG400E | 2448x2048 | 24 | 12 | GigE,POE | IMX250MZR | CMOS | 3.45x3.45 | 2/3" | Global | P | 29x29x42 | MH-M |
| A7710M/CG200E | 3208x2200 | 17 | 12 | GigE,POE | IMX428 | CMOS | 4.5x4.5 | 1.1" | Global | M/C | 29x44x58 | MH-X |
| A7801MG400E | 4096x2160 | 13 | 12 | GigE,POE | XGS8000 | CMOS | 3.2x3.2 | 1/1.1" | Global | M | 29x29x42 | MH-X/MT-X |
| A7900M/CG13E | 4096x2160 | 13 | 12 | GigE,POE | IMX267 | CMOS | 3.45x3.45 | 1" | Global | M/C | 29x44x58 | MH-X |
| A7A20M/CG9E | 4096x3000 | 9 | 12 | GigE,POE | IMX304 | CMOS | 3.45x3.45 | 1.1" | Global | M/C | 29x44x58 | MH-X |
| A7A21MG400E | 4096x3072 | 9 | 12 | GigE,POE | XGS12000 | CMOS | 3.2x3.2 | 1" | Global | M | 29x29x42 | MH-X/MT-X |
| A7040M/CK402E | 720x540 | 349 | 10 | CameraLink | IMX287 | CMOS | 6.9x6.9 | 1/2.9" | Global | M/C | 29x29x43.8 | MH-S |
| A7300MK200E | 2048x1536 | 188 | 10 | CameraLink | IMX252 | CMOS | 3.45x3.45 | 1/1.8" | Global | M | 29x44x58 | MH-S |
| A7500M/CK200E | 2448x2048 | 150 | 10 | CameraLink | IMX250 | CMOS | 3.45x3.45 | 2/3" | Global | M/C | 29x44x58 | MH-M |
| A7500MK402E | 2448x2048 | 37.2 | 12 | CameraLink | IMX264 | CMOS | 3.45x3.45 | 2/3" | Global | M | 29x29x43.8 | MH-M |
| A7A20MK401E | 4096x3000 | 20 | 10 | CameraLink | IMX304 | CMOS | 3.45x3.45 | 1.1" | Global | M | 29x29x43.8 | MH-X/MT-X |
| A7A21MK401E | 4096x3072 | 18 | 10 | CameraLink | XGS12000 | CMOS | 3.2x3.2 | 1" | Global | M | 29x29x43.8 | MH-X/MT-X |
| A7A21MK200E | 4096x3072 | 56 | 10 | CameraLink | XGS12000 | CMOS | 3.2x3.2 | 1" | Global | M | 29x44x58 | MH-X/MT-X |

Note : Models with symbol “*” are latest-released products.

| Model | Resolution | FPS | Bit depth | Interface | Sensor | | | | | | Dimension (mm) | Recommended lens |
|---------------|------------|------|-----------|-----------|--------|------|-----------------|--------|---------|------------|----------------|------------------|
| | | | | | Model | Type | Pixel size (μm) | Size | Shutter | Mono/Color | | |
| A7040M/CU000E | 720 x 540 | 437 | 10 | USB 3.0 | IMX287 | CMOS | 6.9 x 6.9 | 1/2.9" | Global | M/C | 29x29x29 | MH-S |
| A7200MU001E | 1920x1200 | 38.7 | 12 | USB 3.0 | IMX249 | CMOS | 5.86x5.86 | 1/1.2" | Global | M | 29x29x29 | MH-S |
| A7200M/CU130E | 1920x1200 | 164 | 10 | USB 3.0 | IMX174 | CMOS | 5.86x5.86 | 1/1.2" | Global | M/C | 29x29x29 | MH-X |
| A7300M/CU90E | 2048x1536 | 120 | 10 | USB 3.0 | IMX252 | CMOS | 3.45x3.45 | 1/1.8" | Global | M/C | 29x29x29 | MH-S |
| A7500M/CU35E | 2448x2048 | 35 | 12 | USB 3.0 | IMX264 | CMOS | 3.45x3.45 | 2/3" | Global | M/C | 29x29x29 | MH-M |
| A7500M/CU75E | 2448x2048 | 75 | 10 | USB 3.0 | IMX250 | CMOS | 3.45x3.45 | 2/3" | Global | M/C | 29x29x29 | MH-M |
| A7900M/CU200E | 4096x2160 | 40 | 10 | USB 3.0 | IMX255 | CMOS | 3.45x3.45 | 1" | Global | M/C | 29x44x58 | MH-X |
| A7900M/CU201E | 4096x2160 | 32 | 12 | USB 3.0 | IMX267 | CMOS | 3.45x3.45 | 1" | Global | M/C | 29x44x58 | MH-X |
| A7A20M/CU30E | 4096x3000 | 30 | 10 | USB 3.0 | IMX253 | CMOS | 3.45x3.45 | 1.1" | Global | M/C | 29x44x58 | MH-X |
| A7A20M/CU201E | 4096x3000 | 23.4 | 12 | USB 3.0 | IMX304 | CMOS | 3.45x3.45 | 1.1" | Global | M/C | 29x44x58 | MH-X |

- Support wide resolution range covering 0.4MP~12MP
- Apply Sony CMOS sensor with global shutter and high frame rate
- Support powerful ISP algorithms
- Support SPC
- Compatible with GigE Vision protocol, USB3.0 Vision protocol, CameraLink and GenICam standard
- Conform to CE, FCC and RoHS
- Extraordinary image quality



29mm × 29mm × 29mm



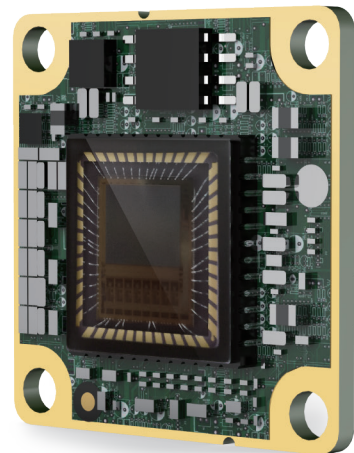
29mm × 44mm × 58mm

Board-level Industrial Cameras

 Compact design enables easy integration

Board-level HCON Industrial Cameras

- Complete functions are available on merely one compact-design board
- Suitable for embedded product development
- Superior cost efficiency
- Apply CMOS sensor with global shutter and rolling shutter
- Easy installation, one FPC cable supports power supply & data transmission
- Provide source code for HCON interface drivers
- Provide full suite of development documents
- Support SPC



| Model | Resolution | FPS | Bit depth | Interface | Sensor | | | | | | Dimension (mm) |
|--------------|------------|-----|-----------|-----------|------------|------|-----------------|--------|---------|------------|----------------|
| | | | | | Model | Type | Pixel size (μm) | Size | Shutter | Mono/Color | |
| AB5131MH080E | 1280x1024 | 60 | 10 | HCON | PYTHON1300 | CMOS | 4.8x4.8 | 1/2" | Global | M | 27x27 |
| AB3600MH080E | 3072x2048 | 25 | 12 | HCON | IMX178 | CMOS | 2.4x2.4 | 1/1.8" | Rolling | M | 27x27 |
| AB7500MH080E | 2448x2048 | 30 | 12 | HCON | IMX264 | CMOS | 3.45x3.45 | 2/3" | Global | M | 26x40 |
| AB7500CH080E | 2448x2048 | 30 | 12 | HCON | IMX264 | CMOS | 3.45x3.45 | 2/3" | Global | C | 26x40 |

Board-level GigE Industrial Cameras

- Compact design, 45x45mm (without fixing structure) or 55mmx55mmx14mm (with fixing structure)
- Support C/CS/M12 mount
- Support 4-side mount
- Support powerful ISP algorithms
- Support FPN and SPC
- Compatible with GigE Vision protocol and GenICam standard
- Conform to CE, FCC and RoHS
- Superior cost efficiency



Board-level USB3.0 Industrial Cameras

- Compact structure, integrated in 35x35x19 dimension (not including lens mount and rear case connector)
- Support C/M12 lens
- Support 4-side mount
- Support strong ISP algorithms
- Support FPN and SPC
- Compatible with USB3.0 Vision protocol and GenICam standard
- Conform to CE, FCC and RoHS
- Superior cost performance



| Model | Resolution | FPS | Bit depth | Interface | Sensor | | | | | | Dimension (mm) |
|-----------------|------------|-----|-----------|-----------|------------|------|-----------------|--------|---------|------------|----------------|
| | | | | | Model | Type | Pixel size (μm) | Size | Shutter | Mono/Color | |
| AB3051MG020E | 800x600 | 120 | 10 | GigE | PYTHON480 | CMOS | 4.8x4.8 | 1/3.6" | Global | M | 55x55x14 |
| AB3600MG000E | 3072x2048 | 18 | 12 | GigE | IMX178 | CMOS | 2.4x2.4 | 1/1.8" | Rolling | M | 55x55x14 |
| AB3131MG023E | 1280x1024 | 60 | 10 | GigE | PYTHON1300 | CMOS | 4.8 x 4.8 | 1/2" | Global | M | 55x55x14 |
| AB3A04MG10E | 3840x2748 | 10 | 12 | GigE | MT9J003 | CMOS | 1.67x1.67 | 1/2.3" | Rolling | M | 55x55x14 |
| AB3600M/CU000E | 3072x2048 | 60 | 10 | USB3.0 | IMX 178 | COMS | 2.4x2.4 | 1/1.8" | Rolling | M/C | 35x35x19 |
| AB3600CU010E | 3072x2048 | 60 | 10 | USB3.0 | IMX 178 | COMS | 2.4x2.4 | 1/1.8" | Rolling | C | 35x35x19 |
| AB3138MU000E | 1280x1024 | 201 | 10 | USB3.0 | SS | COMS | 4.0x4.0 | 1/2.7" | Global | M | 35x35x19 |
| AB5131M/CU000E | 1280x1024 | 208 | 10 | USB3.0 | PYTHON1300 | COMS | 4.8x4.8 | 1/2" | Global | M/C | 35x35x19 |
| *AB3A20M/CU000E | 4000x3000 | 30 | 10 | USB3.0 | IMX226 | CMOS | 1.85x1.85 | 1/1.7" | Global | M | 55x55x14 |

Note: Models with Symbol "*" are latest-released products.

Large Area Scan Cameras

High resolution & High frame rate



100mm×100mm×66mm



| Model | Resolution | FPS | Bit depth | Interface | Sensor | | | | | | Dimension (mm) | Lens mount | Recommended lens |
|-----------------|-------------|------|-----------|--------------|------------|------|-----------------|-------------|---------|------------|----------------|----------------|------------------|
| | | | | | Model | Type | Pixel size (μm) | Size | Shutter | Mono/Color | | | |
| A5A21M/CG9E | 4096x3072 | 9 | 10 | GigE | PYTHON12K | CMOS | 4.5x4.5 | 4/3" | Global | M/C | 76x76x46 | M58(FBL 12.3) | MH-K |
| A5B51M/CG4E | 5120x5120 | 4 | 10 | GigE | PYTHON25K | CMOS | 4.5x4.5 | 23.0x23.0 | Global | M/C | 76x76x46 | M58(FBL 12.3) | F32-5035-M43 |
| AX7C10M/CG250E | 6464x4852 | 3.6 | 12 | GigE | IMX342 | CMOS | 3.45x3.45 | 22.3x16.6 | Global | M/C | 72x72x64 | M58(FBL 12) | F32-5035-M43 |
| AX5E07M/CG250E | 9344x5000 | 2.6 | 12 | GigE | Customize | CMOS | 3.2x3.2 | 29.9x16.0 | Global | M/C | 72x72x65 | M58(FBL 12) | F46-6035-M58 |
| AX5F57M/CG250E | 9344x7000 | 1.7 | 12 | GigE | GMAX3265 | CMOS | 3.2x3.2 | 29.9x22.4 | Global | M/C | 76x76x65 | M58(FBL 12) | F46-6035-M58 |
| AX7A20CT250E | 4096x3000 | 68 | 10 | 10GigE | IMX253 | CMOS | 3.45x3.45 | 1.1" | Global | C | 72x72x78 | M58(FBL 12) | MH-X |
| AX5B51M/CT250E | 5120x5120 | 43 | 10 | 10GigE | PYTHON 25K | CMOS | 4.5x4.5 | 23.0x23.0 | Global | M/C | 72x72x78 | M58(FBL 12) | F32-5035-M43 |
| *AX5B57M/CT250E | 9344 x 7000 | 17.4 | 12 | 10GigE | GMAX3265 | CMOS | 3.2x3.2 | 29.9 x 22.4 | Global | M/C | 72x72x80 | M58(FBL 12) | F46-6035-M58 |
| AX7C10M/CK250E | 6240x4848 | 24.8 | 10 | CameraLink | IMX342 | CMOS | 3.45x3.45 | 22.3x16.6 | Global | M/C | 72x72x64 | M58(FBL 12) | F32-5035-M43 |
| AX5E07M/CK250E | 9280x4992 | 17.5 | 12 | CameraLink | Customize | CMOS | 3.2x3.2 | 29.9x16.0 | Global | M/C | 72x72x65 | M58(FBL 12) | F46-6035-M58 |
| AX5F57M/CK250E | 9280x6992 | 12.5 | 12 | CameraLink | GMAX3265 | CMOS | 3.2x3.2 | 29.9x22.4 | Global | M/C | 72x72x65 | M58(FBL 12) | F46-6035-M58 |
| AX7Q00MK470E | 14160x10640 | 5.1 | 12 | CameraLink | IMX411 | CMOS | 3.76x3.76 | 53.4x40.0 | Rolling | M | 100x100x66 | M72(FBL 19.55) | - |
| AX5A22M/CX050E | 4096x3072 | 188 | 12 | CoaXPress-6 | CMV12000 | CMOS | 5.5x5.5 | 22.5x16.9 | Global | M/C | 72x72x72 | M58(FBL 12) | F32-5035-M43 |
| AX5A22M/CX060E | 4096x3072 | 188 | 12 | CoaXPress-6 | CMV12000 | CMOS | 5.5x5.5 | 22.5x16.9 | Global | M/C | 72x72x72 | F | F32-5035-M43 |
| AX5A22M/CX340E | 4096x3072 | 188 | 12 | CoaXPress-6 | CMV12000 | CMOS | 5.5x5.5 | 22.5x16.9 | Global | M/C | 80x80x47 | M42(FBL 12) | F32-5035-M43 |
| A9B57M/CX250E | 5120x5120 | 90 | 12 | CoaXPress-6 | GMAX0505 | CMOS | 2.5x2.5 | 1.1" | Global | M/C | 72x72x68 | M58(FBL 12) | MH-X/MT-X |
| AX5E02M/CX150E | 7920x6004 | 30 | 12 | CoaXPress-6 | CMV50000 | CMOS | 4.6x4.6 | 36.4x27.6 | Global | M/C | 72x72x96 | M58(FBL 12) | F46-6035-M58 |
| AX5E02M/CX160E | 7920x6004 | 30 | 12 | CoaXPress-6 | CMV50000 | CMOS | 4.6x4.6 | 36.4x27.6 | Global | M/C | 72x72x96 | F | F46-6035-M58 |
| *AX5E07MX250E | 9344x5000 | 44 | 12 | CoaXPress-6 | Customize | CMOS | 3.2x3.2 | 29.9x16.0 | Global | M | 72x72x80 | M58(FBL:12) | F46-6035-M58 |
| *AX5F57MX250E | 9344x7000 | 31 | 12 | CoaXPress-6 | GMAX3265 | CMOS | 3.2x3.2 | 29.9x22.4 | Global | M | 72x72x80 | M58(FBL:12) | F46-6035-M58 |
| *AX7Q10MX470E | 14160x10640 | 6.1 | 12 | CoaXPress-6 | IMX411 | CMOS | 3.76 x 3.76 | 53.4x40.0 | Rolling | M | 100x100x66 | M72(FBL 19.55) | - |
| A9B57M/CP050E | 5120x5120 | 150 | 12 | CoaXPress-12 | GMAX0505 | CMOS | 2.5x2.5 | 1.1" | Global | M/C | 80x80x72 | M58(FBL 12) | MH-X/MT-X |
| *A9B57MP340E | 5120x5120 | 150 | 12 | CoaXPress-12 | GMAX0505 | CMOS | 2.5x2.5 | 1.1" | Global | M/C | 80x80x65 | M42(FBL 12) | MH-X/MT-X |
| *AX5F57MP050E | 9344x7000 | 71 | 10 | CoaXPress-12 | GMAX3265 | CMOS | 3.2x3.2 | 29.9x22.4 | Global | M | 80x80x72 | M58(FBL:12) | F46-6035-M58 |

Note: Models with Symbol “*” are latest-released products.

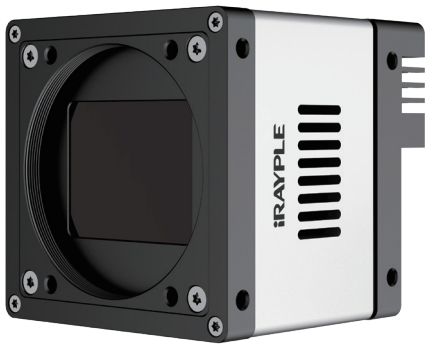


76mm × 76mm × 46mm

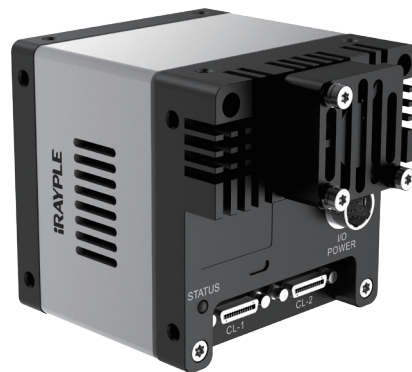


72mm × 72mm × 96mm

- Compatible with GigE Vision protocol, CameraLink protocol, CoaXPress protocol and GenICam standard
- Support wide resolution range, covering 12MP~151MP
- Support Base, Medium and Full modes on CameraLink interface
- Support 4-channel CXP-6 or CXP-12 data output
- Apply high frame rate CMOS sensor with global shutter
- Support FFC/SPC, defect pixel import
- Support wide range of power supply



72mm × 72mm × 64mm



72mm × 72mm × 64mm

Line Scan Cameras

 High resolution & High line rate



62mm×62mm×35.5mm



| Model | Resolution | Line rate (Hz) | Bit depth | Interface | Sensor | | | Dimension (mm) | Lens mount | Recommended lens |
|--------------|------------|----------------|-----------|------------|--------|-----------------|-------------|----------------|--------------|------------------|
| | | | | | Type | Pixel size (μm) | Mono /Color | | | |
| *L5022MG141E | 2048x1 | 49K | 12 | GigE | CMOS | 14x14 | M | 62x62x35.3 | M42 (FBL 12) | F32-5035-M43 |
| *L5022CG141E | 2048x2 | 49K | 12 | GigE | CMOS | 14x14 | C | 62x62x35.3 | M42 (FBL 12) | F32-5035-M43 |
| *L5027MG140E | 2048x1 | 49K | 12 | GigE | CMOS | 14x14 | M | 62x62x43.5 | M42 (FBL 12) | F32-5035-M43 |
| *L5027CG140E | 2048x2 | 49K | 12 | GigE | CMOS | 14x14 | C | 62x62x43.5 | M42 (FBL 12) | F32-5035-M43 |
| *L5042MG141E | 4096x1 | 28K | 12 | GigE | CMOS | 7x7 | M | 62x62x35.3 | M42 (FBL 12) | F32-5035-M43 |
| *L5042CG141E | 4096x2 | 28K | 12 | GigE | CMOS | 7x7 | C | 62x62x35.3 | M42 (FBL 12) | F32-5035-M43 |
| *L5047MG140E | 4096x1 | 28K | 12 | GigE | CMOS | 7x7 | M | 62x62x43.5 | M42 (FBL 12) | F32-5035-M43 |
| *L5047CG140E | 4096x2 | 28K | 12 | GigE | CMOS | 7x7 | C | 62x62x43.5 | M42 (FBL 12) | F32-5035-M43 |
| L5082MG170E | 8192x1 | 13K | 12 | GigE | CMOS | 7x7 | M | 80x80x48 | M72 (FBL 12) | - |
| L5082MK170E | 8192x1 | 70K | 12 | CameraLink | CMOS | 7x7 | M | 80x80x48 | M72 (FBL 12) | - |

Note: Models with Symbol “*” are latest-released products.



80mm×80mm×80mm

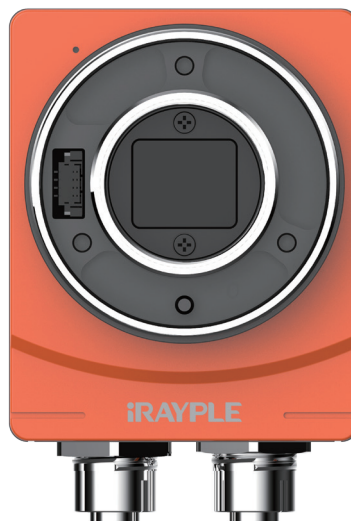
- Compatible with GigE Vision protocol, CameraLink protocol and GenICam standard
- Support wide resolution range, covering 2K~8K
- Support Base, Medium, Full mode on CameraLink interface
- Apply CMOS sensor with & high line rate & multiple lines
- Support FFC
- Support wide range of power supply



62mm×62mm×43.5mm

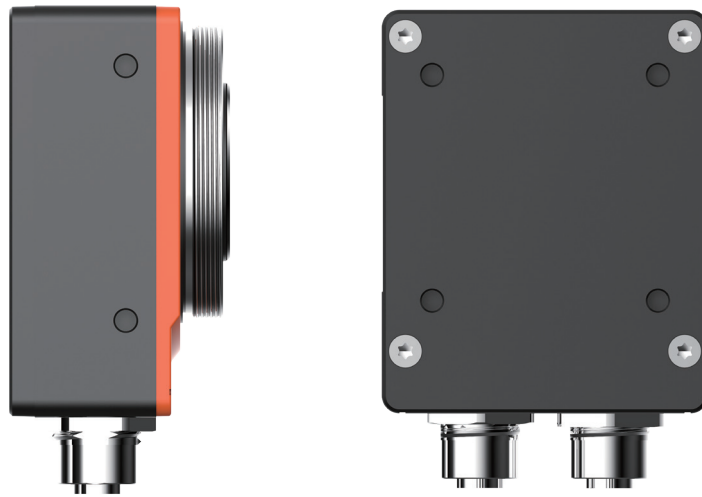
Movidius Smart Camera Series

Extraordinary code reading performance



68mm×55mm×28mm

| Model | Resolution | FPS | Interface | Sensor | | | | | Dimension (mm) | Recommended lens |
|-------------|------------|-----|-----------|--------|---------------------------------|--------|---------|----------------|-------------------|---------------------|
| | | | | Type | Pixel size (μm) | Size | Shutter | Mono/ Color | | |
| S5051MG000E | 800x600 | 60 | GigE | CMOS | 4.8x4.8 | 1/3.6" | Global | M | 68x55x28 | MH-S |
| S5131MG000E | 1280x1222 | 60 | GigE | CMOS | 4.8x4.8 | 1/2" | Global | M | 68x55x28 | MH-S |
| S5201MG000E | 1920x1200 | 45 | GigE | CMOS | 4.8x4.8 | 2/3" | Global | M | 68x55x28 | MH-M |
| S5501MG000E | 2592x2048 | 20 | GigE | CMOS | 4.8x4.8 | 1" | Global | M | 68x55x28 | MT-X |
| S5600MG000E | 3072x2048 | 15 | GigE | CMOS | 2.4x2.4 | 1/1.8" | Rolling | M | 68x55x28 | MH-SP |
| S5A20MG000E | 4000x3000 | 15 | GigE | CMOS | 1.85x1.85 | 1/1.7" | Rolling | M | 68x55x28 | MK-M |
| S5B00MG000E | 5460x3648 | 15 | GigE | CMOS | 2.4x2.4 | 1" | Rolling | M | 68x55x28 | MT-X |

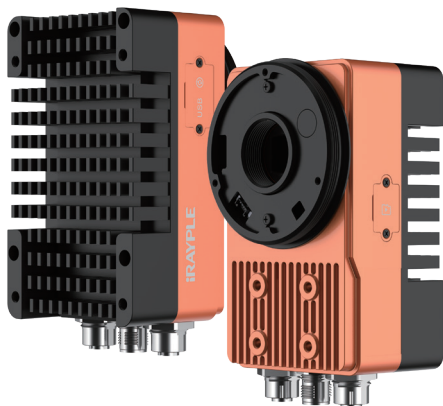


68mm×55mm×28mm

- Support 0.5MP~20MP, global/rolling shutter, CMOS series products
- Support software trigger/hardware trigger/free run mode etc.
- Support RS232/RS485, maximum 3 Opto-isolated inputs and 3 Opto-isolated outputs
- Industrial-grade M12 Connector, IP67 protection level with lens cover
- Support DC 8V~26V wide-range power supply
- Abundant code reading types, including Code128/EAN/QR/DM etc.

X86 Smart Cameras

 High expensibility & practical performance



- Support Win10 OS, support secondary development
- Support VGA/USB interface and extended keyboard/mouse connection
- CMOS series product covering 1.3MP~20.0MP resolution
- 4G RAM& 64G SSD
- Support software trigger/hardware trigger/free run mode
- Support RS232 or RS485, 3 Opto-isolated inputs and 3 Opto-isolated outputs
- Support C mount and optional built-in illumination
- Industrial-grade M12 connector, IP67 protection level
- DC 12~26V wide range of power supply which is suitable for DC12V/24V industrial environment
- Embedded iRAYPLE self-developed algorithm platform to support different application scenarios

| Model | Resolution | FPS | Interface | Sensor | | | | | Dimension (mm) | Recommended lens |
|--------------|------------|-----|-----------|--------|-----------------|--------|---------|------------|----------------|------------------|
| | | | | Type | Pixel size (μm) | Size | Shutter | Mono/Color | | |
| SI5131MG000E | 1280x1024 | 190 | GigE | CMOS | 4.8x4.8 | 1/2" | Global | M | 62x69x132.2 | MH-S |
| SI5201MG000E | 1920x1200 | 150 | GigE | CMOS | 4.8x4.8 | 2/3" | Global | M | 62x69x132.2 | MH-M |
| SI5501MG000E | 2592x2046 | 20 | GigE | CMOS | 4.8x4.8 | 1" | Global | M | 62x69x132.2 | MH-X |
| SI5500MG000E | 2448x2048 | 35 | GigE | CMOS | 3.45x3.45 | 2/3" | Global | M | 62x69x132.2 | MH-M |
| SI5600MG000E | 3072x2048 | 30 | GigE | CMOS | 2.4x2.4 | 1/1.8" | Rolling | M | 62x69x132.2 | MH-SP |
| SI5A20MG000E | 4000x3000 | 20 | GigE | CMOS | 1.85x1.85 | 1/1.7" | Rolling | M | 62x69x132.2 | MK-M |
| SI5B00MG000E | 5472x3648 | 21 | GigE | CMOS | 2.4x2.4 | 1" | Rolling | M | 62x69x132.2 | MH-X |

Note: Models with symbol “*” are latest-released products;

3000 Series Code Readers

■ Small size code reader, suitable for 3C industry



- Red / White build-in illumination
- Support IP65 protection level
- Abundant IO interfaces, Ethernet, RS232, GPIO interface
- 5 ~ 24V DC power supply types, low power consumption, less than 2.5W
- Abundant code reading types, Code128 / EAN , DM / QR, etc
- Support one click automatic training, multi-parameter polling and other functions
- Support a wide selection of accessories and have high performance on reflective, bending and other application scenarios

3000 Series Code Readers

 Small code reader, suitable for 3C industry



| Model | RH3124MG011E | RH3124MG011-111E | RH3124MG011-112E |
|------------------------|--|---------------------|--------------------|
| Resolution | 1280x960 | 1280x960 | 1280x960 |
| Working distance | 70mm | 40mm | 110mm |
| Fov | 42x32mm | 26x20mm | 65x50mm |
| Max read speed | 20pcs/S | 20pcs/S | 20pcs/S |
| Min resolution | 1D 0.05mm/2D 0.13mm | 1D 0.03mm/2D 0.09mm | 1D 0.08mm/2D 0.2mm |
| Light source type | Red /White integrated light source | | |
| Trigger mode | Support software trigger / external trigger / free running and other trigger modes | | |
| Connector | Industrial grade M12 connectors are Ethernet and GPIO interfaces | | |
| Network interface | 100M Ethernet | | |
| GPIO | RS232, 1 isolated input, 1 isolated output, 1 configurable input and output | | |
| Communication mode | RS232, Ethernet | | |
| Communication protocol | SDK, Serial, TCPServer, TCPClient, Profinet, Modbus TCP | | |
| LED indicator | Power indicator, network indicator, result display indicator | | |
| Power supply mode | Support DC24 V input, adapt to industrial voltage environment | | |
| Power consumption | <2.0W | | |
| Dimension | 50mm x 50mm x 28mm(Cable not included) | | |
| Weight | <150g | | |
| Protection level | IP65 | | |
| Shell material | Aluminum alloy + front cover | | |
| Working temperature | -20°C~+50°C | | |
| Working humidity | 20%~95%, Non condensing | | |
| Storage temperature | -30°C~+70°C | | |
| Software | EasyID | | |
| Certification | CE/FCC | | |
| Type | Code 128 / Code39 / Code93 / EAN, etc.; QR / DM / DPM, etc. | | |

7000 Series Code Reader

■ High-rate decoding, Large FOV



- Built-in deep learning algorithm, efficient and powerful algorithm performances
- Support software trigger/hardware trigger/free run mode etc.
- Support RS232/RS485 and 1 Opto-isolated inputs, 3 Opto-isolated outputs
- Industrial-grade M12 Connector, IP67 protection level with lens cover
- Support DC 24V power supply
- Up to 96 pcs of barcodes can be decoded in one FOV

| Model | Resolution | FPS | Interface | Sensor | | | | | Dimension (mm) |
|--------------|------------|-----|-----------|--------|---------------------------------|------|---------|----------------|---------------------|
| | | | | Type | Pixel size (μm) | Size | Shutter | Mono/ Color | |
| RH7B00MG000E | 5440x3648 | 15 | GigE | CMOS | 2.4x2.4 | 1" | Rolling | M | 117x69x43 |

Note: Models with symbol “*” are latest-released product;

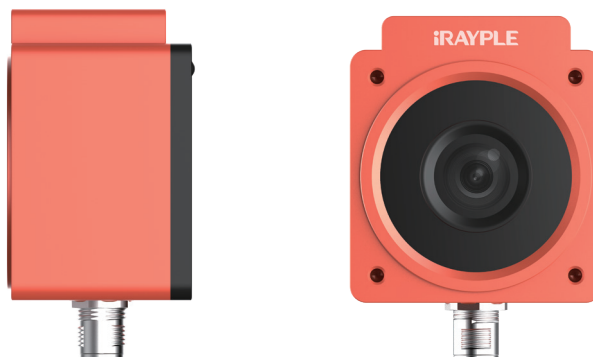
AMR Code Reader

Efficient code reading performance & High frame rate

- Efficient code reading performance & High frame rate
- Embedded code reading algorithm perform with high decoding rate and high accuracy
- Support 2D code including DM-12&DM-14 etc.
- Embedded aviation plug, abundant I/O interfaces
- 5 LED indicators for debugging and status monitoring
- Support multiple UserSets to save/load or switch
- M12 lens helps code reading in large FOV
- Excellent build-in illumination design enables uniformed lighting environment

| Model | Resolution | FPS | Interface | Sensor | | | | | Dimension (mm) |
|-------------|------------|-----|-----------|--------|---------------------------------|--------|---------|----------------|-------------------|
| | | | | Type | Pixel size (μm) | Size | Shutter | Mono/ Color | |
| R3051MG010E | 800x600 | 100 | GigE | CMOS | 4.8x4.8 | 1/3.6" | Global | M | 60x68x43 |

Note: Models with symbol “*” are latest-released product;



Intelligent Code Readers

- Efficient code reading performance & High frame rate

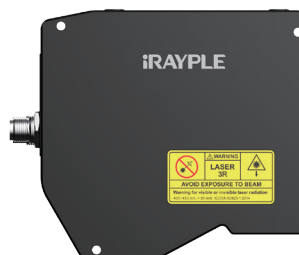


- Simple installation, operation friendly
- Support software trigger / external trigger / free run and other trigger modes
- Abundant I/O interfaces
- Integrated cable, Application environment of DC 24V
- 24 high brightness Cree LED with overall luminance higher than 3000lux, uniform light

| Model | Resolution | FPS | Interface | Sensor | | | | | Dimension (mm) |
|-----------------|------------|-----|-----------|--------|---------------------------------|--------|---------|----------------|---------------------|
| | | | | Type | Pixel size (μm) | Size | Shutter | Mono/ Color | |
| *DH-SL2460R-S1E | 3072x2048 | 15 | GigE | CMOS | 2.4x2.4 | 1/1.8" | Rolling | M | 154.5x154.5x128 |
| *DH-SL24A2R-S1E | 4000x3000 | 15 | GigE | CMOS | 1.85x1.85 | 1/1.7" | Rolling | M | 154.5x154.5x128 |

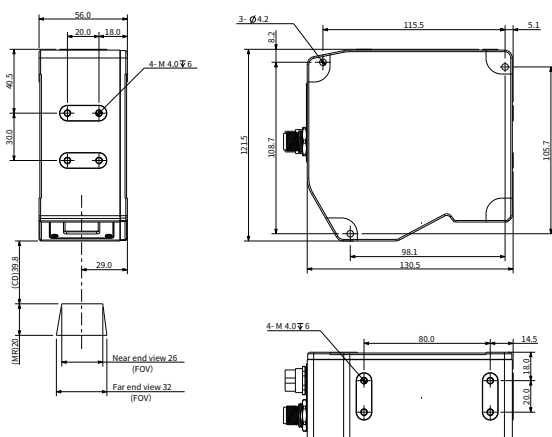
3D Laser Profile Sensor

- Support point cloud output and volume measurement
- High-accuracy measurement
- Easy field calibration
- Support secondary-development
- Abundant I/O interfaces support various trigger modes
- IP67 level protection



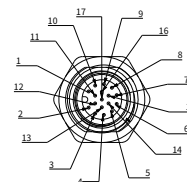
| | |
|---|---|
| Model | D5201MG221E(D5221) |
| Data Points / Profile | 1920 |
| Field of View (mm) | 26 - 32 |
| Resolution X(mm)(profile data interval) | 0.014-0.017 |
| Resolution Z (mm) | 0.002-0.0035 |
| Repeatability Z(μm) | 0.8 |
| Clearance Distance (CD)(mm) | 52 |
| Measurement Range MR(mm) | 20 |
| Laser Class | 2M (blue light, 405nm) |
| Dimension | 55x120x130 |
| Weight | 900g |
| Scan Rate | 200-500Hz |
| Input | Differential coder, Laser security controller, trigger signal |
| Output | 2 digital outputs, RS-485 serial port(115k Baud), 1 analog output(4-20mA) |
| Operating Temperature | 0°C~50 °C |
| Storage Temperature | -30°C ~ +80 °C |
| Humidity | 5%-85%(No condensation) |
| Gasketed aluminum enclosure | IP67 |
| Interface | GIGE |
| Input Voltage | DC12/24V |
| SDK | 3D volumet measurement(including configuring, calibrating and display), SDK(for secondary-developing) |
| Data | Volume data, 3D point cloud |
| Certification | CE, FCC, RoHS |

Structure(unit:mm)



I/O Description

8Pin Gige interface



17 pin definitions

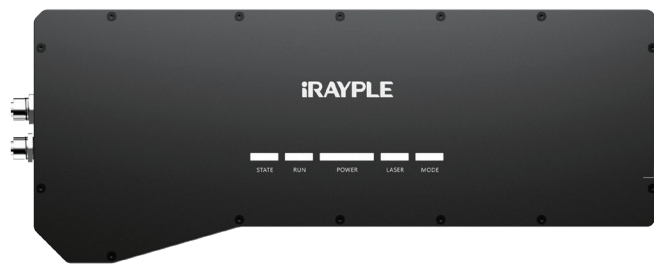
| Pin | Description | Function | Remarks |
|-----|-------------|---|--|
| 1 | DC24V | Power(24~48VDC) | Power |
| 2 | POWER_GND | GND | |
| 3 | OPT_IN0 | Opto-isolated input 0 | Opto-isolated input |
| 4 | OPT_IN1 | Opto-isolated input 1 | |
| 5 | OPT_IN_GND | Opto-isolated input GND | Opto-isolated output |
| 6 | OPT_OUT0 | Opto-isolated output 0 | |
| 7 | OPT_OUT1 | Opto-isolated output 1 | Laser stop urgently |
| 8 | OPT_OUT_GND | Opto-isolated output GND | |
| 9 | LASER_STOP | Laser stop urgently | Encoder input (Configurable differential output) |
| 10 | LASER_FB | Laser stop feedback | |
| 11 | ENCODER_B+ | Differential input B+ Non-isolated single-end input | Serial communication |
| 12 | ENCODER_B- | Differential input B- | |
| 13 | ENCODER_A+ | Differential input A+ Non-isolated single-end input | Signal GND |
| 14 | ENCODER_A- | Differential input A- | |
| 15 | RS232_TX | RS232 serial transmitting/RS485_B | Signal GND |
| 16 | RS232_RX | RS232 serial receiving/RS485_A | |
| 17 | SIGNAL_GND | Signal GND | |

3D Industrial Camera Series

Large FOV & High speed



- Pre-calibration during production and support high speed output of 3D measurement result in mm-level
- Configurable working distance and FOV
- Integrated with 3D calibration kits
- Maximum scale: 1000mmx1000mmx2000mm(WxHxL)
- High accurate 3D measurement: 5mmx5mmx5mm
- Output point cloud image and volume measurement data
- Abundant interfaces including GigE/Input&Output/Encoder
- Industrial level M12 connector, IP65 protection level
- Support wide-range power supply
- Directly output volume data without PC



| Model | Near FOV (mm) | Far Fov (mm) | Precision (mm) | Working distance (mm) | Scale (mm) | Laser type/grade | Interface |
|--------------|---------------|--------------|----------------|-----------------------|------------|------------------|--------------|
| *D5201MG100E | 1000 | 2200 | 5x5x5 | 1000 ~1800 | 1000 | 3B | 370x65.6x150 |

Note: Models with symbol “*” are latest released products;

3D Stereo Camera

■ Built-in algorithm, excellent performance



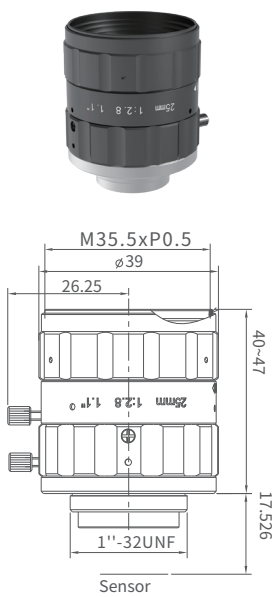
- Built-in high-precision measurement algorithm, high measurement accuracy
- Small installation space, highly integrated, cost-effective product
- Uniform and reliable speckle laser module
- Superior optical filter design, strong resistance to ambient light
- Built-in aviation plug, abundant I/O interfaces
- 4 indicator lights for debugging and status monitoring
- Industrial level M12 connector, IP65 protection level
- Support multi-camera cascade

| Model | Near FOV (mm) | Far Fov (mm) | Precision (mm) | Working distance (mm) | Scale (mm) | Laser grade | Interface |
|---------------|---------------|--------------|----------------|-----------------------|------------|-------------|-----------|
| *DS5131MG300E | 590x540 | 1730x1450 | 5 | 600 ~3500 | 1000 | 2R | GigE |

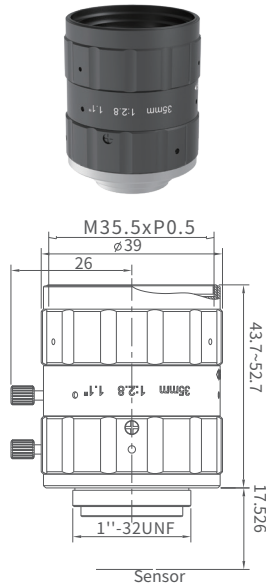
Note: Models with symbol “*” are latest released products;

MT- X series (1.1"20MP)

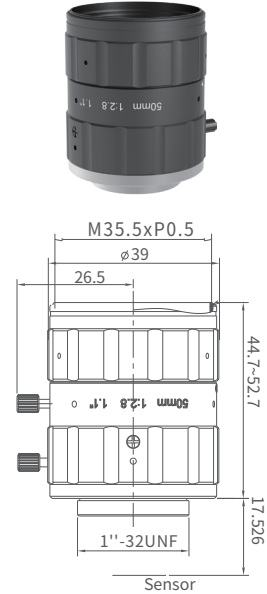
- Support up to 1.1 " camera sensors ($\Phi 17.6\text{mm}$);
- High resolution for 20 MP camera in full of view , matching $2.4\mu\text{m}$ pixel size ;
- Ultra low distorton , TV distortion less than 0.1% ;
- Stable sharpness quality when temperature varies from $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$;



MT2528X



MT3528X

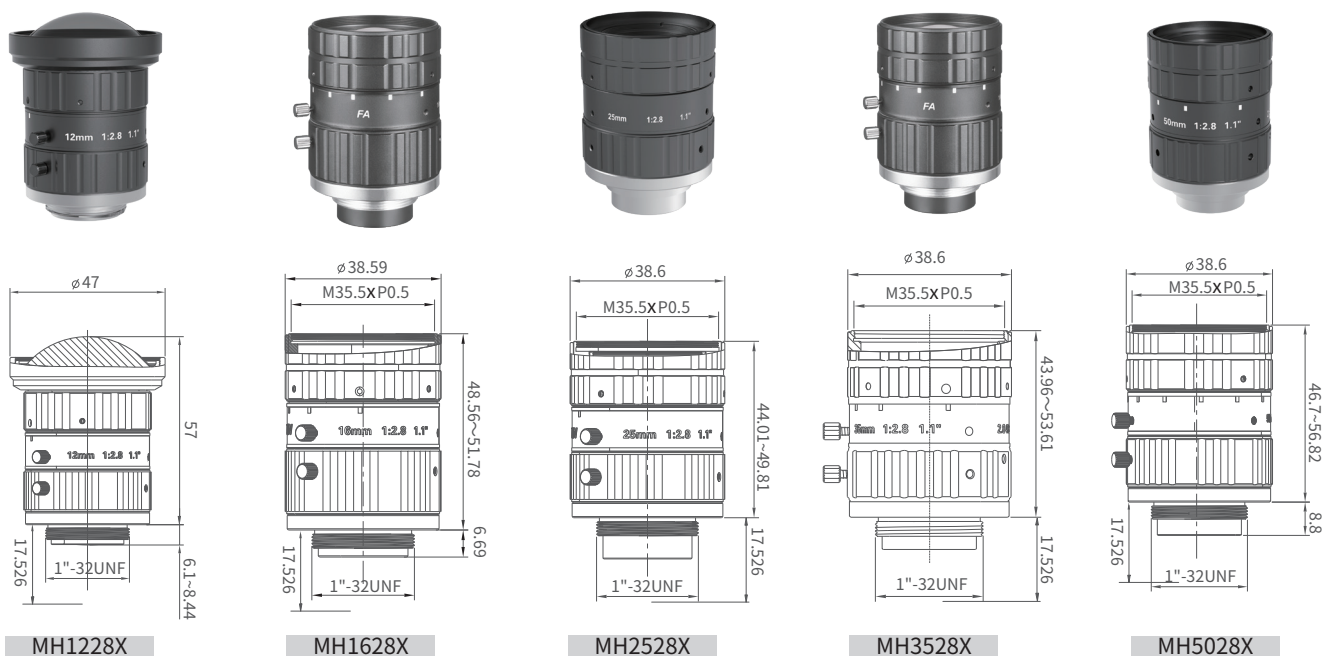


MT5028X

| Model | | MT2528X | MT3528X | MT5028X |
|-----------------------|------------------------|--|--|--|
| Focal Length | | 25mm | 35mm | 50mm |
| Image Circle | | $\Phi 17.6\text{mm}$ | $\Phi 17.6\text{mm}$ | $\Phi 17.6\text{mm}$ |
| F# | | F2.8 - F16 | F2.8 - 16 | F2.8 - F16 |
| Angle of View | 1.1''(14.08mmx10.56mm) | $38.8^{\circ}\times 34.7^{\circ}\times 23.5^{\circ}$ | $28.2^{\circ}\times 22.9^{\circ}\times 16.9^{\circ}$ | $20.0^{\circ}\times 16.2^{\circ}\times 11.9^{\circ}$ |
| | 1''(12.44mmx9.83mm) | $35.5^{\circ}\times 28.7^{\circ}\times 21.7^{\circ}$ | $25.8^{\circ}\times 20.7^{\circ}\times 15.6^{\circ}$ | $18.2^{\circ}\times 14.6^{\circ}\times 11.0^{\circ}$ |
| Working Distance | | 0.15m to inf | 0.2m to inf | 0.25m to inf |
| TV Distortion | | - 0.02% | - 0.07% | 0.07% |
| Relative Illumination | F2.8 | 82% | 93% | 92% |
| | F4.0 | 82% | 92% | 98% |
| Mount | | C- Mount | C- Mount | C- Mount |
| Dimension | | 47mmx $\Phi 39\text{mm}$ | 52.7mmx $\Phi 39\text{mm}$ | 52.7mmx $\Phi 39\text{mm}$ |
| Filter Thread | | M35.5xP0.5 | M35.5xP0.5 | M35.5xP0.5 |
| Weight | | 124g | 125g | 117g |
| Working Temperature | | $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ | $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ | $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ |

MH-X series (1.1"12MP)

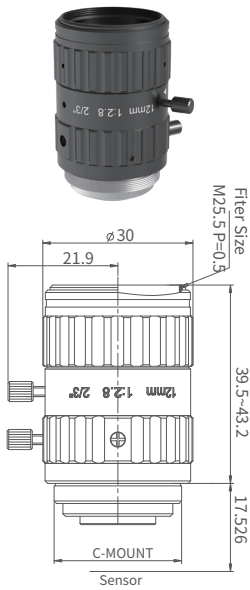
- Support up to 1.1 " camera sensors , (Φ17.6mm) ;
- 5 models , focal length covering from 12mm to 50mm ;
- High resolution for 12 MP camera in full of view , matching 3.45μm pixel size ;
- Ultra low distortion , TV distortion less than 0.5% ;
- Stable sharpness quality when temperature varies from -20°C ~ 50°C ;



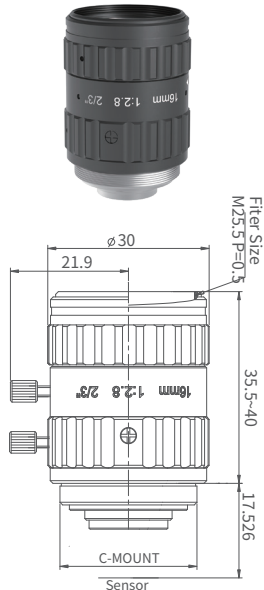
| Model | | MH1228X | MH1628X | MH2528X | MH3528X | MH5028X |
|-----------------------|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Focal Length | | 12.4mm | 16mm | 25mm | 35mm | 50mm |
| Image Circle | | Φ17.6mm | Φ17.6mm | Φ17.6mm | Φ17.6mm | Φ17.6mm |
| F# | | F2.8- F16 | F2.8 - 16 | F2.8 - F16 | F2.8 - 16 | F2.8 - F16 |
| Angle of View | 1.1"(14.08mmx10.56mm) | 70.5°x59.8°x46.3° | 57.8°x47.6°x36.5° | 37.3°x30.4°x23° | 26.7°x21.4°x15.9° | 18.4°x14.8°x11.2° |
| | 1"(12.44mmx9.83mm) | 65.7°x53.5°x43.3° | 52.8°x42.5°x34.1° | 33.9°x26.9°x21.4° | 24.1°x18.9°x15.1° | 16.7°x13.2°x10.5° |
| Working Distance | | 0.1m to inf | 0.1m to inf | 0.15m to inf | 0.2m to inf | 0.3m to inf |
| TV Distortion | | - 0.22% | - 0.18% | - 0.20% | - 0.02% | - 0.02% |
| Relative Illumination | Aperture | 65% | 70% | 60% | 80% | 70% |
| | F4.0 | 81% | 80% | 90% | 90% | 95% |
| Mount | | C- Mount | C- Mount | C- Mount | C- Mount | C- Mount |
| Dimensions | | 56.99mmxΦ47mm | 51.78mmxΦ38.59mm | 49.81mmxΦ38.6mm | 53.61mmxΦ38.6mm | 56.82mmxΦ38.6mm |
| Filter Thread | | No | M35.5xP0.5 | M35.5xP0.5 | M35.5xP0.5 | M35.5xP0.5 |
| Weight | | 186g | 180g | 133g | 136g | 134g |
| Working Temperature | | -20°C~50°C | -20°C~50°C | -20°C~50°C | - 20°C~50°C | -20°C~50°C |

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

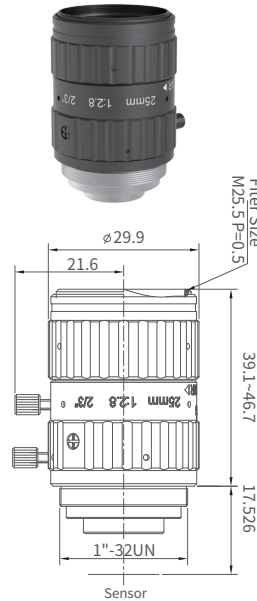
- Support up to 2/3 " camera sensors ;
- High resolution for 10 MP camera in full of view ;
- Ultra low distortion ;
- Small size structure suitable for system integration and installation ;
- Stable sharpness quality when temperature varies from -20°C ~ 50°C ;



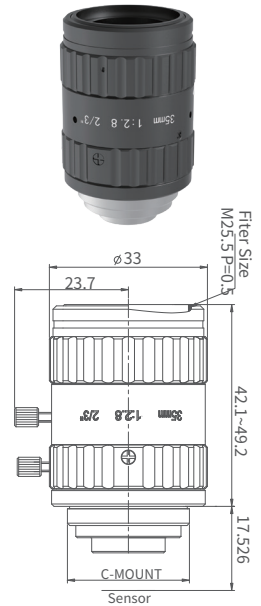
MK1228M



MK1628M



MK2528M

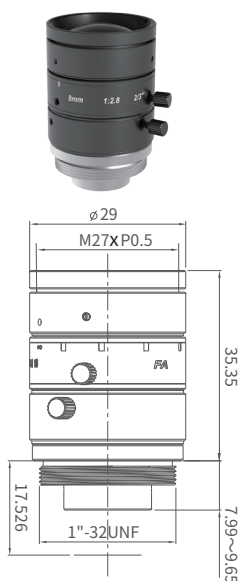


MK3528M

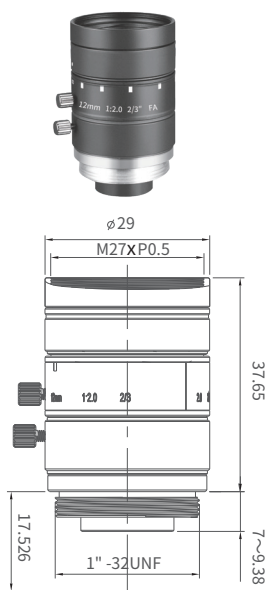
| Model | | MK1228M | MK1628M | MK2528M | MK3528M | MK5028M |
|-----------------------|-------------|-------------------|-------------------|-------------------|-------------------|------------------|
| Focal Length | | 12mm | 16mm | 25mm | 35mm | 50mm |
| Image Circle | | Φ11.4mm | Φ11.4mm | Φ11.4mm | Φ11.4mm | Φ11.4mm |
| F# | | F2.8 - 16 | F2.8 - 16 | F2.8 - 16 | F2.8 - 16 | F2.8 - 16 |
| Angle of View | 2/3"(Φ11mm) | 49.2°x40.2°x30.8° | 37.9°x30.8°x23.3° | 24.8°x20.0°x15.0° | 17.9°x14.3°x10.8° | 11.01°x8.5°x6.4° |
| | 1/2"(Φ8mm) | 36.9°x29.9°x22.6° | 31.2°x25.3°x18.9° | 18.2°x14.6°x11.0° | 13.0°x10.4°x7.8° | 7.8°x6.4°x4.3° |
| Working Distance | | 0.1m to inf | 0.1m to inf | 0.15m to inf | 0.2m to inf | 0.2m to inf |
| TV Distortion | | - 0.20% | - 0.20% | - 0.30% | 0.07% | -0.08% |
| Relative Illumination | F2.8 | 64% | 63% | 75% | 73% | 89% |
| | F4.0 | 84% | 88% | 95% | 96% | 97% |
| Mount | | C- Mount | C- Mount | C- Mount | C- Mount | C- Mount |
| Dimensions | | 43.2mmxΦ30mm | 40mmxΦ30mm | 46.7mmxΦ30mm | 49.2mmxΦ33mm | 60mmxΦ30mm |
| Filter Thread | | M25.5xP0.5 | M25.5xP0.5 | M25.5xP0.5 | M25.5xP0.5 | M25.5xP0.5 |
| Weight | | 70g | 58g | 66g | 99g | 98g |
| Working Temperature | | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C |

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

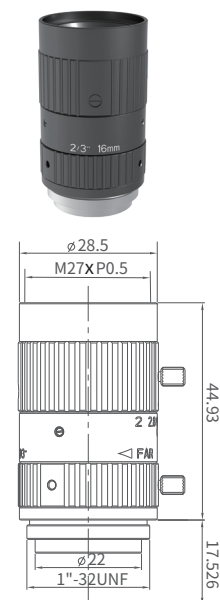
- Support up to 2/3 " camera sensors ;
- 7 models , focal length covering from 8mm to 50mm ;
- High resolution for 8 MP camera in full of view ;
- Ultra low distortion ;
- Small size structure suitable for system integration and installation ;
- Stable sharpness quality when temperature varies from -20°C ~ 50°C ;



MHR0828M

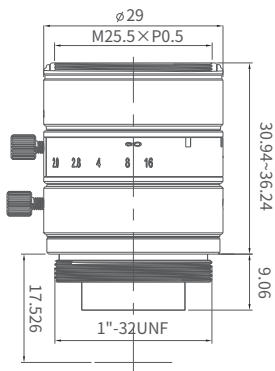


MHR1220M

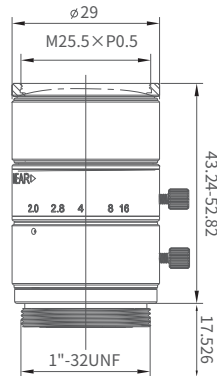


MH1620M

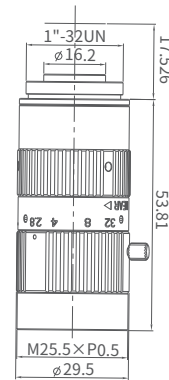
| Model | | MHR0828M | MHR1220M | MH1620M |
|-----------------------|------------------------|-------------------|-------------------|----------------------|
| Focal Length | | 8mm | 12mm | 16mm |
| Image Circle | | Φ11.4mm | Φ11.4mm | Φ11.4mm |
| F# | | F2.8 - 16 | F2.0 - 16 | F2.0 - 16 |
| Angle of View | 2/3" (8.5mmx7.12mm) | 67.2°x53.2°x46.0° | 48.8°x38.4°x32.5° | 37.27°x30.25°x22.87° |
| | 1/1.8" (7.37mmx4.92mm) | 56.5°x47.7°x34.1° | 39.9°x33.6°x22.8° | 30.1°x26.2°x15.8° |
| Working Distance | | 0.1m to inf | 0.15m to inf | 0.2m to inf |
| TV Distortion | | - 0.77% | - 0.01% | 0.10% |
| Relative Illumination | Aperture | 60% | 60% | 65% |
| | F4.0 | 90% | 95% | 66% |
| Mount | | C- Mount | C- Mount | C- Mount |
| Dimensions | | 35.35mmxΦ29mm | 37.65mmxΦ29mm | 44.93mmxΦ29mm |
| Filter Thread | | M27xP0.5 | M27xP0.5 | M27xP0.5 |
| Weight | | 68.49g | 61g | 56g |
| Working Temperature | | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C |



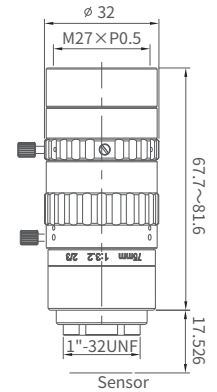
MHR2520M



MHR3520M



MH5028M

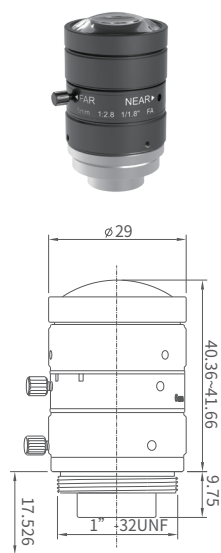


MH7532M

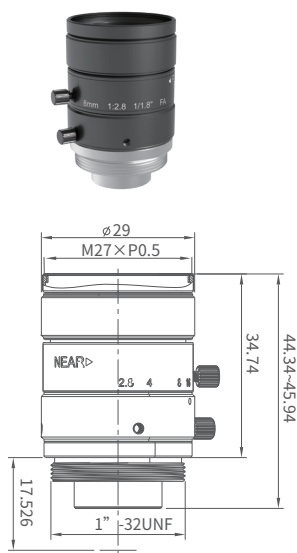
| Model | MHR2520M | MHR3520M | MH5028M | MH7532M |
|-----------------------|------------------------|-------------------|--------------------|--------------------|
| Focal Length | 25mm | 35mm | 50mm | 75mm |
| Image Circle | Φ11.4mm | Φ11.4mm | Φ11.4mm | Φ11.4mm |
| F# | F2.0 - 16 | F2.0 - 16 | F2.8 - 32 | F3.2 - 16 |
| Angle of View | 2/3" (8.5mmx7.12mm) | 23.9°x18.3°x15.4° | 16.49°x12.8°x10.7° | 10.59°x8.48°x6.37° |
| | 1/1.8" (7.37mmx4.92mm) | 19.4°x15.8°x10.7° | 13.45°x11.7°x7.4° | 8.5°x7.4°x4.4° |
| Working Distance | 0.2m to inf | 0.2m to inf | 0.4m to inf | 0.15m to 0.5m |
| TV Distortion | - 0.04% | - 0.01% | 0.05% | 0.05% |
| Relative Illumination | Full Aperture | 63% | 94% | 82% |
| | F4.0 | 88% | 96% | 98% |
| Mount | C- Mount | C- Mount | C- Mount | C- Mount |
| Dimensions | 36.25mmxΦ29mm | 43.24mmxΦ29.4mm | 53.81mmxΦ29.5mm | 67.6mmxΦ32mm |
| Filter Thread | M25.5xP0.5 | M25.5xP0.5 | M25.5xP0.5 | M27xP0.5 |
| Weight | 58g | 62.23g | 69g | 82g |
| Working Temperature | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C | -20°C~50°C |

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

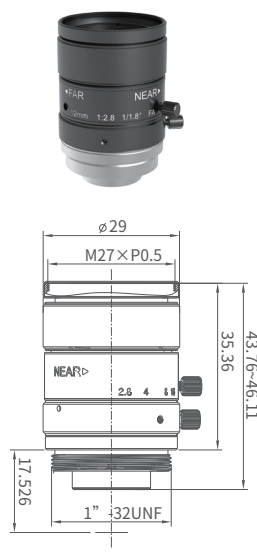
- Support up to 1/1.8 " camera sensors ;
- 7 models , focal length covering from 6mm to 50mm ;
- High resolution for 6 MP camera in full of view , matching 2.4μm pixel size ;
- Ultra low distortion ;
- Small size structure suitable for system integration and installation ;
- Stable sharpness quality when temperature varies from -20°C ~ 50°C ;



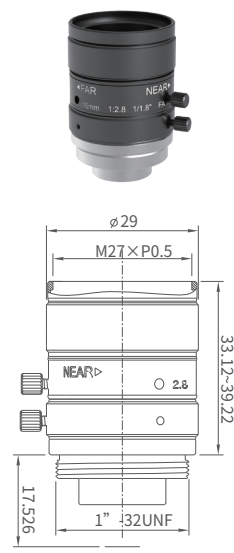
MH0628SP



MH0828SP

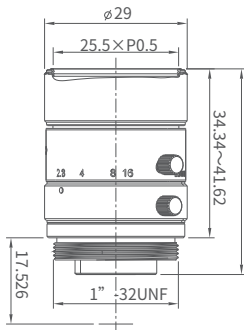


MH1228SP

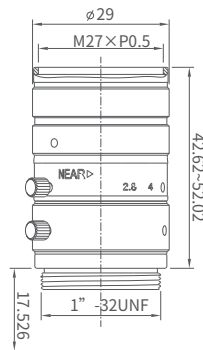


MH1628SP

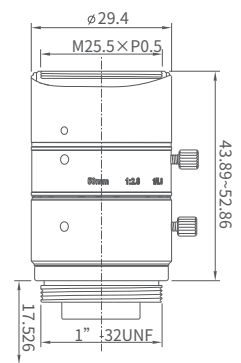
| Model | | MH0628SP | MH0828SP | MH1228SP | MH1628SP |
|-----------------------|---------------------|-------------------|-------------------|-------------------|-----------------|
| Focal Length | | 6mm | 8mm | 12mm | 16mm |
| Image Circle | | Φ9.4mm | Φ9.4mm | Φ9.4mm | Φ9.4mm |
| F# | | F2.8 - 16 | F2.8 - 16 | F2.8 - 16 | F2.8 - 16 |
| Angle of View | 1/1.8"(7.4mmx4.9mm) | 74.8°x63.5°x44.8° | 58.5°x49.3°x34° | 41.2°x34.4°x23.4° | 31°x25.7°x17.5° |
| | 1/2"(6.4mmx4.8mm) | 68°x56.6°x43.8° | 53.4°x43.5°x33.2° | 37.2°x30.2°x22.8° | 28°x22.3°x16.9° |
| Working Distance | | 0.08m to inf | 0.1m to inf | 0.1m to inf | 0.1m to inf |
| OP-Distortion | | - 0.04% | - 0.55% | - 0.04% | - 0.08% |
| Relative Illumination | F2.8 | 58% | 71% | 71% | 88% |
| | F4.0 | 78% | 86% | 82% | 93% |
| Mount | | C- Mount | C- Mount | C- Mount | C- Mount |
| Dimensions | | 41.66mm xΦ29mm | 34.74 xΦ29mm | 35.36 xΦ29mm | 39.22mm xΦ29mm |
| Filter Thread | | No | M27xP0.5 | M27xP0.5 | M27xP0.5 |
| Weight | | 67.34g | 56.2g | 54.22g | 46.72g |
| Working Temperature | | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C |



MH2528SP



MH3528SP

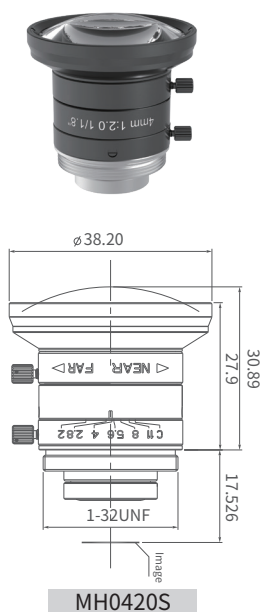


MH5028SP

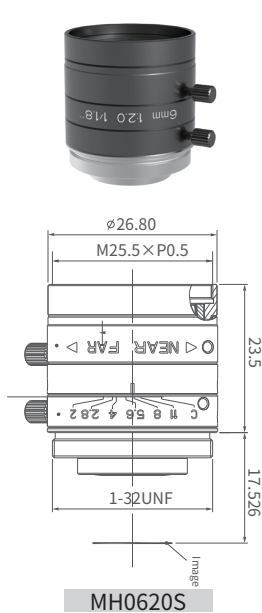
| Model | | MH2528SP | MH3528SP | MH5028SP |
|-----------------------|-----------------------|----------------------|------------------|------------------|
| Focal Length | | 25mm | 35mm | 50mm |
| Image Circle | | Φ9.4mm | Φ9.4mm | Φ9.4mm |
| F# | | F2.8 - 16 | F2.8 - 16 | F2.8 - 16 |
| Angle of View | 1/1.8''(7.4mmx4.92mm) | 19.82°x16.35°x10.96° | 13.8°x11.3°x7.6° | 9.7°x8.0°x5.4° |
| | 1/2''(6.4mmx4.8mm) | 17.73°x14.22°x10.69° | 12.3°x9.8°x7.4° | 8.7°x7.0°x5.2° |
| Working Distance | | 0.1m to inf | 0.15m to inf | 0.3m to inf |
| OP-Distortion | | - 0.02% | - 0.02% | 0.11% |
| Relative Illumination | F2.8 | 94% | 67% | 71% |
| | F4.0 | 95% | 95% | 80% |
| Mount | | C- Mount | C- Mount | C- Mount |
| Dimensions | | 41.62mm xΦ29mm | 52.02mm xΦ29mm | 52.86mm xΦ29.4mm |
| Filter Thread | | M25.5xP0.5 | M27xP0.5 | M25.5xP0.5 |
| Weight | | 48.02g | 58.78g | 56.23g |
| Working Temperature | | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C |

MH-S series (1/1.8"3MP)

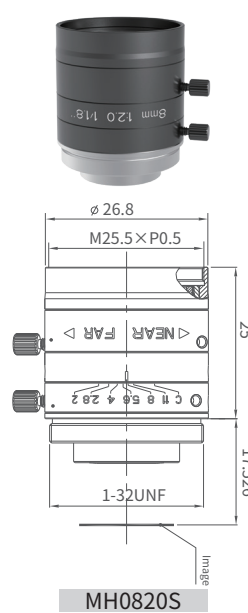
- Support up to 1/2" camera sensors ;
- 9 models , focal length covering from 4mm to 75mm ;
- High resolution for 3 MP camera in full of view ;
- Lower distortion design ;
- Small size structure suitable for system integration and installation ;
- Stable sharpness quality when temperature varies from -20°C ~ 50°C ;



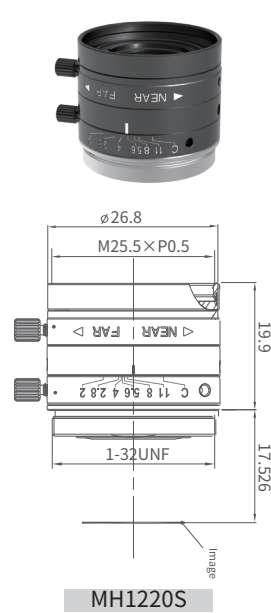
MH0420S



MH0620S

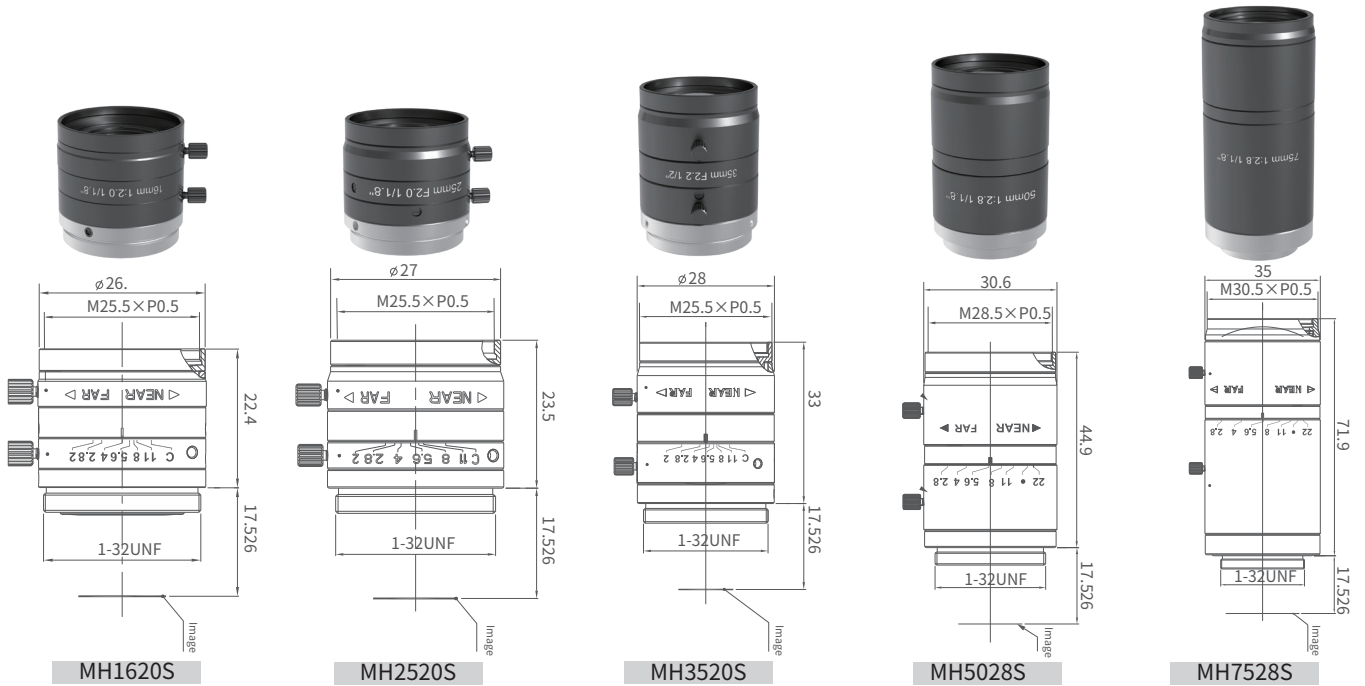


MH0820S



MH1220S

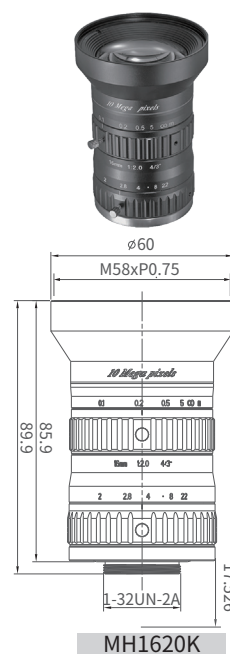
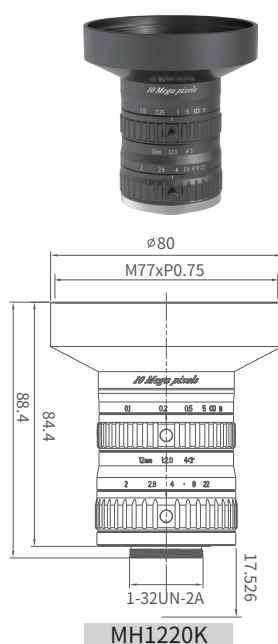
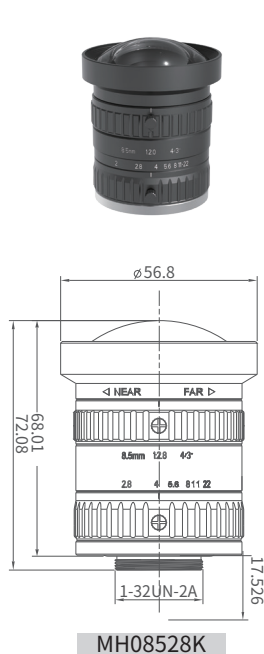
| Model | | MH0420S | MH0620S | MH0820S | MH1220S |
|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Focal Length | | 4mm | 6mm | 8mm | 12mm |
| Image Circle | | Φ9mm | Φ9mm | Φ9mm | Φ9mm |
| F# | | F2.0 - C | F2.0 - C | F2.0 - C | F2.0 - C |
| Angle of View | 1/1.8"(7.2x5.3mm) | 94.0°×82.9°×66.5° | 69.8°×59.6°×46° | 56°×47.2°×36.0° | 40.7°×33°×24.3° |
| | 1/2"(6.4x4.8mm) | 88.3°×76.5°×61° | 63.7°×53.2°×41.1° | 51.3°×42.3°×32.4° | 36.3°×29.5°×22.4° |
| Working Distance | | 0.1m to inf | 0.1m to inf | 0.1m to inf | 0.1m to inf |
| TV Distortion | | - 0.66% | - 0.10% | - 0.10% | - 0.10% |
| Relative Illumination | Full Aperture | 43% | 52% | 55% | 41% |
| | F4.0 | 69% | 72% | 66% | 50% |
| Mount | | C- Mount | C- Mount | C- Mount | C- Mount |
| Dimensions | | 30.89mm×Φ38.2mm | 23.5mm×Φ26.8mm | 25mm×Φ26.8mm | 19.9mm×Φ26.8mm |
| Filter Thread | | No | M25.5×P0.5 | M25.5×0.5 | M25.5×P0.5 |
| Weight | | 32g | 32g | 32g | 28.5g |
| Working Temperature | | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C |



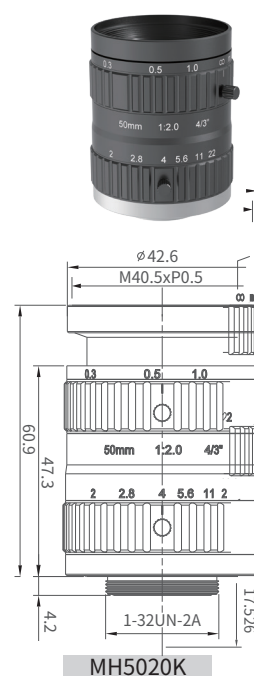
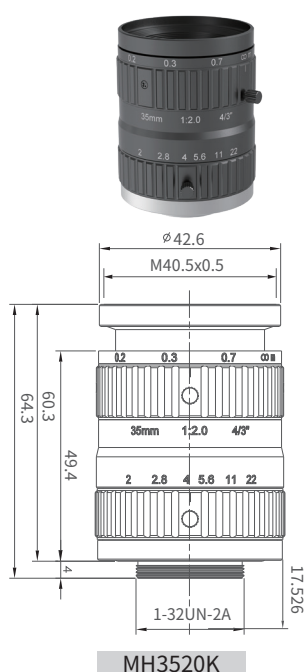
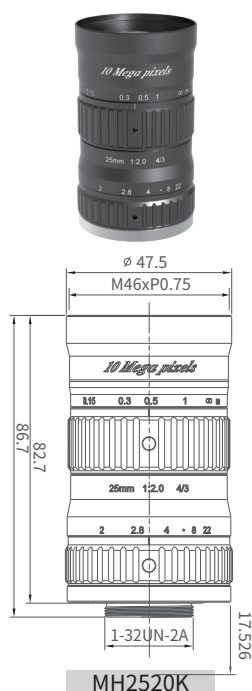
| Model | | MH1620S | MH2520S | MH3520S | MH5028S | MH7528S |
|-----------------------|---------------------|-------------------|-------------------|------------------|-----------------|------------------|
| Focal Length | | 16mm | 25mm | 35mm | 50mm | 75mm |
| Image Circle | | Φ9mm | Φ9mm | Φ9mm | Φ9mm | Φ9mm |
| F# | | F2.0 - C | F2.0 - C | F2.0 - C | F2.8 - 22 | F2.8 - 22 |
| Angle of View | 1/1.8"(7.2mmx5.3mm) | 27.6°×22.6°×17.4° | 19.0°×14.6°×11.3° | 14.6°×11.8°×8.7° | 10.2°×8.2°×6.1° | 6.84°×5.4°×4.04° |
| | 1/2"(6.4mmx4.8mm) | 27.5°×22.1°×16.7° | 17.1°×13.7°×10.3° | 12.3°×9.9°×7.4° | 9.1°×7.3°×5.5° | 6.1°×4.9°×3.7° |
| Working Distance | | 0.1m to inf | 0.1m to inf | 0.2m to inf | 0.3m to inf | 0.5m to inf |
| TV Distortion | | 0.05% | - 0.06% | - 0.01% | - 0.03% | 0.05% |
| Relative Illumination | Full Aperture | 63% | 61% | 73% | 65% | 90% |
| | F4.0 | 92% | 90% | 85% | 88% | 98% |
| Mount | | C- Mount | C- Mount | C- Mount | C- Mount | C- Mount |
| Dimensions | | 22.4mm×Φ26.8mm | 23.5mm×Φ27mm | 33mm×Φ28mm | 44.9mm×Φ30.6mm | 71.9mm×Φ35mm |
| Filter Thread | | M25.5×P0.5 | M25.5×P0.5 | M25.5×P0.5 | M28.5×P0.5 | M30.5×P0.5 |
| Weight | | 30.8g | 28g | 45g | 64.5g | 110g |
| Working Temperature | | - 20℃~50℃ | - 20℃~50℃ | - 20℃~50℃ | - 20℃~50℃ | - 20℃~50℃ |

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

- Support up to 4/3 " camera sensors;
- 6 models , focal length covering from 8.5mm to 50mm ;
- High resolution for 10 MP camera in full of view , matching 4.5μm pixel size ;
- Low distortion , F2.0 large aperture ;
- Stable sharpness quality when temperature varies from -20°C ~ 50°C ;



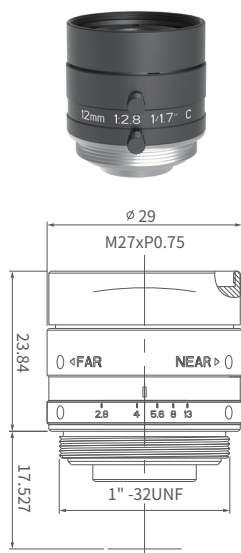
| Model | | MH08528K | MH1220K | MH1620K |
|-----------------------|-------------|--------------------|-------------------|-------------------|
| Focal Length | | 8.5mm | 12mm | 16mm |
| Image Circle | | Φ23mm | Φ23mm | Φ23mm |
| F# | | F2.8 - F22 | F2.0 - F22 | F2.0 - F22 |
| Angle of View | 4/3"(Φ23mm) | 107.4°x94.9°x80.1° | 89.0°x75.5°x61.1° | 72.9°x60.9°x47.3° |
| | 1"(Φ16mm) | 86.6°x73.6°x58.1° | 68.9°x57.3°x44.2° | 54°x44.2°x33.6° |
| Working Distance | | 0.5m to inf | 0.15m to inf | 0.1m to inf |
| TV Distortion | | -0.94% | 0.04% | -1.27% |
| Relative Illumination | Aperture | 38% | 43% | 43% |
| | F4.0 | 43% | 71% | 75% |
| Mount | | C- Mount | C- Mount | C- Mount |
| Dimensions | | 72.1mmxΦ56.8mm | 84.4mm x Φ80mm | 85.9mm x Φ60mm |
| Filter Thread | | No | M77xP0.75 | M58xP0.75 |
| Weight | | 317g | 447g | 338g |
| Working Temperature | | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C |



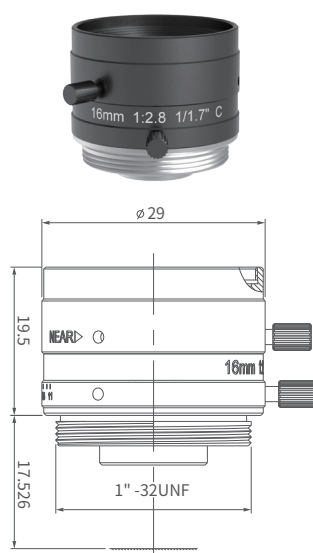
| Model | | MH2520K | MH3520K | MH5020K |
|-----------------------|-----------------------------|-------------------------------|-------------------------------|-------------------------------|
| Focal Length | | 25mm | 35mm | 50mm |
| Image Circle | | $\Phi 23\text{mm}$ | $\Phi 23\text{mm}$ | $\Phi 23\text{mm}$ |
| F# | | F2.0 - F22 | F2.0 - F22 | F2.0 - F22 |
| Angle of View | 4/3''($\Phi 23\text{mm}$) | 49.7°x40.6°x31° | 36.6°x29.6°x22.4° | 25.9°x20.9°x15.7° |
| | 1''($\Phi 16\text{mm}$) | 35.7°x28.8°x21.8° | 25.9°x20.8°x15.7° | 18.2°x14.6°x11.0° |
| Working Distance | | 0.15m to inf | 0.2m to inf | 0.3m to inf |
| TV Distortion | | -0.25% | -0.22% | -0.11% |
| Relative Illumination | F2.0 | 38% | 45% | 50% |
| | F4.0 | 75% | 76% | 90% |
| Mount | | C- Mount | C- Mount | C- Mount |
| Dimensions | | 82.7mm x $\phi 47.5\text{mm}$ | 64.3mm x $\phi 44.6\text{mm}$ | 60.9mm x $\phi 42.6\text{mm}$ |
| Filter Thread | | M46xP0.75 | M40.5 x P0.5 | M40.5xP0.5 |
| Weight | | 251g | 173g | 170g |
| Working Temperature | | - 20°C~50°C | - 20°C~50°C | - 20°C~50°C |

Industry lenses

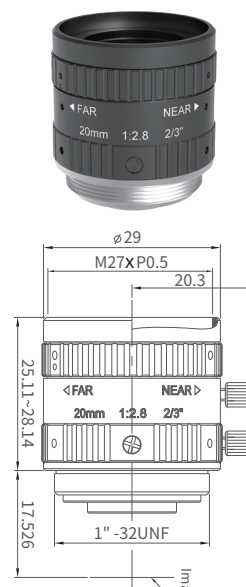
- Customized lens for code reading in logistics, cost friendly;
- High resolution , matching up to $1.85\mu\text{m}$ pixel size ;
- Low distortion , TV distortion less than 1% ;
- Small size structure suitable for system integration and installation ;
- Stable sharpness quality when temperature varies from $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$;



MH1228R



MH1628R

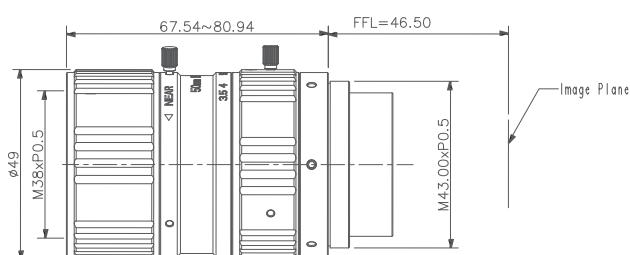


MH2028M

| Model | | MH1228R | MH1628R | MH2028M |
|-----------------------|--------------------------------|--|--|--|
| Focal Length | | 12mm | 16mm | 20mm |
| Image Circle | | $\phi 9.4\text{mm}$ | $\phi 9.4\text{mm}$ | $\phi 9.4\text{mm}$ |
| F# | | F2.8 - F13 | F2.8 - F11 | F2.8 - F16 |
| Angle of View | 1/1.7''($\phi 9.4\text{mm}$) | $42.2^{\circ} \times 34.2^{\circ} \times 26^{\circ}$ | $33.2^{\circ} \times 26.8^{\circ} \times 20.3^{\circ}$ | $25^{\circ} \times 20.1^{\circ} \times 15.1^{\circ}$ |
| | 2/3''($\phi 11\text{mm}$) | / | / | $30.8^{\circ} \times 24.8^{\circ} \times 18.7^{\circ}$ |
| Working Distance | | 0.2m to inf | 0.15m to inf | 0.2m to inf |
| TV Distortion | | 0.34% | -0.30% | 0.59% |
| Relative Illumination | F2.8 | 62% | 64% | 60% |
| | F4.0 | 90% | 86% | 86% |
| Mount | | C- Mount | C- Mount | C- Mount |
| Dimensions | | 23.8x $\phi 29\text{mm}$ | 19.5x $\phi 29\text{mm}$ | 25.11mm x $\phi 29\text{mm}$ |
| Filter Thread | | M27 x P0.5 | M27 x P0.5 | 28.14mm |
| Weight | | 38g | 35g | 47.9g |
| Working Temperature | | $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ | $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ | $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ |

31 MP full frame

- Support up to $\Phi 32\text{mm}$ camera sensors ;
- Ultra-high resolution , full-frame resolution of 31 MP camera , matching $3.45\mu\text{m}$ pixel size ;
- Ultra low distortion , TV distortion less than 0.1% ;
- Stable sharpness quality when temperature varies from $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$;

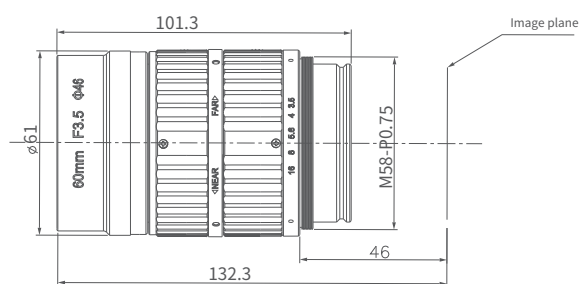


F32-5035-M43

| | | |
|-----------------------|---|--|
| Model | | F32-5035-M43 |
| Focal Length | | 50mm |
| Image Circle | | 2" ($\Phi 32\text{mm}$) |
| F# | | F3.5 - F11 |
| Angle of View | 2"($\Phi 32\text{mm}$) | $34.5^{\circ} \times 28.4^{\circ} \times 22.1^{\circ}$ |
| | $\Phi 28.6\text{mm}$ (4K- 7 μm) | 30.8° |
| FBL | | 46.5mm |
| Working Distance | | 0.2m to inf |
| TV Distortion | | 0.07% |
| Relative Illumination | F3.5 | 58% |
| | F4.0 | 63% |
| Mount | | M43xP0.5 |
| Dimensions | | 80.94mmx $\Phi 49\text{mm}$ |
| Filter Thread | | M38xP0.5 |
| Weight | | 406g |
| Working Temperature | | $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ |

65 MP full frame

- Support up to $\Phi 46\text{mm}$ camera sensors ;
- Ultra-high resolution , full-frame resolution of 65 MP camera , matching $3.2\mu\text{m}$ pixel size ;
- Ultra low distortion , TV distortion less than 0.1% ;
- Stable sharpness quality when temperature varies from $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$;



F46-6035-M58

| Model | | F46-6035-M58 |
|-----------------------|-------------------------------|--|
| Focal Length | | 60mm |
| Image Circle | | $\Phi 46\text{mm}$ |
| F# | | F3.5 - F16 |
| Angle of View | $\Phi 46\text{mm}$ | $34.9^{\circ} \times 26.7^{\circ} \times 23.1^{\circ}$ |
| | $\Phi 34.7\text{mm}$ (65MP) | $28.4^{\circ} \times 21.9^{\circ} \times 18.8^{\circ}$ |
| FBL | | 46mm |
| Working Distance | | 0.32m to inf |
| TV Distortion | | - 0.03% |
| Relative Illumination | F3.5 | 62% |
| Mount | | M58xP0.75 |
| Dimensions | | 101.3mmx $\Phi 61\text{mm}$ |
| Filter Thread | | No |
| Weight | | 503g |
| Working Temperature | | $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$ |

Accessories

Lens adapters

| Model | Camera mount | Lens mount | Thread specification | Back focal length/mm |
|------------------|--------------|------------|--------------------------------|----------------------|
| ADR-F-M42-E34.5 | M42xP1 | F-mount | M42xP1 | 34.5 |
| ADR-F-M58-E10.2 | M58xP0.75 | F-mount | M58xP0.75 | 10.2 |
| ADR-F-M72-E35.4 | M72xP0.75 | F-mount | M72xP0.75 | 35.4 |
| ADR-M12-C-E5 | C | M12 | C Mount/M12 Standard thread | 5 |
| ADR-C-M42-E5.526 | M42 | C | M42xP1/C Mount Standard thread | 5.526 |

Note: Support specifications of lens adapter

Lens filters

① Polarization filters

Polarization filter can effectively eliminate the reflection and prevent the reflection of the smooth surface from affecting the imaging effect.

| Model | Thread parameters | Transmittance | Wavelength band | Extinction ratio |
|---------------|-------------------|---------------|-----------------|------------------|
| PZ- M25.5P0.5 | M25.5 x P0.5mm | Tave>40% | 380~780nm | >1000 |
| PZ- M27P0.5 | M27 x P0.5mm | Tave>40% | 380~780nm | >1000 |
| PZ- M30.5P0.5 | M30.5 x P0.5mm | Tave>40% | 380~780nm | >1000 |
| PZ- M35.5P0.5 | M35.5 x P0.5mm | Tave>40% | 380~780nm | >1000 |
| PZ- M37P0.5 | M37 x P0.5mm | Tave>40% | 380~780nm | >1000 |
| PZ- M40.5P0.5 | M40.5 x P0.5mm | Tave>40% | 380~780nm | >1000 |
| PZ- M43P0.5 | M43 x P0.5mm | Tave>40% | 380~780nm | >1000 |

Note: Support customized specifications of polarization filter

② Color filters

The filter can cut off the interference light, selectively let part of the light pass through, make the surface color more prominent or suppress a certain color feature on the surface of the object.

| Model | Spectral specifications | Description |
|--------------------------|-------------------------|------------------------------|
| CF- M25.5P0.5- R625- 630 | 625- 630, T>85% | Red bandpass filter |
| CF- M25.5P0.5- G525- 530 | 525- 530, T>85% | Green bandpass filter |
| CF- M25.5P0.5- B465- 470 | 465- 470, T>85% | Blue bandpass filter |
| CF- M25.5P0.5- UV365 | 365, T>85% | Ultraviolet band pass filter |
| CF- M25.5P0.5- IR850 | 850, T>85% | Red bandpass filter |

Remarks: optional size, M25.5P0.5, M27P0.5, M30.5P0.5, M35.5P0.5, M37P0.5, M40.5P0.5, M43P0.5

Note: Support custom filter specifications

Appendix 1: Reference table for working distance and magnification

☉ Table 1: MH-S series (1/1.8" 3MP)

| WD/mm | MH0420S | MH0620S | MH0820S | MH1220S | MH1620S | MH2520S | MH3520S | MH5028S | MH7528S |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Mag. | Mag. | Mag. | Mag. | Mag. | Mag. | Mag. | Mag. | Mag. |
| 1200 | 0.0033 | 0.005 | 0.0067 | 0.01 | 0.013 | 0.021 | 0.029 | 0.043 | 0.063 |
| 1100 | 0.0036 | 0.0055 | 0.007 | 0.011 | 0.0145 | 0.023 | 0.032 | 0.047 | 0.068 |
| 1000 | 0.004 | 0.006 | 0.008 | 0.012 | 0.016 | 0.025 | 0.036 | 0.052 | 0.081 |
| 900 | 0.005 | 0.007 | 0.01 | 0.013 | 0.018 | 0.028 | 0.040 | 0.059 | 0.091 |
| 800 | 0.005 | 0.008 | 0.01 | 0.015 | 0.020 | 0.032 | 0.045 | 0.066 | 0.104 |
| 700 | 0.006 | 0.009 | 0.01 | 0.017 | 0.023 | 0.036 | 0.051 | 0.076 | 0.121 |
| 600 | 0.007 | 0.010 | 0.01 | 0.020 | 0.027 | 0.043 | 0.060 | 0.090 | 0.144 |
| 500 | 0.008 | 0.012 | 0.02 | 0.024 | 0.032 | 0.051 | 0.073 | 0.110 | 0.178 |
| 400 | 0.010 | 0.015 | 0.02 | 0.030 | 0.040 | 0.065 | 0.092 | 0.141 | / |
| 300 | 0.013 | 0.020 | 0.03 | 0.039 | 0.054 | 0.088 | 0.124 | 0.196 | / |
| 200 | 0.020 | 0.030 | 0.04 | 0.058 | 0.080 | 0.135 | 0.193 | / | / |
| 100 | 0.037 | 0.058 | 0.08 | 0.113 | 0.162 | 0.296 | / | / | / |

☉ Table 2: MH-SP series (1/1.8" 6MP)

| 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: '/' means the lens needs to extend the ring to ensure clear focus in the near field

☉ Table 3: MH-S series (2/3" 8MP)

| 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 (2/3" 10MP)

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

Remarks: '/' means the lens needs to extend the ring to ensure clear focus in the near field

Reference table for working distance and magnification

☉ Table 5: MH-X series (1.1" 12MP)

| WD/mm | MH1228X | MH1628X | | MH2528X | | MH3528X | | MH5028X | |
|-------|---------|---------|------|---------|------|---------|------|---------|------|
| | Mag. | Mag. | Ext. | Mag. | Ext. | Mag. | Ext. | Mag. | Ext. |
| 1000 | 0.012 | 0.016 | 0 | 0.025 | 0 | 0.034 | 0 | 0.049 | 0 |
| 900 | 0.014 | 0.017 | 0 | 0.027 | 0 | 0.037 | 0 | 0.055 | 0 |
| 800 | 0.015 | 0.019 | 0 | 0.031 | 0 | 0.042 | 0 | 0.061 | 0 |
| 700 | 0.017 | 0.022 | 0 | 0.035 | 0 | 0.048 | 0 | 0.071 | 0 |
| 600 | 0.020 | 0.026 | 0 | 0.040 | 0 | 0.056 | 0 | 0.083 | 0 |
| 500 | 0.024 | 0.031 | 0 | 0.048 | 0 | 0.068 | 0 | 0.100 | 0 |
| 400 | 0.029 | 0.038 | 0 | 0.060 | 0 | 0.085 | 0 | 0.126 | 0 |
| 300 | 0.039 | 0.050 | 0 | 0.078 | 0 | 0.114 | 0 | 0.171 | 0 |
| 200 | 0.056 | 0.073 | 0 | 0.114 | 0 | 0.171 | 0 | 0.257 | 5 |
| 100 | 0.103 | 0.137 | 0 | 0.211 | 2 | 0.033 | 5 | 0.530 | 18 |

☉ Table 6: MT-X series (1.1" 20MP)

| 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 7: MH-K series (4/3" 10MP)

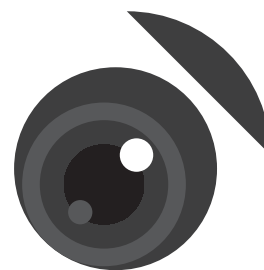
| WD/mm | MH1220K | MH1620K | MH2520K | MH3520K | MH5020K |
|-------|---------|---------|---------|---------|---------|
| | Mag. | Mag. | Mag. | Mag. | Mag. |
| 1000 | 0.012 | 0.016 | 0.026 | 0.036 | 0.050 |
| 900 | 0.013 | 0.019 | 0.029 | 0.041 | 0.055 |
| 800 | 0.015 | 0.022 | 0.032 | 0.047 | 0.062 |
| 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: '/' means the lens needs to extend the ring to ensure clear focus in the near field

Appendix 2: Camera optical parameter reference table

| Camera Series | Camera model name | Sensor model name | Number of pixels | Resolution | Pixel size/um | Image size | Image size/mm | | |
|-------------------------------|-------------------|-------------------|------------------|-------------|---------------|------------|---------------|--------|--------|
| | | | | | | | D | H | V |
| 3000 Serial Area Scan Cameras | A3051MG100E | PYTHON480 | 0.5MP | 800x600 | 4.8 | 1/3.6" | 4.80 | 3.84 | 2.88 |
| | A3135M/CG000E | RJ33J4/3CA0DT | 1.3MP | 1280x960 | 3.75 | 1/3" | 6.00 | 4.80 | 3.60 |
| | A3124MG100E | AR0135 | 1.3MP | 1280x960 | 3.75 | 1/3" | 6.00 | 4.80 | 3.60 |
| | A3124M/CG100E | PYTHON1300 | 1.3MP | 1280x1024 | 4.8 | 1/2" | 7.87 | 6.14 | 4.92 |
| | A3200M/CG004E | IMX290 | 2MP | 1920x080 | 2.9 | 1/2.8" | 6.39 | 5.57 | 3.13 |
| | A3514MG000E | MT9P031 | 5MP | 2592x1944 | 2.2 | 1/2.5" | 7.13 | 5.70 | 4.28 |
| | A3504MG100E | AR0521 | 5MP | 2592x1944 | 2.2 | 1/2.5" | 7.13 | 5.70 | 4.28 |
| | A3600MG18E | IMX178 | 6MP | 3072x2048 | 2.4 | 1/1.8" | 8.86 | 7.37 | 4.92 |
| | A3A04MG10E | MT9J003 | 10MP | 3840x2478 | 1.67 | 1/2.3" | 7.63 | 6.41 | 4.14 |
| | A3A20MG8E | IMX226 | 12MP | 4000x3000 | 1.85 | 1/1.7" | 9.25 | 7.40 | 5.55 |
| | A3B00MG000E | IMX183 | 20MP | 5472x3648 | 2.4 | 1" | 15.78 | 13.13 | 8.76 |
| 5000 Serial Area Scan Cameras | A5031MG300E | PYTHON300 | 0.3MP | 640x480 | 4.8 | 1/4" | 3.84 | 3.07 | 2.30 |
| | A5051MG200E | PYTHON500 | 0.5MP | 800x600 | 4.8 | 1/3.6" | 4.80 | 3.84 | 2.88 |
| | A5131MG75E | PYTHON1300 | 1.3MP | 1280x1024 | 4.8 | 1/2" | 7.87 | 6.14 | 4.92 |
| | A5B57MG200E | GMAX0505 | 25MP | 5120x5120 | 2.5 | 1.1" | 18.10 | 12.80 | 12.80 |
| | A5201MG50E | PYTHON2000 | 2MP | 1920x1200 | 4.8 | 2/3" | 10.87 | 9.22 | 5.76 |
| | A5501MG20E | PYTHON5000 | 5MP | 2592x2048 | 4.8 | 1" | 15.86 | 12.44 | 9.83 |
| 7000 Serial Area Scan Cameras | A7040MG000E | IMX287 | 0.4MP | 720x540 | 6.9 | 1/2.9" | 6.21 | 4.97 | 3.73 |
| | A7160MG000E | IMX273 | 1.6MP | 1440x1080 | 3.45 | 1/2.9" | 6.21 | 4.97 | 3.73 |
| | A7170MG200E | IMX432 | 1.7MP | 1604x1100 | 9 | 1.1" | 17.50 | 14.44 | 9.90 |
| | A7200MG30E | IMX249 | 2MP | 1920x1200 | 5.86 | 1/2" | 13.27 | 11.25 | 7.03 |
| | A7300MG30E | IMX265 | 3MP | 2048x1536 | 3.45 | 1/1.8" | 8.83 | 7.07 | 5.30 |
| | A7500MG20E | IMX264 | 5MP | 2448x2048 | 3.45 | 2/3" | 11.01 | 8.45 | 7.07 |
| | A7500PG400E | IMX250MZR | 5MP | 2448x2048 | 3.45 | 2/3" | 11.01 | 8.45 | 7.07 |
| | A7710MG200E | IMX428 | 7MP | 3208x2200 | 4.5 | 1.1" | 17.50 | 14.44 | 9.90 |
| | A7801MG400E | XGS8000 | 8MP | 4096x2160 | 3.2 | 1/1.1" | 14.82 | 13.11 | 6.91 |
| | A7900MG13E | IMX267 | 9MP | 4096x2160 | 3.45 | 1" | 15.98 | 14.13 | 7.45 |
| | A7A20MG9E | IMX304 | 12MP | 4096x3000 | 3.45 | 1.1" | 17.52 | 14.13 | 10.35 |
| | A7A21MG400E | XGS12000 | 12MP | 4096x3072 | 3.2 | 1" | 16.38 | 13.11 | 9.83 |
| Large Area Scan Cameras | A5A21MG9E | PYTHON12K | 12MP | 4096x3072 | 4.5 | 4/3" | 23.04 | 18.432 | 13.824 |
| | A5B51MG4E | PYTHON25K | 25MP | 5120x5120 | 4.5 | φ32.5mm | 32.58 | 23.04 | 23.04 |
| | AX7X20CT250E | IMX253 | 12MP | 4096x3000 | 3.45 | 1.1" | 17.52 | 14.13 | 10.35 |
| | AX7B96MG050E | KAI29050 | 29MP | 6576x4384 | 5.5 | φ43.5mm | 43.47 | 36.17 | 24.11 |
| | AX7C10MG250E | IMX342 | 31MP | 6464x4852 | 3.45 | φ27.8mm | 27.88 | 22.30 | 16.74 |
| | AX7D36MG050E | KAI43140 | 43MP | 8040x5360 | 4.5 | φ43.5mm | 43.48 | 36.18 | 24.12 |
| | AX5E07MG250E | | 50MP | 9344x5000 | 3.2 | φ34mm | 33.91 | 29.90 | 16.00 |
| | AX5F57MG250E | GMAX3265 | 65MP | 9344x7000 | 3.2 | φ37.4mm | 37.36 | 29.90 | 22.40 |
| | AX7Q00MK470E | IMX411 | 151MP | 14160x10640 | 3.76 | φ66.7mm | 66.60 | 53.24 | 40.01 |
| Line Scan Cameras | L5042MG141E | / | 4K | 4096 | 7 | φ28.7mm | / | 28.67 | / |
| | LH5082MG170E | / | 8K | 8192 | 7 | φ57.3mm | / | 57.34 | / |

iRAYPLE Camera SDK



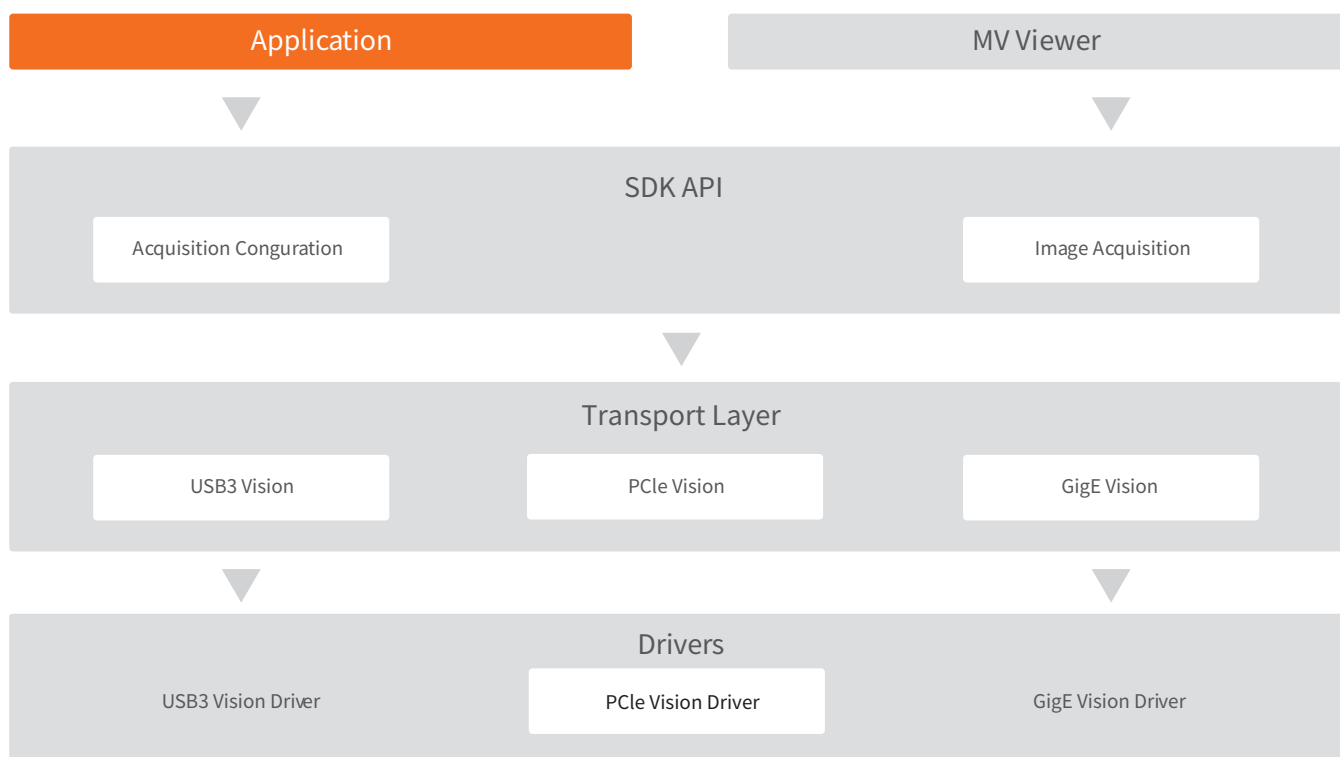
MACHINE VISION

- 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 platforms
- 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 bandwidth
- Users can use the MV Viewer to configure the camera parameters, grab, display and save the images

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



MAKE FACTORY SMARTER

※ This manual will provide accurate information as far as possible, but there may still be errors, for reference only.
Product information is subject to update without prior notice, and our company is not responsible for the resulting liability.

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