MACHINE VISION (2020.V2.0)

Turning Vision Into Productivity

Zhejiang HuaRay Technology Co.,Ltd.

Company Introduction

Zhejiang HuaRay Technology Co., Ltd., a machine vision subsidiary of Dahua Technology Co.,Ltd(SZ.002236)- one of the World-leading Video-Centric Smart IoT Solution & Service provider, is a professional company focused on machine vision product development, production and sales.

Supported by strong capability of Research & Development team from Dahua technology, advantage of technical platform that has been created and accumulated by Dahua Advanced Technical Institute, advanced management system and strict product standard, Huaray Technology reach the industry-leading in quality of image, stability of software and network, reliability and conformity of product and after-sale service.

Over 340,000m^2 advanced manufacture base, modern logistics center and mature supply chain management system build the power of develop and manufacture of HuaRay high-reliability and high-quality product.

Established on long-term accumulated video technology, HuaRay provides advanced machine vision product and solutions all over the world, covering industrial cameras, lens, vision sensors, smart industrial cameras, vision box and algorithm tools and applying in code recognition, OCR, vision measurement, location and defect detection. SMT, logistics, rail, security, 3C and semiconductor industry has effectively improved product quality, manufacture efficiency and cost efficiency by applying HuaRay product and solutions.

HuaRay has always been focusing on the technology innovation and was rated Zhejiang New High- tech Enterprise 2018. Besides, HuaRay industrial camera gained the gold award of China Good Design 2016 and IF Design Award 2018.

By the prospect of Turning Vision into Productivity, HuaRay has always been determined to be core component supplier of machine vision product and create more value for our customers.

"*" See the website：http://www.dahuasecurity.com

CONTENT

AH Series Area Scan Camera

More Complete and powerful performance

29mm × 29mm × 42mm

GiGE VISION

Model	Resolution	FPS	Bit depth	Interface	Sensor						Dimension (mm²)
					Model	Interface	Pixel size (μm²)	size	Shutter	Mono /Color	
·AH5131MG000E	1280x1024	75	10	GigE,POE	Python 1300	CMOS	4.8um	1/2”	Global	M	29*29*42
·AH3600MG000E	3072x2048	18	12	GigE,POE	IMX178	CMOS	2.4um	1/1.8”	Rolling	M	29*29*42
·AH5201MG000E	1920x1200	50	10	GigE,POE	Python 2000	CMOS	4.8um	2/3”	Global	M	29*29*42
·AH3A04MG000E	3840x2748	10	12	GigE,POE	MT9J003	CMOS	1.67um	1/2.3”	Rolling	M	29*29*42
·AH7500MG000E	2448x2048	23	12	GigE,POE	IMX264	CMOS	3.45um	2/3”	Global	M	29*29*42
·AH5031MG000E	640x480	300	10	GigE,POE	Python 300	CMOS	4.8um	1/4”	Global	M	29*29*42
·AH3504MG000E	2592x1944	23	12	GigE,POE	AR0521	CMOS	2.2um	1/2.5”	Rolling	M	29*29*42
·AH3B00MG000E	5472x3648	5.8	10	GigE,POE	IMX183	CMOS	2.4um	1”	Rolling	M	29*29*42

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

29mm × 29mm × 42mm

- Support wide resolution range, covering 0.3MP~20MP
- Apply CMOS sensor; Support global/rolling shutter
- Support powerful ISP algorithms
- Support Burst Mode,Sequence Mode
- Support Autofuction
- Support ROI
- Support Shutter Mode,Partial models support Global Reset
- Support FPN, SPC,Partial models support FFC
- Compatible with GigE Vision protocol, GenICam standard
- Conform to CE,FCC and ROHS certifications
- Superior cost efficiency

29mm × 29mm × 42mm

3000 Series Area Scan Camera

Superior cost efficiency

29mm×29mm×29mm

GiGE VISION USB3 VISION

Model	Resolution	FPS	Bit depth	Interface	Sensor						Dimension (mm²)
					Model	Interface	Pixel size (μm²)	Sensor size	Shutter	Mono /Color	
A3051MG100E	800x600	120	10	GigE	PYTHON480	CMOS	4.8x4.8	1/3.6"	Global	M	29x29x29
A3051M/CG000E	800x600	120	10	GigE,POE	PYTHON480	CMOS	4.8x4.8	1/3.6"	Global	M/C	29x29x42
A3135M/CG000E	1280x960	30	14	GigE,POE	RJ33J4/3CA0DT	CCD	3.75x3.75	1/3"	Global	M/C	29x29x42
A3124M/CG100E	1280x960	54	12	GigE	AR0135	CMOS	3.75x3.75	1/3"	Global	M/C	29x29x29
A3131MG100E	1280x1024	60	10	GigE	PYTHON 1300	CMOS	4.8x4.8	1/2"	Global	M	29x29x29
A3131M/C000E	1280x1024	60	10	GigE,POE	PYTHON 1300	CMOS	4.8x4.8	1/2"	Global	M/C	29x29x42
A3200MG004E	1920x1080	22	10	GigE,POE	IMX290	CMOS	2.9x2.9	1/2.8"	Rolling	M	29x29x42
A3200CG000E	1920x1080	22	10	GigE,POE	IMX290	CMOS	2.9x2.9	1/2.8"	Rolling	C	29x29x42
A3514MG000E	2592x1944	12	10	GigE,POE	MT9P031	CMOS	2.2x2.2	1/2.5"	Rolling	M	29x29x42
A3504M/CG100E	2592x1944	23	12	GigE	AR0521	CMOS	2.2x2.2	1/2.5"	Rolling	M/C	29x29x29
A3600MG100E	3072x2048	18	12	GigE	IMX178	CMOS	2.4x2.4	1/1.8"	Rolling	M	29x29x29
A3600M/CG18E	3072x2048	18	12	GigE,POE	IMX178	CMOS	2.4x2.4	1/1.8"	Rolling	M/C	29x29x42
A3A04MG10E	3840x2748	10	12	GigE,POE	MT9J003	CMOS	1.67x1.67	1/2.3"	Rolling	M	29x29x42
A3A20M/CG8E	4000x3000	9	12	GigE,POE	IMX226	CMOS	1.85x1.85	1/1.7"	Rolling	M/C	29x29x42
A3B00M/CG000E	5472x3648	5.8	10	GigE,POE	IMX183	CMOS	2.4x2.4	1"	Rolling	M/C	29x29x42
A3138M/CU000E	1280x1024	201	10	USB3.0	SS	CMOS	4.0X4.0	1/2.7"	Global	M/C	29x29x29
A3135M/CU000E	1280 x 960	33	14	USB 3.0	RJ33J4/3CA0DT	CCD	3.75x3.75	1/3"	Global	M/C	29x29x29
A3200CU000E	1920x1080	120	10	USB 3.0	IMX290	CMOS	2.9x2.9	1/2.8"	Rolling	C	29x29x29
A3600M/CU60E	3072x2048	60	10	USB 3.0	IMX178	CMOS	2.4x2.4	1/1.8"	Rolling	M/C	29x29x29
A3A20M/CU24E	4000x3000	30	10	USB 3.0	IMX226	CMOS	1.85x1.85	1/1.7"	Rolling	M/C	29x29x29
A3B00M/CU000E	5472x3648	20	10	USB 3.0	IMX183	CMOS	2.4x2.4	1"	Rolling	M/C	29x29x29

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 certifications
- Superior cost efficiency

29mm×29mm×42mm

29mm×29mm×29mm

5000 Series Area Scan Camera

Outstanding image quality

29mm×29mm×42mm

Model	Resolution	FPS	Bit depth	Interface	Sensor						Dimension (mm²)
					Model	Type	Pixel size (μm²)	Sensor size	Shutter	Mono /Color	
A5031M/CG300E	640x480	300	10	GigE,POE	PYTHON300	CMOS	4.8x4.8	1/4"	Global	M/C	29x29x42
A5051M/CG200E	800x600	200	10	GigE,POE	PYTHON500	CMOS	4.8x4.8	1/3.6"	Global	M/C	29x29x42
A5131M/CG75E	1280x1024	75	10	GigE,POE	PYTHON1300	CMOS	4.8x4.8	1/2"	Global	M/C	29x29x42
A5201M/CG50E	1920x1200	50	10	GigE,POE	PYTHON2000	CMOS	4.8x4.8	2/3"	Global	M/C	29x29x42
A5501M/CG20E	2592x2048	20	10	GigE,POE	PYTHON5000	CMOS	4.8x4.8	1"	Global	M/C	29x29x42
A5B57M/CG200E	5120x5120	4	12	GigE,POE	GMAX0505	CMOS	2.5x2.5	1.1"	Global	M/C	29x44x58
A5031M/CU815E	640x480	815	10	USB 3.0	PYTHON300	CMOS	4.8x4.8	1/4"	Global	M/C	29x29x29
A5051M/CU545E	800x600	545	10	USB 3.0	PYTHON500	CMOS	4.8x4.8	1/3.6"	Global	M/C	29x29x29
A5131M/CU210E	1280x1024	208	10	USB 3.0	PYTHON1300	CMOS	4.8x4.8	1/2"	Global	M/C	29x29x29
A5201M/CU150E	1920x1200	150	10	USB 3.0	PYTHON2000	CMOS	4.8x4.8	2/3"	Global	M/C	29x29x29
A5501M/CU60E	2592x2048	60	10	USB 3.0	PYTHON5000	CMOS	4.8x4.8	1"	Global	M/C	29x29x29
A5B57MU200E	5120x5120	14	12	USB3.0	GMAX0505	CMOS	2.5x2.5	1.1"	Global	M	29x44x58
A5201M/CK402E	1920x1200	37.8	10	CameraLink	PYTHON2000	CMOS	4.8x4.8	2/3"	Global	M/C	29x29x43.8

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 certifications
- Excellent image quality

29mm×29mm×42mm

29mm×29mm×29mm

7000 Series Area Scan Camera

Extraordinary image quality and preformance

29mm×29mm×42mm

Model	Resoution	FPS	Bit depth	Interface	Sensor						Dimension (mm²)
					Model	Type	Pixel size (μm²)	Sensor size	Shutter	Mono /Color	
A7040M/CG000E	720x540	300	12	GigE,POE	IMX287	CMOS	6.9x6.9	1/2.9"	Global	M/C	29x29x42
A7160M/CG000E	1440x1080	77	12	GigE,POE	IMX273	CMOS	3.45x3.45	1/2.9"	Global	M/C	29x29x42
A7170M/CG200E	1604x1100	66	12	GigE,POE	IMX432	CMOS	9.0x9.0	1.1"	Global	M/C	29x44x58
A7200M/CG30E	1920x1200	38.7	12	GigE,POE	IMX249	CMOS	5.86x5.86	1/1.2"	Global	M/C	29x29x42
A7300M/CG30E	2048x1536	36	12	GigE,POE	IMX265	CMOS	3.45x3.45	1/1.8"	Global	M/C	29x29x42
A7500M/CG20E	2448x2048	23	12	GigE,POE	IMX264	CMOS	3.45x3.45	2/3"	Global	M/C	29x29x42
A7500PG400E	2448x2048	24	12	GigE,POE	IMX250MZR	CMOS	3.45x3.45	2/3"	Global	P	29x29x42
A7710M/CG200E	3208x2200	17	12	GigE,POE	IMX428	CMOS	4.5x4.5	1.1"	Global	M/C	29x44x58
A7801MG400E	4096x2160	13	12	GigE,POE	XGS8000	CMOS	3.2x3.2	1/1.1"	Global	M	29x29x42
A7900M/CG13E	4096x2160	13	12	GigE,POE	IMX267	CMOS	3.45x3.45	1"	Global	M/C	29x44x58
A7A20M/CG9E	4096x3000	9	12	GigE,POE	IMX304	CMOS	3.45x3.45	1.1"	Global	M/C	29x44x58
A7A21MG400E	4096x3072	9	12	GigE,POE	XGS12000	CMOS	3.2x3.2	1"	Global	M	29x29x42
A7040M/CK402E	720x540	349.4	10	CameraLink	IMX287	CMOS	6.9x6.9	1/2.9"	Global	M/C	29x29x43.8
A7300MK200E	2048x1536	188	10	CameraLink	IMX252	CMOS	3.45x3.45	1/1.8"	Global	M	29x44x58
A7500M/CK200E	2448x2048	150	10	CameraLink	IMX250	CMOS	3.45x3.45	2/3"	Global	M/C	29x44x58
A7500MK402E	2448x2048	30.2	12	CameraLink	IMX264	CMOS	3.45x3.45	2/3"	Global	M	29x29x43.8
·A7A20MK401E	4096x3000	20	12	CameraLink	IMX304	CMOS	3.45x3.45	1.1"	Global	M	29x29x43.8
·A7A21MK401E	4096x3072	18	12	CameraLink	XGS12000	CMOS	3.2x3.2	1"	Global	M	29x29x43.8
·A7A21MK200E	4096x3072	56	12	CameraLink	XGS12000	CMOS	3.2x3.2	1"	Global	M	29x44x58

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

Model	Resoution	FPS	Bit depth	Interface	Sensor						Dimension (mm²)
					Model	Type	Pixel size (μm²)	Sensor size	Shutter	Mono /Color	
A7040M/CU000E	720 x 540	439	10	USB 3.0	IMX287	CMOS	6.9 x 6.9	1/2.9"	Global	M/C	29x29x29
A7200MU001E	1920x1200	38.7	12	USB 3.0	IMX249	CMOS	5.86x5.86	1/1.2"	Global	M	29x29x29
A7200M/CU130E	1920x1200	164	10	USB 3.0	IMX174	CMOS	5.86x5.86	1/1.2"	Global	M/C	29x29x29
A7300M/CU90E	2048x1536	120	10	USB 3.0	IMX252	CMOS	3.45x3.45	1/1.8"	Global	M/C	29x29x29
A7500M/CU35E	2448x2048	35	12	USB 3.0	IMX264	CMOS	3.45x3.45	2/3"	Global	M/C	29x29x29
A7500M/CU75E	2448x2048	75	10	USB 3.0	IMX250	CMOS	3.45x3.45	2/3"	Global	M/C	29x29x29
A7900M/CU200E	4096x2160	40	10	USB 3.0	IMX255	CMOS	3.45x3.45	1"	Global	M/C	29x44x58
A7900M/CU201E	4096x2160	32	12	USB 3.0	IMX267	CMOS	3.45x3.45	1"	Global	M/C	29x44x58
A7A20M/CU30E	4096x3000	30	10	USB 3.0	IMX253	CMOS	3.45x3.45	1.1"	Global	M/C	29x44x58
A7A20M/CU201E	4096x3000	23	12	USB 3.0	IMX304	CMOS	3.45x3.45	1.1"	Global	M/C	29x44x58

- 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 certifications
- Extraordinary image quality

29mm×29mm×29mm

29mm×44mm×58mm

Board-level Industrial Camera

Compact design enables easy integration

Board-level HCON Industrial Camera

Complete functions are avaliable on merely one compact-deisgn board

Suitable for embedded product development

Superior cost efficiency

Apply CMOS sensor with global shutter and rolling shutter

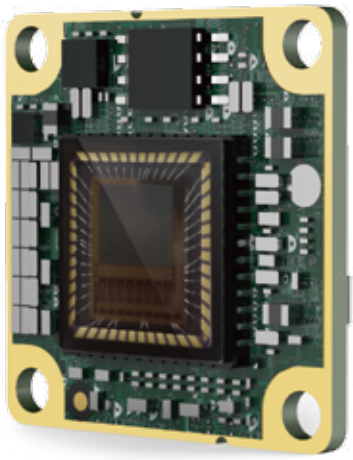
High frame rate enables output mode of single and double pixel

Easy Installation, one FPC cable supports power supply & data transmission

Provide code of dirver for HCON interface

Provide full suite of development documents

Support SPC



Model	Resolution	FPS	Bit depth	Interface	Sensor						Dimension (mm^2)
					Model	Type	Pixel size (μm^2)	Sensor size	Shutter	Mono	
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	2448x 2048	30	12	HCON	IMX264	CMOS	3.45 x 3.45	2/3"	Global	M	26x40
AB7500CH080E	2448x 2048	30	12	HCON	IMX264	CMOS	3.45 x 3.45	2/3"	Global	C	26x40

Board-level GigE Industrial Camera

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

USB3.0 Board-level camera

- Compact structure, integrated in 35x25x19 dimension (not including lens mount and rear case connector);
- Support C/M12 lens;
- Support 4-side fixing on camera with structure;
- Support strong ISP algorithms;
- Support FPN and SPC correction;
- Compatible with USB3.0 Vision protocol and GenICam standard;
- Conform to CE, FCC and ROHS certifications;
- Superior cost performance;

Model	Resolution	FPS	Bit depth	Interface	Sensor						Dimension (mm²)
					Model	Type	Pixel size (μm²)	Sensor size	Shutter	Color /Mono	
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	1280 x 1024	60	10	GigE	PYTHON1300	CMOS	4.8 x 4.8	1/2"	Global	M	55x55x14
AB3A04MG10E	3840 x 2748	10	12	GigE	MT9J003	CMOS	1.67x1.67	1/2.3"	Rolling	M	55x55x14
AB3600M/CU000E	3072 x 2048	60	10	USB3.0	IMX 178	COMS	2.4x2.4	1/1.8"	Rolling	M/C	35x35x19
AB3600CU010E	3072 x 2048	60	10	USB3.0	IMX 178	COMS	2.4x2.4	1/1.8"	Rolling	C	35x35x19
AB3138MU000E	1280 x 1024	201	10	USB3.0	SS	COMS	4.0x4.0	1/2.7"	Global	M	35x35x19
AB5131M/CU000E	1280 x 1024	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	1/3.6"	Global	M	55x55x14

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

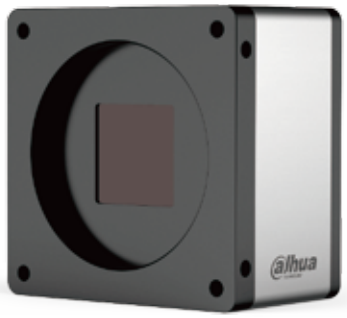
Large Area Scan Camera Series

High resolution & High frame rate

100mm × 100mm × 58mm

Model	Resolution	FPS	Bit depth	Interface	Sensor						Dimension (mm²)	Lens
					Model	Type	Pixel size (μm²)	Sensor size	Shutter	Mono		
A5A21M/CG9E	4096x3072	9	10	GigE	PYTHON12K	CMOS	4.5x4.5	4/3"	Global	M/C	76x76x46	M58(FBL 12.3)
A5B51M/CG4E	5120x5120	4	10	GigE	PYTHON25K	CMOS	4.5x4.5	23.0×23.0	Global	M/C	76x76x46	M58(FBL 12.3)
*AX5B51M/CT250E	5120x5120	43	10	10GigE	PYTHON 25K	CMOS	4.5x4.5	23.0×23.0	Global	M/C	72x72x78	M58(FBL 12)
AX7A20CT250E	4096x3000	68	10	10GigE	IMX253	CMOS	3.45x3.45	1.1"	Global	C	72x72x78	M58(FBL 12)
AX7B96MG050/1E	6576x4384	4	14	GigE	KAI29050	CCD	5.5x5.5	36.2×24.1	Global	M	72x72x53	M58(FBL 12)
AX7B96MG060/1E	6576x4384	4	14	GigE	KAI29050	CCD	5.5x5.5	36.2×24.1	Global	M	72x72x53	F
AX7C10M/CG250E	6464x4852	3.6	12	GigE	IMX342	CMOS	3.45x3.45	22.3×16.6	Global	M/C	72x72x64	M58(FBL 12)
AX7D36MG050E	8040x5360	2.6	14	GigE	KAI43140	CCD	4.5x4.5	36.2×24.1	Global	M	72x72x53	M58(FBL 12)
AX7D36MG060E	8040x5360	2.6	14	GigE	KAI43140	CCD	4.5x4.5	36.2×24.1	Global	M	72x72x53	F
AX5E07MG250E	9344x5000	2.6	10	GigE	Costomized	CMOS	3.2x3.2	29.9×16.0	Global	M	72x72x65	M58(FBL 12)
AX5F57MG250E	9344x7000	1.7	10	GigE	GMAX3265	CMOS	3.2x3.2	29.9×22.4	Global	M	72x72x65	M58(FBL 12)
AX7B96MK050/1E	6576x4384	4.3	14	CameraLink	KAI29050	CCD	5.5 x 5.5	36.2×24.1	Global	M	72x72x53	M58(FBL 12)
AX7B96MK060/1E	6576x4384	4.3	14	CameraLink	KAI29050	CCD	5.5 x 5.5	36.2×24.1	Global	M	72x72x53	F
AX7C10M/CK250E	6240x4848	24.8	12	CameraLink	IMX342	CMOS	3.45x3.45	22.3×16.6	Global	M/C	72x72x64	M58(FBL 12)
AX5E07MK250E	9280x5000	17.6	10	CameraLink	Costomized	CMOS	3.2x3.2	29.9×16.0	Global	M	72x72x65	M58(FBL 12)
AX5F57M/CK250E	9280x7000	12.6	10	CameraLink	GMAX3265	CMOS	3.2x3.2	29.9×22.4	Global	M/C	72x72x65	M58(FBL 12)
AX7Q00MK470E	14160x10640	5.1	12	CameraLink	IMX411	CMOS	3.76x3.76	53.4×40.0	Rolling	M	100x100x58	M72(FBL 12)
AX5A22M/CX050E	4096x3072	188	12	CoaXPress- 6	CMV12000	CMOS	5.5x5.5	22.5×16.9	Global	M/C	72x72x72	M58(FBL 12)
AX5A22M/CX060E	4096x3072	188	12	CoaXPress- 6	CMV12000	CMOS	5.5x5.5	22.5×16.9	Global	M/C	72x72x72	F
AX5A22M/CX340E	4096x3072	188	12	CoaXPress- 6	CMV12000	CMOS	5.5X5.5	22.5×16.9	Global	M/C	80x80x47	M42(FBL 12)
AX5E02M/CX150E	7920x6004	30	12	CoaXPress- 6	CMV50000	CMOS	4.6x4.6	36.4×27.6	Global	M/C	72x72x96	M58(FBL 12)
AX5E02M/CX160E	7920x6004	30	12	CoaXPress- 6	CMV50000	CMOS	4.6x4.6	36.4×27.6	Global	M/C	72x72x96	F
*AX7Q10MX470E	14160x10640	6.1	12	CoaXPress- 6	IMX411	CMOS	3.76x3.76	53.4×40.0	Rolling	M	100x100x58	M72(FBL 12)
A9B57M/CX250E	5120x5120	90	12	CoaXPress- 6	GMAX0505	CMOS	2.5x2.5	1.1"	Global	M/C	72x72x68	M58(FBL 12)
A9B57M/CP050E	5120x5120	150	12	CoaXPress-12	GMAX0505	CMOS	2.5x2.5	1.1"	Global	M/C	80x80x72	M58(FBL 12)
*A9B57MP340E	5120x5120	150	12	CoaXPress-12	GMAX0505	CMOS	2.5x2.5	1.1"	Global	M/C	80x80x65	M42(FBL 12)

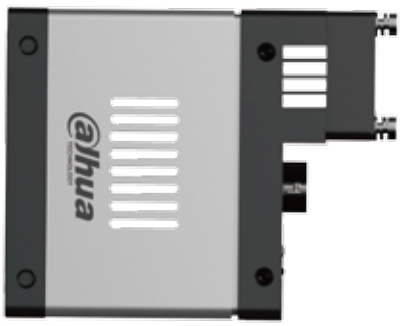
Note: Models with Symbol "*" are latest-released products.



76mm × 76mm × 46mm

72mm × 72mm × 96mm

- Compatible with GigE Vision protocol, Cameralink prococol,CoaXPress protocol and GenICam standard
- Support wide resolution range, covering 12MP~151MP
- Support long distance transmission on GigE interface
- Support Base, Medium and Full modes on Cameralink interface
- Support 4-channel CXP-6 or CXP-12 data output on CoaXPress interface
- Apply high frame rate CMOS sensor with global shutter and high image quality CCD sensor with global shutter
- Static correction, dynamic merge, shutter line reduction and smear suppression are supported on CCD cameras
- FFC function is supported in CMOS cameras
- Support SPC and customized spoiled pixel import
- Support wide range of power supply



72mm × 72mm × 64mm

72mm × 72mm × 64mm

Line Scan Camera Series

High resolution & High line rate

62mm×62mm×35mm

Model	Resolution	Line rate (Hz)	Bit depth	Interface	Sensor			Dimension (mm^2)	Lens
					Type	Pixel size (μm^2)	Mono /Color		
*L5022MG141E	2048x1	49K	8	GigE	CMOS	14x14	M	62x62x35.3	M42（FBL 12）
*L5022CG141E	2048x2	49K	8	GigE	CMOS	14x14	C	62x62x35.3	M42（FBL 12）
*L5027MG141E	2048x1	49K	8	GigE	CMOS	14x14	M	62x62x43.5	M42（FBL 12）
*L5027CG141E	2048x2	49K	8	GigE	CMOS	14x14	C	62x62x43.5	M42（FBL 12）
*L5042MG141E	4096x1	25K	8	GigE	CMOS	7x7	M	62x62x35.3	M42（FBL 12）
*L5042CG141E	4096x2	25K	8	GigE	CMOS	7x7	C	62x62x35.3	M42（FBL 12）
*L5047MG141E	4096x1	25K	8	GigE	CMOS	7x7	M	62x62x43.5	M42（FBL 12）
*L5047CG141E	4096x2	25K	8	GigE	CMOS	7x7	C	62x62x43.5	M42（FBL 12）
LH5082MG170E	8192x1	13K	12	GigE	CMOS	7x7	M	80x80x48	M72（FBL 12）
LH5087MK170E	8192x1	70K	8	Cameralink	CMOS	5x5	M	80x80x50	M72（FBL 12）
LH5087CK170E	8192x2	35K	8	Cameralink	CMOS	5x5	C	80x80x50	M72（FBL 12）
LH5082MK170E	8192x1	70K	12	CameraLink	CMOS	7x7	M	80x80x48	M72 (FBL 12)

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

125mm×60mm×35mm

100mm×156mm×36mm

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

62mm×62mm×29.4mm

Movidius Smart Camera Series

Abundant algorithms & Wide range of applications

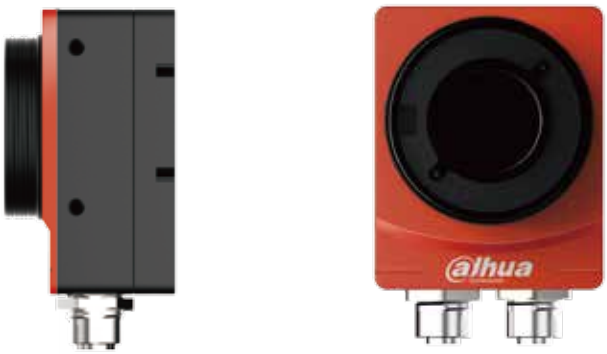
68mm×55mm×28mm

Model	Resolution	FPS	Interface	Sensor					Dimension (mm²)
				Type	Pixel size (μm²)	Sensor size	Shutter	Mono /Color	
S5051MG000E	800x600	60	GigE	CMOS	4.8x4.8	1/3.6"	Global	M	68X55X28
S5131MG000E	1280X1022	60	GigE	CMOS	4.8x4.8	1/2"	Global	M	68X55X28
S5201MG000E	1920X1200	45	GigE	CMOS	4.8x4.8	2/3"	Global	M	68X55X28
S5501MG000E	2592X2046	20	GigE	CMOS	4.8x4.8	1"	Global	M	68X55X28
S5600MG000E	3072X2048	15	GigE	CMOS	2.4X2.4	1/1.8"	Rolling	M	68X55X28
S5A20MG000E	4000X3000	15	GigE	CMOS	1.85X1.85	1/1.7"	Rolling	M	68X55X28
S5B00MG000E	5460X3648	15	GigE	CMOS	2.4X2.4	1"	Rolling	M	68X55X28

Note: 1. Models with symbol "*" are latest-released products;
2. Complete model includes prefix "DH-MV-", such as DH-MV-S5B00MG000.

68mm×55mm×28mm

- Support 0.5MP~20MP, global/rolling shutter, CMOS series products
- Support software trigger/hardware trigger/free run mode etc
- GigE industrial interface
- Support RS232/RS485, maximum 3 Opto-isolated inputs and 3 Opte-isolated outputs
- Support C/M12 mount lens
- Industrial-grade M12 Connector，IP67 protection level with lens cap
- Support DC8V~26V wide-range power supply
- Support abundant algorithms including ID,Pattern-Match,locating and OCR etc.



75mm×62mm×35mm

Movidius Smart Camera Series Built-in-illumination

Abundant algorithms & Wide range of applications

- Support 0.5MP~6MP, global/rolling shutter, CMOS series products
- Support software trigger/hardware trigger/free run mode etc.
- GigE Industrial interface
- Support RS232/RS485, maximum 3 Opto-isolated inputs and 3 Opto-isolated outputs
- Support C-mount lens. Optional lens and light,delault is white light. Light color and angle have multiple selections
- Industrial-grade M12 Connector，IP67 protection level can be reached if lens cap is used
- Support DC24V power supply
- Abundant code reading algorithms, including Code128/Code39/Code93/EAN/CodaBar/QR/DM etc.

Model	Resolution	FPS	Interface	Sensor					Dimension (mm²)
				Type	Pixel size (μm²)	Sensor size	Shutter	Color /Mono	
S5051MG001E	800X600	60	GigE	CMOS	4.8X4.8	1/3.6"	Global	M	81.5X72X86
S5131MG001E	1280X1024	60	GigE	CMOS	4.8X4.8	1/2"	Global	M	81.5X72X86
S5201MG001E	1920X1200	45	GigE	CMOS	4.8X4.8	2/3"	Global	M	81.5X72X86
S5501MG001E	2592X2048	20	GigE	CMOS	4.8X4.8	1"	Global	M	81.5X72X96
S5600MG001E	3072X2048	15	GigE	CMOS	2.4X2.4	1/1.8"	Rolling	M	81.5X72X86

Note：1.Models with symbol “*” are latest-released prodouts;
2.Full product Models need prefix" DH-MV- ";
3. Different lens heights will vary,optional lens.

X86 Smart Camera Series

High expensibility & practical performance

- Support Win10, support secondary development based on HuaRay
- Support VGA/USB interface and extended keyboard/mouse connection
- CMOS series product covering 1.3MP~20.0MPresolution
  Support Golbal/Rolling shutter
- 4G/8G RAM& 64G/128G SSD
- Optional standard 2.5mm audio interface
- Support software trigger/hardware trigger/free run mode
- GigE interface provides maximum 1G bps bandwidth
- Support RS232 or RS485, 3 opto-isolated inputs
  and 3 opto-isolated outputs
- Support C/M12 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

Model	Resolution	FPS	Interface	Sensor					Dimension (mm²)
				Type	Pixel size (μm²)	Sensor size	Shutter	Mono /Color	
SI5131MG000E	1280X1024	190	GigE	CMOS	4.8X4.8	1/2"	Global	M	62*69*132.2
SI5201MG000E	1920X1200	150	GigE	CMOS	4.8X4.8	2/3"	Global	M	62*69*132.2
SI5501MG000E	2592X2046	20	GigE	CMOS	4.8X4.8	1"	Global	M	62*69*132.2
SI5500MG000E	2448X2048	35	GigE	CMOS	3.45X3.45	2/3"	Global	M	62*69*132.2
SI5600MG000E	3072X2048	30	GigE	CMOS	2.4X2.4	1/1.8"	Rolling	M	62*69*132.2
SI5A20MG000E	4000X3000	20	GigE	CMOS	1.85X1.85	1/1.7"	Rolling	M	62*69*132.2
SI5B00MG000E	5472X3648	21	GigE	CMOS	2.4X2.4	1"	Rolling	M	62*69*132.2

Note: 1. Models with symbol "*" are latest-released products;
2. Complete model includes the prefix "DH-MV-".

X86 Smart Camera Series

High expensibility & practical performance

Embedded Huaray self-developed algorithm platform, with a wealth of algorithm tools, can be used for detection, positive and negative detection, positioning guidance, defect detection, size measurement and other scenarios.

- Support VGA/USB interface and extended keyboard/mouse connection
- Support 1.3MP～20MP, global shutter, CMOS series products
- 4G RAM and 64G SSD memory
- Support software trigger/hardware trigger/free run mode
- GigE interface provides maximum 1Gbps bandwidth
- Support software trigger/hardware trigger/free run mode
- Support C/M12 lens and optional built-in illumination
- Industrial-grade M12 connector, IP67 protection level
- Suitable for industrial DC24V environment

Model	Resolution	FPS	Interface	Sensor					Dimension (mm²)
				Type	Pixel size (μm²)	Sensor size	Shutter	Color /Mono	
SI5131MG002E	1280X1024	190	GigE	CMOS	4.8X4.8	1/2"	Global	M	62*69*132.2
SI5201MG002E	1920X1200	150	GigE	CMOS	4.8X4.8	2/3"	Global	M	62*69*132.2
SI5501MG002E	2592X2046	20	GigE	CMOS	4.8X4.8	1"	Global	M	62*69*132.2
SI5500MG002E	2448X2048	35	GigE	CMOS	3.45X3.45	2/3"	Global	M	62*69*132.2
SI5600MG002E	3072X2048	30	GigE	CMOS	2.4X2.4	1/1.8"	Rolling	M	62*69*132.2
SI5A20MG002E	4000X3000	20	GigE	CMOS	1.85X1.85	1/1.7"	Rolling	M	62*69*132.2
SI5B00MG002E	5472X3648	21	GigE	CMOS	2.4X2.4	1"	Rolling	M	62*69*132.2

Note: 1. Models with symbol "*" are latest-released products
2. Complete model includes prefix "DH-MV-"

X86 Vision Controller

X86 Vision Controller

Abundant interfaces, excellent compatibility

- Intel atom-E3940 processor
- 4G/8G RAM, 64G/128G SSD
- Multi-interface design, selectable 4 GigE ports, 4 USB3.0 ports, 8 IN & 8 OUT I/O port, 4 illumination modules
- Support 1080P video output on VGA/HDMI
- Professional heat dissipation design and structure design

Model	V5102A000E	V5101A000E	V5100A000E	V5000A000E
Processor	Intel atom x5- E3940 processor			
RAM	4GB LPDDR4			
Display interface	HDMI, VGA			
Net interface	6 GigE interfaces	6 GigE interfaces	6 GigE interfaces	2 GigE interfaces
SSD	128G SSD			
USB interface	2 USB2.0，2 USB3.0			
Serial interface	1 RS232，1 RS485			
GPIO	8 inputs & 8 outputs	4 inputs & 4 outputs	None	None
Strobe interface	4 outputs @ 24V1A	2 outputs @ 24V1A	None	None
Audio interface	3.5mm Audio output			
Power supply	DC24V			
Power consumption	⩽ 25W（Not including light） ⩽129W（including light）	⩽25W（Not including light） ⩽77W（including light）	⩽25W	⩽25W
Operating temperature	0~50°C			
Supported OS	Win10，Linux			
Dimension	125x108.8x147.5mm			

3000 Series Code Reader

Efficient reading performance
Adapt to various environments

- Embedded code reading algorithm enables fast decode rate and high accuracy;
- Embedded aviation plug, abundant IO interfaces;
- 5 LED indicators for system configuration and status monitoring;
- Support multiple UserSets to save/load/switch;
- Apply M12 prime lens which supports code reading in large FOV ;
- Excellent build-in illumination design enables uniformed lighting environment;
- Support reading Code128/Code39/Code93/EAN/CodaBar/QR/DM.

Model	Resolution	FPS	Interface	Sensor					Dimension (mm²)
				Type	Pixel size (μm²)	Sensor size	Shutter	Color /Mono	
R3051MG011E	800×600	60	GigE	CMOS	4.8 μm×4.8 μm	1/3.6"	Global	M	60mm×68mm×43mm

Note: 1. Models with symbol "*" are latest-released product;
2.Complete model includes prefix "DH-MV-".
3. Different lens has different altitude. Lens has multiple selections;

7000 Serial Code Reader

High-rate decoding , Large fov

- Embedded deep-learning and other powerful algorithms
- CMOS series products provide high-rate acquisition and high-quality image
- Support software trigger/hardware trigger/free run mode etc.
- GigE Industrial interface
- Support RS232/RS485 and 1 Opto-isolated inputs, 3 Opte-isolated outputs
- Industrial-grade M12 Connector, IP67 protection level with lens cap
- Support DC24V power supply
- Abundant code reading algorithm, including Code128/Code39/Code93/EAN/CodaBar/QR/DM etc.

Model	Resolution	FPS	Interface	Sensor					Dimension (mm²)
				Type	Pixel size (μm²)	Sensor size	Shutter	Color /Mono	
RH7B00MG000E	5440X3648	15	Gige	CMOS	2.4X2.4	1"	Rolling	M	117X69X43

Note: 1. Models with symbol "*" are latest-released product;
2.Complete model includes prefix "DH-MV-".

AGV Code Reader Series

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 IO interfaces

5 LED indicators for debugging and status monitoring

Support multiple groups of UserSets to save/load or switch

M12 prime lens help code reading in large FOV

Excellent build-in illumination design enables uniformed lighting environment

Model	Resolution	FPS	Interface	Sensor					Dimension (mm²)
				Type	Pixel size (μm²)	Sensor size	Shutter	Color /Mono	
R3051MG010E	800×600	100	GigE	CMOS	4.8 μm×4.8 μm	1/3.6"	Global	M	60mm×68mm×43mm

Note: 1. Models with symbol "*" are latest-released product;
2.Complete model includes prefix "DH-MV-".

Intelligent Reader

Efficient code reading performance & High frame rate

- Simple installation, easy operation
- The maximum transmission distance of Gigabit Ethernet interface can reach 100m.
- Support software trigger / external trigger / free run and other trigger modes.
- Rich IO interface
- C-mount lens support
- Integrated cable, Application environment of DC24V
- Built in code reading algorithm, High recognition rate of algorithm, High speed.
- 24 high brightness Cree LED lamps with overall brightness greater than 3000lux, Even light.
- Comply with CE certification.

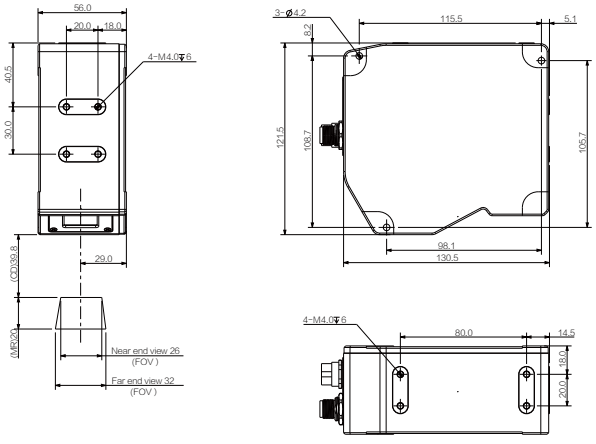
Model	Resolution	FPS	Interface	Sensor					Dimension (mm²)
				Type	Pixel size (μm²)	Sensor size	Shutter	Color /Mono	
DH-SL2460R-S1	3072X2048	15	Gige	CMOS	2.4X2.4	1/1.8"	Rolling	M	154.5X154.5X128
DH-SL24A2R-S1	4000X3000	15	Gige	CMOS	1.85X1.85	1/1.7"	Rolling	M	154.5X154.5X128

3D Laser Line Profile Sensor

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

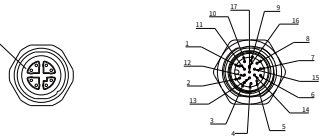
Model	D5201MG221E(D5221)
Data Points / Profile	1920
Field of View (mm)	26 - 32
Resolution X(mm)(profile data interval)	0.014-0.017
Resolution Z (mm)	0.002-0.0035
Repeatability Z(μm)	0.8
Clearance Distance (CD)(mm)	52
Measurement Range MR(mm)	20
Laser Class	2M（blue light, 405nm）
Dimension	55*120*130
Weight	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 volument 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	
6	OPT_OUT0	Opto-isolated output 0	Opto-isolated output
7	OPT_OUT1	Opto-isolated output 1	
8	OPT_OUT_GND	Opto-isolated output GND	
9	LASER_STOP	Laser stop urgently	Laser stop urgently
10	LASER_FB	Laser stop feedback	
11	ENCODER_B+	Differential input B+ Non-isolated single-end input	Encoder input (Configurable differential output)
12	ENCODER_B-	Differential input B-	
13	ENCODER_A+	Differential input A+ Non-isolated single-end input	
14	ENCODER_A-	Differential input A-	
15	RS232_TX	RS232 serial transmitting/RS485_B	Serial communication
16	RS232_RX	RS232 serial receiving/RS485_A	
17	SIGNAL_GND	Signal GND	Signal GND

3D Industrial Camera Series

Large FOV & High precision

- Pre-calibration is done during production and support high speed output of 3D measurement result in mm-level
- Flexible and configurable working distance and FOV
- Integrated with 3D calibration tool
- Maximum scale: 1000mmx1000mmx2000mm(WxHxL)
- High accurate 3D measurement: 5mmx5mmx5mm
- Output point cloud image and volume measurement data
- Abundant interfaces including GigE/IO/Encoder
- Industrial level M12 connector，IP65 protection level
- Support wide-range power supply and DC12V/24V in industrial environment
- Output volume data directly when PC is not necessary

Model	Near FOV (mm)	Far Fov (mm)	Precision (mm^2)	Working distance (mm)	Scale (mm)	Laser type/grade	Interface
*D5201MG100E	1000	2200	5x5x5	1000 ~1800	1000	3B	370X65.6X150

Note: 1. Models with symbol “*” are latest released products;
2. Complete model includes the prefix “DH-MV-”，such as DH-MV-D5201MG100.

Lens

- High resolution lenses designed specially for machine vision
- Support wide working distance, image quality optimized for short distance
- Low distortion restores the real ratio
- Lens from cost-effecient aperture F2.8to high-brightness aperture F2.0 are provided
- Temperature compensation design makes imaging quality stable at temperature ranging from -10℃ to ＋50℃
- Compact structure design make it suitable for integration

Model	Image plane size	Resolution	Focal length	Relative aperture	Angle of view(unit:°)			Distortion	Minimum object distance (m)	Mount	Filter mount
					H	V	D				
*MH0420S	1/1.8"	5MP	4mm	F2.0	82.9	66.5	94.0	<0.3%	0.1	C-Mount	-
MH0620S	1/1.8"	5MP	6mm	F2.0	60.8	42.7	69.4	<0.1%	0.1	C-Mount	M25.5 x P0.5
MH0820S	1/1.8"	5MP	8mm	F2.0	47.9	32.9	55.6	<0.1%	0.1	C-Mount	M25.5 x P0.5
MH1220S	1/1.8"	5MP	12mm	F2.0	33.5	22.6	39.7	<0.2%	0.1	C-Mount	M25.5 x P0.5
MH1620S	1/1.8"	5MP	16mm	F2.0	22.6	17.4	27.6	<0.1%	0.1	C-Mount	M25.5 x P0.5
MH2520S	1/1.8"	5MP	25mm	F2.0	14.1	9.4	17	<0.1%	0.1	C-Mount	M25.5 x P0.5
MH3520S	1/1.8"	5MP	35mm	F2.0	11.8	8.7	14.6	<0.1%	0.2	C-Mount	M25.5 x P0.5
*MH5028S	1/1.8"	5MP	50mm	F2.8	8.2	6.1	10.2	<0.1%	0.3	C-Mount	M28.5 x P0.5
*MH7528S	1/1.8"	5MP	75mm	F2.8	5.4	4.04	6.84	<0.1%	0.5	C-Mount	M30.5 x P0.5

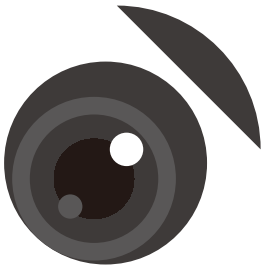
Note: Models with symbol “*” are latest-released products;

Lens

Model	Image plane size	Resolution	Focal length	Relative aperture	Angle of view(unit:°)			Distortion	Minimum object distance (m)	Mount	Filter mount
					H	V	D				
MH0824M	2/3"	8MP	8mm	F2.4	58.1	44.5	70.2	<0.5%	0.1	C-Mount	M30.5 x P0.5
MH1220M	2/3"	8MP	12mm	F2.0	40	27.5	48	<0.1%	0.1	C-Mount	M27 x P0.5
MH1620M	2/3"	8MP	16mm	F2.0	30.8	23.5	37.8	<0.1%	0.2	C-Mount	M27 x P0.5
MH2520M	2/3"	8MP	25mm	F2.0	15.89	11.92	19.84	<0.15%	0.2	C-Mount	M27 x P0.5
MH3520M	2/3"	8MP	35mm	F2.0	11.65	8.75	14.54	<0.1%	0.2	C-Mount	M27 x P0.5
MH5028M	2/3"	8MP	50mm	F2.8	8.48	6.37	10.59	<0.1%	0.4	C-Mount	M27 x P0.5
*MHR0828M	2/3"	10MP	8mm	F2.8	53.2	46.0	67.2	<0.8%	0.1	C-Mount	-
*MHR1220M	2/3"	10MP	12mm	F2.0	38.4	32.5	48.8	<0.1%	0.15	C-Mount	M27 x P0.5
*MHR2520M	2/3"	10MP	25mm	F2.0	18.3	15.4	23.9	<0.1%	0.18	C-Mount	M25.5 x P0.5
MH1624X	1.1"	12MP	16mm	F2.4	42.1	33.5	48.2	<0.25%	0.2	C-Mount	M38 x P0.5
*MH2528X	1.1"	12MP	25mm	F2.8	31.4	23.3	38.4	<0.1%	0.15	C-Mount	M37 x P0.5
MH3524X	1.1"	12MP	35mm	F2.4	19.5	16.1	26.1	<0.1%	0.2	C-Mount	M30.5 x P0.5
MH5028X	1.1"	12MP	50mm	F2.8	14.6	10.9	1 8.2	<0.1%	0.3	C-Mount	M37 x P0.5
MH1220K	4/3"	10MP	12mm	F2.0	76	61	89	<2.5%	0.15	C-Mount	M77 x P0.75
MH1620K	4/3"	10MP	16mm	F2.0	60	48	73	<2.8%	0.10	C-Mount	M77 x P0.75
MH2520K	4/3"	10MP	25mm	F2.0	40	30	50	<0.8%	0.15	C-Mount	M46 x P0.75
MH3520K	4/3"	10MP	35mm	F2.0	30	22	36	<0.6%	0.2	C-Mount	M40.5 x P0.5
MH5020K	4/3"	10MP	50mm	F2.0	21	16	26	<0.2%	0.3	C-Mount	M40.5 x P0.5
MH08528K	4/3"	10MP	8.5mm	F2.8	94.9	80.1	107.4	<1%	0.5	C-Mount	-

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

HuaRay Camera Software Development Kit



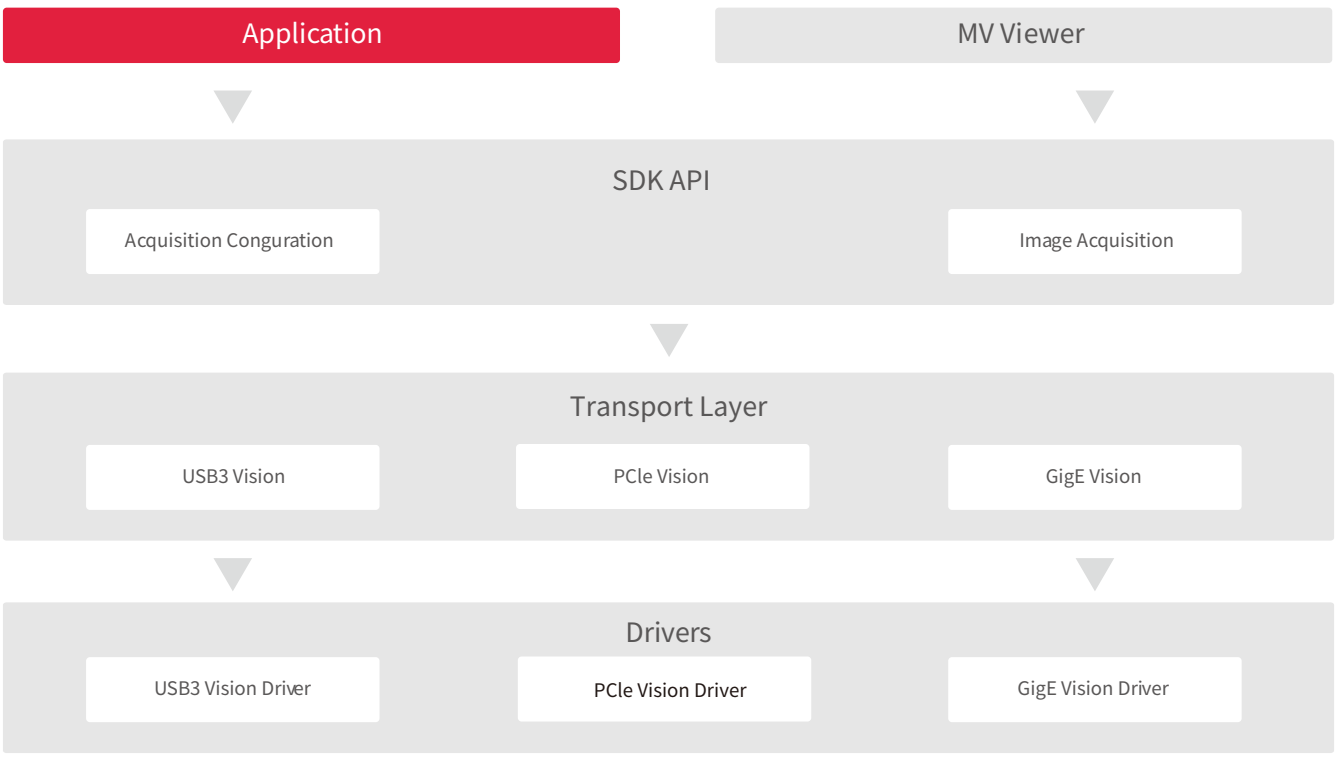
MACHINE VISION

- HuaRay 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, and grab, display and save the images

Camera Software Development Kit supports all HuaRay 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.

HuaRay 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



TURNING VISION INTO PRODUCTIVITY.

Serial number : 202002

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