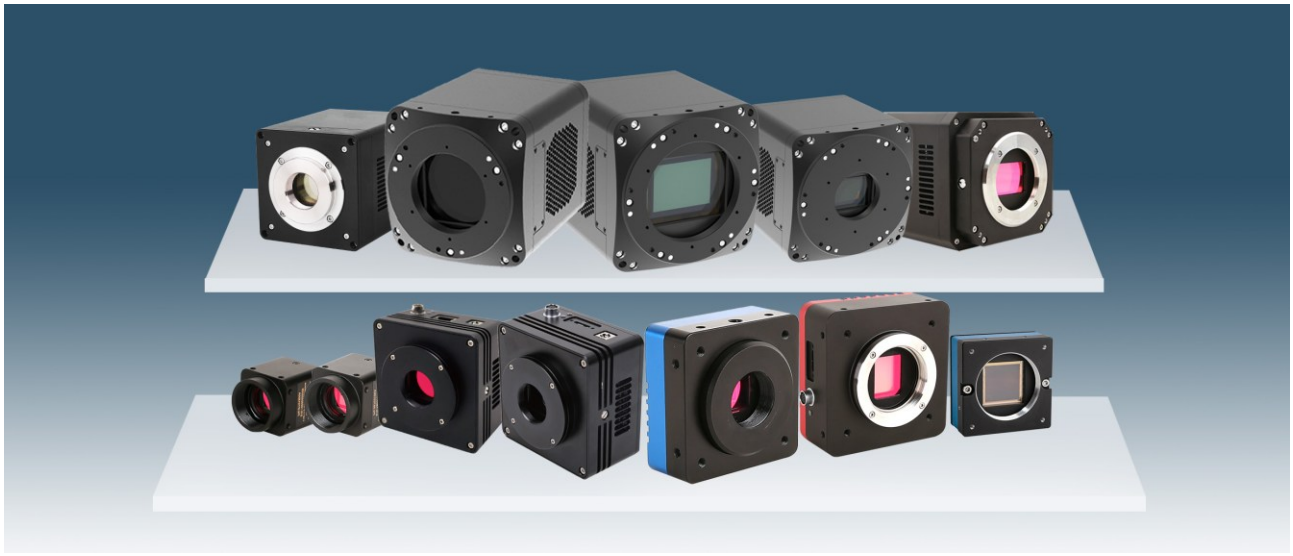
User Manual for Machine Vision Cameras



20260409

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1 Product List

1.1 Product Description

- Sony / Gpixel / ONSEMI and other high-quality imaging chips;
- Supports multiple interfaces such as USB3 / GigE / CameraLink / CXP;
- Built-in hardware image processing engine to ensure image restoration and camera speed;
- Supports external triggering, software and capture modes;
- Supports ROI, flip, bit-depth switching and other features;
- Suitable for wide temperature range, low power consumption, stable performance;
- Supports firmware worksite upgrading;
- Provides advanced video and image processing application software ToupView, compatible with Windows/Linux/OSX multi-platform SDK, support native C/C++, C#/VB.Net, DirectShow, Twain API;
- Compliant with CE, FCC requirements.

Camera series	Main feature
MAX	Equipped with Sony Exmor CMOS or GSENSE series high-performance large pixel or full-frame image sensor. Data interfaces support USB3, CXP, and 10 Gigabit Ethernet. Resolution covering 4.2M~251M, chip size across 1.2”~4.2”. The response spectrum supports visible light, NIR, UV. Cooling: 40 degrees lower than the ambient temperature.
ITR3CMOS	Resolution covering 0.5M~45M, chip size across 1”~1.8”. The response spectrum supports visible light and UV. Cooling: 40 degrees lower than the ambient temperature.
CTR3CMOS	Resolution covering 0.39M~20M, chip size across 1/2.9”~4/3”. Cooling: 10 degrees lower than the ambient temperature.
I3	Compact structure. Resolution covering 0.5M~20.4M, chip size across 1/2.9 "~1.1". The response spectrum supports visible light and UV.
IUA	High performance cost ratio. Resolution covering 0.39M~45M, chip size across 1/2.9”~4/3”. The response spectrum supports visible light, NIR, UV. Various OEM structure sizes, suitable for various scenarios.
IUB	Select G-Pixel chip, chip size across 1/1.1”~1.7”, has stopped production, products for the corresponding sensor can be found in the IUA series;
IUC	Resolution covering 1.7M~60M, chip size across 1.1”~2.7” Data interfaces support USB3, CameraLink, 10 Gigabit Ethernet。 The AF version accommodates the Canon EF lens autofocus function.
IUD	Choose ONSEMI chip, resolution of 16M/25M two options.

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IUE	The large array flat panel detector is suitable for protein detection and chemiluminescence applications.
AVCAM	Analog camera, output interface is CVBS(PAL-N).

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1.2 MAX Series Camera Specifications(18)

1.2.1 MAX Series USB3 Camera(12)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal Dynamic range /SNR	FPS/Resolution Bit depth	Binning	Exposure Time
MAX251AM-U3	251M/IMX811ALR(M,RS) 4.1"(66.24×44.16)	2.81×2.81	TBD	1.5@19200×12800	1×1	150us ~3600s
MAX251AC-U3	251M/IMX811AQR(C,RS) 4.1"(66.24×44.16)	2.81×2.81	TBD	1.5@19200×12800	1×1	150us ~3600s
MAX151AM-U3	151M/IMX411ALR(M,RS) 4.2"(60.30×47.9)	3.76×3.76	871mV @ 1/30s 0.04mV @ 1/30s	2.4@14176×10640 6.9@7072×5320 20.8@4704×3546 61.9@1568×1178	1×1 2×2 3×3 9×9	150us ~3600s
MAX151AC-U3	151M/IMX411AQR(C,RS) 4.2"(60.30×47.9)	3.76×3.76	485mV @ 1/30s 0.04mV @ 1/30s	2.4@14176×10640 6.9@7072×5320 20.8@4704×3546 61.9@1568×1178	1×1 2×2 3×3 9×9	150us ~3600s
MAX102AM-U3	102M/IMX461ALR(M,RS) 3.4"(43.80×32.87)	3.76×3.76	871mV @ 1/30s 0.04mV @ 1/30s	3.5@11648×8742 8.7@5824×4370 27.8@3872×2912 82.5@1280×970	1×1 2×2 3×3 9×9	150us ~3600s
MAX102AC-U3	102M/IMX461AQR(C,RS) 3.4"(43.80×32.87)	3.76×3.76	485mV @ 1/30s 0.04mV @ 1/30s	3.5@11648×8742 8.7@5824×4370 27.8@3872×2912 82.5@1280×970	1×1 2×2 3×3 9×9	150us ~3600s
MAX62AM MM1062A	61M/IMX455(M, RS) 2.7"(35.98×23.99) Full Frame	3.76×3.76	871 mV @ 1/30s 0.039 mV @ 1/30s 88.3dB/47.1dB	6.1@9568×6380(16bit) 19.1@4784×3190 55.6@3184×2124 191@1040×706 8 Bit / 16 Bit	1×1 2×2 3×3 9×9	0.1ms~3600s
MAX62AC MP1062AC	61M/IMX455(C, RS) 2.7"(35.98×23.99) Full Frame	3.76×3.76	485 mV @ 1/30s 0.04 mV @ 1/30s 85.8dB/47.0dB	6.1@9568×6380(16bit) 19.1@4784×3190 55.6@3184×2124 191@1040×706 8 Bit / 16 Bit	1×1 2×2 3×3 9×9	0.1ms~3600s
MAX24AC MP1024A	24M/IMX410(C, RS) 2.7"(36.02×24.00) Full Frame	5.94×5.94	573 mV @ 1/30s 0.04 mV @ 1/30s 87.3dB/50.2dB	15.3@6064×4040(14bit) 41@3024×2012 114@2016×1342 8 Bit / 14 Bit	1×1 2×2 3×3	0.1ms~1000s
MAX04AM MM1004A	4.2M/GSENSE2020e(M,NIR,RS) 1.2"(13.31×13.31)	6.5×6.5	8.1×10^7 (e-/((W/m2).s)) Peak QE 64.2% @595nm 0.12(e-/s/pix) @-10C° 81.6dB/46.5dB	45@2048×2048 45@1024 x 1024 8 Bit / HDR 16 Bit	1×1 2×2	0.1ms~1000s
MAX04BM MM1004B	4.2M/GSENSE2020BSI(M,UV,RS) 1.2"(13.31×13.31)	6.5×6.5	1.1×10^8 (e-/((W/m2).s)) Peak QE 93.7% @550nm 0.15(e-/s/pix) @-15C° 79.1dB/47dB	45@2048 x2048 45@1024 x1024 8 Bit / HDR 16 Bit	1×1 2×2	0.1ms~1000s
MAX04CM MM1004C	4.2M/GSENSE400BSI(M,UV,RS) 2.0"(22.53×22.53)	11×11	3.25×10^8 (e-/((W/m2).s)) Peak QE 95.3% @560nm 1.5(e-/s/pix) @-10C° 93.9dB/48.8dB	44@2048 x2048 44@1024 x1024 8 Bit / HDR 16 Bit	1×1 2×2	0.12ms~3600s

***C: Color; M: Mono; UV: Ultraviolet; NIR: Near Infrared Ray; RS: Rolling shutter; GS: Global shutter; U3: USB3 port.**

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1.2.2 MAX Series GigECamera(6)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal Dynamic range /SNR	FPS/Resolution Bit depth	Binning	Exposure Time
MAX251AM-10G	251M/IMX811ALR(M,RS) 4.1"(66.24×44.16)	2.81×2.81	TBD	1.5@19200×12800	1×1	150us ~3600s
MAX251AC-10G	251M/IMX811AQR(M,RS) 4.1"(66.24×44.16)	2.81×2.81	TBD	1.5@19200×12800	1×1	150us ~3600s
MAX151AM-10G	151M/IMX411ALR(M,RS) 4.2"(60.30×47.9)	3.76×3.76	871mV @ 1/30s 0.04mV @ 1/30s	6.1@14176×10640 6.9@7072×5320 20.8@4704×3546 61.9@1568×1178	1×1 2×2 3×3 9×9	150us ~3600s
MAX151AC-10G	151M/IMX411AQR(C,RS) 4.2"(60.30×47.9)	3.76×3.76	485mV @ 1/30s 0.04mV @ 1/30s	6.1@14176×10640 6.9@7072×5320 20.8@4704×3546 61.9@1568×1178	1×1 2×2 3×3 9×9	150us ~3600s
MAX102AM-10G	102M/IMX461ALR(M,RS) 3.4"(43.80×32.87)	3.76×3.76	871mV @ 1/30s 0.04mV @ 1/30s	8.7@11648×8742 8.7@5824×4370 27.8@3872×2912 82.5@1280×970	1×1 2×2 3×3 9×9	150us ~3600s
MAX102AC-10G	102M/IMX461AQR(C,RS) 3.4"(43.80×32.87)	3.76×3.76	485mV @ 1/30s 0.04mV @ 1/30s	8.7@11648×8742 8.7@5824×4370 27.8@3872×2912 82.5@1280×970	1×1 2×2 3×3 9×9	150us ~3600s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; 10G: 10 Gigabit Ethernet port.**

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1.3 ITR3CMOS Series Camera Specifications

1.3.1 ITR3CMOS Series USB3 Camera (17)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution Bit depth	Binning	Exposure Time
ITR3CMOS45000KMA ITRM145000A	45M/IMX492(M,RS) 1.4"(18.93×13.00)	2.315×2.315	175mV @ 1/30s 0.03mV @ 1/30s	8.1@8176×5616 30.0@4080×2808 8.1@7408×5556 33.0@3696×2778 10.4@8176×4320 34.7@4096×2160 62.5@2048×1080 86.5@1360×720 8 Bit / 12 Bit	1×1(3:2) 2×2(3:2) 1×1(4:3) 2×2(4:3) 1×1(17:9) 2×2(17:9) 3×3(17:9) 4×4(17:9)	100μm~1h
ITR3CMOS26000KPA ITRP126000A	26M/IMX571(C, RS) 1.8"(23.48×15.67) APS-C	3.76×3.76	485 mV @ 1/30s 0.07 mV @ 1/30s	14@6224×4168 37@3104×2084 110@2064×1386 8 Bit / 16 Bit	1×1 2×2 3×3	150μm~1h
ITR3CMOS26000KMA ITRM126000A	26M/IMX571(M, RS) 1.8 "(23.48×15.67) APS-C	3.76×3.76	871 mV @ 1/30s 0.07 mV @ 1/30s	14@6224×4168 37@3104×2084 110@2064×1386 8 Bit / 16 Bit	1×1 2×2 3×3	150μm~1h
ITR3CMOS21000KPA ITRP121000A	21M/IMX269(C) 4/3"(17.4×13.1)	3.3×3.3	400 mV @ 1/30s 0.1 mV @ 1/30s	17@5280×3954 17@3952×3952 56@2640×1976 67@1760×1316 192@584×438 8 Bit / 12 Bit	1×1 1×1 2×2 3×3 9×9	100μm~1h
ITR3CMOS20000KPA ITRP120000A	20M/IMX183(C,RS) 1 "(13.056×8.755)	2.4×2.4	462 mV @ 1/30s 0.21 mV @ 1/30s	19.0@5440×3648 48.8@2736×1824 59.4@1824×1216 8 Bit / 12 Bit	1×1 2×2 3×3	53μm~1h
ITR3CMOS20000KMA ITRM120000A	20M/IMX183(M,RS) 1 "(13.056×8.755)	2.4×2.4	777 mV @ 1/30s 0.21 mV @ 1/30s (F8.0)	19.0@5440×3648 48.8@2736×1824 59.4@1824×1216 8 Bit / 12 Bit	1×1 2×2 3×3	53μm~1h
ITR3CMOS10300KPA ITRP110300A	10.3M/IMX294(C,RS) 4/3 "(19.11×13)	4.63×4.63	419 mV @ 1/30s 0.12 mV @ 1/30s	30.0@4128×2808 38.5 @4096×2160 59.8@2048×1080 87.2@1360×720 8 Bit / 14 Bit	1×1 1×1 2×2 3×3	150μm~1h
ITR3CMOS10300KMA ITRM110300A	10.3M/IMX492(M,RS) 4/3 "(19.11×13)	4.63×4.63	175 mV @ 1/30s 0.12 mV @ 1/30s	30.0@4128*2808 38.5@ 4096*2160 59.8@2048*1080 87.2@1360*720 8 Bit / 14 Bit	1×1 1×1 2×2 3×3	150μm~1h
ITR3CMOS09000KPA ITRP109000A	9M/IMX533(C,RS) 1"(11.28×11.28)	3.76×3.76	534 mV @ 1/30s 0.04 mV @ 1/30s	40@2992×3000 62@1488×1500 186@992×998 8 Bit / 14 Bit	1×1 2×2 3×3	100μm~1h
ITR3CMOS09000KMA ITRM109000A	9M/IMX533(M,RS) 1"(11.28×11.28)	3.76×3.76	877 mV @ 1/30s 0.04 mV @ 1/30s	40@2992×3000 62@1488×1500 186@992×998 8 Bit / 14 Bit	1×1 2×2 3×3	100μm~1h
ITR3CMOS08300KPA ITRP108300A	8.3M/IMX585(C,RS) 1/1.2"(11.14×6.26)	2.9×2.9	5970 mV @ 1/30s 0.13 mV @ 1/30s	45@3840×2160 70@1920×1080 8 Bit / 12 Bit	1×1 2×2	30μm~1h
ITR3CMOS07100KPA ITRP107100A	7.0M/IMX428(C,GS) 1.1 "(14.4×9.9)	4.5×4.5	2058 mV @ 1/30s 0.15 mV @ 1/30s	51.3@3200×2200 133.8@1584×1100 8 Bit / 12 Bit	1×1 1×1	6μm~1h
ITR3CMOS07100KMA ITRM107100A	7.0M/IMX428(M,GS) 1.1 "(14.4×9.9)	4.5×4.5	3354 mV @ 1/30s 0.15 mV @ 1/30s	51.3@3200×2200 133.8@1584×1100 8 Bit / 12 Bit	1×1 1×1	6μm~1h
ITR3CMOS02300KMA	2.3M/SC2110(M,RS) 1.7" (23.04×14.40)	12.0×12.0	120000 mV/lux·s (HCG) 10900 mV/lux·s (LCG)	120@1920×1200 8 Bit / 12 Bit	1×1	30us~3000 s
ITR3CMOS01700KPA	1.7M/IMX432(C,GS)	9.0×9.0	4910 mV @ 1/30s	98.6@1600×1100	1×1	6μm~1h

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ITRP101700A	1.1 “(14.4×9.9)		0.3 mV @ 1/30s	8 Bit / 12 Bit		
ITR3CMOS01700KMA ITRM101700A	1.7M/IMX432(M,GS) 1.1 “(14.4×9.9)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	98.6@1600×1100 8 Bit / 12 Bit	1×1	6μm~1h
ITR3CMOS01300KMA ITRM101300A	1.3M/GLUX9701BSI (M,UV,RS) 1 “(12.493×9.994)	9.76×9.76	2.57×10^{8}(e-/((W/m2).s)) QE89%@610nm 0.08(e-/s/pix) @-28C	30fps@1280×1024 30fps@640×512 8 Bit / HDR 16 Bit	1×1 2×2	63μm~1h
ITR3CMOS00500KMA ITRM100500A	0.5M/GLUX1605BSI (M,UV,RS) 1 “(12.8×9.6)	16.0×16.0	6.4×108e-/((W/m2).s)) QE95%@560nm 50(e-/s/pix)	60.0@800×600 60.0@400×300 8 Bit / HDR 16 Bit	1×1 2×2	27μm~1h

***C: Color; M: Mono; UV: Ultraviolet; RS: Rolling shutter; GS: Global shutter.**

1.3.2 ITR3CMOS Series GigE Camera (6)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution Bit depth	Binning	Exposure Time
ITR3CMOS20000KMA-G	20M/IMX183(M,RS) 1 “(13.056×8.755)	2.4×2.4	777 mV @ 1/30s 0.21 mV @ 1/30s	4.5@5440×3648 18.5@2736×1824 41.7@1824×1216 8 Bit / 12 Bit	1×1 2×2 3×3	53us~1h
ITR3CMOS20000KPA-G	20M/IMX183(C,RS) 1 “(13.056×8.755)	2.4×2.4	462 mV @ 1/30s 0.21 mV @ 1/30s	4.5@5440×3648 18.5@2736×1824 41.7@1824×1216 8 Bit / 12 Bit	1×1 2×2 3×3	53us~1h
ITR3CMOS07100KMA-G	7.0M/IMX428(M,GS) 1.1 “(14.4×9.9)	4.5×4.5	3354 mV @ 1/30s 0.15 mV @ 1/30s	16.4fps@3200×2200 66fps@1600×1100 8 Bit / 12 Bit	1×1 1×1	6us~1h
ITR3CMOS07100KPA-G	7.0M/IMX428(C,GS) 1.1 “(14.4×9.9)	4.5×4.5	2058 mV @ 1/30s 0.15 mV @ 1/30s	16.4fps@3200×2200 66fps@1600×1100 8 Bit / 12 Bit	1×1 1×1	6us~1h
ITR3CMOS01700KMA-G	1.7M/IMX432(M,GS) 1.1 “(14.4×9.9)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	66fps@1600×1100 8 Bit / 12 Bit	1×1	6us~1h
ITR3CMOS01700KPA-G	1.7M/IMX432(C,GS) 1.1 “(14.4×9.9)	9.0×9.0	4910 mV @ 1/30s 0.3 mV @ 1/30s	66fps@1600×1100 8 Bit / 12 Bit	1×1	6us~1h
ITR3CMOS09000KMA-10G	9M/IMX533(M,RS) 1”(11.28×11.28)	3.76×3.76	877 mV @ 1/30s 0.04 mV @ 1/30s	40@2992×3000 62@1488×1500 186@992×998 8 Bit / 14 Bit	1×1 2×2 3×3	6us~1h

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; G: 1 Gigabit Ethernet port.**

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1.4 CTR3CMOS Series Camera Specifications

1.4.1 CTR3CMOS Series USB3 Camera (10)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution Bit depth	Binning	Exposure Time
CTR3CMOS00390KMA CTRM100390A	0.39M/IMX287(M,GS) 1/2.9"(4.97×3.73)	6.9×6.9	7320mV @ 1/30s 0.76mV @ 1/30s	20fps@720×540 8 Bit / 12 Bit	1×1	6us~300s
CTR3CMOS00503KMA CTRM100503A	0.5M/IMX426(M,GS) 1/1.7"(7.2×5.58)	9.0×9.0	8100mV @ 1/30s 0.3mV @ 1/30s	20fps@800×620 8 Bit / 12 Bit	1×1	6us~300s
CTR3CMOS01700KPA CTRP101700A	1.7M/IMX432(C,GS) 1.1 "(14.4×9.9)	9.0×9.0	4910 mV @ 1/30s 0.3 mV @ 1/30s	98.6fps@1600×1100 8 Bit / 12 Bit	1×1	6us~300s
CTR3CMOS01700KMA CTRM101700A	1.7M/IMX432(M,GS) 1.1 "(14.4×9.9)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	98.6fps@1600×1100 8 Bit / 12 Bit	1×1	6us~300s
CTR3CMOS07100KPA CTRP107100A	7.0M/IMX428(C,GS) 1.1 "(14.4×9.9)	4.5×4.5	2058 mV @ 1/30s 0.15 mV @ 1/30s	51.3fps@3200×2200 133.8fps@1584×1100 8 Bit / 12 Bit	1×1 1×1	6us~300s
CTR3CMOS07100KMA CTRM107100A	7.0M/IMX428(M,GS) 1.1 "(14.4×9.9)	4.5×4.5	3354 mV @ 1/30s 0.15 mV @ 1/30s	51.3fps@3200×2200 133.8fps@1584×1100 8 Bit / 12 Bit	1×1 1×1	6us~300s
CTR3CMOS08300KMA	8.3M/IMX585(C,RS) 1/1.2"(11.14×6.26)	2.9×2.9	5970mV @ 1/30s 0.13mV @ 1/30s	45@3840×2160 70@1920×1080 8 Bit / 12 Bit	1×1 2×2	30μs~300s
CTR3CMOS20000KPA CTRP120000A	20M/IMX183(C,RS) 1 "(13.056×8.755)	2.4×2.4	462 mV @ 1/30s 0.21 mV @ 1/30s	19.0@5440×3648 48.8@2736×1824 59.4@1824×1216 8 Bit / 12 Bit	1×1 2×2 3×3	53us~300s
CTR3CMOS20000KMA CTRM120000A	20M/IMX183(M,RS) 1 "(13.056×8.755)	2.4×2.4	776 mV @ 1/30s 0.21 mV @ 1/30s	19.0@5440×3648 48.8@2736×1824 59.4@1824×1216 8 Bit / 12 Bit	1×1 2×2 3×3	53us~300s
CTR3CMOS45000KMA CTRM145000A	45M/IMX492(M,RS) 1.4"(18.93×13.00)	2.315×2.315	175mV @ 1/30s 0.03mV @ 1/30s	8.1@8176×5616 30.0@4080×2808 8.1@7408×5556 33.0@3696×2778 10.4@8176×4320 34.7@4096×2160 62.5@2048×1080 86.5@1360×720 8 Bit / 12 Bit	1×1(3:2) 2×2(3:2) 1×1(4:3) 2×2(4:3) 1×1(17:9) 2×2(17:9) 3×3(17:9) 4×4(17:9)	0.1ms~300s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter.**

1.4.2 CTR3CMOS Series GigE Camera (6)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution Bit depth	Binning	Exposure Time
CTR3CMOS01700KPA-G	1.7M/IMX432(C,GS) 1.1 "(14.4×9.9)	9.0×9.0	4910 mV @ 1/30s 0.3 mV @ 1/30s	66fps@1600×1100 8 Bit / 12 Bit	1×1	6us~300s
CTR3CMOS01700KMA-G	1.7M/IMX432(M,GS) 1.1 "(14.4×9.9)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	66fps@1600×1100 8 Bit / 12 Bit	1×1	6us~300s
CTR3CMOS07100KPA-G	7.0M/IMX428(C,GS) 1.1 "(14.4×9.9)	4.5×4.5	2058 mV @ 1/30s 0.15 mV @ 1/30s	16.4fps@3200×2200 66fps@1600×1100 8 Bit / 12 Bit	1×1 1×1	6us~300s
CTR3CMOS07100KMA-G	7.0M/IMX428(M,GS) 1.1 "(14.4×9.9)	4.5×4.5	3354 mV @ 1/30s 0.15 mV @ 1/30s	16.4fps@3200×2200 66fps@1600×1100 8 Bit / 12 Bit	1×1 1×1	6us~300s
CTR3CMOS20000KPA-G	20M/IMX183(C,RS) 1 "(13.056×8.755)	2.4×2.4	462 mV @ 1/30s 0.21 mV @ 1/30s	4.5@5440×3648 18.5@2736×1824 41.7@1824×1216 8 Bit / 12 Bit	1×1 2×2 3×3	53us~300s
CTR3CMOS20000KMA-G	20M/IMX183(M,RS) 1 "(13.056×8.755)	2.4×2.4	776 mV @ 1/30s 0.21 mV @ 1/30s	4.5@5440×3648 18.5@2736×1824 41.7@1824×1216 8 Bit / 12 Bit	1×1 2×2 3×3	53us~300s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; G: 1 Gigabit Ethernet port.**

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1.5 I3 Series Camera Specifications(GS or RS)

1.5.1 I3 Series USB3 Camera (54)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure Time
I3 with 33mm × 33mm × 33mm housing						
I3ISPM20000KPA	20M/IMX283CQJ(C,RS) 1“ (7.31×5.58)	2.4×2.4	923mV 0.21mV	19fps@5440×3648 50fps@2736×1824 60fps@1824×1216	TBD	67us~15s
I3 with 33mm × 33mm × 33mm housing						
I3ISPM00500KPA IP800500A	0.5M/IMX433LQJ(C,GS) 1/1.7“ (7.31×5.58)	9.0×9.0	4910mV @ 1/30s 0.3mV @ 1/30s	166.5fps@812×620	1×1	6us~15s
I3ISPM01500KPA IP801500A	1.5M/IMX273LQR(C,GS) 1/2.9“ (4.97×3.73)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	227.2fps@1440×1080 382.7fps@720×540	1×1 1×1	15us~15s
I3ISPM02300KPA IP802300A	2.3M/IMX174LQJ(C,GS) 1/1.2“ (11.25×7.03)	5.86×5.86	1016mV @ 1/30s 0.15mV @ 1/30s	164.5fps@1920×1200	1×1	15us~15s
I3ISPM02300KPB IP802300B	2.3M/IMX249LQJ(C,GS) 1/1.2“ (11.25×7.03)	5.86×5.86	1016mV @ 1/30s 0.15mV @ 1/30s	30fps@1920×1200	1×1	42us~15s
I3ISPM02400KPA IP802400A	2.4M/GMAX4002(C,GS) 1/1.7“ (8.19×4.80)	4.0×4.0	3.26×10^7e-/((W/m2)·s) 8.3e-/s	155fps@2048×1200 620fps@1024×600	1×1 2×2	55us~15s
I3ISPM03100KPA IP803100A	3.1M/IMX252LQR(C,GS) 1/1.8“ (7.07×5.30)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	115fps@2048×1536 230.3fps@1024×768	1×1 1×1	15us~15s
I3ISPM03100KPB IP803100B	3.1M/IMX265LQR(C,GS) 1/1.8“ (7.07×5.30)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	55.4fps@2048×1536 115.1fps@1024×768	1×1 1×1	15us~15s
I3ISPM03200KPA IP803200A	3.2M/IMX900AQR(C,GS) 1/3.1“ (4.61×3.46)	2.25×2.25	1162mV/lx/s 0.15mV @ 1/30s	53.4fps@2048×1536 126.8fps@1024×768	1×1 1×1	11us~15s
I3ISPM04200KPA IP804100A	4.2M/IMX664AAQR(C,RS) 1/1.8“(7.80×4.41)	2.9×2.9	5970mV @ 1/30s 0.13mV @ 1/30s	88.1fps@2688×1520 116.1fps@1344×760	1×1 2×2	15us~15s
I3ISPM05000KPA IP805000A	5.0M/IMX250LQR(C,GS) 2/3“ (8.45×7.07)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	71.2fps@2448×2048 175.2fps@1224×1024	1×1 1×1	15us~15s
I3ISPM05000KPB IP805000B	5.0M/IMX264LQR(C,GS) 2/3“ (8.45×7.07)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	35.6fps@2448×1536 87.6fps@1224×1024	1×1 1×1	15us~15s
I3ISPM05100KPA IP805100A	5.1M/GMAX3405(C,GS) 2/3“ (8.32×6.96)	3.4×3.4	2.36×10^7e-/((W/m2)·s) 4.4e-/s	71fps@2448×2048 100fps@1224×1024	1×1 2×2	10us~15s
I3ISPM06300KPA IP806300A	6.3M/IMX178LQJ(C, RS) 1/1.8“ (7.37×4.92)	2.4×2.4	425mV @ 1/30s 0.15mV @ 1/30s	58.7fps@3072×2048 59.5fps@1536×1024	1×1 2×2	17us~15s
I3ISPM08000KPA IP808000A	8.0M/IMX546-AAQJ(C,GS) 2/3“ (7.78×7.78)	2.74×2.74	1574mV/lx/s 0.15mV @ 1/30s	41fps@2832×2832 118fps@1408×1408	1×1 1×1	30us~15s
I3ISPM08300KPA IP808300A	8.3M/IMX678-AAQR1-C(C, RS) 1/1.8“ (7.68×4.32)	2.0×2.0	3541mV/lx/s 0.15mV @ 1/30s	45fps@3840×2160 70fps@1920×1080	1×1 2×2	30us~15s
I3ISPM08300KPB IP808300B	8.3M/IMX585-AAQJ1-C(C,RS) 1/1.2“ (11.14×6.26)	2.9×2.9	5970mV @ 1/30s 0.13mV @ 1/30s	45fps@3840×2160 70fps@1920×1080	1×1 1×1	30us~15s
I3ISPM12000KPA IP812000A	12M/IMX226CQJ(C, RS) 1/1.7“(7.52×5.64)	1.85×1.85	3637mV @ 1/30s 0.15mV @ 1/30s	29.9fps@4064×3046 59.9fps@2048×1080	1×1 2×2	400us~15s
I3ISPM12000KPB IP812000B	12M/IMX676-AACR(C, RS) 1/1.6“(7.07×7.07)	2.0×2.0	280mV @ 1/30s 0.1mV @ 1/30s	27.7fps@3536×3536 65.8fps@1760×1760	1×1 2×2	13us~15s

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I3 with 38mm × 38mm × 33mm housing						
I3ISPM02000KMB	2.0M/GSPRINT6502BSI 1“ (13.3×7.49)	6.5×6.5	TBD	160fps @ 2048×1152 320fps @ 1024×1152 500fps @ 256×256	1×1	20us-2sec
I3ISPM01700KPA IP801700A	1.7M/IMX432LQJ(C,GS) 1.1“ (14.4×9.9)	9.0×9.0	4910mV @ 1/30s 0.3mV @ 1/30s	98.6fps@1600×1100	1×1	6us~15s
I3ISPM01700KPB IP801700B	1.7M/IMX425LQJ(C,GS) 1.1“ (14.4×9.9)	9.0×9.0	4910mV @ 1/30s 0.3mV @ 1/30s	180fps@1600×1100	1×1	6us~15s
I3ISPM02000KPB	2.0M/IMX385LQR-C (C,RS) 1/2” (6.4×4.8mm)	3.75×3.75	2350mV @ 1/30s 0.15mV @ 1/30s	124.3fps@1920×1080 (8-bit) 90.4fps@1920×1080 (10-bit)	1×1	30μs~15s
I3ISPM02000KPA IP802000A	2.0M/IMX430LQJ(C, GS) 1/1.7“(7.31×5.58)	4.5×4.5	2058mV @ 1/30s 0.15mV @ 1/30s	132fps@1624×1240	1×1	6us~15s
I3ISPM02800KPA IP802800A	2.8M/IMX421LQJ(C,GS) 2/3“ (8.71×6.59)	4.5×4.5	2058mV @ 1/30s 0.15mV @ 1/30s	121fps@1936×1464 425fps@968×732	1×1 1×1	6us~15s
I3ISPM07100KPA IP807100A	7.1M/IMX428LQJ(C,GS) 1.1“ (14.4×9.9)	4.5×4.5	2058mV @ 1/30s 0.15mV @ 1/30s	51.4fps@3200×2200 133.8fps@1584×1100	1×1 1×1	6us~15s
I3ISPM12300KPA IP812300A	12.3M/IMX304LQR-C(C,GS) 1.1“(14.13×10.35)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	23.4fps@4096×3000 46.3fps@2048×1500 46.3fps@1024×750	1×1 2×2 4×4	30us~15s
I3ISPM12500KPA IP812500A	12.5M/GMAX3412(C,GS) 1.1“ (13.93×10.44)	3.4×3.4	2.36×10^7e- /((W/m2)·s) 81.6e-/s	30fps@4096×3072 60fps@2048×1536	1×1 2×2	15us~15s
I3ISPM20400KPA IP820400A	20.4M/IMX541-AAQJ-C(C,GS) 1.1“ (12.32×12.32)	2.74×2.74	1574mV @ 1/30s 0.15mV @ 1/30s	17.5fps@4496×4496 64.4fps@2240×2240 64.4fps@1120×1120	1×1 2×2 4×4	30us~15s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter.**

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Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure Time
I3 with 33mm × 33mm × 33mm housing						
I3CMOS00500KMA IM700500A	0.5M/IMX433LLJ(M,GS) 1/1.7“ (7.31×5.58)	9.0×9.0	8100mV @ 1/30s 0.30mV @ 1/30s	166.5fps@812×620	1×1	6us~15s
I3CMOS01500KMA IM701500A	1.5M/IMX273LLR(M,GS) 1/2.9“ (4.97×3.73)	3.45×3.45	1830mV @ 1/30s 0.19mV @ 1/30s	226.5fps@1440×1080 506fps@720×540	1×1 2×2	15us~15s
I3CMOS02300KMA IM702300A	2.3M/IMX174LLJ(M,GS) 1/1.2“ (11.25×7.03)	5.86×5.86	1650mV @ 1/30s 0.15mV @ 1/30s	164.5fps@1920×1200	1×1	15us~15s
I3CMOS02300KMB IM702300B	2.3M/IMX249LLJ(M,GS) 1/1.2“ (11.25×7.03)	5.86×5.86	1650mV @ 1/30s 0.15mV @ 1/30s	30fps@1920×1200	1×1	42us~15s
I3CMOS02400KMA IM702400A	2.4M/GMAX4002(M,GS) 1/1.7“ (8.19×4.80)	4.0×4.0	3.26×10^7e-/((W/m2)·s) 8.3e-/s	155fps@2048×1200 620fps@1024×600	1×1 2×2	55us~15s
I3CMOS03100KMA IM703100A	3.1M/IMX252LLR(M,GS) 1/1.8“ (7.07×5.30)	3.45×3.45	1830mV @ 1/30s 0.15mV @ 1/30s	110.6fps@2048×1536 233.8fps@1024×768	1×1 1×1	15us~15s
I3CMOS03100KMB IM703100B	3.1M/IMX265LLR(M,GS) 1/1.8“ (7.07×5.30)	3.45×3.45	1830mV @ 1/30s 0.15mV @ 1/30s	55.4fps@2048×1536 115.1fps@1024×768	1×1 1×1	15us~15s
I3CMOS03200KMA IM703200A	3.2M/IMX900AMR(M,GS) 1/3.1“ (4.61×3.46)	2.25×2.25	1807mV/lx/s 0.15mV @ 1/30s	53.4fps@2048×1536 126.8fps@1024×768	1×1 1×1	11us~15s
I3CMOS04200KMA IM704100A	4.2M/IMX664AAMR(M,RS) 1/1.8“(7.80×4.41)	2.9×2.9	TBD	88.1fps@2688×1520 116.1fps@1344×760	1×1	15us~15s
I3CMOS05000KMA IM705000A	5.0M/IMX250LLR(M,GS) 2/3“ (8.45×7.07)	3.45×3.45	1830mV @ 1/30s 0.15mV @ 1/30s	70.9fps@2448×2048 175.2fps@1224×1024	1×1 1×1	15us~15s
I3CMOS05000KMB IM705000B	5.0M/IMX264LLR(M,GS) 2/3“ (8.45×7.07)	3.45×3.45	1830mV @ 1/30s 0.15mV @ 1/30s	35.6fps@2448×2048 87.6fps@1224×768	1×1 1×1	15us~15s
I3CMOS05000KMC IM705000C	5.0M/IMX250MZR(M,GS) 2/3“ (8.45×7.07) Polarsens	3.45×3.45	684mV @ 1/30s 0.15mV @ 1/30s	35.6fps@2448×2048 87.6fps@1224×768	1×1 1×1	15us~15s
I3CMOS05100KMA IM705100A	5.1M/GMAX3405(M,GS) 2/3“ (8.32×6.96)	3.4×3.4	2.36×10^7e-/((W/m2)·s) 4.4e-/s	71fps@2448×2048 100fps@1224×1024	1×1 2×2	10us~15s
I3CMOS06300KMA IM706300A	6.3M/IMX178LLJ(M, RS) 1/1.8“ (7.37×4.92)	2.4×2.4	760mV @ 1/30s 0.15mV @ 1/30s	58.7fps@3072×2048 59.5fps@1536×1024	1×1 2×2	17us~15s
I3CMOS08000KMA IM708000A	8.0M/IMX546-AAMJ(M,GS) 2/3“ (7.78×7.78)	2.74×2.74	2649mV/lx/s 0.25mV @ 1/30s	41fps@2832×2832 118fps@1408×1408	1×1 1×1	30us~15s
I3 with 38mm × 38mm × 33mm housing						
I3CMOS02000KMB	2.0M/GSPRINT6502BSI 1“ (13.3×7.49)	6.5×6.5	$7.87x10^7$ e-/((W/m^2)s) 691.0e-/s	160fps @ 2048×1152 320fps @ 1024×1152 500fps @ 256×256	1×1	20us-2sec
I3CMOS12300KMA	12.3M/IMX304LLR-C(M,GS) 1.1“ (14.14×10.61)	3.45×3.45	1830mV 0.15mV	23.4fps@4096×3000 46.3fps@2048×1500 46.3fps@1024×750	2×2 3×3 4×4	30us~15s
I3CMOS12300KMC	12.3M/IMX253MZR(M,GS) 1.1“ (14.14×10.61) Polarsens	3.45×3.45	684mV 0.15mV	23.4fps@4096×3000 46.3fps@2048×1500 46.3fps@1024×750	2×2 3×3 4×4	30us~15s
I3CMOS01300KMA IM701300A	1.3M/GLUX9701BSI(M,UV, RS) 1“(12.49×9.99)	9.76×9.76	2.57×10^8(e-/((W/m2).s)) QE89%@610nm 40(e-/s/pix)	30fps@1280×1024 30fps@640×512	1×1 2×2	63us~60s
I3CMOS01700KMA IM701700A	1.7M/IMX432LLJ(M,GS) 1.1“ (14.4×9.9)	9.0×9.0	8100mV @ 1/30s 0.3mV @ 1/30s	98.6fps@1600×1100	1×1	6us~15s

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I3CMOS01700KMB IM701700B	1.7M/IMX425LLJ(M,GS) 1.1“ (14.4×9.9)	9.0×9.0	8100mV @ 1/30s 0.3mV @ 1/30s	210fps@1600×1100	1×1	6us~15s
I3CMOS02000KMA IM702000A	2.0M/IMX430LLJ(M, GS) 1/1.7“(7.31×5.58)	4.5×4.5	3354mV @ 1/30s 0.15mV @ 1/30s	132fps@1624×1240	1×1	6us~15s
I3CMOS02800KMA IM702800A	2.8M/IMX421LLJ(M,GS) 2/3“ (8.71×6.59)	4.5×4.5	3354mV @ 1/30s 0.15mV @ 1/30s	121fps@1936×1464 425fps@968×732	1×1 1×1	6us~15s
I3CMOS07100KMA IM707100A	7.1M/IMX428LLJ(M,GS) 1.1“ (14.4×9.9)	4.5×4.5	3354mV @ 1/30s 0.15mV @ 1/30s	51.3fps@3200×2200 133.8fps@1584×1100	1×1 1×1	6us~15s
I3CMOS08300KMB IM708300B	8.3M/IMX585-AAMJ1-C(M,RS) 1/1.2“ (11.14×6.26)	2.9×2.9	19120mV @ 1/30s 0.13mV @ 1/30s	45fps@3840×2160 70fps@1920×1080	1×1 1×1	30us~15s
I3CMOS12300KMA IM712300A	12.3M/IMX304LLR-C(M,GS) 1.1“(14.13×10.35)	3.45×3.45	1830mV @ 1/30s 0.15mV @ 1/30s	23.4fps@4096×3000 46.3fps@2048×1500 46.3fps@1024×750	1×1 2×2 4×4	30us~15s
I3CMOS12500KMA IM712500A	12.5M/GMAX3412(M,GS) 1.1“ (13.93×10.44)	3.4×3.4	2.36×10^7e-/((W/m2)·s) 81.6e-/s	30fps@4096×3072 60fps@2048×1536	1×1 2×2	15us~15s
I3CMOS20400KMA IM720400A	20.4M/IMX541-AAMJ-C(M,GS) 1.1“ (12.32×12.32)	2.74×2.74	2649mV @ 1/30s 0.15mV @ 1/30s	17.5fps@4496×4496 64.4fps@2240×2240 64.4fps@1120×1120	1×1 2×2 4×4	30us~15s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter.**

1.5.2 I3 Series GigE Camera(8)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure Time
I3 with 33mm × 33mm × 42mm housing						
I3CMOS03100KMB-G	3.1M/IMX265LLR(M,GS) 1/1.8“ (7.07×5.30)	3.45×3.45	1830mV @ 1/30s 0.15mV @ 1/30s	36.9fps@2048×1536 115.1fps@1024×768	1×1 1×1	50us~5s
I3CMOS03200KMA-G	3.2M/IMX900AMR(M,GS) 1/3.1“(4.61×3.46)	2.25×2.25	1807mV/lx/s 0.15mV @ 1/30s	36.9fps@2048×1536 103.7fps@1024×768	1×1 1×1	50us~5s
I3CMOS03100KMA-10G	3.1M/IMX252LLR-C(M,GS) 1/1.8“(7.07×5.30)	3.45×3.45	915 mV @ 1/30s 0.15 mV @ 1/30s	151fps@2048×1536 420fps@1024×768	1×1 1×1	50us~15s
I3ISPM05000KPB-G	5.0M/IMX264LQR(C,GS) 2/3“ (8.45×7.07)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	23.9fps@2448 × 2048 87.6fps@1224 × 1024	1×1 1×1	15us~15s
I3CMOS05000KMB-G	5.0M/IMX264LLR(M,GS) 2/3“ (8.45×7.07)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	23.9fps@2448 × 2048 87.6fps@1224 × 1024	1×1 1×1	15us~15s
I3ISPM07100KPB-10G	7.1M/IMX420LQJ-C(M,GS) 1.1“ (14.4×9.9)	4.5×4.5	2058 mV @ 1/30s 0.15 mV@ 1/30s	160 fps @ 3200×2200 300 fps @ 1600×1100	1×1 1×1	50us~15s
I3 with 33mm × 33mm × 58.5mm housing						
I3ISPM03200KPA-G	3.2M/IMX900AQR(C,GS) 1/3.1“ (4.61×3.46)	2.25×2.25	1162mV/lx/s 0.15mV @ 1/30s	36.9fps@2048×1536 103.7fps@1024×768	1×1 1×1	50us~15s
I3ISPM03100KPB-G	3.1M/IMX265LQR(C,GS) 1/1.8“ (7.07×5.30)	3.45×3.45	1146mV @ 1/30s 0.15mV @ 1/30s	37fps@2048×1536 115.1fps@1024×768	1×1 1×1	50us~15s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; G: 1 Gigabit Ethernet port.**

1.5.3 I3 Series CoaXPress Camera

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity/Dark Signal	FPS/Resolution	Binning	Exposure Time
I3CMOS05100KMB-CXP	5.1M/IMX547-AAMJ-C(M,GS) 1/1.8“(6.71×5.61)	2.74×2.74	2252 mV @ 1/30s 0.15 mV @ 1/30s	109fps@2432×2048(8-bit) 74fps@2432×2048(12-bit)	2×2 3×3 4×4	30μs~15s

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C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; CXP:CoaXPress Interface.

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1.6 IUA Series Camera Specifications(Small size, common visible and special bands)

1.6.1 IUA Series USB3 Camera (55)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure Time
IUA390KMA	0.39M/IMX287LLR(M,GS) 1/2.9“ (4.97×3.73)	6.9×6.9	7320 mV @ 1/30s 0.76 mV @ 1/30s	101.5fps@720×540	1×1	6us~15s
IUA503KMA	0.5M/IMX426LLJ(M,GS) 1/1.7“ (7.2×5.58)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	79.8fps@800×620	1×1	6us~15s
IUA503KMB	0.5M/IMX433LLJ(M,GS) 1/1.7“ (7.2×5.58)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	79.8fps@800×620	1×1	6us~15s
IUA1500KMA	1.5M/IMX273LLR(C,GS) 1/2.9“ (4.97×3.73)	3.45×3.45	1830 mV @ 1/30s 0.15 mV @ 1/30s	155fps@1440×1080 523fps@720×540	1×1 1×1	15us~15s
IUA1500KPA	1.5M/IMX273LQR(C,GS) 1/2.9“ (4.97×3.73)	3.45×3.45	1146 mV @ 1/30s 0.15 mV @ 1/30s	155fps@1440×1080 523fps@720×540	1×1 1×1	15us~15s
IUA1700KMA	1.7M/IMX432LLJ(M,GS) 1.1“ (14.4×9.9)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	98.6fps@1600×1100	1×1	6us~15s
IUA1700KPA	1.7M/IMX432LQJ(C,GS) 1.1“ (14.4×9.9)	9.0×9.0	4910 mV @ 1/30s 0.3 mV @ 1/30s	98.6fps@1600×1100	1×1	6us~15s
IUA1700KMB	1.7M/IMX425LLJ(M,GS) 1.1“ (14.4×9.9)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	180fps@1600×1100	1×1	6us~15s
IUA1700KPB	1.7M/IMX425LQJ(C,GS) 1.1“ (14.4×9.9)	9.0×9.0	4910 mV @ 1/30s 0.3 mV @ 1/30s	180fps@1600×1100	1×1	6us~15s
IUA2300KMA	2.3M/IMX174LLJ(M,GS) 1/1.2“ (11.25×7.03)	5.86×5.86	1650 mV @ 1/30s 0.15 mV @ 1/30s	164.5fps@1920×1200	1×1	19us~15s
IUA2300KPA	2.3M/IMX174LQJ(C,GS) 1/1.2“ (11.25×7.03)	5.86×5.86	1016 mV @ 1/30s 0.15 mV @ 1/30s	164.5fps@1920×1200	1×1	19us~15s
IUA2300KMB	2.3M/IMX249LLJ(M,GS) 1/1.2“ (11.25×7.03)	5.86×5.86	1650 mV @ 1/30s 0.15 mV @ 1/30s	30fps@1920×1200	1×1	42us~15s
IUA2300KPB	2.3M/IMX249LQJ(C,GS) 1/1.2“ (11.25×7.03)	5.86×5.86	1016 mV @ 1/30s 0.15 mV @ 1/30s	30fps@1920×1200	1×1	42us~15s
IUA2800KMA	2.8M/IMX421LLJ(M,GS) 2/3“ (8.71×6.59)	4.5×4.5	3354 mV @ 1/30s 0.15 mV @ 1/30s	121fps@1936×1464 425fps@968×732	1×1 1×1	6us~15s
IUA2800KPA	2.8M/IMX421LQJ(C,GS) 2/3“ (8.71×6.59)	4.5×4.5	2058 mV @ 1/30s 0.15 mV @ 1/30s	121fps@1936×1464 425fps@968×732	1×1 1×1	6us~15s
IUA5000KMA	5.0M/IMX264LLR(M,GS) 2/3“ (8.45×7.07)	3.45×3.45	1830 mV @ 1/30s 0.15 mV @ 1/30s	35.6fps@2448×2048 87.6fps@1224×1024	1×1 1×1	15us~15s
IUA5000KPA	5.0M/IMX264LQR(C,GS) 2/3“ (8.45×7.07)	3.45×3.45	1146 mV @ 1/30s 0.15 mV @ 1/30s	35.6fps@2448×2048 87.6fps@1224×1024	1×1 1×1	15us~15s
IUA5100KMA	5.1M/ IMX547-AAMJ-C(M,GS) 1/1.8“(6.71×5.61)	2.74×2.74	2252 mV @ 1/30s 0.15 mV @ 1/30s	63fps@2448×2048 208.4fps@1224×1024	1×1 2×2	30us~15s
IUA5100KPA	5.1M/ IMX547-AAQJ-C(C,GS) 1/1.8“(6.71×5.61)	2.74×2.74	1337 mV @ 1/30s 0.15 mV @ 1/30s	63fps@2448×2048 159fps@1224×1024	1×1 2×2	30us~15s
IUA6300KMA	6.3M/IMX178LLJ(M,RS) 1/1.8“ (7.37×4.92)	2.4×2.4	760 mV @ 1/30s 0.15 mV @ 1/30s	59.9fps@3072×2048 59.9fps@1536×1024	1×1 2×2	17us~15s
IUA6300KPA	6.3M/IMX178LQJ(C,RS) 1/1.8“ (7.37×4.92)	2.4×2.4	425 mV @ 1/30s 0.15 mV @ 1/30s	59.8fps@3072×2048 59.5fps@1536×1024	1×1 2×2	17us~15s
IUA7100KMA	7.1M/IMX428LLJ(M,GS) 1.1“ (14.4×9.9)	4.5×4.5	3354 mV @ 1/30s 0.15 mV @ 1/30s	51.3fps@3200×2200 133.8fps@1584×1100	1×1 1×1	6us~15s
IUA7100KPA	7.1M/IMX428LQJ(C,GS) 1.1“ (14.4×9.9)	4.5×4.5	2058 mV @ 1/30s 0.15 mV @ 1/30s	51.4fps@3200×2200 133.8fps@1584×1100	1×1 1×1	6us~15s
IUA8000KMB	8.0M/IMX546-AAMJ(M,GS) 2/3“ (7.78×7.78)	2.74×2.74	2649 mV/lx/s 0.25 mV @ 1/30s	41fps@2832×2832 118fps@1408×1408	1×1 1×1	30us~15s
IUA8000KPB	8.0M/IMX546-AAQJ(C,GS) 2/3“ (7.78×7.78)	2.74×2.74	1574 mV/lx/s 0.15 mV @ 1/30s	41fps@2832×2832 118fps@1408×1408	1×1 1×1	30us~15s
IUA8300KPA	8.3M/IMX485LQJ-C(C,RS) 1/1.2“ (11.14×6.26)	2.9×2.9	2188 mV @ 1/30s 0.15 mV @ 1/30s	45fps@3840×2160 70fps@1920×1080	1×1 1×1	30us~15s
IUA8300KMB	8.3M/IMX585-AAMJ1-C(M,RS) 1/1.2“ (11.14×6.26)	2.9×2.9	19120 mV @ 1/30s 0.13 mV @ 1/30s	45fps@3840×2160 70fps@1920×1080	1×1 1×1	30us~15s
IUA8300KPB	8.3M/IMX585-AAQJ1-C(C,RS) 1/1.2“ (11.14×6.26)	2.9×2.9	5970 mV @ 1/30s 0.13 mV @ 1/30s	45fps@3840×2160 70fps@1920×1080	1×1 1×1	30us~15s
IUA8300KME	8.3M/IMX678-AAMR1-C(M, RS) 1/1.8“ (7.68×4.32)	2.0×2.0	11288 mV @ 1/30s 0.15 mV @ 1/30s	45fps@3840×2160 70fps@1920×1080	1×1 1×1	30us~15s
IUA8300KPE	8.3M/IMX678-AAQR1-C(C, RS) 1/1.8“ (7.68×4.32)	2.0×2.0	3541 mV @ 1/30s 0.15 mV @ 1/30s	45fps@3840×2160 70fps@1920×1080	1×1 1×1	30us~15s
IUA10300KPA	10.3M/IMX294(C,RS) 4/3 “(9.56×6.5)	4.63×4.63	419 mV @ 1/30s 0.12 mV @ 1/30s	30.0@4128×2808 38.5 @4096×2160 59.8@2048×1080	1×1 1×1 2×2	150us~15s

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				87.2@1360×720 8 Bit / 14 Bit	3×3	
IUA12000KPA	12M/IMX676-AACR1-C(C,RS) 1/1.6“ (7.07×7.07)	2.0×2.0	3637 mV 0.15 mV @ 1/30s	27@3536×3536 60@1768×1768	1×1 2×2	30us~15s
IUA12300KMA	12.3M/IMX545-AAMJ-C(M,GS) 1/1.1“(11.22×8.22)	2.74×2.74	2252 mV @ 1/30s 0.15 mV @ 1/30s	28.2fps@4096×3000 100.9fps@2048×1500 100.9fps@1024×750	1×1 2×2 4×4	30us~15s
IUA12300KPA	12.3M/IMX545-AAQJ-C(C, GS) 1/1.1“(11.22×8.22)	2.74×2.74	1337 mV @ 1/30s 0.15 mV @ 1/30s	28.2fps@4096×3000 100.9fps@2048×1500 100.9fps@1024×750	1×1 2×2 4×4	30us~15s
IUA12300KMB	12.3M/IMX304LLR-C(M,GS) 1.1“(14.13×10.35)	3.45×3.45	1830 mV @ 1/30s 0.15 mV @ 1/30s	23.4fps@4096×3000 46.3fps@2048×1500 46.3fps@1024×750	1×1 2×2 4×4	30us~15s
IUA12300KPB	12.3M/IMX304LQR-C(C, GS) 1.1“(14.13×10.35)	3.45×3.45	1146 mV @ 1/30s 0.15 mV @ 1/30s	23.4fps@4096×3000 46.3fps@2048×1500 46.3fps@1024×750	1×1 2×2 4×4	30us~15s
IUA20000KMA	20.0M/IMX183CLK(M,RS) 1“ (13.06×8.84)	2.4×2.4	777 mV @ 1/30s 0.2 mV @ 1/30s	19.0fps@5440×3684 49.9fps@2736×1824 59.5fps@1824×1216	1×1 2×2 3×3	53us~15s
IUA20000KPA	20.0M/IMX183CQK(C,RS) 1“ (13.06×8.84)	2.4×2.4	462 mV @ 1/30s 0.2 mV @ 1/30s	19.0fps@5440×3684 48.8fps@2736×1824 59.4fps@1824×1216	1×1 2×2 3×3	53us~15s
IUA20400KMA	20.4M/IMX541-AAMJ-C(M,GS) 1.1“ (12.32×12.32)	2.74×2.74	2649 mV @ 1/30s 0.15 mV @ 1/30s	17.5fps@4496×4496 64.4fps@2240×2240 64.4fps@1120×1120	1×1 2×2 4×4	30us~15s
IUA20400KPA	20.4M/IMX541-AAQJ-C(C,GS) 1.1“ (12.32×12.32)	2.74×2.74	1574 mV @ 1/30s 0.15 mV @ 1/30s	17.5fps@4496×4496 64.4fps@2240×2240 64.4fps@1120×1120	1×1 2×2 4×4	30us~15s
IUA24500KMA	24.5M/IMX540-AAMJ-C(M,GS) 1.2“(14.58×12.60)	2.74×2.74	2649 mV @ 1/30s 0.15 mV @ 1/30s	14.7fps@5320×4600 54.3fps@2660×2300	1×1 2×2 4×4	30us~15s
IUA24500KPA	24.5M/IMX540-AAQJ-C(C,GS) 1.2“(14.58×12.60)	2.74×2.74	1574 mV @ 1/30s 0.15 mV @ 1/30s	14.7fps@5320×4600 54.4fps@2660×2300	1×1 2×2 4×4	30us~15s
IUA25000KMA	25M/GMAX0505(M, GS) 1.1“ (12.8×12.8)	2.5×2.5	QE@500nm: 65.8% 2.4e-/pixel/s	13fps@5120×5120 27fps@2560×2560 54fps@1280×1280	1×1 2×2 4×4	15us~15s
IUA25000KPA	25M/GMAX0505(C, GS) 1.1“ (12.8×12.8)	2.5×2.5	QE@520nm: 58.0% 2.4e-/pixel/s	13fps@5120×5120 27fps@2560×2560 54fps@1280×1280	1×1 2×2 4×4	15us~15s
IUA45000KMA	45M/IMX492LLJ-C(M,RS) 1.4“ (19.11×13.00)	2.315×2.315	701mv with 1/30s 0.12mv with 1/30s	8.1@8176×5616 30.0@4080×2808 8.1@7408×5556 33.0@3696×2778 10.4@8176×4320 34.7@4096×2160 62.5@2048×1080 86.5@1360×720	1×1 2×2 1×1 2×2 1×1 2×2 3×3 4×4	100us~15s
IUA45000KPB	45M/IMX492LQJ-C(C,RS) 1.4“ (19.11×13.00)	2.315×2.315	176 mV @ 1/30s 0.03 mV @ 1/30s	8.1@8176×5616 8.1@7408×5556 10.4@8176×4320	1×1 2×2 1×1 2×2 1×1 2×2 3×3 4×4	100us~15s
IUA - Special Bands (UV, NIR)						
IUA2100KPA (NIR)	2.1M/IMX462LQR(C,RS,NIR) 1/2.8“ (5.57×3.13)	2.9×2.9	2376 mV @ 1/30s 0.15 mV @ 1/30s	120.3fps@1920×1080	1×1	11us~15s
IUA4100KPA (NIR)	4.1M/IMX464LQR(C,RS,NIR) 1/1.8“ (7.8×4.41)	2.9×2.9	2376 mV @ 1/30s 0.15 mV @ 1/30s	90fps@2688×1520	1×1	11us~15s
IUA500KMA (GPixel UV)	0.5M/GLUX1605BSI(M,UV,RS) 1“(12.8×9.6)	16×16	6.4×10^{8}(e-/((W/m2).s)) QE91%@550nm 50(e-/s/pix)	60fps@800×600 60fps@400×300	1×1 2×2	27us~60s
IUA1300KMA (GPixel UV)	1.3M/GLUX9701BSI(M,UV,RS) 1“(12.49×9.99)	9.76×9.76	2.57×10^{8}(e-/((W/m2).s)) QE89%@610nm 40(e-/s/pix)	30fps@1280×1024 30fps@640×512	1×1 2×2	63us~60s
IUA4200KMA (GPixel NIR)	4.2M/GSENSE2020e(M,NIR,RS) 1.2“(13.31×13.31)	6.5×6.5	8.1×10^{7}(e-/((W/m2).s)) QE73%@595nm 13(e-/s/pix)	45fps@2048×2048 45fps@1024×1024	1×1 2×2	21us~60s

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IUA4200KPA (GPixel NIR)	4.2M/GSENSE2020s(C,NIR,RS) 1.2“(13.31×13.31)	6.5×6.5	8.1×10^{7}(e-/((W/m2).s)) QE64%@595nm 13(e-/s/pix)	45fps@2032×2046 45fps@1008×1022	1×1 2×2	50us~3600s
IUA4200KMB (GPixel UV)	4.2M/GSENSE2020BSI(M,UV,RS) 1.2“(13.31×13.31)	6.5×6.5	1.1×10^{8}(e-/((W/m2).s)) QE93.7%@550nm 80(e-/s/pix)	32fps@2048×2048 32fps@1024×1024	1×1 2×2	12us~60s
IUA4200KME (GPixel UV)	4.2M/GSENSE400BSI(M,UV,RS) 2.0“(22.53×22.53)	11.0×11.0	3.25×10^{8}(e-/((W/m2).s)) QE95.3%@560nm 345(e-/s/pix)	37fps@2048×2048 37fps@1024×1024	1×1 2×2	21us~60s
IUA8000KMA (GS-UV)	8.0M/IMX487-AAMJ(M,UV,GS) 2/3“ (7.78×7.78)	2.74×2.74	145 mV @ 1/30s 0.15 mV @ 1/30s	45fps@2840×2840 198fps@1420×1420	1×1 2×2	30us~15s

***C: Color; M: Mono; UV: Ultraviolet; RS: Rolling shutter; GS: Global shutter; NIR: Near Infrared Ray.**

*** UV cameras can be removed from the glass, of which IUA8000KMA RG version please see 6.1.53.**

1.6.2 IUA Series GIgE Camera（3）

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity/Dark Signal	FPS/Resolution	Binning	Exposure Time
IUA4200KMA-10G	4.2M/GSENSE2020e(M,NIR,RS) 1.2“ (13.31×13.31)	6.5×6.5	8.1×107(e-/((W/m2).s)) QE73%@595nm 13(e-/s/pix)	74fps@2048×2048 74fps@1024×1024	1×1 2×2	21μs~60s
IUA4200KMB-10G	4.2M/GSENSE2020BSI(M,UV,RS) 1.2“ (13.31×13.31)	6.5×6.5	1.1×108(e-/((W/m2).s)) QE93.7%@550nm 80(e-/s/pix)	74fps@2048×2048 74fps@1024×1024	1×1 2×2	12μs~60s
IUA4200KME-10G	4.2M/GSENSE400BSI(M,UV,RS) 2.0“ (22.53×22.53)	11.0×11.0	3.25×108(e-/((W/m2).s)) QE95.3%@560nm 345(e-/s/pix)	48fps@2048×2048 48fps@1024×1024	1×1 2×2	21μs~60s

***C: Color; M: Mono; UV: Ultraviolet; RS: Rolling shutter; GS: Global shutter; 10G:10 Gigabit Ethernet shutter;**

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1.7 IUB Series Camera Specifications (End of life, not recommended)

1.7.1 IUB Series USB3 Camera(3)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity/Dark Signal	FPS/Resolution	Binning	Exposure Time
~~IUB4200KMA EOL~~	4.2M/GSENSE2020e(M,RS) 1.2“ (13.31×13.3)	6.5×6.5	8.11×10^{7}e-/((W/m2)·s) 7e-/s/pix	45fps@2048×2046 45fps@1024×1022	1×1 2×2	TBD
~~IUB4200KMB NRND~~	4.2M/GSENSE2020BSI(M, UV,RS) 1.2“ (13.31×13.3)	6.5×6.5	1.1×10^{8}e-/((W/m2)·s) 80e-/s/pix	43.6fps@2048×2046 43.6fps@1024×1022	1×1 2×2	150us-60s
~~IUB43000KMA EOL~~	43.0M/GMAX0806 (M,GS) 1.7“ (22.13×15.21, APS-C)	2.8×2.8	1.19×10^{7}e-/((W/m2)·s) 1e-/s/pix	8.5fps@7904×5432	1×1	15us-15s

***C: Color; M: Mono; UV: Ultraviolet; RS: Rolling shutter; GS: Global shutter.**

*** EOL: End of life. NRND: Not recommended for new designs. The corresponding products can be found in the IUA series.**

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1.8 IUC Series Camera Specifications (APS or full frame)

1.8.1 IUC Series USB3 Camera(12)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure Time
IUC9000KMA	9M/IMX533(M,RS) 1"(11.28x11.28)	3.76 ×3.76	877mv with 1/30s 0.04mv with 1/30s	40@2992x3000 62@1488x1500 186@992x998 8 Bit /14 Bit	1x1 2x2 3x3	0.1ms-15s
IUC21000KPA	21M/SonyIMX472AAJK-C(C,RS) 4/3"(17.3 x13.0)	3.3×3.3	982.8 mV @ 1/30s 0.55 mV @ 1/30s	17.4@5280*3956 69.5@2640*1978 156@1760*1318	1×1 2×2 3×3	150us~15s ec
IUC24000KPA	24.0M/IMX410CQK-C(C, RS) 2.7" (36.02×24.00, Full Frame)	5.94×5.94	572.8 mV @ 1/30s 0.037 mV @ 1/30s	15.3@6064×4040(14bit) 41@3024×2012 114@2016×1342	1×1 2×2 3×3	150us~15s
IUC26000KMA	26.0M/IMX571BLR(M, RS) 1.8" (23.48×15.67, APS-C)	3.76×3.76	870.9 mV @ 1/30s 0.07 mV @ 1/30s	14fps@6224×4168(16bit) 37fps@3104×2084 110fps@2064×1388	1×1 2×2 3×3	150us~15s
IUC26000KPA	26.0M/IMX571BQR(C, RS) 1.8" (23.48×15.67, APS-C)	3.76×3.76	484.5 mV @ 1/30s 0.07 mV @ 1/30s	14fps@6224×4168(16bit) 37fps@3104×2084 110fps@2064×1388	1×1 2×2 3×3	150us~15s
IUC26000KMA-AFU	26.0M/IMX571BLR(M, RS) 1.8" (23.48×15.67, APS-C)	3.76×3.76	870.9 mV @ 1/30s 0.07 mV @ 1/30s	14fps@6224×4168(16bit) 37fps@3104×2084 110fps@2064×1388	1×1 2×2 3×3	150us~15s
IUC26000KPA-AFU	26.0M/IMX571BQR(C, RS) 1.8" (23.48×15.67, APS-C)	3.76×3.76	484.5 mV @ 1/30s 0.07 mV @ 1/30s	14fps@6224×4168(16bit) 37fps@3104×2084 110fps@2064×1388	1×1 2×2 3×3	150us~15s
IUC31000KMA	31.0M/IMX342LLA(M, GS) 1.8" (22.3×16.74, APS-C)	3.45×3.45	1830 mV @ 1/30s 0.15 mV @ 1/30s	12.0fps@6464×4852 45.9fps@3216×2426	1×1 2×2	31us~15s
IUC31000KPA	31.0M/IMX342LQA(C, GS) 1.8" (22.3×16.74, APS-C)	3.45×3.45	1146 mV @ 1/30s 0.15 mV @ 1/30s	12.0fps@6464×4852 45.9fps@3216×2426	1×1 1×1	31us~15s
IUC60000KMA	60.0M/IMX455ALK (M, RS) 2.7" (35.96×23.99, Full Frame)	3.76×3.76	870.9 mV @ 1/30s 0.04 mV @ 1/30s	6.1fps@9568×6380(16bit) 24.6fps@4784×3190 55.8fps@3184×2124 191.0fps@1040×706	1×1 2×2 3×3 9×9	150us~15s
IUC60000KPA	60.0M/IMX455AQK (C, RS) 2.7" (35.96×23.99, Full Frame)	3.76×3.76	484.5 mV @ 1/30s 0.07 mV @ 1/30s	6.1fps@9568×6380(16bit) 24.6fps@4784×3190 55.8fps@3184×2124 191.0fps@1040×706	1×1 2×2 3×3 9×9	150us~15s
IUC60000KMA-AFU	60.0M/IMX455ALK (M, RS) 2.7" (35.96×23.99, Full Frame)	3.76×3.76	870.9 mV @ 1/30s 0.04 mV @ 1/30s	6.1fps@9568×6380(16bit) 24.6fps@4784×3190 55.8fps@3184×2124 191.0fps@1040×706	1×1 2×2 3×3 9×9	150us~15s
IUC60000KPA-AFU	60.0M/IMX455AQK (C, RS) 2.7" (35.96×23.99, Full Frame)	3.76×3.76	484.5 mV @ 1/30s 0.07 mV @ 1/30s	6.1fps@9568×6380(16bit) 24.6fps@4784×3190 55.8fps@3184×2124 191.0fps@1040×706	1×1 2×2 3×3 9×9	150us~15s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; AFU: Automatic Focusing+USB3 port.**

1.8.2 IUC Series GigE Camera (8)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure Time
IUC20400KMA-10G	20.4M/IMX531-AAMJ-C(M, RS) 1.1" (12.28×12.28)	2.74×2.74	2649 mV @ 1/30s 0.15 mV @ 1/30s	52.5fps@4480×4480(8-bit) 149fps@2240×2240(8-bit) 28fps@4480×4480(12-bit) 100fps@2240×2240(12-bit)	1×1 2×2 3×3 4×4	150us~15s
IUC20400KPA-10G	20.4M/IMX531-AAQJ-C(C, RS) 1.1" (12.28×12.28)	2.74×2.74	1574 mV @ 1/30s 0.15 mV @ 1/30s	52.5fps@4480×4480(8-bit) 149fps@2240×2240(8-bit) 28fps@4480×4480(12-bit) 100fps@2240×2240(12-bit)	1×1 3×3 4×4	150us~15s
IUC26000KMA-10G	26.0M/IMX571BLR(M, RS) 1.8" (23.48×15.67, APS-C)	3.76×3.76	870.9 mV @ 1/30s 0.07 mV @ 1/30s	45fps@6208×4168(16bit) 37fps@3104×2084 110fps@2064×1388	1×1 2×2 3×3	150us~15s

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IUC26000KPA-10G	26.0M/IMX571BQR(C, RS) 1.8“ (23.48×15.67, APS-C)	3.76×3.76	484.5 mV @ 1/30s 0.07 mV @ 1/30s	45fps@6208×4168(16bit) 37fps@3104×2084 110fps@2064×1388	1×1 2×2 3×3	150us~15s
IUC26000KMA-AF10G	26.0M/IMX571BLR(M, RS) 1.8“ (23.48×15.67, APS-C)	3.76×3.76	870.9 mV @ 1/30s 0.07 mV @ 1/30s	45fps@6224×4168(16bit) 37fps@3104×2084 110fps@2064×1388	1×1 2×2 3×3	150us~15s
IUC26000KPA-AF10G	26.0M/IMX571BQR(C, RS) 1.8“ (23.48×15.67, APS-C)	3.76×3.76	484.5 mV @ 1/30s 0.07 mV @ 1/30s	45fps@6224×4168(16bit) 37fps@3104×2084 110fps@2064×1388	1×1 2×2 3×3	150us~15s
IUC60000KMA-10G	60.0M/IMX455ALK (M, RS) 2.7“ (35.96×23.99, Full Frame)	3.76×3.76	870.9 mV @ 1/30s 0.04 mV @ 1/30s	20fps@9568×6380(16bit) 40fps@4784×3190 57.52fps@3184×2124 199.37fps@1040×706	1×1 2×2 3×3 9×9	150us~15s
IUC60000KPA-10G	60.0M/IMX455AQK (C, RS) 2.7“ (35.96×23.99, Full Frame)	3.76×3.76	484.5 mV @ 1/30s 0.07 mV @ 1/30s	20fps@9568×6380(16bit) 40fps@4784×3190 57.52fps@3184×2124 199.37fps@1040×706	1×1 2×2 3×3 9×9	150us~15s
IUC60000KMA-AF10G	60.0M/IMX455ALK (M, RS) 2.7“ (35.96×23.99, Full Frame)	3.76×3.76	870.9 mV @ 1/30s 0.04 mV @ 1/30s	20fps@9568×6380(16bit) 40fps@4784×3190 57.52fps@3184×2124 199.37fps@1040×706	1×1 2×2 3×3 9×9	150us~15s
IUC60000KPA-AF10G	60.0M/IMX455AQK (C, RS) 2.7“ (35.96×23.99, Full Frame)	3.76×3.76	484.5 mV @ 1/30s 0.07 mV @ 1/30s	20fps@9568×6380(16bit) 40fps@4784×3190 57.52fps@3184×2124 199.37fps@1040×706	1×1 2×2 3×3 9×9	150us~15s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; 10G: 10 Gigabit Ethernet port; AFU: Automatic Focusing+USB3 port.**

1.8.3 IUC Series CameraLink Camera (1)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure Time
IUC1700KMA-CL480	1.7M/IMX425LLJ(M,GS) 1.1“ (14.4×9.9)	9.0×9.0	8100 mV @ 1/30s 0.3 mV @ 1/30s	302@1600×1100	1×1	6us~15s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; CL: CamerLink port.**

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1.9 IUD Series Camera Specifications

1.9.1 IUD Series USB3 Camera(2)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity/Dark Signal	FPS/Resolution	Binning	Exposure Time
IUD16000KMA (NIR)	16.0M/PYTHON 16K (M, GS) (18.43×18.43)	4.5×4.5	TBD	22.5@4096×4096	1×1	1us~60s
IUD25000KMA (NIR)	25.0M/PYTHON 25K (M, GS) 2.04“ (23.04×23.04)	4.5×4.5	<1/5000 3.9 e^-/s@ 20°C	14.8@5120×5120 14.8@2560×2560 14.8@1664×1664	1×1 2×2 3×3	1us~60s

***C: Color; M: Mono; RS: Rolling shutter; GS: Global shutter; NIR: Near Infrared Ray.**

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1.10 IUE Series Camera Specifications(1)

1.10.1 IUE Series USB3 Camera(1)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity/Dark Signal	FPS/Resolution	Binning	Exposure Time
IUE1800KMA	1.8M/CMOS Sensor(M,RS) (115.2×147.5)	96.0×96.0	TBD 2200e/s/pixel@25℃	120fps@1200×1536	1×1	10us-15s

***M: Mono; RS: Rolling shutter.**

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1.11 AVCAM Series Camera Specifications(1)

Model Number	Image Sensor	Pixel Size(μm)	G Sensitivity/Dark Signal	FPS/Resolution	Binning	Exposure Time
AVCAM290A	0.4M/IMX307 (M, RS) 1/2.8"(2.08×1.67)	2.9×2.9	CVBS(PAL-N)	25fps@720 × 576	2×2	105μs-20ms

***M: Mono; RS: Rolling shutter.**

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2 MAX Series Camera Specification(18)

2.1 MAX251AM-U3

Table 2-1 MAX251AM-U3 camera specifications

Model / Parameter	MAX251AM-U3 251M pixels 4.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX811ALR
Pixel size	2.81 μm x 2.81 μm
Sensor size	4.1"
Frame rate	1.5fps@19200 x 12800
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	TBD
Dark current	TBD
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm×110mm×123.8mm
Weight	1.44kg
Lens mount	M72-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

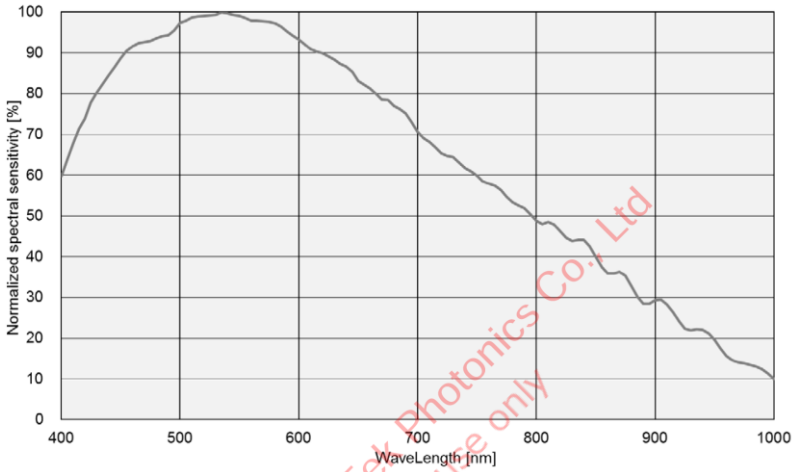


Figure 2-1 MAX251AM-U3 spectral response curve

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2.2 MAX251AM-10G

Table 2-2 MAX251AM-10G camera specifications

Model / Parameter	MAX251AM-10G 251M pixels 4.1" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX811ALR
Pixel size	2.81 μm x 2.81 μm
Sensor size	4.1"
Frame rate	1.5fps@19200 x 12800
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	TBD
Dark current	TBD
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 129.8mm
Weight	1.44kg
Lens mount	M72-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

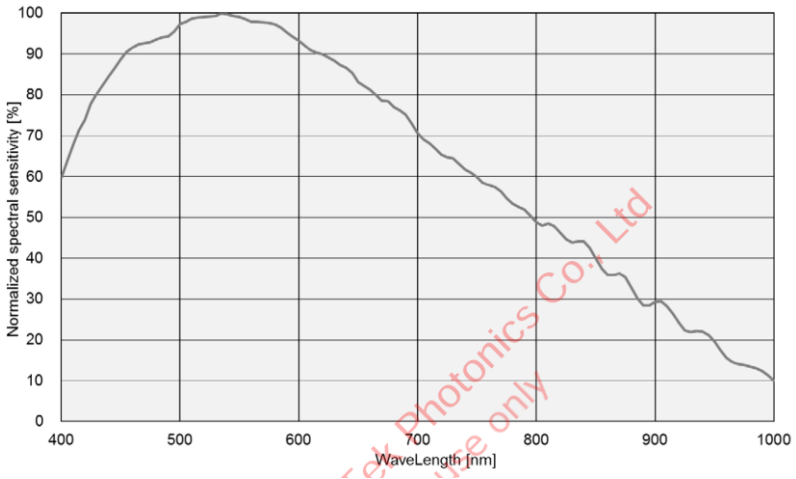


Figure 2-2 MAX251AM-10G spectral response curve

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2.3 MAX251AC-U3

Table 2-3 MAX251AC-U3camera specifications

Model / Parameter	MAX251AC-U3 251M pixels 4.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX811AQR
Pixel size	2.81 μm x 2.81 μm
Sensor size	4.1"
Frame rate	1.5fps@19200 x 12800
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	TBD
Dark current	TBD
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 123.8mm
Weight	1.44kg
Lens mount	M72-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

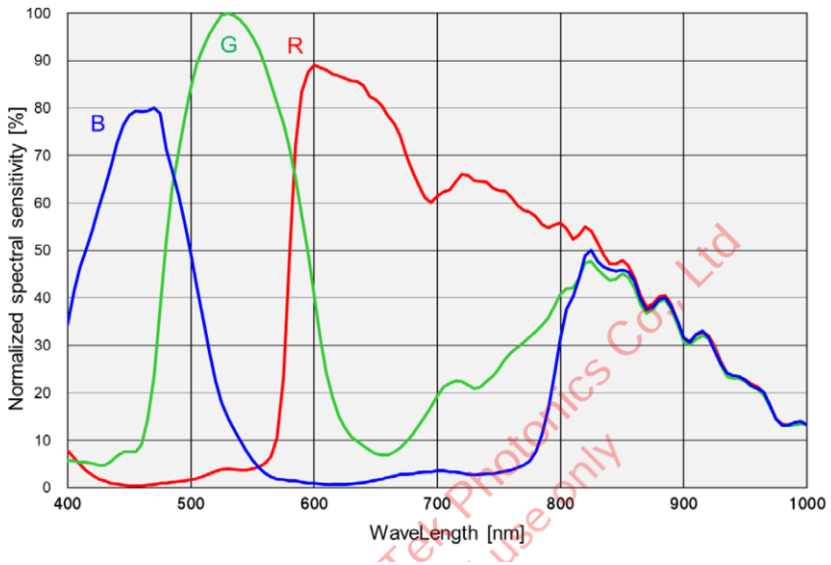


Figure 2-3 MAX251AC-U3 spectral response curve

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2.4 MAX251AC-10G

Table 2-4 MAX251AC-10G camera specifications

Model / Parameter	MAX251AC-10G 251M pixels 4.1" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX811AQR
Pixel size	2.81 μm x 2.81 μm
Sensor size	4.1"
Frame rate	1.5fps@19200 x 12800
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	TBD
Dark current	TBD
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 129.8mm
Weight	1.44kg
Lens mount	M72-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

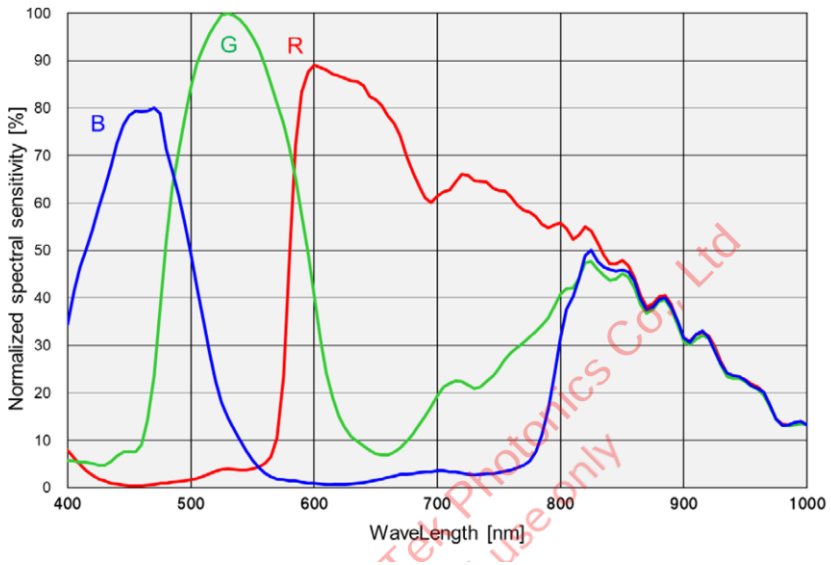


Figure 2-4 MAX251AC-10G spectral response curve

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2.5 MAX151AM-U3

Table 2-5 MAX151AM-U3 camera specifications

Model / Parameter	MAX151AM-U3 151M pixels 4.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX411ALR
Pixel size	3.76 μm × 3.76 μm
Sensor size	4.2"
Frame rate	2.4 fps @ 14176×10640 6.9 fps @ 7072×5320 20.8 fps @ 4704×3546 61.9 fps @ 1568×1178
Conversion Gain	0.76 e^-/ADU
Readout Noise	3.73 e^-
Full Well	49.39 ke^-
Dynamic range	82.5 dB
SNRmax	46.9 dB
Sensitivity	871mV @ 1/30s
Dark current	0.04mV @ 1/30s
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 123.8mm
Weight	1.44kg
Lens mount	M72 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

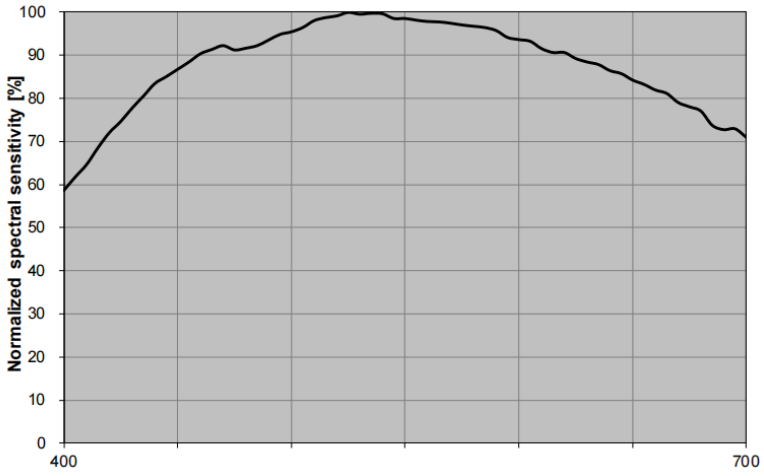


Figure 2-5 MAX151AM-U3 spectral response curve

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2.6 MAX151AM-10G

Table 2-6 MAX151AM-10G camera specifications

Model / Parameter	MAX151AM-10G 151M pixels 4.2" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX411ALR
Pixel size	3.76 μm × 3.76 μm
Sensor size	4.2"
Frame rate	6.1 fps @ 14176×10640 6.9 fps @ 7072×5320 20.8 fps @ 4704×3546 61.9 fps @ 1568×1178
Conversion Gain	0.76 e^-/ADU
Readout Noise	3.73 e^-
Full Well	49.39 ke^-
Dynamic range	82.5 dB
SNRmax	46.9 dB
Sensitivity	871mV @ 1/30s
Dark current	0.04mV @ 1/30s
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 129.8mm
Weight	1.44kg
Lens mount	M72 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

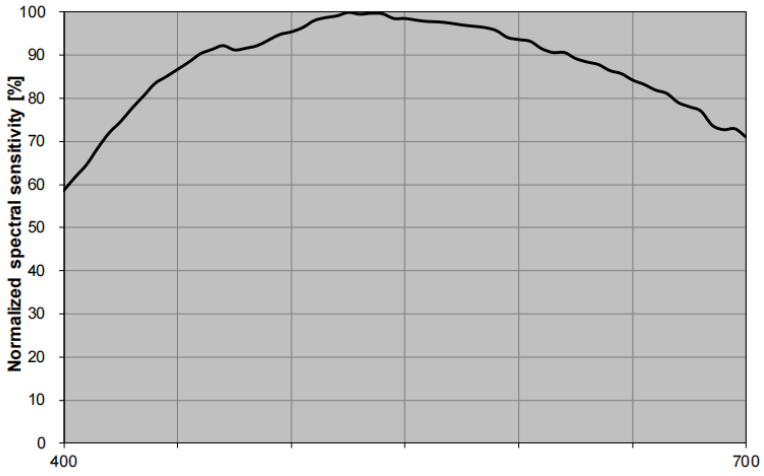


Figure 2-6 MAX151AM-10G spectral response curve

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2.7 MAX151AC-U3

Table 2-7 MAX151AC-U3 camera specifications

Model / Parameter	MAX151AC-U3 151M pixels 4.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX411AQR
Pixel size	3.76 μm × 3.76 μm
Sensor size	4.2"
Frame rate	2.4 fps @ 14176×10640 6.9 fps @ 7072×5320 20.8 fps @ 4704×3546 61.9 fps @ 1568×1178
Conversion Gain	0.78 e^-/ADU
Readout Noise	2.8 e^-
Full Well	50.87 ke^-
Dynamic range	84.9 dB
SNRmax	47 dB
Sensitivity	485mV @ 1/30s
Dark current	0.04mV @ 1/30s
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 123.8mm
Weight	1.44kg
Lens mount	M72 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

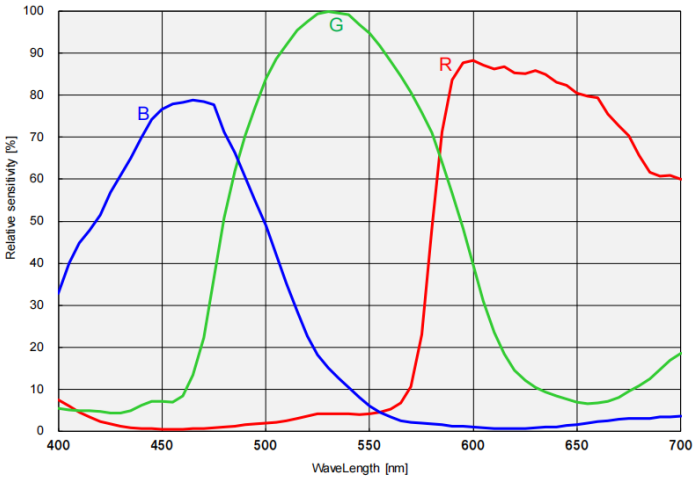


Figure 2-7 MAX151AC-U3 spectral response curve

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2.8 MAX151AC-10G

Table 2-8 MAX151AC-10G camera specifications

Model / Parameter	MAX151AC-10G 151M pixels 4.2" CMOS 10GigE industrial camera
Camera Parameters	
Data interface	**10GigE**
Sensor model	Sony IMX411AQR
Pixel size	3.76 μm × 3.76 μm
Sensor size	4.2"
Frame rate	6.1 fps @ 14176×10640 6.9 fps @ 7072×5320 20.8 fps @ 4704×3546 61.9 fps @ 1568×1178
Conversion Gain	0.78 e^-/ADU
Readout Noise	2.8 e^-
Full Well	50.87 ke^-
Dynamic range	84.9 dB
SNRmax	47 dB
Sensitivity	485mV @ 1/30s
Dark current	0.04mV @ 1/30s
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 129.8mm
Weight	1.44kg
Lens mount	M72 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

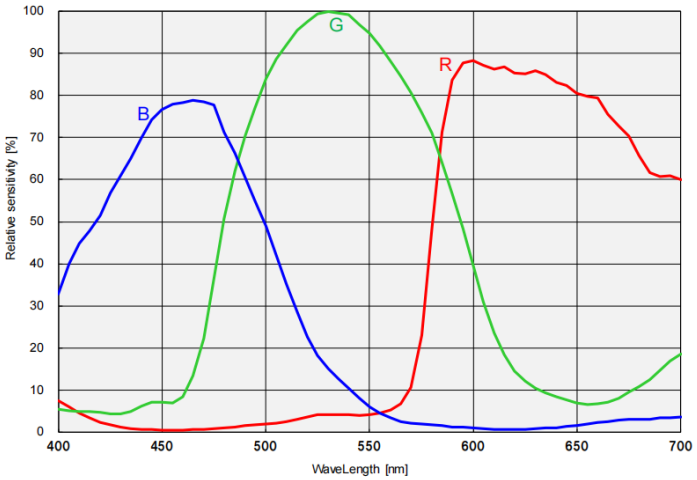


Figure 2-8 MAX151AC-10G spectral response curve

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2.9 MAX102AM-U3

Table 2-9 MAX102AM-U3 camera specifications

Model / Parameter	MAX102AM-U3 102M pixels 3.4" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX461ALR
Pixel size	3.76 μm × 3.76 μm
Sensor size	3.4"
Frame rate	3.5 fps @ 11648×8742 8.7 fps @ 5824×4370 27.8 fps @ 3872×2912 82.5 fps @ 1280×970
Conversion Gain	0.75 e^-/ADU
Readout Noise	3.57 e^-
Full Well	49.09 ke^-
Dynamic range	82.8 dB
SNRmax	46.9 dB
Sensitivity	871 mV @ 1/30 s
Dark current	0.04 mV @ 1/30 s
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	Cooled 58.86W / Uncooled 14.95W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 123.8mm
Weight	1.44kg
Lens mount	M72 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

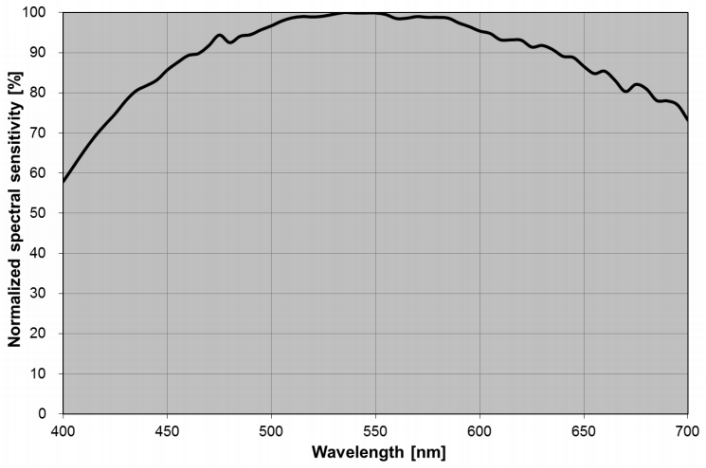


Figure 2-9 MAX102AM-U3 spectral response curve

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2.10 MAX102AM-10G

Table 2-10 MAX102AM-10G camera specifications

Parameter \ Model	MAX102AM-10G
	102M pixels 3.4" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX461ALR
Pixel size	3.76 μm × 3.76 μm
Sensor size	3.4"
Frame rate	8.7@11648×8742 8.7@5824×4370 27.8@3872×2912 82.5@1280×970
Conversion Gain	0.75 e^-/ADU
Readout Noise	3.57 e^-
Full Well	49.09 ke^-
Dynamic range	82.8 dB
SNRmax	46.9 dB
Sensitivity	871 mV @ 1/30 s
Dark current	0.04 mV @ 1/30 s
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	Cooled 58.86W / Uncooled 14.95W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 129.8mm
Weight	1.44kg
Lens mount	M72 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

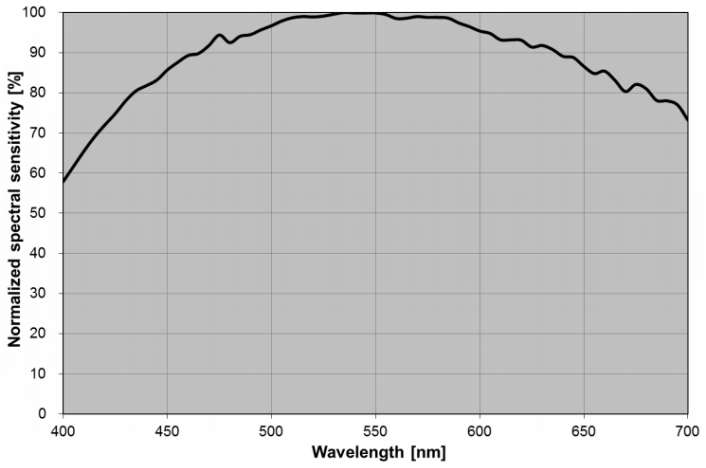


Figure 2-10 MAX102AM-10G spectral response curve

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2.11 MAX102AC-U3

Table 2-11 MAX102AC-U3 camera specifications

Model / Parameter	MAX102AC-U3 102M pixels 3.4" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX461AQR
Pixel size	3.76 μm × 3.76 μm
Sensor size	3.4"
Frame rate	3.5 fps @ 11648×8742 8.7 fps @ 5824×4370 27.8 fps @ 3872×2912 82.5 fps @ 1280×970
Conversion Gain	0.77 e^-/ADU
Readout Noise	3.64e^-
Full Well	50.19 ke^-
Dynamic range	82.8 dB
SNRmax	47 dB
Sensitivity	485mV @ 1/30 s
Dark current	0.04mV @ 1/30 s
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	Cooled 58.86W / Uncooled 14.95W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 123.8mm
Weight	1.44kg
Lens mount	M72 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

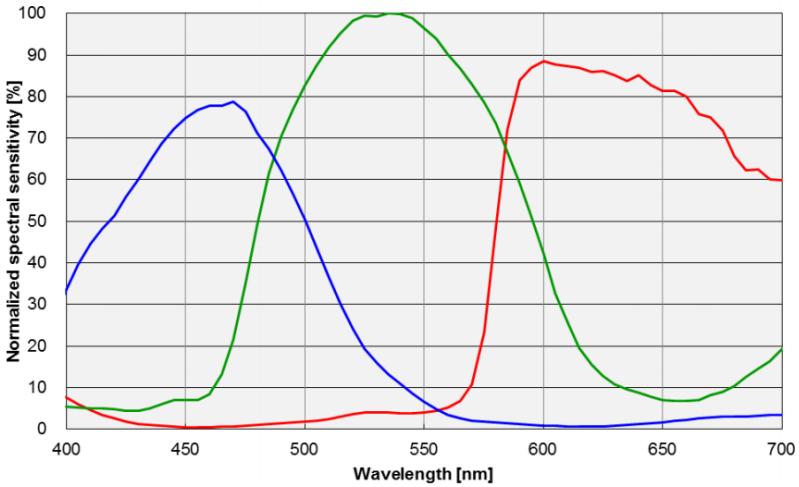


Figure 2-11 MAX102AC-U3 spectral response curve

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2.12 MAX102AC-10G

Table 2-12 MAX102AC-10G camera specifications

Model / Parameter	MAX102AC-10G 102M pixels 3.4" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX461AQR
Pixel size	3.76 μm × 3.76 μm
Sensor size	3.4"
Frame rate	8.7@11648×8742 8.7@5824×4370 27.8@3872×2912 82.5@1280×970
Conversion Gain	0.77 e^-/ADU
Readout Noise	3.64e^-
Full Well	50.19 ke^-
Dynamic range	82.8 dB
SNRmax	47 dB
Sensitivity	485mV @ 1/30 s
Dark current	0.04mV @ 1/30 s
Gain range	1x-50x
Exposure time	150μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	19V Power adapter
Power consumption	Cooled 58.86W / Uncooled 14.95W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm × 110mm × 129.8mm
Weight	1.44kg
Lens mount	M72 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

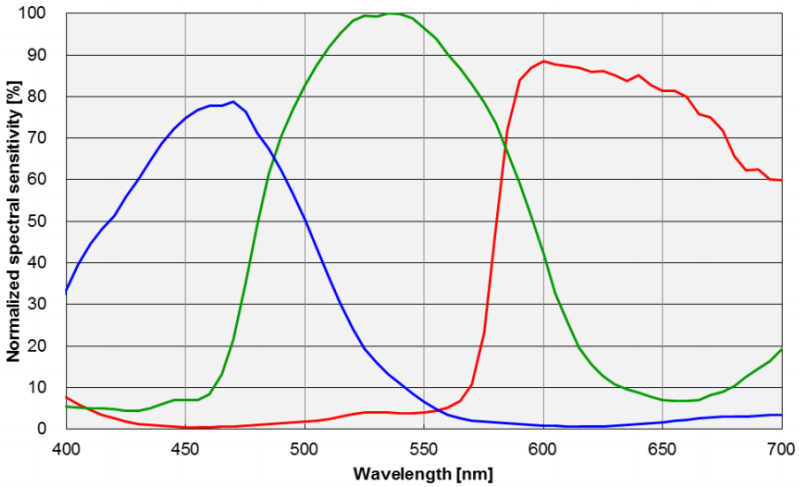


Figure 2-12 MAX102AC-10G spectral response curve

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2.13 MAX62AM

Table 2-13 MAX62AM camera specifications

Model / Parameter	MAX62AM
	61M pixels 2.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX455ALK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7"
Frame rate	6.1@9568×6380(16bit) 19.1@4784×3190 55.6@3184×2124 191@1040×706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
SNRmax	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	871mV @ 1/30s
Dark current	0.04mV @ 1/30s
Gain range	1x-100x
Exposure time	100μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General specification	
Power supply	Power with USB3.0 or 19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm×110mm×121.5mm
Weight	1.7kg
Lens mount	M52 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

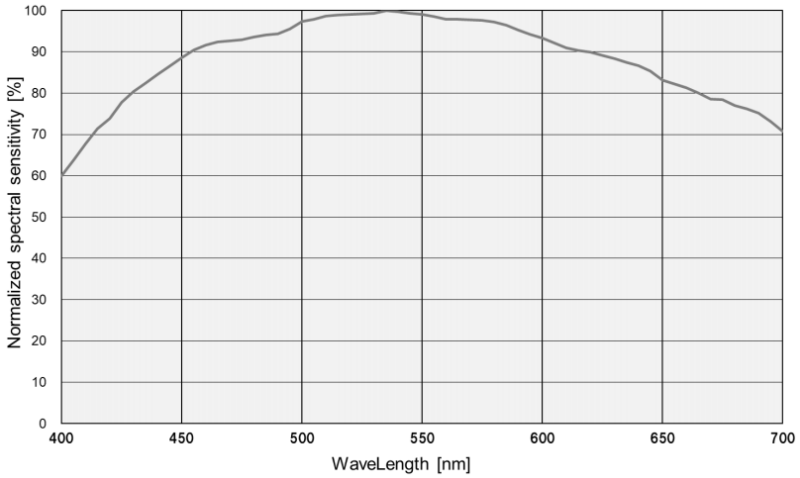


Figure 2-13 MAX62AM spectral response curve

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2.14 MAX62AC

Table 2-14 MAX62AC camera specifications

Model / Parameter	MAX62AC
	61M pixels 2.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX455AQK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7"
Frame rate	6.1@9568×6380(16bit) 19.1@4784×3190 55.6@3184×2124 191@1040×706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
SNRmax	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	485mV @ 1/30s
Dark current	0.04mV @ 1/30s
Gain range	1x-100x
Exposure time	100μs-3600sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General specification	
Power supply	Power with USB3.0 or 19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm×110mm×121.5mm
Weight	1.7kg
Lens mount	M52 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

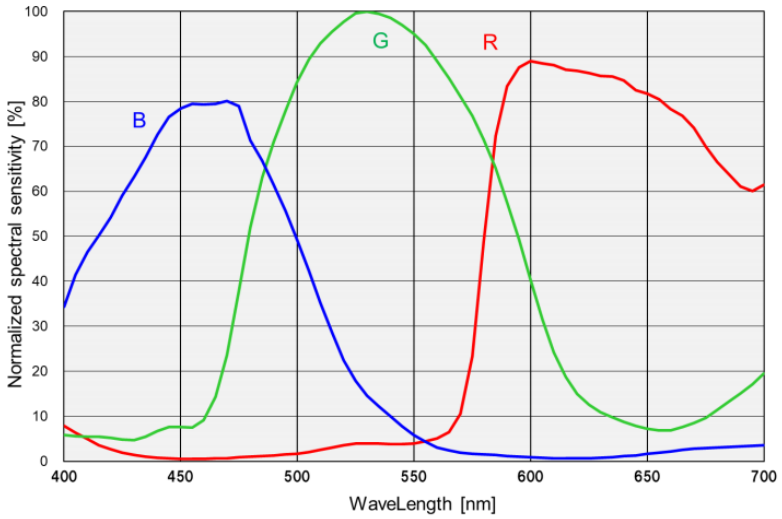


Figure 2-14 MAX62AC spectral response curve

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2.15 MAX24AC

Table 2-15 MAX24AC camera specifications

Model / Parameter	MAX24AC 24M pixels 2.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX410CQK
Pixel size	5.94 μm x 5.94 μm
Sensor size	2.7"
Frame rate	15.3@6064×4040(14bit) 41@3024×2012 114@2016×1342
Conversion Gain	1.2e-(HCG) 6.19e-(LCG)
Readout Noise	0.58e-(HCG) 4.56e-(LCG)
Full Well	19653.77e-(HCG) 101464.01e-(LCG)
Dynamic range	84dB (HCG) 84dB (LCG)
SNRmax	42.93dB(HCG) 50.06dB(LCG)
Sensitivity	573mV @ 1/30s
Dark current	0.04mV @ 1/30s
Gain range	1-100x
Exposure time	100μs-1000sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General specification	
Power supply	Power with USB3.0 or 19V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm×110mm×121.5mm
Weight	1.7kg
Lens mount	M52 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

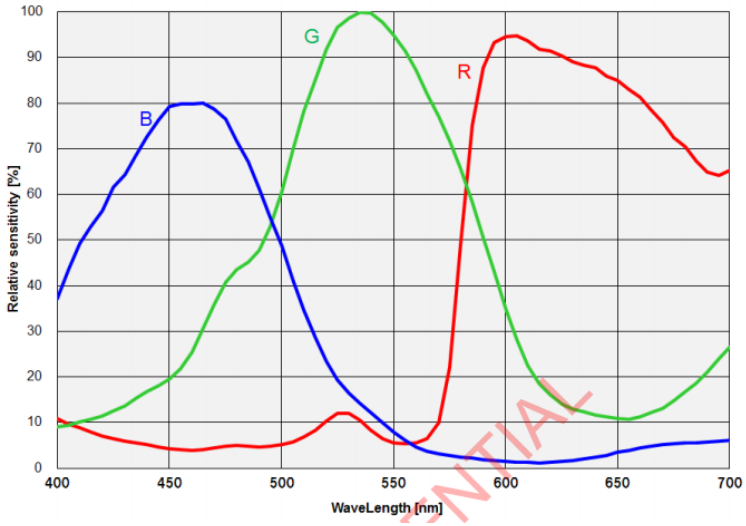


Figure 2-15 MAX24AC spectral response curve

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2.16 MAX04AM

Table 2-16 MAX04AM camera specifications

Model / Parameter	MAX04AM 4.2M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE2020e
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	45@2048×2048 45@1024 x 1024
Conversion Gain	1.17(HCG) 3.62(LCG)0.69(HDR)
Readout Noise	2.06e-(HCG) 10.39e-(LCG)3.62e-(HDR)
Full Well	19.17ke-(HCG)59.30ke-(LCG)45.02ke-(HDR)
Dynamic range	66.72dB(HCG) 66.36dB(LCG)81.6dB(HDR)
SNRmax	42.83dB(HCG)47.73dB(LCG)46.53dB(HDR)
Sensitivity	8.1×107 (e-/((W/m2).s))
Peak QE	73% @595nm
Dark current	0.12(e-/s/pix) @-10C°
Gain range	1x-50x
Exposure time	100μs-1000sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, hardware2×2
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General specification	
Power supply	Power with USB3.0 or 19V Power adapter
Power consumption	Cooled 44.8W / Uncooled 6.65W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm×110mm×121.5mm
Weight	1.7kg
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

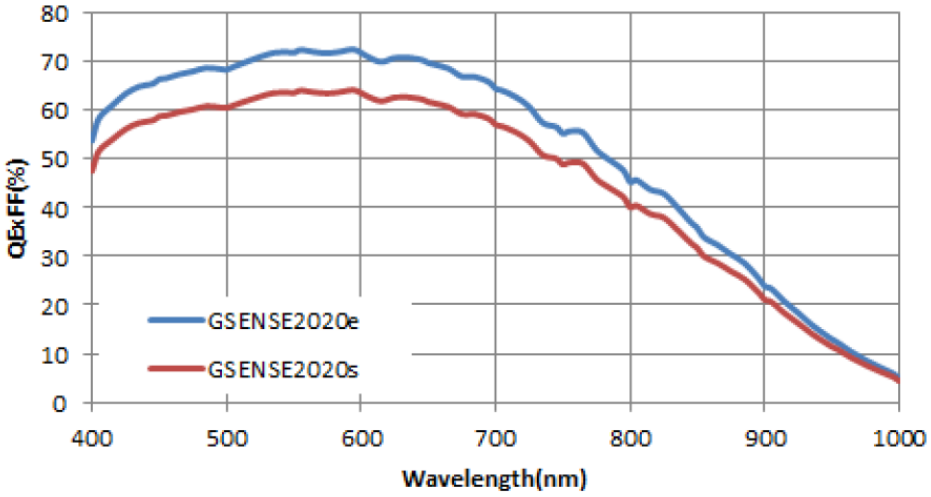


Figure 2-16 MAX04AM spectral response curve

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2.17 MAX04BM

Table 2-17 MAX04BM camera specifications

Parameter \ Model	MAX04BM
	4.2M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE2020BSI
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	45@2048×2048 45@1024 x 1024
Conversion Gain	3.23e-(HCG) 12.42e-(LCG) 0.76e-(HDR)
Readout Noise	6.78e-(HCG) 29.07e-(LCG) 5.33e-(HDR)
Full Well	13210.49e-(HCG) 50873.17e-(LCG) 49863.77e-(HDR)
Dynamic range	65.58dB (HCG) 64.62dB (LCG) 79.14dB (HDR)
SNRmax	41.21dB(HCG) 47.06dB(LCG) 46.98dB(LCG)
Sensitivity	1.1×108 (e-/((W/m2).s))
Peak QE	93.7% @550nm
Dark current	0.15(e-/s/pix) @-15C°
Gain range	1x-50x
Exposure time	100μs-1000sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, hardware2×2
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General specification	
Power supply	Power with USB3.0 or 19V Power adapter
Power consumption	Cooled 48.26W / Uncooled 8.17W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm×110mm×121.5mm
Weight	1.7kg
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

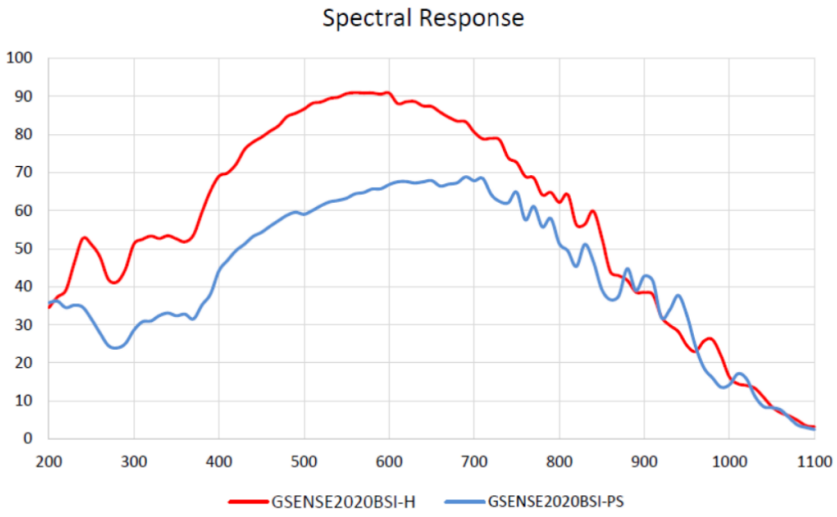


Figure 2-17 MAX04BM spectral response curve

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2.18 MAX04CM

Table 2-18 MAX04CM camera specifications

Parameter \ Model	MAX04CM
	4.2M pixels 2.0" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE400BSI
Pixel size	11 μm x 11 μm
Sensor size	2.0"
Frame rate	44@2048×2048 44@1024 x 1024
Conversion Gain	0.439 e^-/ADU (HCG) / 20.421 e^-/ADU (LCG) / 0.573 e^-/ADU (HDR)
Readout Noise	1.13 e^- (HCG) / 26.16 e^- (LCG) / 1.43 e^- (HDR)
Full Well	1.798 ke^- (HCG) / 83.599 ke^- (LCG) / 37.522 ke^- (HDR)
Dynamic range	64.1 dB (HCG) / 70.1 dB (LCG) / 88.4 dB (HDR)
SNRmax	32.5 dB (HCG) / 49.2 dB (LCG) / 45.7 dB (HDR)
Sensitivity	3.25×108 (e-/((W/m2).s))
Peak QE	95% @570nm
Dark current	1.5(e-/s/pix) @-10C°
Gain range	1x-8x
Exposure time	12us-3600s ec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, hardware2×2
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General specification	
Power supply	Power with USB3.0 or 19V Power adapter
Power consumption	Cooled 50.2W / Uncooled 7.33W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	110mm×110mm×121.5mm
Weight	1.7kg
Lens mount	M42 mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

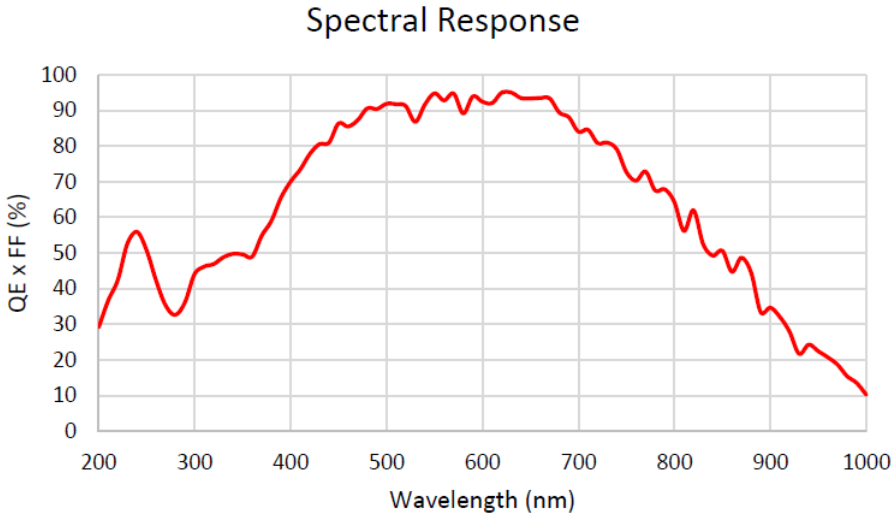


Figure 2-18 MAX04CM spectral response curve

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3 ITR3CMOS Series Camera Specification(24)

3.1 ITR3CMOS45000KMA

Table 3-1 ITR3CMOS45000KMA camera specifications

Model / Parameter	ITR3CMOS45000KMA 45M pixels 1.4" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX492LLJ-C
Pixel size	2.315 μm x 2.315μm
Sensor size	1.4"
Frame rate	8.1@8176×5616 30.0@4080×2808 8.1@7408×5556 33.0@3696×2778 10.4@8176×4320 34.7@4096×2160 62.5@2048×1080 86.5@1360×720
Readout Noise	2.67e-(HCG) 2.74e-(LCG)
Full Well	14796.69e-(HCG) 14859.92e-(LCG)
Dynamic range	72dB (HCG) 72dB (LCG)
SNRmax	41.7dB(HCG) 41.72dB(LCG)
Sensitivity	175mV
Dark current	0.03mV
Gain range	1x-50x
Exposure time	100μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	24.12w
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 102mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

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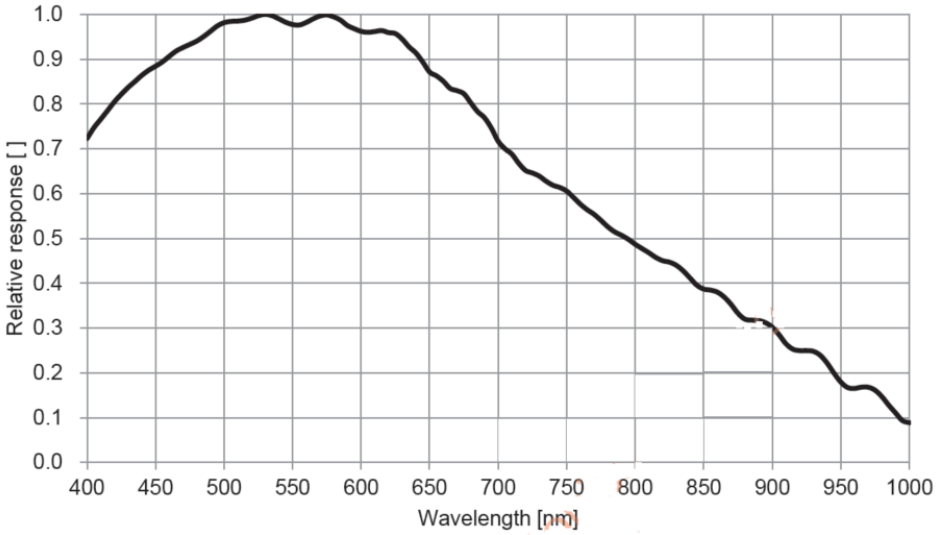


Figure 3-1 ITR3CMOS45000KMA spectral response curve

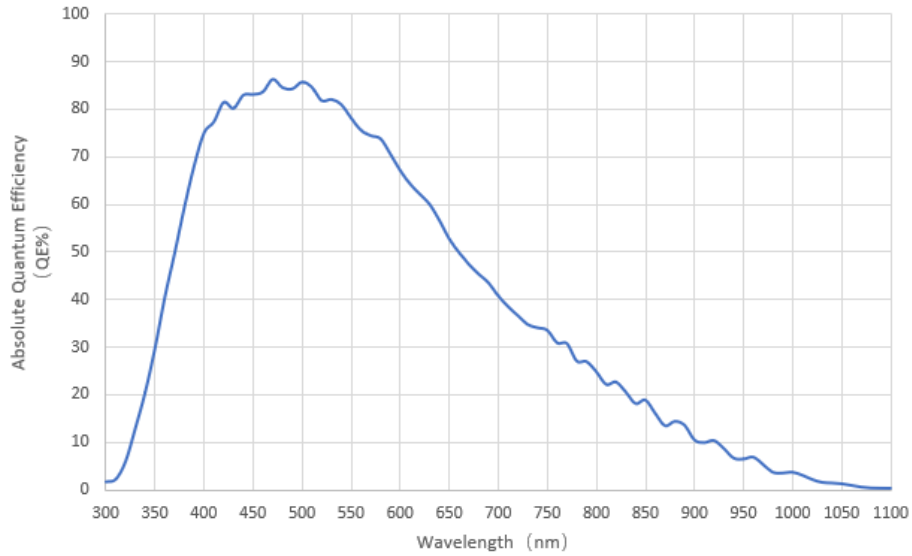


Figure 3-2 ITR3CMOS45000KMA spectral absolute quantum efficiency

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3.2 ITR3CMOS26000KPA

Table 3-2 ITR3CMOS26000KPA camera specifications

Model / Parameter	ITR3CMOS26000KPA 26M pixels 1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX571BQR-C
Pixel size	3.76 μm x 3.76 μm
Sensor size	1.8"
Frame rate	14fps@6224×4168 37fps@3104×2084 110fps@2064×1388
Readout Noise	1.31e-(HCG) 3.15e-(LCG)
Full Well	16569.55e-(HCG) 51591.91e-(LCG)
Dynamic range	81.78dB (HCG) 84dB (LCG)
SNRmax	42.19dB(HCG) 47.13dB(LCG)
Sensitivity	485 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	100μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	28.32w
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

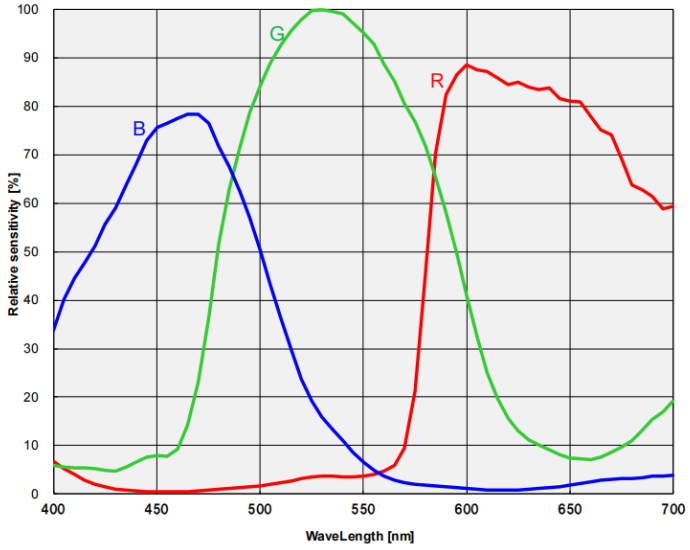


Figure 3-3 ITR3CMOS26000KPA spectral response curve

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3.3 ITR3CMOS26000KMA

Table 3-3 ITR3CMOS26000KMA camera specifications

Parameter \ Model	ITR3CMOS26000KMA
	26M pixels 1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX571BLR-J
Pixel size	3.76 μm x 3.76 μm
Sensor size	1.8"
Frame rate	14fps@6224×4168 37fps@3104×2084 110fps@2064×1388
Readout Noise	0.94e-(HCG) 2.23e-(LCG)
Full Well	16770.94e-(HCG) 51081.55e-(LCG)
Dynamic range	84.72dB (HCG) 86.88dB (LCG)
SNRmax	42.25dB(HCG) 47.08dB(LCG)
Sensitivity	871 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	100μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	25.08w
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

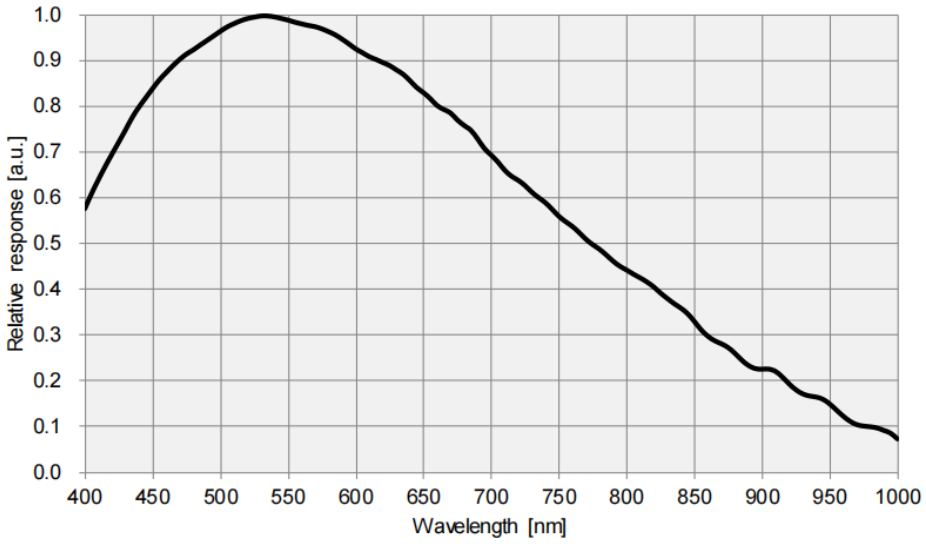


Figure 3-4 ITR3CMOS26000KMA spectral response curve

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3.4 ITR3CMOS21000KPA

Table 3-4 ITR3CMOS21000KPA camera specifications

Model / Parameter	ITR3CMOS21000KPA 21M pixels 4/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX269AQR
Pixel size	3.3 μm x 3.3 μm
Sensor size	4/3"
Frame rate	17@5280×3954 17@3952×3952 56@2640×1976 67@1760×1316 192@584×438
Readout Noise	0.91e-(HCG) 0.61e-(LCG)
Full Well	11356.85e-(HCG) 23015.4e-(LCG)
Dynamic range	72dB (HCG) 72dB (LCG)
SNRmax	40.55dB(HCG) 43.62dB(LCG)
Sensitivity	400 mV
Dark current	0.1 mV
Gain range	1x-50x
Exposure time	100μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	Cooled 24.4W / Uncooled 5.81W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

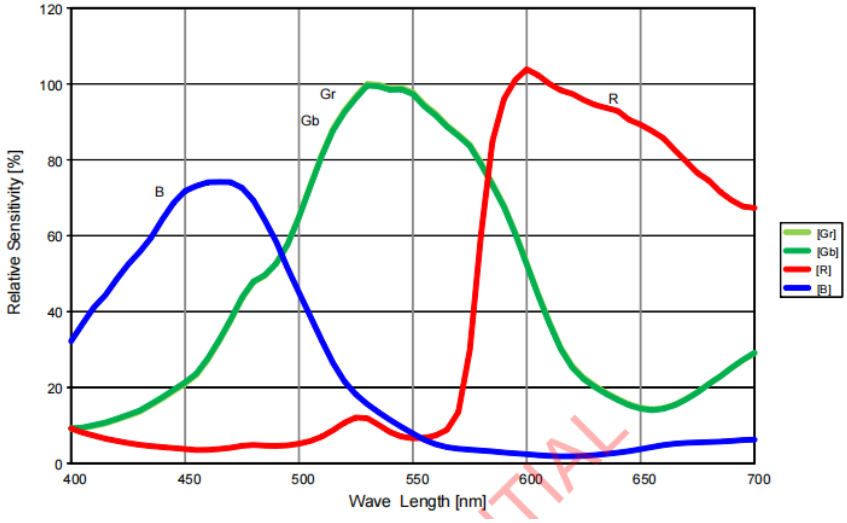


Figure 3-5 ITR3CMOS21000KPA spectral response curve

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3.5 ITR3CMOS20000KPA

Table 3-5 ITR3CMOS20000KPA camera specifications

Model / Parameter	ITR3CMOS20000KPA	ITR3CMOS20000KPA -G
	20M pixels 1" CMOS USB3.0 / GigE industrial camera	
Camera Parameters		
Data interface	USB3.0	GigE
Sensor model	Sony IMX183CQK	
Pixel size	2.4 μm x 2.4 μm	
Sensor size	1"	
Frame rate	19.0fps@5440 x 3684 48.8fps@2736 x 1824 59.4fps@1824 x 1216	4.5fps@5440 x 3684 18.5fps@2736 x 1824 41.7fps@1824 x 1216
Readout Noise	3.38e-	
Full Well	15929.69e-	
Dynamic range	72dB	
SNRmax	42.02dB	
Sensitivity	462mV	
Dark current	0.21mV	
Gain range	1x-50x	
Exposure time	53μs-15sec	
Shutter	Rolling shutter	
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4	
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output	
Data Format	8-bit / 12-bit	
General specification		
Power supply	Power with USB3.0 or 12V Power adapter	12V Power adapter
Power consumption	14.64W	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃	
Humidity	20%-80%, no condensation	
Size	80mm × 80mm × 101.5mm	
Weight	860g	
Lens mount	C mount	
Software	ToupView/ SDK	
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64	
Certification	CE, FCC	

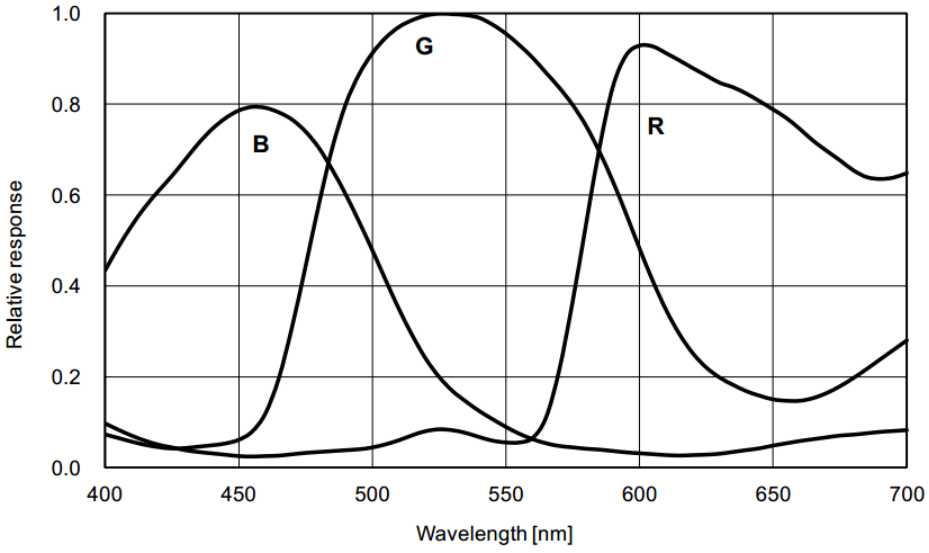


Figure 3-6 ITR3CMOS20000KPA spectral response curve

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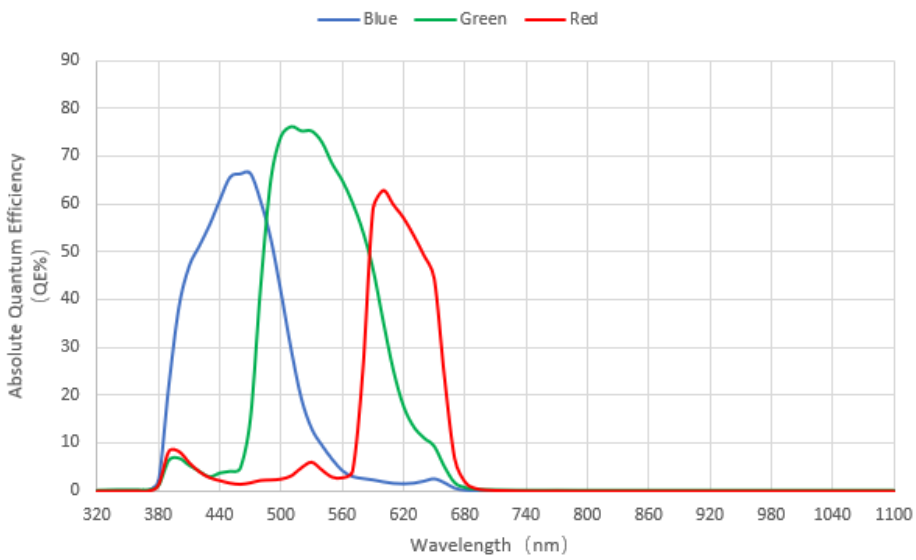


Figure 3-7 ITR3CMOS20000KPA spectral absolute quantum efficiency

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3.6 ITR3CMOS20000KMA

Table 3-6 ITR3CMOS20000KMA camera specifications

Model / Parameter	ITR3CMOS20000KMA	ITR3CMOS20000KMA -G
	20M pixels 1" CMOS USB3.0 / GigE industrial camera	
Camera Parameters		
Data interface	USB3.0	GigE
Sensor model	Sony IMX183CQK	
Pixel size	2.4 μm x 2.4 μm	
Sensor size	1"	
Frame rate	19.0fps@5440 x 3684 48.8fps@2736 x 1824 59.4fps@1824 x 1216	4.5fps@5440 x 3684 18.5fps@2736 x 1824 41.7fps@1824 x 1216
Readout Noise	3.38e-	
Full Well	15929.69e-	
Dynamic range	72dB	
SNRmax	42.02dB	
Sensitivity	462mV	
Dark current	0.21mV	
Gain range	1x-50x	
Exposure time	53μs-15sec	
Shutter	Rolling shutter	
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4	
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output	
Data Format	8-bit / 12-bit	
General specification		
Power supply	Power with USB3.0 or 12V Power adapter	12V Power adapter
Power consumption	14.64W	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃	
Humidity	20%-80%, no condensation	
Size	80mm × 80mm × 101.5mm	
Weight	860g	
Lens mount	C mount	
Software	ToupView/ SDK	
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64	
Certification	CE, FCC	

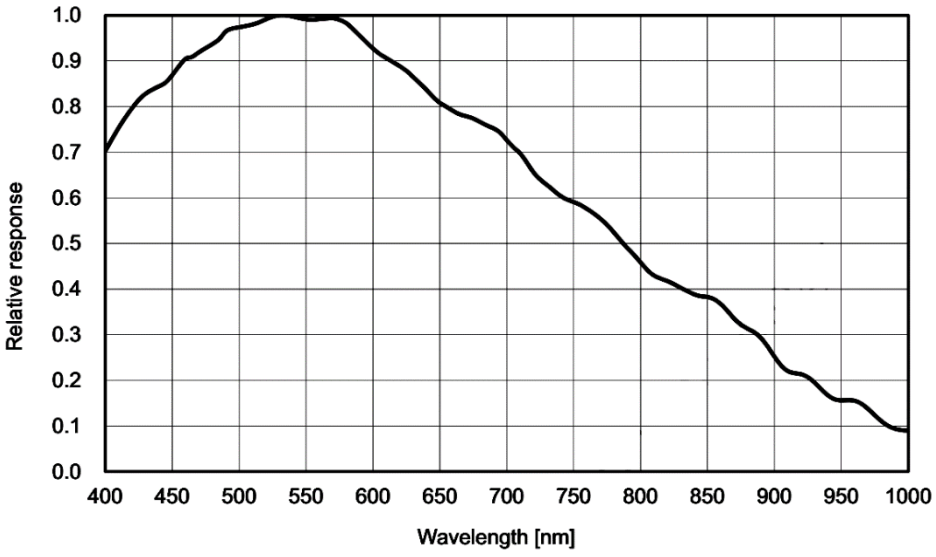


Figure 3-8 ITR3CMOS20000KMA spectral response curve

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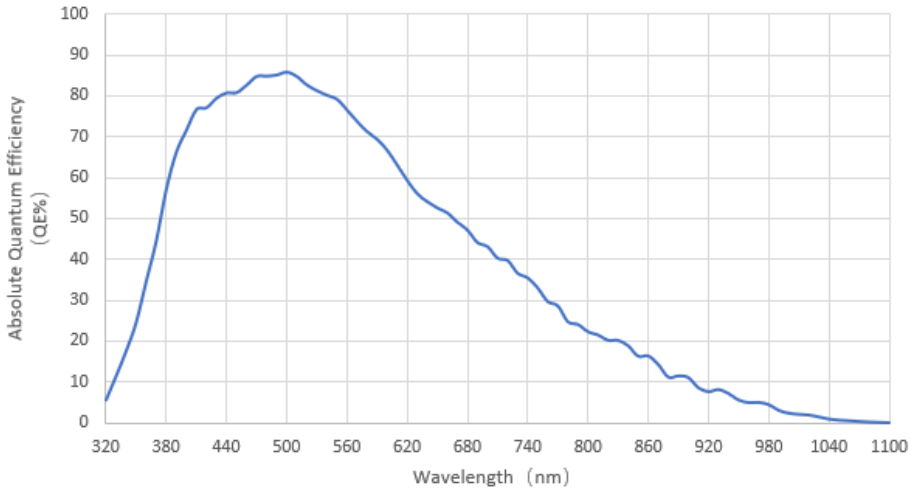


Figure 3-9 ITR3CMOS20000KMA spectral absolute quantum efficiency

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3.7 ITR3CMOS10300KPA

Table 3-7 ITR3CMOS10300KPA camera specifications

Model / Parameter	ITR3CMOS10300KPA 10.3M pixels 1.4" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX294CJK
Pixel size	4.63μm × 4.63μm
Sensor size	4/3"
Frame rate	30.0@4128×2808 38.5 @4096×2160 59.8@2048×1080 87.2@1360×720
Readout Noise	0.26e-(HCG) 2.51e-(LCG)
Full Well	15017.21e-(HCG) 64919.86e-(LCG)
Dynamic range	84dB (HCG) 84dB (LCG)
SNRmax	41.77dB(HCG) 48.12dB(LCG)
Sensitivity	419 mV
Dark current	0.12mV
Gain range	1x-50x
Exposure time	150μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	Cooled 30.9W / Uncooled 11.82W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 102mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

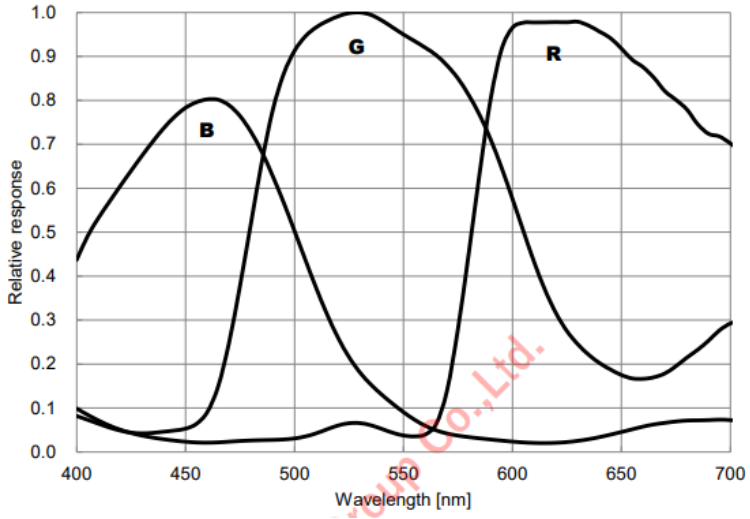


Figure 3-10 ITR3CMOS10300KPA spectral response curve

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3.8 ITR3CMOS10300KMA

Table 3-8 ITR3CMOS10300KMA camera specifications

Model / Parameter	ITR3CMOS10300KMA
	10.3M pixels 1.4" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX492LLJ-C
Pixel size	4.63μm × 4.63μm
Sensor size	4/3"
Frame rate	30.0@4128×2808 38.5 @4096×2160 59.8@2048×1080 87.2@1360×720
Readout Noise	0.26e-(HCG) 2.51e-(LCG)
Full Well	15017.21e-(HCG) 64919.86e-(LCG)
Dynamic range	84dB (HCG) 84dB (LCG)
SNRmax	41.77dB(HCG) 48.12dB(LCG)
Sensitivity	175 mV
Dark current	0.03mV
Gain range	1x-50x
Exposure time	150μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	Cooled 30.9W / Uncooled 11.82W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 102mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

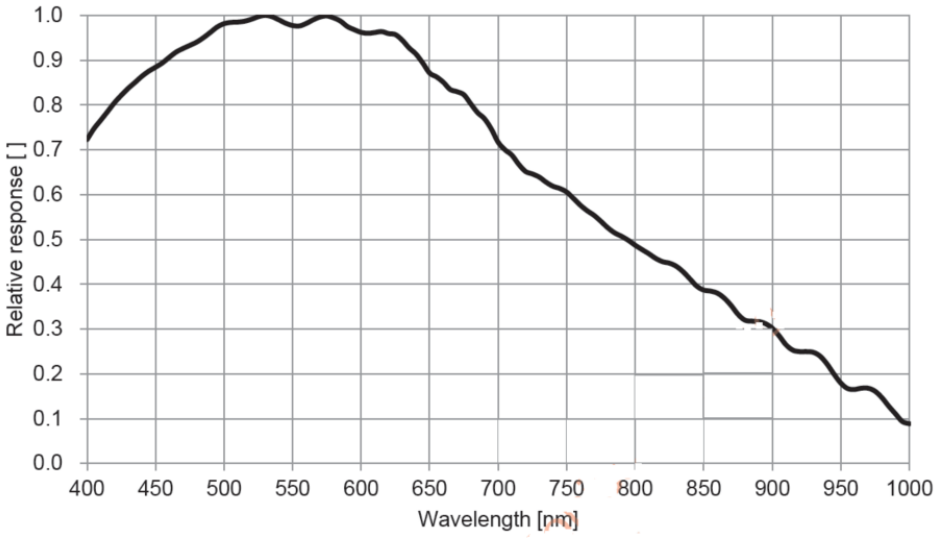


Figure 3-11 ITR3CMOS10300KMA spectral response curve

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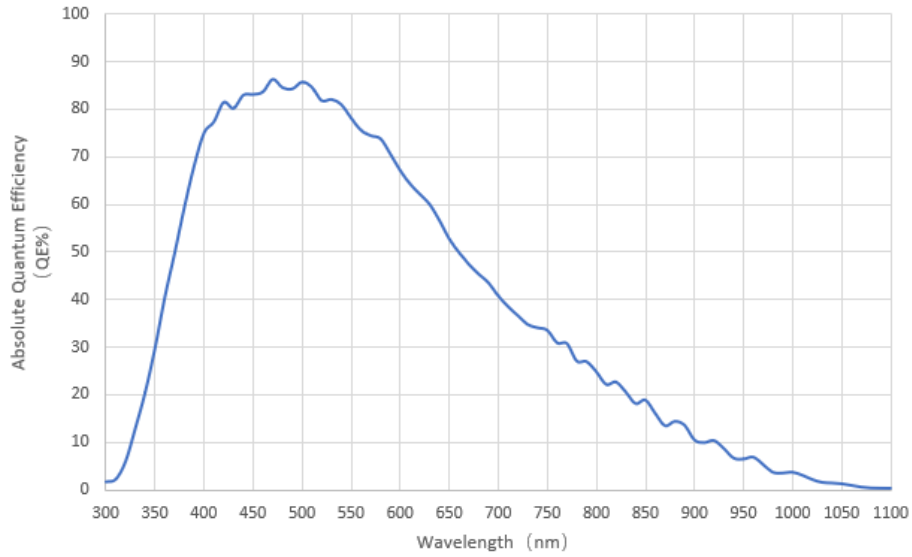


Figure 3-12 ITR3CMOS10300KMA spectral absolute quantum efficiency

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3.9 ITR3CMOS09000KPA

Table 3-9 ITR3CMOS09000KPA camera specifications

Parameter \ Model	ITR3CMOS09000KPA
	9M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX533CQK-C
Pixel size	3.76 μm x 3.76 μm
Sensor size	1"
Frame rate	40@2992×3000 62@1488×1500 186@992×998
Readout Noise	1.47e-(HCG) 3.8e-(LCG)
Full Well	16745.76e-(HCG) 51073.49e -(LCG)
Dynamic range	81.12dB (HCG) 82.56dB (LCG)
SNRmax	42.24dB(HCG) 47.08dB(LCG)
Sensitivity	534 mV
Dark current	0.04mV
Gain range	1x-50x
Exposure time	100μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	Cooled 22.37W / Uncooled 7.27W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

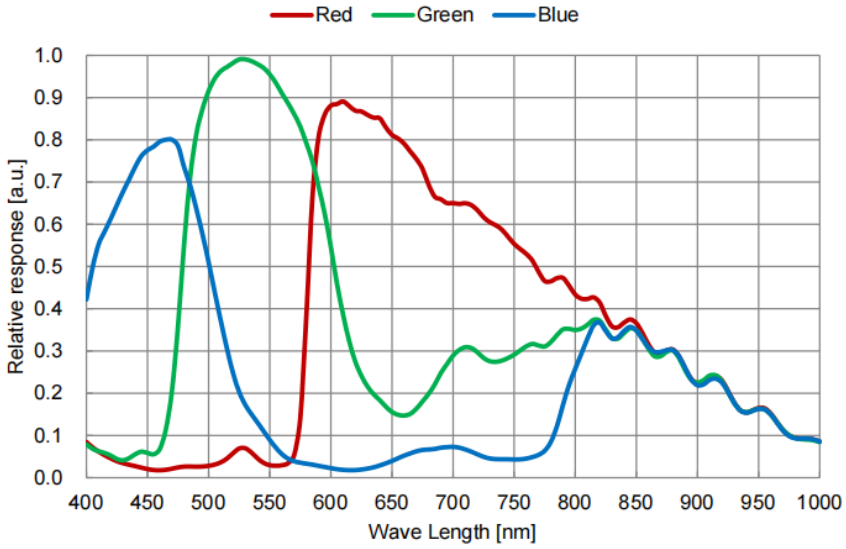


Figure 3-13 ITR3CMOS09000KPA spectral response curve

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3.10 ITR3CMOS09000KMA

Table 3-10 ITR3CMOS09000KMA camera specifications

Model / Parameter	ITR3CMOS09000KMA 9M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX533CLK-D
Pixel size	3.76 μm x 3.76 μm
Sensor size	1"
Frame rate	40@2992×3000 62@1488×1500 186@992×998
Readout Noise	1.47e-(HCG) 3.8e-(LCG)
Full Well	16745.76e-(HCG) 51073.49e -(LCG)
Dynamic range	81.12dB (HCG) 82.56dB (LCG)
SNRmax	42.24dB(HCG) 47.08dB(LCG)
Sensitivity	877 mV
Dark current	0.04mV
Gain range	1x-50x
Exposure time	100μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	Cooled 22.37W / Uncooled 7.27W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

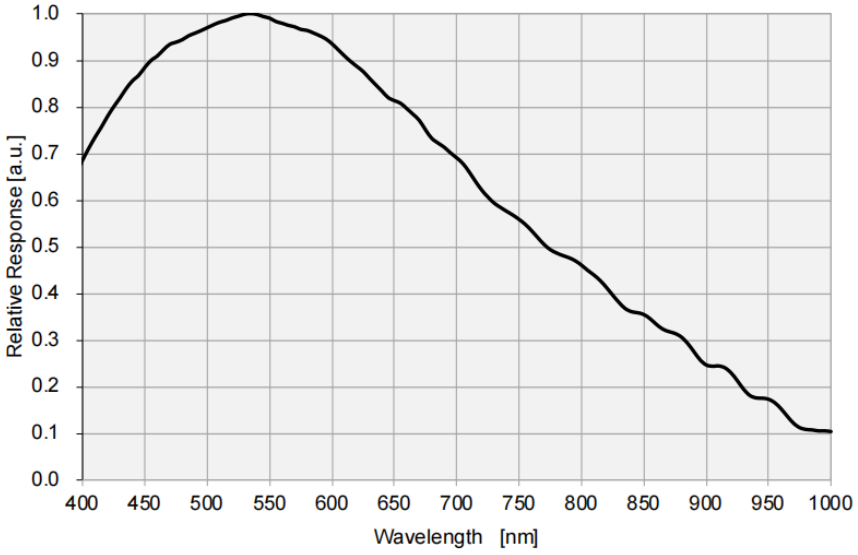


Figure 3-14 ITR3CMOS09000KMA spectral response curve

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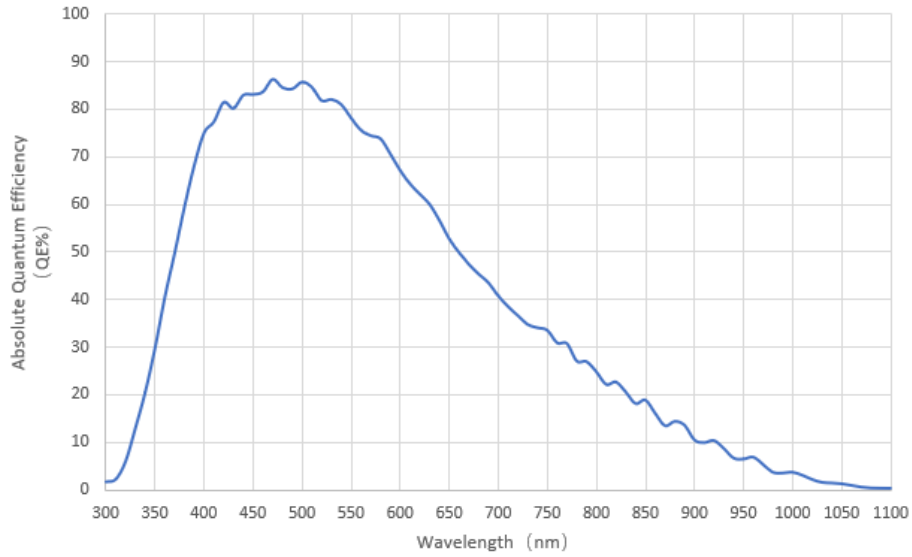


Figure 3-15 ITR3CMOS09000KMA spectral absolute quantum efficiency

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3.11 ITR3CMOS08300KPA

Table 3-11 ITR3CMOS08300KPA camera specifications

Model / Parameter	ITR3CMOS08300KPA
	8.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX585-AAQJ1-C
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/1.2"
Frame rate	45fps@3840 x2160 70fps@1920 x 1080
Readout Noise	2.81e-(LCG) 0.42e-(HCG)
Full Well	40029.57e-(LCG) 4152.75e-(HCG)
Dynamic range	72dB (LCG) 72dB (HCG)
SNRmax	46.02dB(LCG) 36.18dB(HCG)
Sensitivity	5970mV
Dark current	0.13mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	Cooled 26.88W / Uncooled 10.26W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

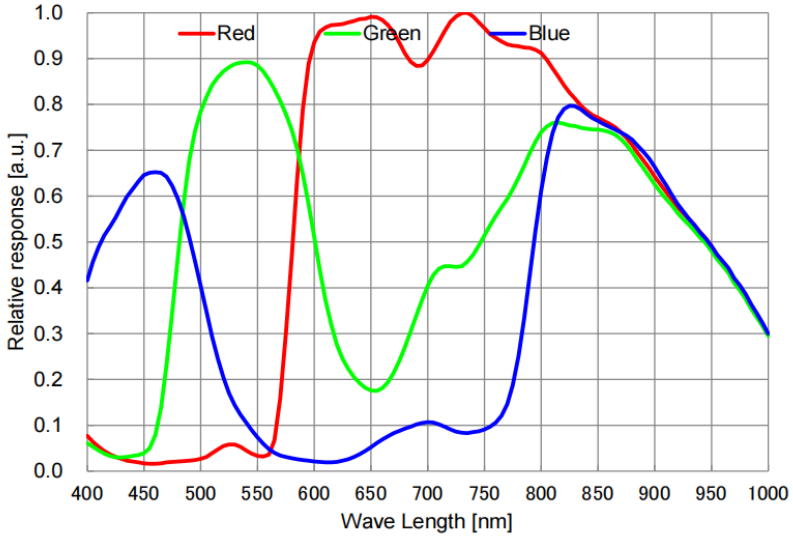


Figure 3-16 ITR3CMOS08300KPA spectral response curve

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3.12 ITR3CMOS07100KPA

Table 3-12 ITR3CMOS07100KPA camera specifications

Model / Parameter	ITR3CMOS07100KPA	ITR3CMOS07100KPA-G
	7.1M pixels 1.1" CMOS USB3.0 / GigE industrial camera	
Camera Parameters		
Data interface	USB3.0	GigE
Sensor model	Sony IMX428LQJ	
Pixel size	4.5 μm x 4.5 μm	
Sensor size	1.1"	
Frame rate	51.4fps@3200 x 2200 133.8fps@1584 x 1100	16.4fps@3200 x 2200 66fps@1584 x 1100
Readout Noise	2.38e-	
Full Well	11154.09e-	
Dynamic range	72dB	
SNRmax	40.47dB	
Sensitivity	2058mV	
Dark current	0.15mV	
Gain range	1x-50x	
Exposure time	6μs-15sec	
Shutter	Global shutter	
Binning	Software2×2, 3×3, 4×4	
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output	
Data Format	8-bit / 12-bit	
General specification		
Power supply	Power with USB3.0 or 12V Power adapter	12V Power adapter
Power consumption	25.2W	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃	
Humidity	20%-80%, no condensation	
Size	80mm × 80mm × 101.5mm	
Weight	860g	
Lens mount	C-mount	
Software	ToupView/ SDK	
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64	
Certification	CE, FCC	

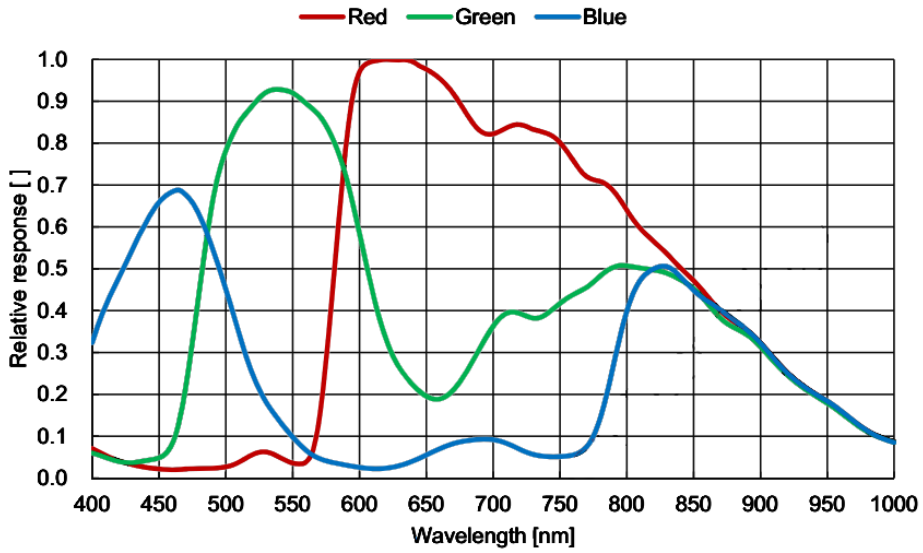


Figure 3-17 ITR3CMOS07100KPA spectral response curve

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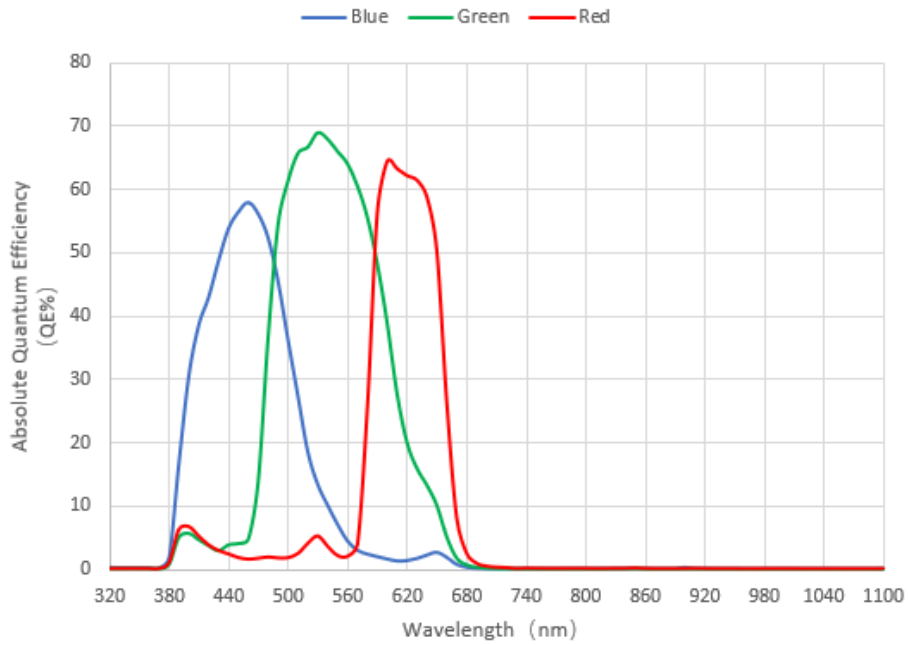


Figure 3-18 ITR3CMOS07100KPA spectral absolute quantum efficiency

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3.13 ITR3CMOS07100KMA

Table 3-13 ITR3CMOS07100KMA camera specifications

Model / Parameter	ITR3CMOS07100KMA	ITR3CMOS07100KMA-G
	7.1M pixels 1.1" CMOS USB3.0 / GigE industrial camera	
Camera Parameters		
Data interface	USB3.0	GigE
Sensor model	Sony IMX428LLJ	
Pixel size	4.5 μm x 4.5 μm	
Sensor size	1.1"	
Frame rate	51.4fps@3200 x 2200 133.8fps@1584 x 1100	16.4fps@3200 x 2200 66fps@1584 x 1100
Readout Noise	2.38e-	
Full Well	11154.09e-	
Dynamic range	72dB	
SNRmax	40.47dB	
Sensitivity	3354mV	
Dark current	0.15mV	
Gain range	1x-50x	
Exposure time	6μs-15sec	
Shutter	Global shutter	
Binning	Software2×2, 3×3, 4×4	
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output	
Data Format	8-bit / 12-bit	
General specification		
Power supply	Power with USB3.0 or 12V Power adapter	12V Power adapter
Power consumption	25.2W	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃	
Humidity	20%-80%, no condensation	
Size	80mm × 80mm × 101.5mm	
Weight	860g	
Lens mount	C-mount	
Software	ToupView/ SDK	
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64	
Certification	CE, FCC	

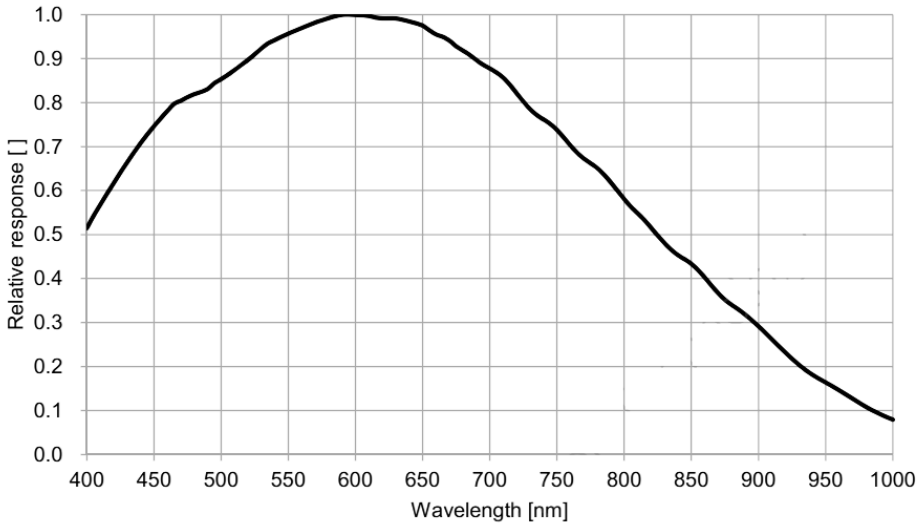


Figure 3-19 ITR3CMOS07100KMA spectral response curve

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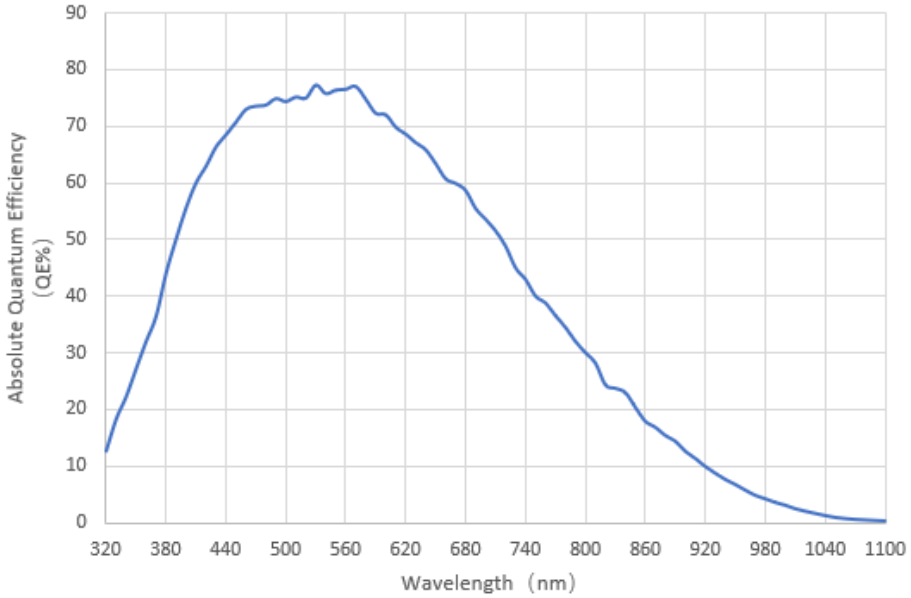


Figure 3-20 ITR3CMOS07100KMA spectral absolute quantum efficiency

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3.14 ITR3CMOS01700KPA

Table 3-14 ITR3CMOS01700KPA camera specifications

Model / Parameter	ITR3CMOS01700KPA	ITR3CMOS01700KPA-G
	1.7M pixels 1.1" CMOS USB3.0 / GigE industrial camera	
Camera Parameters		
Data interface	USB3.0	GigE
Sensor model	Sony IMX432LQJ	
Pixel size	9.0 μm x 9.0 μm	
Sensor size	1.1"	
Frame rate	98.6fps@1600 x 1100	66fps@1600 x 1100
Readout Noise	TBD	
Full Well	TBD	
Dynamic range	TBD	
SNRmax	TBD	
Sensitivity	4910mV	
Dark current	0.3mV	
Gain range	1x-50x	
Exposure time	6μs-15sec	
Shutter	Global shutter	
Binning	Software2×2, 3×3, 4×4	
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output	
Data Format	8-bit / 12-bit	
General specification		
Power supply	Power with USB3.0 or 12V Power adapter	12V Power adapter
Power consumption	<25W	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃	
Humidity	20%-80%, no condensation	
Size	80mm × 80mm × 101.5mm	
Weight	860g	
Lens mount	C-mount	
Software	ToupView/ SDK	
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64	
Certification	CE, FCC	

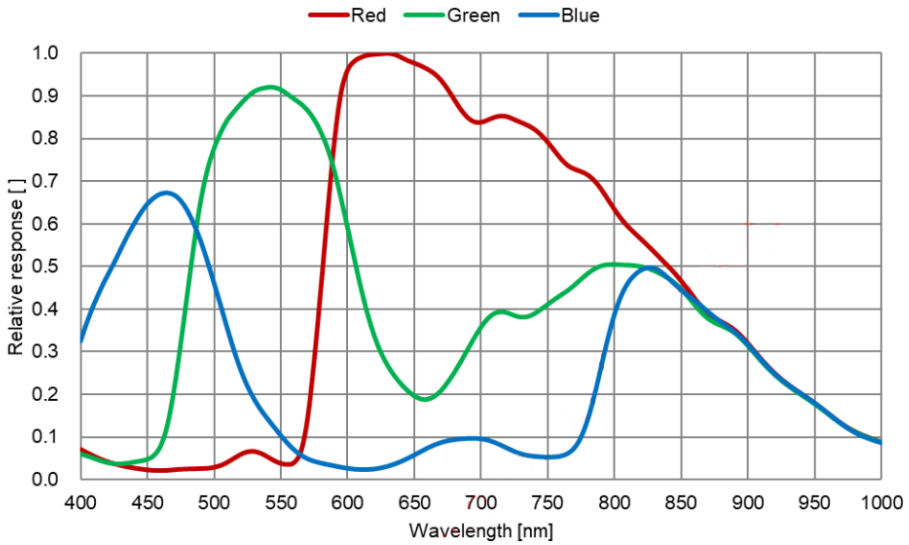


Figure 3-21 ITR3CMOS01700KPA spectral response curve

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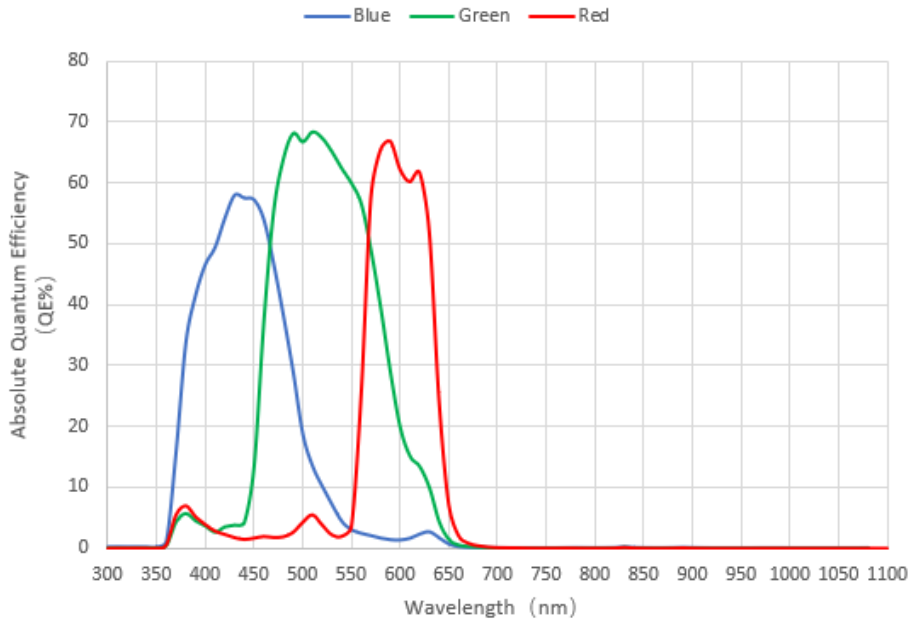


Figure 3-22 ITR3CMOS01700KPA spectral absolute quantum efficiency

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3.15 ITR3CMOS01700KMA

Table 3-15 ITR3CMOS01700KMA camera specifications

Model / Parameter	ITR3CMOS01700KMA	ITR3CMOS01700KMA-G
	1.7M pixels 1.1" CMOS USB3.0 / GigE industrial camera	
Camera Parameters		
Data interface	USB3.0	GigE
Sensor model	Sony IMX432LLJ	
Pixel size	9.0 μm x 9.0 μm	
Sensor size	1.1"	
Frame rate	98.6fps@1600 x 1100	66fps@1600 x 1100
Readout Noise	TBD	
Full Well	TBD	
Dynamic range	TBD	
SNRmax	TBD	
Sensitivity	8100mV	
Dark current	0.3mV	
Gain range	1x-50x	
Exposure time	6μs-15sec	
Shutter	Global shutter	
Binning	Software2×2, 3×3, 4×4	
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output	
Data Format	8-bit / 12-bit	
General specification		
Power supply	Power with USB3.0 or 12V Power adapter	12V Power adapter
Power consumption	<25W	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃	
Humidity	20%-80%, no condensation	
Size	80mm × 80mm × 101.5mm	
Weight	860g	
Lens mount	C-mount	
Software	ToupView/ SDK	
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64	
Certification	CE, FCC	

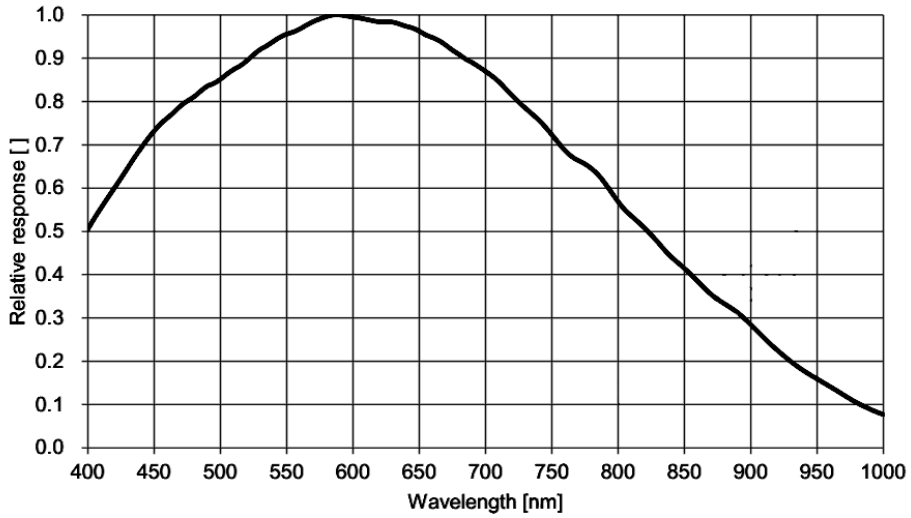


Figure 3-23 ITR3CMOS01700KMA spectral response curve

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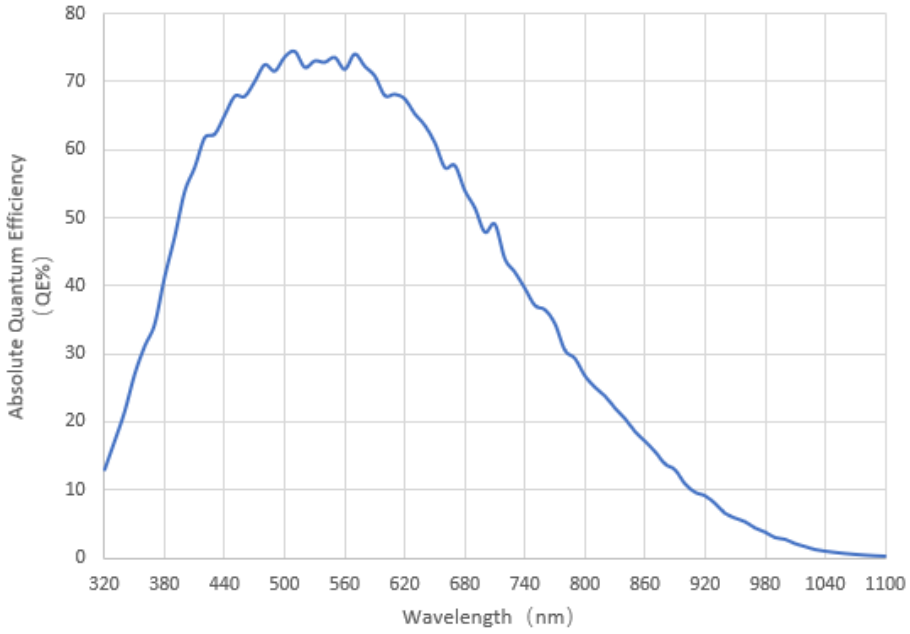


Figure 3-24 ITR3CMOS01700KMA spectral absolute quantum efficiency

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3.16 ITR3CMOS01300KMA

Table 3-16 ITR3CMOS01300KMA camera specifications

Parameter \ Model	ITR3CMOS01300KMA
	1.3M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GLUX9701BSI
Pixel size	9.76 μm x 9.76 μm
Sensor size	1"
Frame rate	30fps@1280 x 1024 30fps@640 x 512
Readout Noise	5.28e-(HCG) 35.19e-(LCG) 1.79e-(HDR)
Full Well	12927.7e-(HCG) 89855.19e-(LCG) 20205.74e-(HDR)
Dynamic range	67.78dB (HCG) 68.14dB (LCG) 81.08dB (HDR)
SNRmax	41.12dB(HCG) 49.54dB(LCG) 43.06dB(HDR)
Peak QE	89%@610nm
Sensitivity	2.57×10^{8}(e-/((W/m2).s))@610nm
Dark current	2.07e-/s/pix@ -10℃ die temp
Gain range	1x-50x
Exposure time	63μs-60sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, Hardware 2×2
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / HDR16bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	<20W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

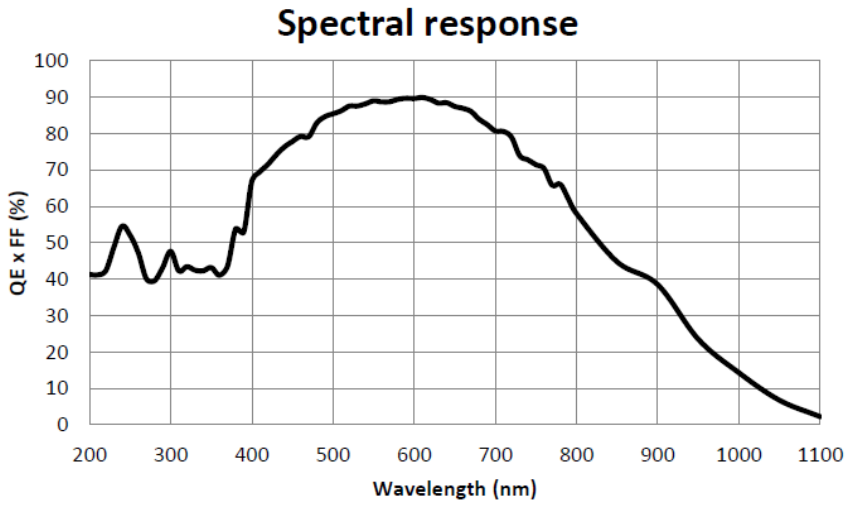


Figure 3-25 ITR3CMOS01300KMA spectral response curve

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3.17 ITR3CMOS00500KMA

Table 3-17 ITR3CMOS00500KMA camera specifications

Model / Parameter	ITR3CMOS00500KMA 0.5M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GLUX1605BSI
Pixel size	16 μm x 16 μm
Sensor size	1"
Frame rate	60fps@800 x 600 60fps@400 x 300
Readout Noise	5.88e-(HCG) 36.5e-(LCG) 2.71e-(HDR)
Full Well	13541.8e-(HCG) 89258.25e-(LCG) 46604.55e-(HDR)
Dynamic range	67.24dB (HCG) 67.77dB (LCG) 84.72dB (HDR)
SNRmax	41.32dB(HCG) 49.51dB(LCG) 46.68dB(HDR)
Peak QE	95%@560nm
Sensitivity	6.4×10^{8}(e-/((W/m2).s))
Dark current	3.71e-/s/pix@ -10℃ die temp
Gain range	1x-50x
Exposure time	27μs-60sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, Hardware 2×2
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / HDR16bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	<20W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

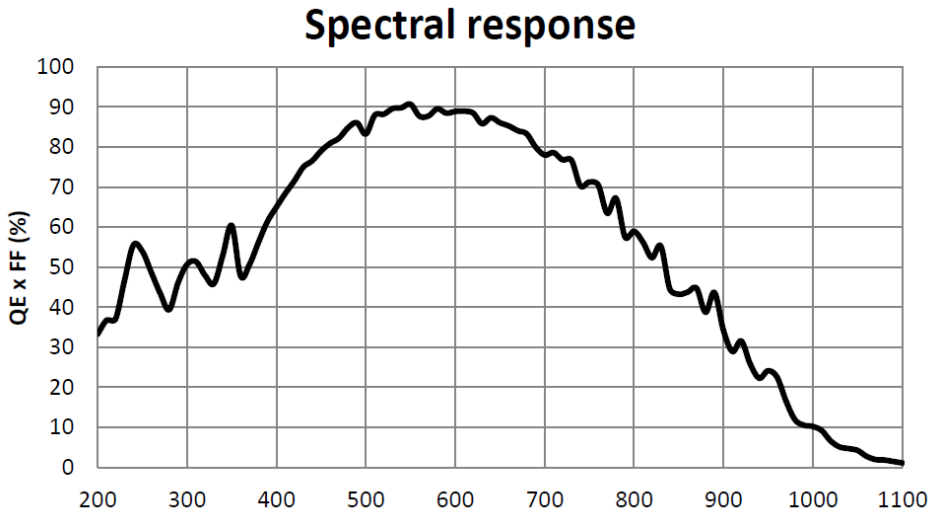


Figure 3-26 ITR3CMOS00500KMA spectral response curve

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3.18 ITR3CMOS20000KPA-G

Table 3-18 ITR3CMOS20000KPA-G camera specifications

Model / Parameter	ITR3CMOS20000KPA -G 20M pixels 1" CMOS GigE industrial camera
Camera Parameters	
Data interface	**GigE**
Sensor model	Sony IMX183CQK
Pixel size	2.4 μm x 2.4 μm
Sensor size	1"
Frame rate	4.5fps@5440 x 3684 18.5fps@2736 x 1824 41.7fps@1824 x 1216
Readout Noise	3.38e-
Full Well	15929.69e-
Dynamic range	72dB
SNRmax	42.02dB
Sensitivity	462mV
Dark current	0.21mV
Gain range	1x-50x
Exposure time	53μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

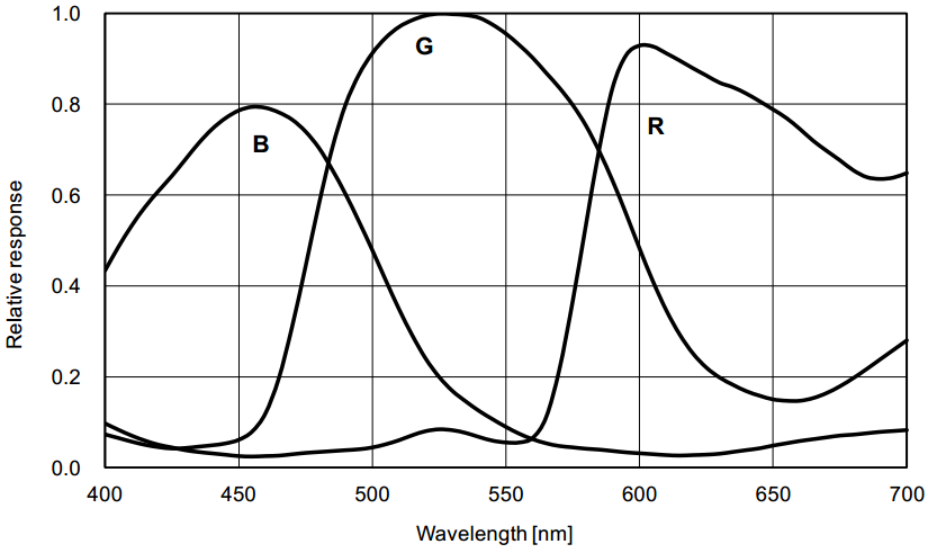


Figure 3-27 ITR3CMOS20000KPA-G spectral response curve

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3.19 ITR3CMOS20000KMA-G

Table 3-19 ITR3CMOS20000KMA-G camera specifications

Model / Parameter	ITR3CMOS20000KMA-G 20M pixels 1" CMOS GigE industrial camera
Camera Parameters	
Data interface	**GigE**
Sensor model	Sony IMX183CQK
Pixel size	2.4 μm x 2.4 μm
Sensor size	1"
Frame rate	4.5fps@5440 x 3684 18.5fps@2736 x 1824 41.7fps@1824 x 1216
Readout Noise	3.38e-
Full Well	15929.69e-
Dynamic range	72dB
SNRmax	42.02dB
Sensitivity	462mV
Dark current	0.21mV
Gain range	1x-50x
Exposure time	53μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

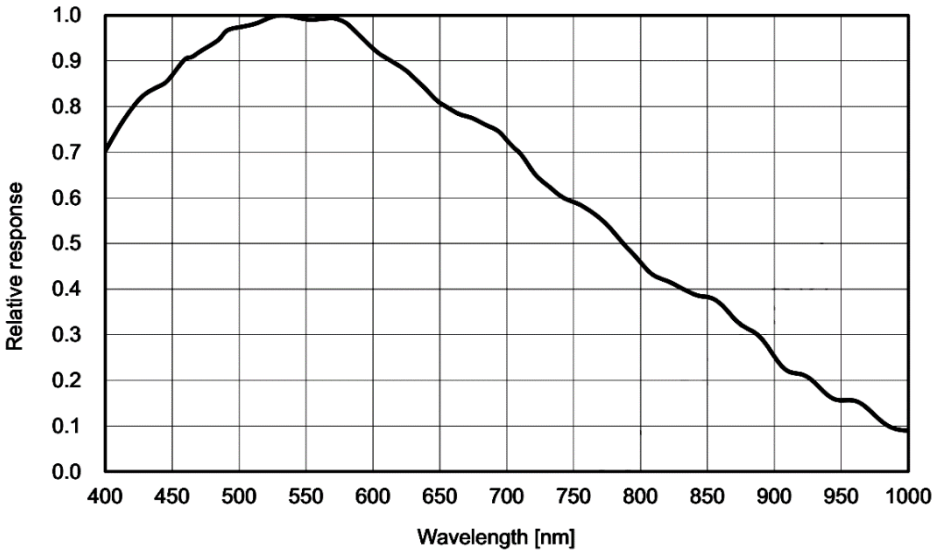


Figure 3-28 ITR3CMOS20000KMA-G spectral response curve

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3.20 ITR3CMOS07100KPA-G

Table 3-20 ITR3CMOS07100KPA-G camera specifications

Model / Parameter	ITR3CMOS07100KPA-G 7.1M pixels 1.1" CMOS GigE industrial camera
Camera Parameters	
Data interface	**GigE**
Sensor model	Sony IMX428LQJ
Pixel size	4.5 μm x 4.5 μm
Sensor size	1.1"
Frame rate	16.4fps@3200 x 2200 66fps@1584 x 1100
Readout Noise	2.38e-
Full Well	11154.09e-
Dynamic range	72dB
SNRmax	40.47dB
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

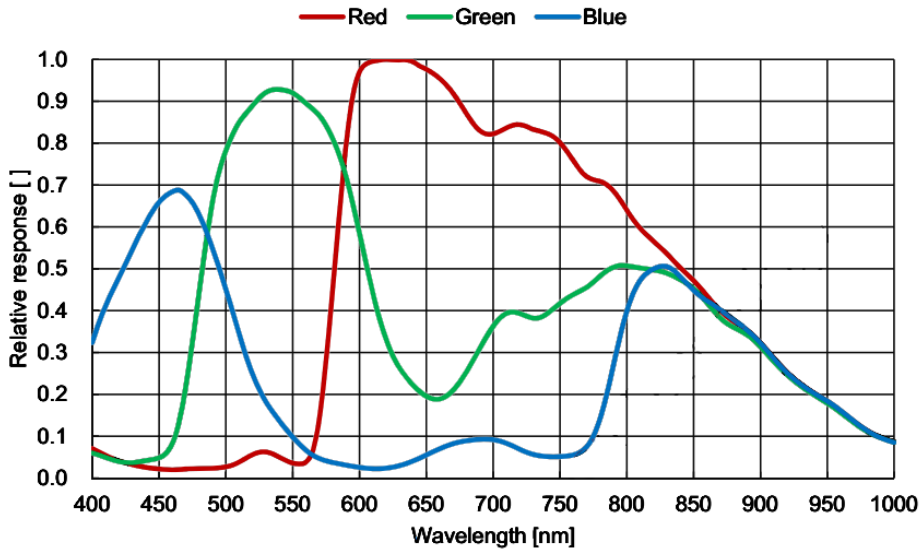


Figure 3-29 ITR3CMOS07100KPA-G spectral response curve

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3.21 ITR3CMOS02300KMA

Table 3-21 ITR3CMOS02300KMA camera specifications

Model / Parameter	ITR3CMOS02300KMA 2.3MP 1.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	SC2110
Pixel size	12μm × 12μm
Sensor size	1.7"
Frame rate	120fps @1920 × 1200
Readout Noise	2.05e$^-$ (HCG) / 16.65ke$^-$ (LCG)
Full Well	6.23ke$^-$ (HCG) / 54.76ke$^-$ (LCG)
Dynamic range	69.7dB (HCG) / 70.3dB (LCG)
SNRmax	37.9dB (HCG) / 47.4dB (LCG)
Sensitivity	120000 mV/lux·s (HCG) / 10900 mV/lux·s (LCG)
Dark current	TBD
Gain range	1x-50x
Exposure time	30μs-3000sec
Shutter	Rolling shutter
Binning	TBD
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input/output port
Data Format	8-bit / 12-bit
General specification	
Power supply	External DC12V 3A power supply
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	TBD
Weight	TBD
Lens mount	C-mount
Software	Complete SDK / ToupView
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

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3.22 ITR3CMOS07100KMA-G

Table 3-22 ITR3CMOS07100KMA-G camera specifications

Model / Parameter	ITR3CMOS07100KMA-G 7.1M pixels 1.1" CMOS GigE industrial camera
Camera Parameters	
Data interface	**GigE**
Sensor model	Sony IMX428LLJ
Pixel size	4.5 μm x 4.5 μm
Sensor size	1.1"
Frame rate	16.4fps@3200 x 2200 66fps@1584 x 1100
Readout Noise	2.38e-
Full Well	11154.09e-
Dynamic range	72dB
SNRmax	40.47dB
Sensitivity	3354mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

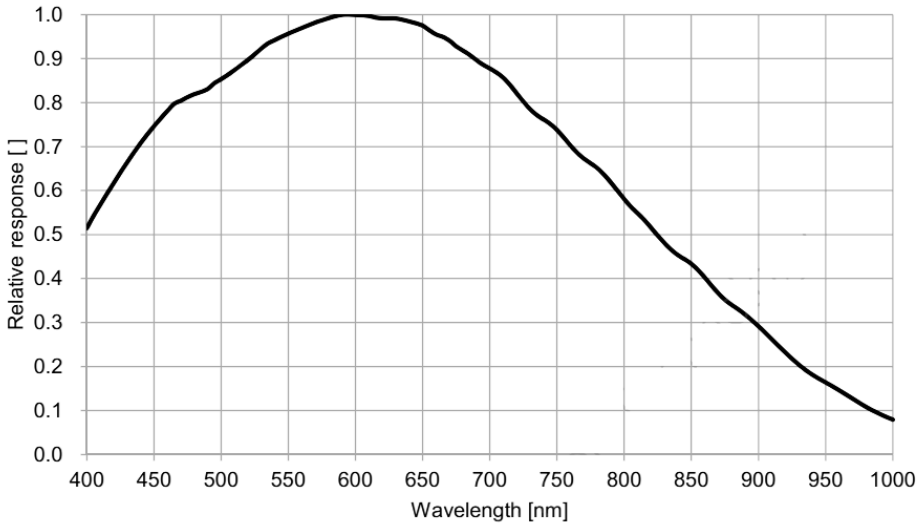


Figure 3-30 ITR3CMOS07100KMA-G spectral response curve

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3.23 ITR3CMOS01700KPA-G

Table 3-23 ITR3CMOS01700KPA-G camera specifications

Model / Parameter	ITR3CMOS01700KPA-G 1.7M pixels 1.1" CMOS GigE industrial camera
Camera Parameters	
Data interface	**GigE**
Sensor model	Sony IMX432LQJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	66fps@1600 x 1100
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	4910mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

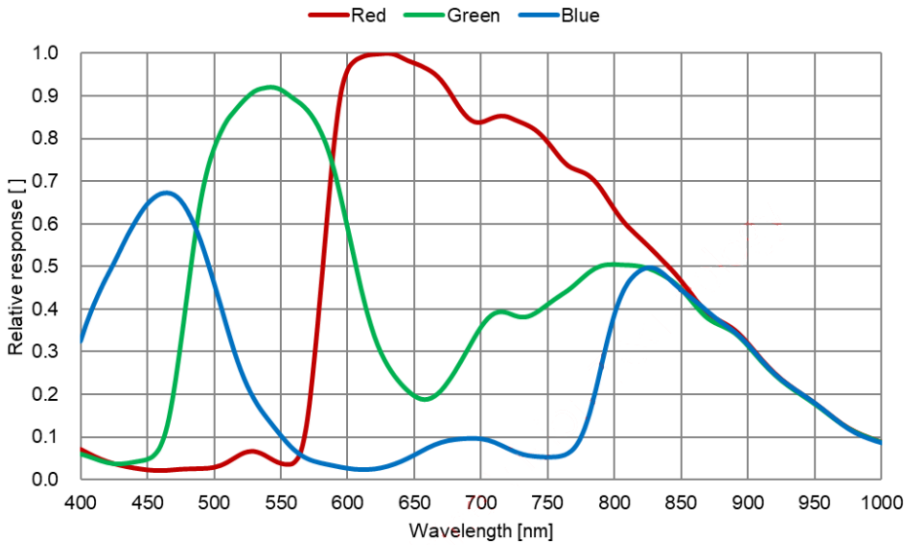


Figure 3-31 ITR3CMOS01700KPA-G spectral response curve

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3.24 ITR3CMOS01700KMA-G

Table 3-24 ITR3CMOS01700KMA-G camera specifications

Model / Parameter	ITR3CMOS01700KMA-G 1.7M pixels 1.1" CMOS GigE industrial camera
Camera Parameters	
Data interface	GigE
Sensor model	Sony IMX432LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	66fps@1600 x 1100
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

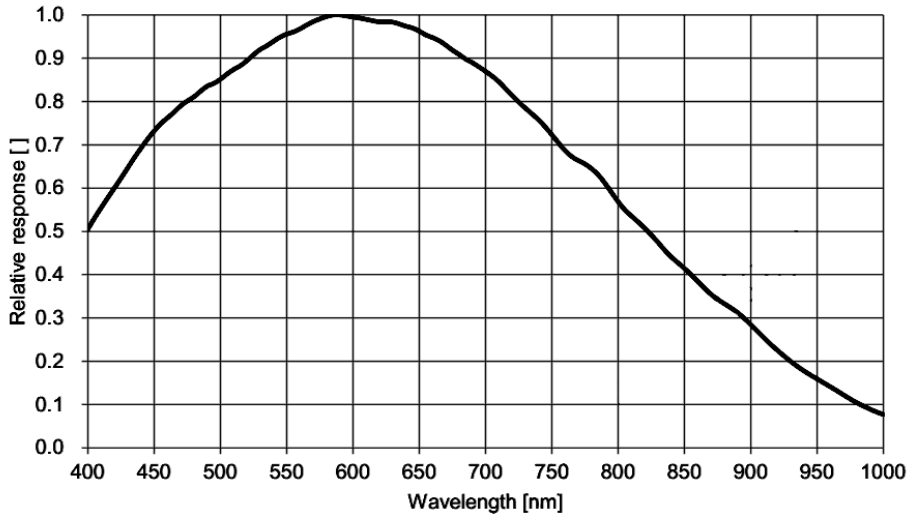


Figure 3-32 ITR3CMOS01700KMA-G spectral response curve

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3.25 ITR3CMOS09000KMA-10G

Table 3-25 ITR3CMOS09000KMA-10G camera specifications

型号 / 参数	ITR3CMOS09000KMA-10G
	9M pixels 1" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX533CLK-D
Pixel size	3.76 μm x 3.76μm
Sensor size	1"
Frame rate	40@2992×3000 62@1488×1500 186@992×998
Readout Noise	1.47e-(HCG) 3.8e-(LCG)
Full Well	16745.76e-(HCG) 51073.49e -(LCG)
Dynamic range	81.12dB (HCG) 82.56dB (LCG)
SNRmax	42.24dB(HCG) 47.08dB(LCG)
Sensitivity	877mV
Dark current	0.04mV
Gain range	1-50 x
Exposure time	6us~1h
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General specification	
Power supply	12V Power adapter
Power consumption	Cooling 22.37W / Non-cooling 7.27W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 101.5mm
Weight	860g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；X86/X64/armhf/armel/arm64
Certification	CE, FCC

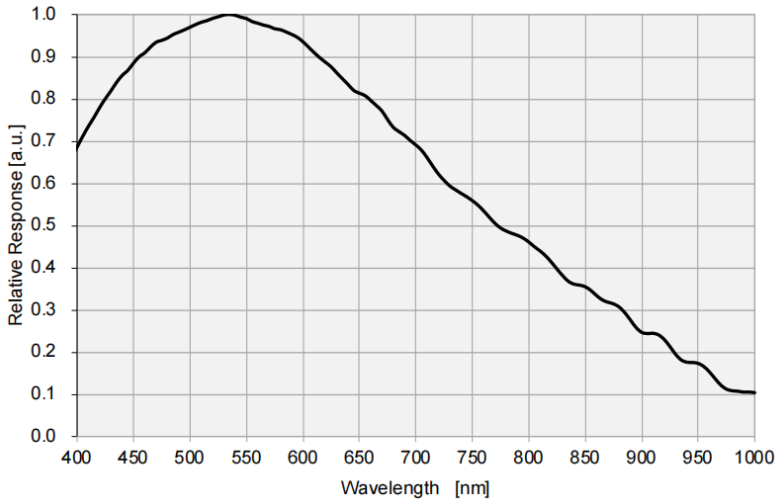


Figure 3-33 ITR3CMOS09000KMA-10G spectral response curve

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4 CTR3CMOS Series Camera Specification(15)

4.1 CTR3CMOS00390KMA

Table 4-1 CTR3CMOS00390KMA camera specifications

Model / Parameter	CTR3CMOS00390KMA 0.39M pixels 1/2.9" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX287LLR
Pixel size	6.9 μm x 6.9 μm
Sensor size	1/2.9"
Frame rate	20fps@720 x 540
Conversion Gain	2.66e-/ADU
Readout Noise	0.76e-
Full Well	10877.21e-
Dynamic range	72dB
SNRmax	40.37dB
Peak QE	71%@575nm
Sensitivity	7320mV
Dark current	0.76mV
Gain range	1x-50x
Exposure time	6μs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	Cooled 3.12W / Uncooled 3.06W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

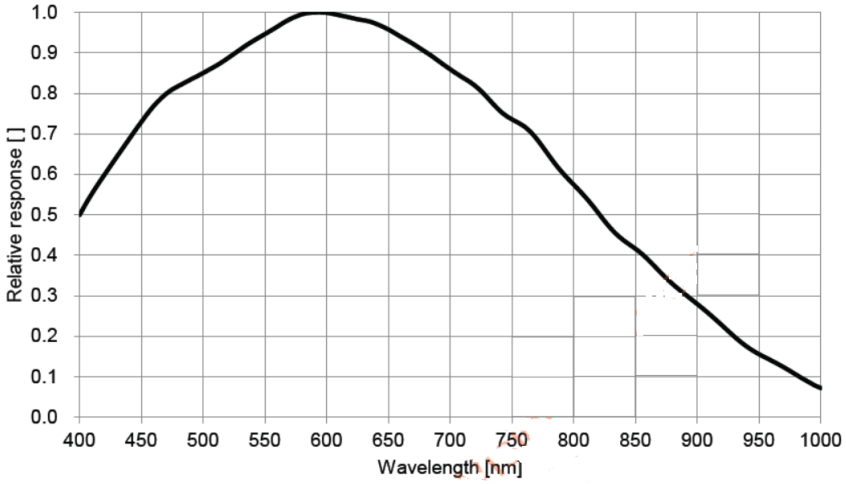


Figure 4-1 CTR3CMOS00390KMA spectral response curve

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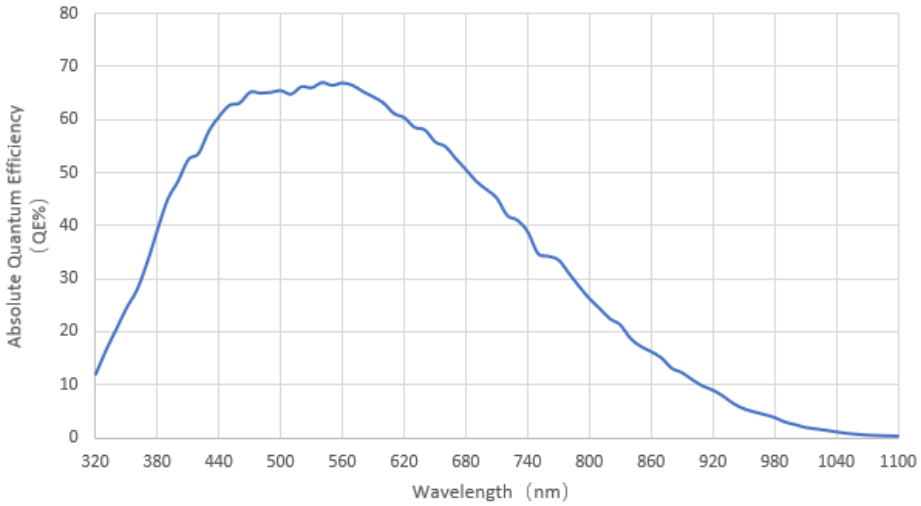


Figure 4-2 CTR3CMOS00390KMA spectral absolute quantum efficiency

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4.2 CTR3CMOS00503KMA

Table 4-2 CTR3CMOS00503KMA camera specifications

Model / Parameter	CTR3CMOS00503KMA 0.503M pixels 1/1.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX426LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1/1.7"
Frame rate	20fps@800 x 620
Conversion Gain	4.83e-/ADU
Readout Noise	0.76e-
Full Well	19768.75e-
Dynamic range	72dB
SNRmax	42.96dB
Peak QE	78%@575nm
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	Cooled 3.65W / Uncooled 3.22W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

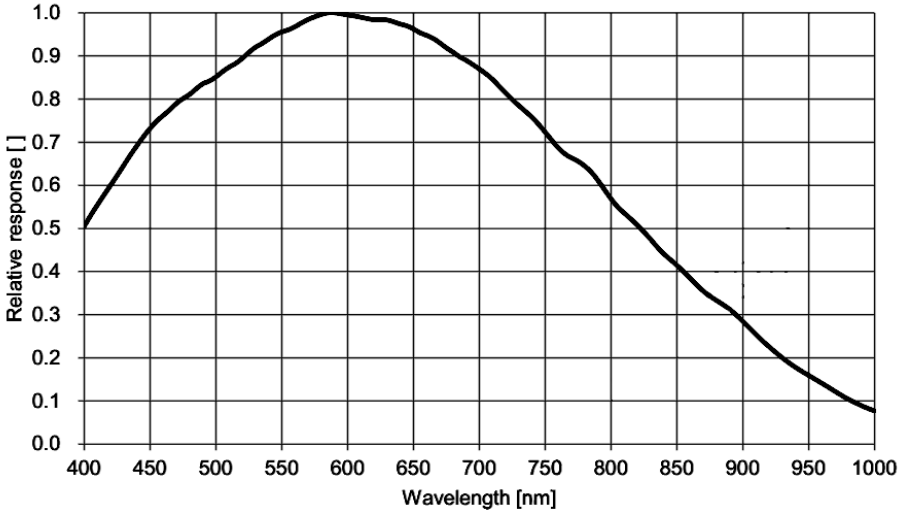


Figure 4-3 CTR3CMOS00503KMA spectral response curve

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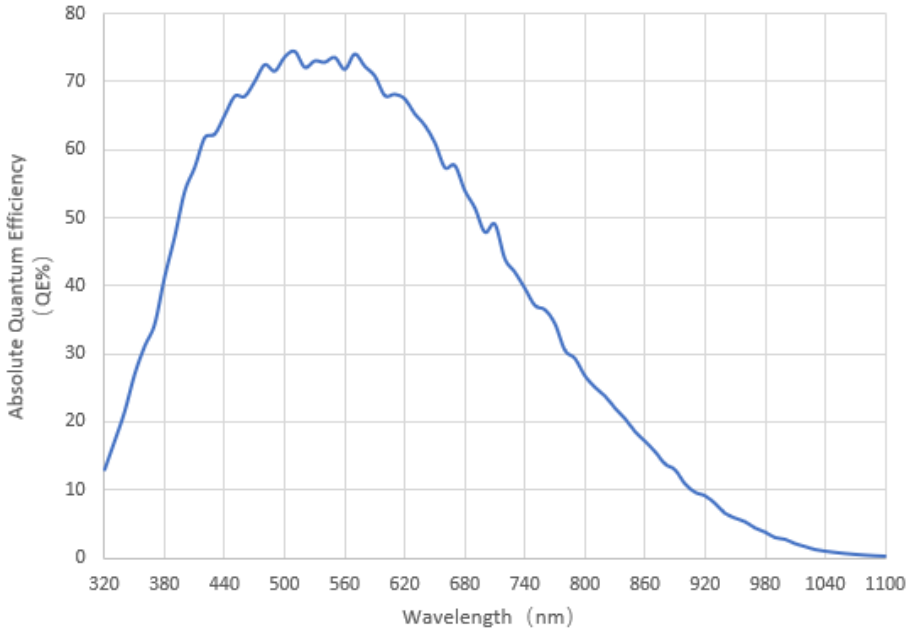


Figure 4-4 CTR3CMOS00503KMA spectral absolute quantum efficiency

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4.3 CTR3CMOS01700KPA-G

Table 4-3 CTR3CMOS01700KPA-G camera specifications

Model / Parameter	CTR3CMOS01700KPA-G 1.7M pixels 1.1" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX432LQJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	66fps@1600 x 1100
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	4910mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

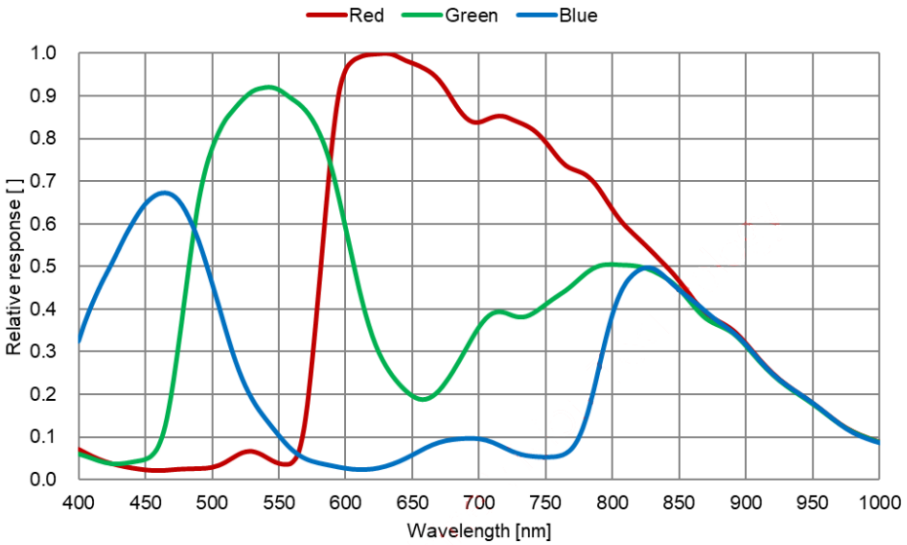


Figure 4-5 CTR3CMOS01700KPA-G spectral response curve

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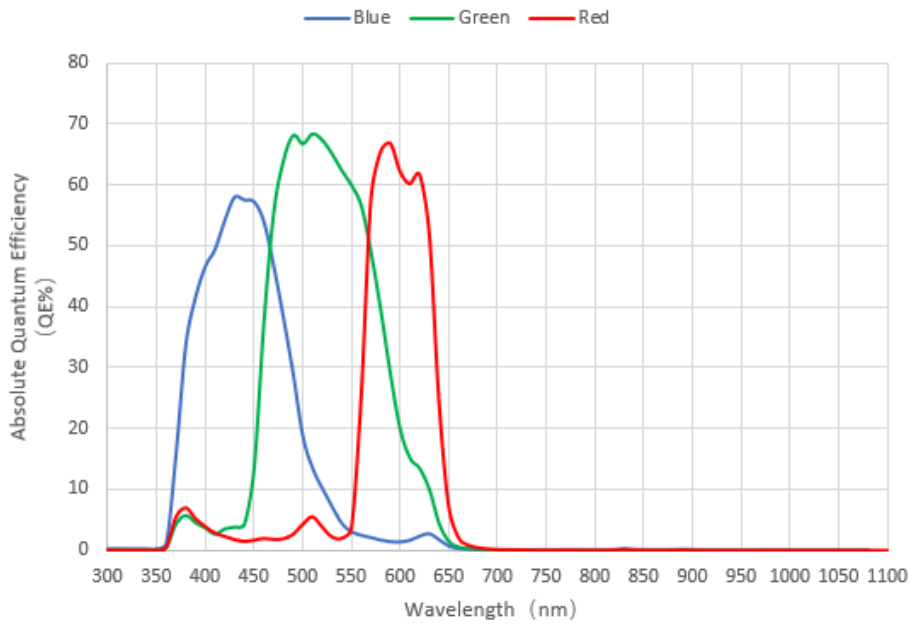


Figure 4-6 CTR3CMOS01700KPA-G spectral absolute quantum efficiency

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4.4 CTR3CMOS01700KPA

Table 4-4 CTR3CMOS01700KPA camera specifications

Model / Parameter	CTR3CMOS01700KPA 1.7M pixels 1.1" CMOS USB3.0 / GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX432LQJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	98.6fps@1600 x 1100
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	4910mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	<25W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

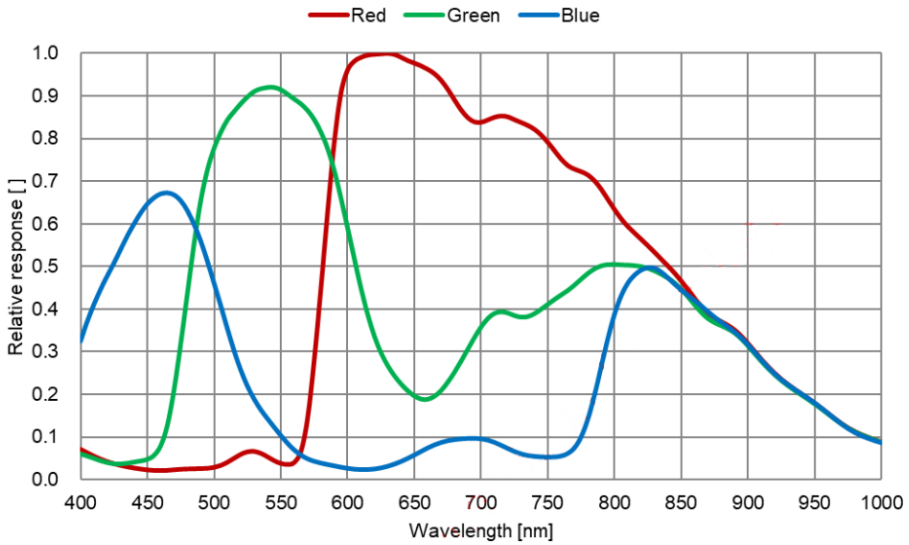


Figure 4-7 CTR3CMOS01700KPA spectral response curve

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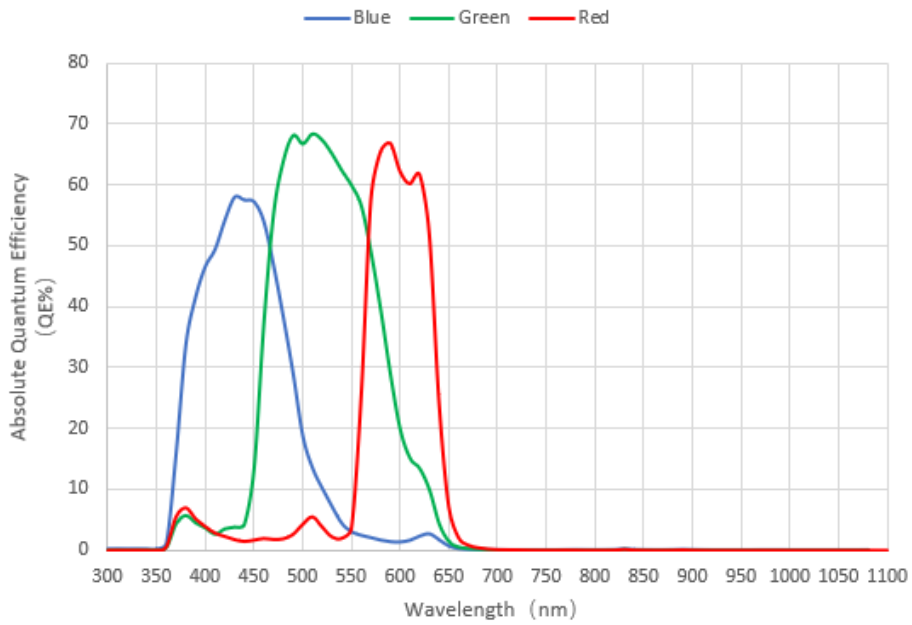


Figure 4-8 CTR3CMOS01700KPA spectral absolute quantum efficiency

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4.5 CTR3CMOS01700KMA-G

Table 4-5 CTR3CMOS01700KMA-G camera specifications

Model / Parameter	CTR3CMOS01700KMA-G 1.7M pixels 1.1" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX432LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	66fps@1600 x 1100
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

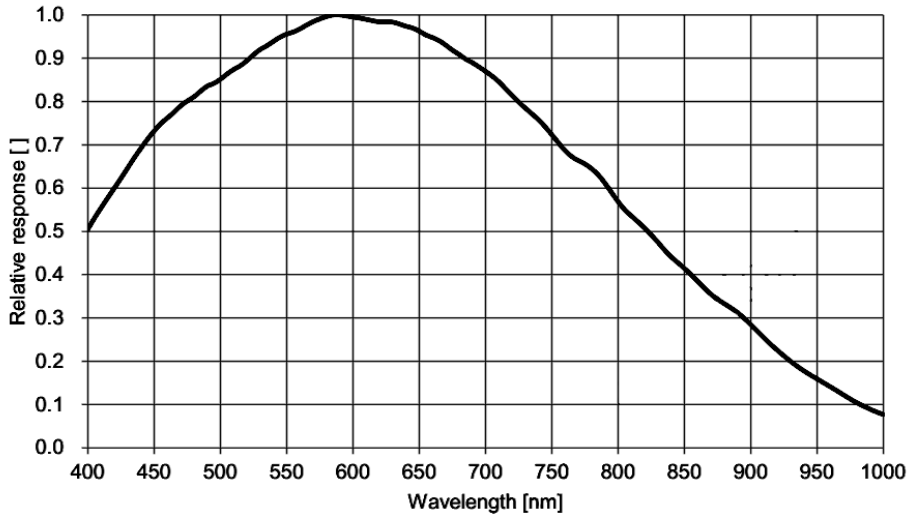


Figure 4-9 CTR3CMOS01700KMA-G spectral response curve

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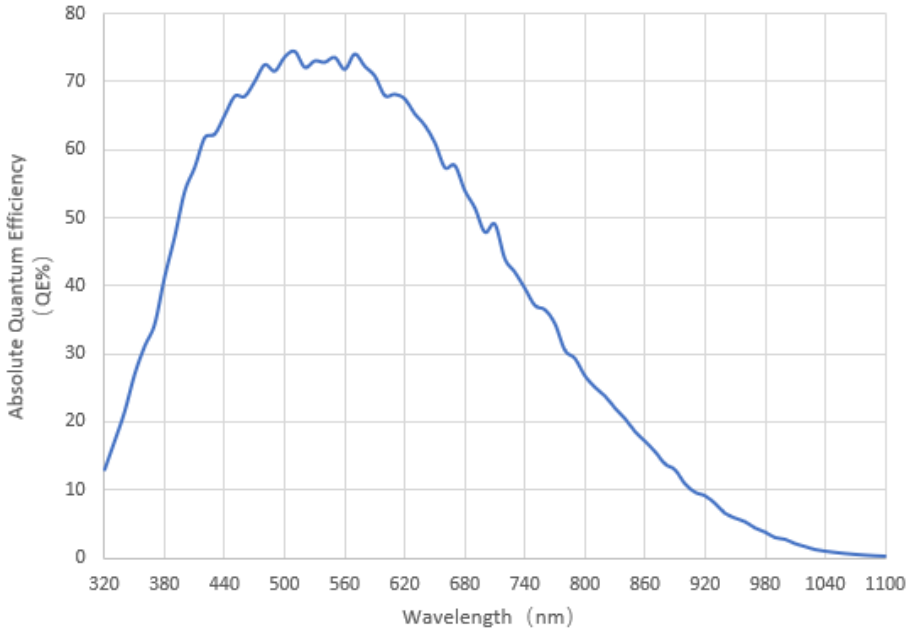


Figure 4-10 CTR3CMOS01700KMA-G spectral absolute quantum efficiency

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4.6 CTR3CMOS01700KMA

Table 4-6 CTR3CMOS01700KMA camera specifications

Model / Parameter	CTR3CMOS01700KMA 1.7M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX432LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	98.6fps@1600 x 1100
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
SNRmax	TBD
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	<25W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

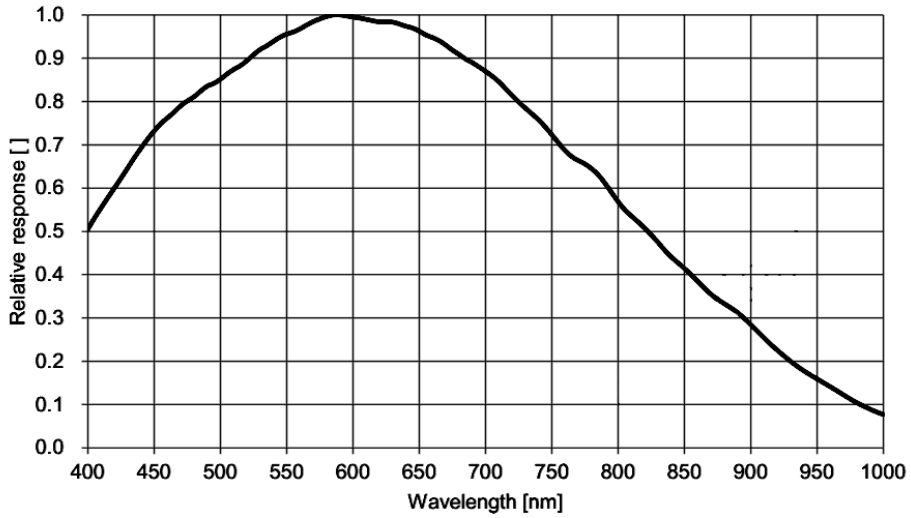


Figure 4-11 CTR3CMOS01700KMA spectral response curve

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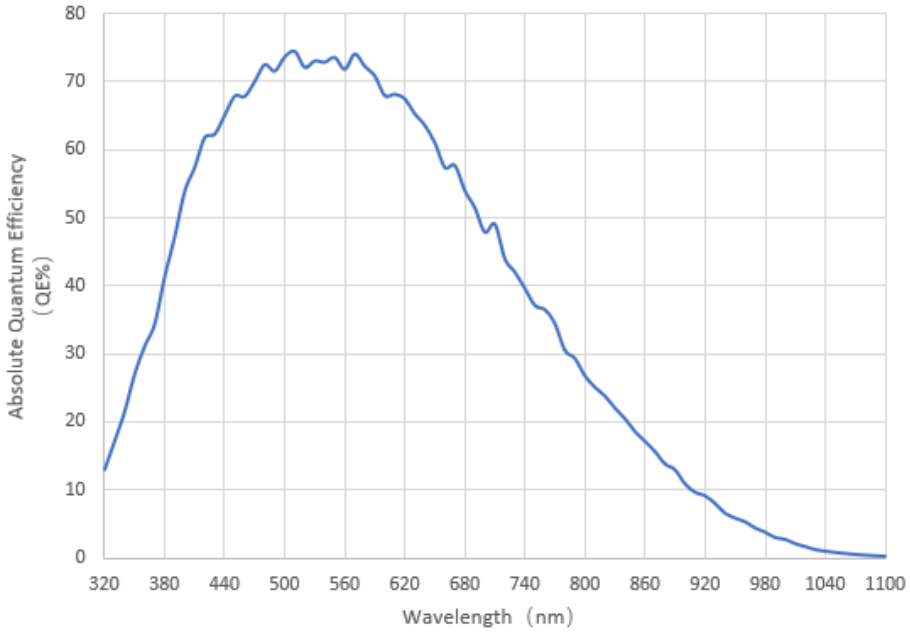


Figure 4-12 CTR3CMOS01700KMA spectral absolute quantum efficiency

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4.7 CTR3CMOS07100KPA-G

Table 4-7 CTR3CMOS07100KPA-G camera specifications

Model / Parameter	CTR3CMOS07100KPA-G 7.1M pixels 1.1" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX428LQJ
Pixel size	4.5 µm x 4.5 µm
Sensor size	1.1"
Frame rate	16.4fps@3200 x 2200 66fps@1600 x 1100
Readout Noise	2.38e-
Full Well	11154.09e-
Dynamic range	72dB
SNRmax	40.47dB
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6µs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

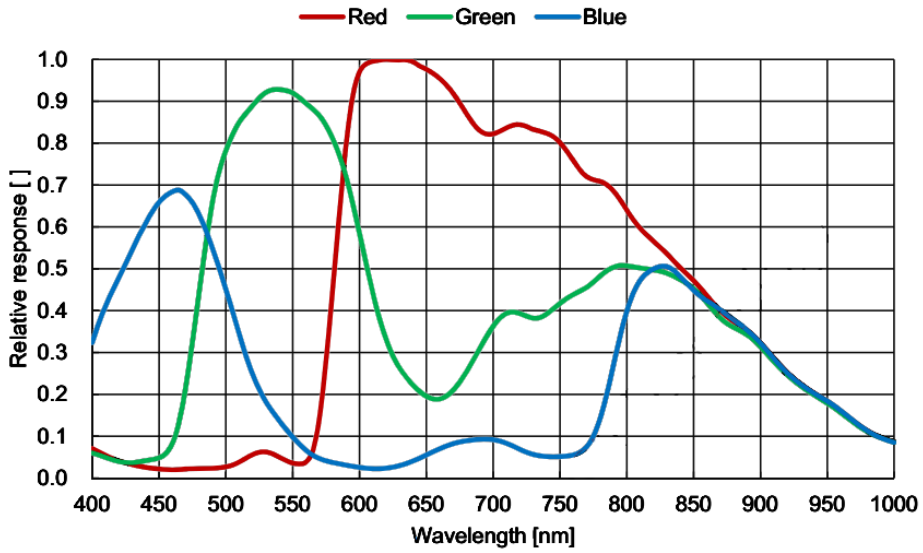


Figure 4-13 CTR3CMOS07100KPA-G spectral response curve

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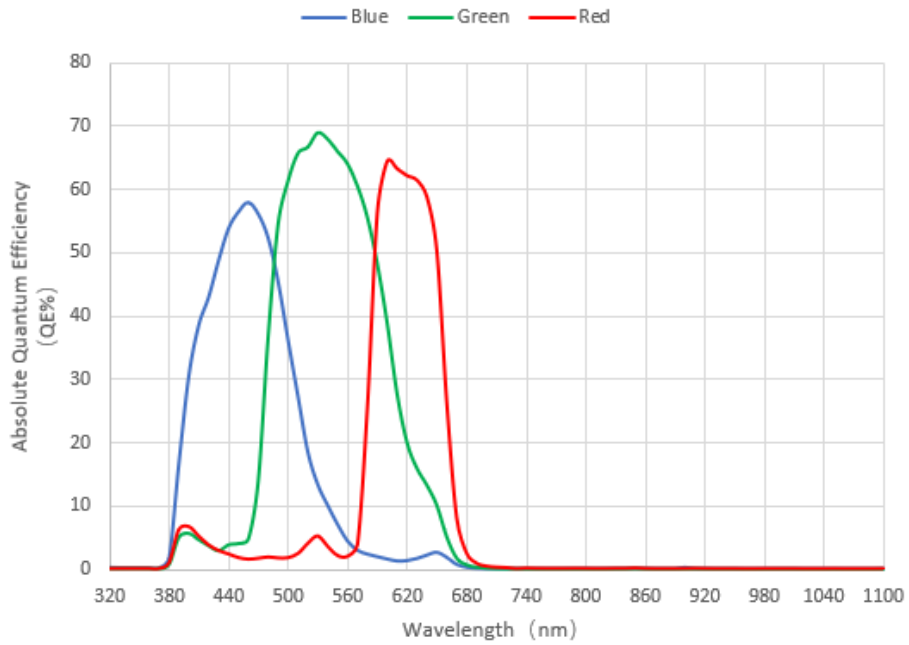


Figure 4-14 CTR3CMOS07100KPA-G spectral absolute quantum efficiency

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4.8 CTR3CMOS07100KPA

Table 4-8 CTR3CMOS07100KPA camera specifications

Model / Parameter	CTR3CMOS07100KPA 7.1M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX428LQJ
Pixel size	4.5 µm x 4.5 µm
Sensor size	1.1"
Frame rate	51.4fps@3200 x 2200 133.8fps@1584 x 1100
Readout Noise	2.38e-
Full Well	11154.09e-
Dynamic range	72dB
SNRmax	40.47dB
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6µs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	25.2W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

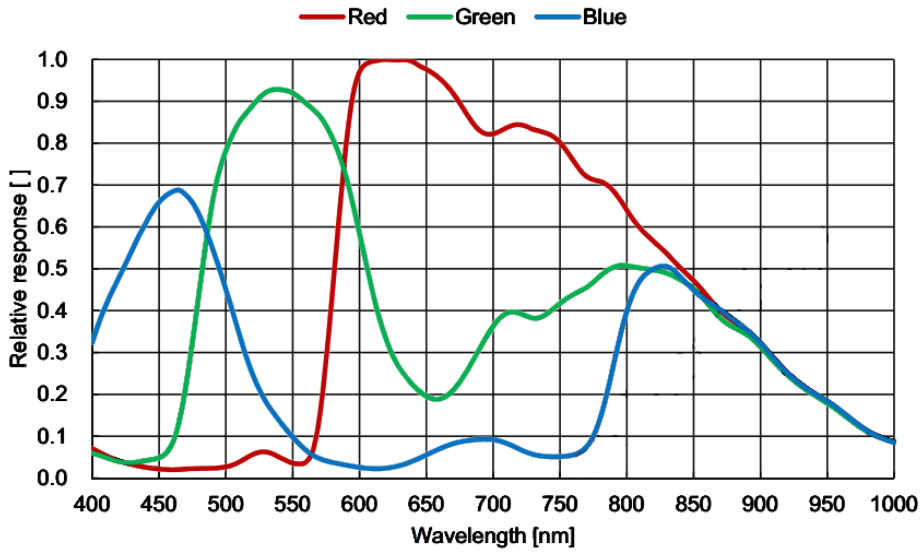


Figure 4-15 CTR3CMOS07100KPA spectral response curve

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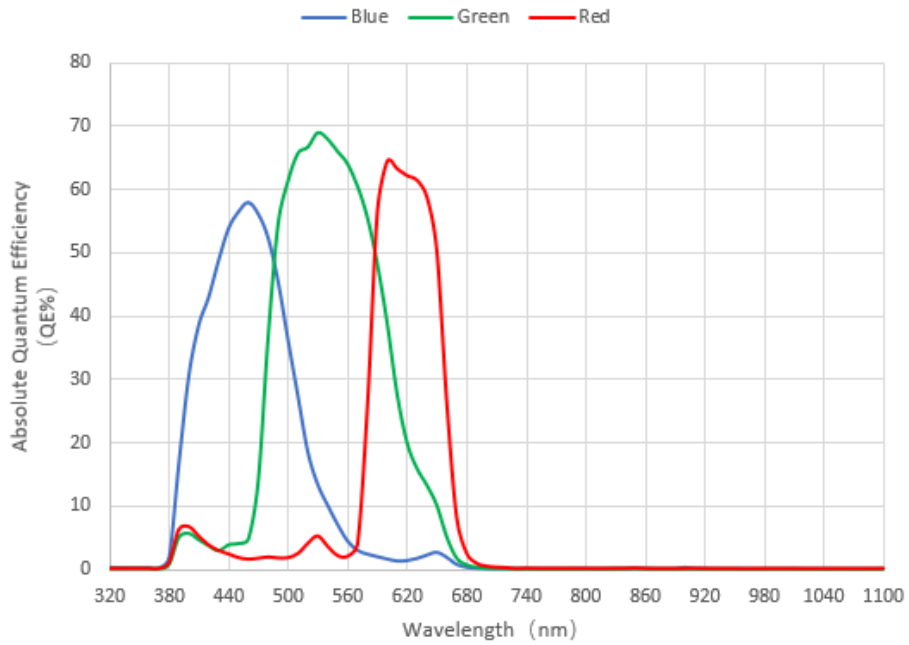


Figure 4-16 CTR3CMOS07100KPA spectral absolute quantum efficiency

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4.9 CTR3CMOS07100KMA-G

Table 4-9 CTR3CMOS07100KMA-G camera specifications

Model / Parameter	CTR3CMOS07100KMA-G 7.1M pixels 1.1" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX428LLJ
Pixel size	4.5 µm x 4.5 µm
Sensor size	1.1"
Frame rate	16.4fps@3200 x 2200 66fps@1600 x 1100
Readout Noise	2.38e-
Full Well	11154.09e-
Dynamic range	72dB
SNRmax	40.47dB
Sensitivity	3354mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6µs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

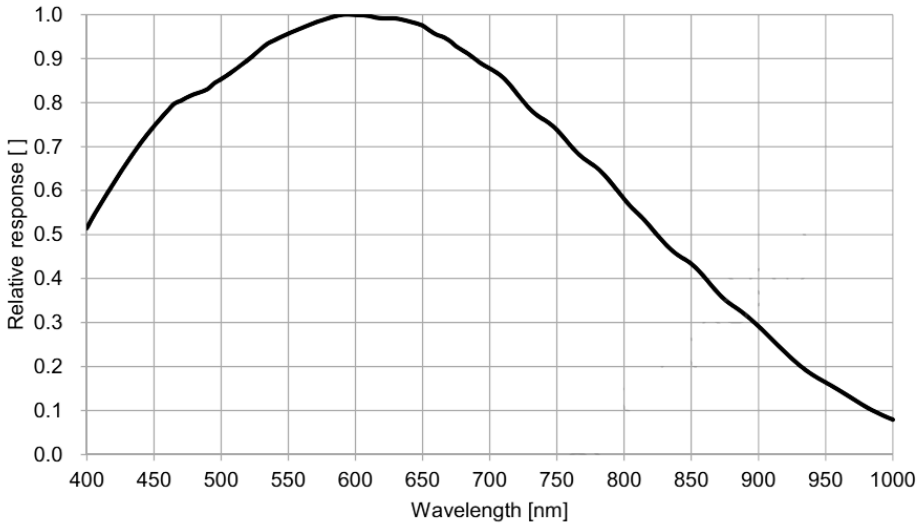


Figure 4-17 CTR3CMOS07100KMA-G spectral response curve

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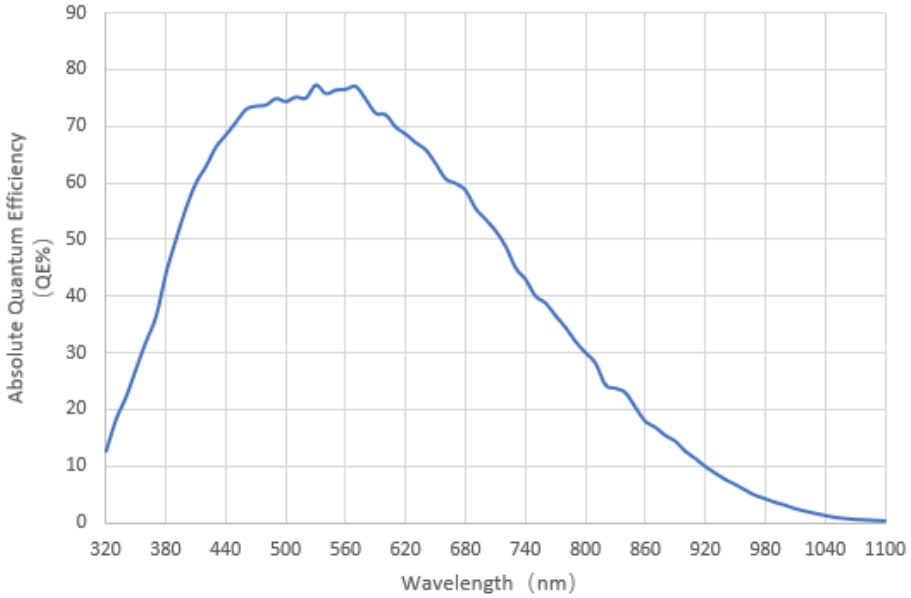


Figure 4-18 CTR3CMOS07100KMA-G spectral absolute quantum efficiency

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4.10 CTR3CMOS07100KMA

Table 4-10 CTR3CMOS07100KMA camera specifications

Model / Parameter	CTR3CMOS07100KMA 7.1M pixels 1.1" CMOS USB3.0 / GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX428LLJ
Pixel size	4.5 µm x 4.5 µm
Sensor size	1.1"
Frame rate	51.4fps@3200 x 2200 133.8fps@1584 x 1100
Readout Noise	2.38e-
Full Well	11154.09e-
Dynamic range	72dB
SNRmax	40.47dB
Sensitivity	3354mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6µs-300sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	25.2W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

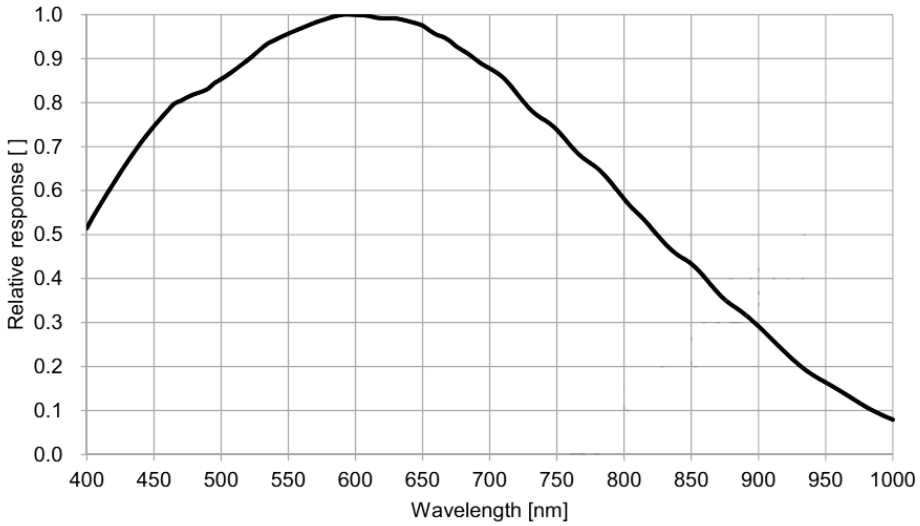


Figure 4-19 CTR3CMOS07100KMA spectral response curve

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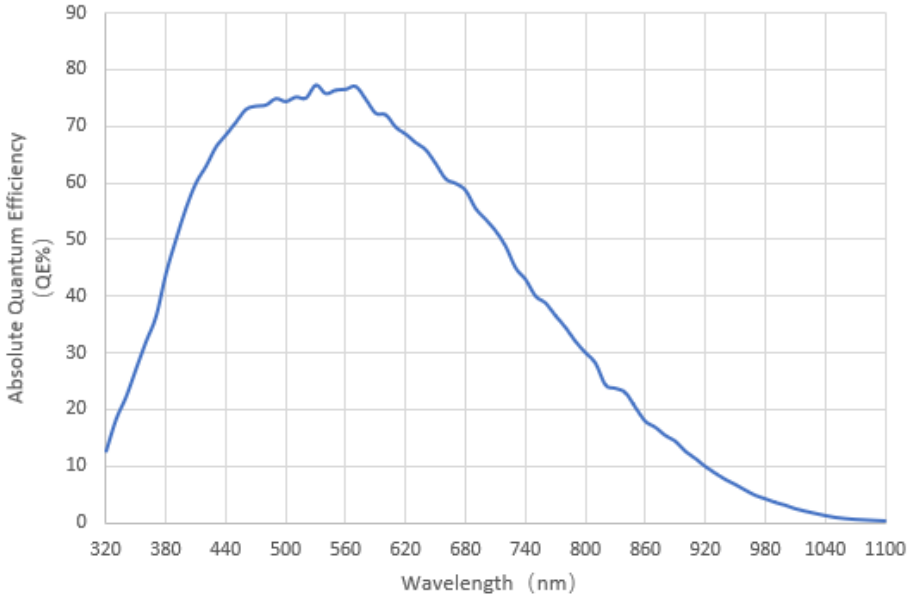


Figure 4-20 CTR3CMOS07100KMA spectral absolute quantum efficiency

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4.11 CTR3CMOS20000KPA-G

Table 4-11 CTR3CMOS20000KPA-G camera specifications

Model / Parameter	CTR3CMOS20000KPA-G 20M pixels 1" CMOS USB3.0 / GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX183CQK
Pixel size	2.4 μm x 2.4 μm
Sensor size	1"
Frame rate	4.5fps@5440 x 3684 18.5fps@2736 x 1824 41.7fps@1824 x 1216
Readout Noise	3.38e-
Full Well	15929.69e-
Dynamic range	72dB
SNRmax	42.02dB
Sensitivity	462mV
Dark current	0.21mV
Gain range	1x-50x
Exposure time	53μs-300sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

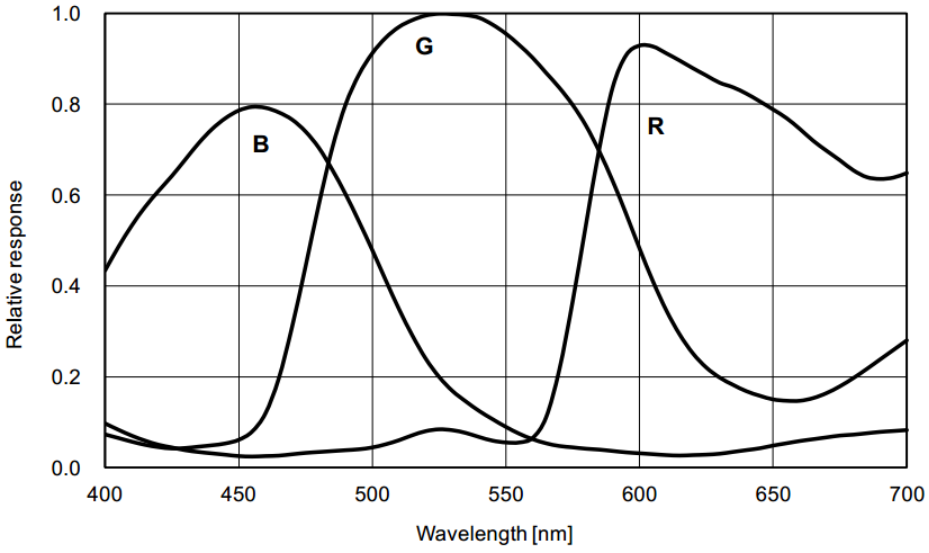


Figure 4-21 CTR3CMOS20000KPA-G spectral response curve

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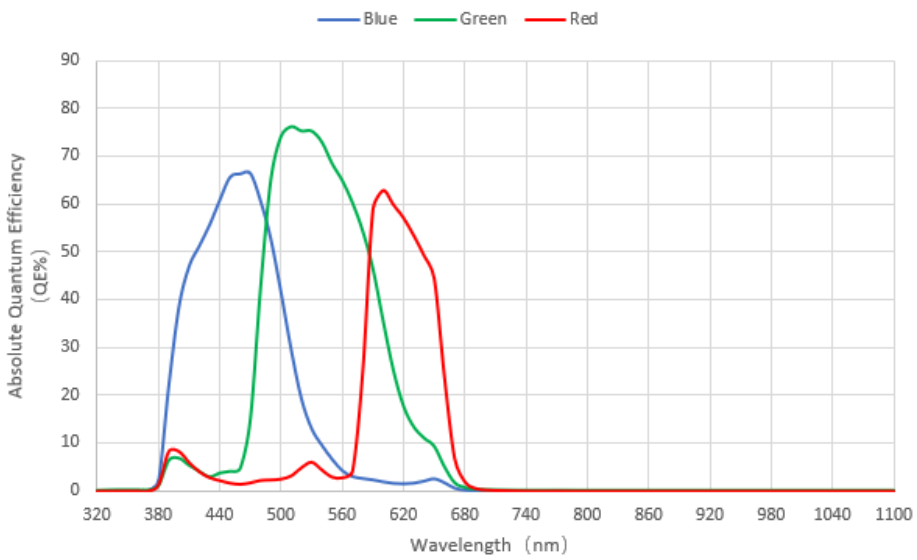


Figure 4-22 CTR3CMOS20000KPA-G spectral absolute quantum efficiency

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4.12 CTR3CMOS20000KPA

Table 4-12 CTR3CMOS20000KPA camera specifications

Model / Parameter	CTR3CMOS20000KPA 20M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Data interface	**USB3.0**
Sensor model	Sony IMX183CQK
Pixel size	2.4 μm x 2.4 μm
Sensor size	1"
Frame rate	19.0fps@5440 x 3684 48.8fps@2736 x 1824 59.4fps@1824 x 1216
Readout Noise	3.38e-
Full Well	15929.69e-
Dynamic range	72dB
SNRmax	42.02dB
Sensitivity	462mV
Dark current	0.21mV
Gain range	1x-50x
Exposure time	53μs-300sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	14.64W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

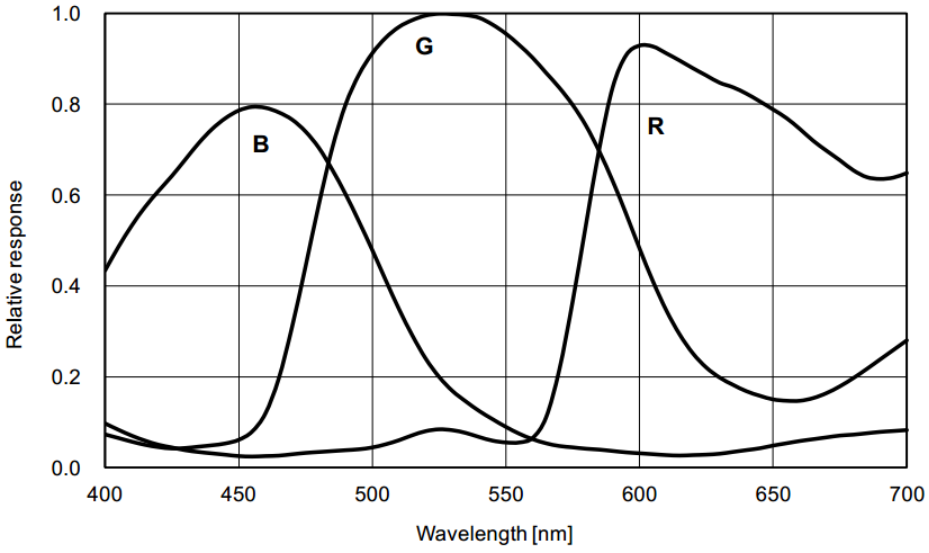


Figure 4-23 CTR3CMOS20000KPA spectral response curve

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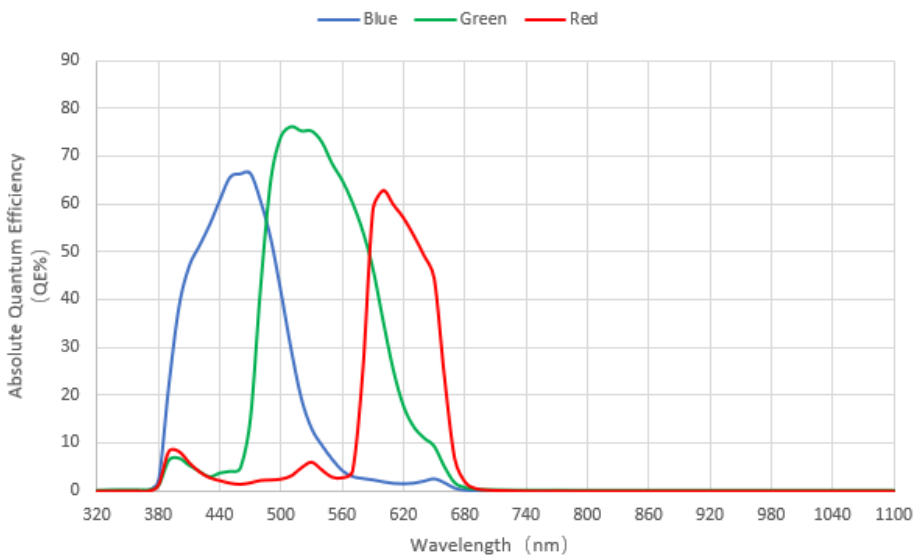


Figure 4-24 CTR3CMOS20000KPA spectral absolute quantum efficiency

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4.13 CTR3CMOS20000KMA-G

Table 4-13 CTR3CMOS20000KMA-G camera specifications

Model / Parameter	CTR3CMOS20000KMA-G 20M pixels 1" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX183CQK
Pixel size	2.4 μm x 2.4 μm
Sensor size	1"
Frame rate	4.5fps@5440 x 3684 18.5fps@2736 x 1824 41.7fps@1824 x 1216
Readout Noise	3.38e-
Full Well	15929.69e-
Dynamic range	72dB
SNRmax	42.02dB
Sensitivity	462mV
Dark current	0.21mV
Gain range	1x-50x
Exposure time	53μs-300sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

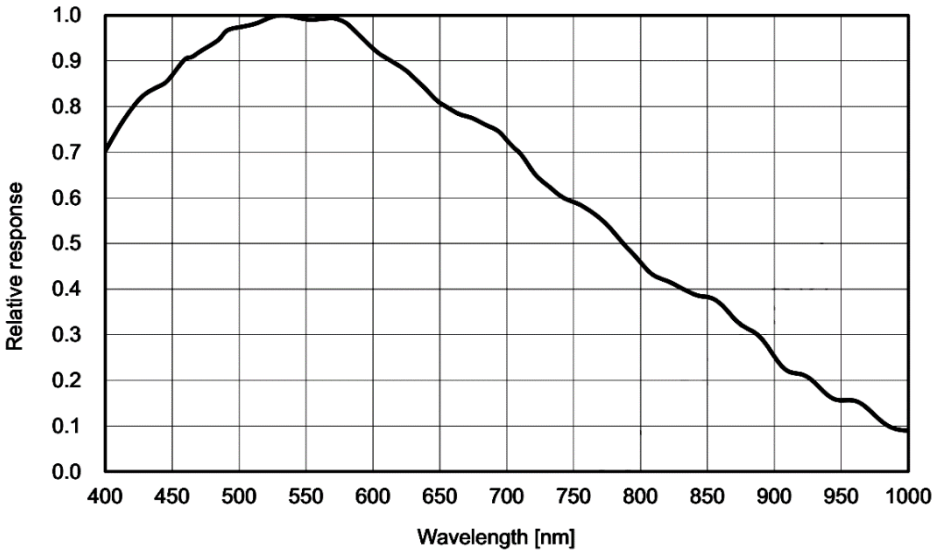


Figure 4-25 CTR3CMOS20000KMA-G spectral response curve

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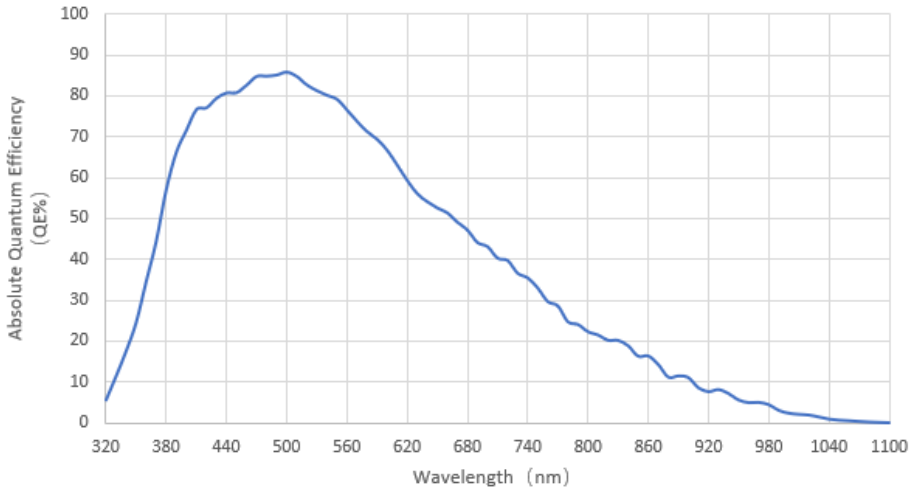


Figure 4-26 CTR3CMOS20000KMA-G spectral absolute quantum efficiency

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4.14 CTR3CMOS20000KMA

Table 4-14 CTR3CMOS20000KMA camera specifications

Model / Parameter	CTR3CMOS20000KMA 20M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX183CQK
Pixel size	2.4 μm x 2.4 μm
Sensor size	1"
Frame rate	19.0fps@5440 x 3684 48.8fps@2736 x 1824 59.4fps@1824 x 1216
Readout Noise	3.38e-
Full Well	15929.69e-
Dynamic range	72dB
SNRmax	42.02dB
Sensitivity	462mV
Dark current	0.21mV
Gain range	1x-50x
Exposure time	53μs-300sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, hardware2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	14.64W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

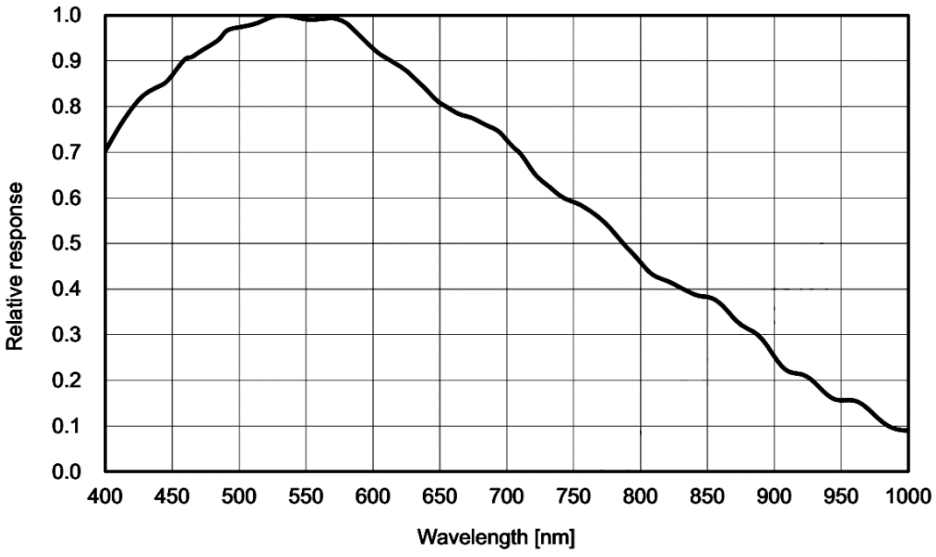


Figure 4-27 CTR3CMOS20000KMA spectral response curve

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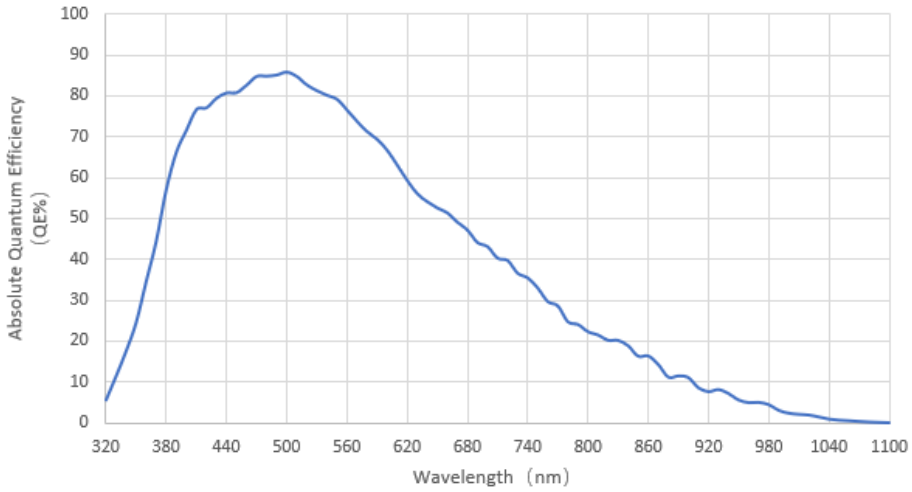


Figure 4-28 CTR3CMOS20000KMA spectral absolute quantum efficiency

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4.15 CTR3CMOS45000KMA

Table 4-15 CTR3CMOS45000KMA camera specifications

Model / Parameter	CTR3CMOS45000KMA 45M pixels 1.4" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX492LLJ-C
Pixel size	2.315 μm x 2.315μm
Sensor size	1.4"
Frame rate	8.1@8176×5616 30.0@4080×2808 8.1@7408×5556 33.0@3696×2778 10.4@8176×4320 34.7@4096×2160 62.5@2048×1080 86.5@1360×720
Readout Noise	2.67e-(HCG) 2.74e-(LCG)
Full Well	14796.69e-(HCG) 14859.92e-(LCG)
Dynamic range	72dB (HCG) 72dB (LCG)
SNRmax	41.7dB(HCG) 41.72dB(LCG)
Sensitivity	175mV
Dark current	0.03mV
Gain range	1x-50x
Exposure time	100μs-300sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4, hardware2×2, 3×3, 4×4
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0 or 12V Power adapter
Power consumption	24.12w
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	80mm × 80mm × 45.5mm
Weight	396.6g
Lens mount	C mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

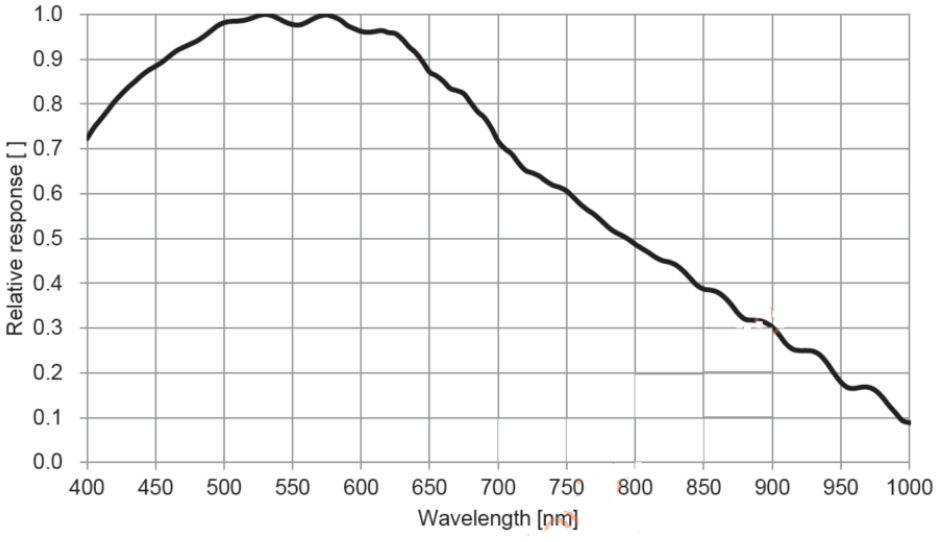


Figure 4-29 CTR3CMOS45000KMA spectral response curve

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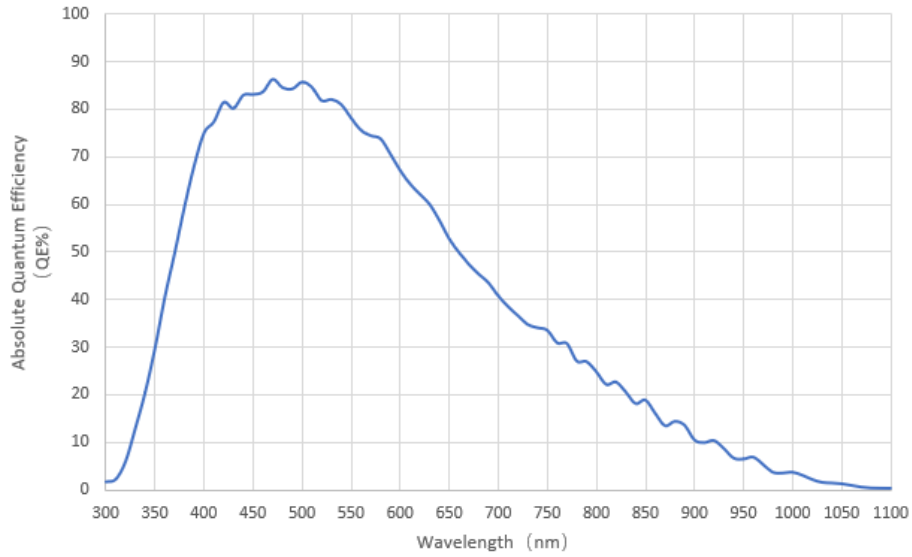


Figure 4-30 CTR3CMOS45000KMA spectral absolute quantum efficiency

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5 I3 Series Camera Specification(64)

5.1 I3ISPM00500KPA

Table 5-1 I3ISPM00500KPA camera specifications

Model / Parameter	I3ISPM00500KPA
	0.5M 1/1.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX433LQJ
Pixel size	9.0 μm×9.0 μm
Sensor size	1/1.7"
Frame rate	166.5fps@812×620
Dynamic range	72.3dB
Signal-to-Noise ratio	50.0dB
Sensitivity	4910mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input, one non-isolated output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

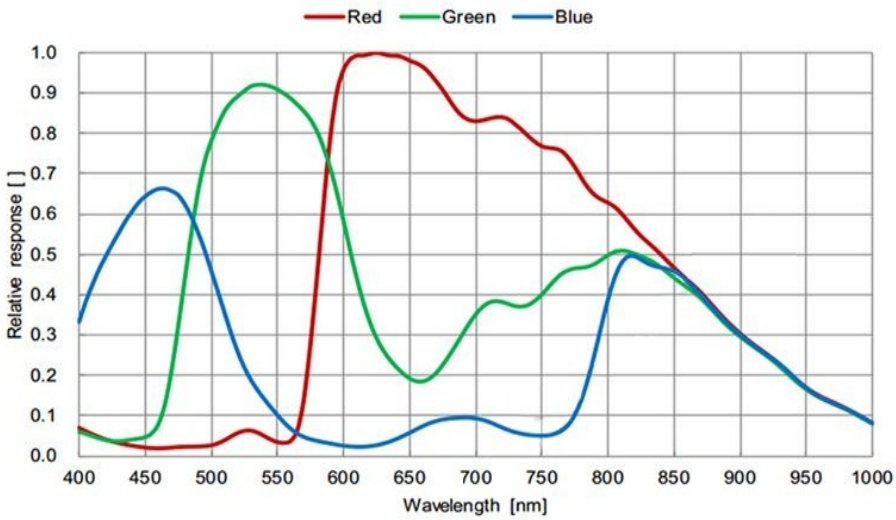


Figure 5-1 I3ISPM00500KPA spectral response curve

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5.2 I3ISPM01500KPA

Table 5-2 I3ISPM01500KPA camera specifications

Parameter \ Model	I3ISPM01500KPA
	1.5M pixels 1/2.9" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX273LQR
Pixel size	3.45 μm×3.45 μm
Sensor size	1/2.9"
Frame rate	227.2fps@1440×1080 382.7fps@720×540
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 10bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

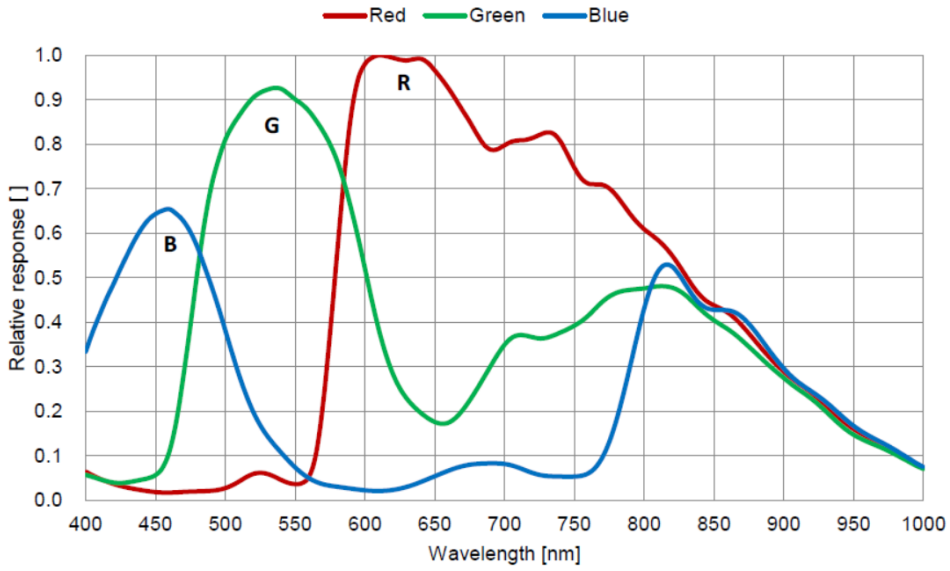


Figure 5-2 I3ISPM01500KPA spectral response curve

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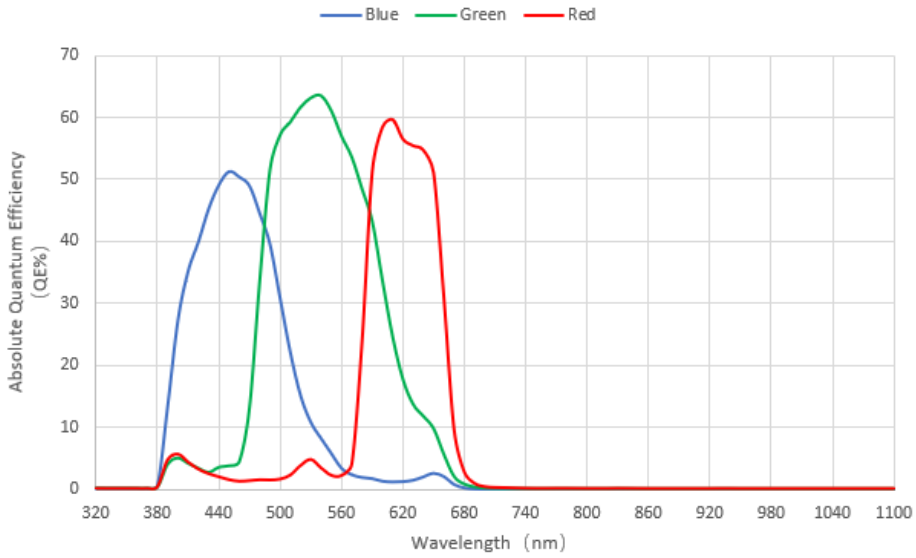


Figure 5-3 I3ISPM01500KPA absolute quantum efficiency

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5.3 I3ISPM02000KPB

Table 5-3 I3ISPM02000KPB camera specifications

Parameter \ Model	I3ISPM02000KPB
	2.0M pixels 1/2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	IMX385LQR-C
Pixel size	3.75 μm × 3.75 μm
Sensor size	1/2"
Frame rate	8 Bit：124.3fps@1920×1080 10 Bit：90.4fps@1920×1080
Readout Noise	3.43 (e-)
Full Well	8.505 (ke-)
Dynamic range	60.0dB
Signal-to-Noise ratio	39.3dB
Sensitivity	2350 mV @ 1/30s
Dark current	0.15 mV @ 1/30s
Gain range	1x-50x
Exposure time	30us-15sec
Shutter	RS
Binning	TBD
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	RAW8/RAW10
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

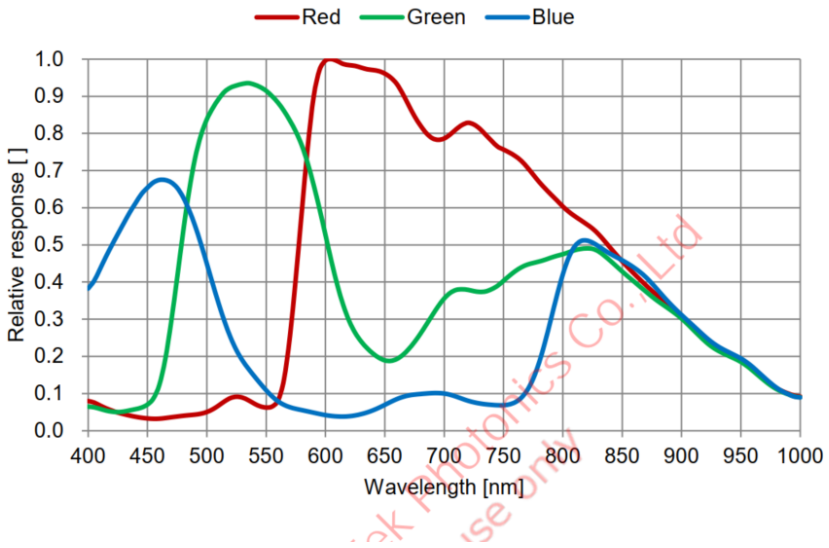


Figure 5-4 I3ISPM02000KPB spectral response curve

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5.4 I3ISPM02300KPA

Table 5-4 I3ISPM02300KPA camera specifications

Parameter \ Model	I3ISPM02300KPA
	2.3M pixels 1/1.2" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX174LQJ
Pixel size	5.86 μm x 5.86 μm
Sensor size	1/1.2"
Frame rate	164.5fps@1920 x 1200
Dynamic range	73.6dB
Signal-to-Noise ratio	44.8dB
Sensitivity	1016mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 10bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

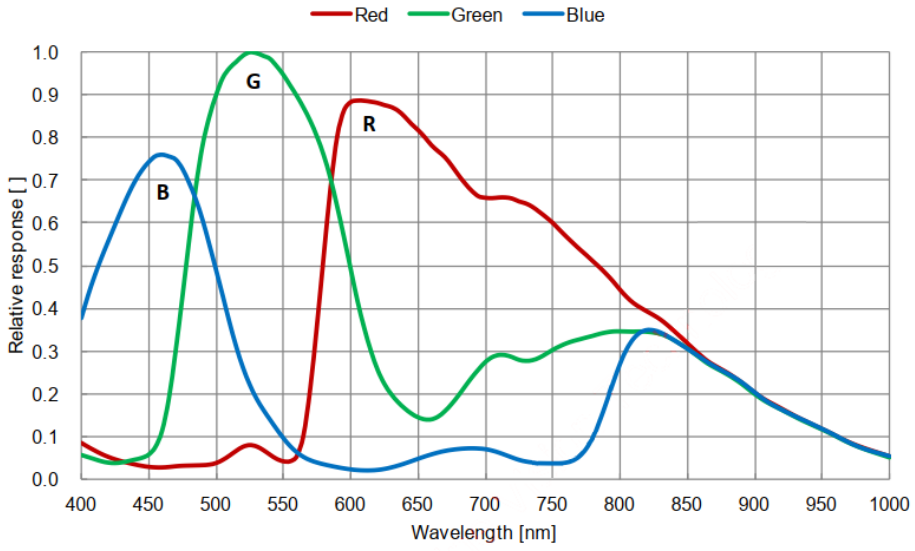


Figure 5-5 I3ISPM02300KPA spectral response curve

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5.5 I3ISPM02300KPB

Table 5-5 I3ISPM02300KPB camera specifications

Parameter \ Model	I3ISPM02300KPB
	2.3M pixels 1/1.2" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX249LQJ
Pixel size	5.86 μm x 5.86 μm
Sensor size	1/1.2"
Frame rate	30fps@1920 x 1200
Dynamic range	73.6dB
Signal-to-Noise ratio	44.8dB
Sensitivity	1016mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	42μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 10bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.2W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

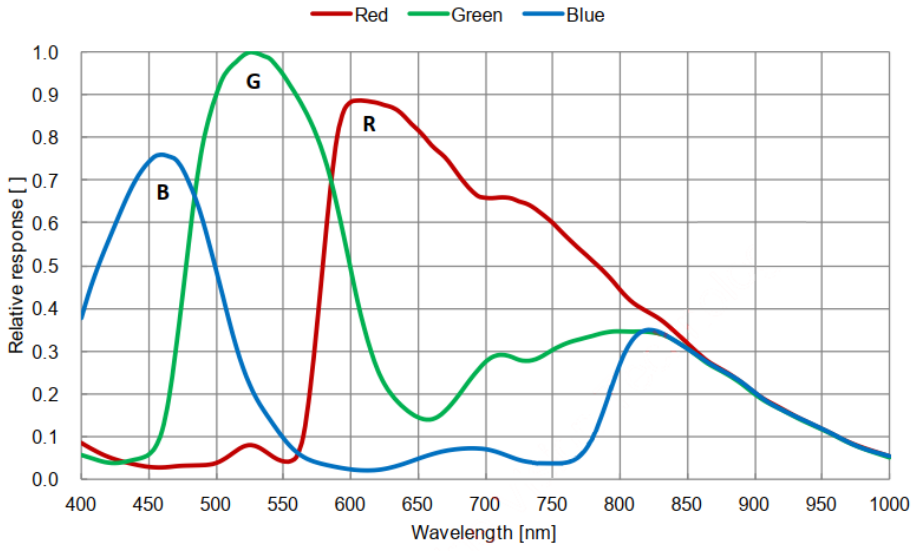


Figure 5-6 I3ISPM02300KPB spectral response curve

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5.6 I3ISPM02400KPA

Table 5-6 I3ISPM02400KPA camera specifications

Parameter \ Model	I3ISPM02400KPA
	2.4M pixels 1/1.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GMAX4002
Pixel size	4.0 μm x 4.0 μm
Sensor size	1/1.7"
Frame rate	155fps@2048×1200 620fps@1024×600
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	3.26×10^{7}e-/((W/m2)·s)
Dark current	8.3e-/s
Gain range	1x-50x
Exposure time	55μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 10bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.2W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

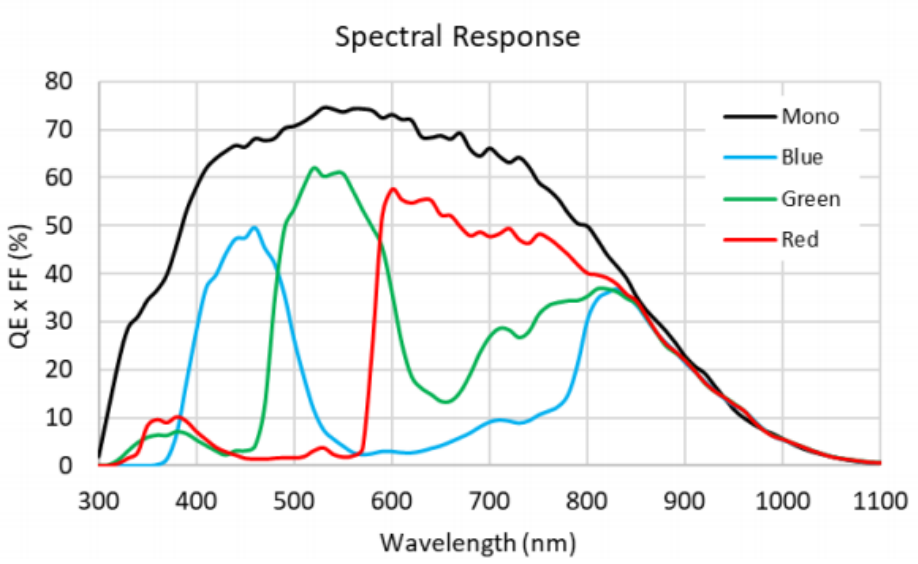


Figure 5-7 I3ISPM02400KPA spectral response curve

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5.7 I3ISPM03100KPA

Table 5-7 I3ISPM03100KPA camera specifications

Parameter \ Model	I3ISPM03100KPA
	3.1M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX252LQR
Pixel size	3.45 μm×3.45 μm
Sensor size	1/1.8"
Frame rate	115fps@2048×1536 230.3fps@1024×768
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	2.65W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

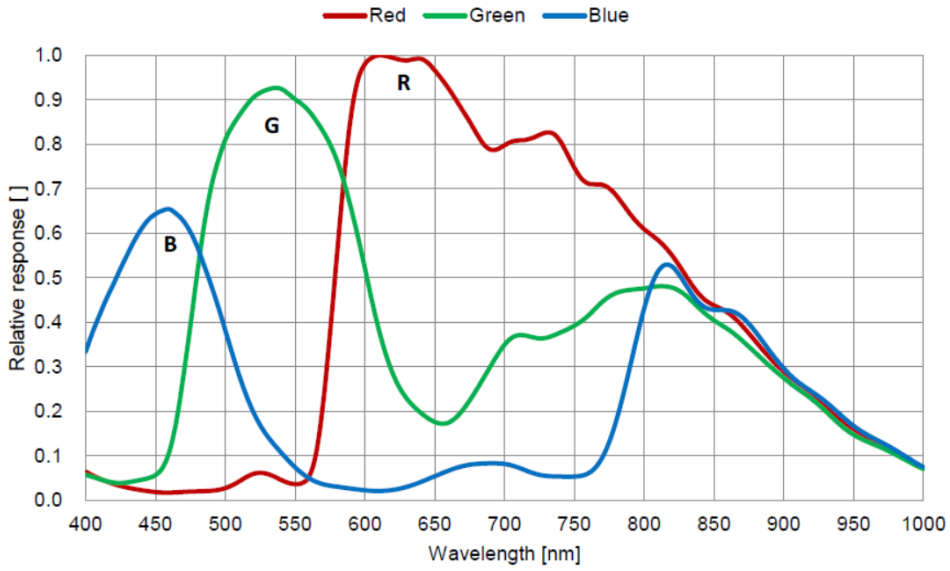


Figure 5-8 I3ISPM03100KPA spectral response curve

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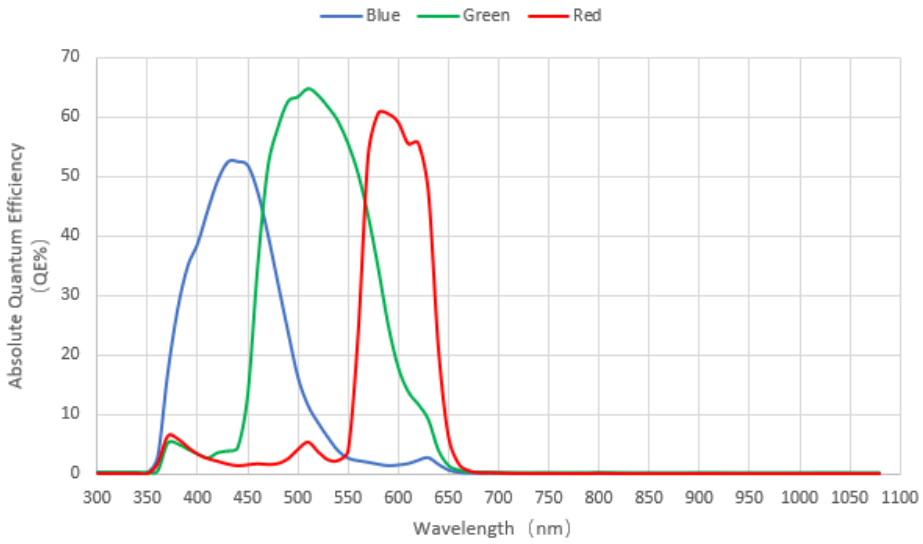


Figure 5-9 I3ISPM03100KPA absolute quantum efficiency

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5.8 I3ISPM03100KPB-G

Table 5-8 I3ISPM03100KPB-G camera specifications

Parameter \ Model	I3ISPM03100KPB-G
	3.1M pixels 1/1.8" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX265LQR
Pixel size	3.45 μm×3.45 μm
Sensor size	1/1.8"
Frame rate	37fps@2048×1536 115.1fps@1024×768
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, two non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<2.2W
Temperature	Working temperature -10~50℃, storage temperature30~70℃
Humidity	20%-80%, no condensation
Size	33mm × 33mm × 58.5mm
Weight	TBD
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

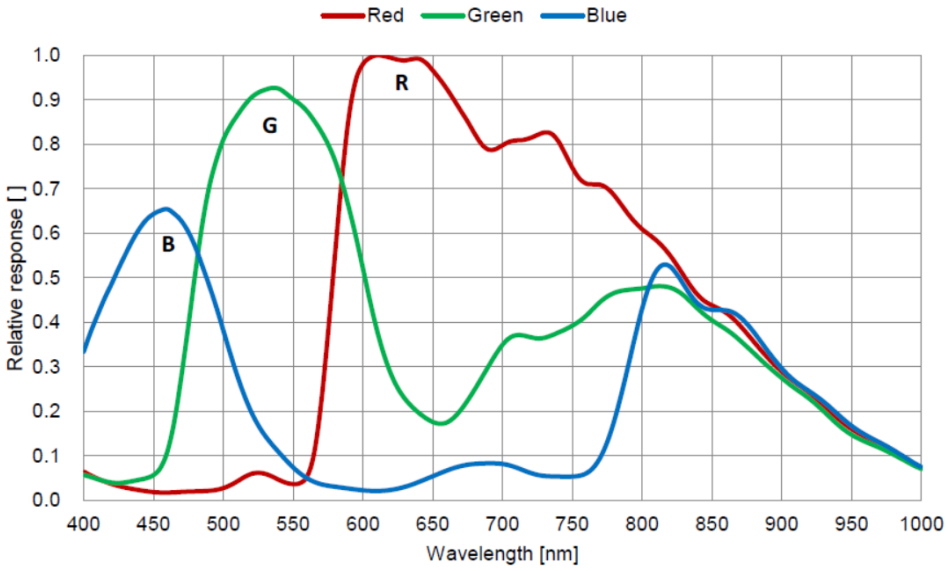


Figure 5-10 I3ISPM03100KPB-G spectral response curve

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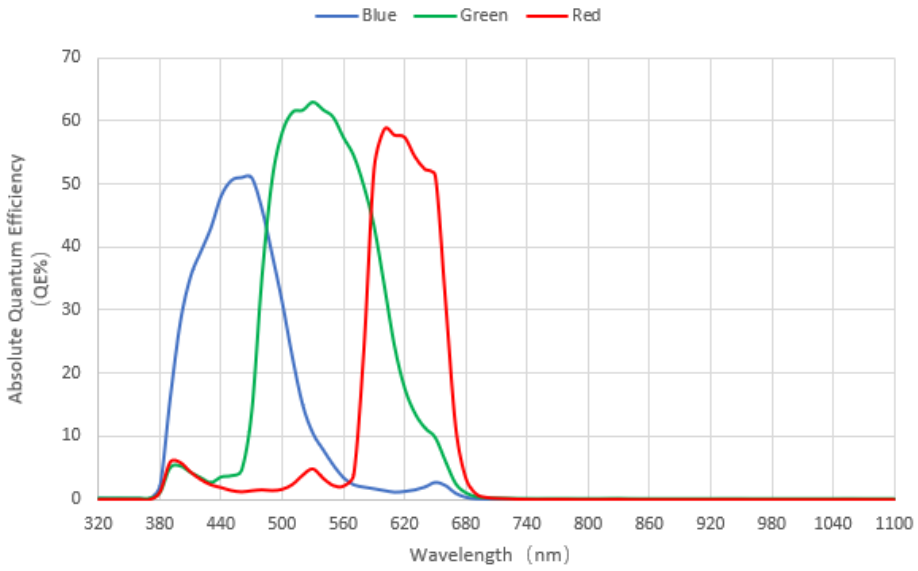


Figure 5-11 I3ISPM03100KPB-G absolute quantum efficiency

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5.9 I3ISPM03100KPB

Table 5-9 I3ISPM03100KPB camera specifications

Parameter \ Model	I3ISPM03100KPB
	3.1M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX265LQR
Pixel size	3.45 μm×3.45 μm
Sensor size	1/1.8"
Frame rate	55.4fps@2048×1536 115.1fps@1024×768
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	2.55W
Temperature	Working temperature -10~50℃, storage temperature30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

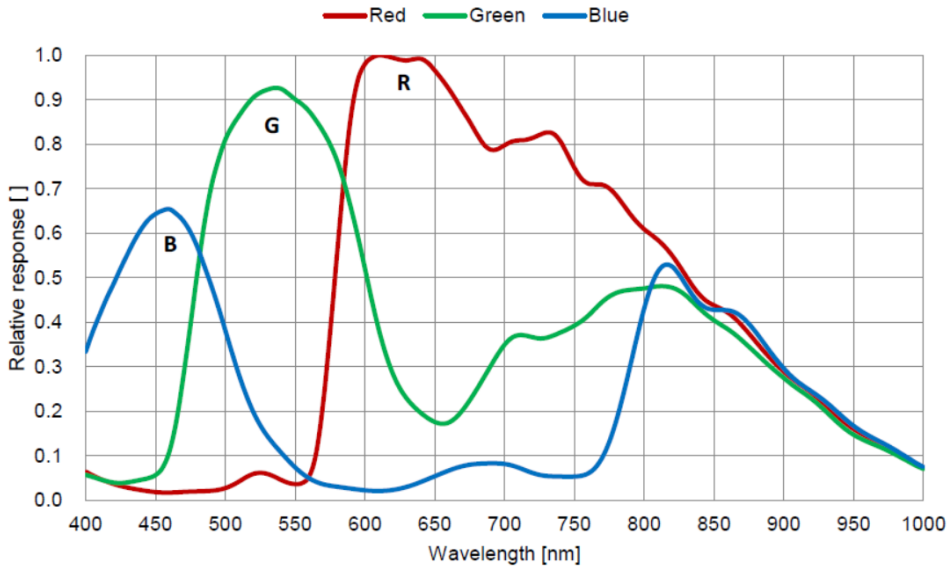


Figure 5-12 I3ISPM03100KPB spectral response curve

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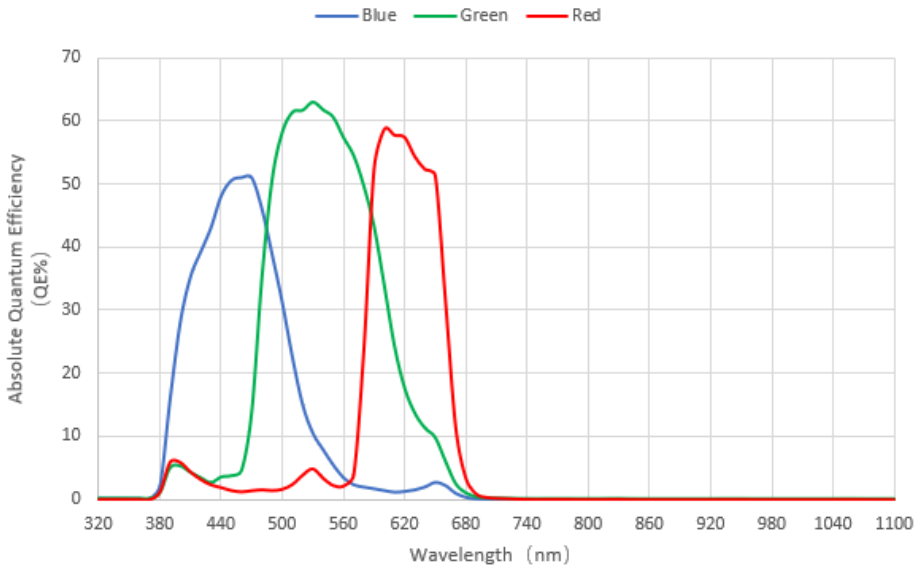


Figure 5-13 I3ISPM03100KPB absolute quantum efficiency

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5.10 I3ISPM03200KPA-G

Table 5-10 I3ISPM03200KPA-G camera specifications

Parameter \ Model	I3ISPM03200KPA-G
	3.2M pixels 1/3.1" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX900AQR
Pixel size	2.25 μm × 2.25 μm
Sensor size	1/3.1"
Frame rate	55.4fps@2048 × 1536 126.8fps@1024 × 768
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	1162mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	11μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, two non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<2W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm × 33mm × 58.5mm
Weight	TBD
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

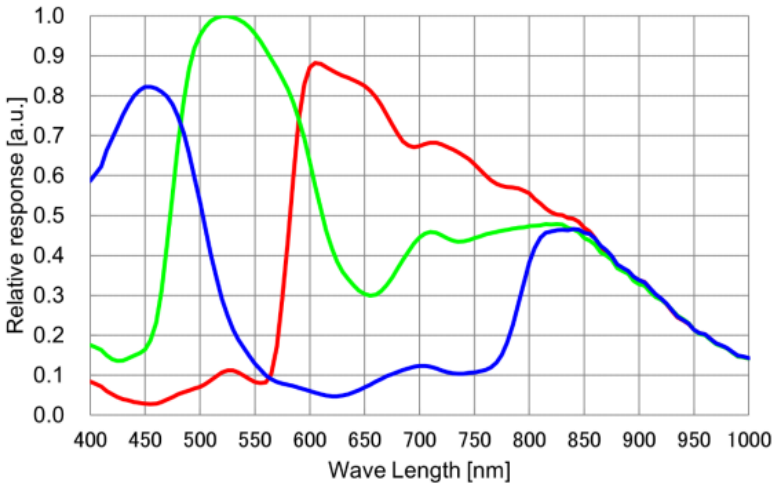


Figure 5-14 I3ISPM03200KPA-G spectral response curve

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5.11 I3ISPM03200KPA

Table 5-11 I3ISPM03200KPA camera specifications

Parameter \ Model	I3ISPM03200KPA
	3.2M pixels 1/3.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX900AQR
Pixel size	2.25 μm × 2.25 μm
Sensor size	1/3.1"
Frame rate	55.4fps@2048 × 1536 126.8fps@1024 × 768
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	1162mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	11μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

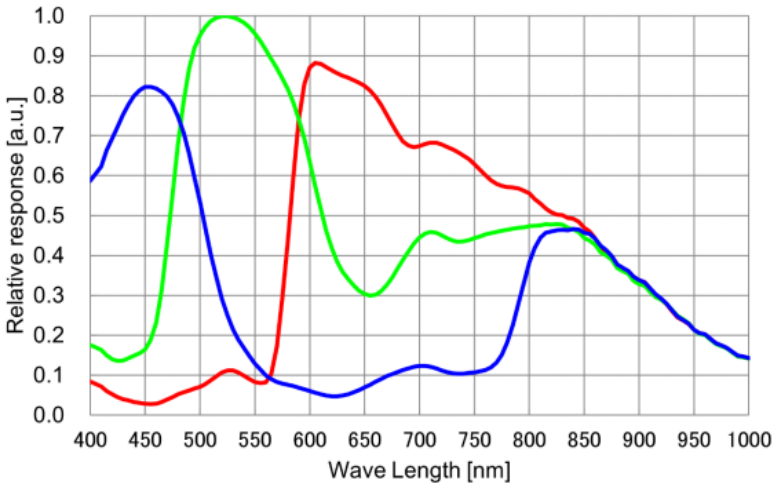


Figure 5-15 I3ISPM03200KPA spectral response curve

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5.12 I3ISPM04200KPA

Table 5-12 I3ISPM04200KPA camera specifications

Parameter \ Model	I3ISPM04200KPA
	4.2M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX664-AAQR1
Pixel size	2.9 μm × 2.9 μm
Sensor size	1/1.8"
Frame rate	88.1fps@2688×1520 116.1fps@1344×760
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	5970mV
Dark current	0.13mV
Gain range	1x-50x
Exposure time	13μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

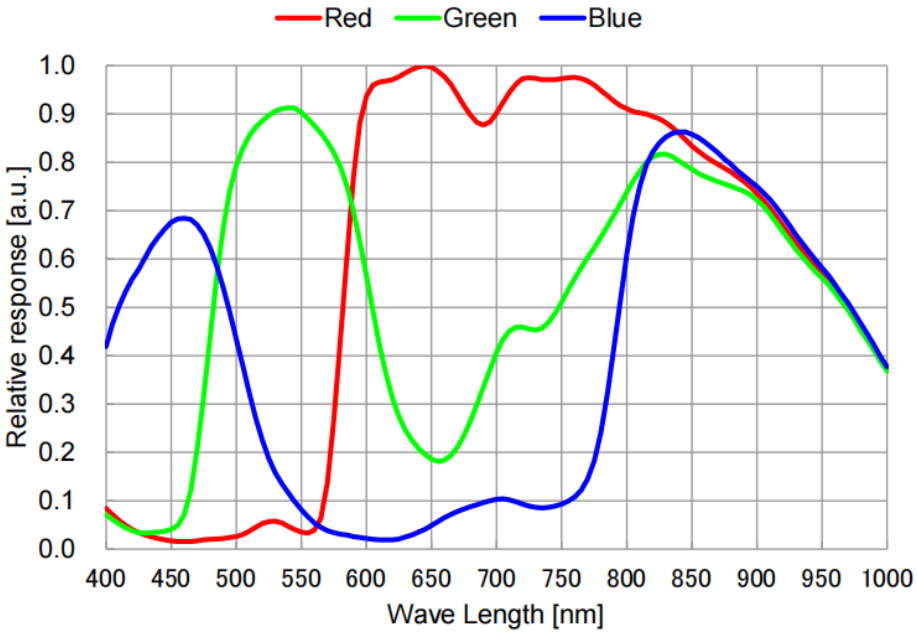


Figure 5-16 I3ISPM04200KPA spectral response curve

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5.13 I3ISPM05000KPA

Table 5-13 I3ISPM05000KPA camera specifications

Parameter \ Model	I3ISPM05000KPA
	5M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX250LQR
Pixel size	3.45 μm×3.45 μm
Sensor size	2/3"
Frame rate	71.2fps@2448×2048 175.2fps@1224×1024
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	3.05W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

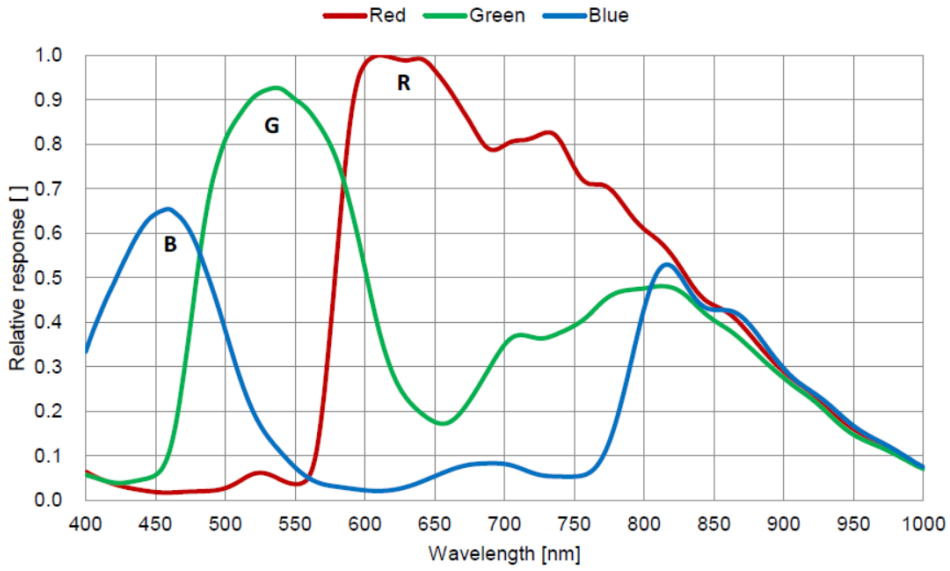


Figure 5-17 I3ISPM05000KPA spectral response curve

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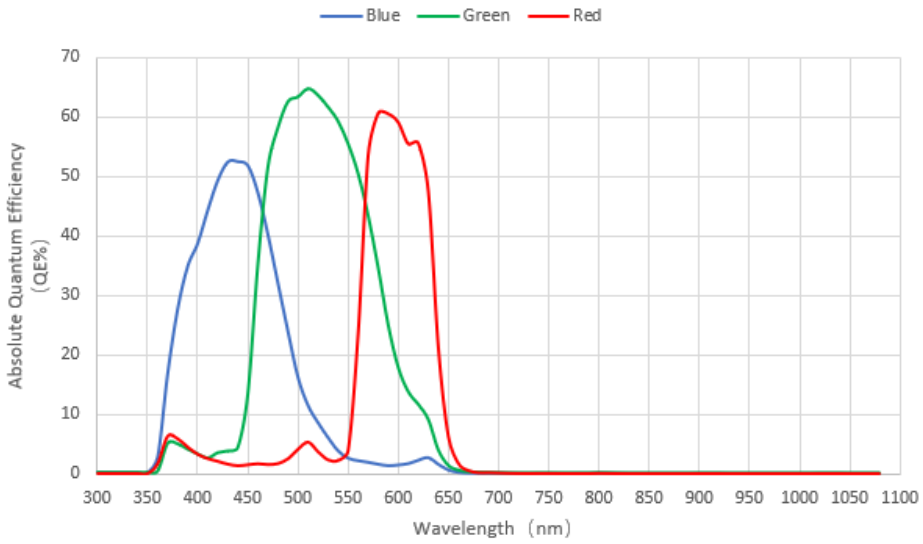


Figure 5-18 I3ISPM05000KPA absolute quantum efficiency

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5.14 I3ISPM05000KPB

Table 5-14 I3ISPM05000KPB camera specifications

Parameter \ Model	I3ISPM05000KPB
	5M pixels 2/3" CMOS USB3.0 / GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX264LQR
Pixel size	3.45 μm×3.45 μm
Sensor size	2/3"
Frame rate	35.6fps@2448×2048 87.6fps@1224×1024
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

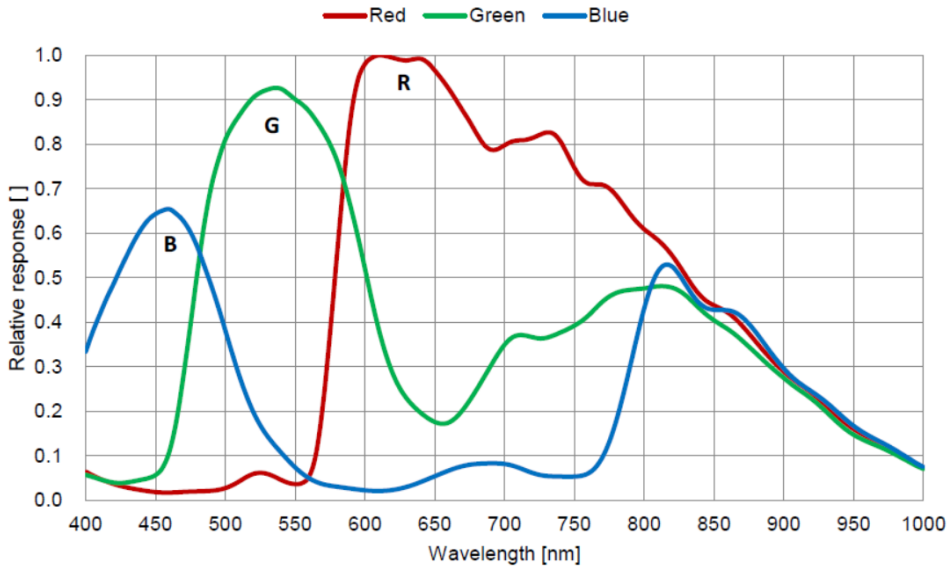


Figure 5-19 I3ISPM05000KPB spectral response curve

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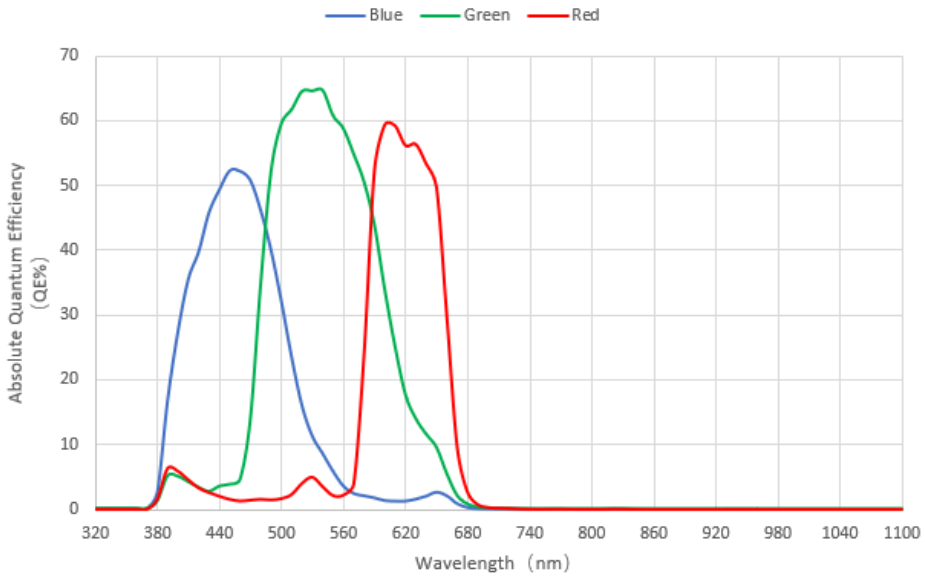


Figure 5-20 I3ISPM05000KPB absolute quantum efficiency

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5.15 I3ISPM05000KPB-G

Table 5-15 I3ISPM05000KPB-G camera specifications

Parameter \ Model	I3ISPM05000KPB-G
	5M pixels 2/3" CMOS USB3.0 / GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX264LQR
Pixel size	3.45 μm×3.45 μm
Sensor size	2/3"
Frame rate	23.9fps@2448 × 2048 87.6fps@1224 × 1024
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, two non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×42mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

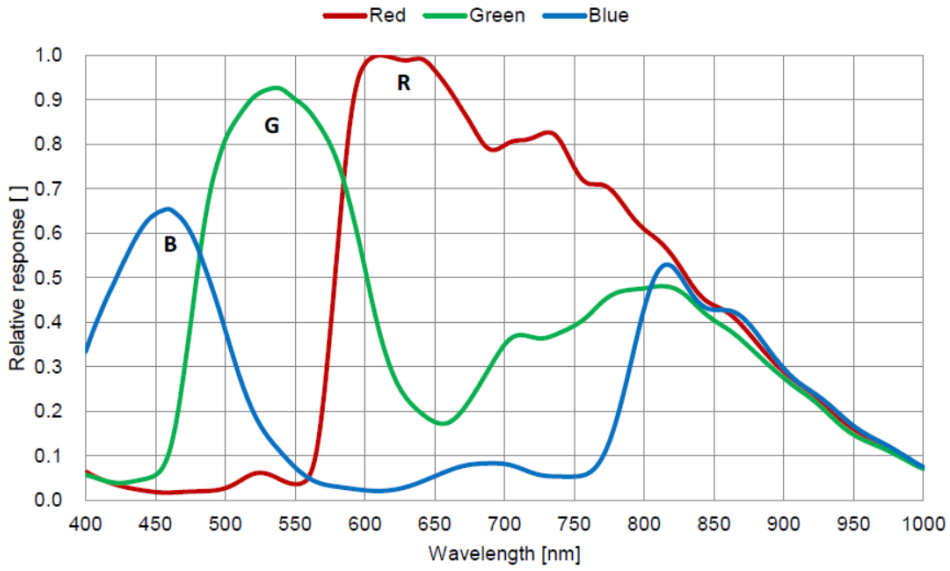


Figure 5-21 I3ISPM05000KPB-G spectral response curve

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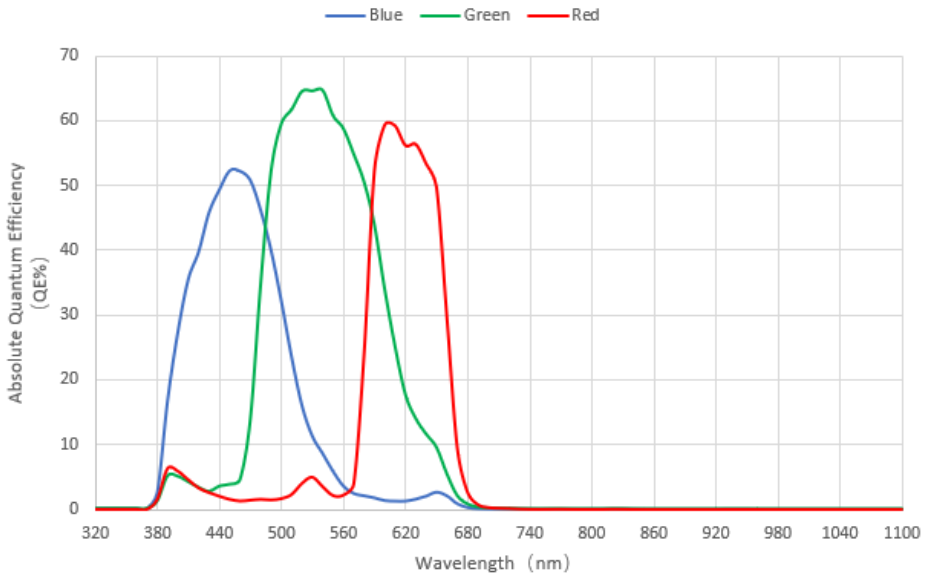


Figure 5-22 I3ISPM05000KPB-G absolute quantum efficiency

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5.16 I3ISPM05100KPA

Table 5-16 I3ISPM05100KPA camera specifications

Parameter \ Model	I3ISPM05100KPA
	5.1M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GMAX3405
Pixel size	3.4 μm × 3.4 μm
Sensor size	2/3"
Frame rate	71fps@2448 × 2048 100fps@1224 × 1024
Dynamic range	66.9dB
Signal-to-Noise ratio	40dB
Sensitivity	2.36×10^{7}e-/((W/m2)·s)
Dark current	4.4e-/s
Gain range	1x-50x
Exposure time	10μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

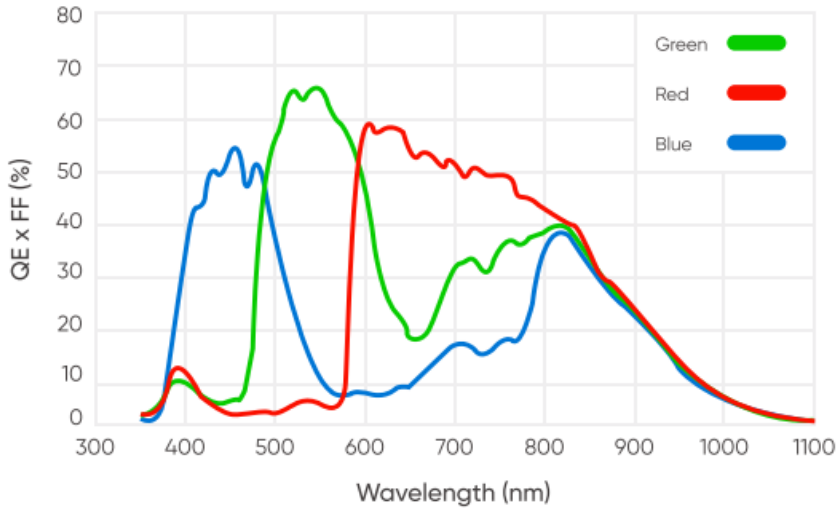


Figure 5-23 I3ISPM05100KPAspectral response curve

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5.17 I3ISPM06300KPA

Table 5-17 I3ISPM06300KPA camera specifications

Parameter \ Model	I3ISPM06300KPA
	6.3M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX178LQJ
Pixel size	2.4 μm×2.4 μm
Sensor size	1/1.8"
Frame rate	58.7fps@3072×2048 59.5fps@1536×1024
Dynamic range	71dB
Signal-to-Noise ratio	40dB
Sensitivity	425mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	17μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

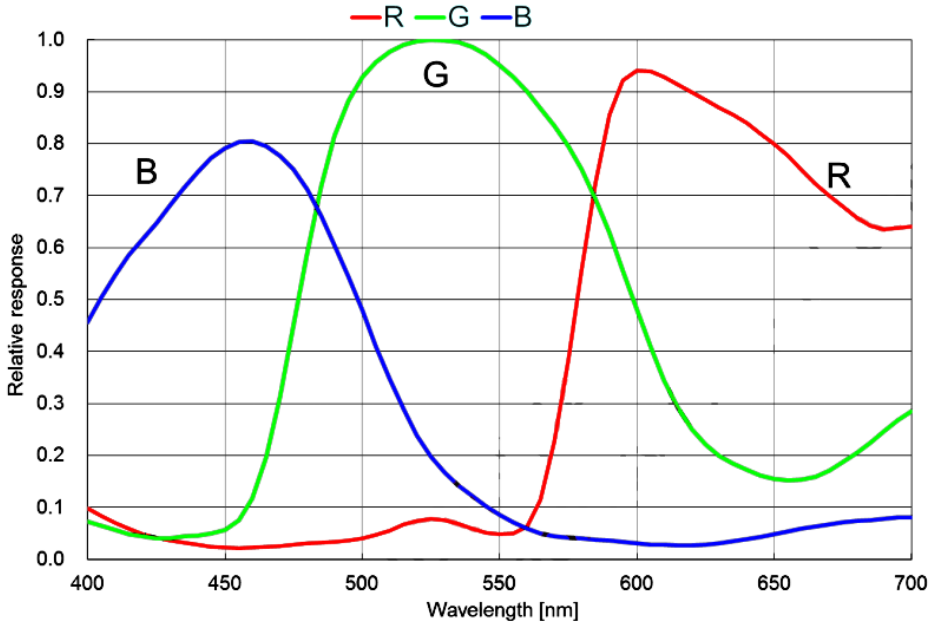


Figure 5-24 I3ISPM06300KPA spectral response curve

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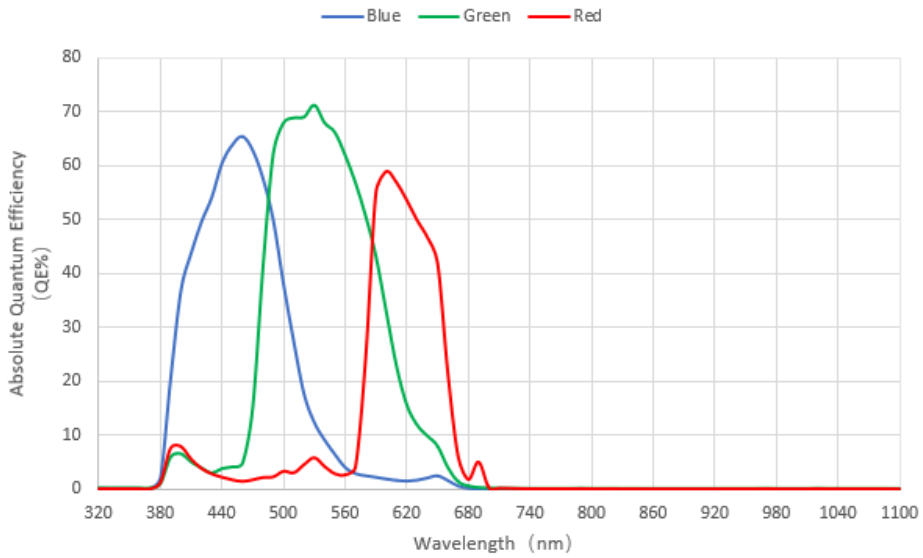


Figure 5-25 I3ISPM06300KPA absolute quantum efficiency

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5.18 I3ISPM08000KPA

Table 5-18 I3ISPM08000KPA camera specifications

Parameter \ Model	I3ISPM08000KPA
	8M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX546-AAQJ
Pixel size	2.74 μm x 2.74 μm
Sensor size	2/3"
Frame rate	41fps@2832×2832 118fps@1408×1408
Dynamic range	70dB
Signal-to-Noise ratio	40dB
Sensitivity	1574mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android； x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

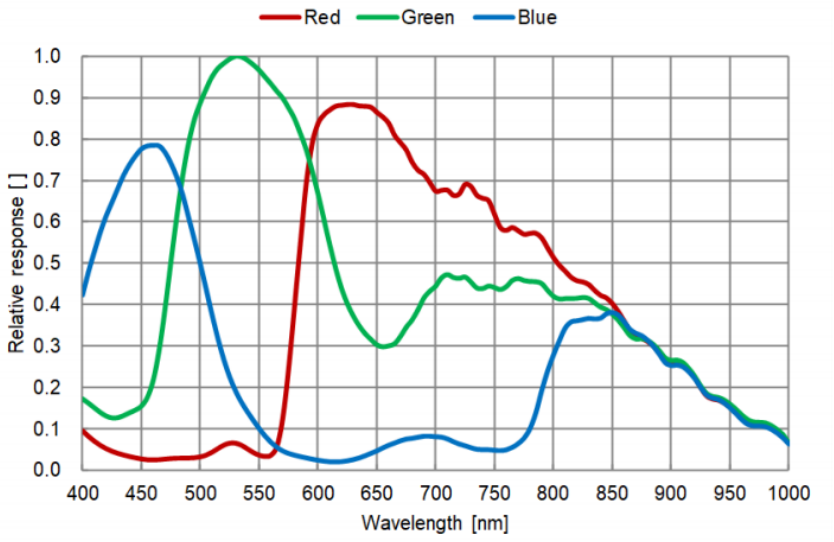


Figure 5-26 I3ISPM08000KPA spectral response curve

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5.19 I3ISPM08300KPA

Table 5-19 I3ISPM08300KPA camera specifications

Parameter \ Model	I3ISPM08300KPA
	8.3M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX678-AAQR
Pixel size	2.0 μm x 2.0 μm
Sensor size	1/1.8"
Frame rate	45fps@3840×2160 70fps@1920×1080
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	3541mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android； x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

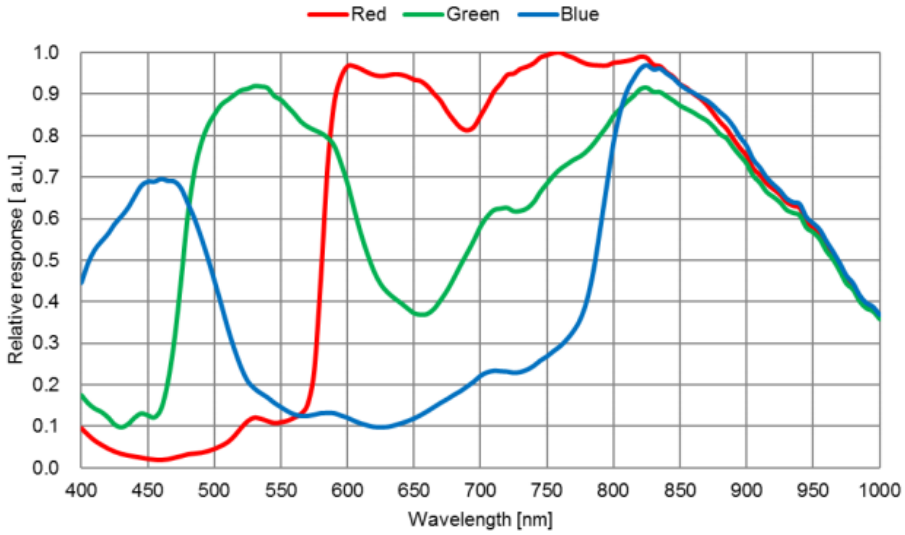


Figure 5-27 I3ISPM08300KPA spectral response curve

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5.20 I3ISPM08300KPB

Table 5-20 I3ISPM08300KPB camera specifications

Parameter \ Model	I3ISPM08300KPB
	8.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX585-AAQJ1-C
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/1.2"
Frame rate	45fps@3840 x2160 70fps@1920 x 1080
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	5970mV
Dark current	0.13mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<2.3W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

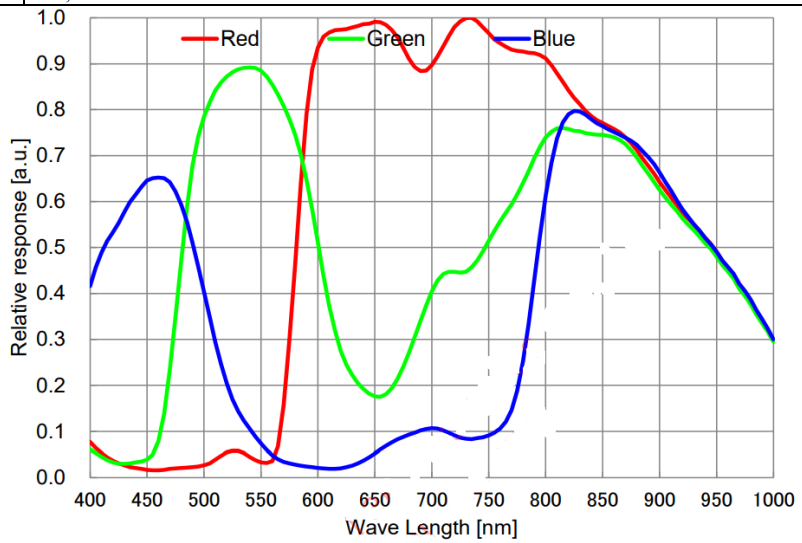


Figure 5-28 I3ISPM08300KPB spectral response curve

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5.21 I3ISPM12000KPA

Table 5-21 I3ISPM12000KPA camera specifications

Parameter \ Model	I3ISPM12000KPA
	12M pixels 1/1.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX226CQJ
Pixel size	1.85 μm x 1.85 μm
Sensor size	1/1.7"
Frame rate	29.9fps@4064×3046 59.9fps@2048×1080
Dynamic range	70dB
Signal-to-Noise ratio	40dB
Sensitivity	3637mV
Dark current	0.5mV
Gain range	1x-50x
Exposure time	400μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android； x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

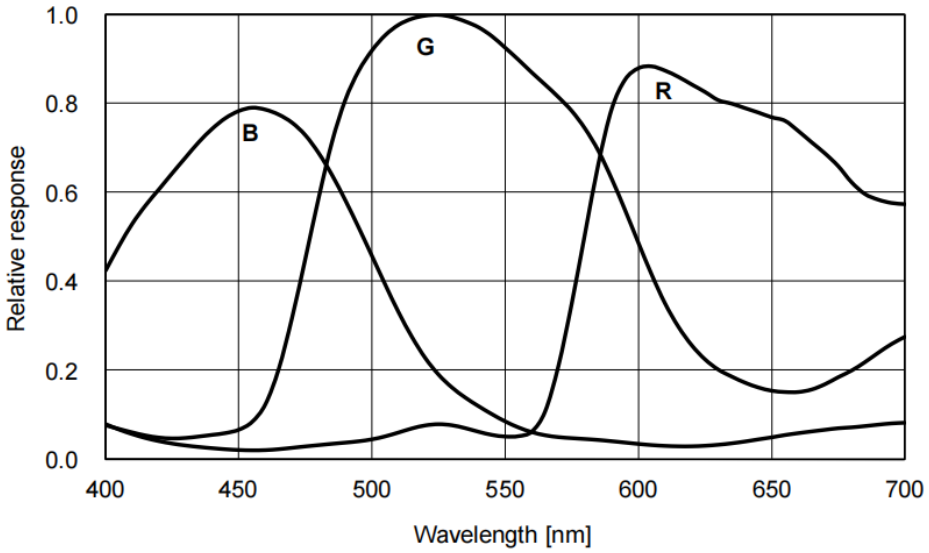


Figure 5-29 I3ISPM12000KPA spectral response curve

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5.22 I3ISPM12000KPB

Table 5-22 I3ISPM12000KPB camera specifications

Parameter \ Model	I3ISPM12000KPB
	12M pixels 1/1.6" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX676-AACR
Pixel size	2.0 μm x 2.0 μm
Sensor size	1/1.6"
Frame rate	27.7fps@3536×3536 65.8fps@1760×1760
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	280mV
Dark current	0.1mV
Gain range	1x-50x
Exposure time	13μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

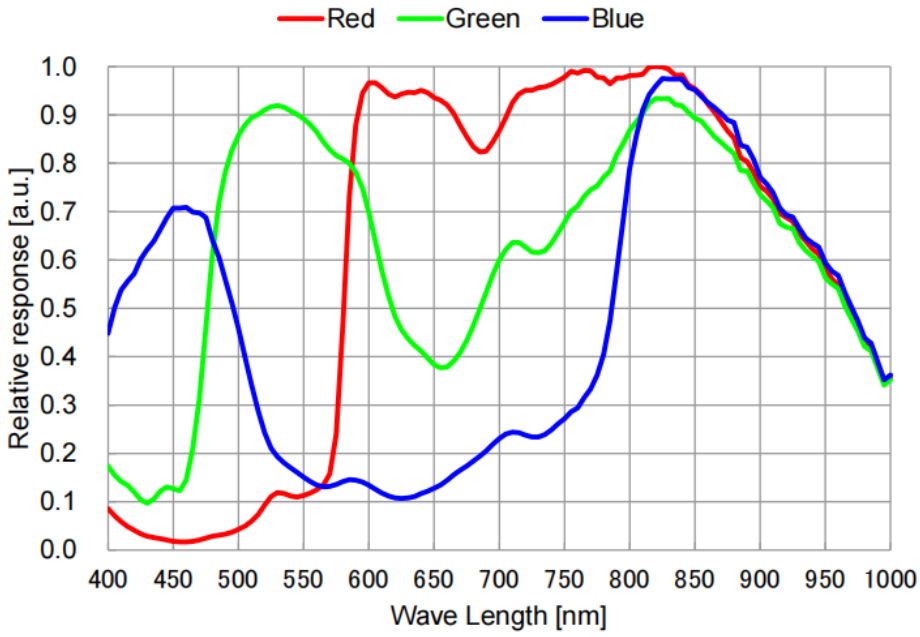


Figure 5-30 I3ISPM12000KPB spectral response curve

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5.23 I3ISPM01700KPA

Table 5-23 I3ISPM01700KPA camera specifications

Parameter \ Model	I3ISPM01700KPA
	1.7M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX432LQJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	98.6fps@1600 x 1100
Conversion Gain	4.9 (e-/ADU)
Readout Noise	4.53 (e-)
Full Well	20.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Sensitivity	4910mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<2.4W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

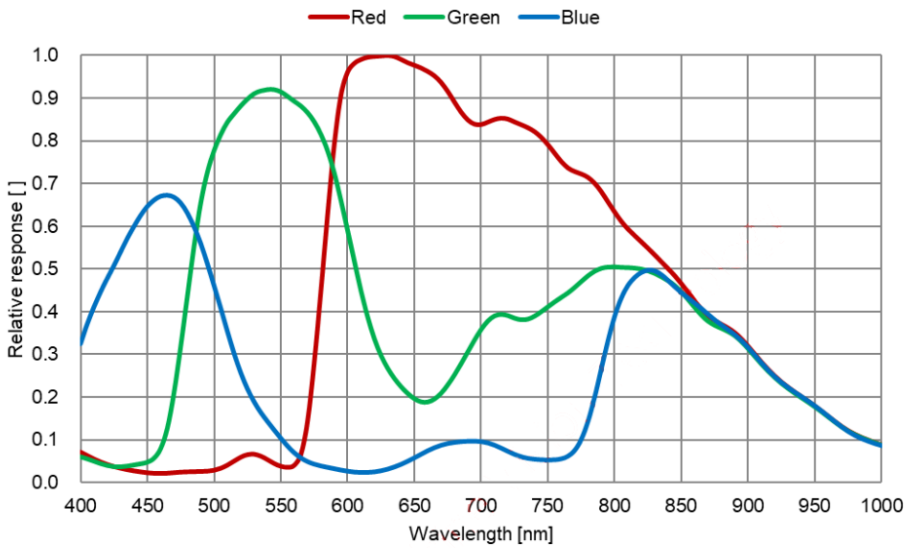


Figure 5-31 I3ISPM01700KPA spectral response curve

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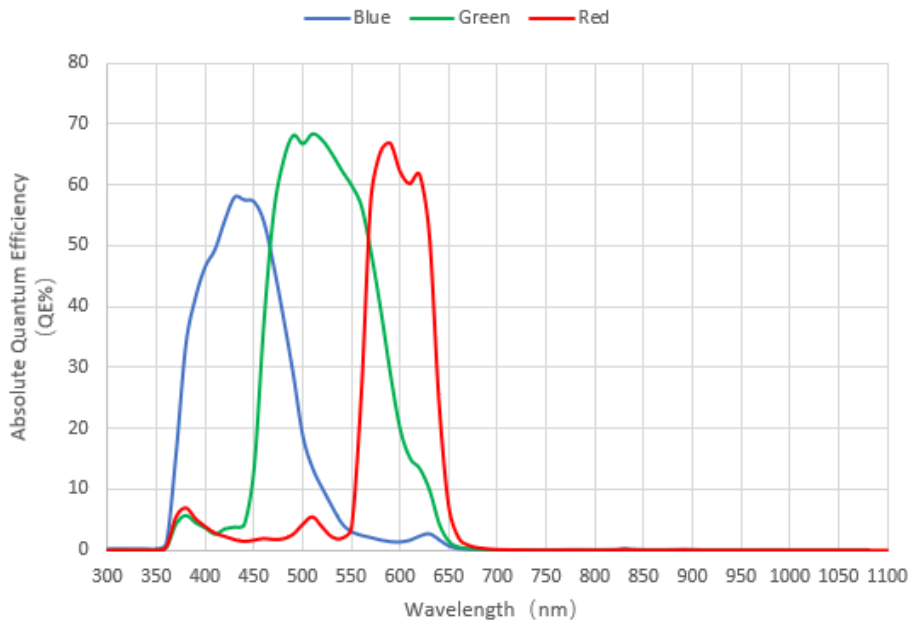


Figure 5-32 I3ISPM01700KPA absolute quantum efficiency

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5.24 I3ISPM01700KPB

Table 5-24 I3ISPM01700KPB camera specifications

Parameter \ Model	I3ISPM01700KPB
	1.7M pixels 1.1" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX425LQJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	180fps@1600 x 1100
Conversion Gain	4.9 (e-/ADU)
Readout Noise	4.53 (e-)
Full Well	20.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Sensitivity	4910mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mm×38mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

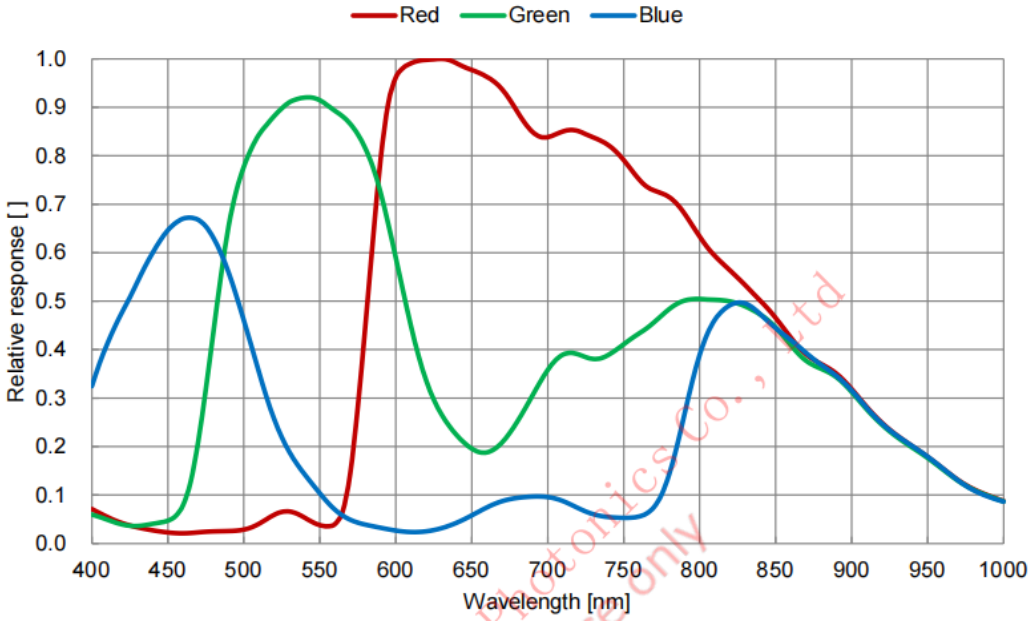


Figure 5-33 I3ISPM01700KPB spectral response curve

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5.25 I3ISPM02000KPA

Table 5-25 I3ISPM02000KPA camera specifications

Parameter \ Model	I3ISPM02000KPA
	2.0M pixels 1/1.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX430LQJ
Pixel size	4.5 μm x 4.5 μm
Sensor size	1/1.7"
Frame rate	132fps@1624×1240
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

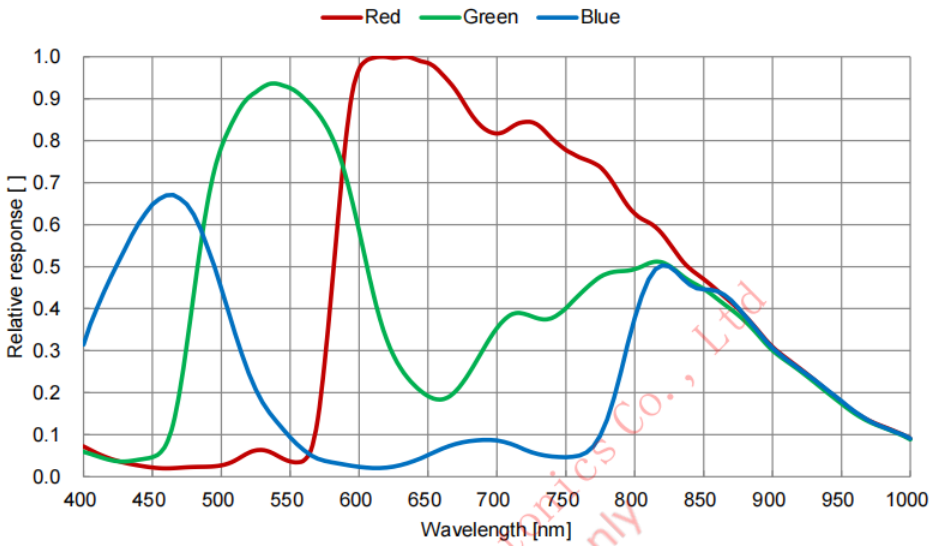


Figure 5-34 I3ISPM02000KPA spectral response curve

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5.26 I3ISPM02800KPA

Table 5-26 I3ISPM02800KPA camera specifications

Parameter \ Model	I3ISPM02800KPA
	2.8M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX421LQJ
Pixel size	4.5 μm x 4.5 μm
Sensor size	2/3"
Frame rate	121fps@1936 × 1464 425fps@968 × 732
Conversion Gain	2.69 (e-/ADU)
Readout Noise	2.55 (e-)
Full Well	11.0 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.4dB
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

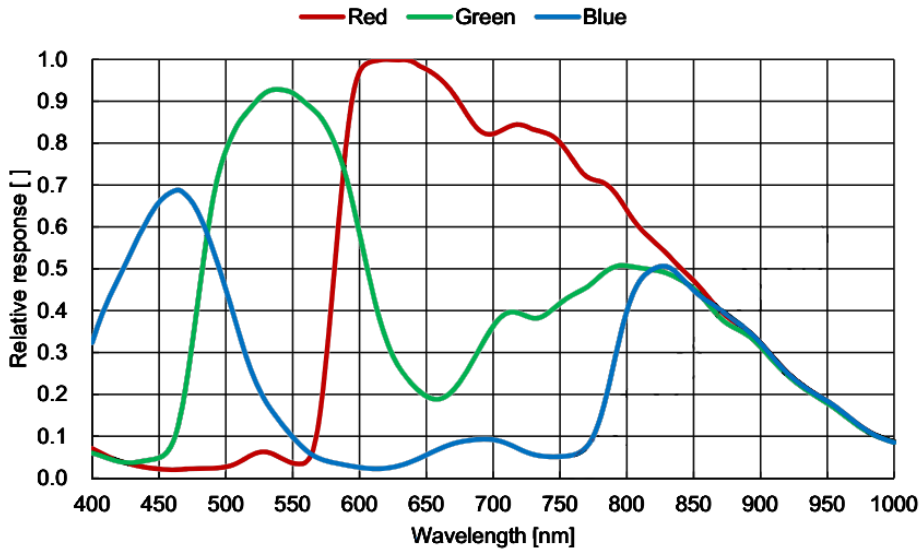


Figure 5-35 I3ISPM02800KPA spectral response curve

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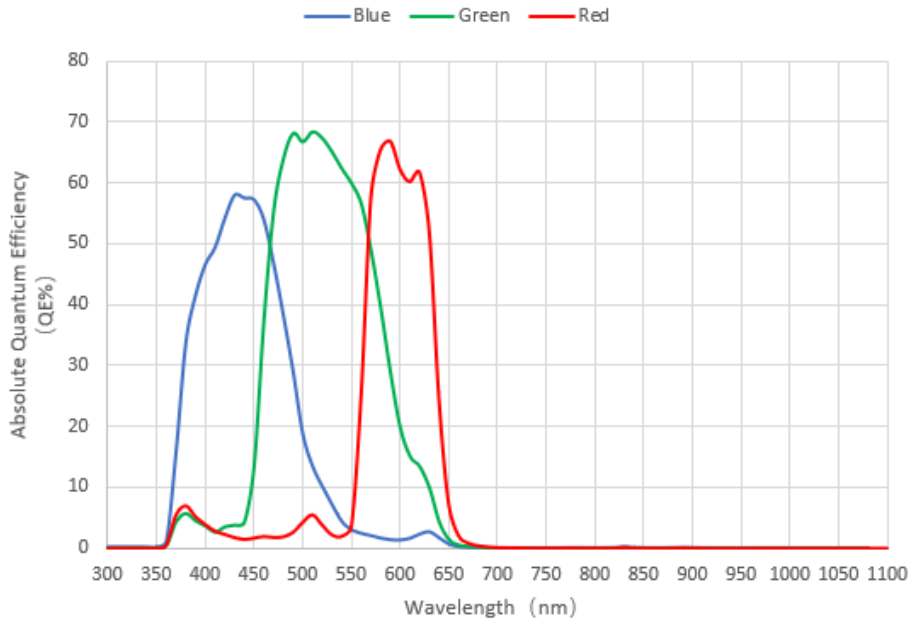


Figure 5-36 I3ISPM02800KPA absolute quantum efficiency

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5.27 I3ISPM07100KPA

Table 5-27 I3ISPM07100KPA camera specifications

Parameter \ Model	I3ISPM07100KPA
	7.1M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX428LQJ
Pixel size	4.5 μm x 4.5 μm
Sensor size	1.1"
Frame rate	51.4fps@3200 x 2200 133.8fps@1584 x 1100
Conversion Gain	2.74 (e-/ADU)
Readout Noise	2.54 (e-)
Full Well	11.2 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

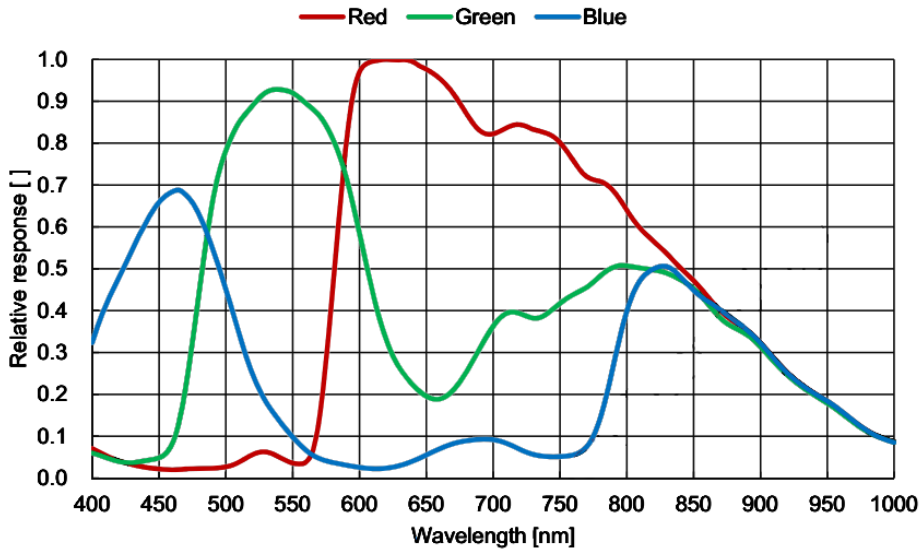


Figure 5-37 I3ISPM07100KPA spectral response curve

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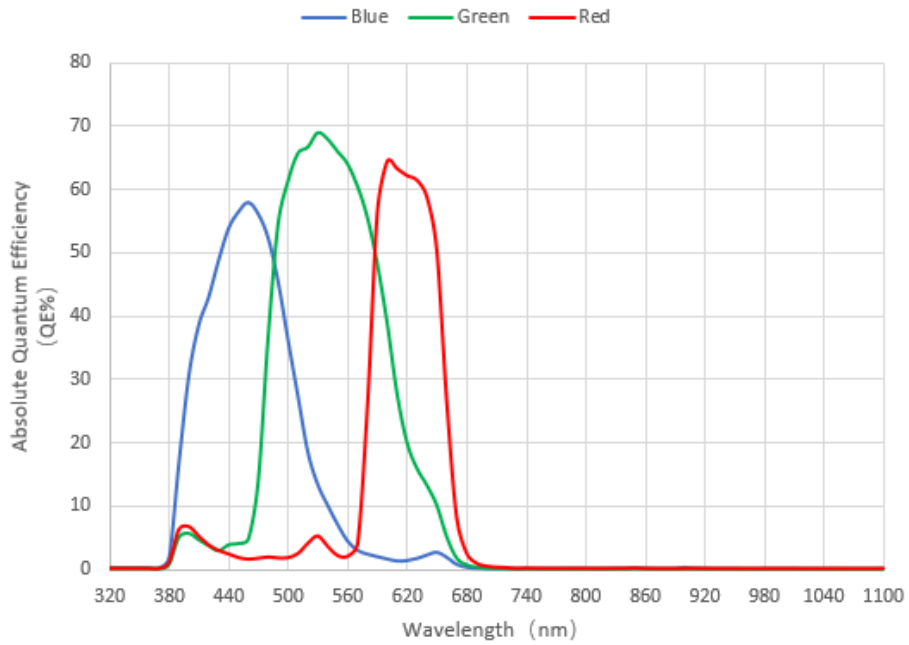


Figure 5-38 I3ISPM07100KPA absolute quantum efficiency

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5.28 I3ISPM07100KPA

Table 5-28 I3ISPM07100KPA camera specifications

Parameter \ Model	I3ISPM07100KPA
	7.1M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX428LQJ
Pixel size	4.5 μm x 4.5 μm
Sensor size	1.1"
Frame rate	51.4fps@3200 x 2200 133.8fps@1584 x 1100
Conversion Gain	2.74 (e-/ADU)
Readout Noise	2.54 (e-)
Full Well	11.2 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

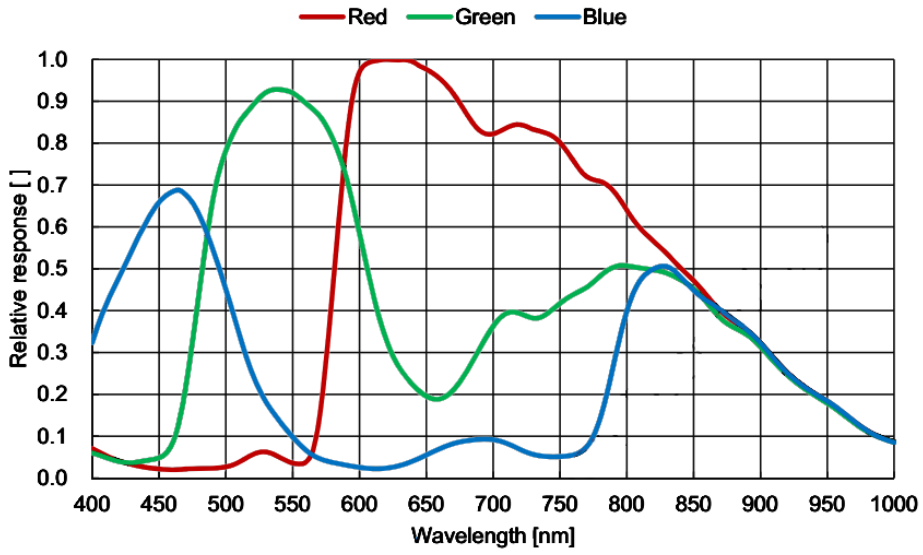


Figure 5-39 I3ISPM07100KPA spectral response curve

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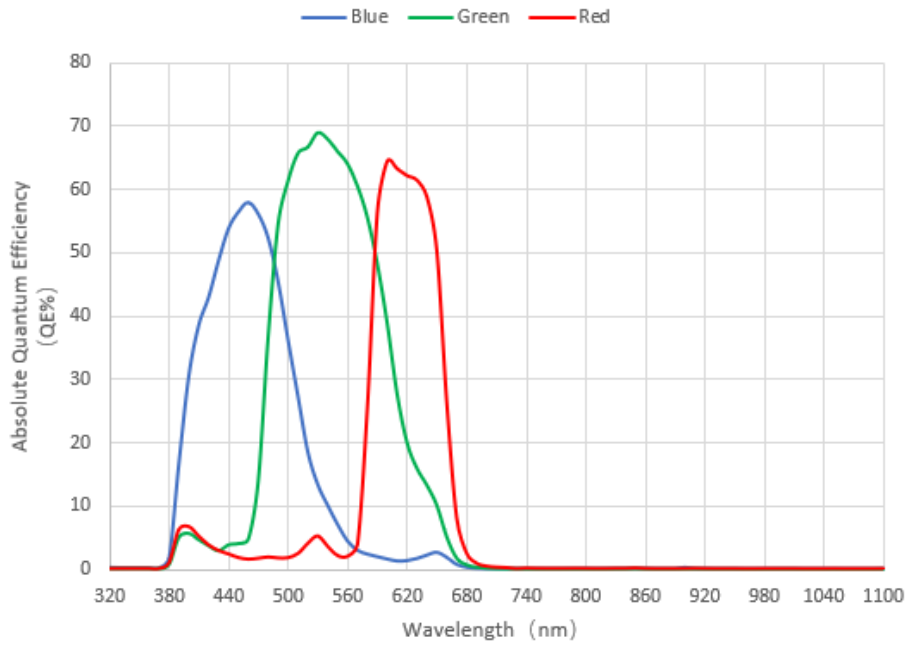


Figure 5-40 I3ISPM07100KPA absolute quantum efficiency

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5.29 I3ISPM07100KPB-10G

Table 5-29 I3ISPM07100KPB-10Gcamera specifications

Parameter \ Model	I3ISPM07100KPB-10G
	7.1M pixels 1.1" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	IMX420 LQJ-C
Pixel size	4.5 μm x 4.5 μm
Sensor size	1.1"
Frame rate	160fps@3200×2200 180fps@1920×1080 300fps@1600×1100
Conversion Gain	HCG: 2.7 / LCG: 6.29(e-/ADU)
Readout Noise	HCG: 2.57 / LCG: 5.82(e-)
Full Well	HCG: 11.1/ LCG: 25.7 (ke-)
Dynamic range	HCG: 72 / LCG: 72 (dB)
Signal-to-Noise ratio	HCG: 40 / LCG: 44 (dB)
Sensitivity	2058mV
Peak QE	TBD
Dark current	0.15mV
Gain range	1x-50x
Exposure time	50us-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12 V DC adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	TBD
Weight	TBD
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

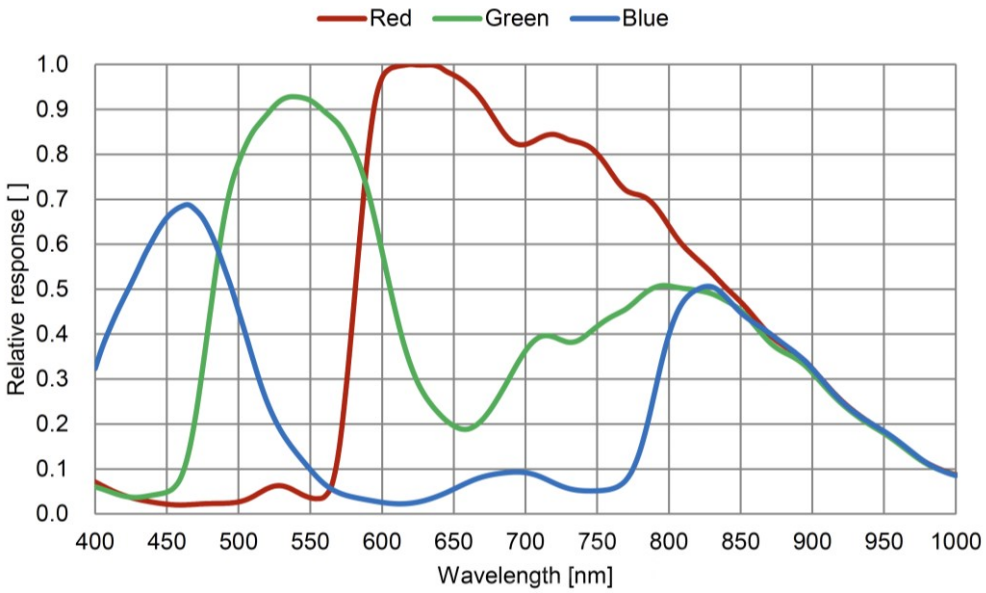


Figure 5-41 I3ISPM07100KPB-10G spectral response curve

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5.30 I3ISPM12300KPA

Table 5-30 I3ISPM12300KPA camera specifications

Parameter \ Model	I3ISPM12300KPA
	12.3M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX304LQR-C
Pixel size	3.45 μm x 3.45 μm
Sensor size	1.1"
Frame rate	23.4fps@4096 x 3000 46.3ps@2048 x 1500 46.3fps@1024 x 750
Conversion Gain	2.68 (e-/ADU)
Readout Noise	2.11 (e-)
Full Well	11.0 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

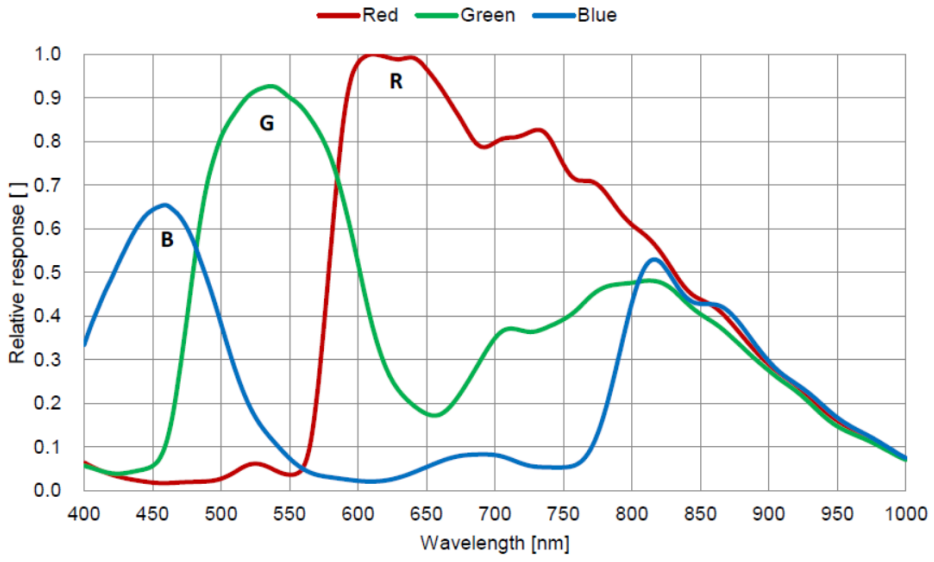


Figure 5-42 I3ISPM12300KPA spectral response curve

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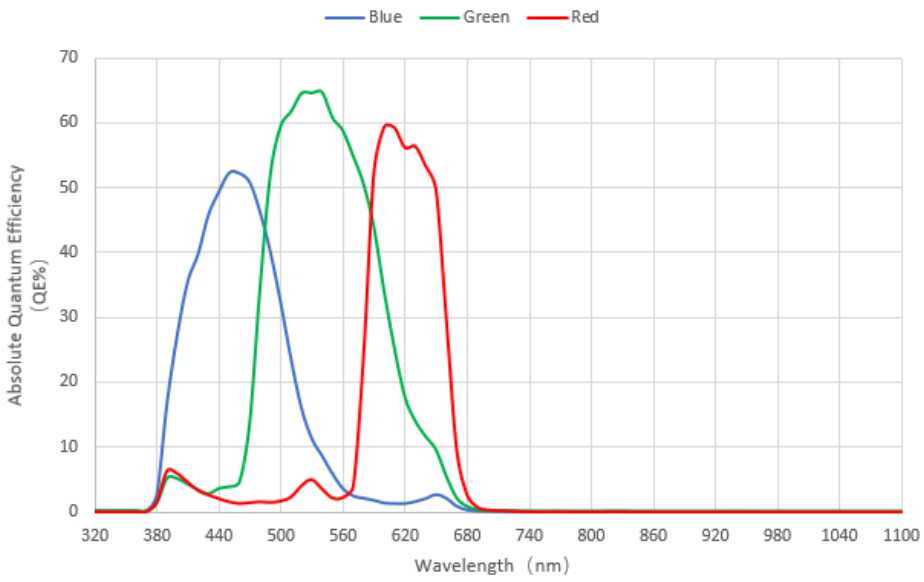


Figure 5-43 I3ISPM12300KPA absolute quantum efficiency

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5.31 I3ISPM12500KPA

Table 5-31 I3ISPM12500KPA camera specifications

Parameter \ Model	I3ISPM12500KPA
	12.5M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GMAX3412
Pixel size	3.4 μm x 3.4 μm
Sensor size	1.1"
Frame rate	30fps@4096×3072 60fps@2048×1536
Readout Noise	1.5 (e-)
Full Well	10 (ke-)
Dynamic range	68.8dB
Signal-to-Noise ratio	40dB
Sensitivity	2.36×10^{7}e-/((W/m2)·s)
Dark current	81.6e-/s
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

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5.32 I3ISPM20000KPA

Table 5-32 I3ISPM20000KPA camera specifications

Parameter \ Model	I3ISPM20000KPA
	20MP 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX283CQJ
Pixel size	2.4μm × 2.4μm
Sensor size	1"
Frame rate	19fps @5440 × 3648 50fps @2736 × 1824 60fps @1824 × 1216
Readout Noise	2.96e-
Full Well	14.78ke-
Dynamic range	72dB
Signal-to-Noise ratio	41.7dB
Sensitivity	923mV
Dark current	0.21mV
Gain range	1x-50x
Exposure time	67μs-15sec
Shutter	Rolling shutter
Binning	TBD
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input/output port
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Powered via USB3.0 interface
Power consumption	<3.2W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	33mm × 33mm × 33mm
Weight	TBD
Lens mount	C-mount
Software	Complete SDK / ToupView
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

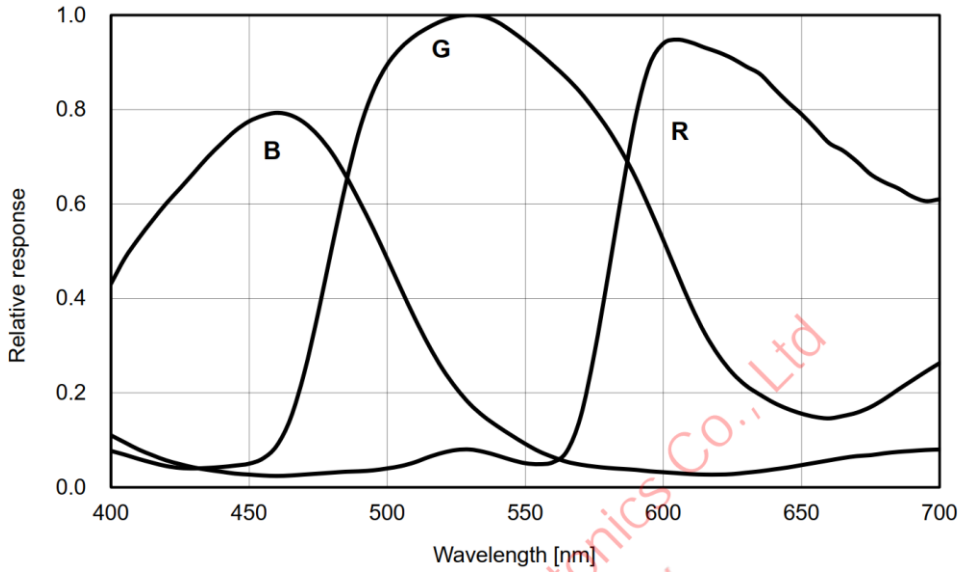


Figure 5-44 I3ISPM20000KPA spectral response curve

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5.33 I3ISPM20400KPA

Table 5-33 I3ISPM20400KPA camera specifications

Parameter \ Model	I3ISPM20400KPA
	20.4M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX541-AAQJ
Pixel size	2.74 μm x 2.74 μm
Sensor size	1.1"
Frame rate	17.5fps@4496×4496 64.4fps@2240×2240 64.4fps@1120×1120
Dynamic range	70.72dB
Signal-to-Noise ratio	39.7dB
Sensitivity	1574mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	38mm×38mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

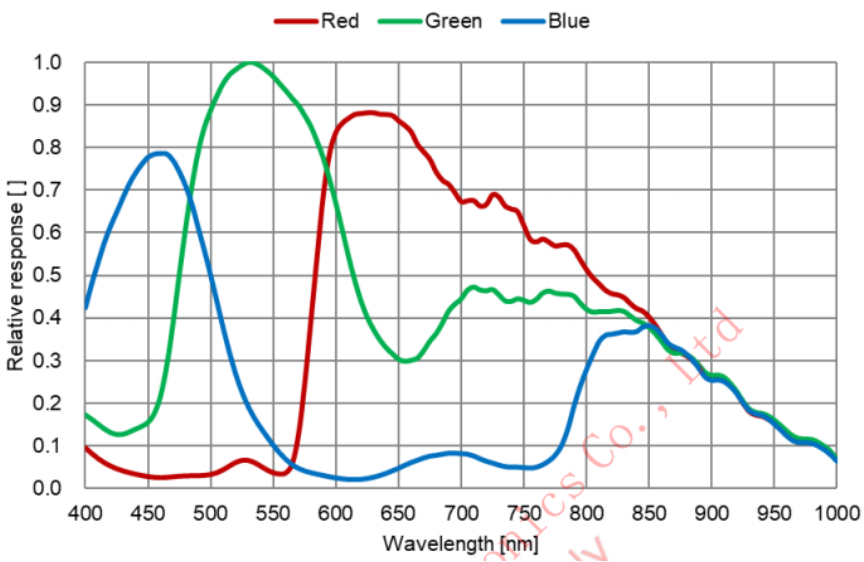


Figure 5-45 I3ISPM20400KPA spectral response curve

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5.34 I3CMOS02000KMB

Table 5-34 I3CMOS02000KMB camera specifications

Parameter \ Model	I3CMOS02000KMB
	2.0M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GSPRINT6502BSI（remove cover glass）
Pixel size	6.5um × 6.5um
Sensor size	1" (13.3 mm x 7.5 mm)
Frame rate	160fps @ 2048 × 1152 (8bit) 129fps @ 2048 × 1152 (10bit Packed) 80fps @ 2048 × 1152 (10bit) 320fps @ 1024 × 1152 (8bit) 258fps @ 1024 × 1152 (10bit Packed) 160fps @ 1024 × 1152 (10bit) 500fps @ 256 × 256 (10bit) 50~100fps @ 2048 × 1152 (10bit)
Readout Noise	21.34e-
Full Well	12.9ke-
Dynamic range	55.7dB
Signal-to-Noise ratio	41.1dB
Sensitivity	7.87x107 e-/((W/m2)s)@430nm
Dark current	691.0e-/s@30°C
Gain range	1x-50x
Exposure time	20us-2sec
Shutter	RS
Binning	TBD
Data interface	USB3.0（USB3.1 GEN1）
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	RAW8/RAW10/RAW10(packed)
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50°C, storage temperature-30~70°C
Humidity	20%-80%, no condensation
Size	38mm × 38mm × 38mm
Weight	TBD
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

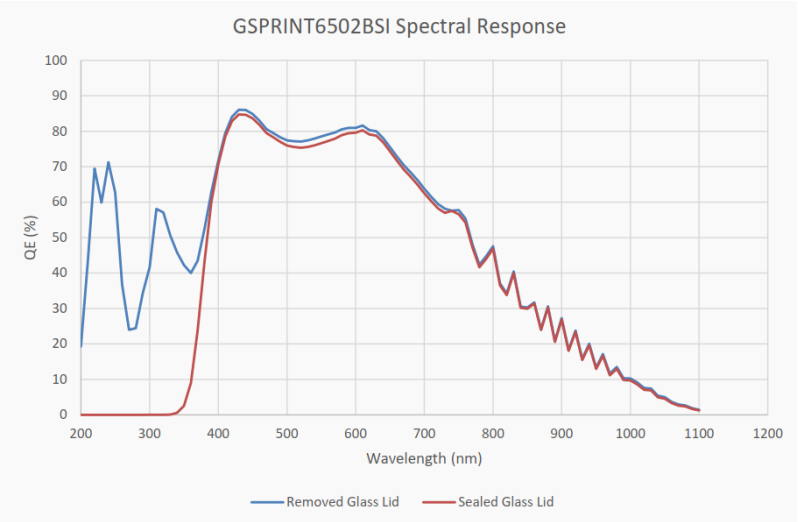


Figure 5-46 I3CMOS02000KMB spectral response curve

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5.35 I3CMOS00500KMA

Table 5-35 I3CMOS00500KMA camera specifications

Parameter \ Model	I3CMOS00500KMA
	0.5M pixel 1 / 1.7 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX433LLJ
Pixel size	9.0 μm×9.0 μm
Sensor size	1/1.7”
Frame rate	166.5fps@812×620
Dynamic range	72.3dB
Signal-to-Noise ratio	50.0dB
Peak QE	78%@575nm
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global Shutter
Binning	software2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input, one non-isolated output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃; Storage temperature -30~70℃
Humidity	20% - 80% No condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

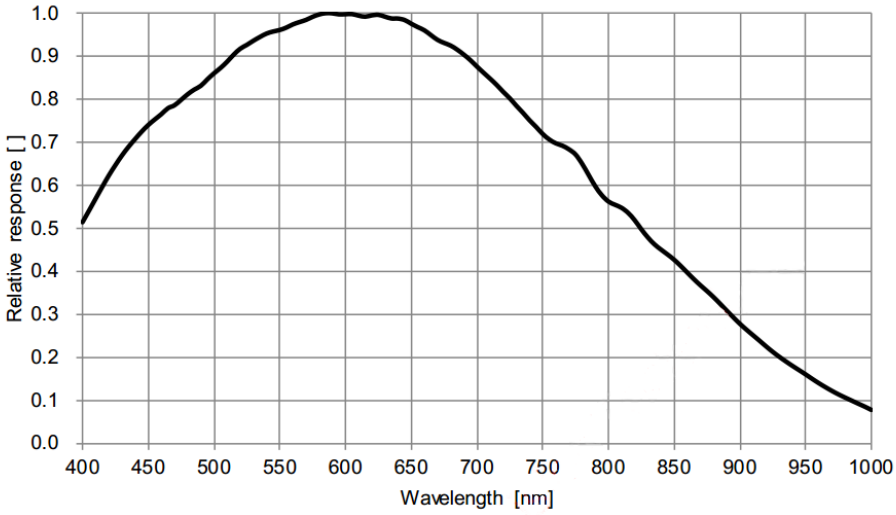


Figure 5-47 I3CMOS00500KMA spectral response curve

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5.36 I3CMOS01500KMA

Table 5-36 I3CMOS01500KMA camera specifications

Parameter \ Model	I3CMOS01500KMA
	1.5M pixels 1/2.9" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX273LLR
Pixel size	3.45 μm×3.45 μm
Sensor size	1/2.9"
Frame rate	226.5fps@1440×1080 506fps@720×540
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.19mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	hardware2×2; software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 10bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

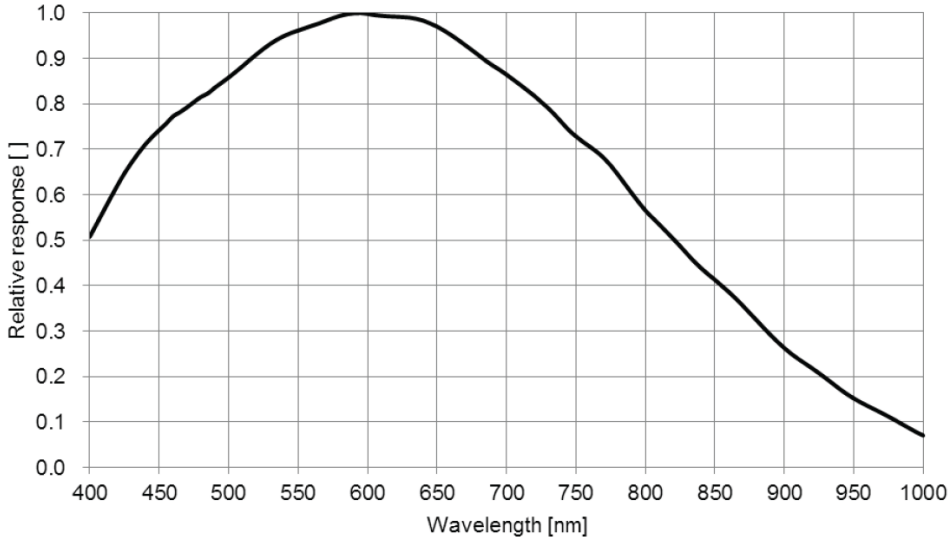


Figure 5-48 I3CMOS01500KMA spectral response curve

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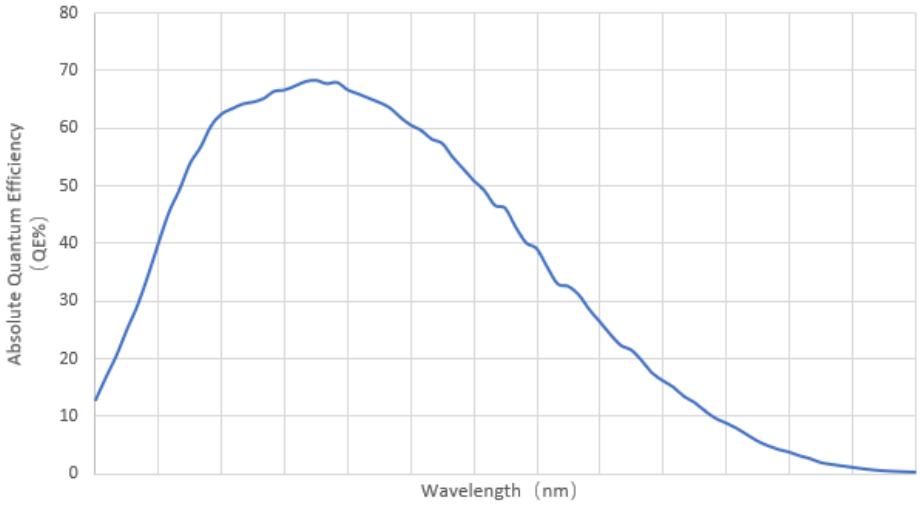


Figure 5-49 I3CMOS01500KMA absolute quantum efficiency

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5.37 I3CMOS02300KMA

Table 5-37 I3CMOS02300KMA camera specifications

Parameter \ Model	I3CMOS02300KMA
	2.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX174LLJ
Pixel size	5.86 μm x 5.86 μm
Sensor size	1/1.2"
Frame rate	164.5fps@1920 x 1200
Dynamic range	73.6dB
Signal-to-Noise ratio	44.8dB
Peak QE	78%@575nm
Sensitivity	1650mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	42μs-15sec
Shutter	Global shutter
Binning	software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.2W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

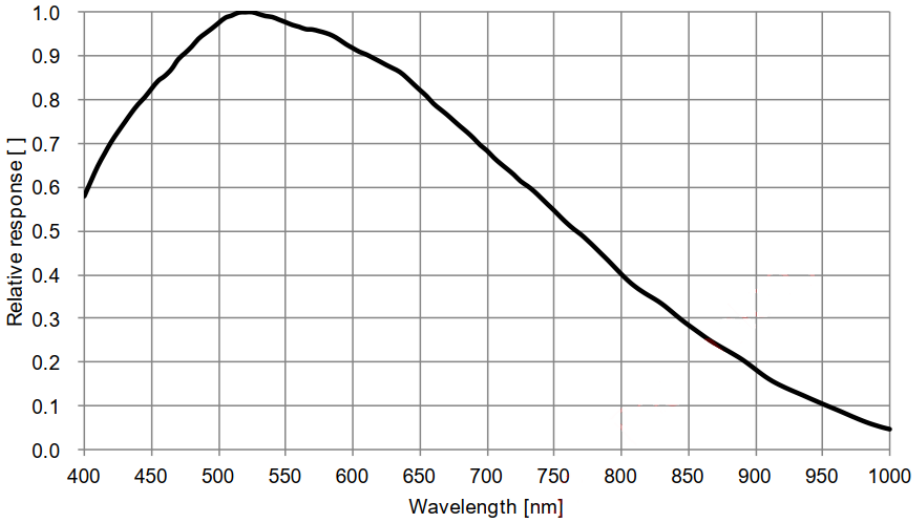


Figure 5-50 I3CMOS02300KMA spectral response curve

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5.38 I3CMOS02300KMB

Table 5-38 I3CMOS02300KMB camera specifications

Parameter \ Model	I3CMOS02300KMB
	2.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX249LLJ
Pixel size	5.86 μm x 5.86 μm
Sensor size	1/1.2"
Frame rate	30fps@1920 x 1200
Conversion Gain	73.6dB
Readout Noise	44.8dB
Peak QE	78%@575nm
Sensitivity	1650mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	42μs-15sec
Shutter	Global shutter
Binning	software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 10bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.2W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

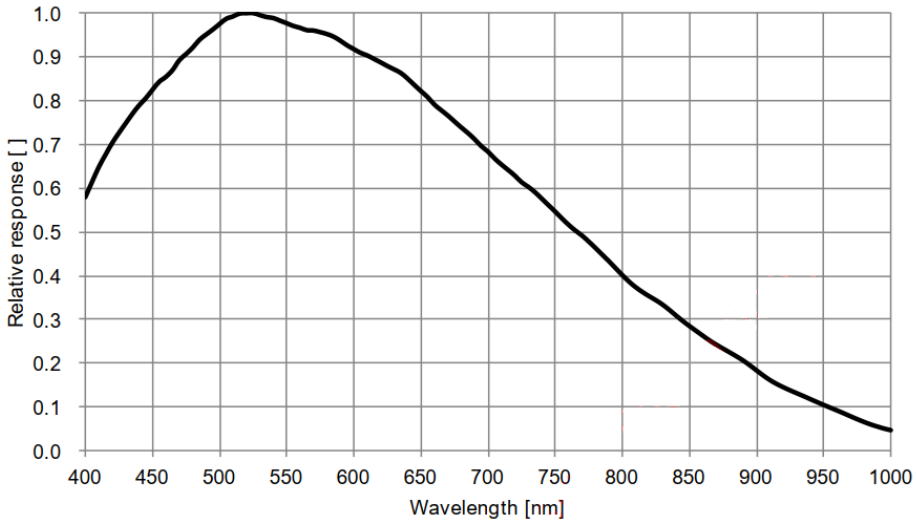


Figure 5-51 I3CMOS02300KMB spectral response curve

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5.39 I3CMOS02400KMA

Table 5-39 I3CMOS02400KMA camera specifications

Parameter \ Model	I3CMOS02400KMA
	2.4M pixels 1/1.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GMAX4002
Pixel size	4.0 μm x 4.0 μm
Sensor size	1/1.7"
Frame rate	155fps@2048×1200 620fps@1024×600
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	3.26×10^{7}e-/((W/m2)·s)
Dark current	8.3e-/s
Gain range	1x-50x
Exposure time	55μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 10bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.2W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

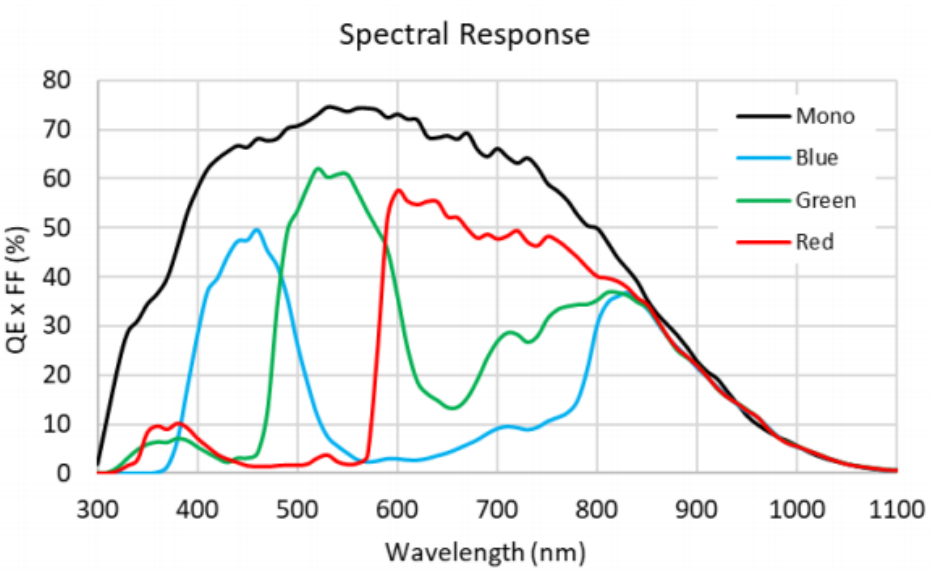


Figure 5-52 I3CMOS02400KMA spectral response curve

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5.40 I3CMOS03100KMA

Table 5-40 I3CMOS03100KMA camera specifications

Parameter \ Model	I3CMOS03100KMA
	3.1M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX252LLR
Pixel size	3.45 μm×3.45 μm
Sensor size	1/1.8"
Frame rate	110.6fps@2048×1536 233.8fps@1024×768
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

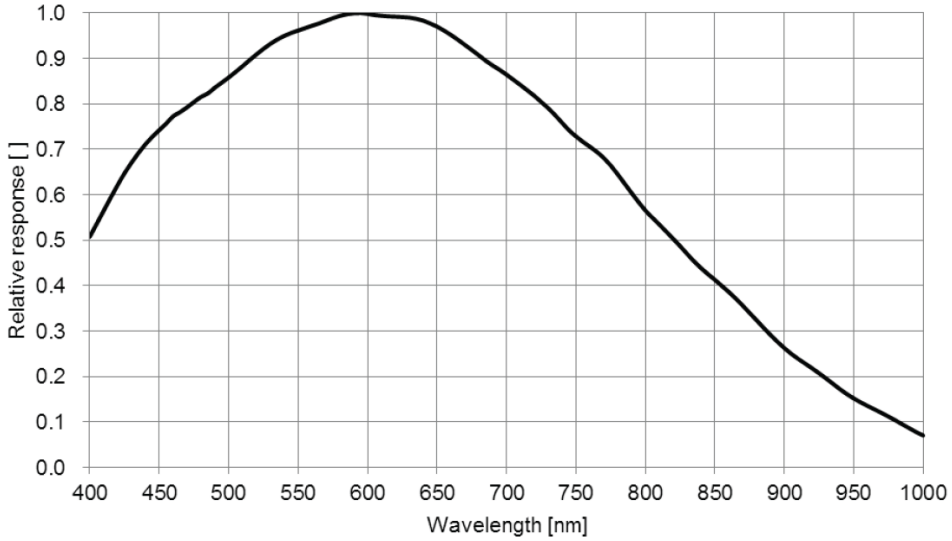


Figure 5-53 I3CMOS03100KMA spectral response curve

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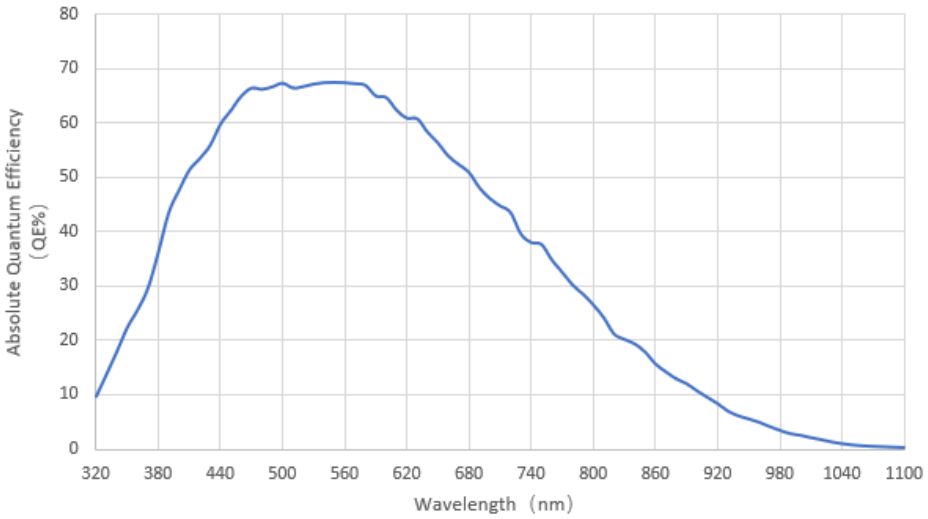


Figure 5-54 I3CMOS03100KMA absolute quantum efficiency

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5.41 I3CMOS03100KMA-10G

Table 5-41 I3CMOS03100KMA-10G camera specifications

Parameter \ Model	I3CMOS03100KMA-10G
	3.1M pixels 1/1.8" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	IMX252 LLR-C
Pixel size	3.45 μm × 3.45 μm
Optical format	1/1.8"
Frame rate & resolution	151 fps @ 2048×1536 420 fps @ 1024×768
Conversion gain	TBD
Read noise	TBD
Full well capacity	TBD
Dynamic range	TBD
Signal-to-Noise ratio (SNR)	TBD
Sensitivity	915 mV
Peak QE	TBD
Dark current	0.15 mV
Gain range	1×–50×
Exposure time	50 μs–15 s
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	1 opto-isolated input, 1 opto-isolated output, 2 non-isolated I/O ports
Data format	8-bit / 12-bit
General Specifications	
Power supply	12 V AC adapter
Power consumption	TBD
Temperature	Operating −10~+50 °C; Storage −30~+70 °C
Humidity	20%–80% non-condensing
Dimensions	TBD
Weight	TBD
Lens mount	C-mount
Software	Full SDK / ToupView
Platforms & architectures	Windows 32-bit / Windows RT / Linux / macOS / Android; x86 / x64 / ARM HF / ARM EL / ARM64
Certification	CE, FCC

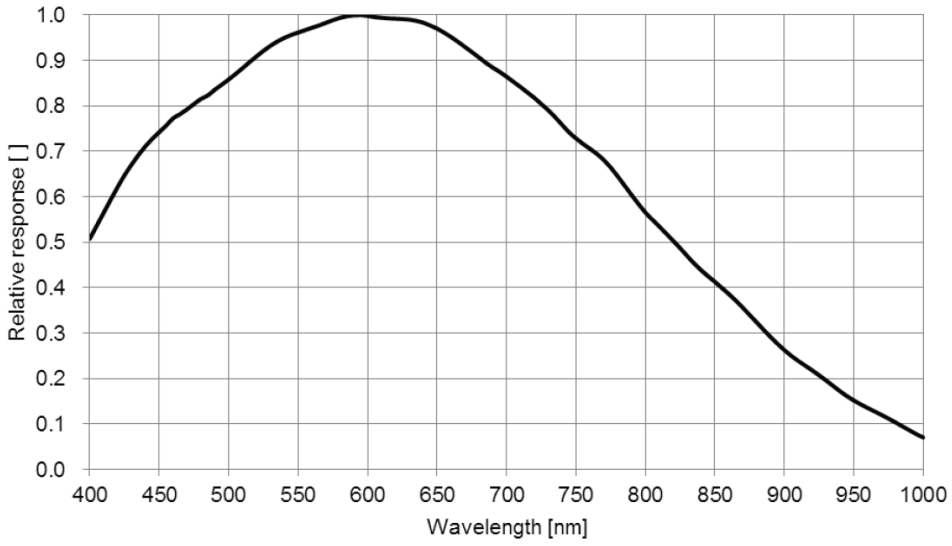


Figure 5-55 I3CMOS03100KMA-10G spectral response curve

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5.42 I3CMOS03100KMB-G

Table 5-42 I3CMOS03100KMB-G camera specifications

Parameter \ Model	I3CMOS03100KMB-G
	3.1M pixels 1/1.8" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX265LLR
Pixel size	3.45 μm×3.45 μm
Sensor size	1/1.8"
Frame rate	36.9fps@2048 × 1536 115.1fps@1024 × 768
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, two non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<2.2W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×42mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

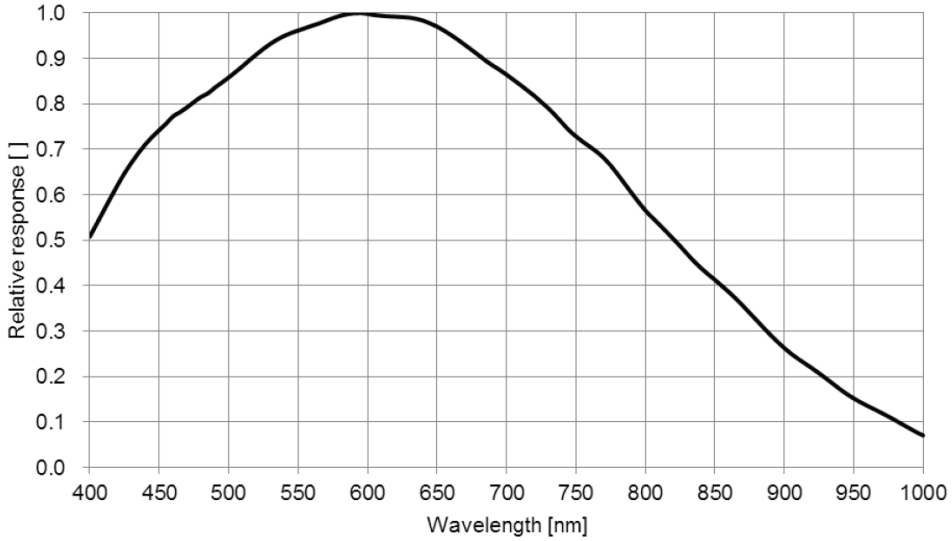


Figure 5-56 I3CMOS03100KMB-G spectral response curve

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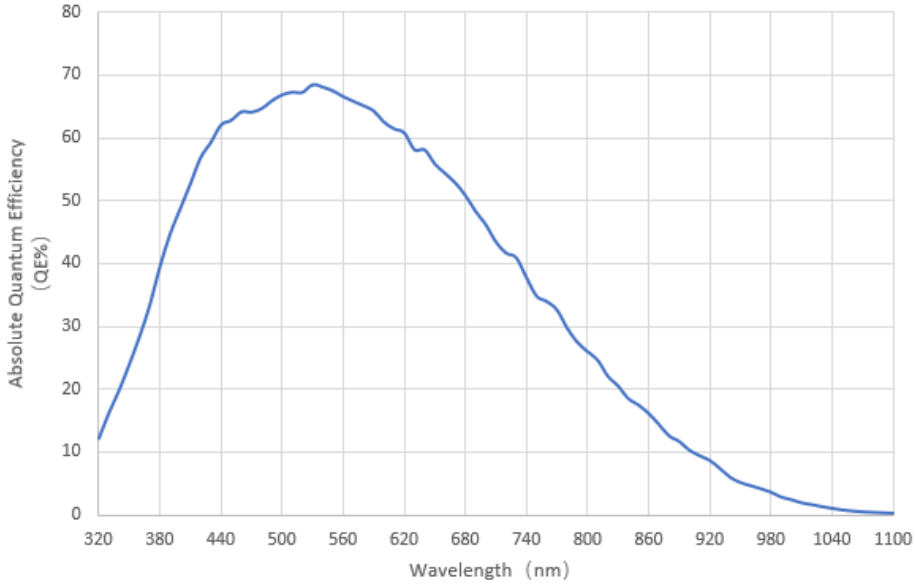


Figure 5-57 I3CMOS03100KMB-G absolute quantum efficiency

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5.43 I3CMOS03100KMB

Table 5-43 I3CMOS03100KMB camera specifications

Parameter \ Model	I3CMOS03100KMB
	3.1M pixels 1/1.8" CMOS USB3.0 / GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX265LLR
Pixel size	3.45 μm×3.45 μm
Sensor size	1/1.8"
Frame rate	55.4fps@2048×1536 115.1fps@1024×768
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

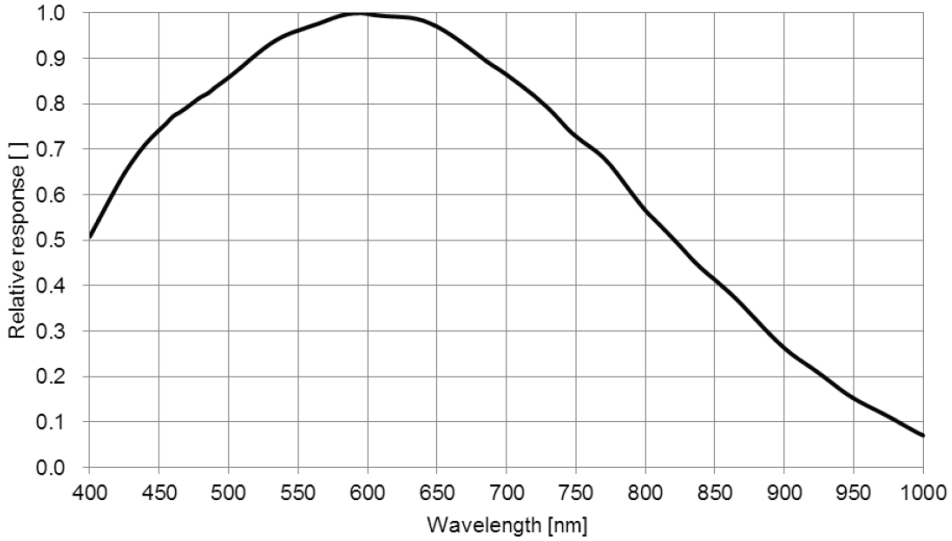


Figure 5-58 I3CMOS03100KMB spectral response curve

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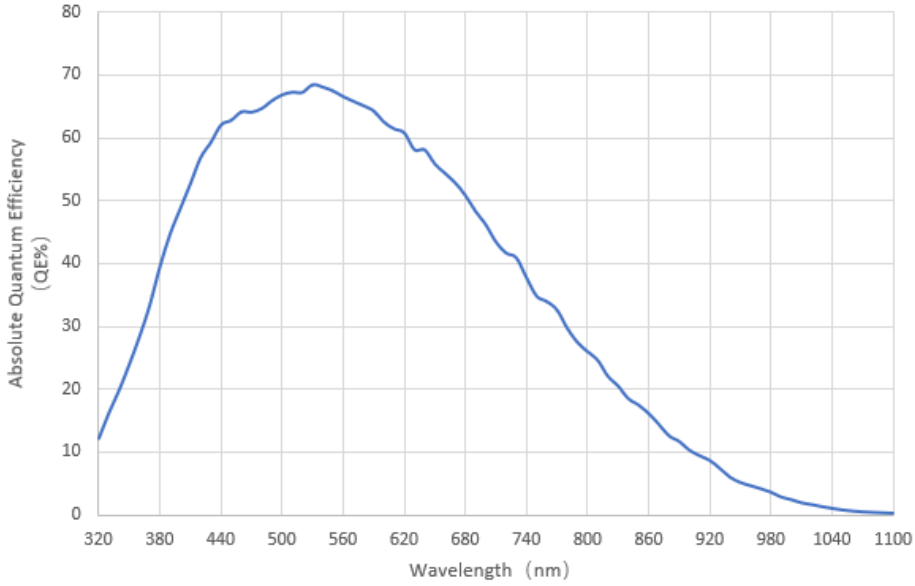


Figure 5-59 I3CMOS03100KMB absolute quantum efficiency

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5.44 I3CMOS03200KMA-G

Table 5-44 I3CMOS03200KMA-G camera specifications

Parameter \ Model	I3CMOS03200KMA-G
	3.2M pixels 1/3.1" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX900AMR
Pixel size	2.25 μm × 2.25 μm
Sensor size	1/3.1"
Frame rate	16.9fps@2048×1536 66fps@1024×768
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	1807mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	11μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	GigE
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, two non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×42mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

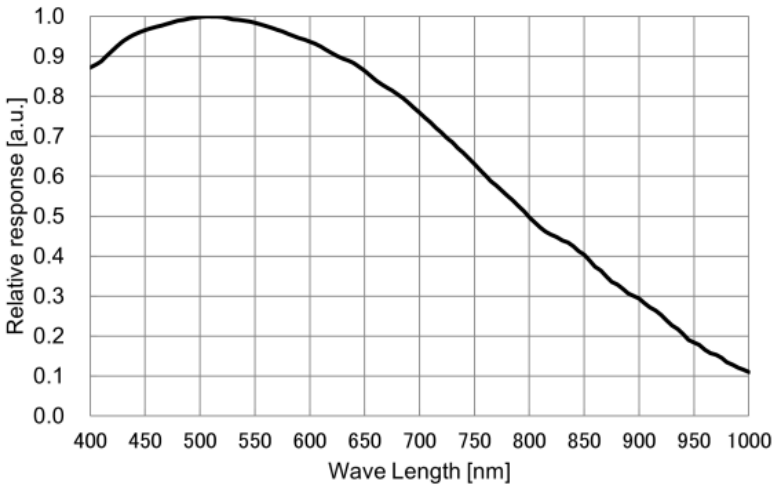


Figure 5-60 I3CMOS03200KMA-G spectral response curve

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5.45 I3CMOS03200KMA

Table 5-45 I3CMOS03200KMA camera specifications

Parameter \ Model	I3CMOS03200KMA
	3.2M pixels 1/3.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX900AMR
Pixel size	2.25 μm × 2.25 μm
Sensor size	1/3.1"
Frame rate	53.4fps@2048×1536 126.8fps@1024×768
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	1807mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	11μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

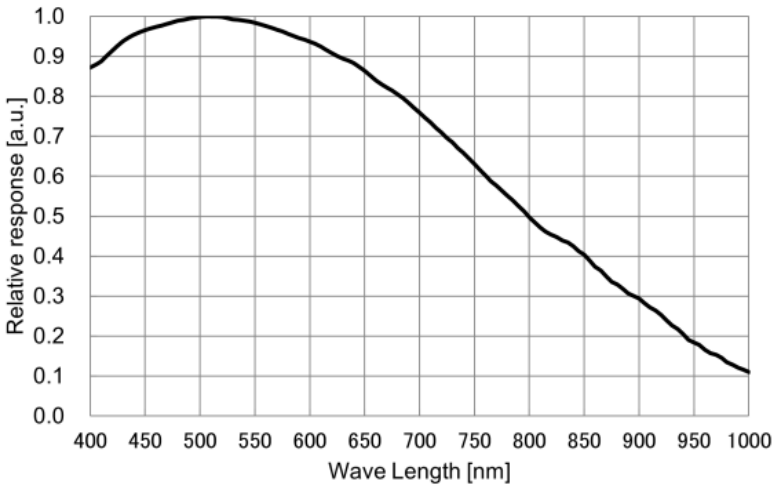


Figure 5-61 I3CMOS03200KMA spectral response curve

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5.46 I3CMOS04200KMA

Table 5-46 I3CMOS04200KMA camera specifications

Parameter \ Model	I3CMOS04200KMA
	4.2M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX664-AAMR1
Pixel size	2.9 μm × 2.9 μm
Sensor size	1/1.8"
Frame rate	90fps@2688×1520
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	TBD
Dark current	TBD
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

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5.47 I3CMOS05000KMA

Table 5-47 I3CMOS05000KMA camera specifications

Parameter \ Model	I3CMOS05000KMA
	5M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX250LLR
Pixel size	3.45 μm×3.45 μm
Sensor size	2/3"
Frame rate	70.9fps@2448×2048 175.2fps@1224×1024
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

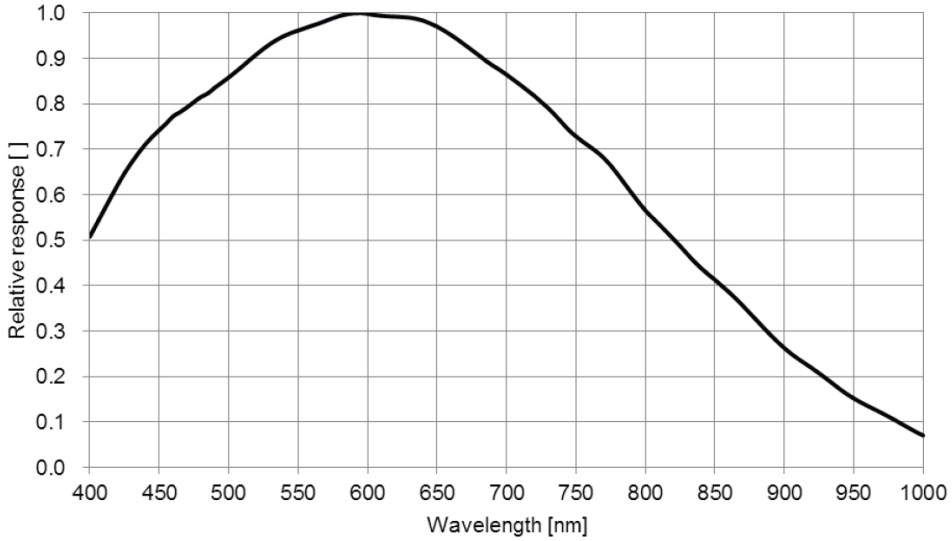


Figure 5-62 I3CMOS05000KMA spectral response curve

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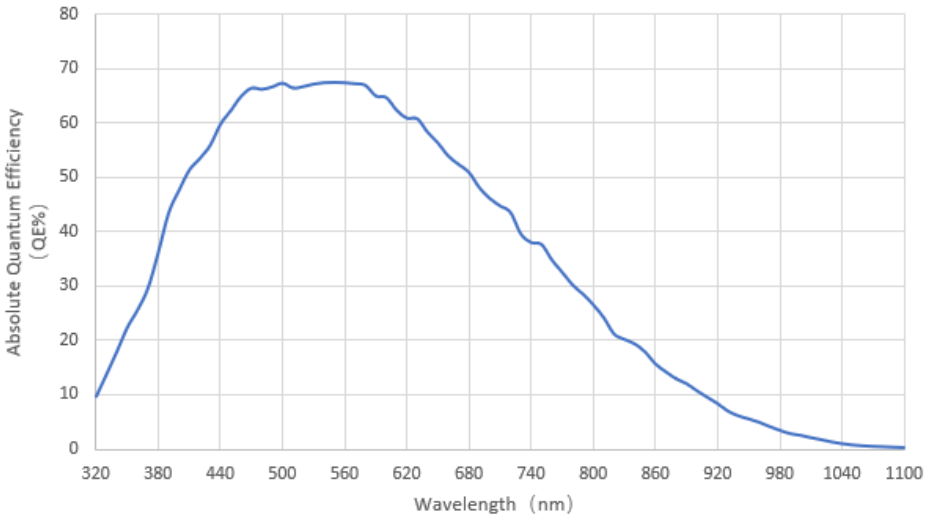


Figure 5-63 I3CMOS05000KMA absolute quantum efficiency

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5.48 I3CMOS05000KMB

Table 5-48 I3CMOS05000KMB camera specifications

Parameter \ Model	I3CMOS05000KMB
	5M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX264LLR
Pixel size	3.45 μm×3.45 μm
Sensor size	2/3"
Frame rate	35.6fps@2448×2048 87.6fps@1224×1024
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

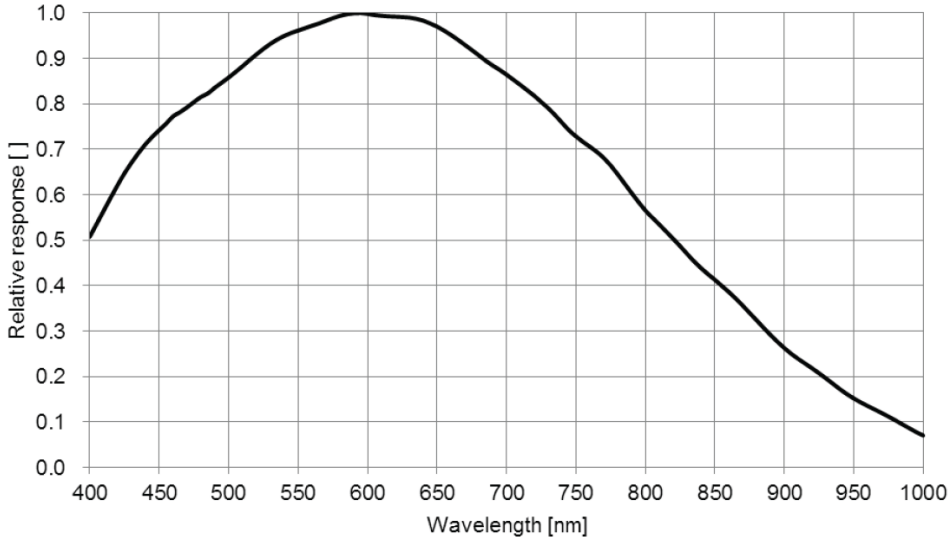


Figure 5-64 I3CMOS05000KMB spectral response curve

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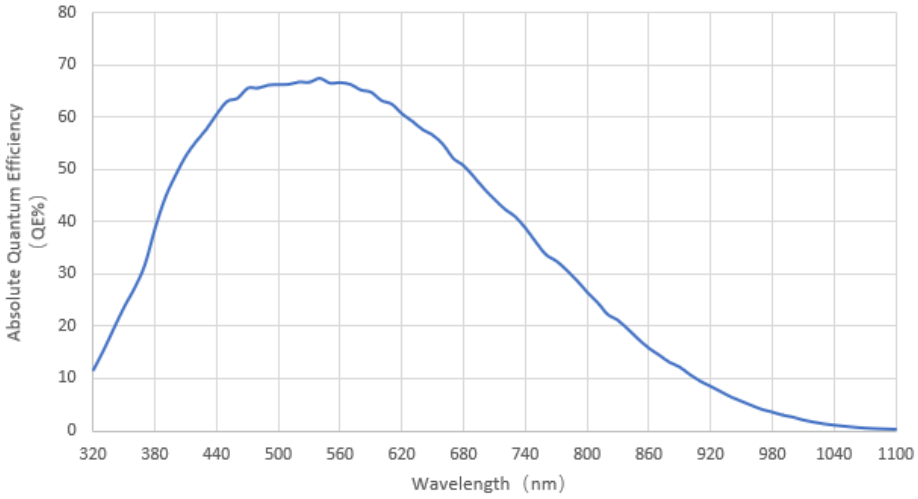


Figure 5-65 I3CMOS05000KMB absolute quantum efficiency

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5.49 I3CMOS05000KMB-G

Table 5-49 I3CMOS05000KMB-G camera specifications

Parameter \ Model	I3CMOS05000KMB-G
	5M pixels 2/3" CMOS GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX264LLR
Pixel size	3.45 μm × 3.45 μm
Sensor size	2/3"
Frame rate	23.9fps@2448 × 2048 87.6fps@1224 × 1024
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12 V DC adapter
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×42mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

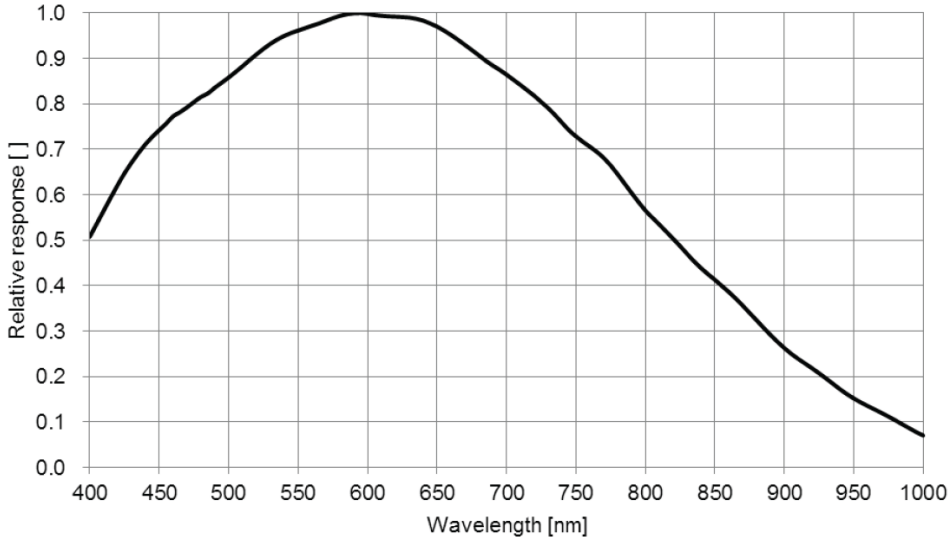


Figure 5-66 I3CMOS05000KMB-G spectral response curve

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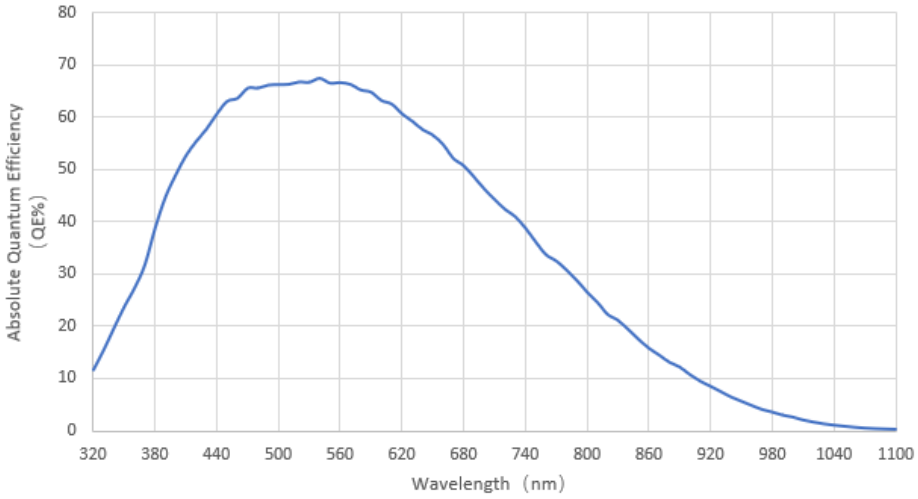


Figure 5-67 I3CMOS05000KMB-G absolute quantum efficiency

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5.50 I3CMOS05000KMC(Polarsens)

Table 5-50 I3CMOS05000KMC camera specifications

Parameter \ Model	I3CMOS05000KMC
	5M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX250MZR（Polarsens）
Pixel size	3.45 μm×3.45 μm
Sensor size	2/3"
Frame rate	35.6fps@2448×2048 87.6fps@1224×1024
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	684mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

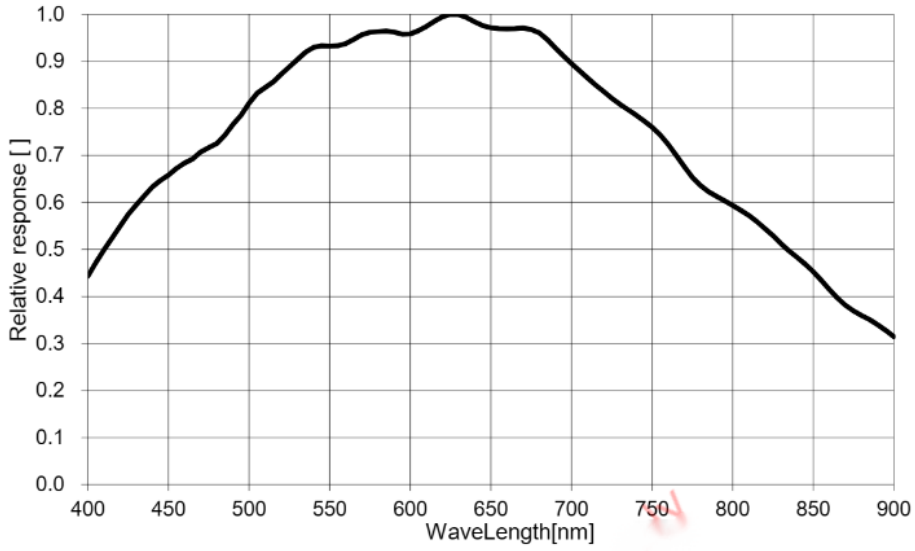


Figure 5-68 I3CMOS05000KMC spectral response curve

The four-directional Polarizations of this image sensor are arranged to get transmitted litght in the layout shown in the figure below. The 90°signal and 45°signal lines and the 135°signal and 0°signal lines are output successsively.

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135	0	135	0
90	45	90	45
135	0	135	0
90	45	90	45

Figure 5-69 Polarization Coding Diagram

The polarization camera can effectively eliminate the reflection of the plastic surface, the reflection of the metal surface, and increase the three-dimensional sense of the metal surface. The comparison of the effect of ordinary camera and polarization camera is shown below.



Figure 5-70 Comparison of plastic surface effects between ordinary camera (left) and polarizing camera (right)



Figure 5-71 Plastic surface detail comparison

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Figure 5-72 Ordinary camera (left) compared with polarizing camera (right) metal surface effect

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5.51 I3CMOS05100KMA

Table 5-51 I3CMOS05100KMA camera specifications

Parameter \ Model	I3CMOS05100KMA
	5.1M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GMAX3405
Pixel size	3.4 μm × 3.4 μm
Sensor size	2/3"
Frame rate	71fps@2448×2048 100fps@1224×1024
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	2.36×10^{7}e-/((W/m2)·s)
Dark current	4.4e-/s
Gain range	1x-50x
Exposure time	10μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

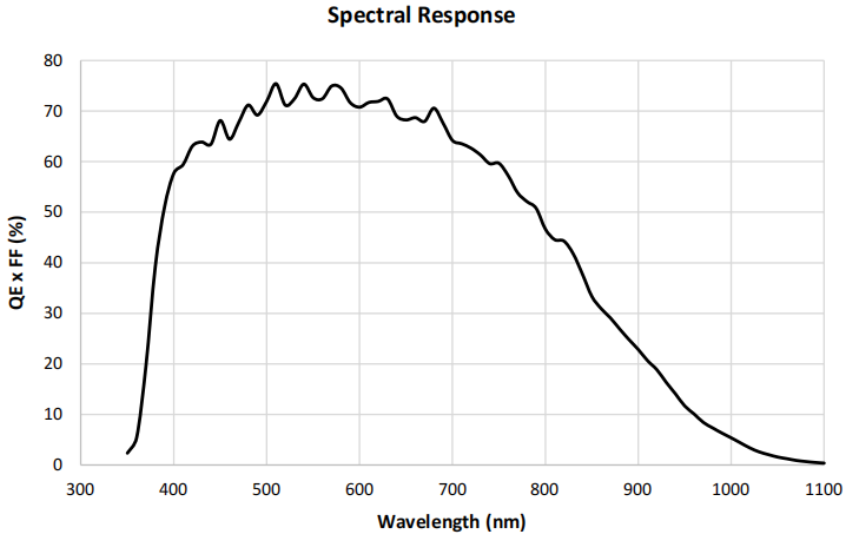


Figure 5-73 I3CMOS05100KMA spectral response curve

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5.52 I3CMOS05100KMB-CXP

Table 5-52 I3CMOS05100KMB-CXP camera specifications

Parameter \ Model	I3CMOS05100KMB-CXP
	5.0M pixels 2/3" CMOS CoaXPress industrial camera
Camera Parameters	
Sensor model	Sony IMX547-AAMJ-C
Pixel size	2.74 μm × 2.74 μm
Sensor size	1/1.8"
Frame rate	8 Bit：109fps@2432 x 2048 10 Bit：88fps@2432 x 2048 12-bit：74fps@2432 x 2048
Conversion Gain	2.35 (e-/ADU)
Readout Noise	2.19 (e-)
Full Well	9.6 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	40.0dB
Sensitivity	2252mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30us-15sec
Shutter	Global shutter
Binning	Software 2×2，3×3，4×4
Data interface	CXP-6
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.95W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

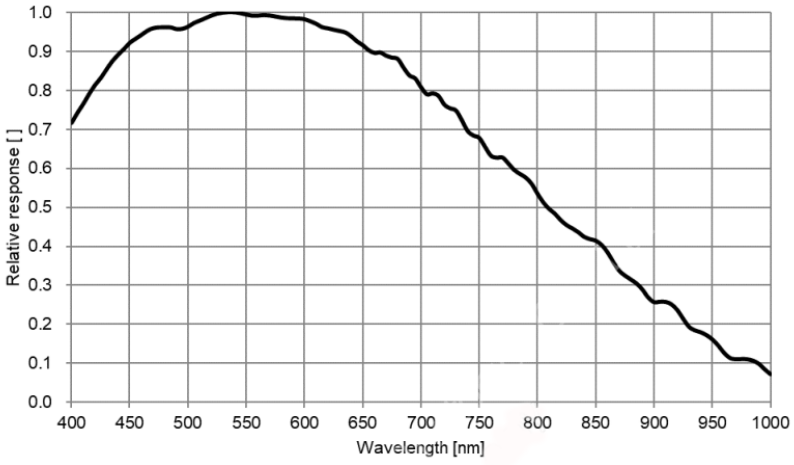


Figure 5-74 I3CMOS05100KMB-CXP spectral response curve

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5.53 I3CMOS06300KMA

Table 5-53 I3CMOS06300KMA camera specifications

Parameter \ Model	I3CMOS06300KMA
	6.3M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX178LLJ
Pixel size	2.4 μm×2.4 μm
Sensor size	1/1.8"
Frame rate	58.7fps@3072×2048 59.5fps@1536×1024
Dynamic range	71dB
Signal-to-Noise ratio	40dB
Sensitivity	760mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	17μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2;Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	33mm×33mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

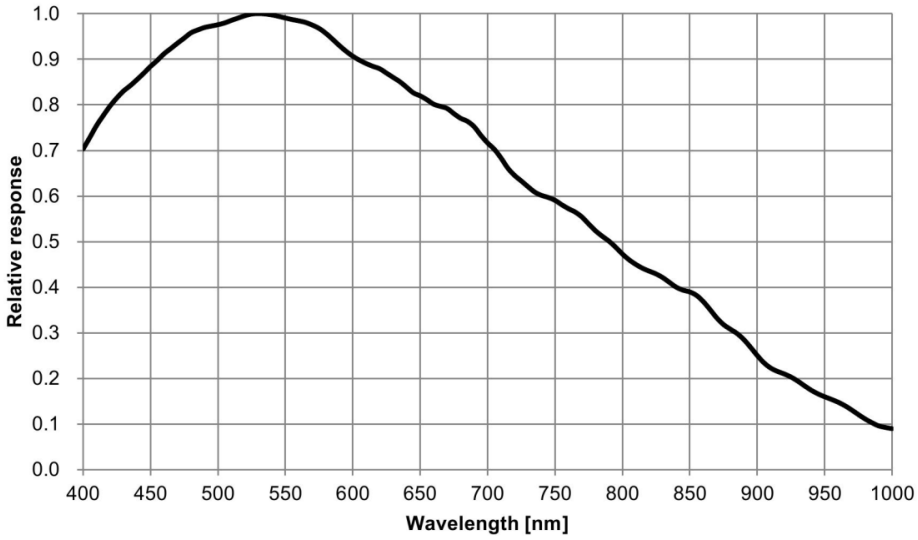


Figure 5-75 I3CMOS06300KMA spectral response curve

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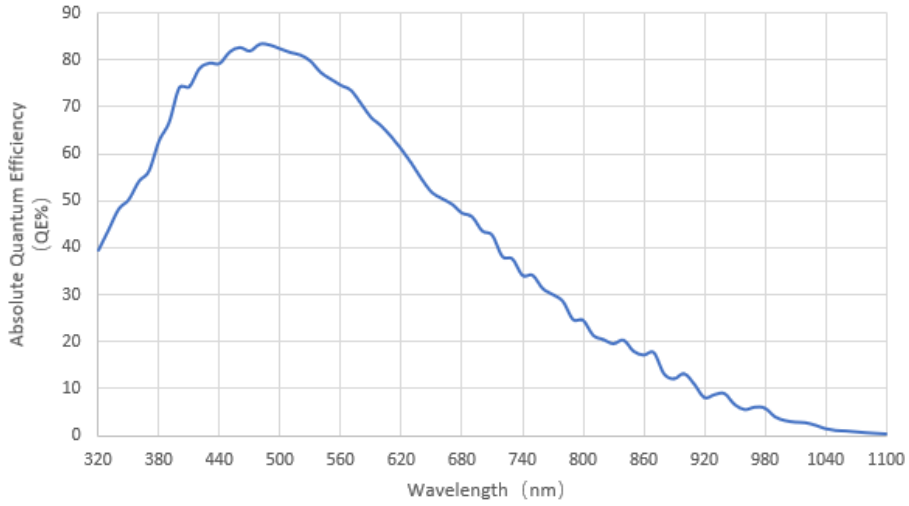


Figure 5-76 I3CMOS06300KMA absolute quantum efficiency

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5.54 I3CMOS08000KMA

Table 5-54 I3CMOS08000KMA camera specifications

Parameter \ Model	I3CMOS08000KMA
	8M pixel 2/3 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX546-AAMJ
Pixel size	2.74 μm x 2.74 μm
Sensor size	2/3”
Frame rate	41fps@2832×2832 118fps@1408×1408
Dynamic range	70dB
Signal-to-Noise ratio	40dB
Sensitivity	2649mV
Dark current	0.25mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global Shutter
Binning	Hardware2×2; Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.5W
Temperature	Working temperature -10~50℃; Storage temperature -30~70℃
Humidity	20% - 80% No condensation
Size	33mmx33mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

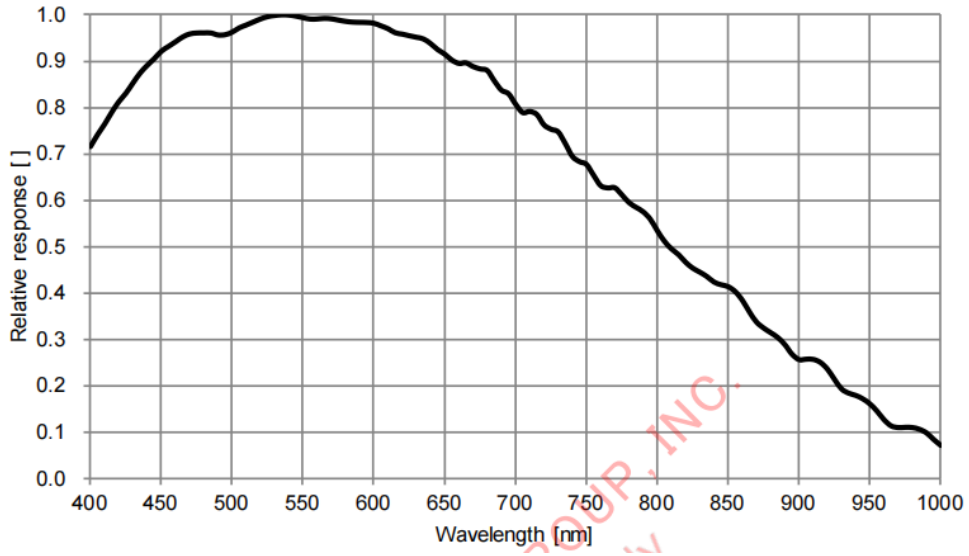


Figure 5-77 I3CMOS08000KMA spectral response curve

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5.55 I3CMOS01300KMA

Table 5-55 I3CMOS01300KMA camera specifications

Parameter \ Model	I3CMOS01300KMA
	1.3M pixel 1 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GLUX9701BSI (UV)
Pixel size	9.76 μm x 9.76 μm
Sensor size	1”
Frame rate	30fps@1280 x 1024 30fps@640 x 512
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	2.57×10^{8}(e-/((W/m2).s))
Dark current	11e-/s/pix
Gain range	1x-8x
Exposure time	63μs-60sec
Shutter	Rolling Shutter
Binning	Hardware2×2; Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	Power with USB3.0
Power consumption	<2.4W
Temperature	Working temperature -10~50°C; Storage temperature -30~70°C
Humidity	20% - 80% No condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

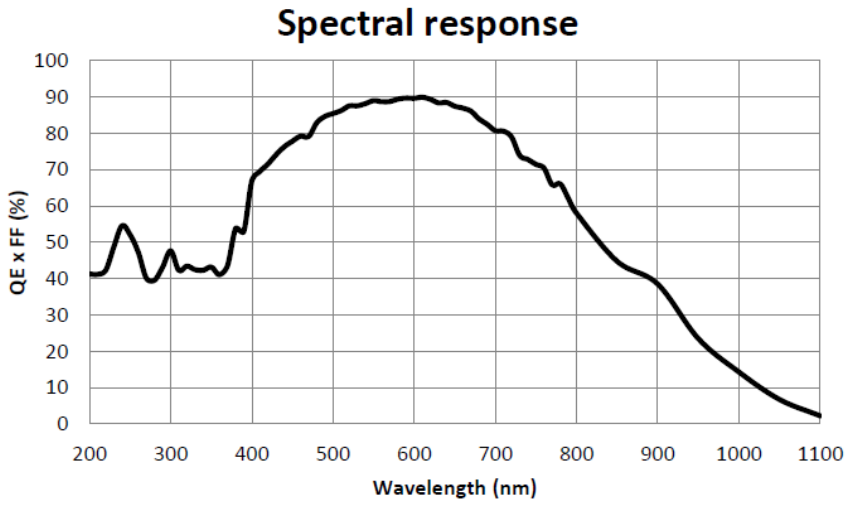


Figure 5-78 I3CMOS01300KMA spectral response curve

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5.56 I3CMOS01700KMA

Table 5-56 I3CMOS01700KMA camera specifications

Parameter \ Model	I3CMOS01700KMA
	1.7M pixel 1.1 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX432LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1”
Frame rate	98.6fps@1600 x 1100
Conversion Gain	4.97 (e-/ADU)
Readout Noise	4.76 (e-)
Full Well	20.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Peak QE	78%@575nm
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global Shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<2.4W
Temperature	Working temperature -10~50℃; Storage temperature -30~70℃
Humidity	20% - 80% No condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

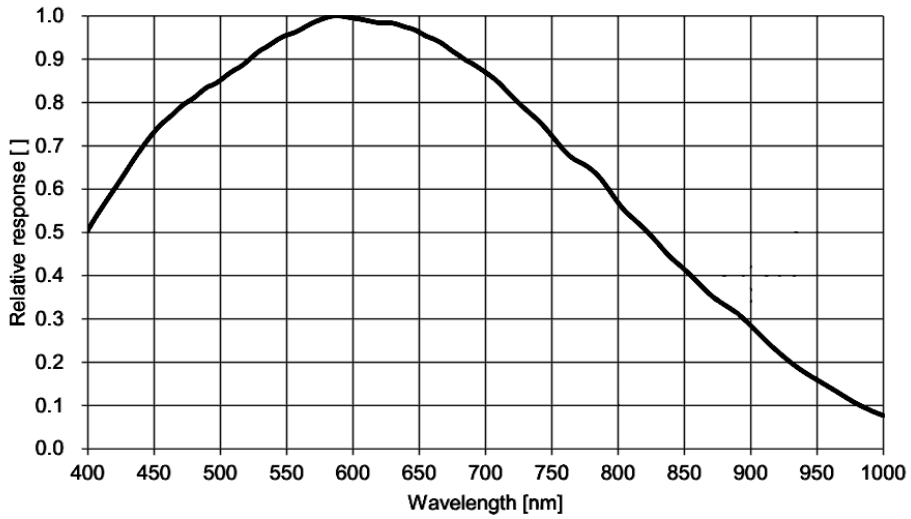


Figure 5-79 I3CMOS01700KMA spectral response curve

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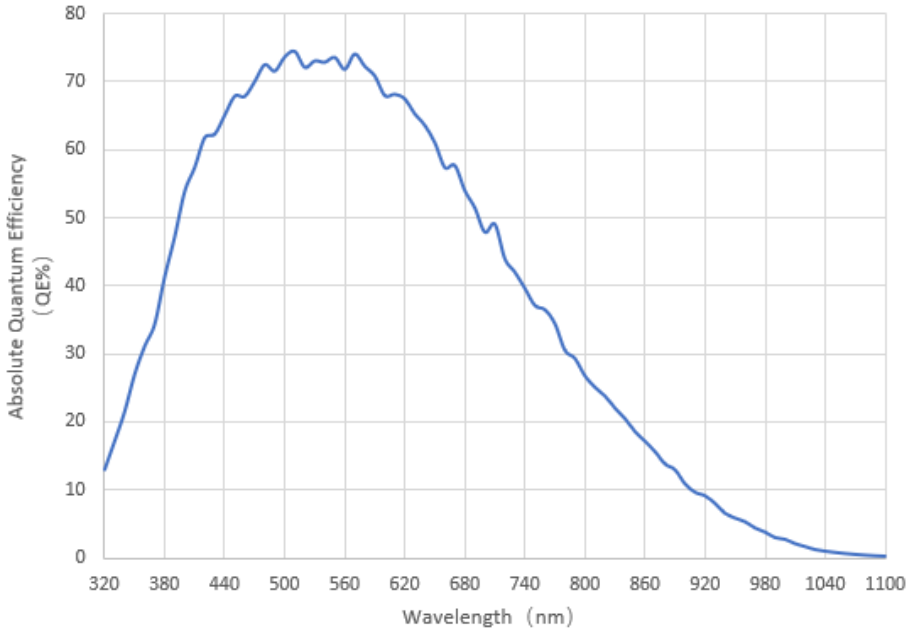


Figure 5-80 I3CMOS01700KMA absolute quantum efficiency

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5.57 I3CMOS01700KMB

Table 5-57 I3CMOS01700KMB camera specifications

Parameter \ Model	I3CMOS01700KMB
	1.7M pixels 1.1" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX425LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	210fps@1600 x 1100
Conversion Gain	4.97 (e-/ADU)
Readout Noise	4.76 (e-)
Full Well	20.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<2.4W
Temperature	Working temperature -10~50°C, storage temperature-30~70°C
Humidity	20%-80%, no condensation
Size	38mm×38mm×33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

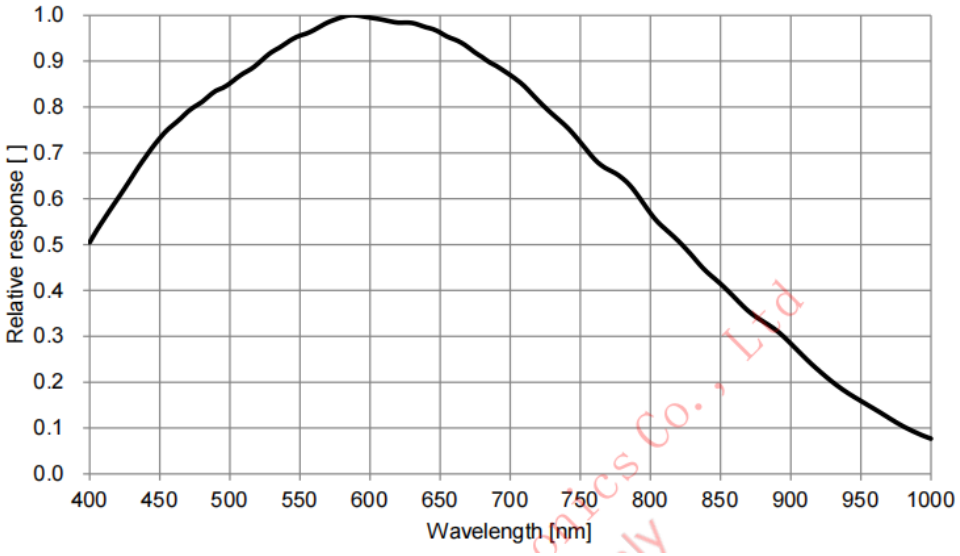


Figure 5-81 I3CMOS01700KMB spectral response curve

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5.58 I3CMOS08300KMB

Table 5-58 I3CMOS08300KMB camera specifications

Parameter \ Model	I3CMOS08300KMB
	8.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX585-AAMJ1-C
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/1.2"
Frame rate	45fps@3840 x2160 70fps@1920 x 1080
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	19120mV
Dark current	0.13mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<2.3W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

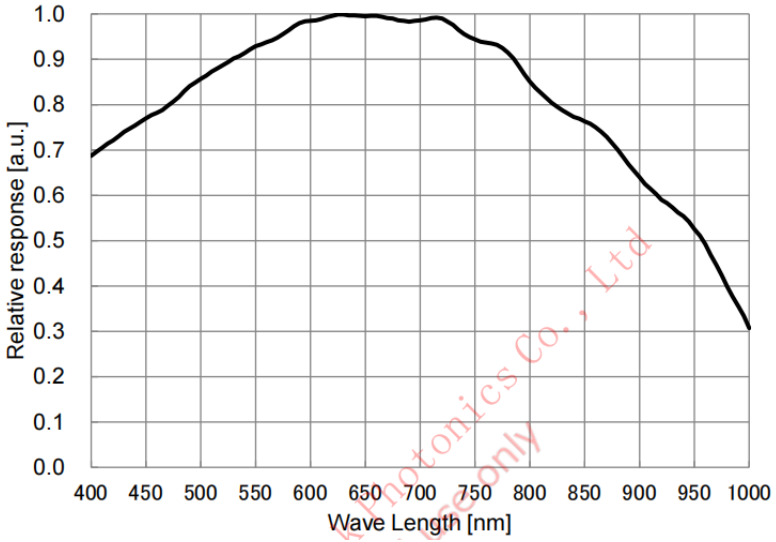


Figure 5-82 I3CMOS08300KMB spectral response curve

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5.59 I3CMOS02000KMA

Table 5-59 I3CMOS02000KMA camera specifications

Parameter \ Model	I3CMOS02000KMA
	2.0M pixels 1/1.7" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX430LLJ
Pixel size	4.5 μm x4.5 μm
Sensor size	1/1.7"
Frame rate	132fps@1624×1240
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	3354mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

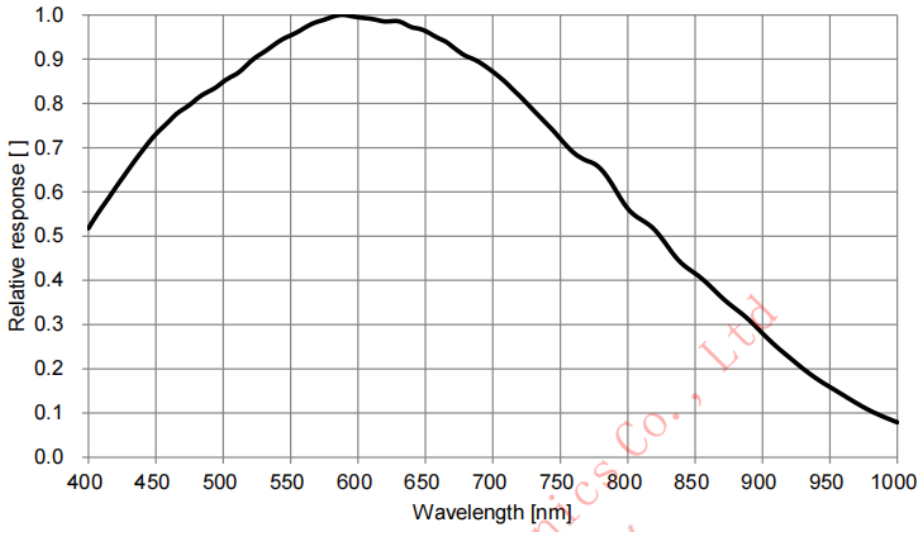


Figure 5-83 I3CMOS02000KMA spectral response curve

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5.60 I3CMOS02800KMA

Table 5-60 I3CMOS02800KMA camera specifications

Parameter \ Model	I3CMOS02800KMA
	2.8M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX421LLJ
Pixel size	4.5 μm x4.5 μm
Sensor size	2/3"
Frame rate	121fps@1936 × 1464 425fps@968 × 732
Conversion Gain	2.73 (e-/ADU)
Readout Noise	2.56 (e-)
Full Well	11.2 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Peak QE	78%@575nm
Sensitivity	3354mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

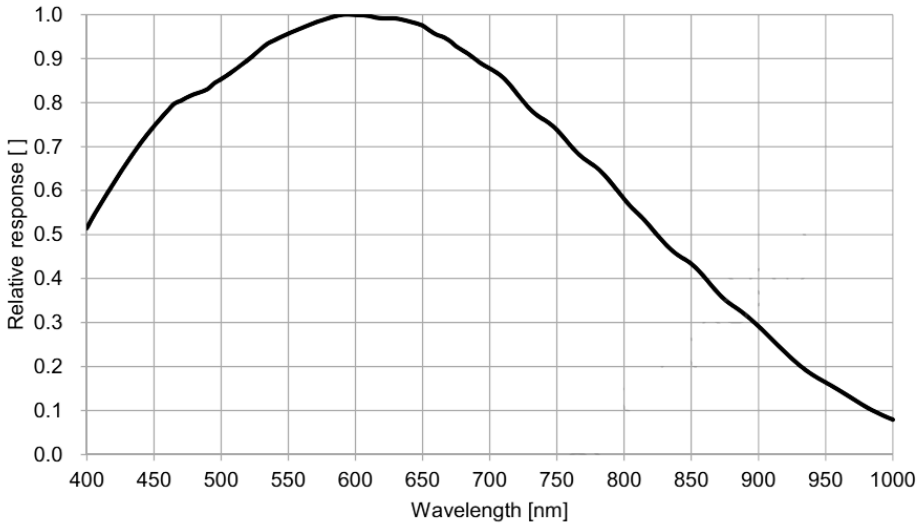


Figure 5-84 I3CMOS02800KMA spectral response curve

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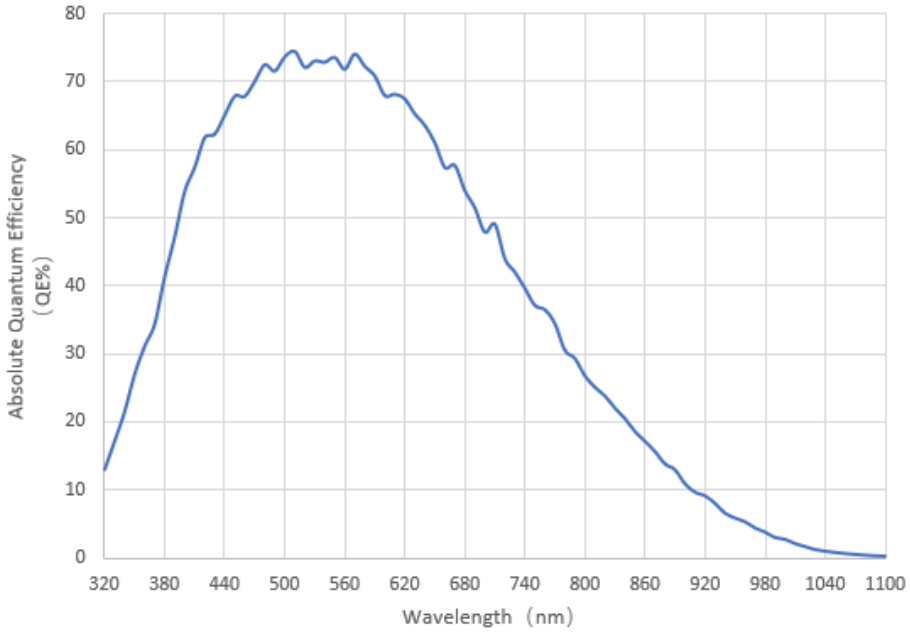


Figure 5-85 I3CMOS02800KMA absolute quantum efficiency

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5.61 I3CMOS07100KMA

Table 5-61 I3CMOS07100KMA camera specifications

Parameter \ Model	I3CMOS07100KMA
	7.1M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX428LLJ
Pixel size	4.5 μm x4.5 μm
Sensor size	1.1"
Frame rate	51.3fps@3200 x 2200 133.8fps@1584 x 1100
Conversion Gain	2.77 (e-/ADU)
Readout Noise	2.63 (e-)
Full Well	11.3 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.6dB
Peak QE	78%@575nm
Sensitivity	3354mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

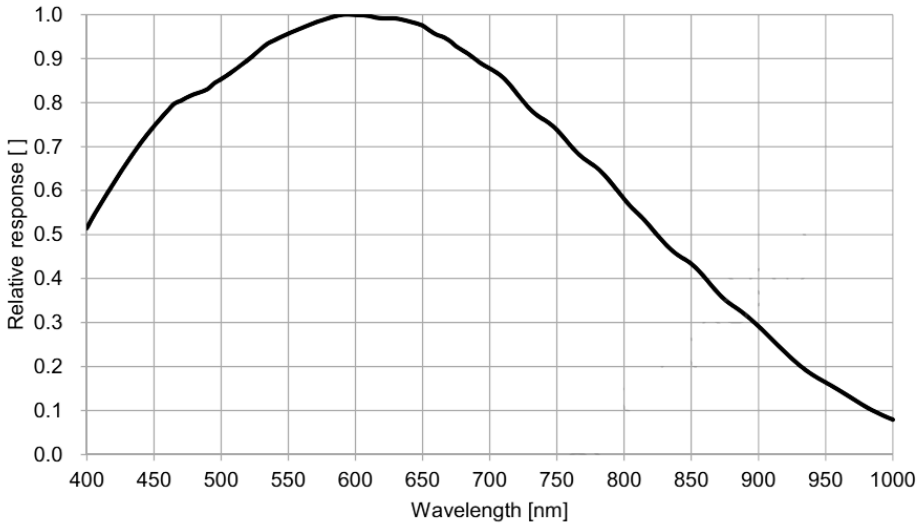


Figure 5-86 I3CMOS07100KMA spectral response curve

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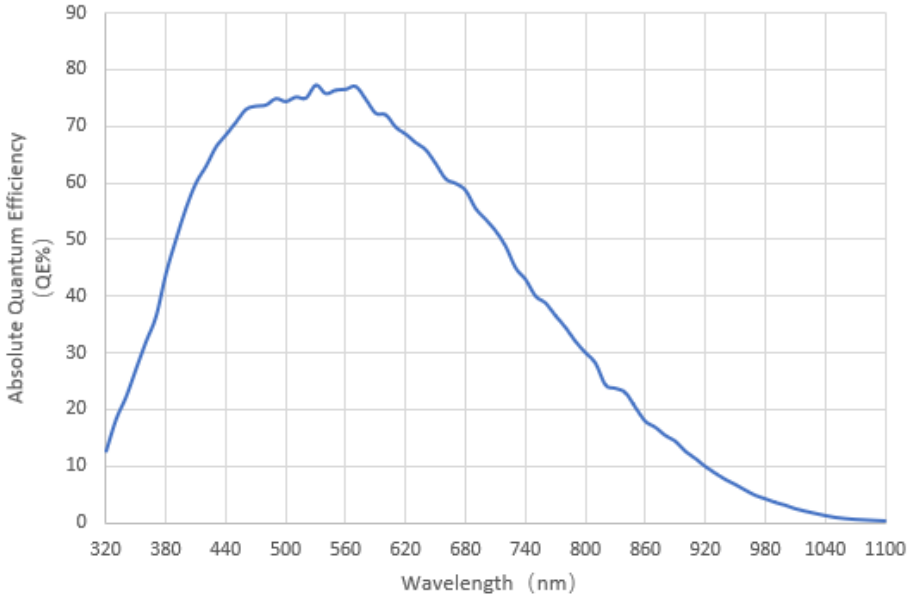


Figure 5-87 I3CMOS07100KMA absolute quantum efficiency

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5.62 I3CMOS12300KMA

Table 5-62 I3CMOS12300KMA camera specifications

Parameter \ Model	I3CMOS12300KMA
	12.3M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX304LLR-C
Pixel size	3.45 μm x 3.45 μm
Sensor size	1.1"
Frame rate	23.4fps@4096 x3000 46.3fps@2048 x 1500 46.3fps@1024 x 750
Conversion Gain	2.71 (e-/ADU)
Readout Noise	2.12 (e-)
Full Well	11.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

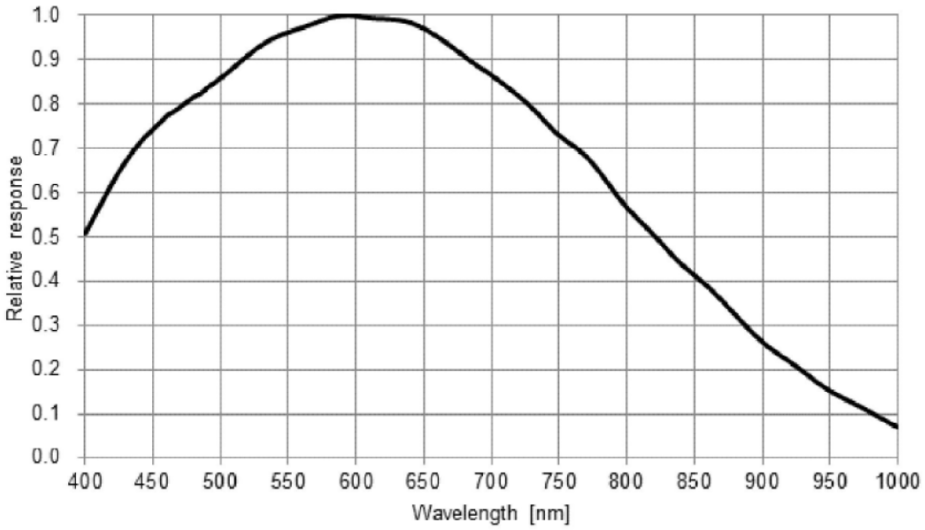


Figure 5-88 I3CMOS12300KMA spectral response curve

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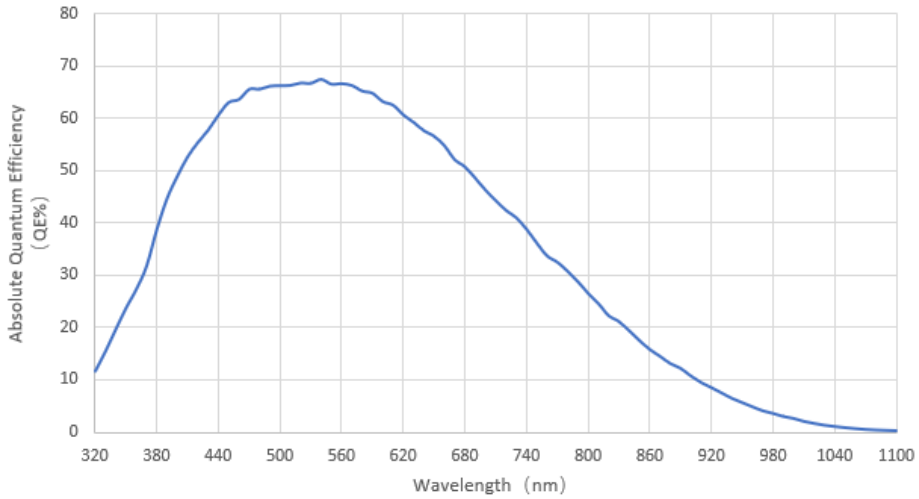


Figure 5-89 I3CMOS12300KMA absolute quantum efficiency

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5.63 I3CMOS12300KMC (Polarsens)

Table 5-63 I3CMOS12300KMC camera specifications

Parameter \ Model	I3CMOS12300KMC
	12.3M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX253MZR (Polarsens)
Pixel size	3.45 μm × 3.45 μm
Sensor size / Active area	1.1"
Resolution	4096 × 3000 (12.3MP)
Frame rate	23.4 fps @ 4096 × 3000 46.3 fps @ 2048 × 1500 46.3 fps @ 1024 × 750
Conversion gain	2.71 e^-/ADU
Read noise	2.34 e^-
Full well capacity	11.1 ke^-
Dynamic range	72 dB
Signal-to-Noise ratio	40.5 dB
Sensitivity	684 mV
Dark current	0.15 mV
Gain range	1x - 50x
Exposure time	30 μs - 15 s
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, one non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Powered via USB3.0
Power consumption	< 3.0 W
Temperature	Working temperature -10 ~ 50 °C, storage temperature -30 ~ 70 °C
Humidity	20% - 80%, non-condensing
Size	38 mm × 38 mm × 33 mm
Weight	70 g
Lens mount	C-mount
Software	ToupView / Full SDK
Platform and architecture	Win32 / WinRT / Linux / macOS / Android; x86 / x64 / ARM HF / ARM EL / ARM64
Certification	CE, FCC

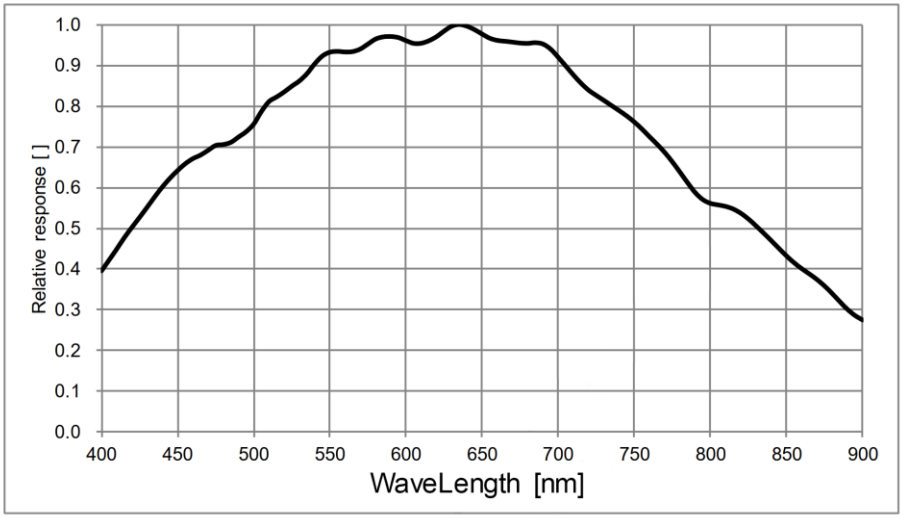


Figure 5-90 I3CMOS12300KMC spectral response curve

The four-directional Polarizations of this image sensor are arranged to get transmitted litght in the layout shown in the figure below. The 90°signal and 45°signal lines and the 135°signal and 0°signal lines are output successsively.

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135	0	135	0
90	45	90	45
135	0	135	0
90	45	90	45

Figure 5-91 Polarization Coding Diagram

The polarization camera can effectively eliminate the reflection of the plastic surface, the reflection of the metal surface, and increase the three-dimensional sense of the metal surface. The comparison of the effect of ordinary camera and polarization camera is shown below.



Figure 5-92 Comparison of plastic surface effects between ordinary camera (left) and polarizing camera (right)



Figure 5-93 Plastic surface detail comparison

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Figure 5-94 Ordinary camera (left) compared with polarizing camera (right) metal surface effect

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5.64 I3CMOS12500KMA

Table 5-64 I3CMOS12500KMA camera specifications

Parameter \ Model	I3CMOS12500KMA
	12.5M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GMAX3412
Pixel size	3.4 μm x 3.4 μm
Sensor size	1.1"
Frame rate	30fps@4096×3072 60fps@2048×1536
Readout Noise	1.5 (e-)
Full Well	10 (ke-)
Dynamic range	68.8dB
Signal-to-Noise ratio	40dB
Sensitivity	2.36×10^{7}e-/((W/m2)·s)
Dark current	81.6e-/s
Gain range	1x-50x
Exposure time	15μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

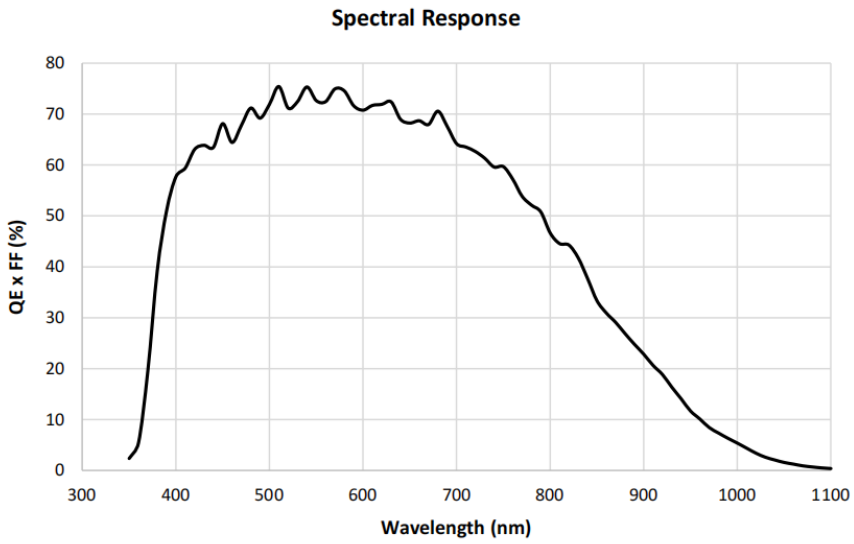


Figure 5-95 I3CMOS12500KMA spectral response curve

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5.65 I3CMOS20400KMA

Table 5-65 I3CMOS20400KMA camera specifications

Parameter \ Model	I3CMOS20400KMA
	20.4M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX541-AAMJ
Pixel size	2.74 μm x 2.74 μm
Sensor size	1.1"
Frame rate	17.5fps@4496×4496 64.4fps@2240×2240 64.4fps@1120×1120
Dynamic range	70.8dB
Signal-to-Noise ratio	39.8dB
Sensitivity	2649mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, one non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	<3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	38mmx38mmx33mm
Weight	70g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

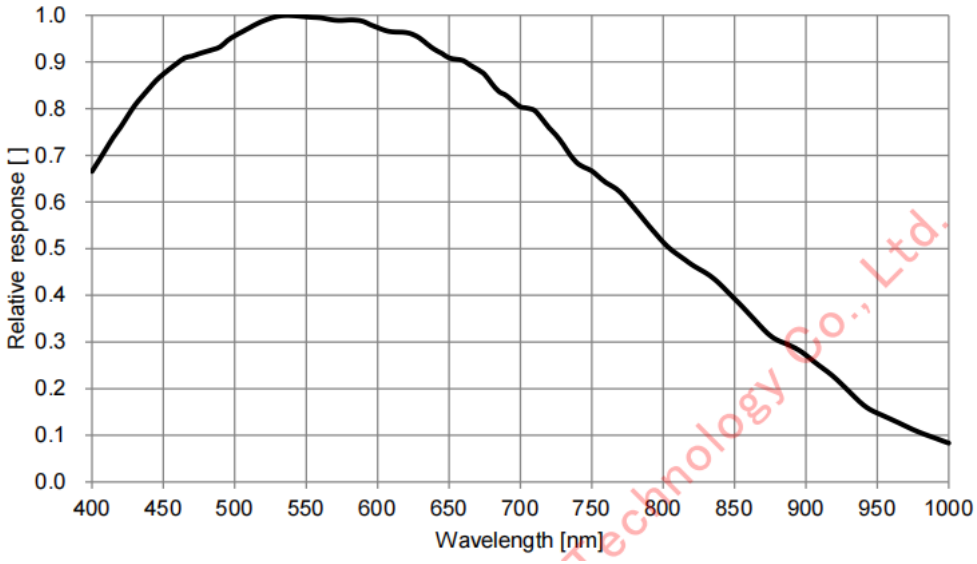


Figure 5-96 I3CMOS20400KMA spectral response curve

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6 IUA Series Technical Specifications(55)

6.1 IUA390KMA

Table 6-1 IUA390KMA camera specifications

Parameter \ Model	IUA390KMA
	0.39M pixel 1/2.9 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX287LLR
Pixel size	6.9 μm x 6.9 μm
Sensor size	1/2.9”
Frame rate	101.5fps@720 x 540
Conversion Gain	2.73 (e-/ADU)
Readout Noise	0.79 (e-)
Full Well	11.2 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Peak QE	71%@575nm
Sensitivity	7320mV
Dark current	0.76mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global Shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.4W
Temperature	Working temperature -10~50°C; Storage temperature -30~70°C
Humidity	20% - 80% No condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

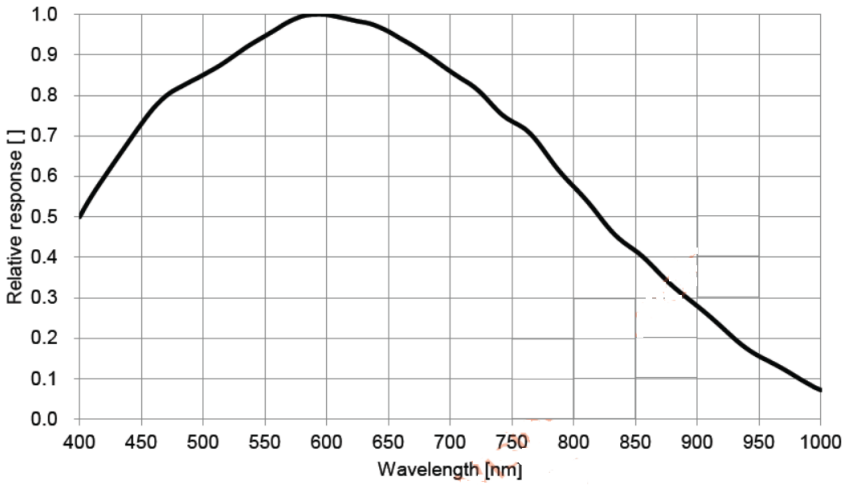


Figure 6-1 IUA390KMA spectral response curve

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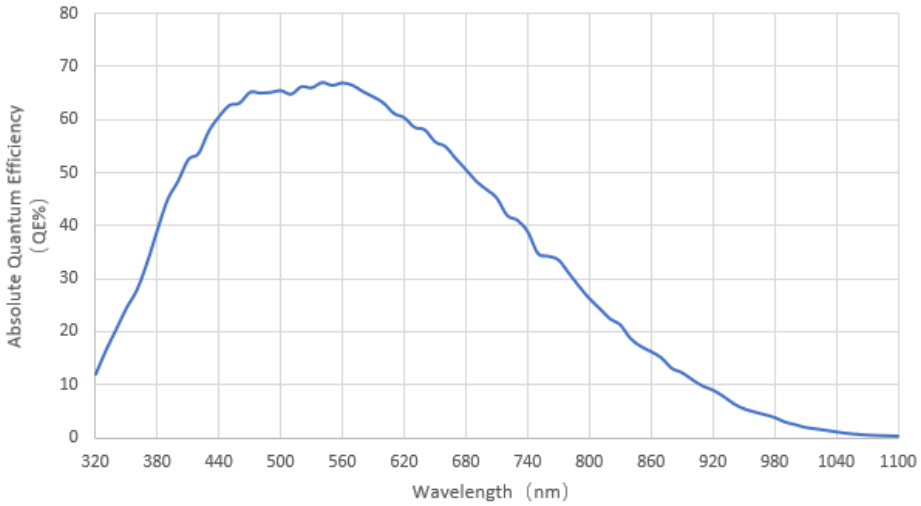


Figure 6-2 IUA390KMA absolute quantum efficiency

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6.2 IUA503KMA

Table 6-2 IUA503KMA camera specifications

Model / Parameter	IUA503KMA
	0.5M pixel 1/1.7 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX426LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1/1.7”
Frame rate	79.8fps@800 x 620
Conversion Gain	4.9 (e-/ADU)
Readout Noise	1.41 (e-)
Full Well	20.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Peak QE	78%@575nm
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global Shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.6W
Temperature	Working temperature -10~50℃; Storage temperature -30~70℃
Humidity	20% - 80% No condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

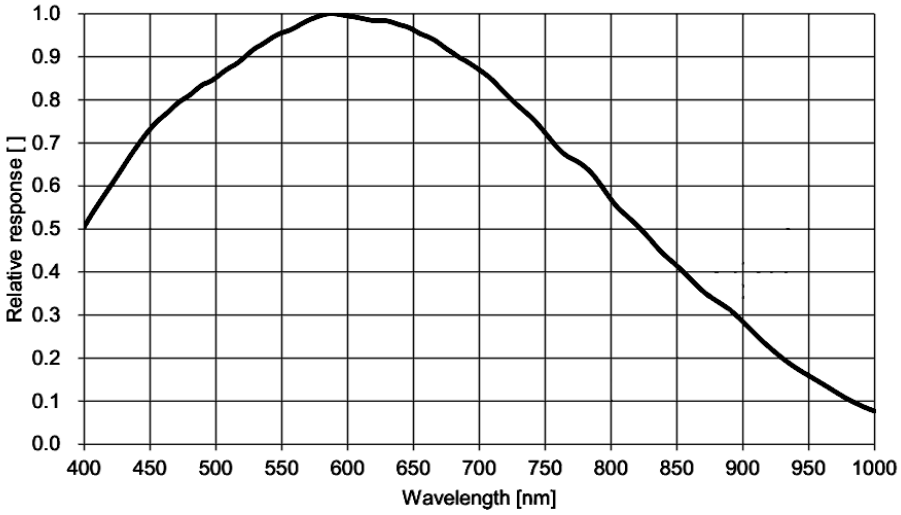


Figure 6-3 IUA503KMA spectral response curve

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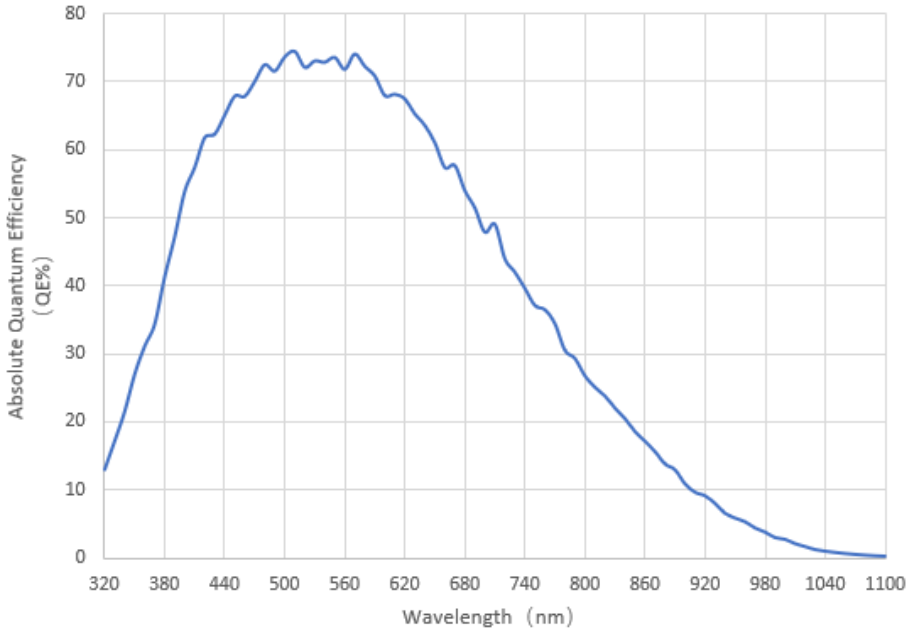


Figure 6-4 IUA503KMA absolute quantum efficiency

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6.3 IUA503KMB

Table 6-3 IUA503KMB camera specifications

Model / Parameter	IUA503KMB
	0.5M pixel 1/1.7 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX433LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1/1.7”
Frame rate	79.8fps@800 x 620
Conversion Gain	4.9 (e-/ADU)
Readout Noise	1.41 (e-)
Full Well	20.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Peak QE	78%@575nm
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global Shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<3.0W
Temperature	Working temperature -10~50℃; Storage temperature -30~70℃
Humidity	20% - 80% No condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

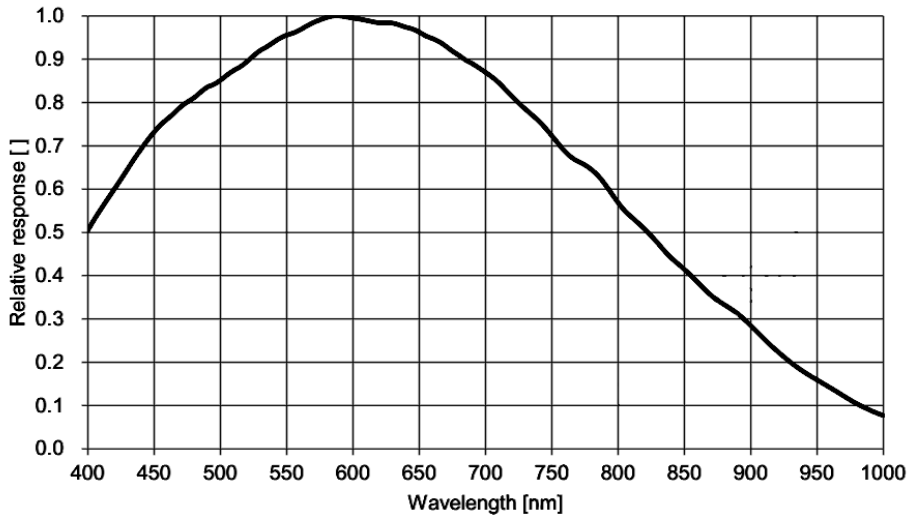


Figure 6-5 IUA503KMB spectral response curve

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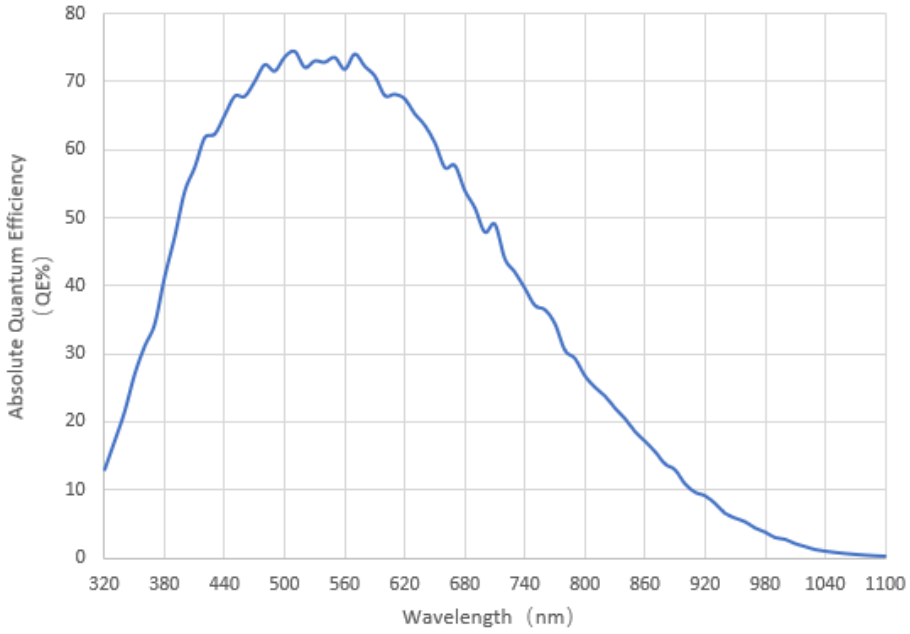


Figure 6-6 IUA503KMB absolute quantum efficiency

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6.4 IUA1500KMA

Table 6-4 IUA1500KMA camera specifications

Parameter \ Model	IUA1500KMA
	1.5M pixels 1/2.9" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX273LLR
Pixel size	3.45 μm × 3.45 μm
Sensor size	1/2.9"
Frame rate	155fps@1440 × 1080 523fps@720 × 540
Conversion Gain	2.68 (e-/ADU)
Readout Noise	2.24 (e-)
Full Well	10.96 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15us-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.1W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	219g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

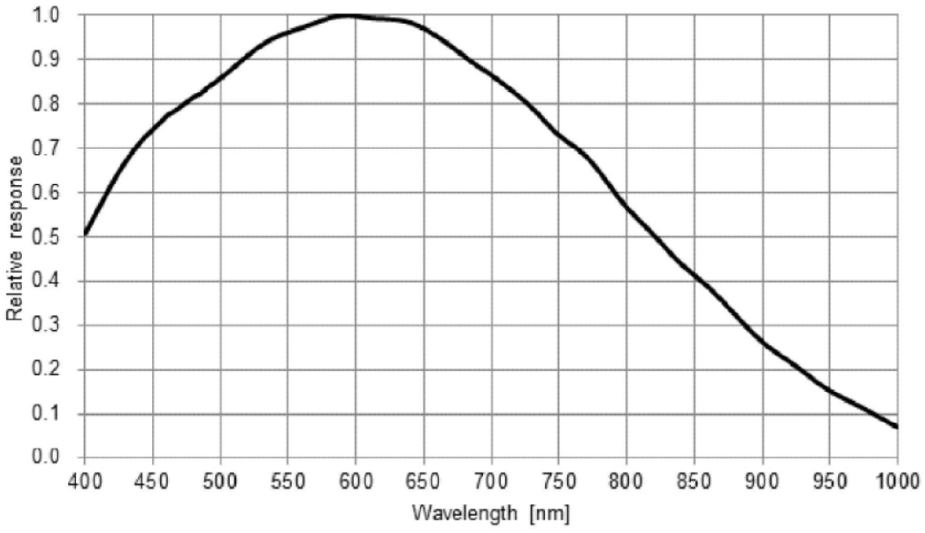


Figure 6-7 IUA1500KMA spectral response curve

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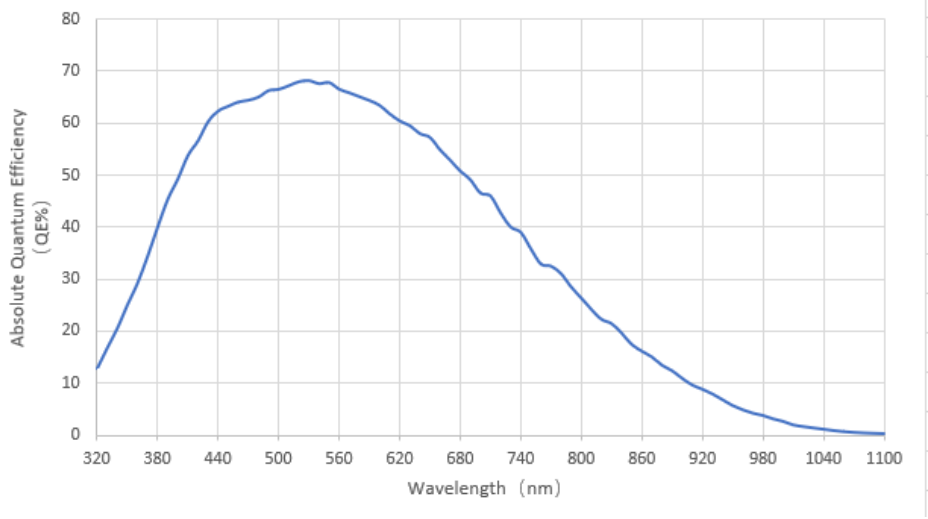


Figure 6-8 IUA1500KMA absolute quantum efficiency

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6.5 IUA1500KPA

Table 6-5 IUA1500KPA camera specifications

Parameter \ Model	IUA1500KPA
	1.5M pixels 1/2.9" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX273LQR
Pixel size	3.45 μm × 3.45 μm
Sensor size	1/2.9"
Frame rate	155fps@1440 × 1080 523fps@720 × 540
Conversion Gain	2.67 (e-/ADU)
Readout Noise	2.27 (e-)
Full Well	10.94 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15us-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.1W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	219g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

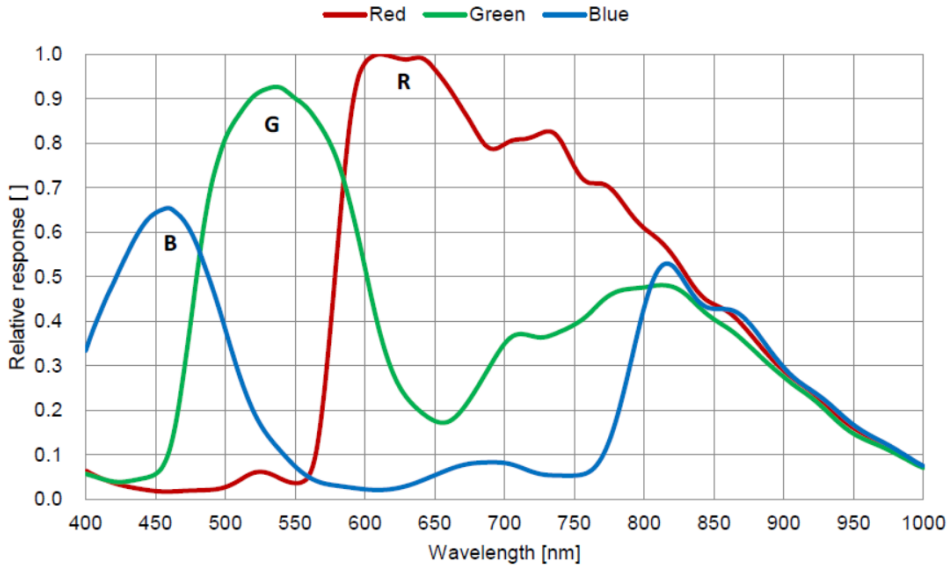


Figure 6-9 IUA1500KPA spectral response curve

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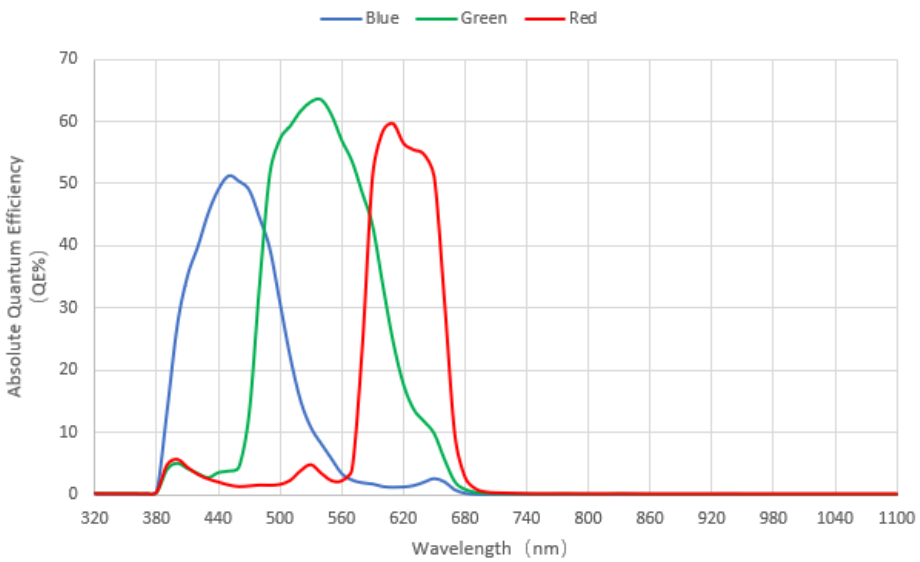


Figure 6-10 IUA1500KPA absolute quantum efficiency

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6.6 IUA1700KMA

Table 6-6 IUA1700KMA camera specifications

Parameter \ Model	IUA1700KMA
	1.7M pixel 1.1 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX432LLJ
Pixel size	9.0 µm x 9.0 µm
Sensor size	1.1”
Frame rate	98.6fps@1600 x 1100
Conversion Gain	4.97 (e-/ADU)
Readout Noise	4.76 (e-)
Full Well	20.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Peak QE	78%@575nm
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6µs-15sec
Shutter	Global Shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.5W
Temperature	Working temperature -10~50℃; Storage temperature -30~70℃
Humidity	20% - 80% No condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

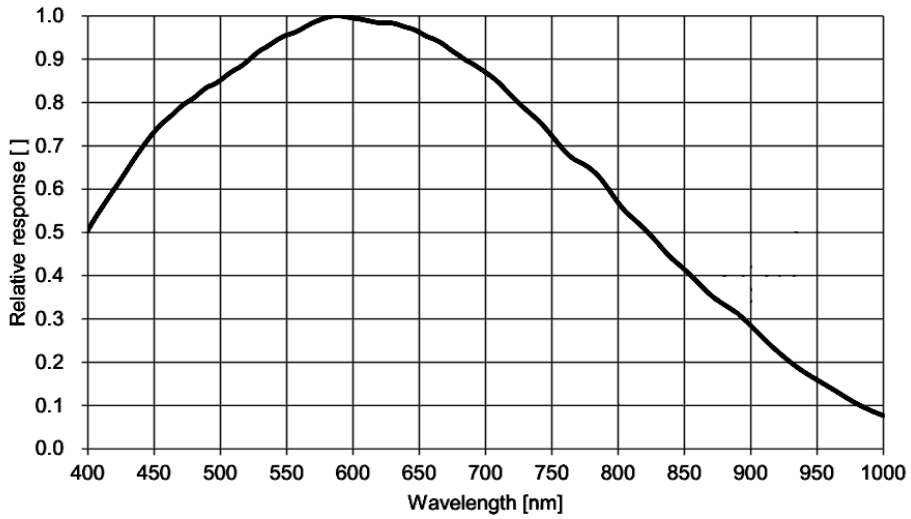


Figure 6-11 IUA1700KMA spectral response curve

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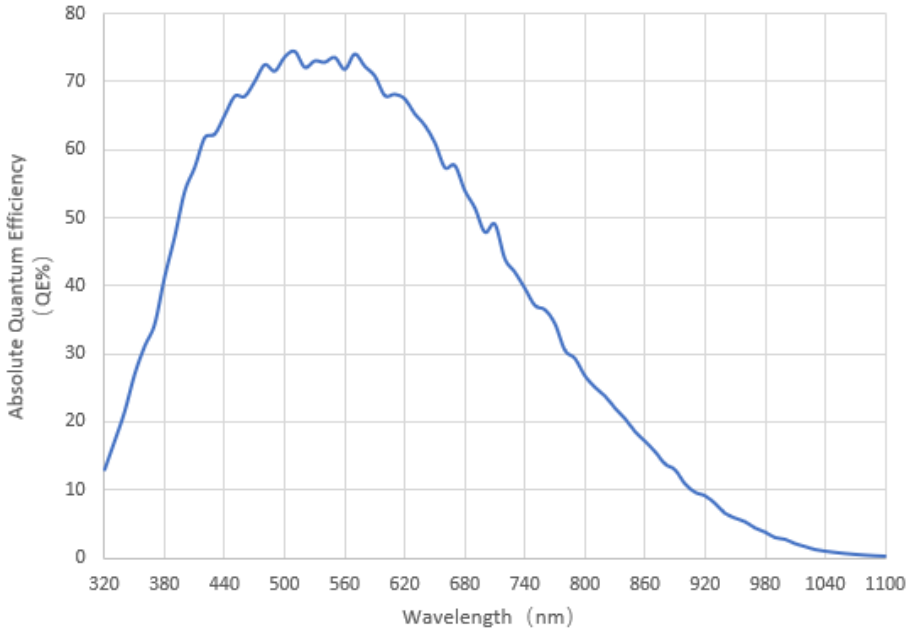


Figure 6-12 IUA1700KMA absolute quantum efficiency

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6.7 IUA1700KPA

Table 6-7 IUA1700KPA camera specifications

Parameter \ Model	IUA1700KPA
	1.7M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX432LQJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	98.6fps@1600 x 1100
Conversion Gain	4.9 (e-/ADU)
Readout Noise	4.53 (e-)
Full Well	20.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Sensitivity	4910mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.5W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

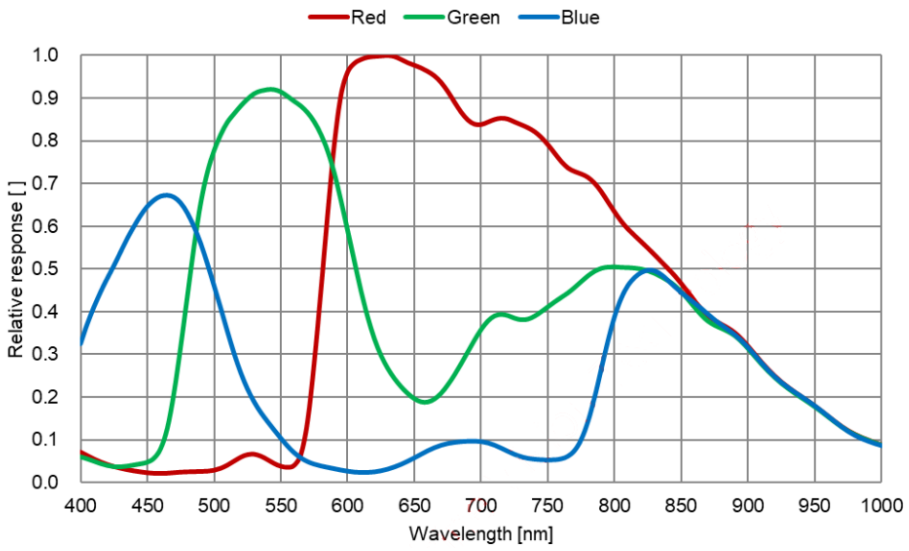


Figure 6-13 IUA1700KPA spectral response curve

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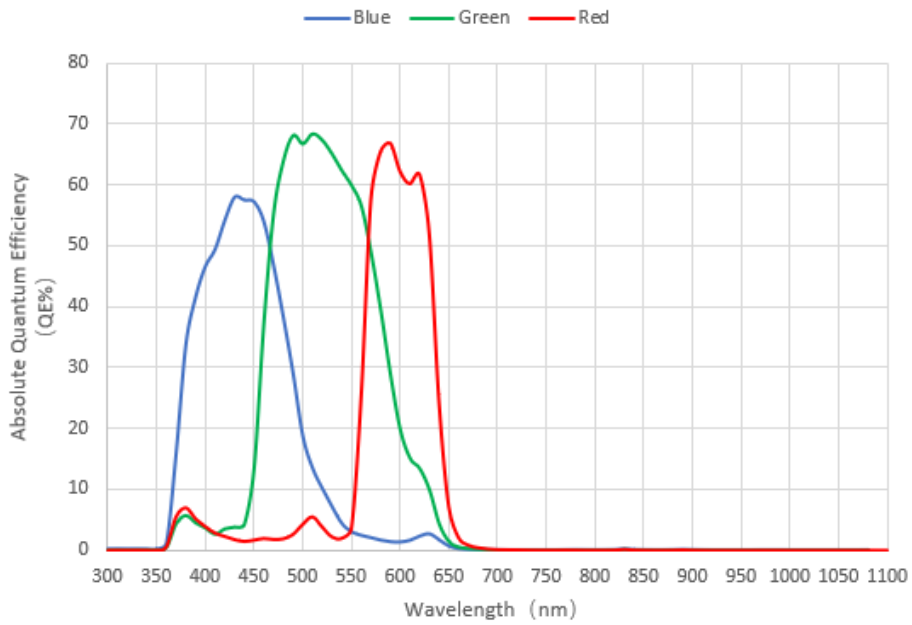


Figure 6-14 IUA1700KPA absolute quantum efficiency

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6.8 IUA1700KMB

Table 6-8 IUA1700KMB camera specifications

Parameter \ Model	IUA1700KMB
	1.7M pixel 1.1 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX425LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1”
Frame rate	180fps@1600 x 1100
Conversion Gain	4.97 (e-/ADU)
Readout Noise	4.76 (e-)
Full Well	20.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global Shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<2.4W
Temperature	Working temperature -10~50℃; Storage temperature -30~70℃
Humidity	20% - 80% No condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

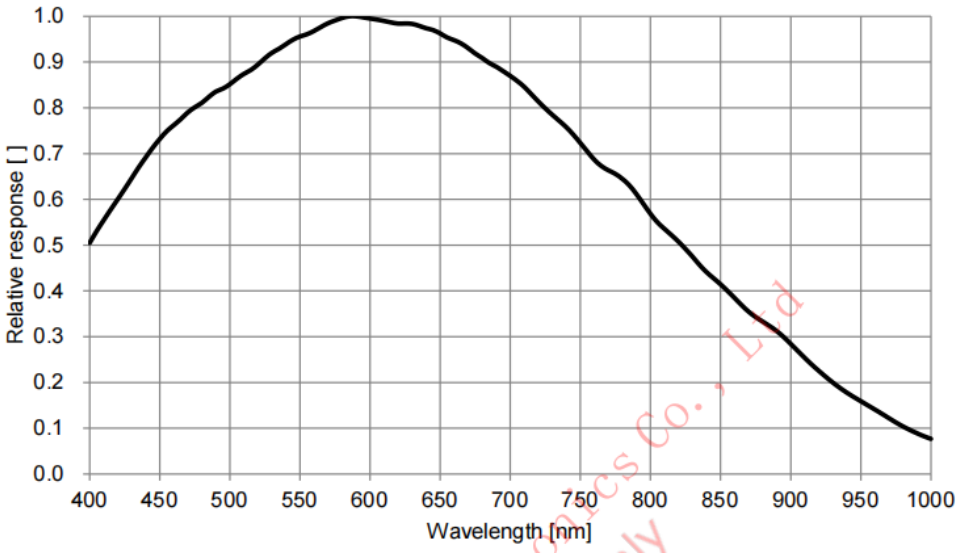


Figure 6-15 IUA1700KMB spectral response curve

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6.9 IUA1700KPB

Table 6-9 IUA1700KPB camera specifications

Parameter \ Model	IUA1700KPB
	1.7M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX425LQJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	180fps@1600 x 1100
Conversion Gain	4.9 (e-/ADU)
Readout Noise	4.53 (e-)
Full Well	20.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Sensitivity	4910mV
Dark current	0.3mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<2.4W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

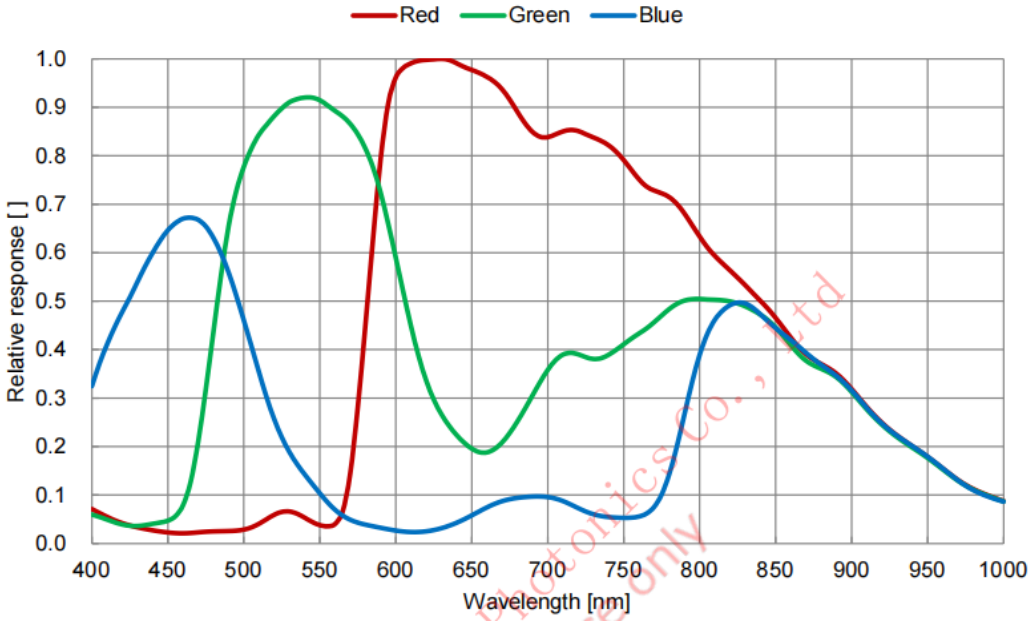


Figure 6-16 IUA1700KPB spectral response curve

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6.10 IUA2300KMA

Table 6-10 IUA2300KMA camera specifications

Parameter \ Model	IUA2300KMA
	2.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX174LLJ
Pixel size	5.86 μm x 5.86 μm
Sensor size	1/1.2"
Frame rate	164.5fps@1920 x 1200
Conversion Gain	8.33 (e-/ADU)
Readout Noise	7.12 (e-)
Full Well	34.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	45.3dB
Peak QE	78%@575nm
Sensitivity	1650mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	19us-15sec
Shutter	Global shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.35W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE，FCC

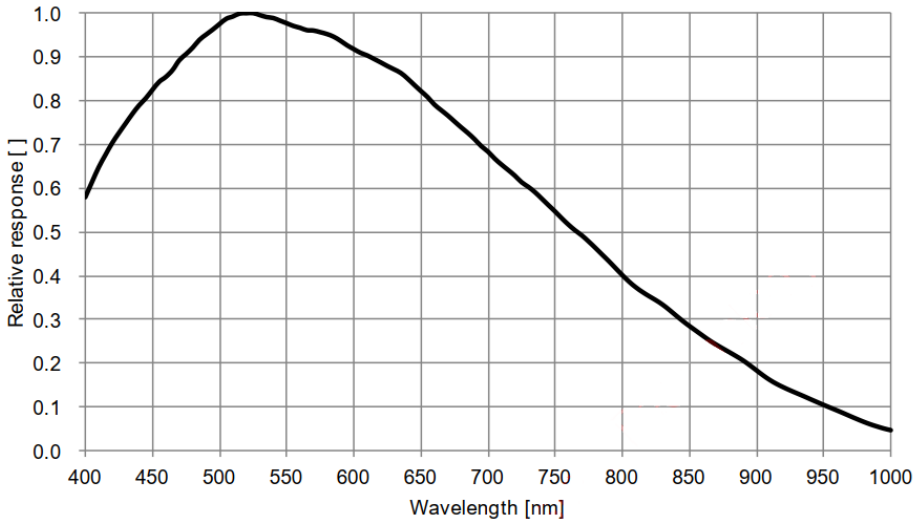


Figure 6-17 IUA2300KMA spectral response curve

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6.11 IUA2300KPA

Table 6-11 IUA2300KPA camera specifications

Parameter \ Model	IUA2300KPA
	2.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX174LQJ
Pixel size	5.86 μm x 5.86 μm
Sensor size	1/1.2"
Frame rate	164.5fps@1920 x 1200
Conversion Gain	8.37 (e-/ADU)
Readout Noise	7.13 (e-)
Full Well	34.3 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	45.4dB
Sensitivity	1016mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	19us-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.35W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	217g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

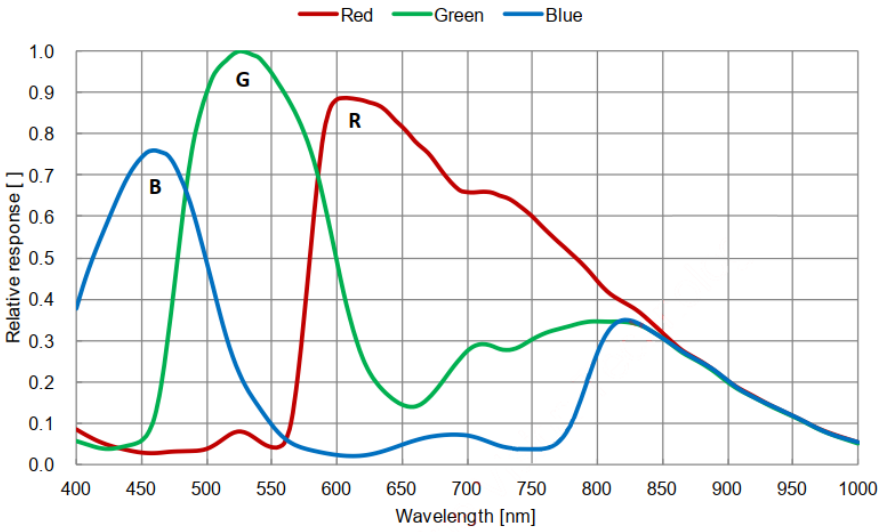


Figure 6-18 IUA2300KPA spectral response curve

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6.12 IUA2300KMB

Table 6-12 IUA2300KMB camera specifications

Parameter \ Model	IUA2300KMB
	2.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX249LLJ
Pixel size	5.86 μm x 5.86 μm
Sensor size	1/1.2"
Frame rate	30fps@1920 x 1200
Conversion Gain	8.5 (e-/ADU)
Readout Noise	8.21 (e-)
Full Well	34.8 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	45.4dB
Peak QE	78%@575nm
Sensitivity	1650mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	42μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.75W
Temperature	Working temperature -10~50°C, storage temperature-30~70°C
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	217g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

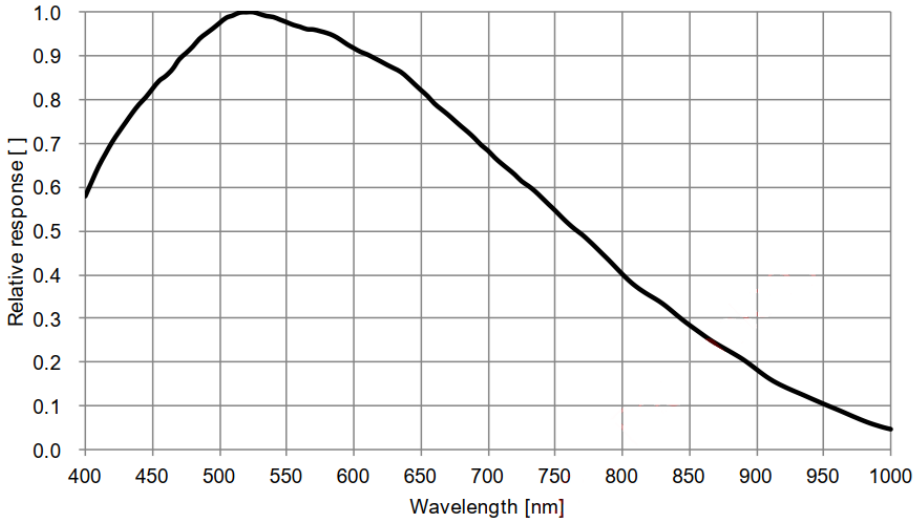


Figure 6-19 IUA2300KMB spectral response curve

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6.13 IUA2300KPB

Table 6-13 IUA2300KPB camera specifications

Parameter \ Model	IUA2300KPB
	2.3M pixels 1/1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX249LQJ
Pixel size	5.86 μm x 5.86 μm
Sensor size	1/1.2"
Frame rate	30fps@1920 x 1200
Conversion Gain	8.22 (e-/ADU)
Readout Noise	7.72 (e-)
Full Well	33.7 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	45.3dB
Sensitivity	1016mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	42μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.75W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	217g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

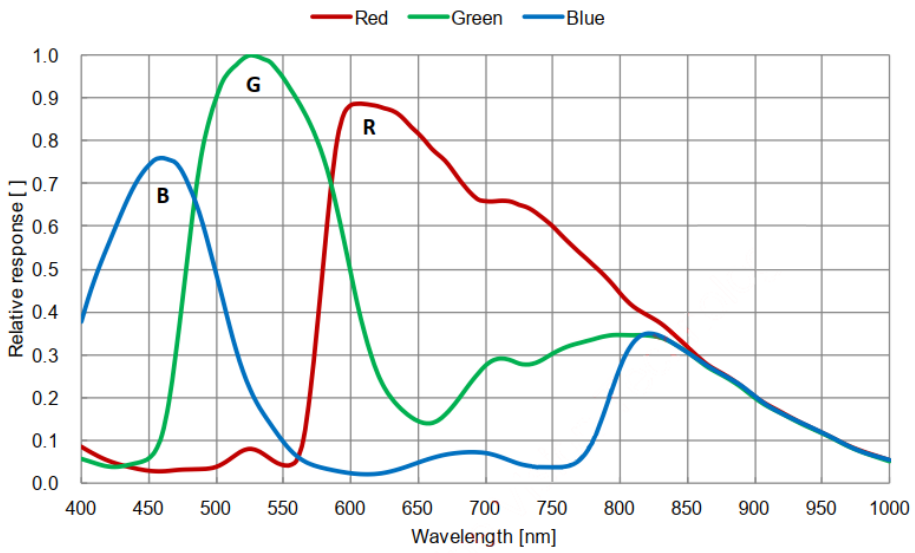


Figure 6-20 IUA2300KPB spectral response curve

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6.14 IUA2800KMA

Table 6-14 IUA2800KMA camera specifications

Parameter \ Model	IUA2800KMA
	2.8M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX421LLJ
Pixel size	4.5 μm x4.5 μm
Sensor size	2/3"
Frame rate	121fps@1936 × 1464 425fps@968 × 732
Conversion Gain	2.73 (e-/ADU)
Readout Noise	2.56 (e-)
Full Well	11.2 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Peak QE	78%@575nm
Sensitivity	3354mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.85W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

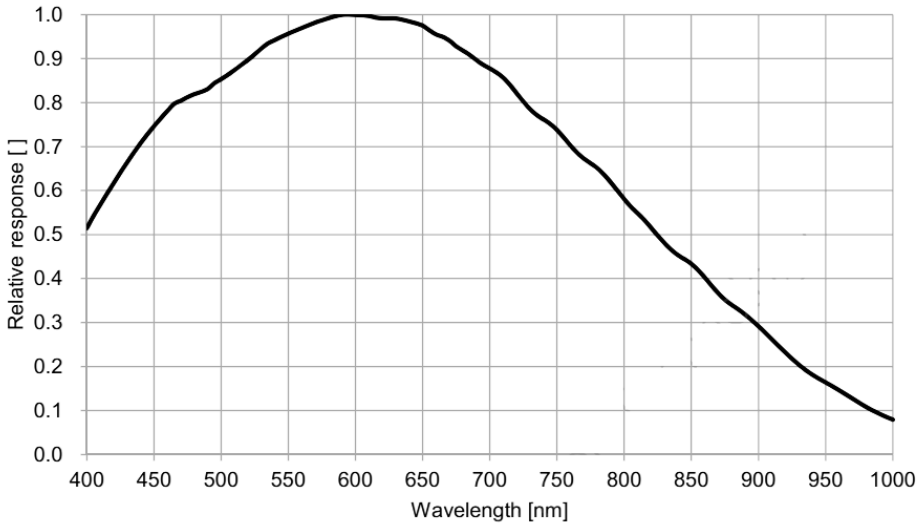


Figure 6-21 IUA2800KMA spectral response curve

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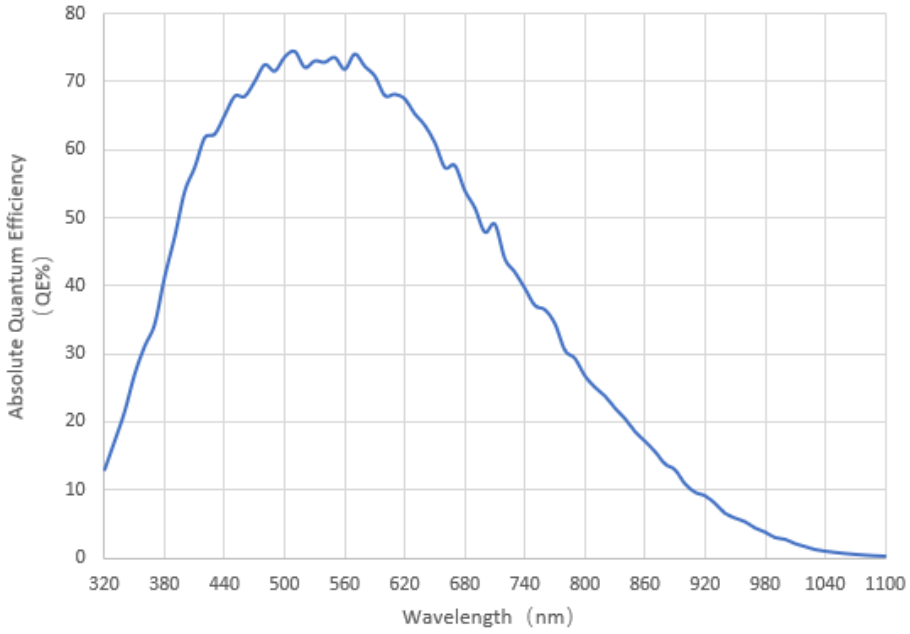


Figure 6-22 IUA2800KMA absolute quantum efficiency

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6.15 IUA2800KPA

Table 6-15 IUA2800KPA camera specifications

Parameter \ Model	IUA2800KPA
	2.8M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX421LQJ
Pixel size	4.5 μm x 4.5 μm
Sensor size	2/3"
Frame rate	121fps@1936 × 1464 425fps@968 × 732
Conversion Gain	2.69 (e-/ADU)
Readout Noise	2.55 (e-)
Full Well	11.0 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.4dB
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.85W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

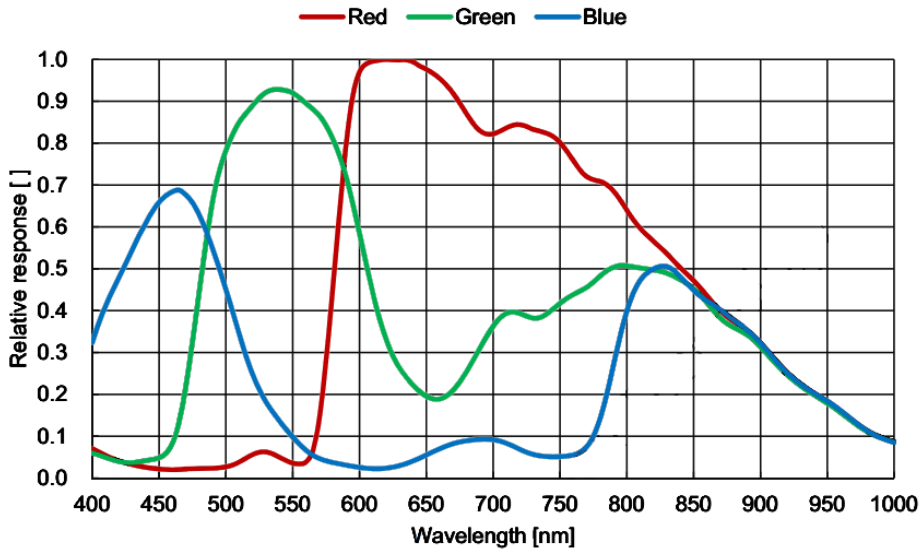


Figure 6-23 IUA2800KPA spectral response curve

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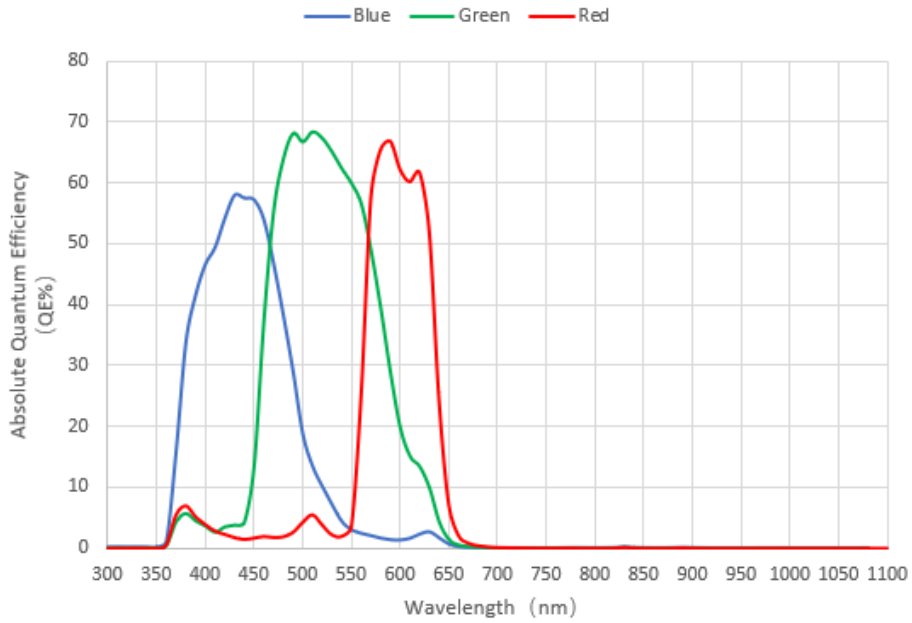


Figure 6-24 IUA2800KPA absolute quantum efficiency

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6.16 IUA5000KMA

Table 6-16 IUA5000KMA camera specifications

Parameter \ Model	IUA5000KMA
	5.0M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX264LLR
Pixel size	3.45 μm × 3.45 μm
Sensor size	2/3"
Frame rate	35.6fps@2448 × 2048 87.6fps@1224 × 1024
Conversion Gain	2.71 (e-/ADU)
Readout Noise	2.12 (e-)
Full Well	11.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15us-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.05W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	219g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

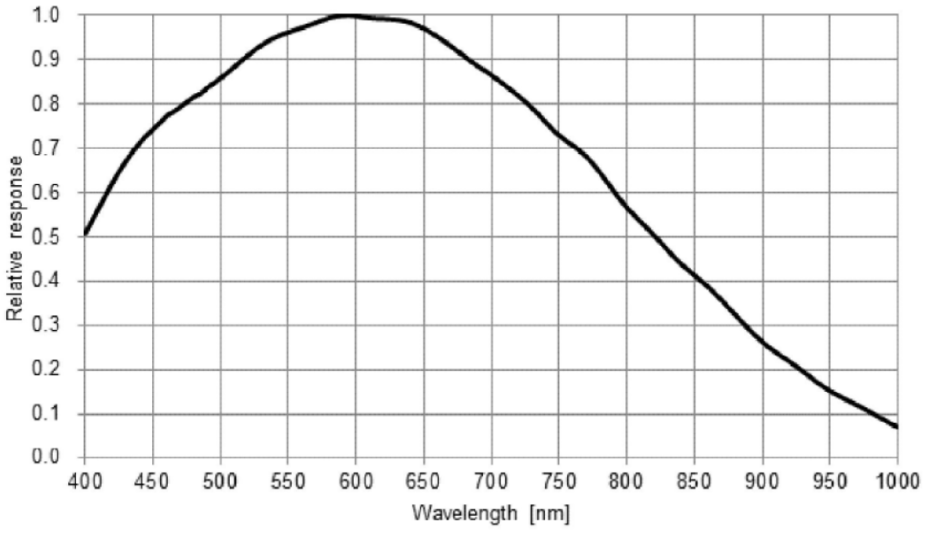


Figure 6-25 IUA5000KMA spectral response curve

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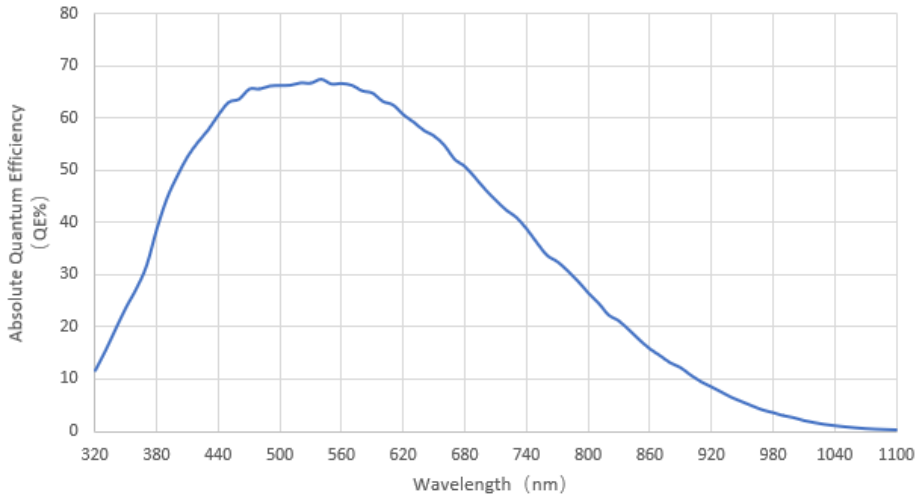


Figure 6-26 IUA5000KMA absolute quantum efficiency

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6.17 IUA5000KPA

Table 6-17 IUA5000KPA camera specifications

Parameter \ Model	IUA5000KPA
	5.0M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX264LQR
Pixel size	3.45 μm × 3.45 μm
Sensor size	2/3"
Frame rate	35.6fps@2448 × 2048 87.6fps@1224 × 1024
Conversion Gain	2.68 (e-/ADU)
Readout Noise	2.11 (e-)
Full Well	11.0 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	15us-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.05W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	219g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

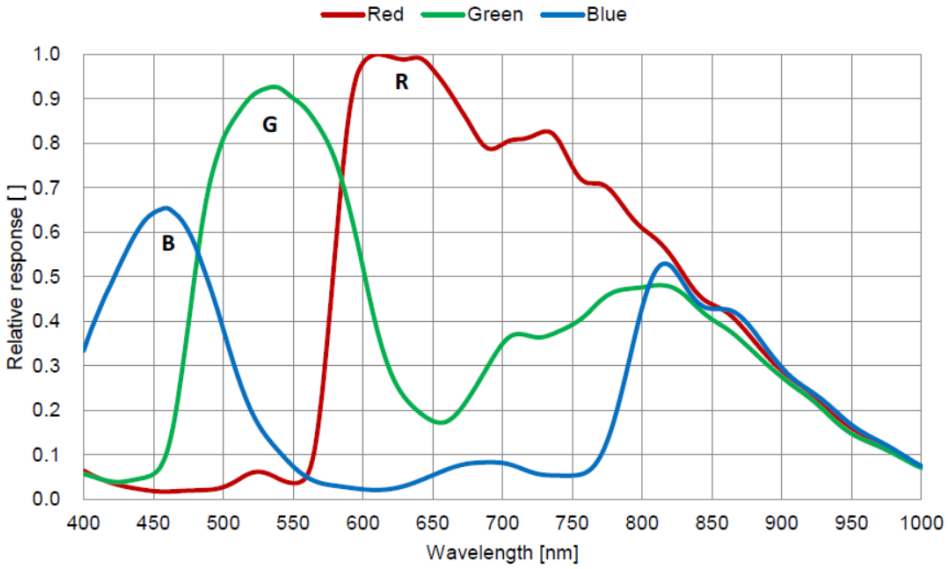


Figure 6-27 IUA5000KPA spectral response curve

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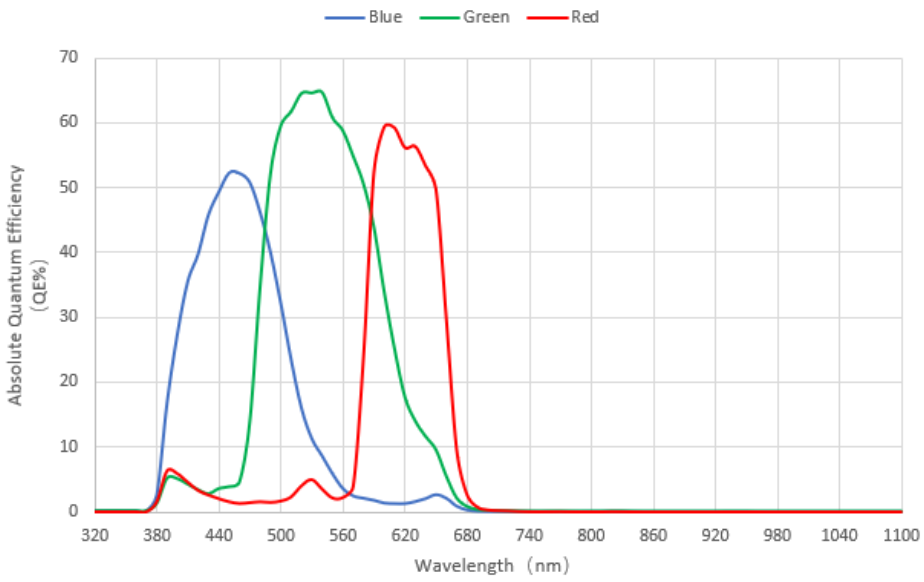


Figure 6-28 IUA5000KPA absolute quantum efficiency

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6.18 IUA5100KMA

Table 6-18 IUA5100KMA camera specifications

Parameter \ Model	IUA5100KMA
	5.1M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX547-AAMJ-C
Pixel size	2.74 μm × 2.74 μm
Sensor size	1/1.8"
Frame rate	63fps@2448 × 2048 208.4fps@1224 × 1024
Conversion Gain	2.35 (e-/ADU)
Readout Noise	2.19 (e-)
Full Well	9.6 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	40.0dB
Sensitivity	2252mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30us-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.95W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

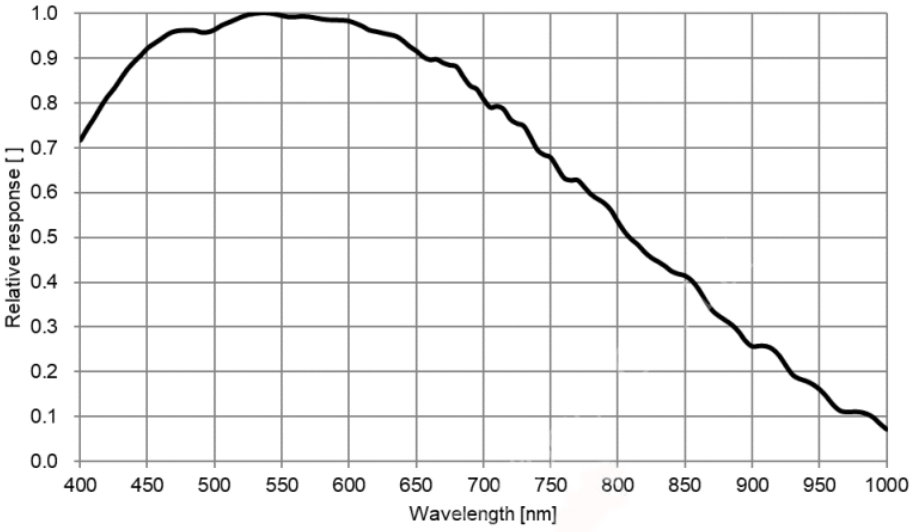


Figure 6-29 IUA5100KMA spectral response curve

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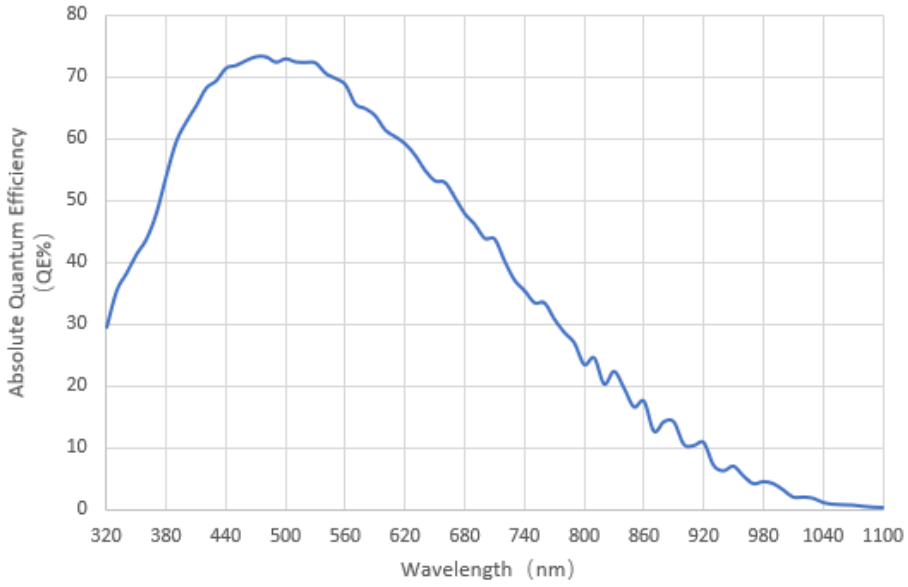


Figure 6-30 IUA5100KMA absolute quantum efficiency

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6.19 IUA5100KPA

Table 6-19 IUA5100KPA camera specifications

Parameter \ Model	IUA5100KPA
	5.1M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX547-AAQJ-C
Pixel size	2.74 μm × 2.74 μm
Sensor size	1/1.8"
Frame rate	63fps@2448 × 2048 159fps@1224 × 1024
Conversion Gain	2.44 (e-/ADU)
Readout Noise	2.22 (e-)
Full Well	10.0 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	40.0dB
Sensitivity	1337mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30us-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.8W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

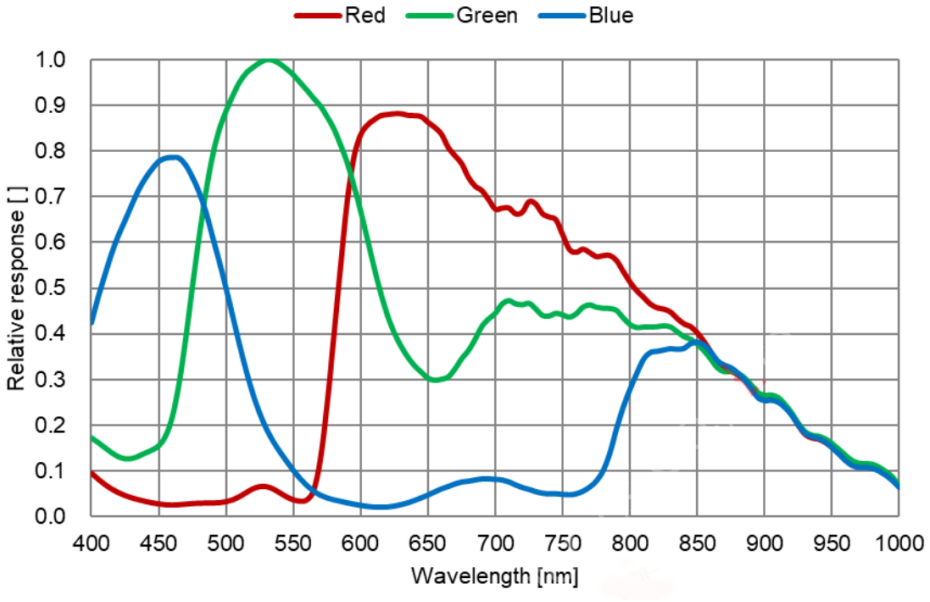


Figure 6-31 IUA5100KPA spectral response curve

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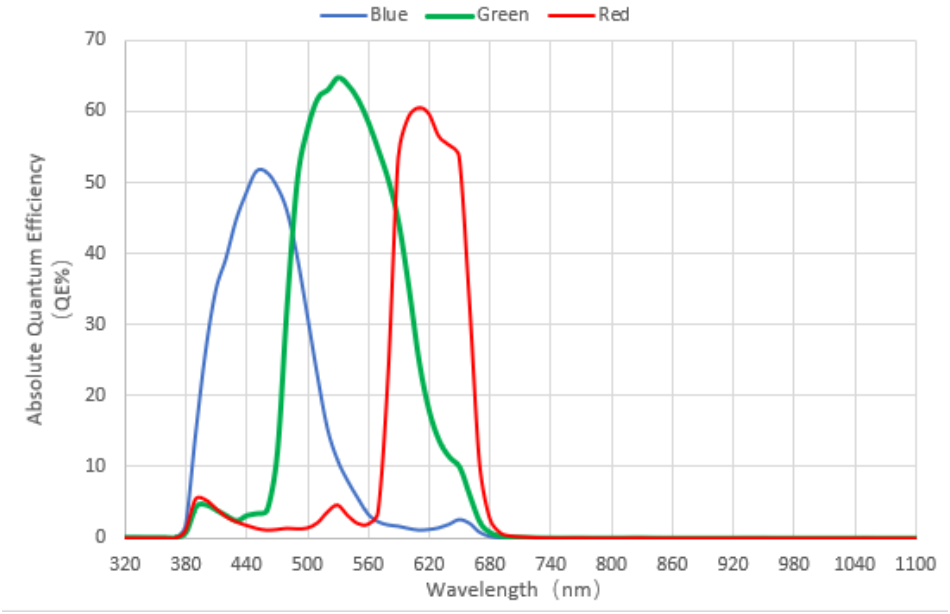


Figure 6-32 IUA5100KPA absolute quantum efficiency

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6.20 IUA6300KMA

Table 6-20 IUA6300KMA camera specifications

Parameter \ Model	IUA6300KMA
	6.3M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX178LLJ
Pixel size	2.4 μm x 2.4 μm
Sensor size	1/1.8"
Frame rate	59.9fps@3072 x 2048 59.9fps@1536 x 1024
Conversion Gain	2.54 (e-/ADU)
Readout Noise	2.14 (e-)
Full Well	10.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.2dB
Sensitivity	760mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	17μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.05W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	217g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

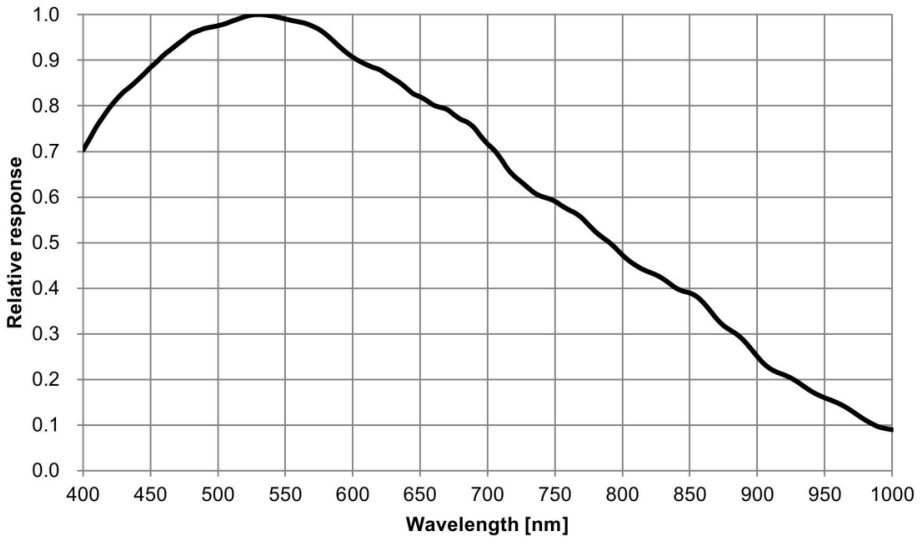


Figure 6-33 IUA6300KMA spectral response curve

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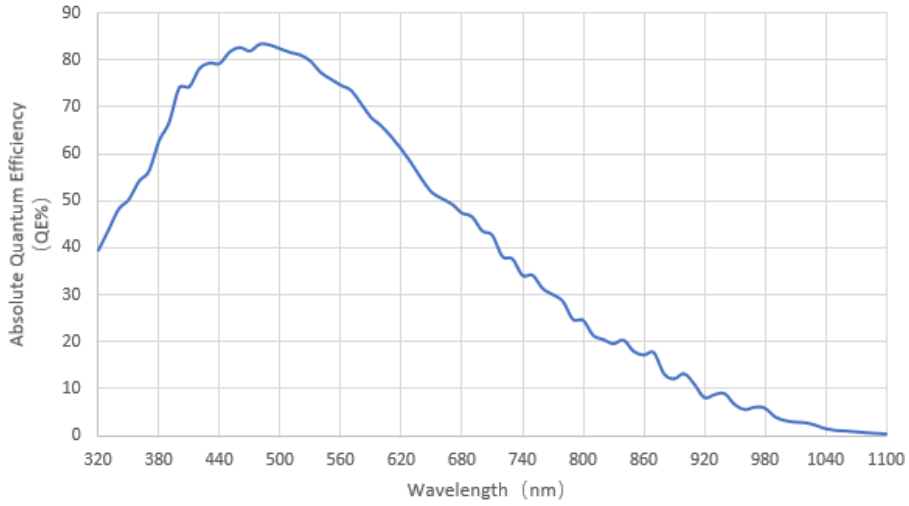


Figure 6-34 IUA6300KMA absolute quantum efficiency

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6.21 IUA6300KPA

Table 6-21 IUA6300KPA camera specifications

Parameter \ Model	IUA6300KPA
	6.3M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX178LQJ
Pixel size	2.4 μm x 2.4 μm
Sensor size	1/1.8"
Frame rate	59.8fps@3072 x 2048 59.5fps@1536 x 1024
Conversion Gain	2.64 (e-/ADU)
Readout Noise	2.12 (e-)
Full Well	10.8 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.3dB
Sensitivity	425mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	17μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.05W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	217g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

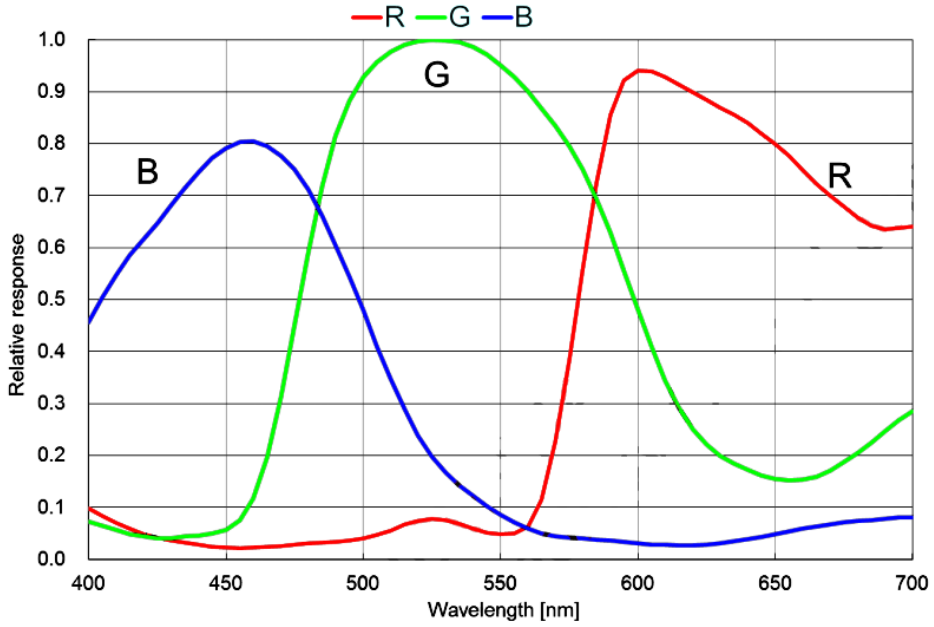


Figure 6-35 IUA6300KPA spectral response curve

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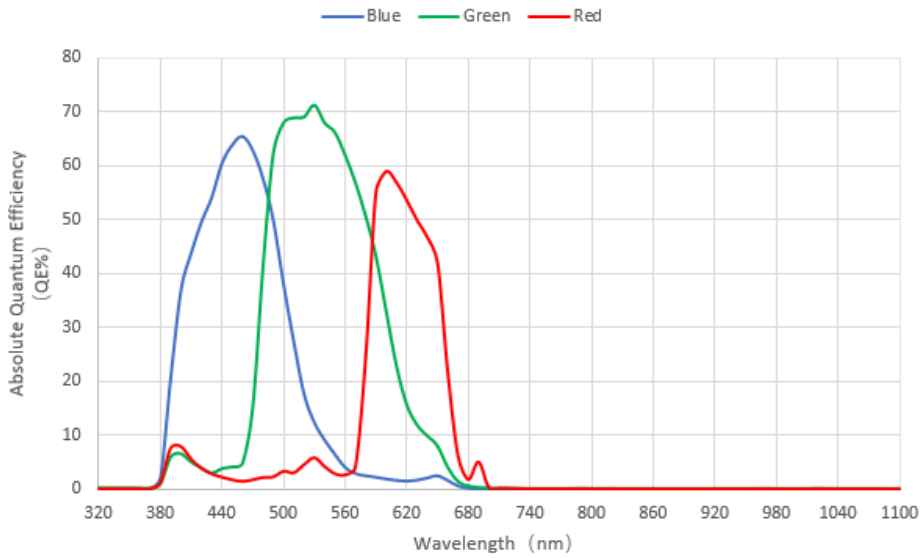


Figure 6-36 IUA6300KPA absolute quantum efficiency

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6.22 IUA7100KMA

Table 6-22 IUA7100KMA camera specifications

Parameter \ Model	IUA7100KMA
	7.1M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX428LLJ
Pixel size	4.5 μm x4.5 μm
Sensor size	1.1"
Frame rate	51.3fps@3200 x 2200 133.8fps@1584 x 1100
Conversion Gain	2.77 (e-/ADU)
Readout Noise	2.63 (e-)
Full Well	11.3 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.6dB
Peak QE	78%@575nm
Sensitivity	3354mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.75W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

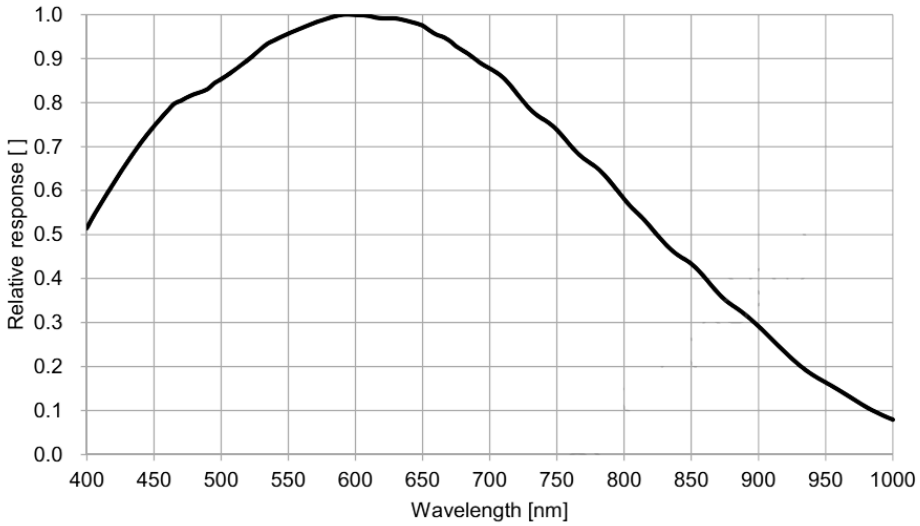


Figure 6-37 IUA7100KMA spectral response curve

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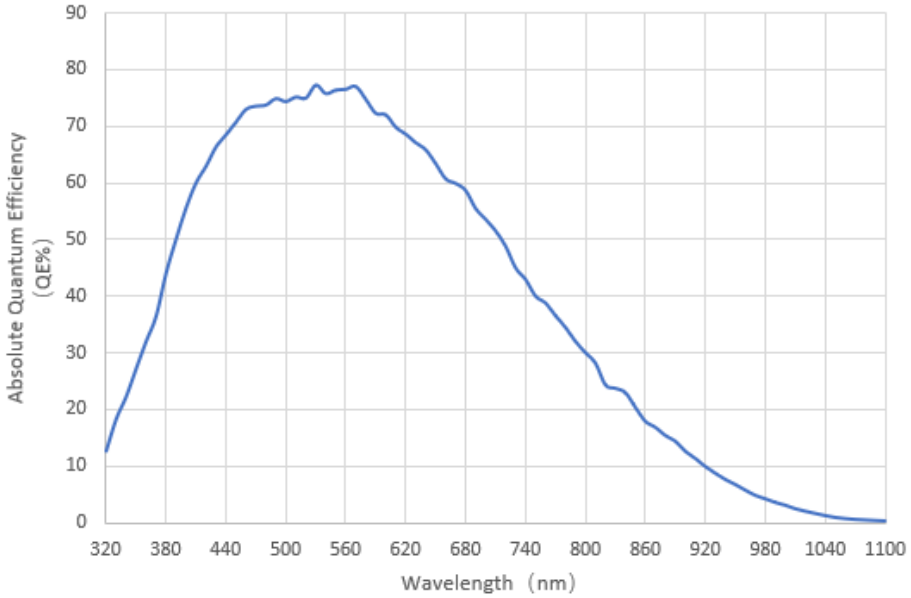


Figure 6-38 IUA7100KMA absolute quantum efficiency

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6.23 IUA7100KPA

Table 6-23 IUA7100KPA camera specifications

Parameter \ Model	IUA7100KPA
	7.1M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX428LQJ
Pixel size	4.5 μm x 4.5 μm
Sensor size	1.1"
Frame rate	51.4fps@3200 x 2200 133.8fps@1584 x 1100
Conversion Gain	2.74 (e-/ADU)
Readout Noise	2.54 (e-)
Full Well	11.2 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Sensitivity	2058mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	6μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.75W
Temperature	Working temperature -10~50℃, storage temperature 30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

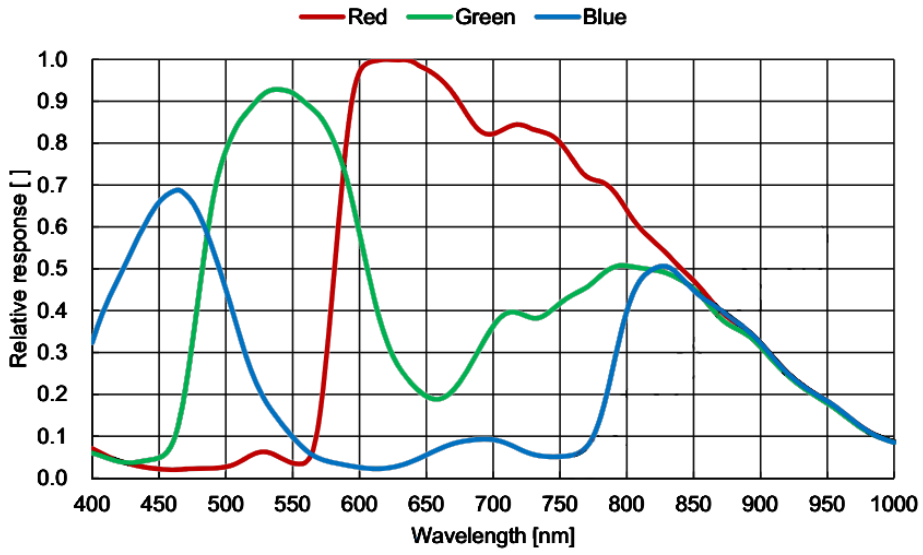


Figure 6-39 IUA7100KPA spectral response curve

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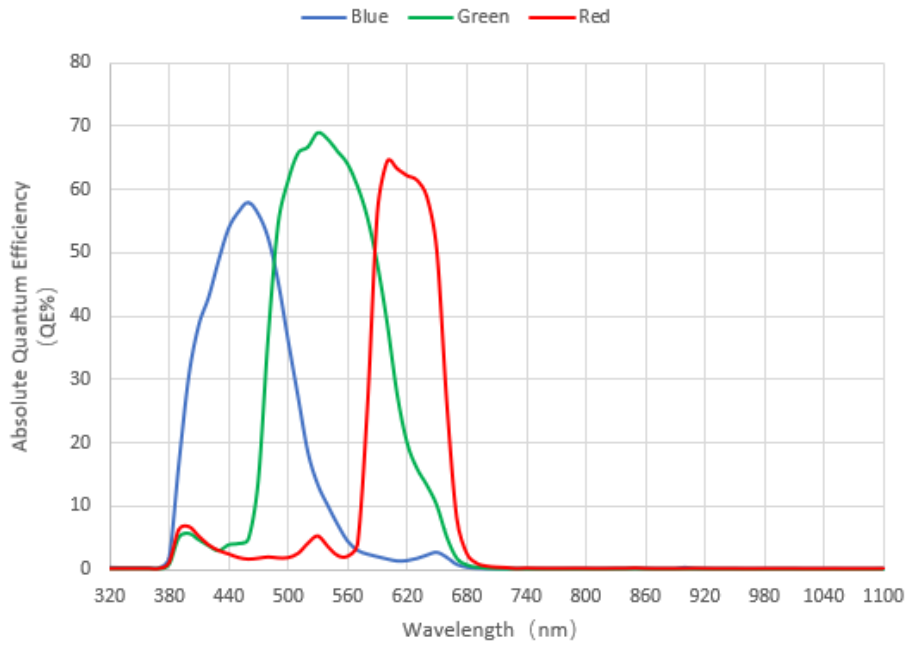


Figure 6-40 IUA7100KPA absolute quantum efficiency

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6.24 IUA8000KMB

Table 6-24 IUA8000KMB camera specifications

Parameter \ Model	IUA8000KMB
	8M pixel 2/3 "CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX546-AAMJ
Pixel size	2.74 μm x 2.74 μm
Sensor size	2/3”
Frame rate	41fps@2832×2832 118fps@1408×1408
Dynamic range	70dB
Signal-to-Noise ratio	40dB
Sensitivity	2649mV
Dark current	0.25mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global Shutter
Binning	Hardware2×2; Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<3.5W
Temperature	Working temperature -10~50℃; Storage temperature -30~70℃
Humidity	20% - 80% No condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

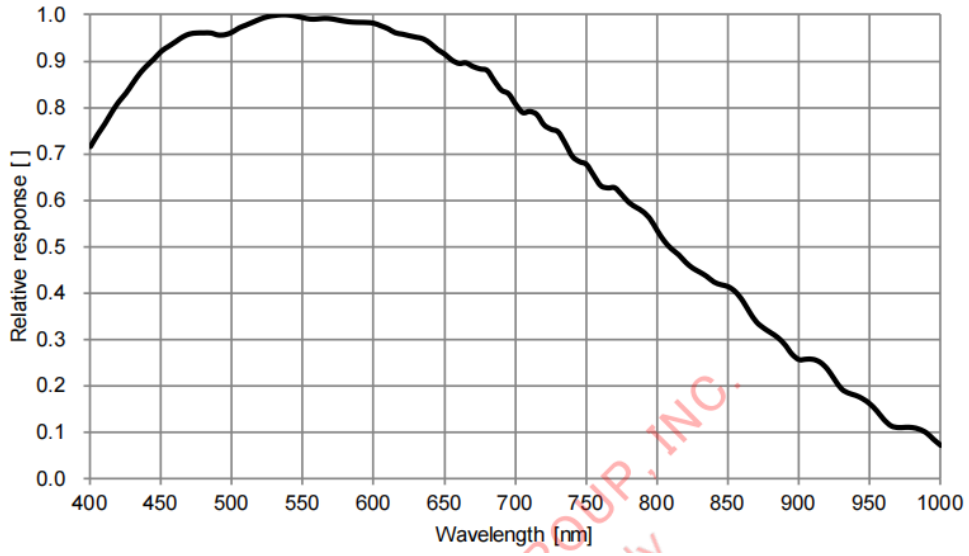


Figure 6-41 IUA8000KMB spectral response curve

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6.25 IUA8000KPB

Table 6-25 IUA8000KPB camera specifications

Parameter \ Model	IUA8000KPB
	8M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX546-AAQJ
Pixel size	2.74 μm x 2.74 μm
Sensor size	2/3"
Frame rate	41fps@2832×2832 118fps@1408×1408
Dynamic range	70dB
Signal-to-Noise ratio	40dB
Sensitivity	1574mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One opto-coupling isolated input, one opto-coupling isolated output, two non-isolated input/output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<3.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

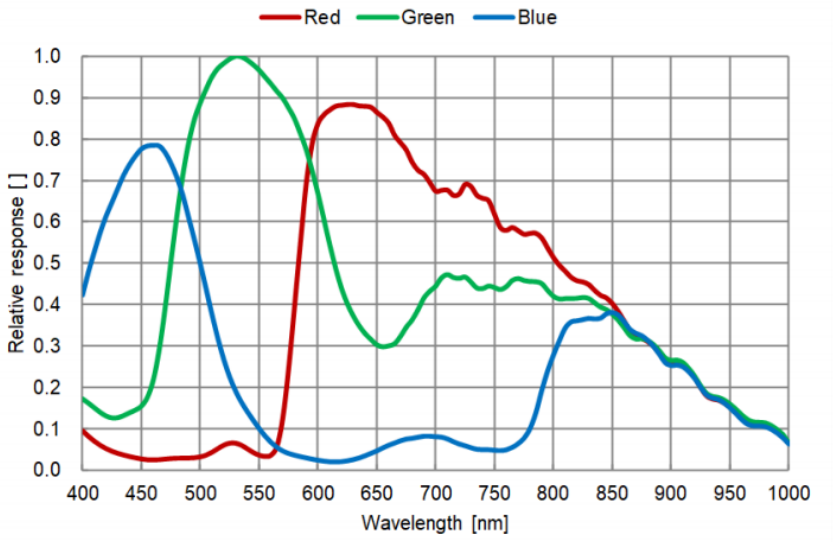


Figure 6-42 IUA8000KPB spectral response curve

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6.26 IUA8300KPA

Table 6-26 IUA8300KPA camera specifications

Parameter \ Model	IUA8300KPA
	8.3M pixels 1/1.2" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX485LQJ-C
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/1.2"
Frame rate	45fps@3840 x2160 70fps@1920 x 1080
Conversion Gain	HCG: 1.21 / LCG: 3.28 (e-/ADU)
Readout Noise	HCG: 1.15 / LCG: 3.0 (e-)
Full Well	HCG: 4.97 / LCG: 13.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	HCG: 37.0 / LCG: 41.3 (dB)
Sensitivity	2188mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.65W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

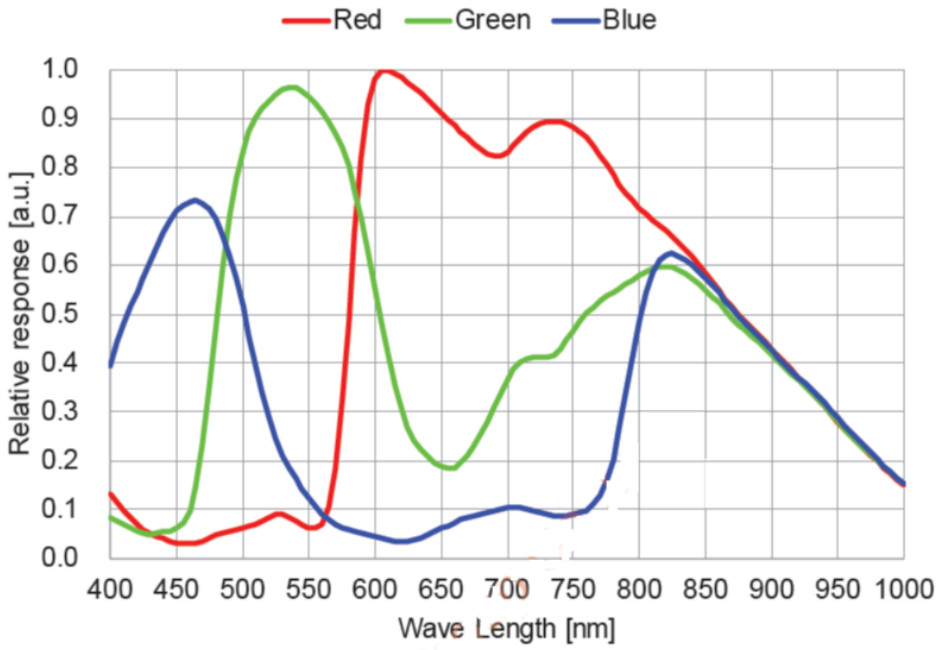


Figure 6-43 IUA8300KPA spectral response curve

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6.27 IUA8300KMB

Table 6-27 IUA8300KMB camera specifications

Parameter \ Model	IUA8300KMB
	8.3M pixels 1/1.2" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX585-AAMJ1-C
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/1.2"
Frame rate	45fps@3840 x2160 70fps@1920 x 1080
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	19120mV
Dark current	0.13mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<2.3W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

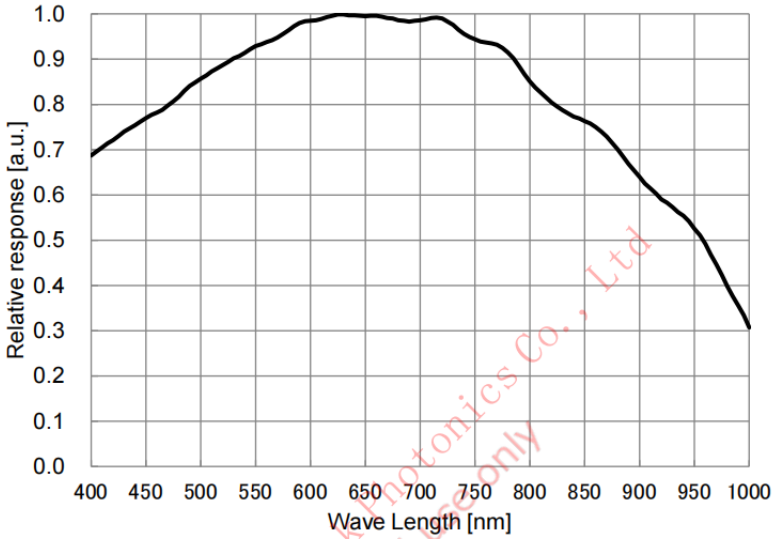


Figure 6-44 IUA8300KMB spectral response curve

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6.28 IUA8300KPB

Table 6-28 IUA8300KPB camera specifications

Parameter \ Model	IUA8300KPB
	8.3M pixels 1/1.2" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX585-AAQJ1-C
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/1.2"
Frame rate	45fps@3840 x2160 70fps@1920 x 1080
Conversion Gain	HCG: 1.01 / LCG: 9.29 (e-/ADU)
Readout Noise	HCG: 0.37 / LCG: 2.68 (e-)
Full Well	HCG: 4.12 / LCG: 38.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	HCG: 36.2 / LCG: 45.8 (dB)
Sensitivity	5970mV
Dark current	0.13mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<2.3W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

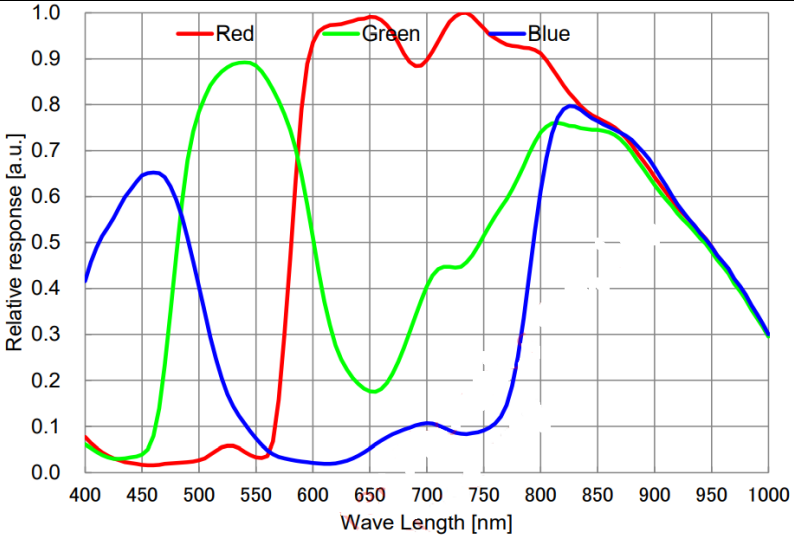


Figure 6-45 IUA8300KPB spectral response curve

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6.29 IUA8300KME

Table 6-29 IUA8300KME camera specifications

Parameter \ Model	IUA8300KME
	8.3M pixels 1/1.8" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX678-AAMR1-C
Pixel size	2.0 μm x 2.0 μm
Sensor size	1/1.8"
Frame rate	45fps@3840 x2160 70fps@1920 x 1080
Conversion Gain	HCG: 0.65 / LCG: 2.87 (e-/ADU)
Readout Noise	HCG: 1.16 / LCG: 4.17 (e-)
Full Well	HCG: 2.67/ LCG: 11.76 (ke-)
Dynamic range	HCG: 67.08 / LCG: 68.76 (dB)
Signal-to-Noise ratio	HCG: 34.27 / LCG: 40.7 (dB)
Sensitivity	11288mV
Dark current	0.15mV
Gain range	1-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.75W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

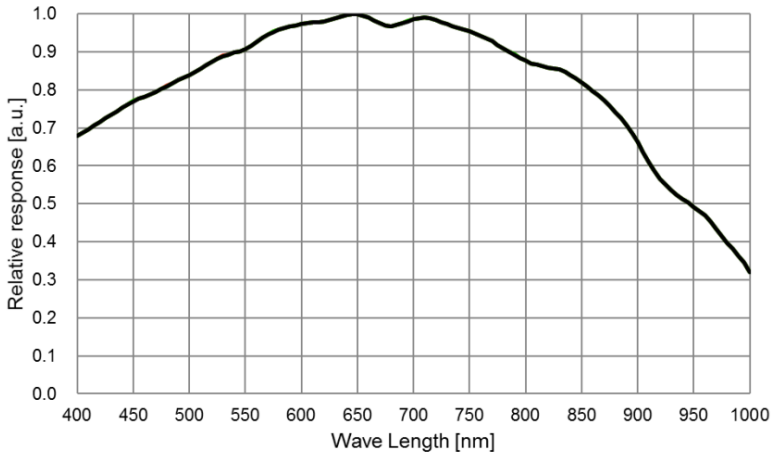


Figure 6-46 IUA8300KME spectral response curve

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6.30 IUA8300KPE

Table 6-30 IUA8300KPE camera specifications

Parameter \ Model	IUA8300KPE
	8.3M pixels 1/1.8" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX678-AAQR1-C
Pixel size	2.0 μm x 2.0 μm
Sensor size	1/1.8"
Frame rate	45fps@3840 x2160 70fps@1920 x 1080
Conversion Gain	HCG: 0.65 / LCG: 2.87 (e-/ADU)
Readout Noise	HCG: 1.16 / LCG: 4.17 (e-)
Full Well	HCG: 2.67/ LCG: 11.76 (ke-)
Dynamic range	HCG: 67.08 / LCG: 68.76 (dB)
Signal-to-Noise ratio	HCG: 34.27 / LCG: 40.7 (dB)
Sensitivity	3541mV
Dark current	0.15mV
Gain range	1-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.75W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

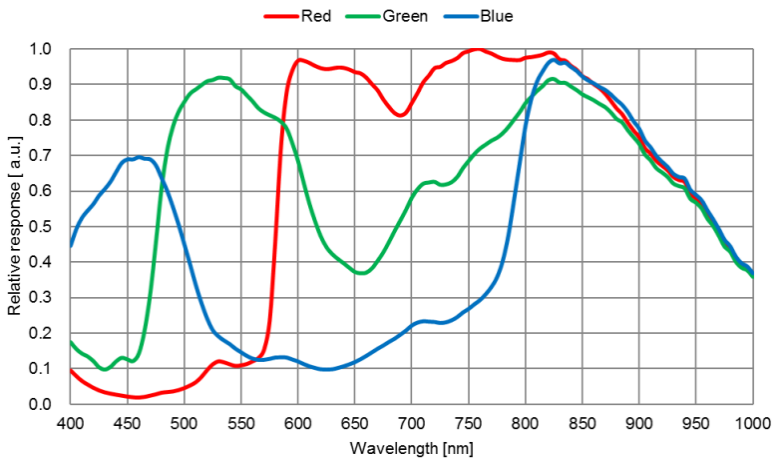


Figure 6-47 IUA8300KPE spectral response curve

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6.31 IUA10300KPA

Table 6-31 IUA10300KPA camera specifications

Parameter \ Model	IUA10300KPA
	10.3M pixels 4/3" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX294CJK
Pixel size	4.63 μm ×4.63 μm
Sensor size	4/3"
Frame rate	30.0@4128×2808 38.5 @4096×2160 59.8@2048×1080 87.2@1360×720
Conversion Gain	0.84e-/ADU (HCG) 4.01e-/ADU (LCG)
Readout Noise	0.26e- (HCG) 2.23e- (LCG)
Full Well	13.77ke- (HCG) 65.66ke- (LCG)
Dynamic range	84dB (HCG) 84dB (LCG)
Signal-to-Noise ratio	41.39dB (HCG) 48.17dB (LCG)
Sensitivity	419mv with 1/30s
Dark current	0.12mV
Gain range	1x-50x
Exposure time	150μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4; Hardware 2×2
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.8W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

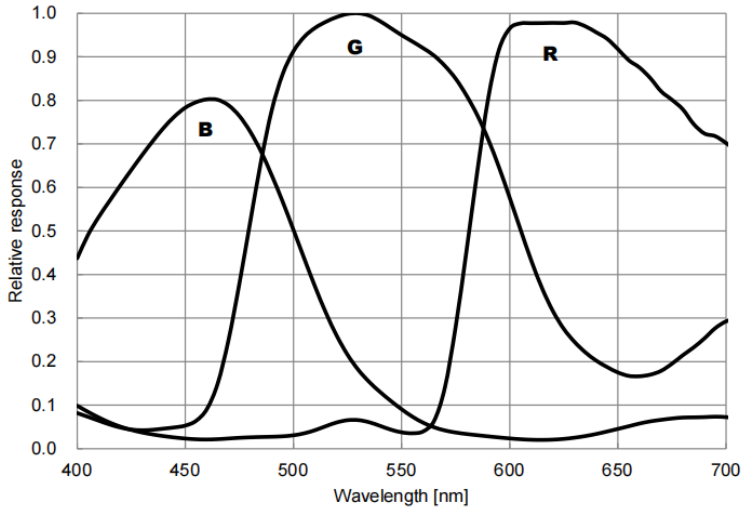


Figure 6-48 IUA10300KPA spectral response curve

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6.32 IUA12000KPA

Table 6-32 IUA12000KPA camera specifications

Parameter \ Model	IUA12000KPA
	12.0M pixels 1/1.6" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX676-AACR1-C
Pixel size	2.0 μm x 2.0 μm
Sensor size	1/1.6"
Frame rate	27fps@3536 x3536 60fps@1768 x 1768
Conversion Gain	HCG: 1.07 / LCG: 2.86(e-/ADU)
Readout Noise	HCG: 1.48 / LCG: 3.82(e-)
Full Well	HCG: 4.4 / LCG: 11.7(ke-)
Dynamic range	HCG: 69.24 / LCG: 69.8(dB)
Signal-to-Noise ratio	HCG: 36.4 / LCG: 40.7(dB)
Sensitivity	3637mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.2W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

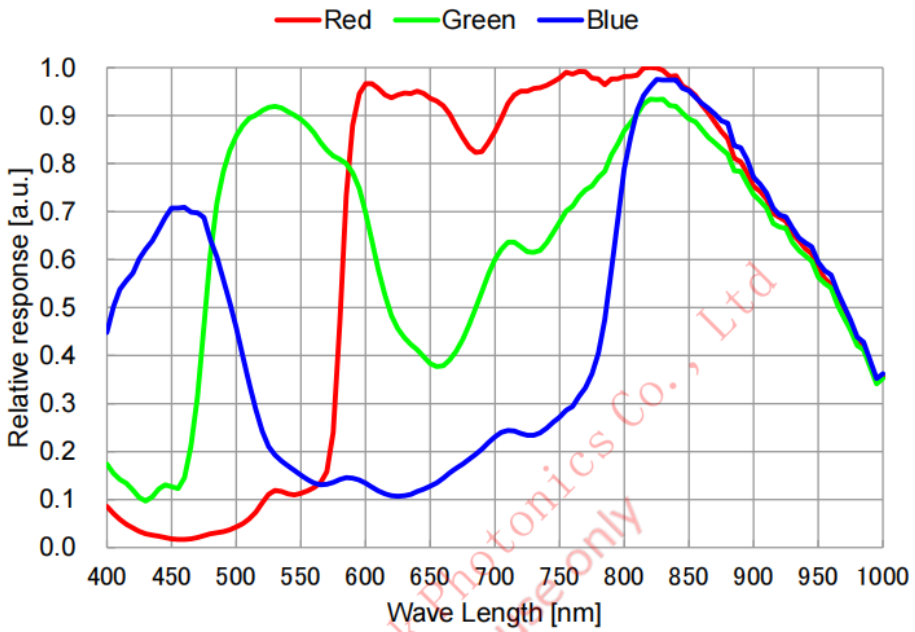


Figure 6-49 IUA12000KPA spectral response curve

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6.33 IUA12300KMA

Table 6-33 IUA12300KMA camera specifications

Parameter \ Model	IUA12300KMA
	12.3M pixels 1/1.1" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX545-AAMJ-C
Pixel size	2.74 μm x 2.74 μm
Sensor size	1/1.1"
Frame rate	28.2fps@4096 x3000 100.9fps@2048 x 1500 100.9fps@1024 x 750
Conversion Gain	2.35 (e-/ADU)
Readout Noise	2.19 (e-)
Full Well	9.6 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40 (dB)
Sensitivity	2252mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

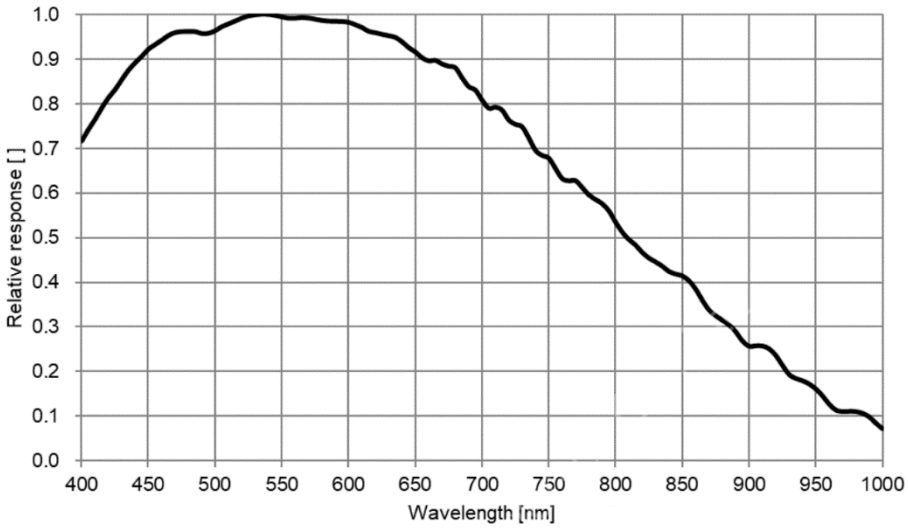


Figure 6-50 IUA12300KMA spectral response curve

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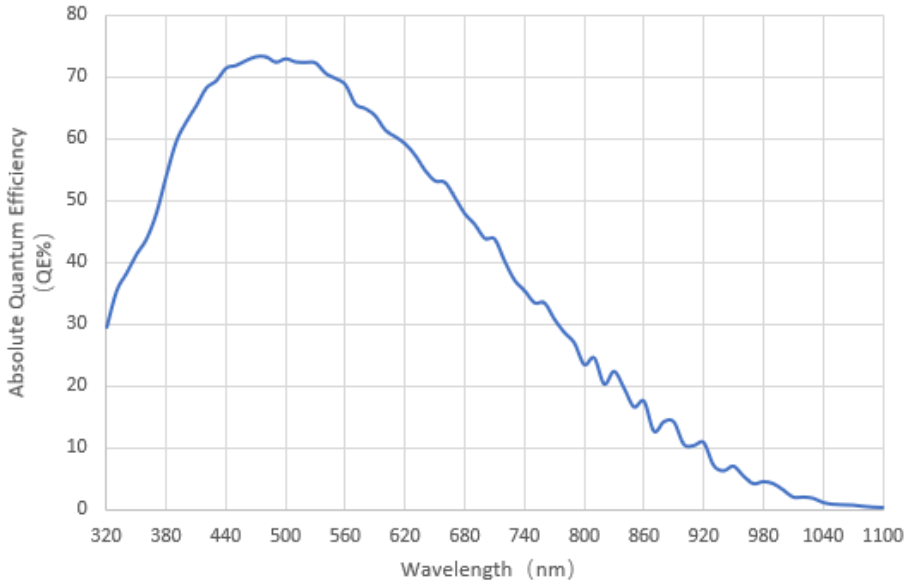


Figure 6-51 IUA12300KMA absolute quantum efficiency

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6.34 IUA12300KPA

Table 6-34 IUA12300KPA camera specifications

Parameter \ Model	IUA12300KPA
	12.3M pixels 1/1.1" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX545-AAQJ-C
Pixel size	2.74 μm x 2.74 μm
Sensor size	1/1.1"
Frame rate	28.2fps@4096 x 3000 100.9fps@2048 x 1500 100.9fps@1024 x 750
Conversion Gain	2.44 (e-/ADU)
Readout Noise	2.22 (e-)
Full Well	10.0 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40 (dB)
Sensitivity	1337mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.8W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

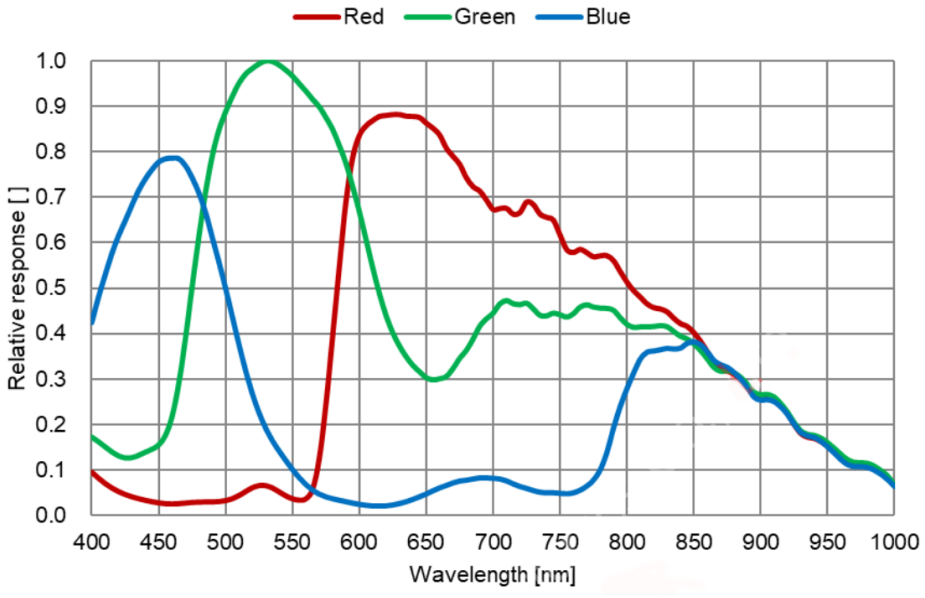


Figure 6-52 IUA12300KPA spectral response curve

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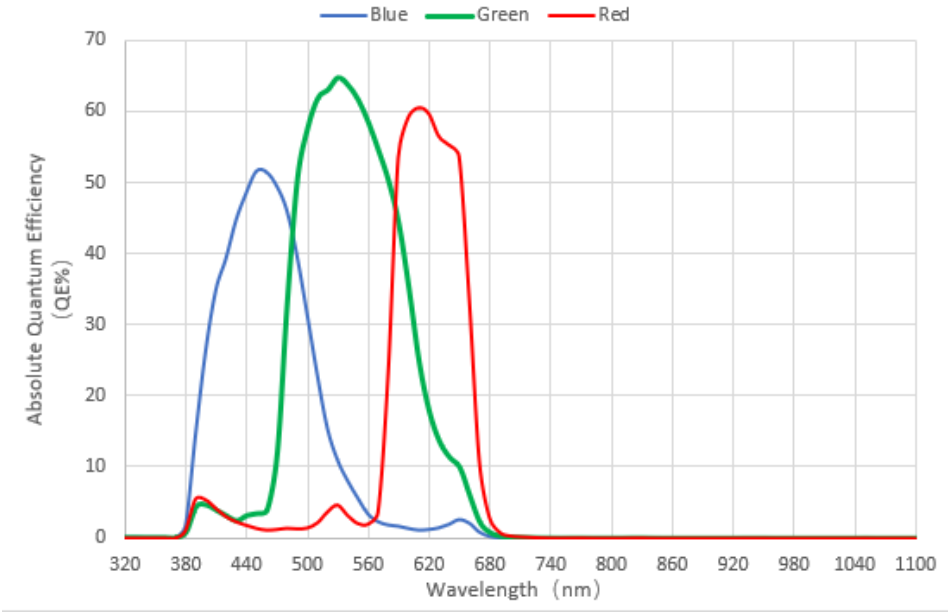


Figure 6-53 IUA12300KPA absolute quantum efficiency

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6.35 IUA12300KMB

Table 6-35 IUA12300KMB camera specifications

Parameter \ Model	IUA12300KMB
	12.3M pixels 1.1" CMOS USB3.0industrial camera
Camera Parameters	
Sensor model	Sony IMX304LLR-C
Pixel size	3.45 μm x 3.45 μm
Sensor size	1.1"
Frame rate	23.4fps@4096 x3000 46.3fps@2048 x 1500 46.3fps@1024 x 750
Conversion Gain	2.71 (e-/ADU)
Readout Noise	2.12 (e-)
Full Well	11.1 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.5dB
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.25W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

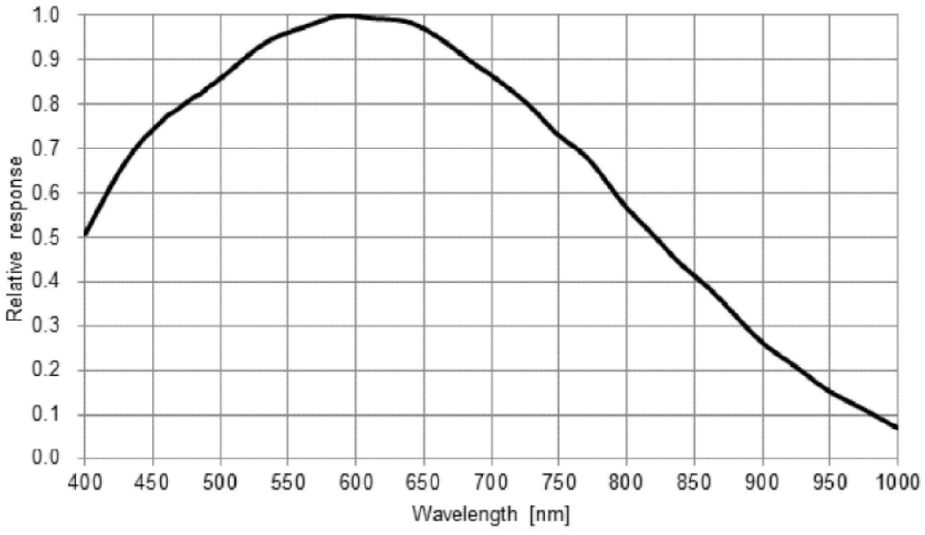


Figure 6-54 IUA12300KMB spectral response curve

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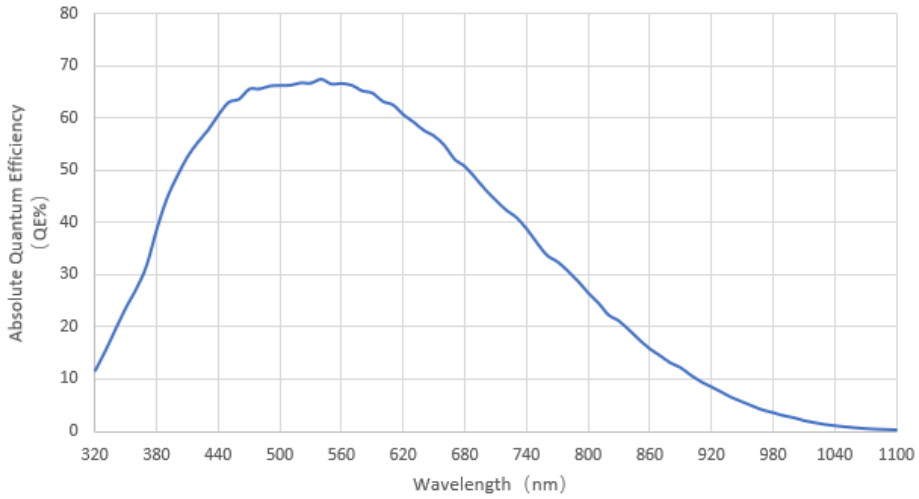


Figure 6-55 IUA12300KMB absolute quantum efficiency

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6.36 IUA12300KPB

Table 6-36 IUA12300KPB camera specifications

Parameter \ Model	IUA12300KPB
	12.3M pixels 1.1" CMOS USB3.0industrial camera
Camera Parameters Parameters	
Sensor model	Sony IMX304LQR-C
Pixel size	3.45 μm x 3.45 μm
Sensor size	1.1"
Frame rate	23.4fps@4096 x 3000 46.3fps@2048 x 1500 46.3fps@1024 x 750
Conversion Gain	2.68 (e-/ADU)
Readout Noise	2.11 (e-)
Full Well	11.0 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.8W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

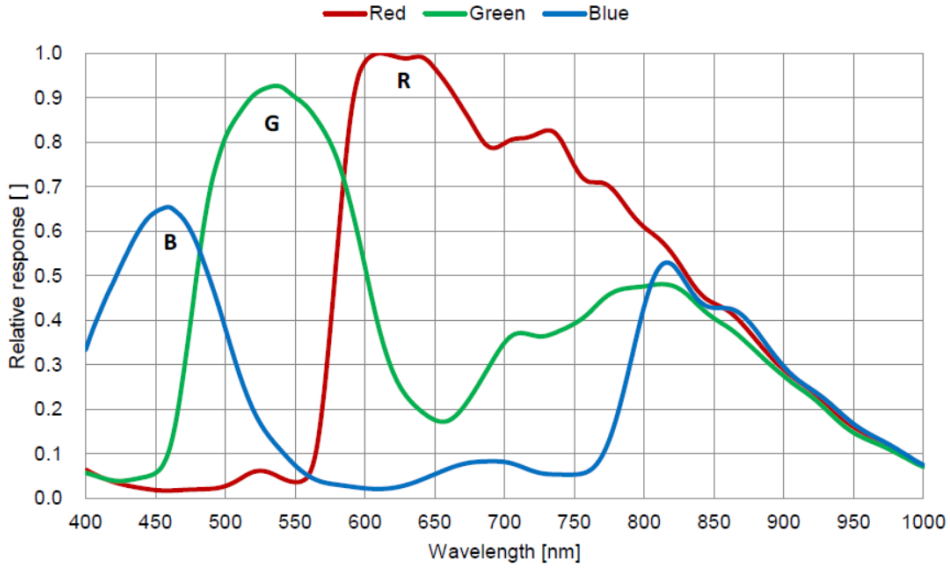


Figure 6-56 IUA12300KPB spectral response curve

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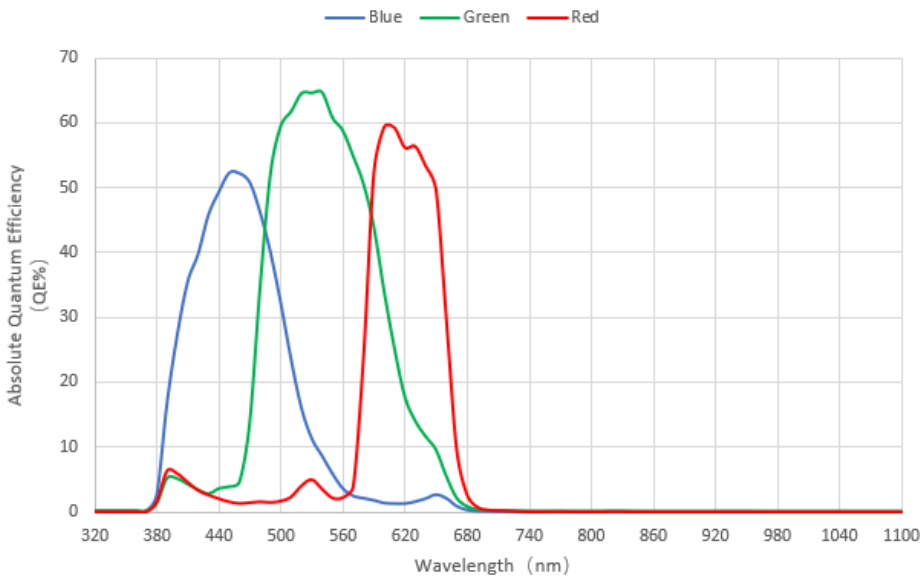


Figure 6-57 IUA12300KPB absolute quantum efficiency

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6.37 IUA20000KMA

Table 6-37 IUA20000KMA camera specifications

Parameter \ Model	IUA20000KMA
	20.0M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX183CLK
Pixel size	2.4 μm x 2.4 μm
Sensor size	1"
Frame rate	19.0fps@5440 x 3684 49.9fps@2736 x 1824 59.5fps@1824 x 1216
Conversion Gain	3.78 (e-/ADU)
Readout Noise	3.25 (e-)
Full Well	15.5 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	41.9dB
Sensitivity	777mV
Dark current	0.2mV
Gain range	1x-50x
Exposure time	53μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	3.0W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

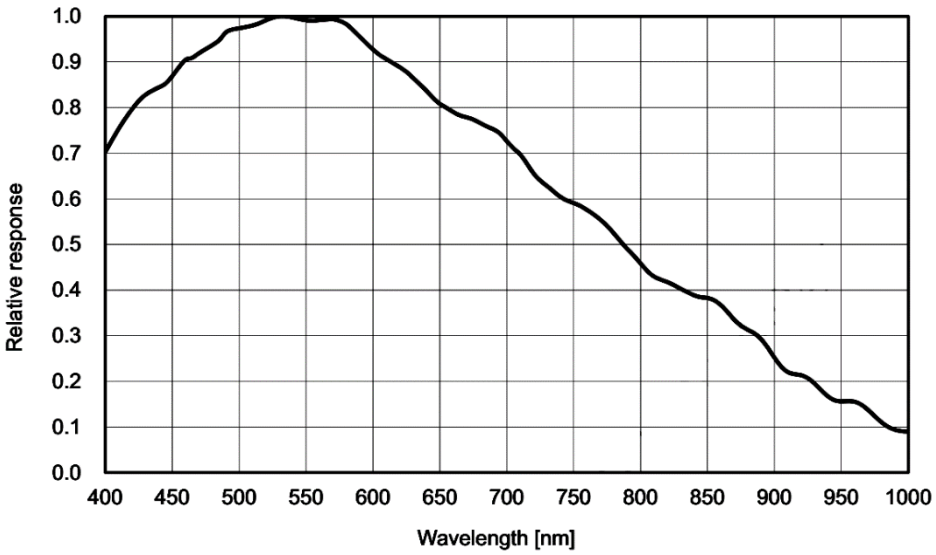


Figure 6-58 IUA20000KMA spectral response curve

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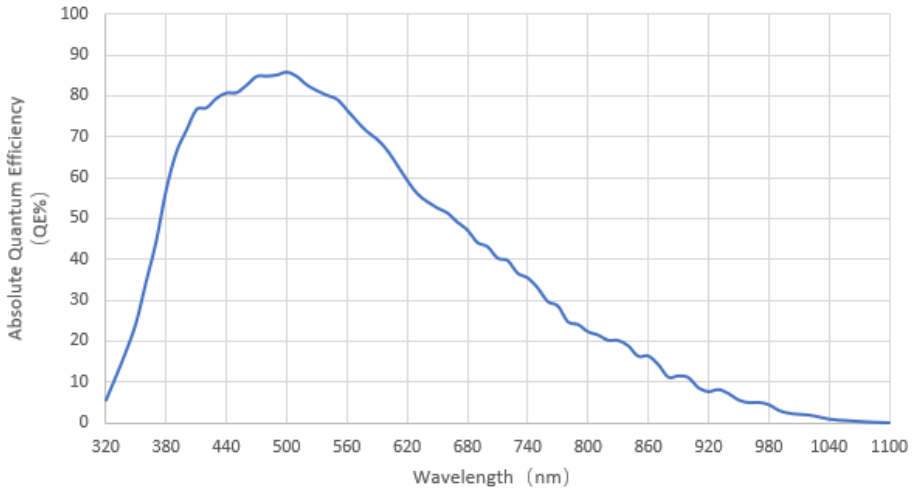


Figure 6-59 IUA20000KMA absolute quantum efficiency

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6.38 IUA20000KPA

Table 6-38 IUA20000KPA camera specifications

Parameter \ Model	IUA20000KPA
	20.0M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX183CQK
Pixel size	2.4 μm x 2.4 μm
Sensor size	1"
Frame rate	19.0fps@5440 x 3684 48.8fps@2736 x 1824 59.4fps@1824 x 1216
Conversion Gain	3.73 (e-/ADU)
Readout Noise	3.14 (e-)
Full Well	15.3 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	41.8dB
Sensitivity	462mV
Dark current	0.2mV
Gain range	1x-50x
Exposure time	53μs-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

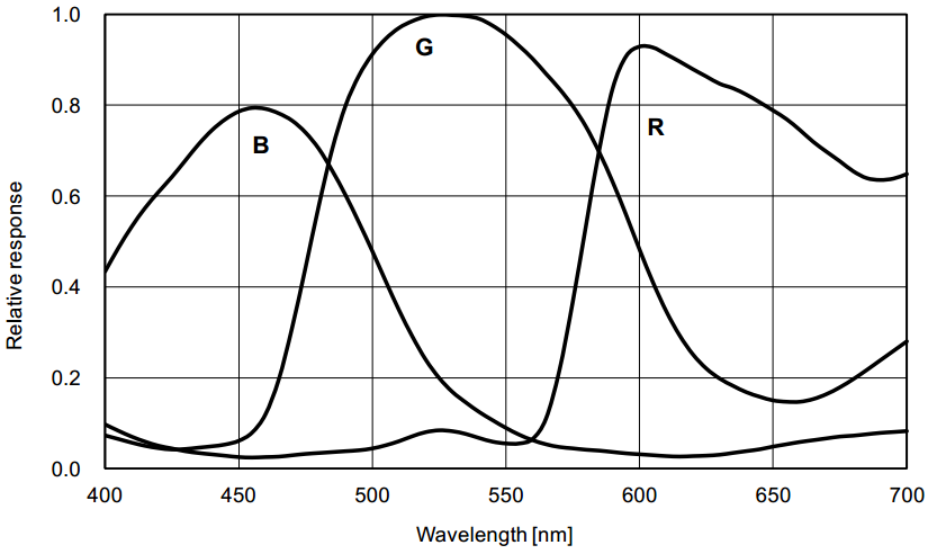


Figure 6-60 IUA20000KPA spectral response curve

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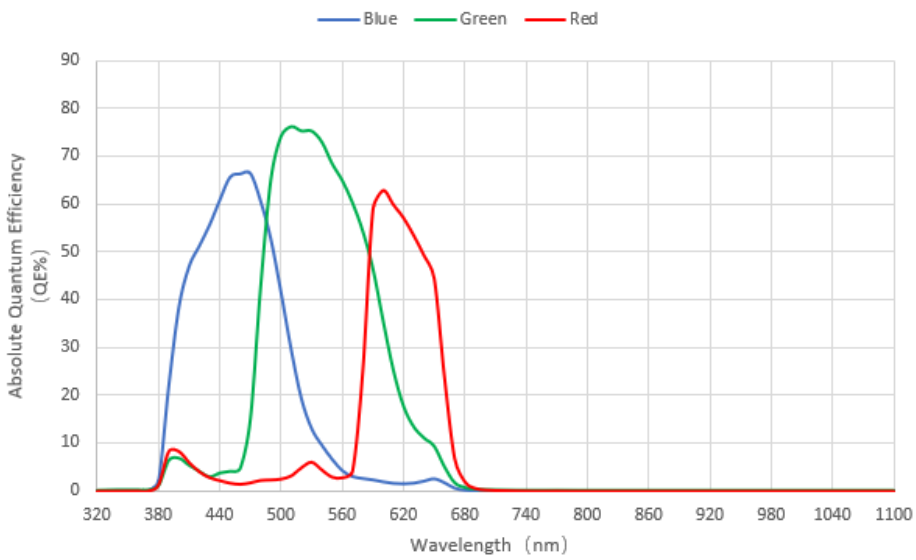


Figure 6-61 IUA20000KPA absolute quantum efficiency

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6.39 IUA20400KMA

Table 6-39 IUA20400KMA camera specifications

Parameter \ Model	IUA20400KMA
	20.4M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX541-AAMJ-C
Pixel size	2.74 μm x2.74 μm
Sensor size	1.1"
Frame rate	17.5fps@4496 × 4496 64.4fps@2240 × 2240 64.4fps@1120 × 1120
Conversion Gain	2.35 (e-/ADU)
Readout Noise	2.19 (e-)
Full Well	9.6 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	40.0dB
Peak QE	86%@520nm
Sensitivity	2649mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Hardware 2×2, 4×4; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.6W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

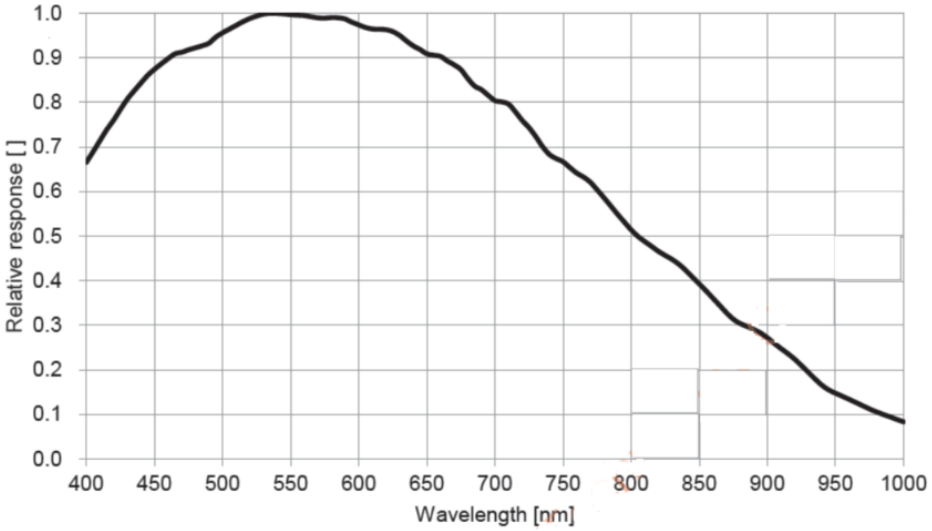


Figure 6-62 IUA20400KMA spectral response curve

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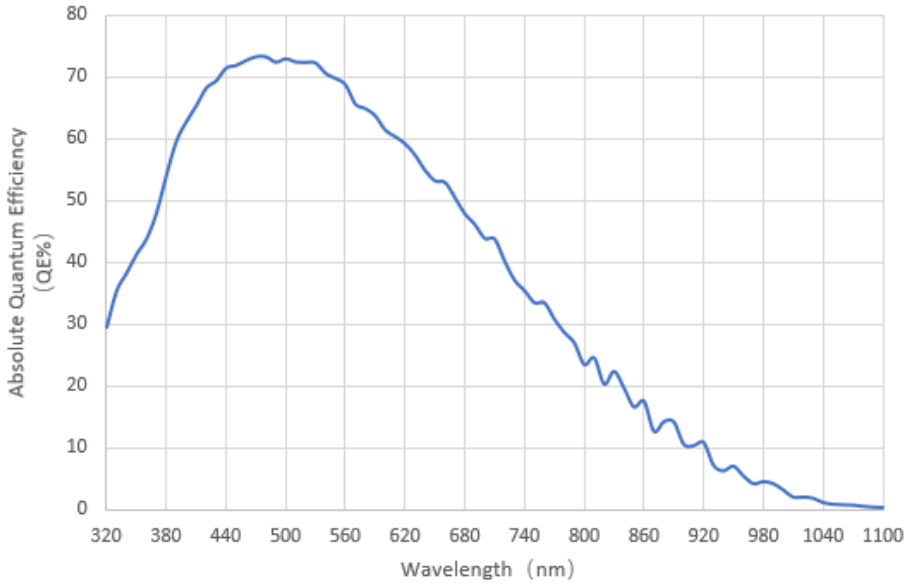


Figure 6-63 IUA20400KMA absolute quantum efficiency

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6.40 IUA20400KPA

Table 6-40 IUA20400KPA camera specifications

Parameter \ Model	IUA20400KPA
	20.4M pixels 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX541-AAQJ-C
Pixel size	2.74 μm x2.74 μm
Sensor size	1.1"
Frame rate	17.5fps@4496 × 4496 64.4fps@2240 × 2240 64.4fps@1120 × 1120
Conversion Gain	2.44 (e-/ADU)
Readout Noise	2.22 (e-)
Full Well	10.0 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	40.0dB
Sensitivity	1574mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Hardware 2×2, 4×4; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.6W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

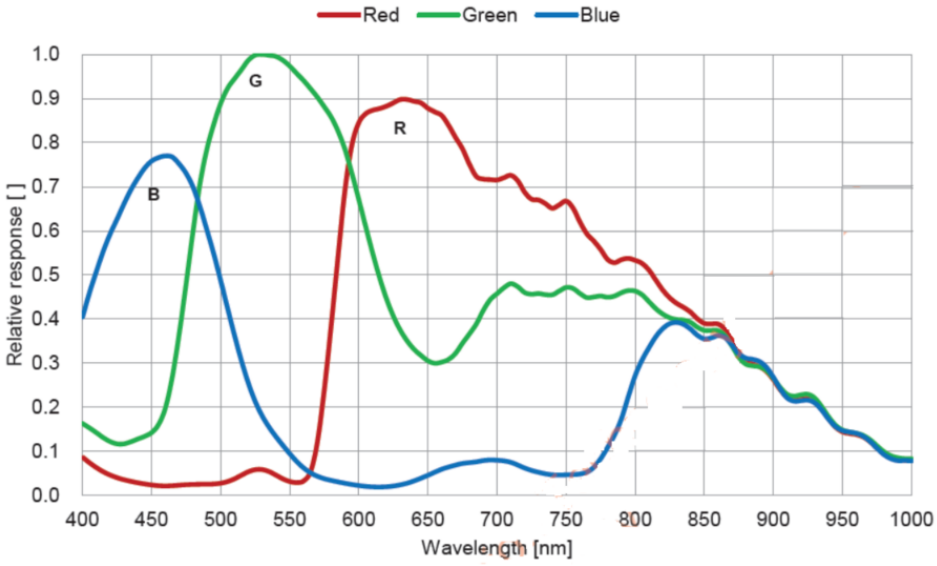


Figure 6-64 IUA20400KPA spectral response curve

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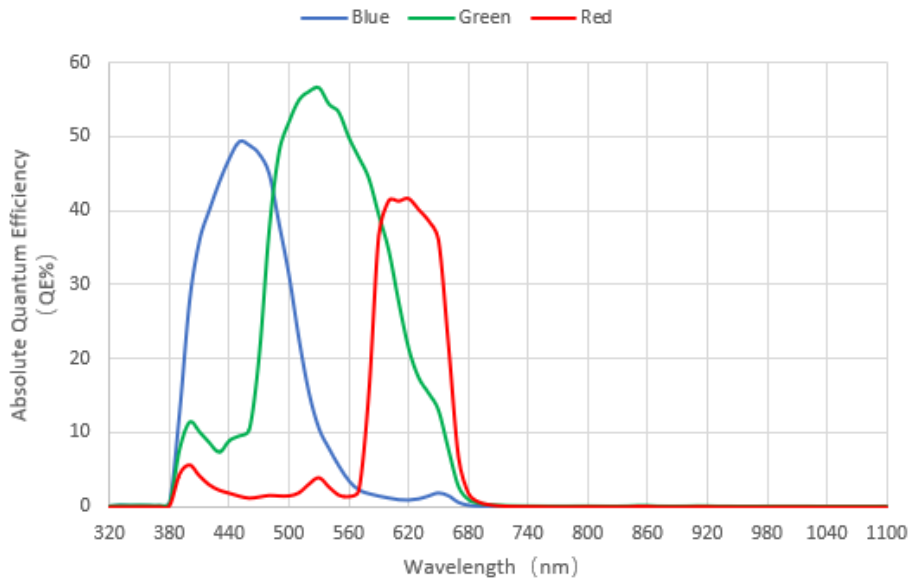


Figure 6-65 IUA20400KPA absolute quantum efficiency

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6.41 IUA24500KMA

Table 6-41 IUA24500KMA camera specifications

Parameter \ Model	IUA24500KMA
	24.5M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX540-AAMJ-C
Pixel size	2.74 μm x2.74 μm
Sensor size	1.2"
Frame rate	14.7fps@5320×4600 54.3fps@2660×2300
Conversion Gain	2.35 (e-/ADU)
Readout Noise	2.19 (e-)
Full Well	9.6 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	40.0dB
Peak QE	2649mV
Sensitivity	0.15mV
Dark current	1-50x
Gain range	30μs-15sec
Shutter	Global shutter
Binning	Hardware 2×2, 4×4; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.65W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

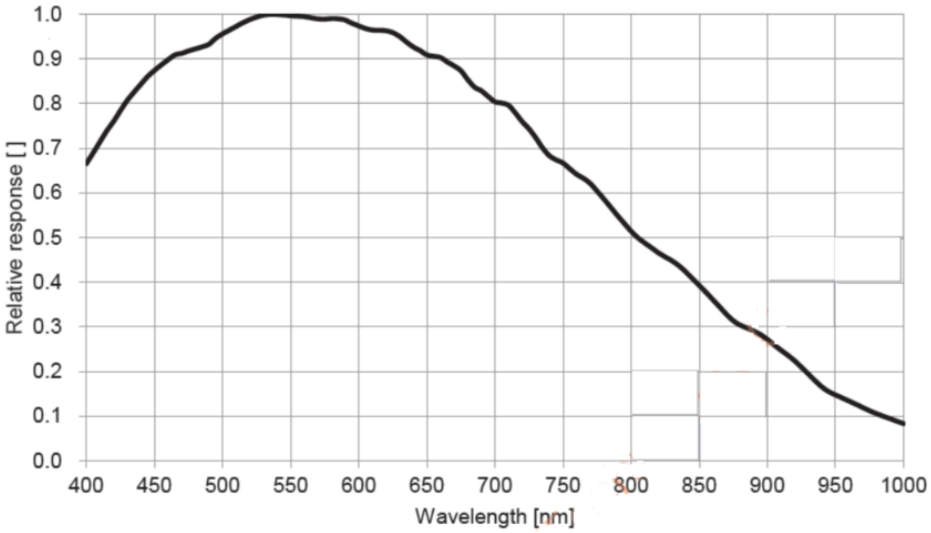


Figure 6-66 IUA24500KMA spectral response curve

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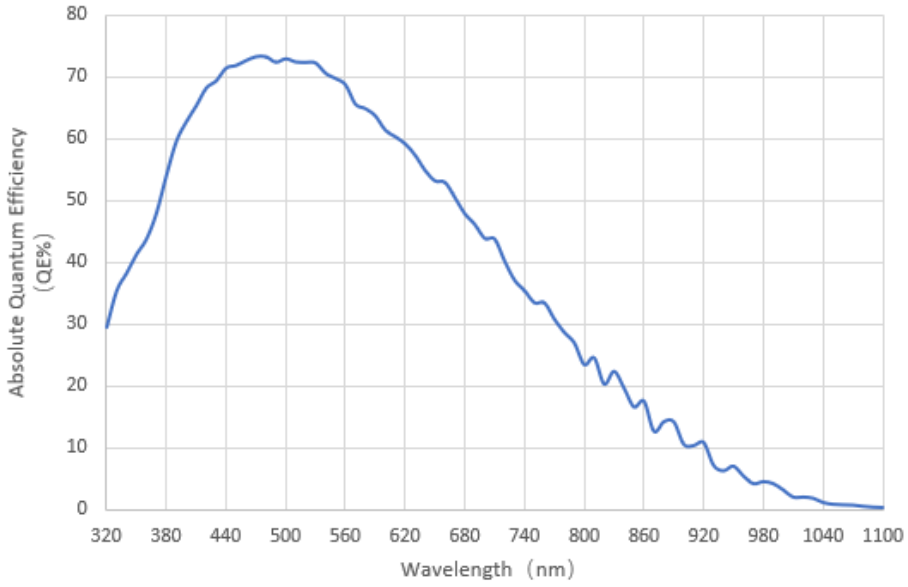


Figure 6-67 IUA24500KMA absolute quantum efficiency

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6.42 IUA24500KPA

Table 6-42 IUA24500KPA camera specifications

Parameter \ Model	IUA24500KPA
	24.5M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX540-AAQJ-C
Pixel size	2.74 μm x2.74 μm
Sensor size	1.2"
Frame rate	14.7fps@5320×4600 54.3fps@2660×2300
Conversion Gain	2.44 (e-/ADU)
Readout Noise	2.22 (e-)
Full Well	10.0 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	40.0dB
Sensitivity	1574mV
Dark current	0.15mV
Gain range	1-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Hardware 2×2, 4×4; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.65W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

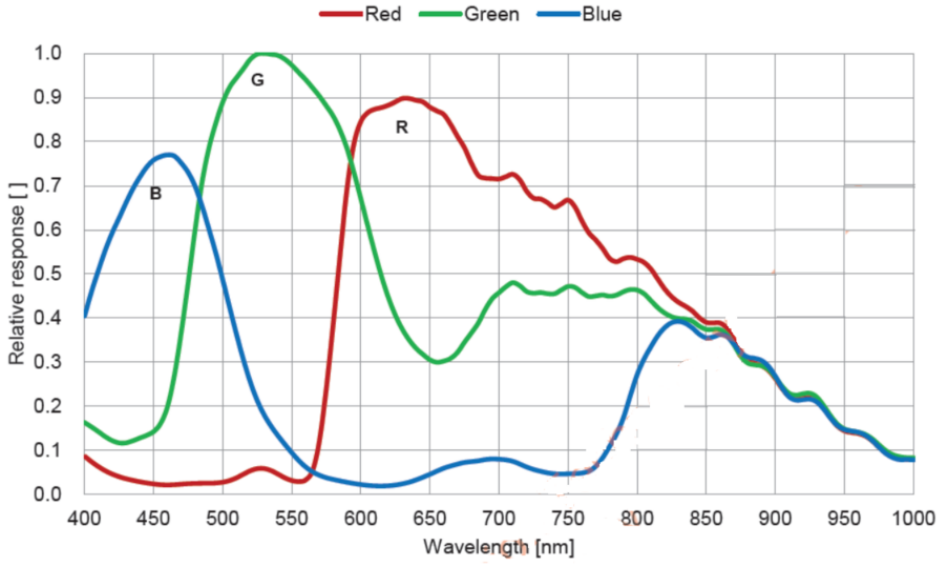


Figure 6-68 IUA24500KPA spectral response curve

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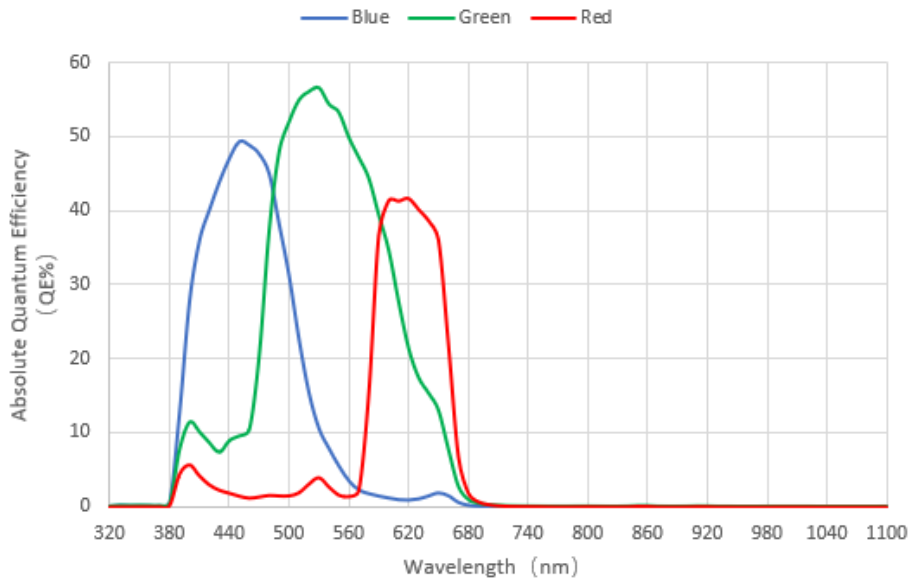


Figure 6-69 IUA24500KPA absolute quantum efficiency

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6.43 IUA25000KMA

Table 6-43 IUA25000KMA camera specifications

Parameter \ Model	IUA25000KMA
	25.0M 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GMAX0505
Pixel size	2.5 μm x 2.5 μm
Sensor size	1.1"
Frame rate	13@5120×5120 27@2560×2560 54@1280×1280
Conversion Gain	1.37 (e-/ADU)
Readout Noise	2.9 (e-)
Full Well	5.59(ke-)
Dynamic range	65.7dB
Signal-to-Noise ratio	37.5dB
Peak QE	65.5%@500nm
Dark current	2.4 e-/pixel/s @ 25 room temperature
Gain range	1x-5x
Exposure time	0.15ms-15sec
Shutter	Global shutter
Binning	Hardware 2×2, 4×4; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.5W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

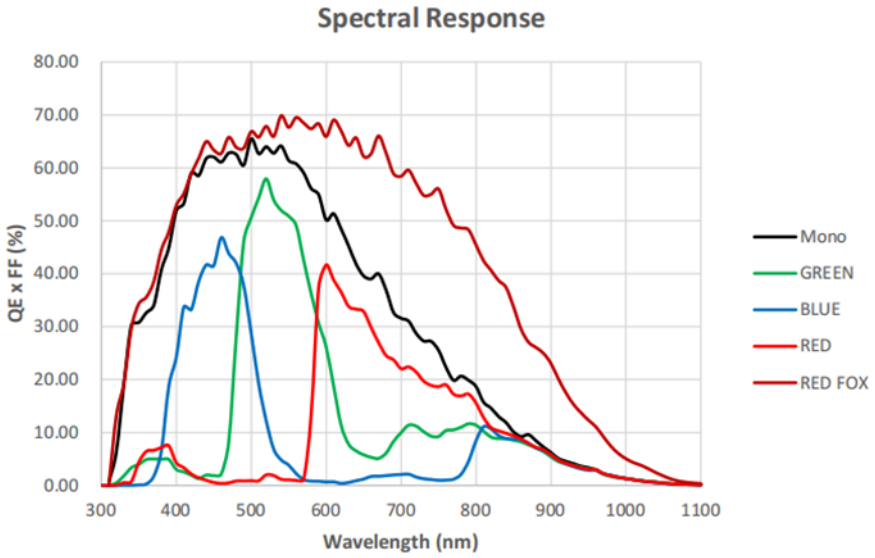


Figure 6-70 IUA25000KMA spectral response curve

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6.44 IUA25000KPA

Table 6-44 IUA25000KPA camera specifications

Parameter \ Model	IUA25000KPA
	25.0M 1.1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GMAX0505
Pixel size	2.5 μm x 2.5 μm
Sensor size	1.1"
Frame rate	13@5120×5120 27@2560×2560 54@1280×1280
Conversion Gain	1.37 (e-/ADU)
Readout Noise	2.9 (e-)
Full Well	5.59(ke-)
Dynamic range	65.7dB
Signal-to-Noise ratio	37.5dB
Peak QE	58%@520nm
Dark current	2.4 e-/pixel/s @ 25 room temperature
Gain range	1x-5x
Exposure time	15us-15sec
Shutter	Global shutter
Binning	Hardware 2×2, 4×4; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data format	8-bit / 12-bit
General specification	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.5W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

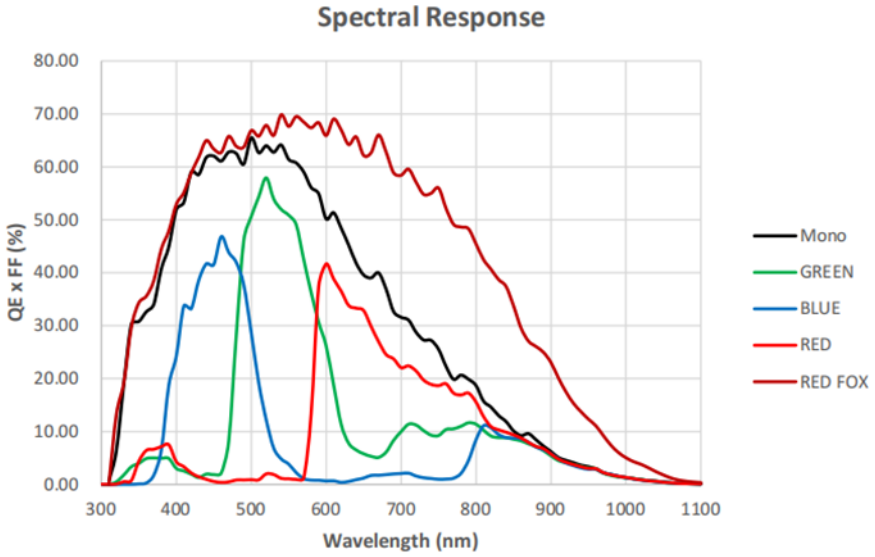


Figure 6-71 IUA25000KPA spectral response curve

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6.45 IUA45000KMA

Table 6-45 IUA45000KMA camera specifications

Parameter \ Model	IUA45000KMA
	45.0M 1.4" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX492LLJ-C
Pixel size	2.315 μm x 2.315μm
Sensor size	1.4"
Frame rate	8.1@8176×5616(3:2) 30.0@4080×2808(3:2) 8.1@7408×5556(4:3) 33.0@3696×2778(4:3) 10.4@8176×4320(17:9) 34.7@4096×2160(17:9) 62.5@2048×1080(17:9) 86.5@1360×720(17:9)
Conversion Gain	0.44e-/ADU (HCG) 4.01e-/ADU (LCG)
Readout Noise	1.59e- (HCG) 7.53e- (LCG)
Full Well	7.22ke- (HCG) 65.77ke- (LCG)
Dynamic range	72.9dB (HCG) 78.54dB (LCG)
Signal-to-Noise ratio	38.59dB (HCG) 48.18dB (LCG)
Sensitivity	701mv with 1/30s
Dark current	0.03mV
Gain range	1x-50x
Exposure time	100us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 4×4; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.05W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

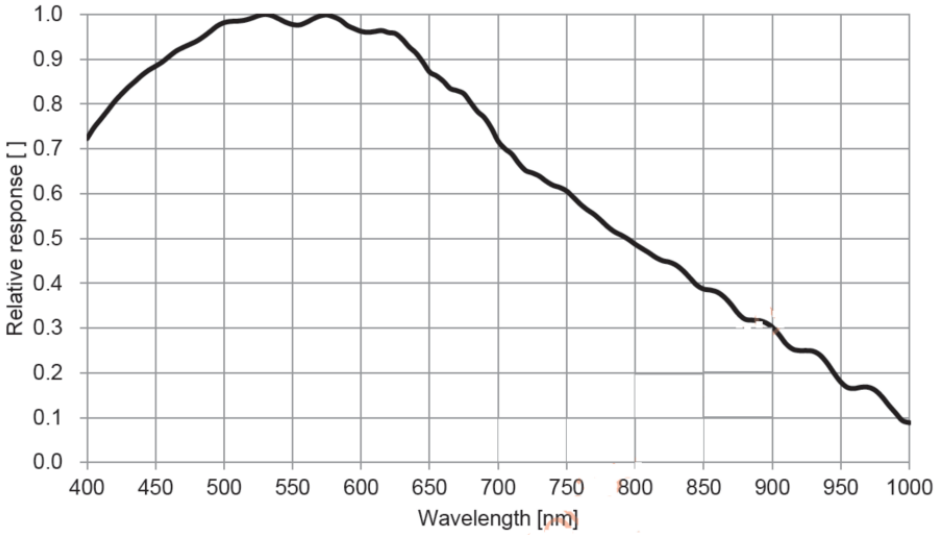


Figure 6-72 IUA45000KMA spectral response curve

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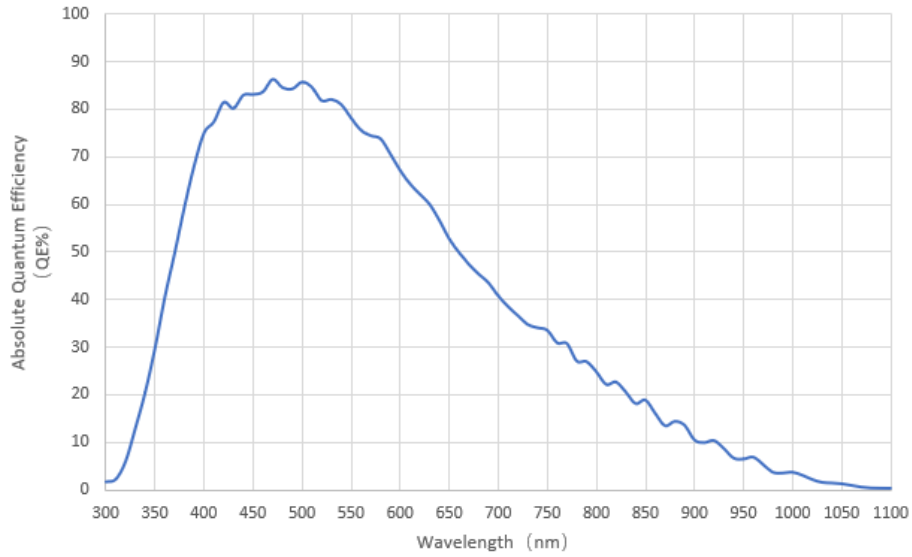


Figure 6-73 IUA45000KMA absolute quantum efficiency

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6.46 IUA45000KPB

Table 6-46 IUA45000KPB camera specifications

Parameter \ Model	IUA45000KPB
	45M pixels 1.4" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX492LQJ-C
Pixel size	2.315 μm x 2.315μm
Sensor size	1.4"
Frame rate	8.1@8176×5616 8.1@7408×5556 10.4@8176×4320
Conversion Gain	3.59 (e-/ADU)
Readout Noise	2.70 (e-)
Full Well	14.7 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	41.7dB
Sensitivity	107mV
Dark current	0.03mV
Gain range	1x-50x
Exposure time	100μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4; Hardware 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.05W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	214g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

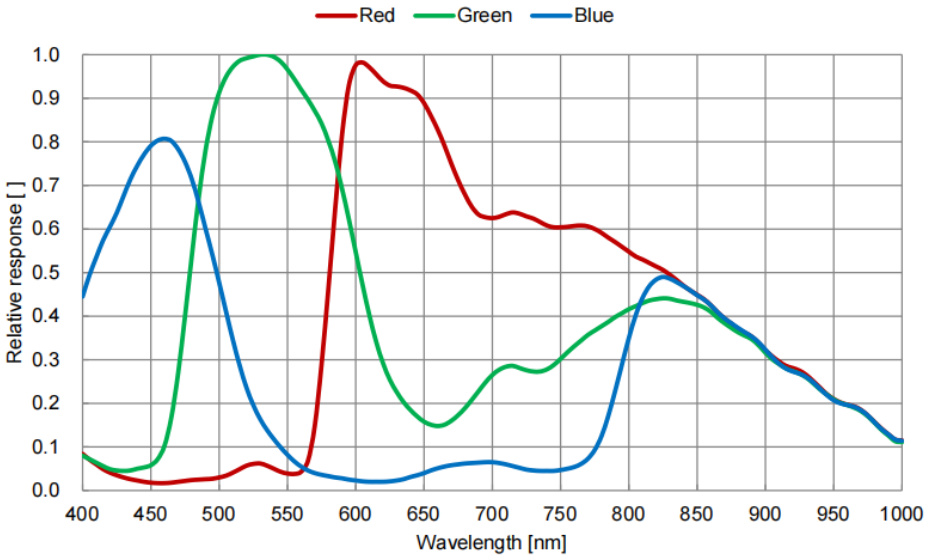


Figure 6-74 IUA45000KPB spectral response curve

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6.47 IUA2100KPA(NIR)

Table 6-47 IUA2100KPA camera specifications

Parameter \ Model	IUA2100KPA
	2.1M pixels 1/2.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX462LQR
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/2.8"
Frame rate	120.3fps@1920 x 1080
Conversion Gain	HCG: 4.71 / LCG: 12.29 (e-/ADU)
Readout Noise	HCG: 3.49 / LCG: 12.35 (e-)
Full Well	HCG: 19.3 / LCG: 50.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	HCG: 42.8 / LCG: 47.0 (dB)
Sensitivity	2376mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	11μs-15sec
Shutter	Rolling shutter
Binning	Software2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<1.9W
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

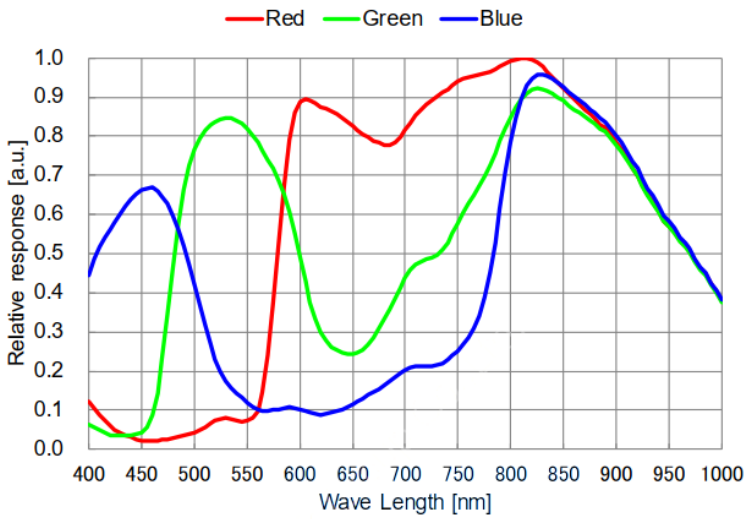


Figure 6-75 IUA2100KPA spectral response curve

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6.48 IUA4100KPA(NIR)

Table 6-48 IUA4100KPA camera specifications

Parameter \ Model	IUA4100KPA
	4.1M pixels 1/1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX464LQR
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/1.8"
Frame rate	90fps@2688 x 1520
Conversion Gain	HCG: 4.71 / LCG: 12.29 (e-/ADU)
Readout Noise	HCG: 3.49 / LCG: 12.35 (e-)
Full Well	HCG: 19.3 / LCG: 50.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	HCG: 42.8 / LCG: 47.0 (dB)
Sensitivity	2376mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	11μs-15sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.9W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	228g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

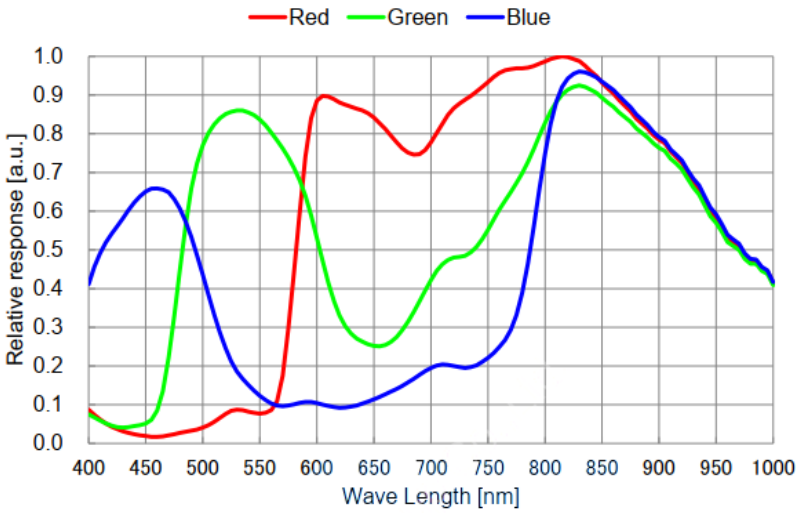


Figure 6-76 IUA4100KPA spectral response curve

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6.49 IUA500KMA(GPixel UV)

Table 6-49 IUA500KMA camera specifications

Parameter \ Model	IUA500KMA
	0.5M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GLUX1605BSI (UV)
Pixel size	16 μm x 16 μm
Sensor size	1"
Frame rate	60fps@800 x 600 60fps@400 x 300
Conversion Gain	HCG(16x): 0.016 / LCG(1.5x): 0.83 / HDR: 0.71 (e-/ADU)
Readout Noise	HCG(16x): 1.96 / LCG(1.5x): 24.06 / HDR: 2.71 (e-)
Full Well	HCG(16x): 1.02 / LCG(1.5x): 53.31 / HDR: 46.60 (ke-)
Dynamic range	HCG(16x): 54.29 / LCG(1.5x): 66.91 / HDR: 84.72 (dB)
Signal-to-Noise ratio	HCG(16x): 30.08 / LCG(1.5x): 47.27 / HDR: 46.68 (dB)
Sensitivity	6.4×10^{8}(e-/((W/m2).s))
Peak QE	91%@550nm
Dark current	50(e-/s/pix)
Gain range	1x-8x
Exposure time	27μs-60sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.15W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	270g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

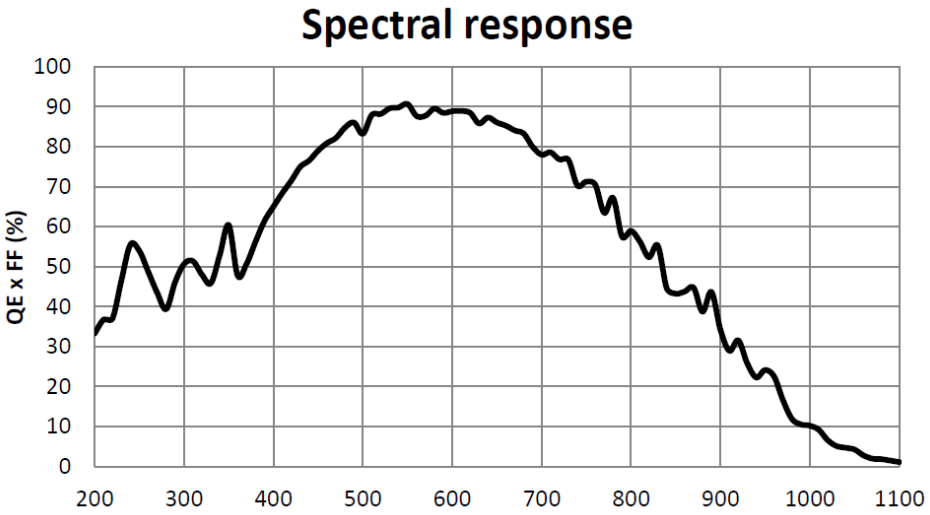


Figure 6-77 IUA5000KMA spectral response curve

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6.50 IUA1300KMA(GPixel UV)

Table 6-50 IUA1300KMA camera specifications

Parameter \ Model	IUA1300KMA
	1.3M pixels 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GLUX9701BSI (UV)
Pixel size	9.76 μm x 9.76 μm
Sensor size	1"
Frame rate	30fps@1280 x 1024 30fps@640 x 512
Conversion Gain	HCG(16x): 0.26 / LCG(1.5x): 12.98 / HDR: 0.32 (e-/ADU)
Readout Noise	HCG(16x): 1.5 / LCG(1.5x): 22.36 / HDR: 1.83 (e-)
Full Well	HCG(16x): 1.05 / LCG(1.5x): 51.88 / HDR: 21.03 (ke-)
Dynamic range	HCG(16x): 56.9 / LCG(1.5x): 67.3 / HDR: 81.2 (dB)
Signal-to-Noise ratio	HCG(16x): 30.2 / LCG(1.5x): 47.2 / HDR: 43.2 (dB)
Peak QE	2.57×10^{8}(e-/((W/m2).s))
Sensitivity	89%@610nm
Dark current	40e-/s/pix
Gain range	1x-8x
Exposure time	63μs-60sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	1.2W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	270g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC, RoHS

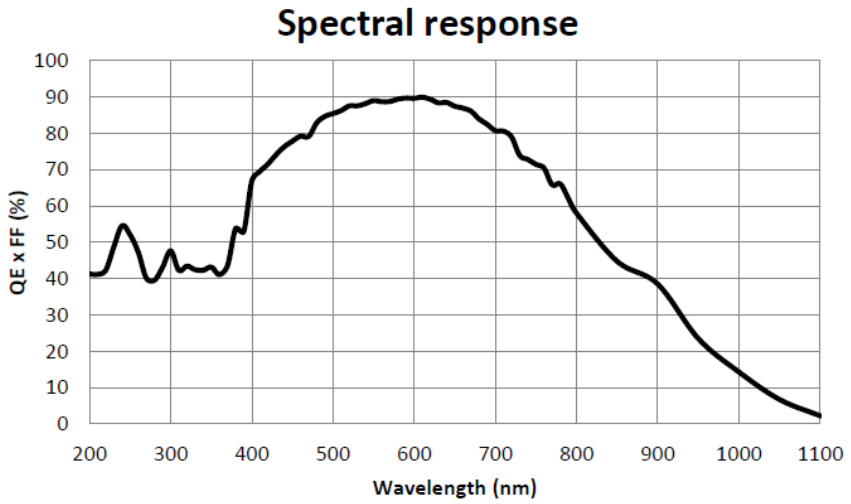


Figure 6-78 IUA1300KMA spectral response curve

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6.51 IUA4200KMA(GPixel NIR)

Table 6-51 IUA4200KMA camera specifications

Parameter \ Model	IUA4200KMA
	4.2M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE2020e (NIR)
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	45fps@2048 x 2048 45fps@1024 x 1024
Conversion Gain	HCG: 0.83 / LCG: 5.23 / HDR: 0.70 (e-/ADU)
Readout Noise	HCG: 6.19 / LCG: 37.48 / HDR: 2.80 (e-)
Full Well	HCG: 13.5 / LCG: 85.7 / HDR: 46.0 (ke-)
Dynamic range	HCG: 66.5 / LCG: 67.0 / HDR: 84.0 (dB)
Signal-to-Noise ratio	HCG: 41.3 / LCG: 49.3 / HDR: 46.6 (dB)
Peak QE	8.1×10^{7}(e-/((W/m2).s))
Sensitivity	73%@595nm
Dark current	13e-/s/pix
Gain range	1x-8x
Exposure time	21μs-60sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	3.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	270g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC, RoHS

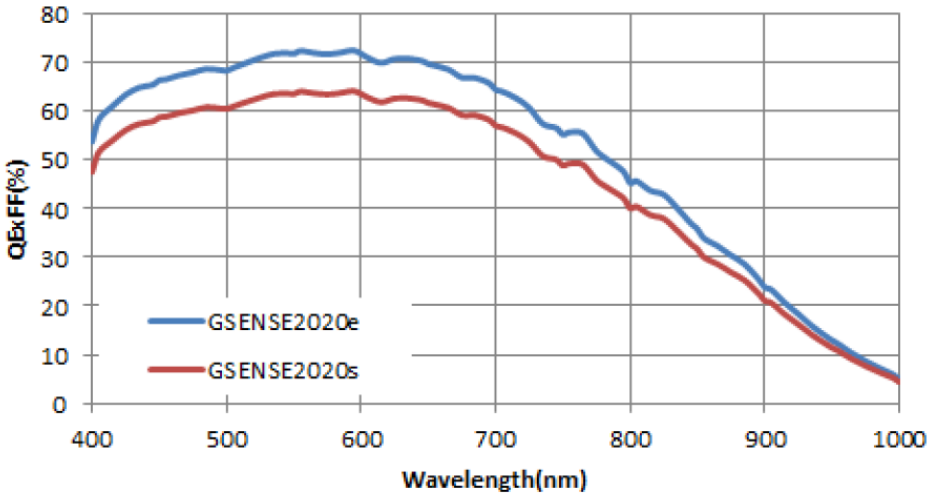


Figure 6-79 IUA4200KMA spectral response curve

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6.52 IUA4200KPA(GPixel NIR)

Table 6-52 IUA4200KPA camera specifications

Parameter \ Model	IUA4200KPA
	4.2M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE2020s (NIR)
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	45fps@2048 x 2048 45fps@1024 x 1024
Conversion Gain	HCG: 5.60 / LCG: 16.16 (e-/ADU)
Readout Noise	HCG: 11.12 / LCG: 51.29 (e-)
Full Well	HCG: 22.60 / LCG: 62.89 (ke-)
Dynamic range	HCG: 66.2 / LCG: 61.8 (dB)
Signal-to-Noise ratio	HCG: 43.5 / LCG: 48 (dB)
Peak QE	8.1×10^{7}(e-/((W/m2).s))
Sensitivity	64%@595nm
Dark current	13e-/s/pix
Gain range	1x-21x
Exposure time	50μs-3600sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<2.3W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	270g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC, RoHS

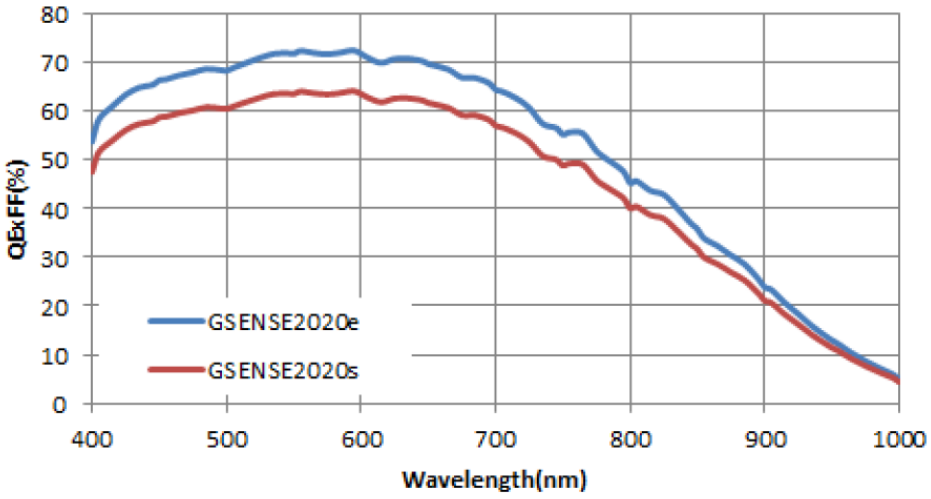


Figure 6-80 IUA4200KPA spectral response curve

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6.53 IUA4200KMB(GPixel UV)

Table 6-53 IUA4200KMB camera specifications

Parameter \ Model	IUA4200KMB
	4.2M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE2020BSI -H (UV)
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	32fps@2048 x 2048 32fps@1024 x 1024
Conversion Gain	HCG: 2.69 / LCG: 15.49 / HDR:0.55 (e-/ADU)
Readout Noise	HCG:5.4 / LCG:21.02 / HDR:2.89 (e-)
Full Well	HCG: 12.1 / LCG: 46.4 / HDR:35.8 (ke-)
Dynamic range	HCG: 66.8 / LCG: 66.7 / HDR: 81.6 (dB)
Signal-to-Noise ratio	HCG: 40.8 / LCG: 46.7 / HDR: 45.5 (dB)
Peak QE	1.1×10^{8}(e-/((W/m2).s))
Sensitivity	93.7%@550nm
Dark current	80e-/s/pix
Gain range	1x-8x
Exposure time	12μs-60sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	<2.3W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	270g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

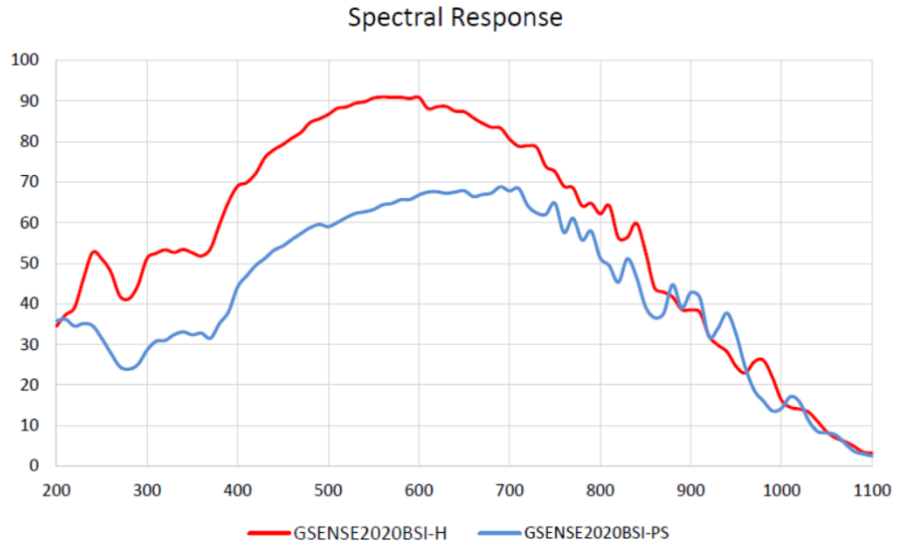


Figure 6-81 IUA4200KMB spectral response curve

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6.54 IUA4200KME(GPixel UV)

Table 6-54 IUA4200KME camera specifications

Parameter \ Model	IUA4200KME
	4.2M pixels 2.0" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE400BSI (UV)
Pixel size	11 μm x 11 μm
Sensor size	2.0"
Frame rate	37fps@2048 x 2048 37fps@1024 x 1024
Conversion Gain	HCG: 2.33 / LCG: 19.93 (e-/ADU)
Readout Noise	HCG: 3.57 / LCG: 31.26 (e-)
Full Well	HCG: 46.4 / LCG: 35.8 (ke-)
Dynamic range	HCG: 68.3 / LCG: 68.1 (dB)
Signal-to-Noise ratio	HCG: 39.8 / LCG: 49.1 (dB)
Sensitivity	3.25×10^{8}(e-/((W/m2).s))
Dark current	345e-/s/pix
Gain range	1x-8x
Exposure time	21μs-60sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.25W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	270g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC, RoHS

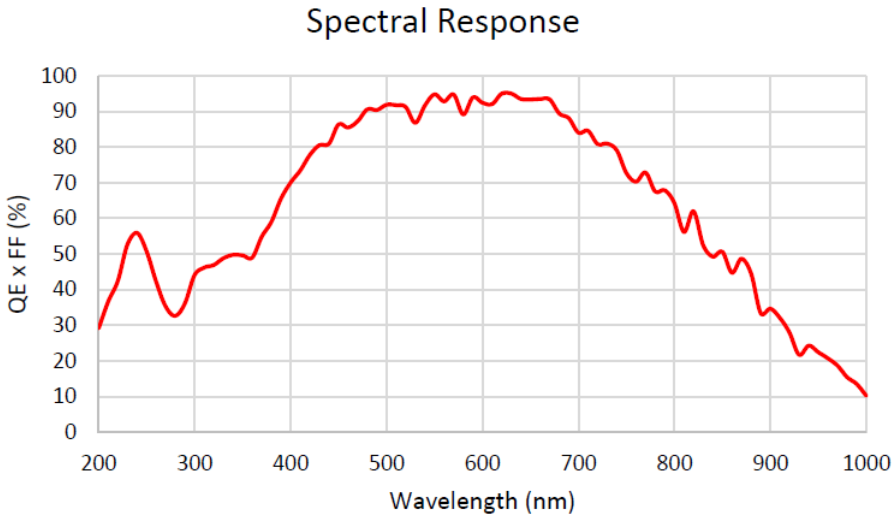


Figure 6-82 IUA4200KME spectral response curve

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6.55 IUA4200KMA-10G(GPixel NIR)

Table 6-55 IUA4200KMA camera specifications

Parameter \ Model	IUA4200KMA-10G
	4.2M pixels 1.2" CMOS 10G industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE2020e (NIR)
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	74fps@2048×2048 74fps@1024×1024
Conversion Gain	HCG: 0.83 / LCG: 5.23 / HDR: 0.70 (e-/ADU)
Readout Noise	HCG: 6.19 / LCG: 37.48 / HDR: 2.80 (e-)
Full Well	HCG: 13.5 / LCG: 85.7 / HDR: 46.0 (ke-)
Dynamic range	HCG: 66.5 / LCG: 67.0 / HDR: 84.0 (dB)
Signal-to-Noise ratio	HCG: 41.3 / LCG: 49.3 / HDR: 46.6 (dB)
Peak QE	8.1×10^{7} e-/((W/m²)·s)
Sensitivity	73%@595nm
Dark current	13e-/s/pix
Gain range	1x-8x
Exposure time	21μs-60sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	DC12V
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	270g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC, RoHS

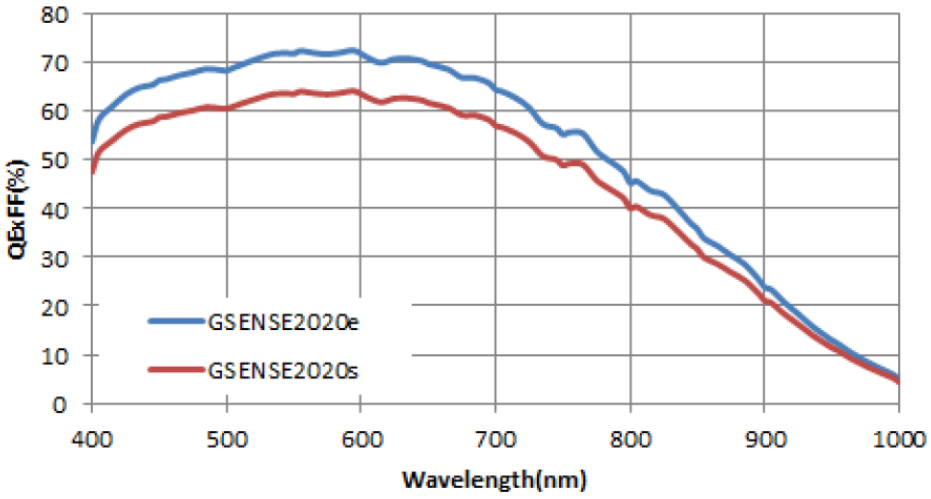


Figure 6-83 IUA4200KMA-10G spectral response curve

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6.56 IUA4200KMB-10G (GPixel UV)

Table 6-56 IUA4200KMB camera specifications

Parameter \ Model	IUA4200KMB-10G
	4.2M pixels 1.2" CMOS 10G industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE2020BSI -H (UV)
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	74fps@2048×2048 74fps@1024×1024
Conversion Gain	HCG: 2.69 / LCG: 15.49 / HDR:0.55 (e-/ADU)
Readout Noise	HCG:5.4 / LCG:21.02 / HDR:2.89 (e-)
Full Well	HCG: 12.1 / LCG: 46.4 / HDR:35.8 (ke-)
Dynamic range	HCG: 66.8 / LCG: 66.7 / HDR: 81.6 (dB)
Signal-to-Noise ratio	HCG: 40.8 / LCG: 46.7 / HDR: 45.5 (dB)
Peak QE	1.1×10^{8} e-/((W/m²)·s)
Sensitivity	93.7%@550nm
Dark current	80 e-/s/pix
Gain range	1x-8x
Exposure time	12μs-60sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	DC12V
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	270g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

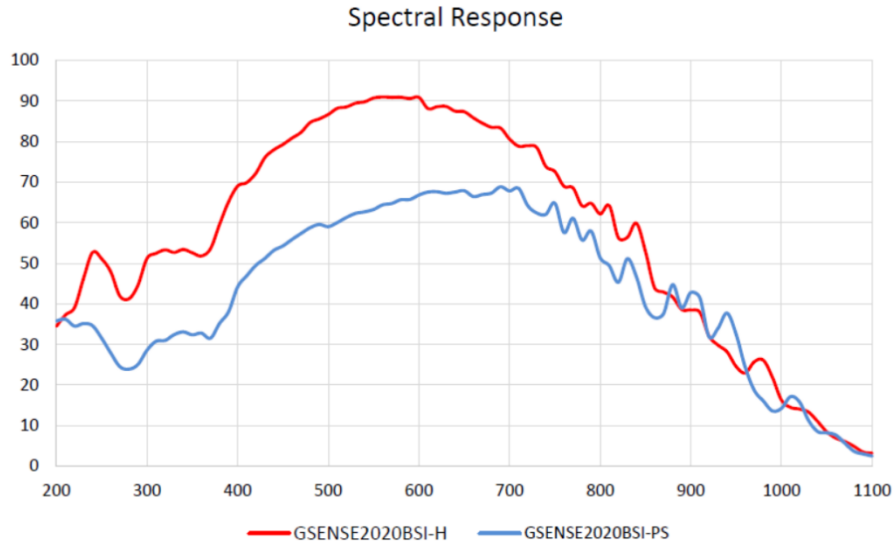


Figure 6-84 IUA4200KMB spectral response curve

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6.57 IUA4200KME-10G(GPixel UV)

Table 6-57 IUA4200KME-10G camera specifications

Parameter \ Model	IUA4200KME-10G
	4.2M pixels 2.0" 10G industrial camera
Camera Parameters	
Sensor model	GPixel GSENSE400BSI (UV)
Pixel size	11 μm x 11 μm
Sensor size	2.0"
Frame rate	48fps@2048×2048 48fps@1024×1024
Conversion Gain	HCG: 2.33 / LCG: 19.93 / LCG: 0.60 (e-/ADU)
Readout Noise	HCG: 3.57 / LCG: 31.26 / HDR: 2.21 (e-)
Full Well	HCG: 46.4 / LCG: 35.8 / HDR: 39.9 (ke-)
Dynamic range	HCG: 68.3 / LCG: 68.1 / HDR: 85.1 (dB)
Signal-to-Noise ratio	HCG: 39.8 / LCG: 49.1 / HDR: 46.0 (dB)
Sensitivity	3.25×10^8 e-/((W/m²)·s)
Dark current	95.3%@560nm
Gain range	1x-8x
Exposure time	21μs-60sec
Shutter	Rolling shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	DC12V
Power consumption	7.5W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx46.2mm
Weight	270g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC, RoHS

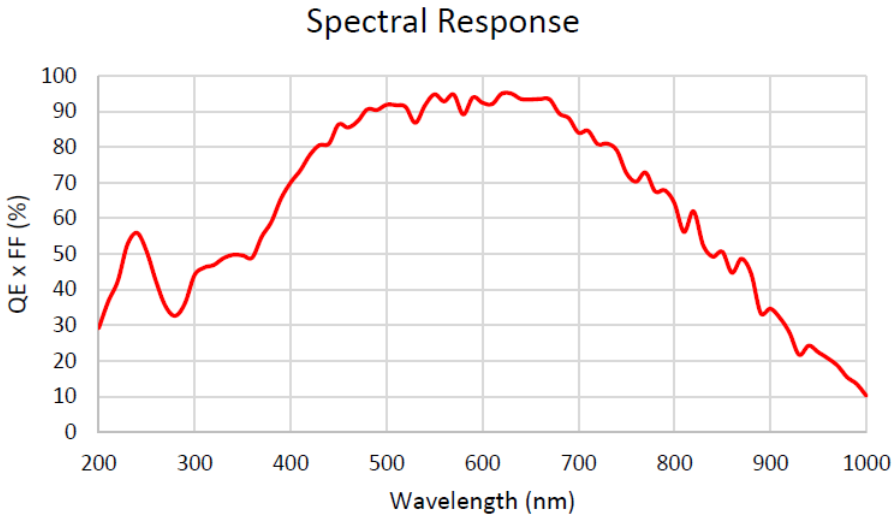


Figure 6-85 IUA4200KME spectral response curve

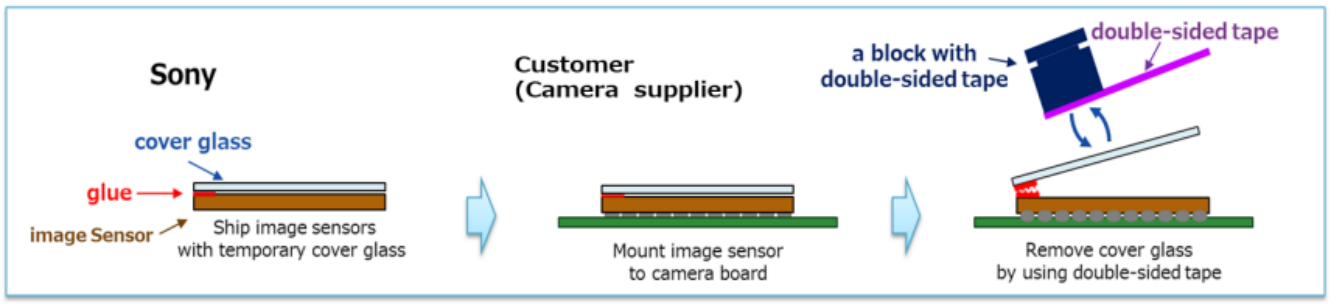
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6.58 IUA8000KMA(Sony GS-UV)

Table 6-58 IUA8000KMA camera specifications

Parameter \ Model	IUA8000KMA
	8.0M pixels 2/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX487-AAMJ-C
Pixel size	2.74 μm x2.74 μm
Sensor size	2/3"
Frame rate	45fps@2840 × 2840 198fps@1420 × 1420
Conversion Gain	2.42 (e-/ADU)
Readout Noise	2.66 (e-)
Full Well	9.9 (ke-)
Dynamic range	71.2dB
Signal-to-Noise ratio	40.0dB
Sensitivity	145mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	30μs-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ DC12V
Power consumption	2.35W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	68mmx68mmx28.1mm
Weight	227g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

The IUA8000KMA is available in RG (Removing Glass) versions, as shown in the figure below.



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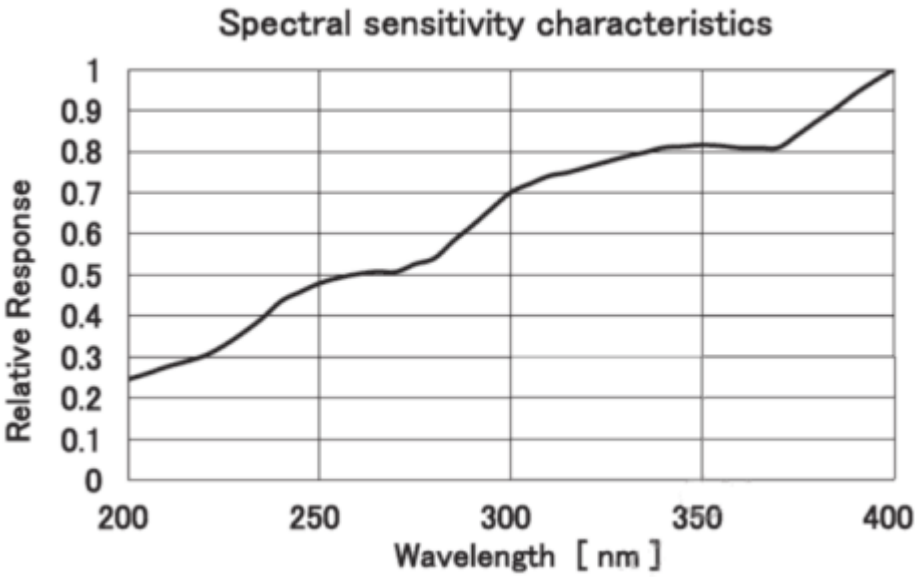


Figure 6-86 IUA8000KMA spectral response curve

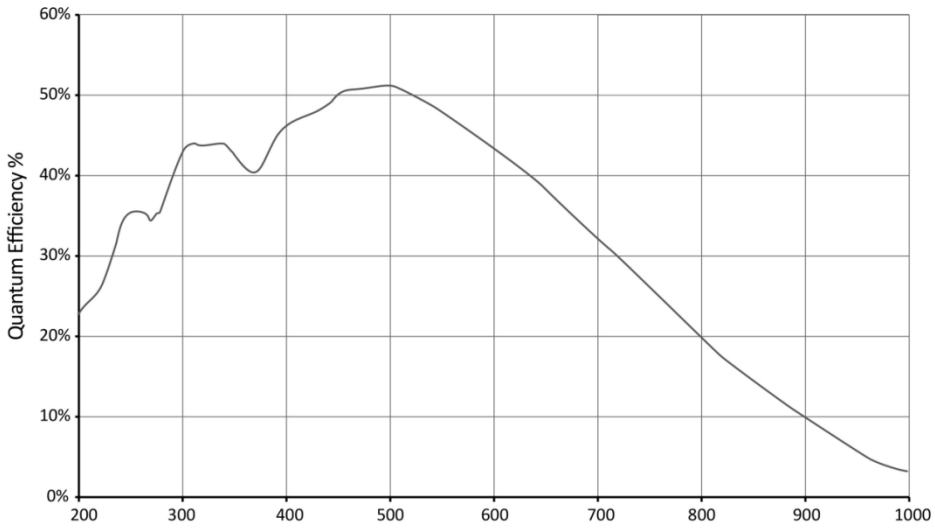


Figure 6-87 IUA8000KMA absolute quantum efficiency

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7 IUB Series Technical Specifications(End of life, not recommended,3)

7.1 IUB4200KMA

Table 7-1 IUB4200KMA camera specifications

Parameter \ Model	IUB4200KMA
	4.2M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GSENSE2020e
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	45fps@2048 x 2046 45fps@1024 x 1022
Dynamic range	66.6dB (LG), 59.5dB (HG), 87.5dB (HDR)
Signal-to-Noise ratio	46dB (LG), 32dB (HG)
Sensitivity	8.11×10^{7}(e-/((W/m2)·s)
Dark current	7e-/s/pix
Gain range	1x-22x
Exposure time	150us-60sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	Power with USB3.0/ 12V Power adapter
Power consumption	<3.7W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	118mmx68mmx23.2mm
Weight	633g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

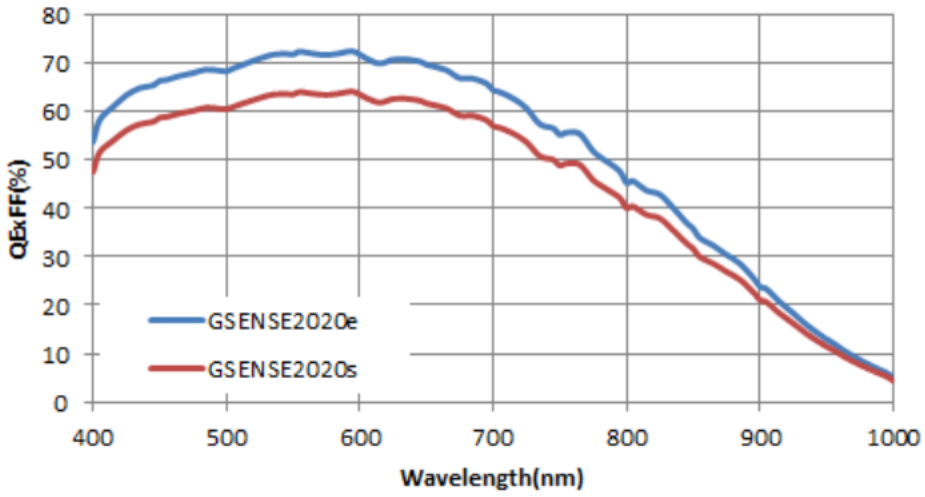


Figure 7-1 IUB4200KMA spectral response curve

7.2 IUB4200KMB

Table 7-2 IUB4200KMB camera specifications

Parameter \ Model	IUB4200KMB
	4.2M pixels 1.2" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GSENSE2020BSI (UV)
Pixel size	6.5 μm x 6.5 μm
Sensor size	1.2"
Frame rate	43.6fps@2048 x 2046 43.6fps@1024 x 1022
Dynamic range	67.5dB (LG), 61dB (HG), 90.7dB (HDR)
Signal-to-Noise ratio	47dB (LG), 32dB (HG)
Sensitivity	1.1×10^{8}e-/((W/m2)·s)
Dark current	80e-/s/pix
Gain range	1x-50x
Exposure time	150us-60sec
Shutter	Rolling shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit / HDR16
General Specifications	
Power supply	Power with USB3.0/ 12V Power adapter
Power consumption	<3.7W
Temperature	Working temperature -10~50℃, storage temperature30~70℃
Humidity	20%-80%, no condensation
Size	118mmx68mmx23.2mm
Weight	633g
Lens mount	C-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

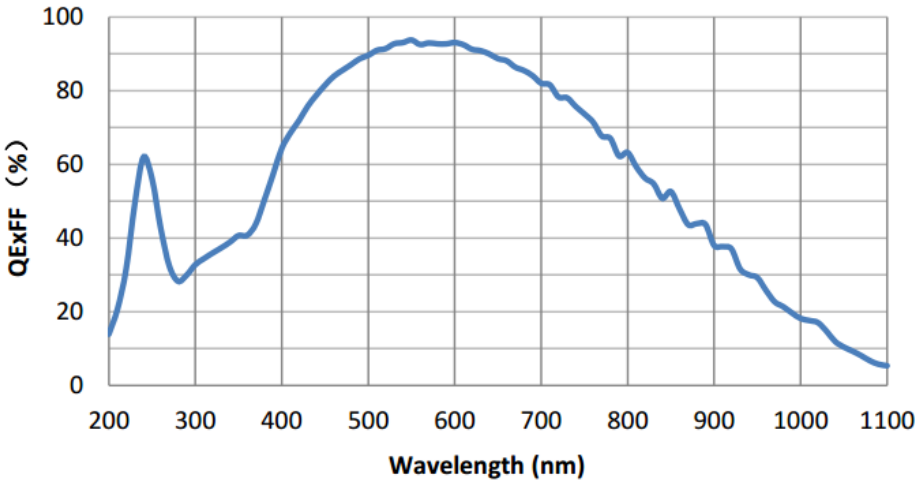


Figure 7-2 IUB4200KMB spectral response curve

7.3 IUB43000KMA

Table 7-3 IUB43000KMA camera specifications

Parameter \ Model	IUB43000KMA
	43.0M pixels 1.7" (APS-C) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Gpixel GMAX0806
Pixel size	2.8 μm x 2.8 μm
Sensor size	1.7"(APS-C)
Frame rate	8.5fps@7904×5432
Dynamic range	66dB (2G), 63dB (6G)
Signal-to-Noise ratio	38.5dB (2G), 34dB (6G)
Sensitivity	1.19×10^{7}(e-/((W/m2)·s)
Dark current	1e-/s/pix
Gain range	1x-6x
Exposure time	15us-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0/ 12V Power adapter
Power consumption	<5.0W
Temperature	Working temperature -10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	118mmx68mmx23.2mm
Weight	633g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

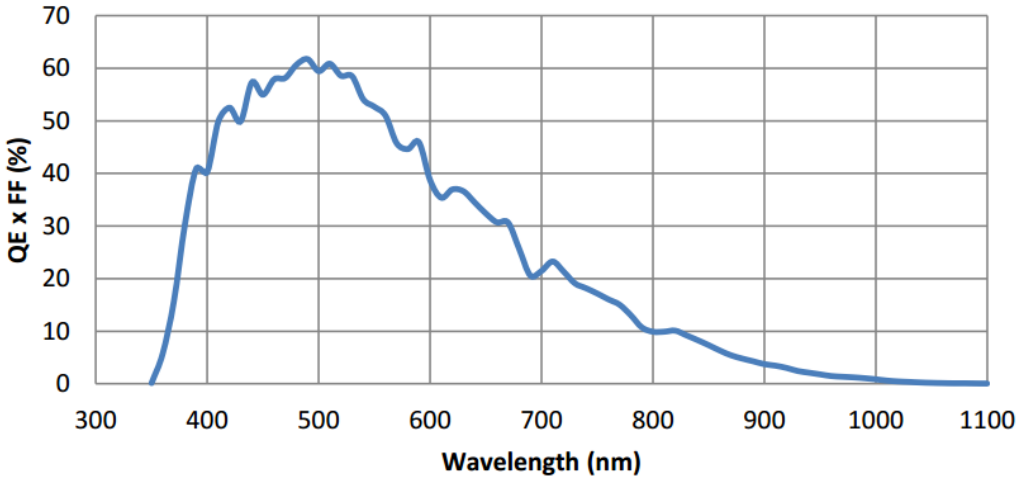


Figure 7-3 IUB43000KMA spectral response curve

8 IUC Series Technical Specifications(21)

8.1 IUC1700KMA-CL480

Table 8-1 IUC1700KMA-CL480 camera specifications

Parameter \ Model	IUC1700KMA-CL480
	1.7M pixels 1.1" CMOS Camera ParametersLink industrial camera
Camera Parameters	
Sensor model	Sony IMX425LLJ
Pixel size	9.0 μm x 9.0 μm
Sensor size	1.1"
Frame rate	302fps@1600 x 1100
Conversion Gain	4.97 (e-/ADU)
Readout Noise	4.76 (e-)
Full Well	20.4 (ke-)
Dynamic range	72dB
Signal-to-Noise ratio	43dB
Sensitivity	8100mV
Dark current	0.3mV
Gain range	1-50x
Exposure time	6us-15sec
Shutter	Global shutter
Binning	Software 2×2，3×3，4×4
Data interface	CameraLink
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx21.2mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

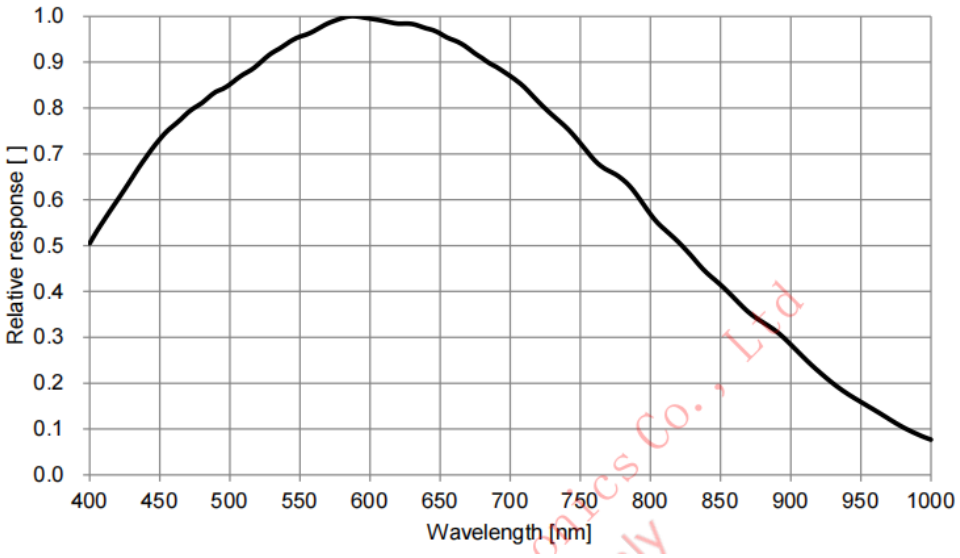


Figure 8-1 IUC1700KMA-CL480 spectral response curve

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8.2 IUC20400KPA-10G

Table 8-2 IUC20400KPA-10G camera specifications

Parameter \ Model	IUC20400KPA-10G
	20.4 million pixels 1.1" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX531-AAQJ-C
Pixel size	2.74 μm x2.74 μm
Sensor size	1.1"
Frame rate	8 Bit:52.5fps@4480×4480、149fps@2240×2240 12 Bit:28fps@4480×4480、100fps@2240×2240
Conversion Gain	7.27 (e-/ADU)
Readout Noise	4.69 (e-)
Full Well	29.7 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	44.7dB
Sensitivity	1574mV
Dark current	0.15mV
Gain range	1-50x
Exposure time	150us-15sec
Shutter	Global shutter
Binning	Hardware 2×2；Software 2×2，3×3，4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	11W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx58.8mm
Weight	545g
Lens mount	C interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

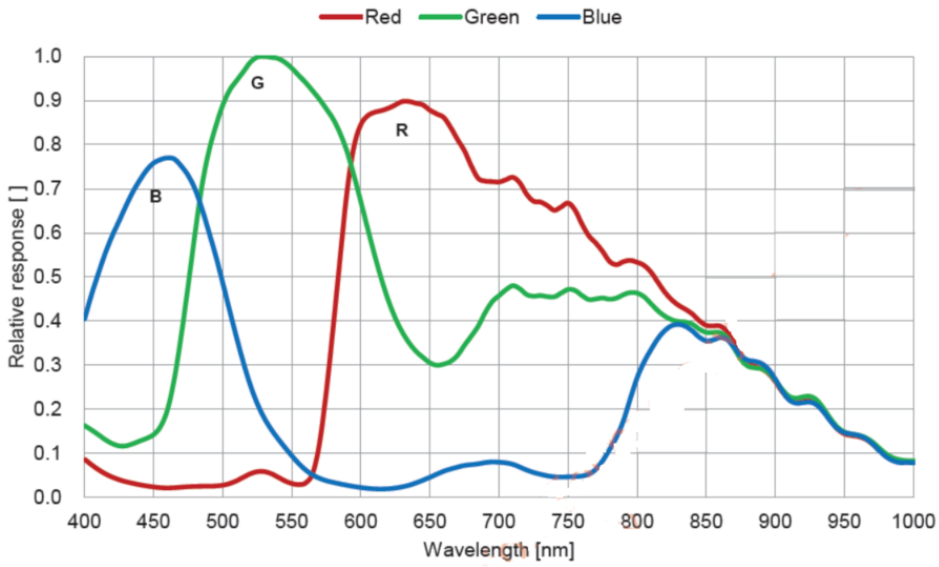


Figure 8-2 IUC20400KPA-10G spectral response curve

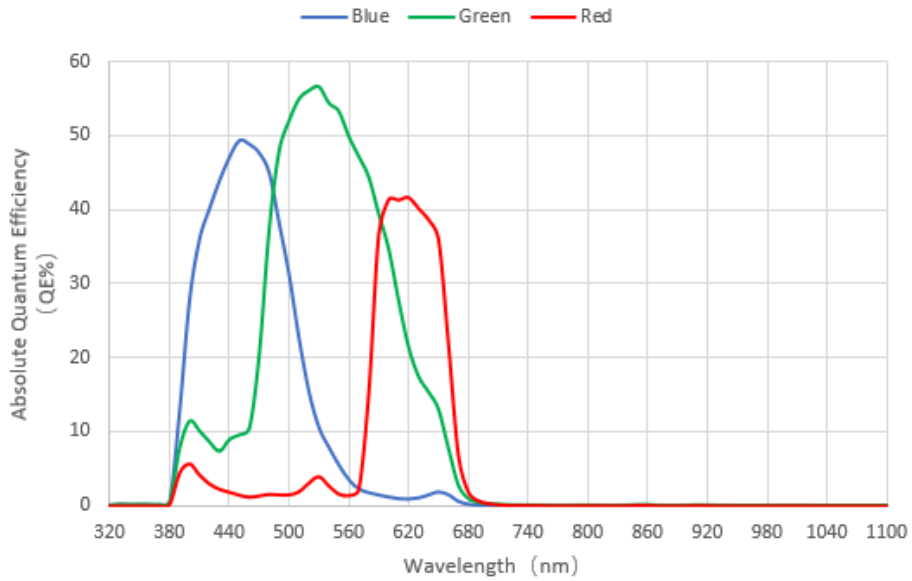


Figure 8-3 IUC20400KPA-10G absolute quantum efficiency curve

8.3 IUC20400KMA-10G

Table 8-3 IUC20400KMA-10G camera specifications

Parameter \ Model	IUC20400KMA-10G
	20.4 million pixels 1.1" CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX531-AAMJ-C
Pixel size	2.74 μm x2.74 μm
Sensor size	1.1"
Frame rate	8 Bit:52.5fps@4480×4480、149fps@2240×2240 12 Bit:28fps@4480×4480、100fps@2240×2240
Conversion Gain	2.36 (e-/ADU)
Readout Noise	2.21 (e-)
Full Well	9.68 (ke-)
Dynamic range	72.0dB
Signal-to-Noise ratio	40.0dB
Sensitivity	2649mV
Dark current	0.15mV
Gain range	1-50x
Exposure time	150us-15sec
Shutter	Global shutter
Binning	Hardware 2×2；Software 2×2，3×3，4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	11W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx58.8mm
Weight	545g
Lens mount	C interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

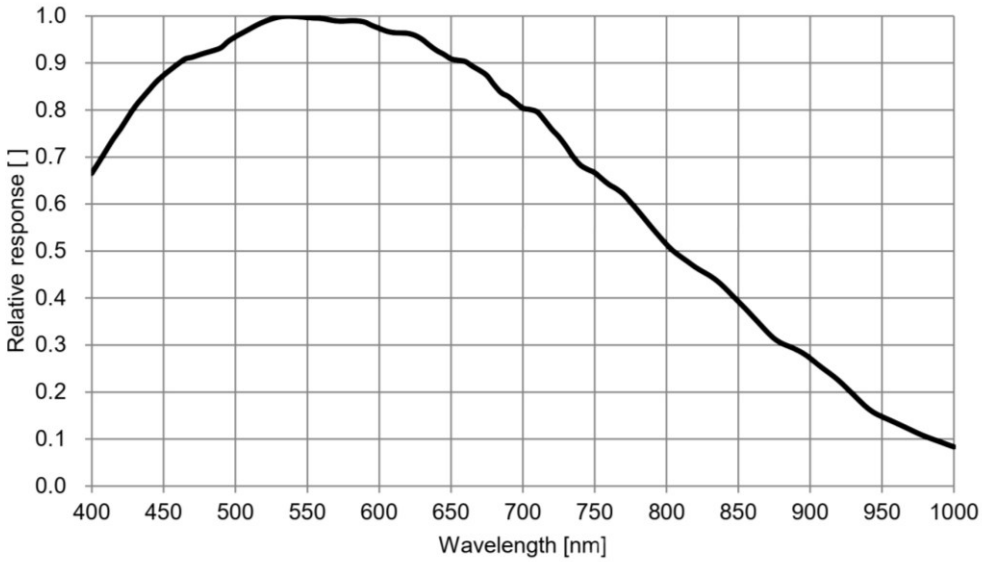


Figure 8-4 IUC20400KMA-10G spectral response curve

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8.4 IUC9000KMA

Table 8-4 IUC9000KMA camera specifications

Parameter \ Model	IUC9000KMA
	9MP 1" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX533CLK-D
Pixel size	3.76 μm x 3.76 μm
Sensor size	1”
Frame rate	40@2992x3000 62@1488x1500 186@992x998
Conversion Gain	0.18e-(HCG) 0.55e-(LCG)
Readout Noise	1.18e-(HCG) 2.83e-(LCG)
Full Well	2942.00e-(HCG) 8928.00e-(LCG)
Dynamic range	67.90dB (HCG) 70.00dB (LCG)
Signal-to-Noise ratio	34.70dB(HCG) 39.50dB(LCG)
Sensitivity	877mV
Dark current	0.04mV
Gain range	1-50x
Exposure time	0.1ms-15sec
Shutter	Rolling shutter
Binning	Software 2×2，3×3，4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<5.0W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	564g
Lens mount	C interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

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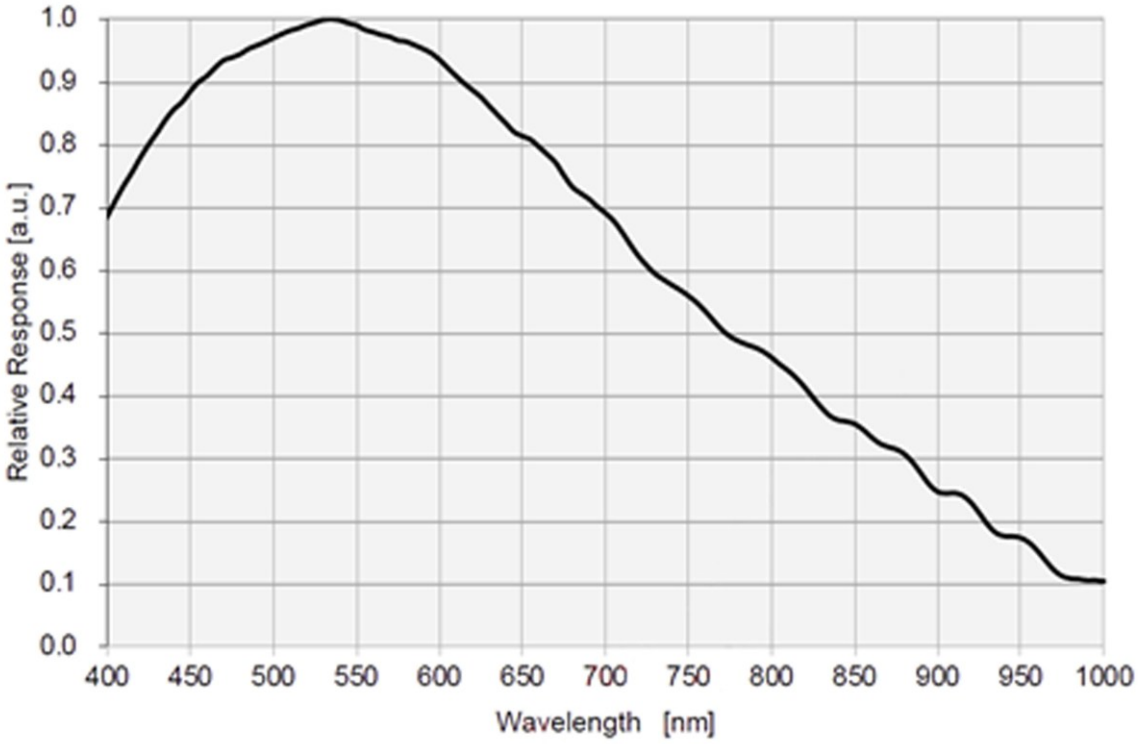


Figure 8-5 IUC9000KMA spectral response curve

8.5 IUC21000KPA

Table 8-5 IUC21000KPA camera specifications

Parameter \ Model	IUC21000KPA
	21 million pixels 4/3" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX472AAJK-C
Pixel size	3.3 μm x 3.3 μm
Sensor size	4/3”
Frame rate	17.4@5280*3956 69.5@2640*1978 156@1760*1318
Conversion Gain	TBD
Readout Noise	TBD
Full Well	TBD
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	982.8mV
Dark current	0.55 mV
Gain range	1-100x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2，3×3；Software 2×2，3×3，4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<5.0W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	564g
Lens mount	C interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

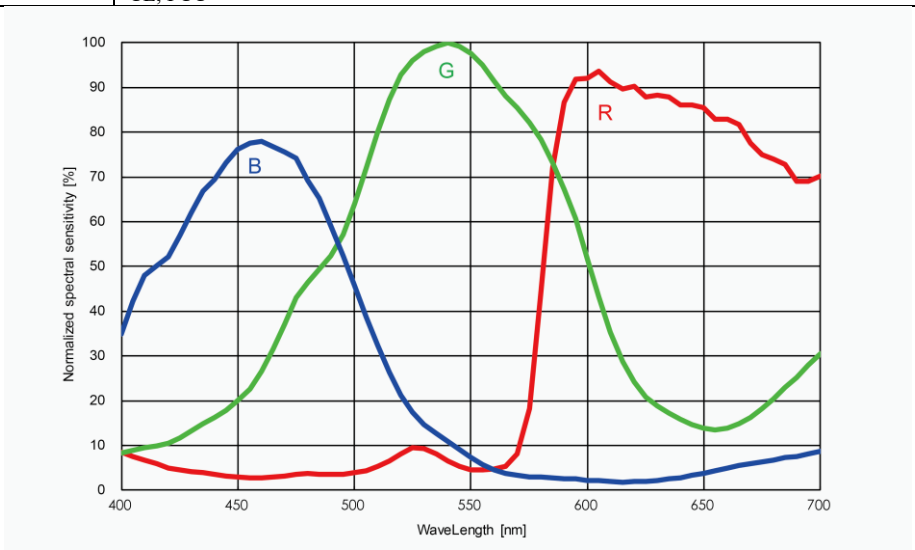


Figure 8-6 IUC21000KPA spectral response curve

8.6 IUC24000KPA

Table 8-6 IUC24000KPA camera specifications

Parameter \ Model	IUC24000KPA
	24.0M pixels 2.7" (Full Frame) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX410CQK-C
Pixel size	5.94 μm x 5.94 μm
Sensor size	2.7"(Full Frame)
Frame rate	15.3fps@6064×4040(14bit) 41fps@3024×2012 114fps@2016×1342
Conversion Gain	1.2e-(HCG) 6.19e-(LCG)
Readout Noise	0.58e-(HCG) 4.56e-(LCG)
Full Well	19653.77e-(HCG) 101464.01e-(LCG)
Dynamic range	84dB (HCG) 84dB (LCG)
Signal-to-Noise ratio	42.93dB(HCG) 50.06dB(LCG)
Sensitivity	572.8 mV
Dark current	0.037 mV
Gain range	1-50×1-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2，3×3；Software 2×2，3×3，4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 14bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<5.0W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx21.2mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

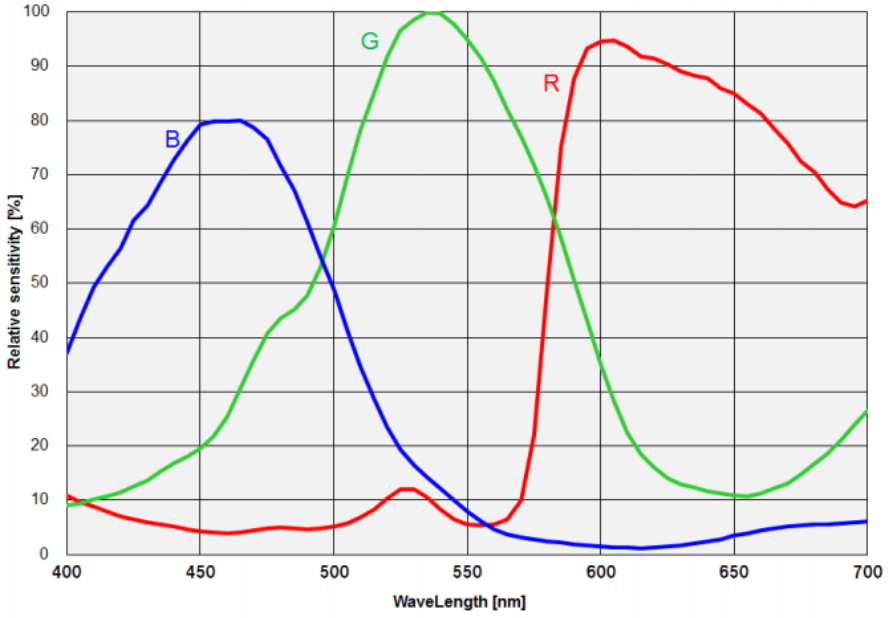


Figure 8-7 IUC24000KPA spectral response curve

8.7 IUC26000KMA

Table 8-7 IUC26000KMA camera specifications

Parameter \ Model	IUC26000KMA
	26.0M pixels 1.8" (APS-C) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX571BLR-J
Pixel size	3.76 µm x 3.76 µm
Sensor size	1.8" (APS-C)
Frame rate	14fps@6224 x 4168(16bit) 37fps@3104 x 2084 110fps@2064 x 1388
Conversion Gain	0.26e-(HCG) 0.78e-(LCG)
Readout Noise	1.03e-(HCG) 2.4e-(LCG)
Full Well	17022.88e-(HCG) 51129.19e-(LCG)
Dynamic range	84.42dB (HCG) 86.58dB (LCG)
Signal-to-Noise ratio	42.31dB(HCG) 47.09dB(LCG)
Sensitivity	870.9 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3; Software 2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	4.15W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

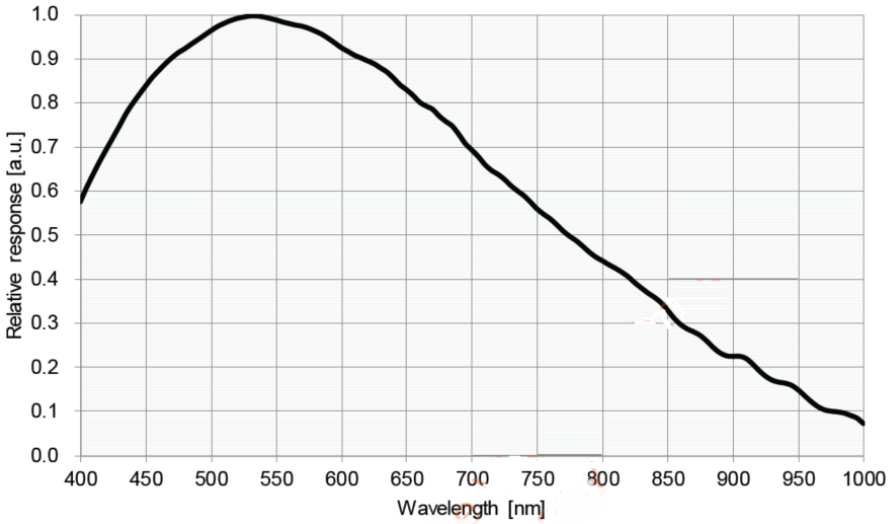


Figure 8-8 IUC26000KMA spectral response curve

8.8 IUC26000KMA-AFU

Table 8-8 IUC26000KMA-AFU camera specifications

Parameter \ Model	IUC26000KMA-AFU
	26.0M pixels 1.8" (APS-C) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX571BLR-J
Pixel size	3.76 μm x 3.76 μm
Sensor size	1.8" (APS-C)
Frame rate	14fps@6224 x 4168(16bit) 37fps@3104 x 2084 110fps@2064 x 1388
Conversion Gain	0.26e-(HCG) 0.78e-(LCG)
Readout Noise	1.03e-(HCG) 2.4e-(LCG)
Full Well	17022.88e-(HCG) 51129.19e-(LCG)
Dynamic range	84.42dB (HCG) 86.58dB (LCG)
Signal-to-Noise ratio	42.31dB(HCG) 47.09dB(LCG)
Sensitivity	870.9 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3; Software 2×2, 3×3, 4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	4.15W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

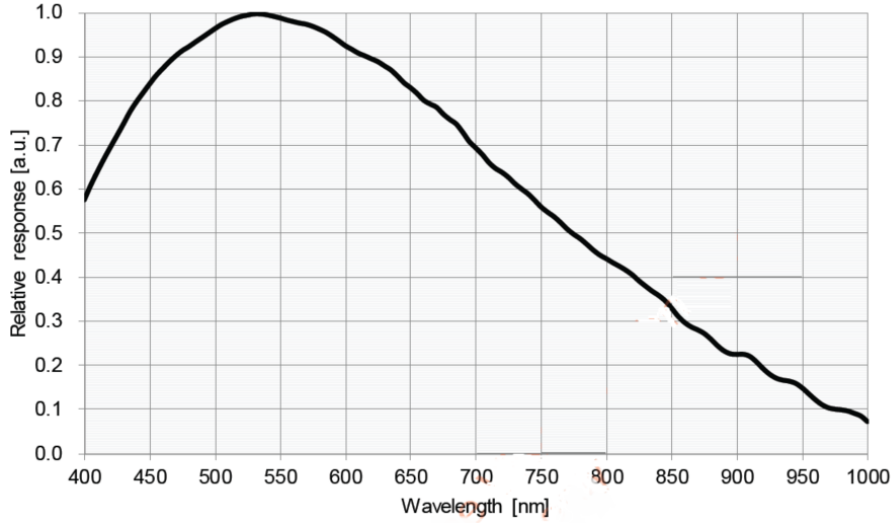


Figure 8-9 IUC26000KMA-AFU spectral response curve

8.9 IUC26000KMA-10G

Table 8-9 IUC26000KMA-10G camera specifications

Parameter \ Model	IUC26000KMA-10G
	26.0M pixels 1.8" (APS-C) CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX571BLR-J
Pixel size	3.76 μm x 3.76 μm
Sensor size	1.8" (APS-C)
Frame rate	45fps@6208×4168(16bit) 37fps@3104×2084 110fps@2064×1388
Conversion Gain	0.26e-(HCG) 0.78e-(LCG)
Readout Noise	1.03e-(HCG) 2.4e-(LCG)
Full Well	17022.88e-(HCG) 51129.19e-(LCG)
Dynamic range	84.42dB (HCG) 86.58dB (LCG)
Signal-to-Noise ratio	42.31dB(HCG) 47.09dB(LCG)
Sensitivity	870.9 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3; Software 2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperayure-10~50°C, storage temperature-30~70°C
Humidity	20%-80%, no condensation
Size	88mmx88mmx51.3mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

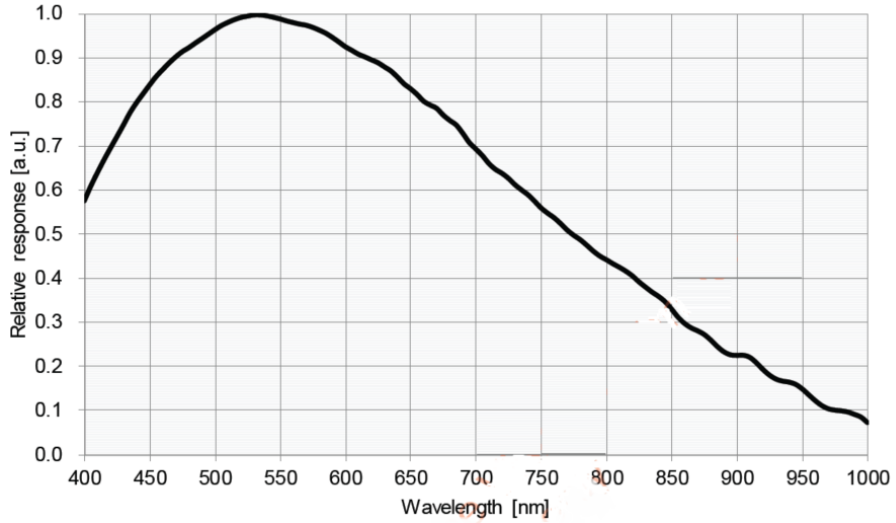


Figure 8-10 IUC26000KMA-10G spectral response curve

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8.10 IUC26000KMA-AF10G

Table 8-10 IUC26000KMA-AF10G camera specifications

Parameter \ Model	IUC26000KMA-AF10G
	26.0M pixels 1.8" (APS-C) CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX571BLR-J
Pixel size	3.76 µm x 3.76 µm
Sensor size	1.8" (APS-C)
Frame rate	45fps@6224×4168(16bit) 37fps@3104×2084 110fps@2064×1388
Conversion Gain	0.26e-(HCG) 0.78e-(LCG)
Readout Noise	1.03e-(HCG) 2.4e-(LCG)
Full Well	17022.88e-(HCG) 51129.19e-(LCG)
Dynamic range	84.42dB (HCG) 86.58dB (LCG)
Signal-to-Noise ratio	42.31dB(HCG) 47.09dB(LCG)
Sensitivity	870.9 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3; Software 2×2, 3×3, 4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx51.3mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

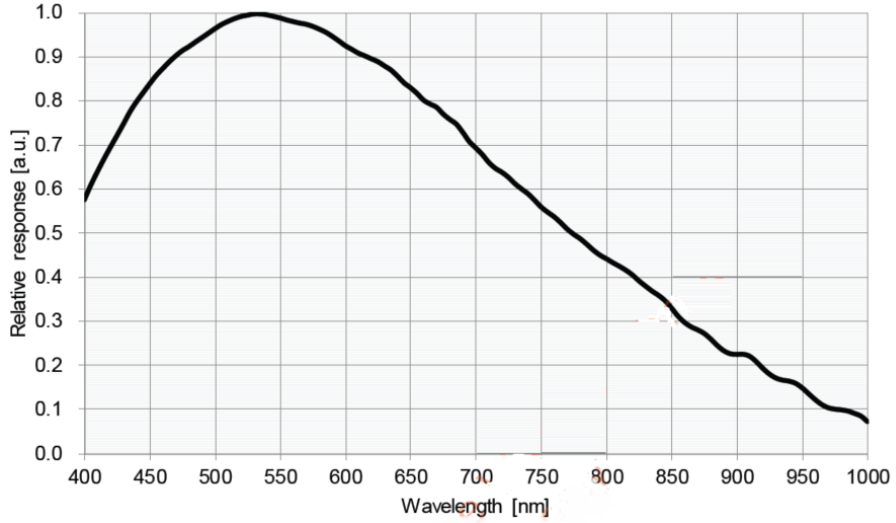


Figure 8-11 IUC26000KMA-AF10G spectral response curve

8.11 IUC26000KPA

Table 8-11 IUC26000KPA camera specifications

Parameter \ Model	IUC26000KPA
	26.0M pixels 1.8" (APS-C) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX571BQR-C
Pixel size	3.76 μm x 3.76 μm
Sensor size	1.8" (APS-C)
Frame rate	14fps@6224 x 4168(16bit) 37fps@3104 x 2084 110fps@2064 x 1388
Conversion Gain	0.26e-(HCG) 0.78e-(LCG)
Readout Noise	1.03e-(HCG) 2.4e-(LCG)
Full Well	17022.88e-(HCG) 51129.19e-(LCG)
Dynamic range	84.42dB (HCG) 86.58dB (LCG)
Signal-to-Noise ratio	42.31dB(HCG) 47.09dB(LCG)
Sensitivity	484.5 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2，3×3；Software 2×2，3×3，4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	4.15W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

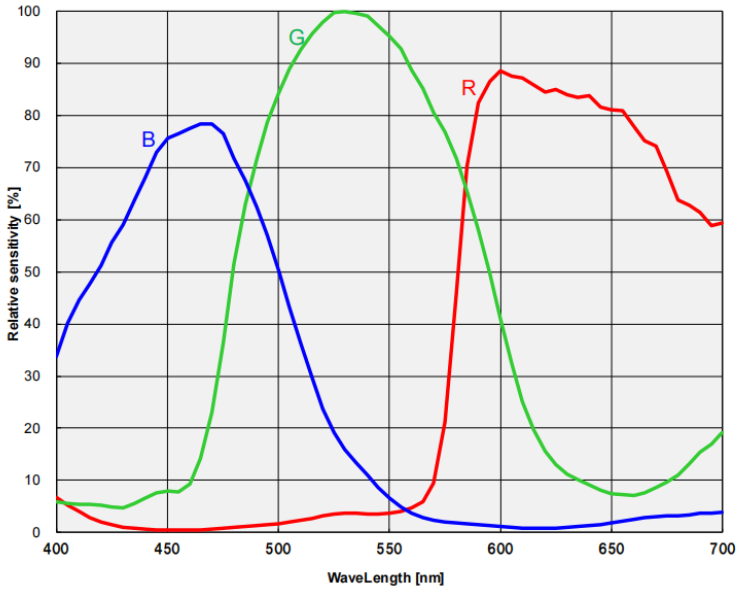


Figure 8-12 IUC26000KPA spectral response curve

8.12 IUC26000KPA-AFU

Table 8-12 IUC26000KPA-AFU camera specifications

Parameter \ Model	IUC26000KPA-AFU
	26.0M pixels 1.8" (APS-C) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX571BQR-C
Pixel size	3.76 μm x 3.76 μm
Sensor size	1.8" (APS-C)
Frame rate	14fps@6224 x 4168(16bit) 37fps@3104 x 2084 110fps@2064 x 1388
Conversion Gain	0.26e-(HCG) 0.78e-(LCG)
Readout Noise	1.03e-(HCG) 2.4e-(LCG)
Full Well	17022.88e-(HCG) 51129.19e-(LCG)
Dynamic range	84.42dB (HCG) 86.58dB (LCG)
Signal-to-Noise ratio	42.31dB(HCG) 47.09dB(LCG)
Sensitivity	484.5 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2，3×3；Software 2×2，3×3，4×4
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	4.15W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

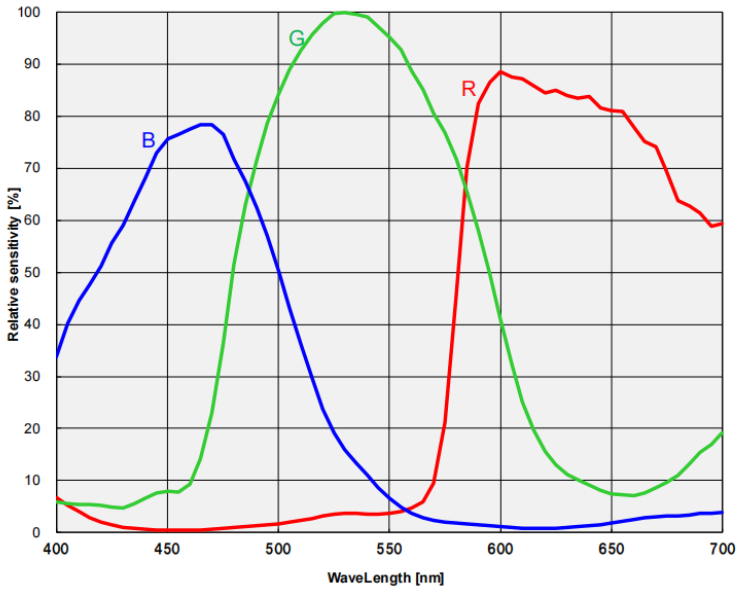


Figure 8-13 IUC26000KPA-AFU spectral response curve

8.13 IUC26000KPA-10G

Table 8-13 IUC26000KPA-10G camera specifications

Parameter \ Model	IUC26000KPA-10G
	26.0M pixels 1.8" (APS-C) CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX571BQR-C
Pixel size	3.76 μm x 3.76 μm
Sensor size	1.8" (APS-C)
Frame rate	45fps@6208×4168(16bit) 37fps@3104×2084 110fps@2064×1388
Conversion Gain	0.26e-(HCG) 0.78e-(LCG)
Readout Noise	1.03e-(HCG) 2.4e-(LCG)
Full Well	17022.88e-(HCG) 51129.19e-(LCG)
Dynamic range	84.42dB (HCG) 86.58dB (LCG)
Signal-to-Noise ratio	42.31dB(HCG) 47.09dB(LCG)
Sensitivity	484.5 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2，3×3；Software 2×2，3×3，4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx51.3mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

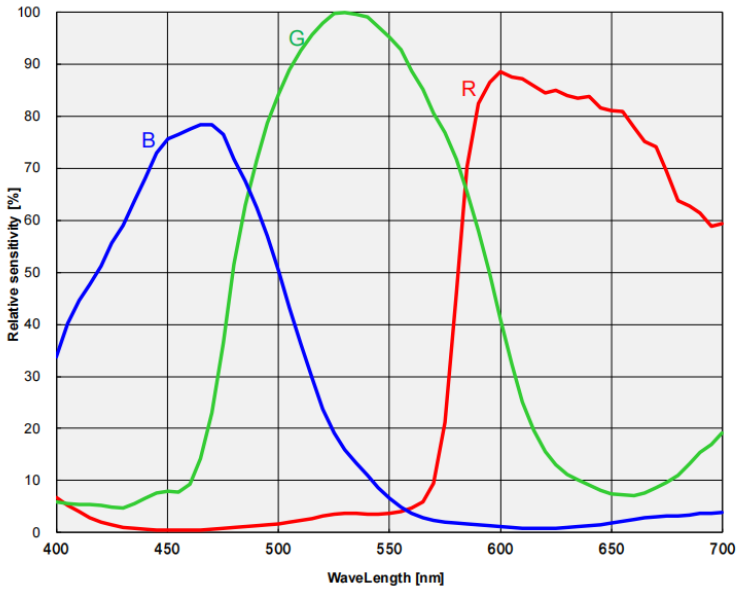


Figure 8-14 IUC26000KPA-10G spectral response curve

8.14 IUC26000KPA-AF10G

Table 8-14 IUC26000KPA-AF10G camera specifications

Parameter \ Model	IUC26000KPA-AF10G
	26.0M pixels 1.8" (APS-C) CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX571BQR-C
Pixel size	3.76 μm x 3.76 μm
Sensor size	1.8" (APS-C)
Frame rate	45fps@6224×4168(16bit) 37fps@3104×2084 110fps@2064×1388
Conversion Gain	0.26e-(HCG) 0.78e-(LCG)
Readout Noise	1.03e-(HCG) 2.4e-(LCG)
Full Well	17022.88e-(HCG) 51129.19e-(LCG)
Dynamic range	84.42dB (HCG) 86.58dB (LCG)
Signal-to-Noise ratio	42.31dB(HCG) 47.09dB(LCG)
Sensitivity	484.5 mV
Dark current	0.07 mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2，3×3；Software 2×2，3×3，4×4
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx51.3mm
Weight	540g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

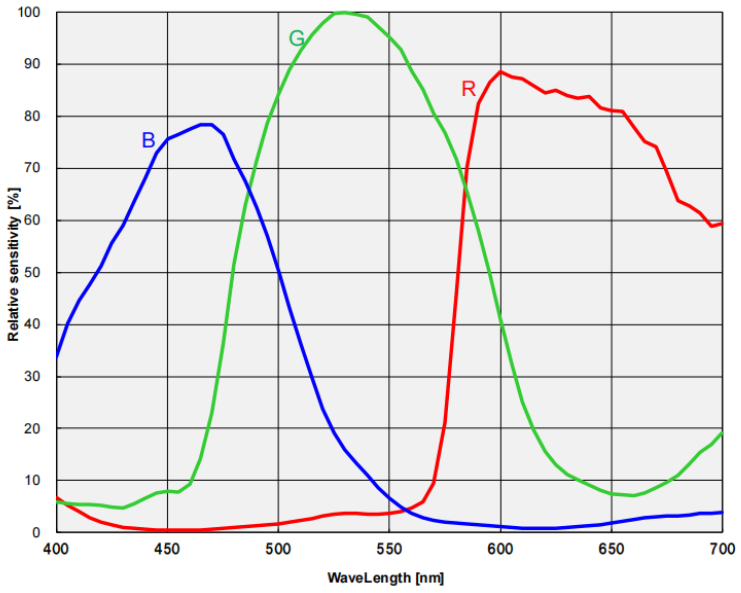


Figure 8-15 IUC26000KPA-AF10G spectral response curve

8.15 IUC31000KMA

Table 8-15 IUC31000KMA camera specifications

Parameter \ Model	IUC31000KMA
	31.0M pixels 1.8" (APS-C) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX342LLA
Pixel size	3.45 μm x 3.45 μm
Sensor size	1.8" (APS-C)
Frame rate	12.0fps@6464 x 4852 45.9fps@3216 x 2426
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Peak QE	71%@575nm
Sensitivity	1830mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	31μs-15sec
Shutter	Global shutter
Binning	Hardware 2×2; Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<7.7w
Temperature	Working temperayure-10~50°C, storage temperature-30~70°C
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	545g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

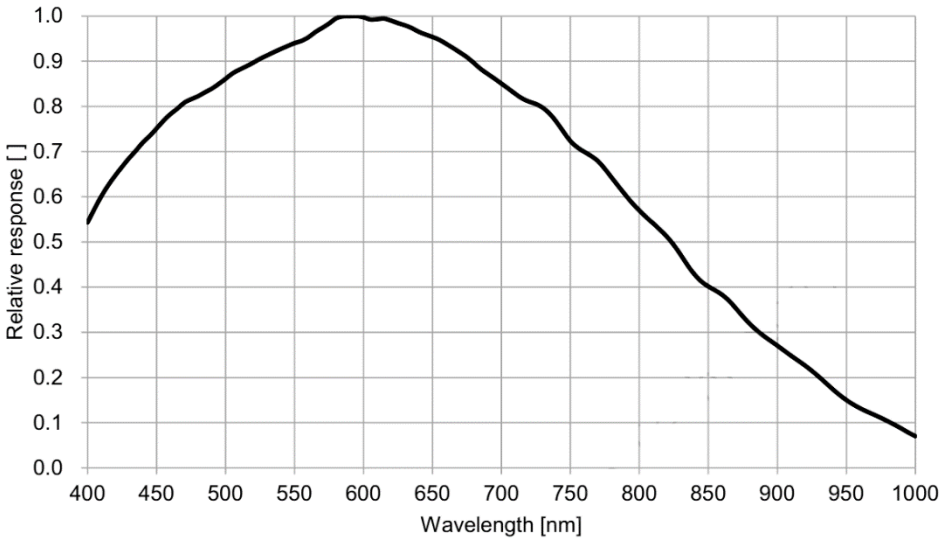


Figure 8-16 IUC31000KMA spectral response curve

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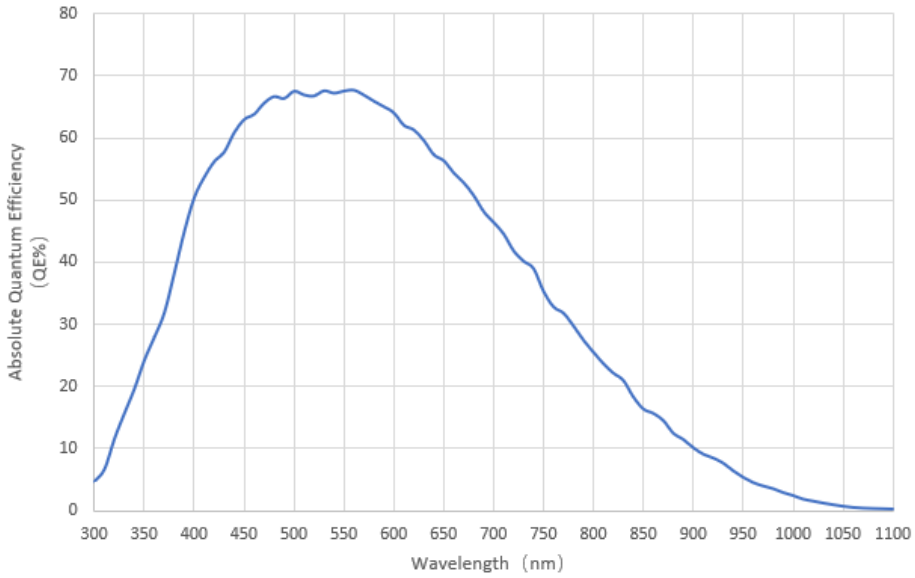


Figure 8-17 IUC31000KMA absolute quantum efficiency

8.16 IUC31000KPA

Table 8-16 IUC31000KPA camera specifications

Parameter \ Model	IUC31000KPA
	31.0M pixels 1.8" (APS-C) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX342LQA
Pixel size	3.45 μm x 3.45 μm
Sensor size	1.8" (APS-C)
Frame rate	12.0fps@6464 x 4852 45.9fps@3216 x 2426
Dynamic range	73.6dB
Signal-to-Noise ratio	40.4dB
Sensitivity	1146mV
Dark current	0.15mV
Gain range	1x-50x
Exposure time	31μs-15sec
Shutter	Global shutter
Binning	Software 2×2, 3×3, 4×4
Data interface	USB3.0 (USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<7.7w
Temperature	Working temperayure-10~50°C, storage temperature-30~70°C
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	545g
Lens mount	M42 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

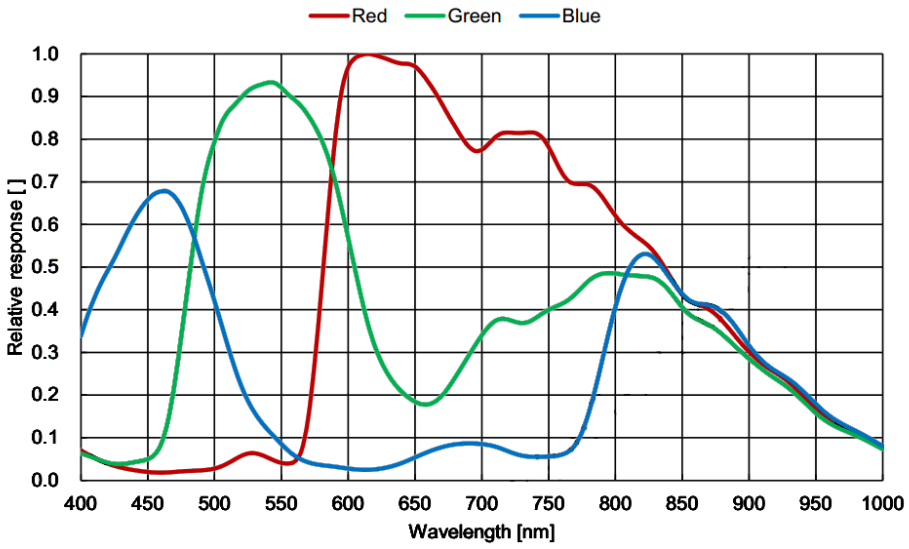


Figure 8-18 IUC31000KPA spectral response curve

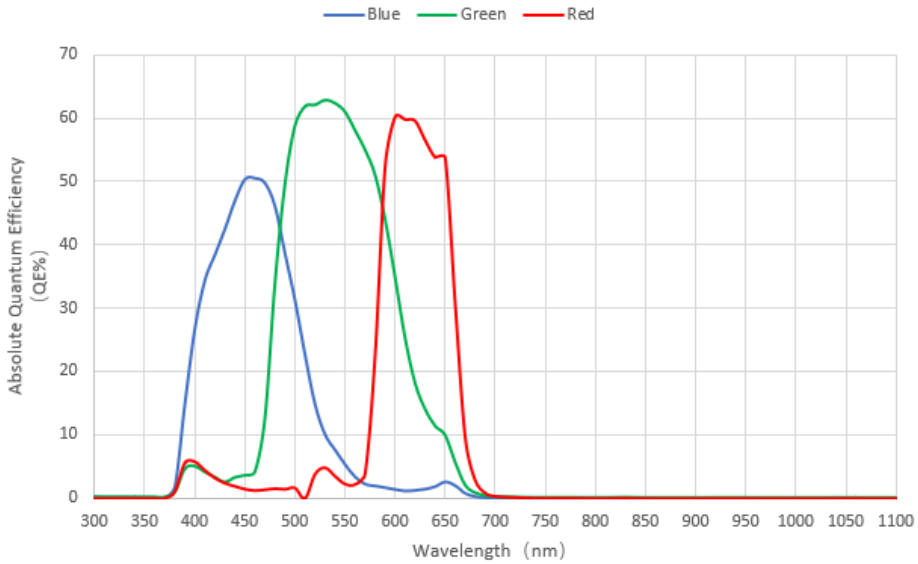


Figure 8-19 IUC31000KPA absolute quantum efficiency

8.17 IUC60000KMA

Table 8-17 IUC60000KMA camera specifications

Parameter \ Model	IUC60000KMA
	60.0M pixels 2.7" (Full Frame) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX455ALK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7" (Full Frame)
Frame rate	6.1fps@9568 x 6380(16bit) 24.6fps@4784 x 3190 55.8fps@3184 x 2124 191.0@1040 x 706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
Signal-to-Noise ratio	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	870.9mV
Dark current	0.04mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 9×9; Software 2×2, 3×3, 9×9
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<5.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	540g
Lens mount	M52 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

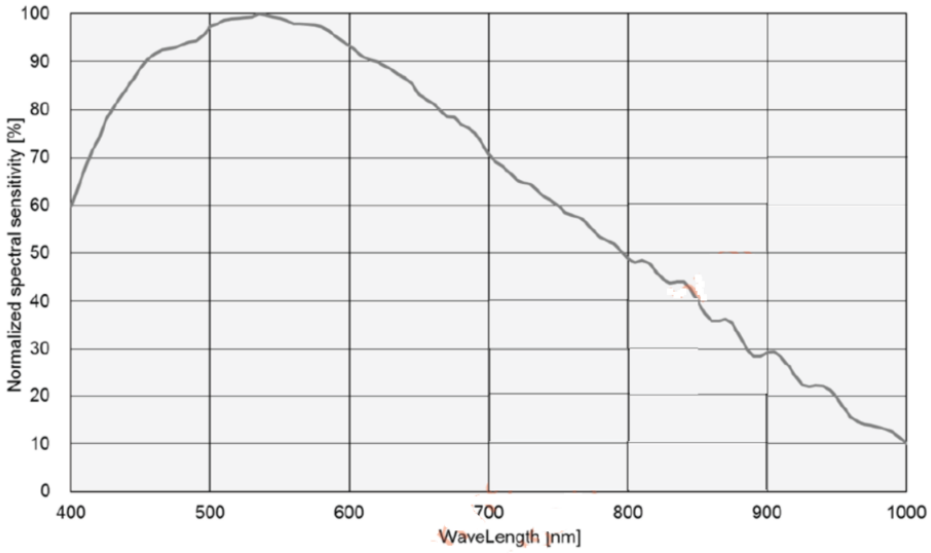


Figure 8-20 IUC60000KMA spectral response curve

8.18 IUC60000KMA-AFU

Table 8-18 IUC60000KMA-AFU camera specifications

Parameter \ Model	IUC60000KMA-AFU
	60.0M pixels 2.7" (Full Frame) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX455ALK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7" (Full Frame)
Frame rate	6.1fps@9568 x 6380(16bit) 24.6fps@4784 x 3190 55.8fps@3184 x 2124 191.0@1040 x 706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
Signal-to-Noise ratio	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	870.9mV
Dark current	0.04mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 9×9; Software 2×2, 3×3, 9×9
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<5.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	540g
Lens mount	M52 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

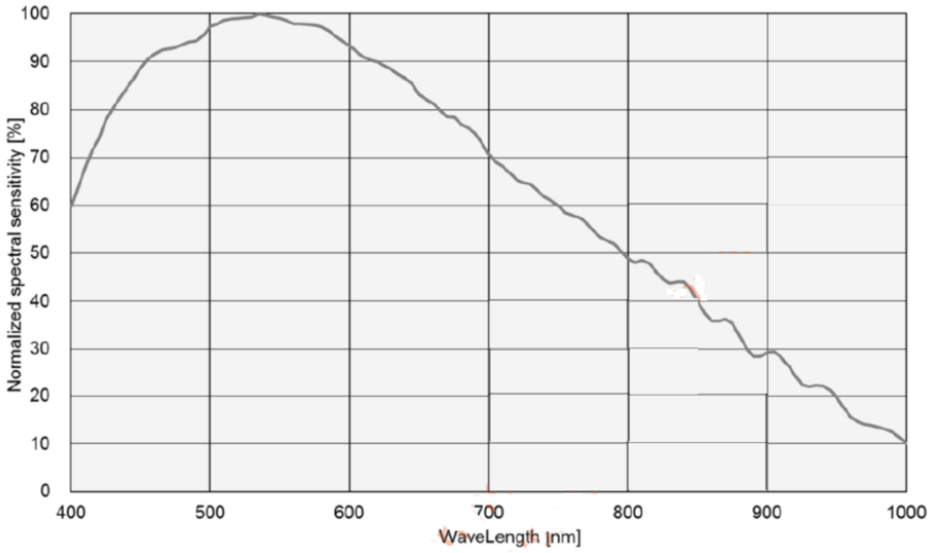


Figure 8-21 IUC60000KMA-AFU spectral response curve

8.19 IUC60000KMA-10G

Table 8-19 IUC60000KMA-10G camera specifications

Parameter \ Model	IUC60000KMA-10G
	60.0M pixels 2.7" (Full Frame) CMOS 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX455ALK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7" (Full Frame)
Frame rate	20fps@9568×6380(16bit) 40fps@4784×3190 57.52fps@3184×2124 199.37@1040×706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
Signal-to-Noise ratio	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	870.9mV
Dark current	0.04mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 9×9; Software 2×2, 3×3, 9×9
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx51.3mm
Weight	540g
Lens mount	M52 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

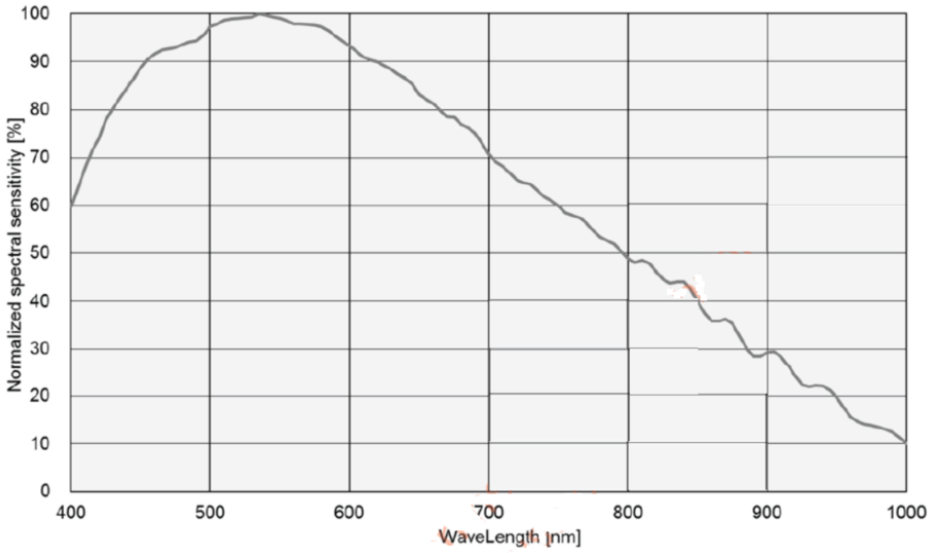


Figure 8-22 IUC60000KMA-10G spectral response curve

8.20 IUC60000KMA-AF10G

Table 8-20 IUC60000KMA-AF10G camera specifications

Parameter \ Model	IUC60000KMA-AF10G
	60.0M pixels 2.7" (Full Frame) CMOS USB3.0 / 10GigE industrial camera
Camera Parameters	
Data interface	10GigE
Sensor model	Sony IMX455ALK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7" (Full Frame)
Frame rate	20fps@9568×6380(16bit) 40fps@4784×3190 57.52fps@3184×2124 199.37@1040×706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
Signal-to-Noise ratio	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	870.9mV
Dark current	0.04mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 9×9; Software 2×2, 3×3, 9×9
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx51.3mm
Weight	540g
Lens mount	M52 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

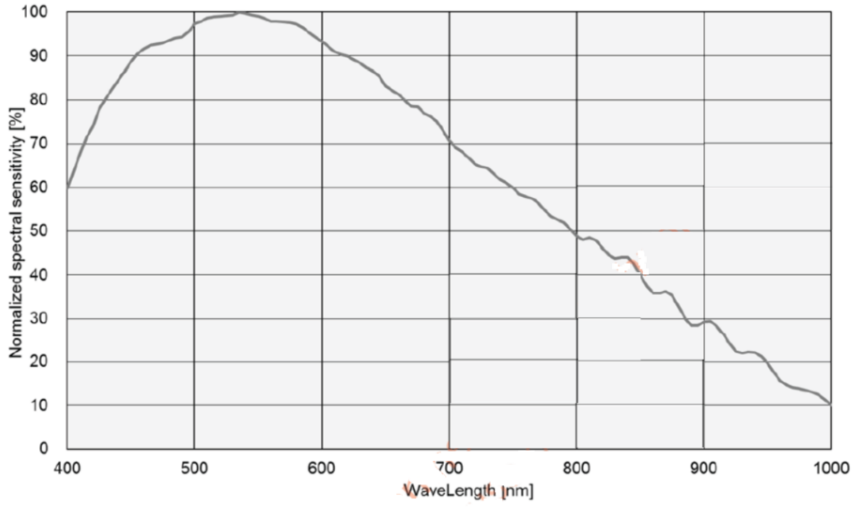


Figure 8-23 IUC60000KMA-AF10G spectral response curve

8.21 IUC60000KPA

Table 8-21 IUC60000KPA camera specifications

Parameter \ Model	IUC60000KPA
	60.0M pixels 2.7" (Full Frame) CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	Sony IMX455AQK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7" (Full Frame)
Frame rate	6.1fps@9568 x 6380(16bit) 24.6fps@4784 x 3190 55.8fps@3184 x 2124 191.0@1040 x 706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
Signal-to-Noise ratio	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	484.5mV
Dark current	0.07mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 9×9; Software 2×2, 3×3, 9×9
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<5.5W
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	540g
Lens mount	M52 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

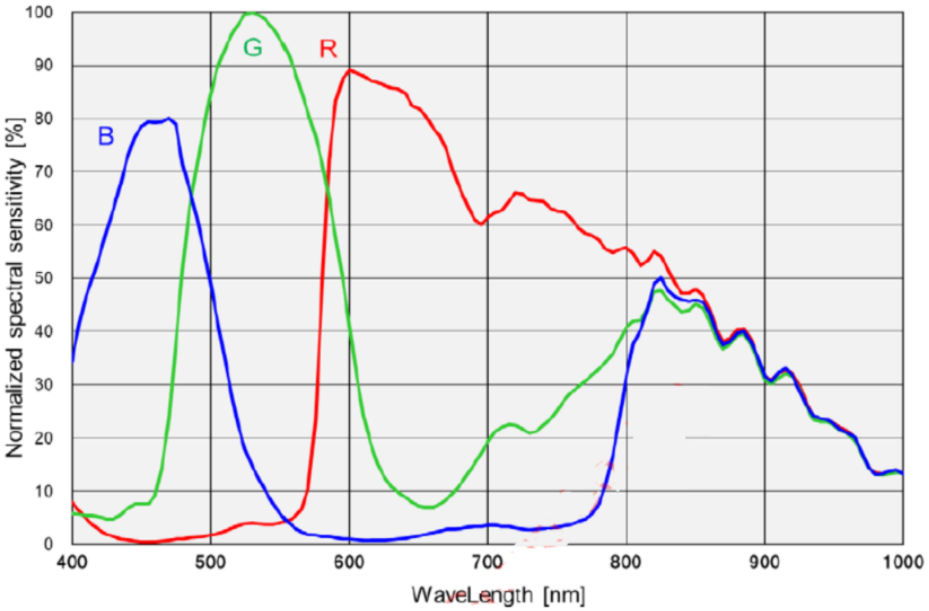


Figure 8-24 IUC60000KPA spectral response curve

8.22 IUC60000KPA-AFU

Table 8-22 IUC60000KPA-AFU camera specifications

Parameter \ Model	IUC60000KPA-AFU
	60.0M pixels 2.7" (Full Frame) CMOS USB3.0 industrial camera
Camera Parameters	
Data interface	USB3.0
Sensor model	Sony IMX455AQK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7" (Full Frame)
Frame rate	6.1fps@9568 x 6380(16bit) 24.6fps@4784 x 3190 55.8fps@3184 x 2124 191.0@1040 x 706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
Signal-to-Noise ratio	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	484.5mV
Dark current	0.07mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 9×9; Software 2×2, 3×3, 9×9
Data interface	USB3.0
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	<5.5W
Temperature	Working temperayure-10~50°C, storage temperature-30~70°C
Humidity	20%-80%, no condensation
Size	88mmx88mmx36.3mm
Weight	540g
Lens mount	M52 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

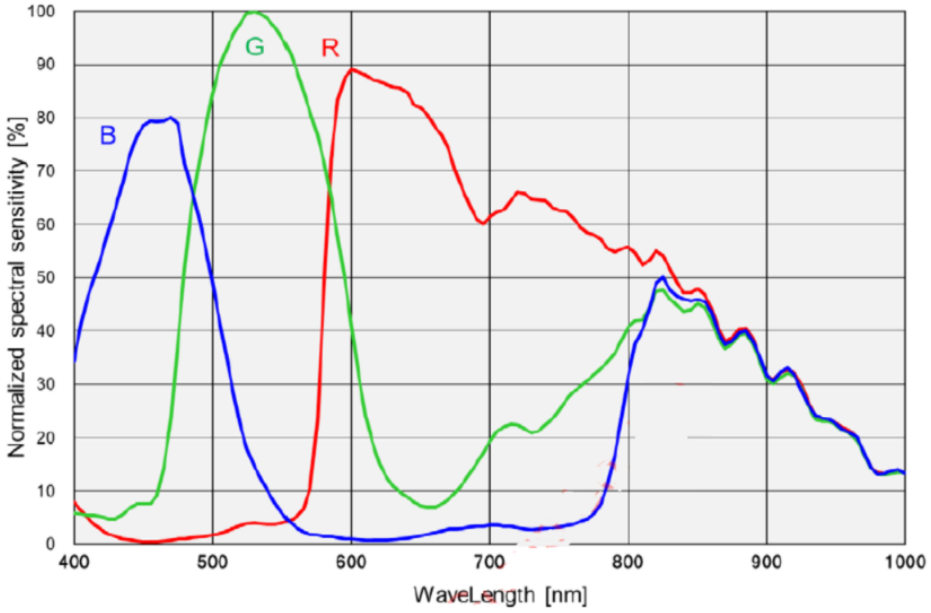


Figure 8-25 IUC60000KPA-AFU spectral response curve

8.23 IUC60000KPA-10G

Table 8-23 IUC60000KPA-10G camera specifications

Parameter \ Model	IUC60000KPA-10G
	60.0M pixels 2.7" (Full Frame) CMOS USB3.0 / 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX455AQK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7" (Full Frame)
Frame rate	20fps@9568×6380(16bit) 40fps@4784×3190 57.52fps@3184×2124 199.37@1040×706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
Signal-to-Noise ratio	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	484.5mV
Dark current	0.07mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 9×9; Software 2×2, 3×3, 9×9
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Temperature	Working temperayure-10~50℃, storage temperature-30~70℃
Humidity	20%-80%, no condensation
Size	88mmx88mmx51.3mm
Weight	540g
Lens mount	M52 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

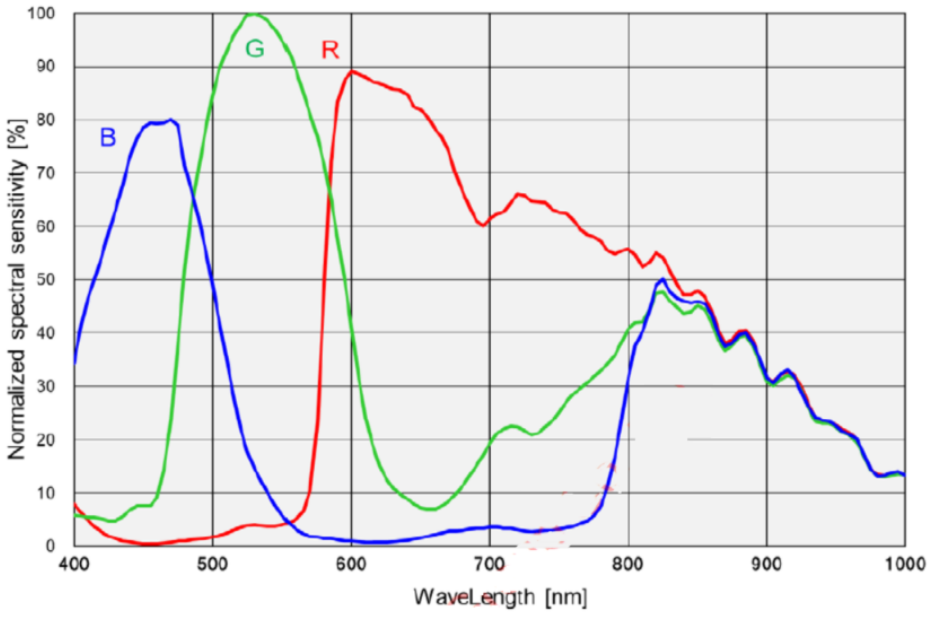


Figure 8-26 IUC60000KPA-10G spectral response curve

8.24 IUC60000KPA-AF10G

Table 8-24 IUC60000KPA-AF10G camera specifications

Parameter \ Model	IUC60000KPA-AF10G
	60.0M pixels 2.7" (Full Frame) CMOS USB3.0 / 10GigE industrial camera
Camera Parameters	
Sensor model	Sony IMX455AQK
Pixel size	3.76 μm x 3.76 μm
Sensor size	2.7" (Full Frame)
Frame rate	20fps@9568×6380(16bit) 40fps@4784×3190 57.52fps@3184×2124 199.37@1040×706
Conversion Gain	0.79e-(HCG) 1.62e-(LCG)
Readout Noise	3.51e-(HCG) 5.39e-(LCG)
Full Well	51550.45e-(HCG) 87353.34e-(LCG)
Dynamic range	83.34dB (HCG) 84.18dB (LCG)
Signal-to-Noise ratio	47.12dB(HCG) 49.41dB(LCG)
Sensitivity	484.5mV
Dark current	0.07mV
Gain range	1x-50x
Exposure time	150us-15sec
Shutter	Rolling shutter
Binning	Hardware 2×2, 3×3, 9×9; Software 2×2, 3×3, 9×9
Data interface	10GigE
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 16bit
General Specifications	
Power supply	12V Power adapter
Power consumption	TBD
Temperature	Working temperayure-10~50°C, storage temperature-30~70°C
Humidity	20%-80%, no condensation
Size	88mmx88mmx51.3mm
Weight	540g
Lens mount	M52 Interface
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

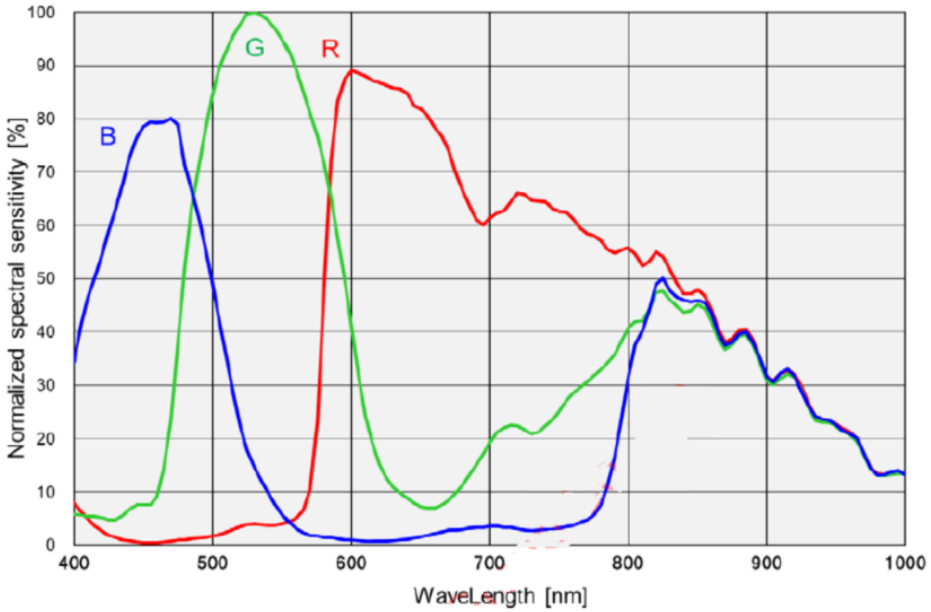


Figure 8-27 IUC60000KPA-AF10G spectral response curve

9 IUD Series Technical Specifications(2)

9.1 IUD16000KMA(NIR)

Table 9-1 IUD16000KMA camera specifications

Parameter \ Model	IUD16000KMA
	16M pixels 1.8" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	PYTHON 16K
Pixel size	4.5 μm x 4.5 μm
Sensor size	1.8"
Frame rate	22.5@4096×4096
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	TBD
Dark current	TBD
Gain range	1x-50x
Exposure time	1us-60s
Shutter	Global shutter
Binning	Hardware 1×1, 2×2, 3×3
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	Two non-isolated input, Three non-isolated output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	59mm×59mm×27.2mm
Weight	139.3g
Lens mount	M42-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

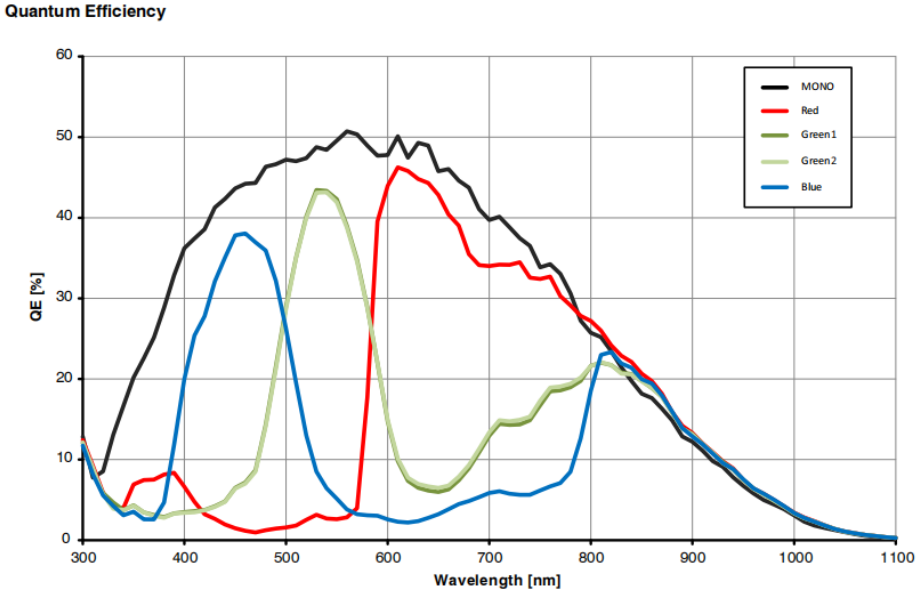


Figure 9-1 IUD16000KMA spectral response curve

9.2 IUD25000KMA(NIR)

Table 9-2 IUD25000KMA camera specifications

Model / Parameter	IUD25000KMA
	25M 2.04" CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	PYTHON 25K
Pixel size	4.5 μm x 4.5 μm
Sensor size	2.04"
Frame rate	14.8fps@5120×5120 14.8fps@2560×2560 14.8fps@1664×1664
Dynamic range	59dB
Signal-to-Noise ratio	41dB
Sensitivity	<1/5000
Dark current	3.9e⁻/s@ 20°C
Gain range	1x-50x
Exposure time	1us-60s
Shutter	Global shutter
Binning	Hardware 1×1, 2×2, 3×3
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	Two non-isolated input, Three non-isolated output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	TBD
Temperature	Working temperature -10~50°C, storage temperature -30~70°C
Humidity	20%-80%, no condensation
Size	59mm×59mm×27.2mm
Weight	139.3g
Lens mount	M42-mount
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

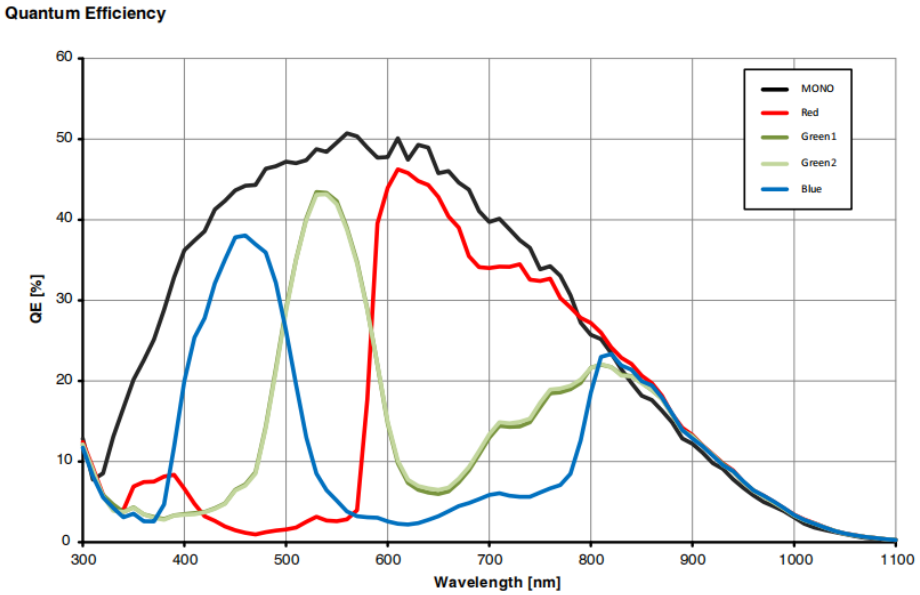


Figure 9-2 IUD25000KMA spectral response curve

10 IUE Series Technical Specifications(1)

10.1 IUE1800KMA

Table 10-1 IUE1800KMAcamera specifications

Parameter \ Model	IUE1800KMA
	1.8M CMOS USB3.0 industrial camera
Camera Parameters	
Sensor model	CMOS Sensor
Pixel size	96 μm x 96 μm
Sensor size	TBD
Frame rate	120fps@1200×1536
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	TBD
Dark current	2200e/s/pixel@25℃
Gain range	1x-50x
Exposure time	10us-15s
Shutter	Rolling shutter
Binning	Hardware 1×1, 2×2, 3×3
Data interface	USB3.0(USB3.1 GEN1)
Digital I/O	One optical-coupling isolated input, one optical-coupling isolated output, two non-isolated input and output
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB3.0
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	220mmx160mmx28.6mm
Weight	TBD
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

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11 AVCAM Series Technical Specifications(1)

11.1 AVCAM290A

Table 11-1 AVCAM290A camera specifications

Parameter \ Model	AVCAM290A
	4.0M pixels 1/2.8" CMOS CVBS industrial camera
Camera Parameters	
Sensor model	Sony IMX307
Pixel size	2.9 μm x 2.9 μm
Sensor size	1/2.8"
Frame rate	25fps@720 × 576
Dynamic range	TBD
Signal-to-Noise ratio	TBD
Sensitivity	TBD
Dark current	2200e/s/pixel@25℃
Gain range	1x-100x
Exposure time	105us-20ms
Shutter	Rolling shutter
Binning	Hardware 1×1, 2×2, 3×3
Data interface	CVBS(PAL-N)
Data Format	8-bit / 12-bit
General Specifications	
Power supply	Power with USB2.0
Power consumption	TBD
Temperature	Working temperature -10~50℃, storage temperature -30~70℃
Humidity	20%-80%, no condensation
Size	45mmx58.5mm
Weight	TBD
Lens mount	M12
Software	ToupView/ SDK
Platform and architecture	Win32/WinRT/Linux/macOS/Android；x86/x64/ARM HF/ARM EL/ARM64
Certification	CE, FCC

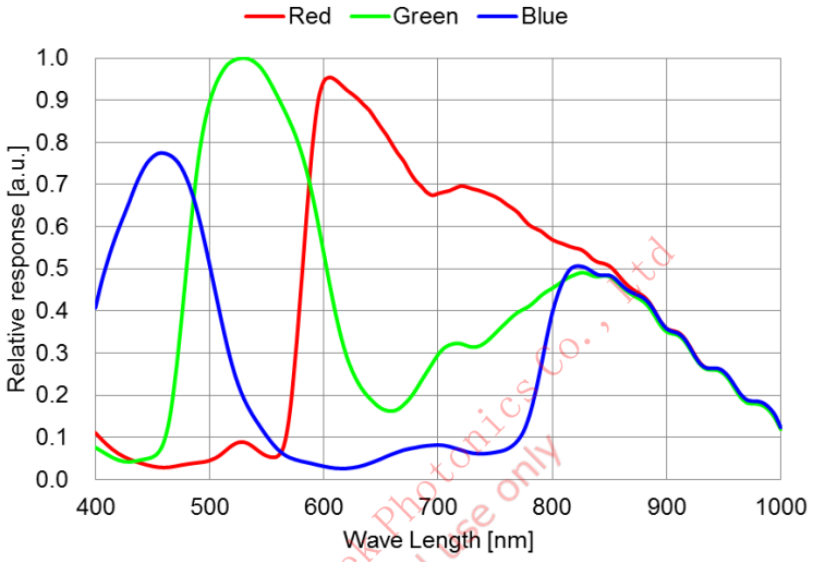


Figure 11-1 AVCAM290A spectral response curve

12 Camera Dimension and Interface

12.1 MAX Series USB3 Camera

12.1.1 Mechanical Housing Dimensions

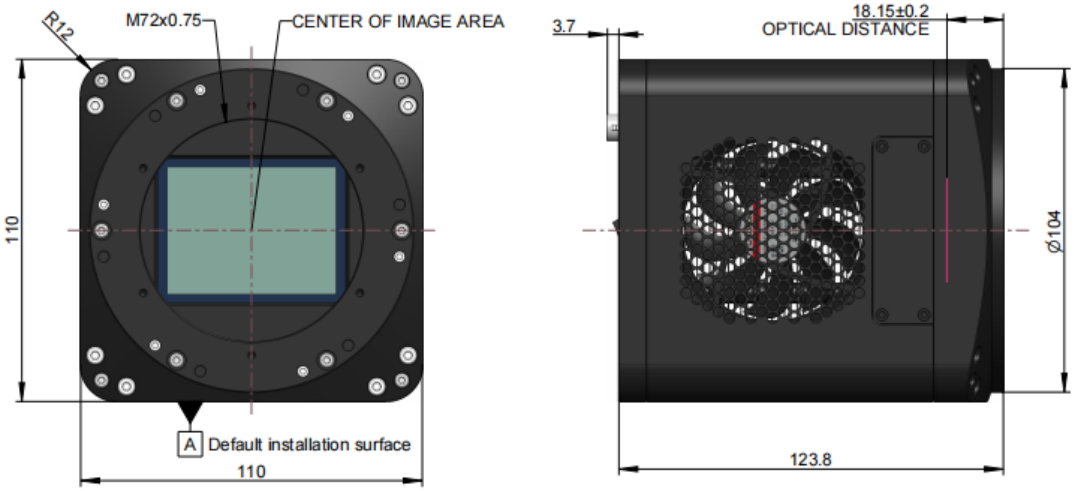


Figure 12-1 MAX251& MAX151 dimensions (mm)

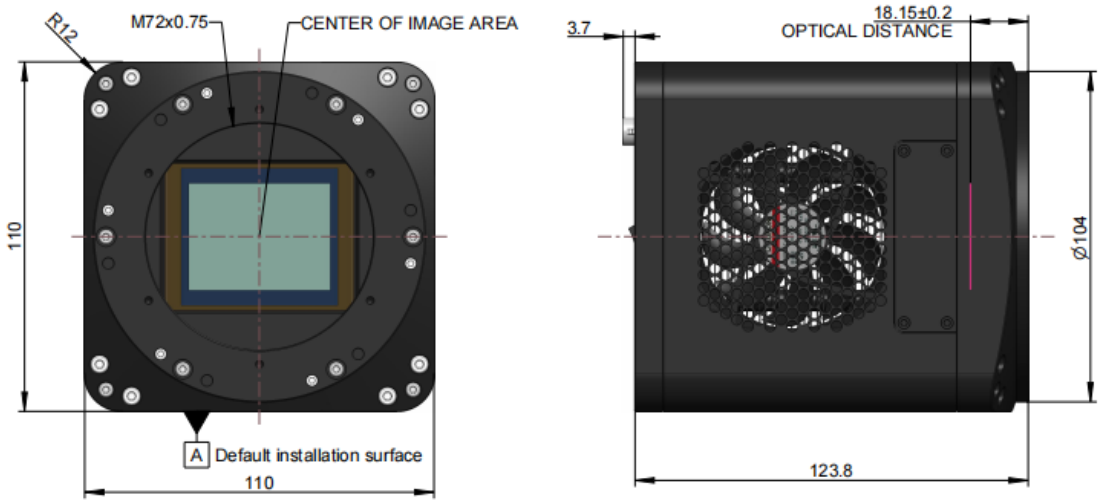


Figure 12-2 MAX102 dimensions (mm)

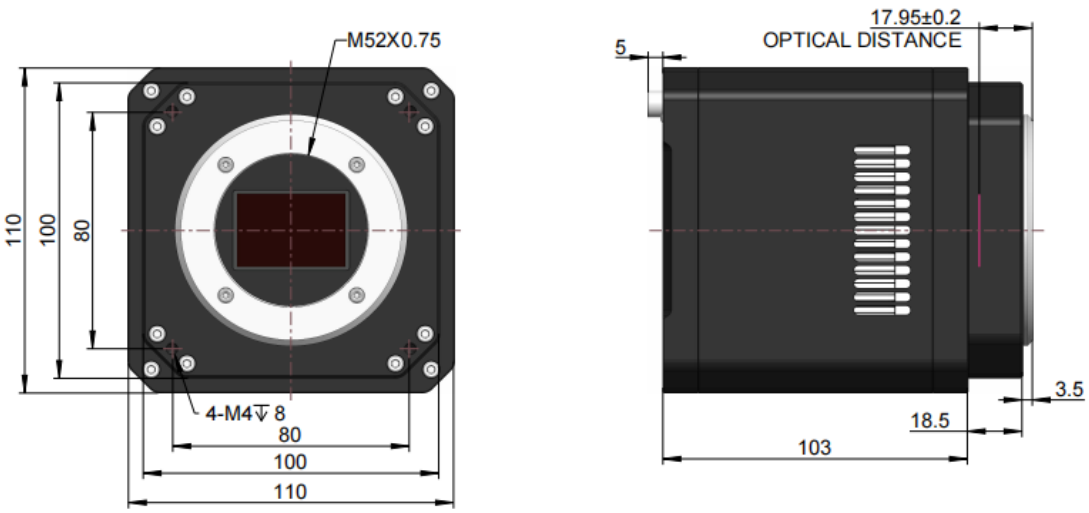


Figure 12-3 MAX62& MAX24 dimensions (mm)

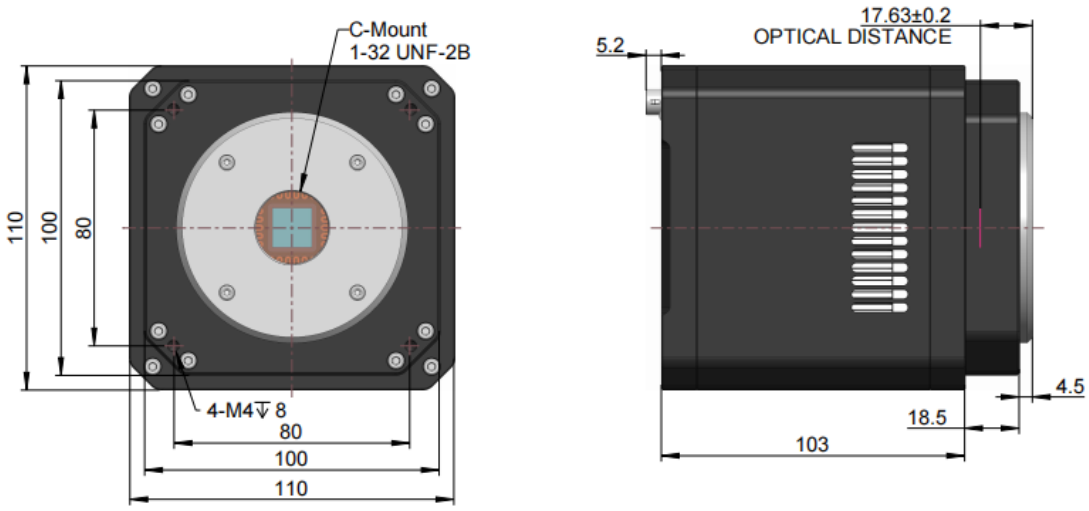


Figure 12-4 MAX04AM& MAX04AM dimensions (mm)

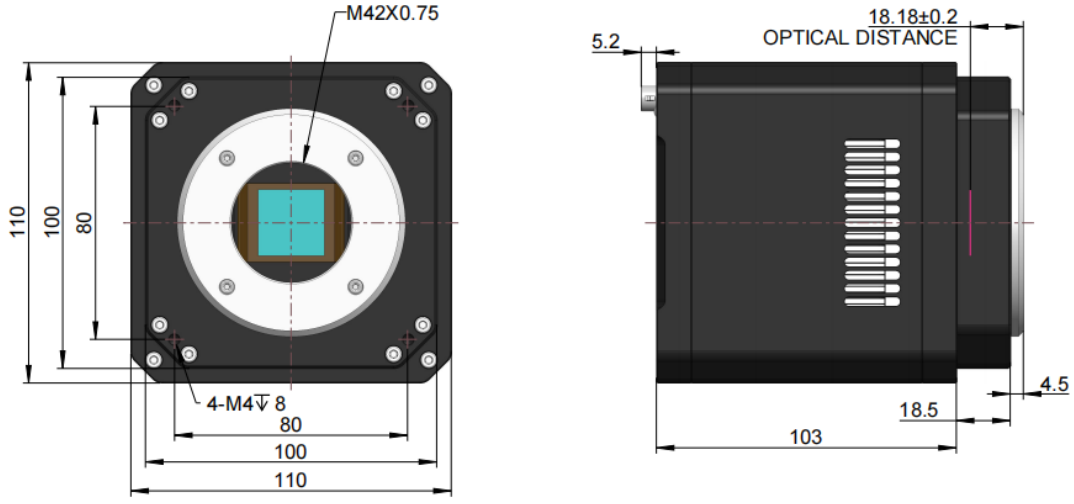


Figure 12-5 MAX04CM dimensions (mm)

12.1.2 Interface Description



Figure 12-6 MAX251& MAX151&MAX102 Camera interface diagram

Table 12-1 MAX251& MAX151&MAX102 Camera interface definition

Item	Specification
1	DC 19V power port
2	Trigger 7PIN
3	USB 3.0 port
4	Power switch
5	Power LED indicators
6	System LED indicators
7	TEC LED indicators
8	FAN LED indicators

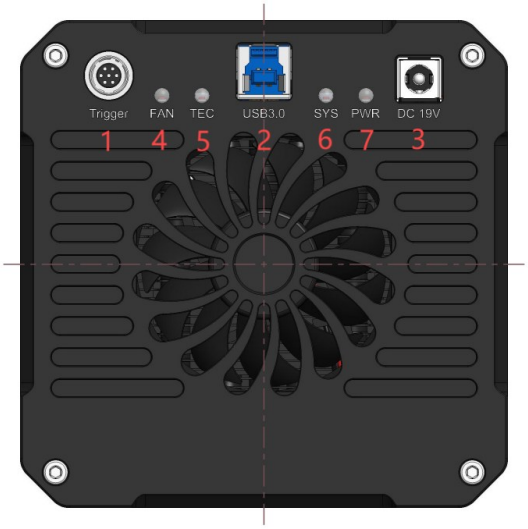


Figure 12-7 MAX62& MAX24&MAX04 Camera interface diagram

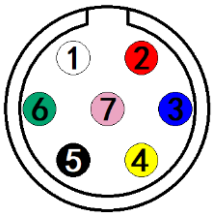
Table 12-2 MAX62& MAX24&MAX04 Camera interface definition

Item	Specification
1	Trigger 7PIN
2	USB 3.0/ USB 2.0 port
3	DC 19V power port

4	FAN LED indicators
5	TEC LED indicators
6	System LED indicators
7	Power LED indicators

12.1.3 Power Supply and I/O Connector

Table 12-3 MAX series pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	19V	19VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.1.4 Packing Information

Table 12-4 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
	Power adapter	1	Input: AC 100~240V 50Hz/60Hz,output: DC 19V 4A
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	USB3.0 or Micro USB3.0 cable
4	Lens (optional)	1	M72 or M52 or M42 or C-mount lens

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12.2 MAX Series GigECamera

12.2.1 Mechanical Housing Dimensions

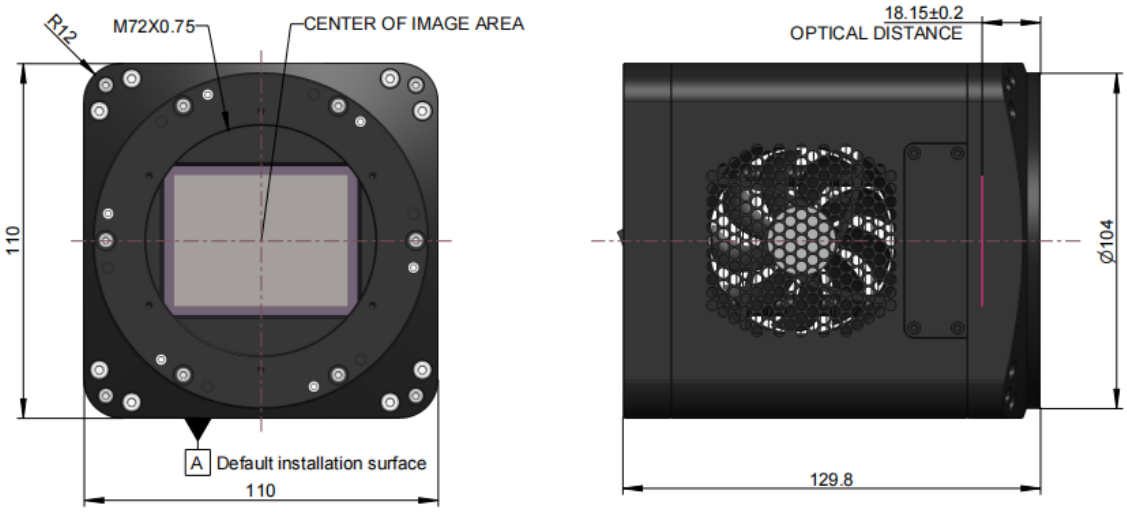


Figure 12-8 MAX251& MAX151 dimensions (mm)

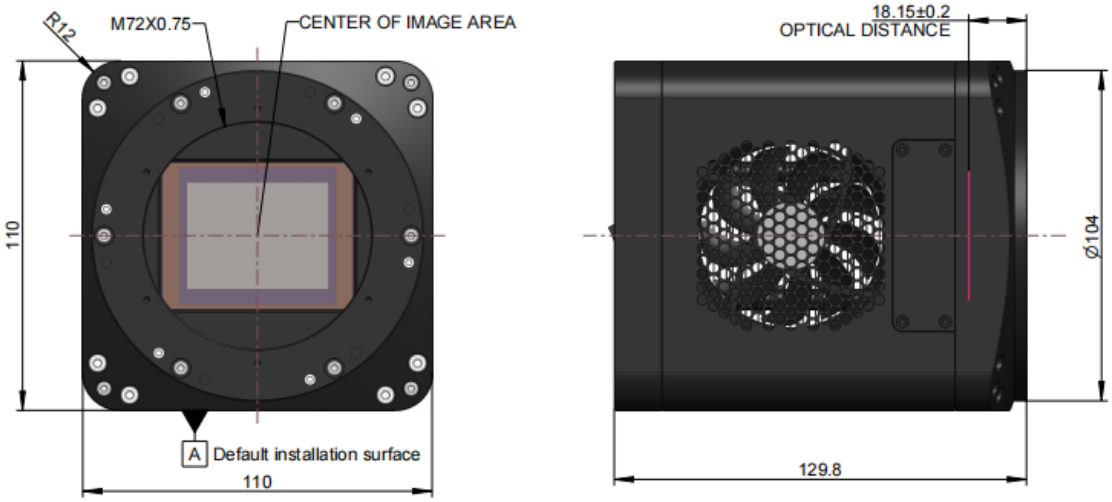


Figure 12-9 MAX102 dimensions (mm)

12.2.2 Interface Description



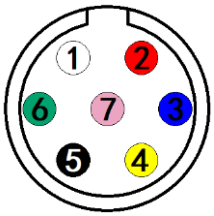
Figure 12-10 MAX251& MAX151&MAX102 Camera interface diagram

Table 12-5 MAX251& MAX151&MAX102 Camera interface definition

Item	Specification
1	DC 19V power port
2	Trigger 7PIN
3	10GigE port
4	Power switch
5	Power LED indicators
6	System LED indicators
7	TEC LED indicators
8	FAN LED indicators

12.2.3 Power Supply and I/O Connector

Table 12-6 MAX series pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	19V	19VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.2.4 Packing Information

Table 12-7 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
	Power adapter	1	Input: AC 100~240V 50Hz/60Hz,output: DC 19V 4A
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	GigE cable
4	Lens (optional)	1	M72 or M52 or M42 or C-mount lens

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12.3 ITR3CMOS Series USB3 Camera

12.3.1 Mechanical Housing Dimensions

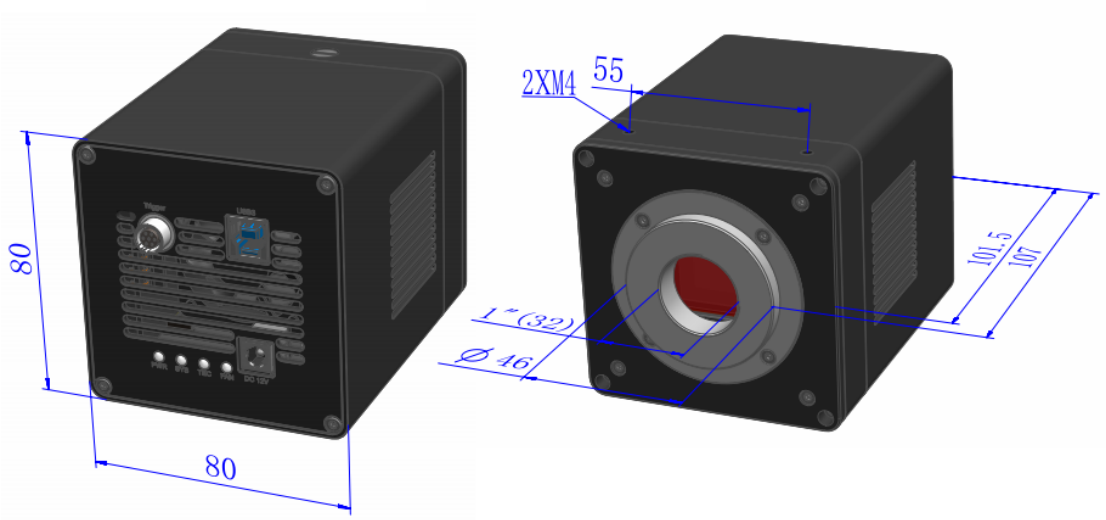


Figure 12-11 ITR3CMOS dimensions (mm)

12.3.2 Interface Description

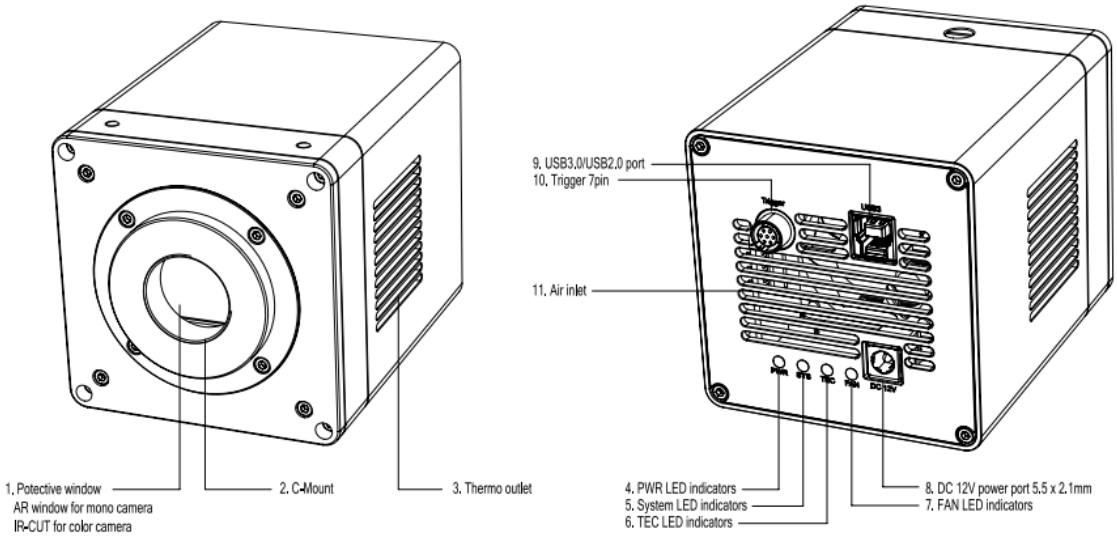


Figure 12-12 ITR3CMOS Camera interface diagram

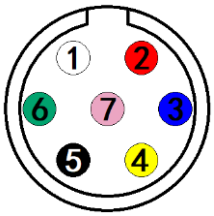
Table 12-8 ITR3CMOS Camera interface definition

Item	Specification
1	Protective window: AR window for mono camera; IR-CUT for color camera
2	C mount
3	Thermo outlet
4	Power LED indicators
5	System LED indicators
6	TEC LED indicators
7	FAN LED indicators
8	DC 12V power port
9	USB 3.0/ USB 2.0 port
10	Trigger 7PIN

11	Air inlet

12.3.3 Power Supply and I/O Connector

Table 12-9 MAX series pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.3.4 Packing Information

Table 12-10 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
	Power adapter	1	Input: AC 100~240V 50Hz/60Hz,output: DC 12V 3A
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	USB3.0 cable
4	Lens (optional)	1	C-mount lens

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12.4 ITR3CMOS Series GigE Camera

12.4.1 Mechanical Housing Dimensions

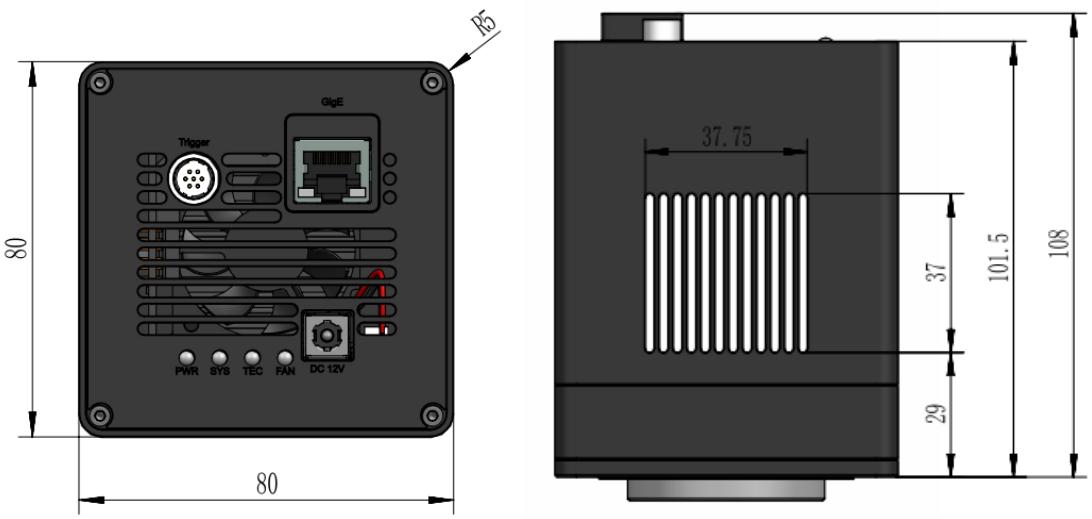


Figure 12-13 ITR3CMOS dimensions (mm)

12.4.2 Interface Description

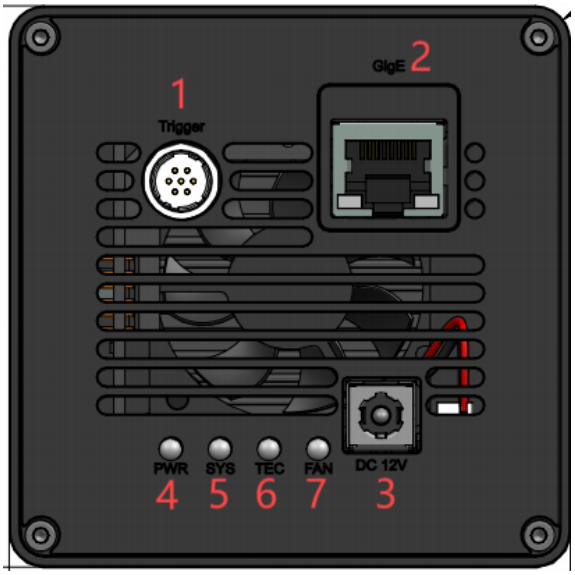


Figure 12-14 ITR3CMOS Camera interface diagram

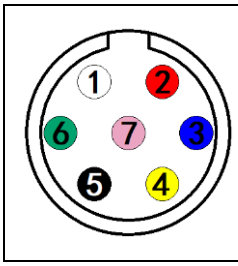
Table 12-11 ITR3CMOS Camera interface definition

Item	Specification
1	Trigger 7PIN
2	GigE port
3	DC 12V power port
4	Power LED indicators
5	System LED indicators
6	TEC LED indicators
7	FAN LED indicators

12.4.3 Power Supply and I/O Connector

Table 12-12 ITR3CMOS series pin signal definition

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Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.4.4 Packing Information

Table 12-13 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
	Power adapter	1	Input: AC 100~240V 50Hz/60Hz,output: DC 12V 3A
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	GigE cable
4	Lens (optional)	1	C-mount lens

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12.5 CTR3CMOS Series USB3 Camera

12.5.1 Mechanical Housing Dimensions

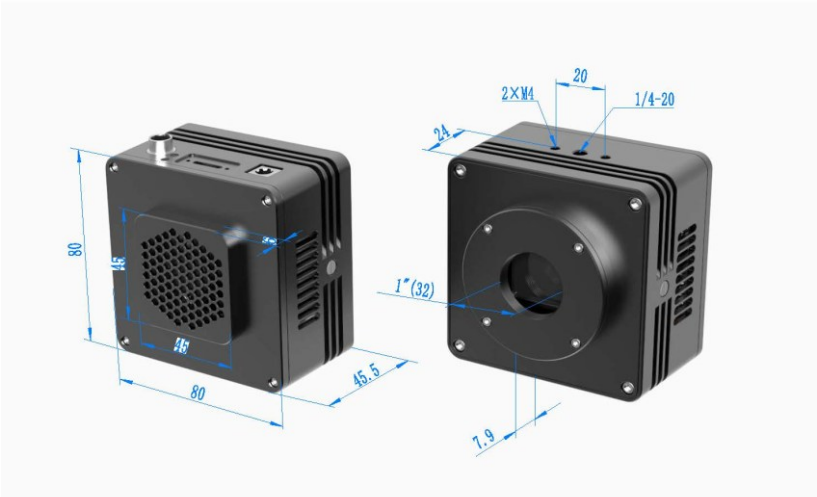


Figure 12-15 CTR3CMOS dimensions (mm)

12.5.2 Interface Description

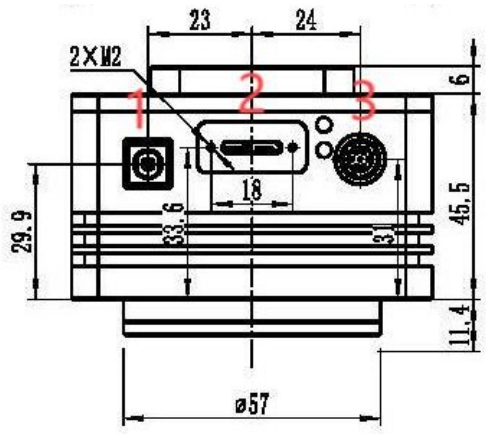


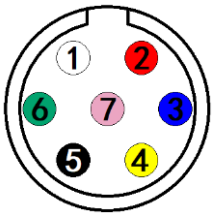
Figure 12-16 CTR3CMOS Camera interface diagram

Table 12-14 CTR3CMOS Camera interface definition

Item	Specification
1	DC 12V power port
2	USB 3.0 port
3	Trigger 7PIN

12.5.3 Power Supply and I/O Connector

Table 12-15 CTR3CMOS series pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.5.4 Packing Information

Table 12-16 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
	Power adapter	1	Input: AC 100~240V 50Hz/60Hz,output: DC 12V 3A
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	Micro USB3.0 cable
4	Lens (optional)	1	C-mount lens

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12.6 CTR3CMOS Series GigE Camera

12.6.1 Mechanical Housing Dimensions

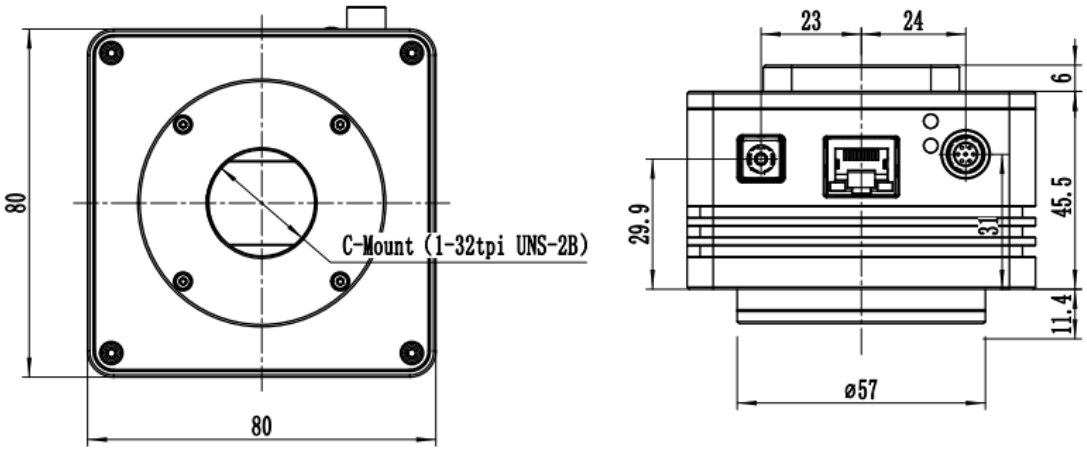


Figure 12-17 CTR3CMOS dimensions (mm)

12.6.2 Interface Description

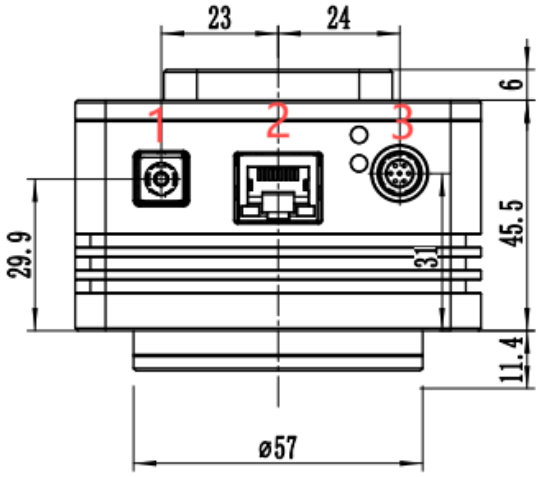


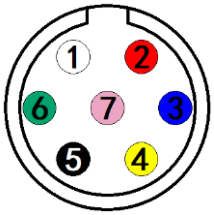
Figure 12-18 CTR3CMOS Camera interface diagram

Table 12-17 CTR3CMOS Camera interface definition

Item	Specification
1	DC 12V power port
2	GigE port
3	Trigger 7PIN

12.6.3 Power Supply and I/O Connector

Table 12-18 CTR3CMOS series pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

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12.6.4 Packing Information

Table 12-19 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
	Power adapter	1	Input: AC 100~240V 50Hz/60Hz,output: DC 12V 3A
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	GigE cable
4	Lens (optional)	1	C-mount lens

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12.7 I3 Series USB3 Camera

12.7.1 33mm Mechanical Housing Dimensions

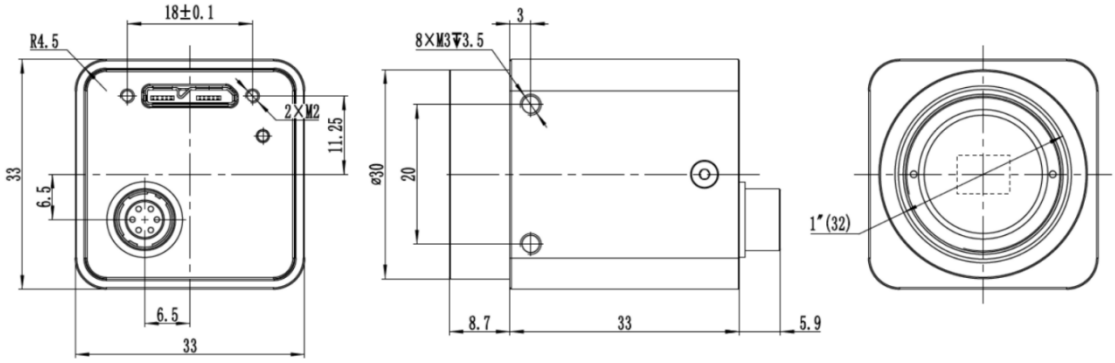


Figure 12-19 Dimensions of camera housing(mm)

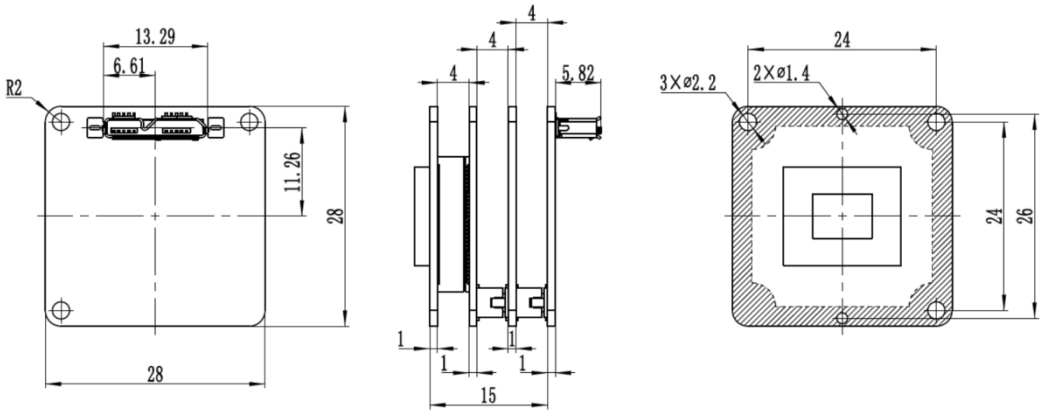


Figure 12-20 Dimensions of circuit board(mm)

12.7.2 38mm Mechanical Housing Dimensions

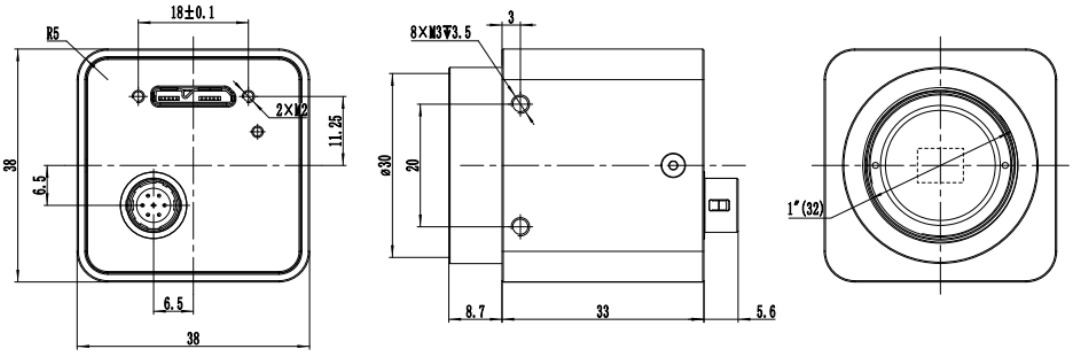


Figure 12-21 Dimensions of camera housing(mm)

12.7.3 Interface Description

The back of the industrial camera is shown in Figure 12-22. It has standard USB3.0 output, 6 Pin I/O port (aviation head) and on/off indicator. It has two M2 screw holes on both sides of USB 3.0 port to fix the cable. The holes reduce cable loosening caused by field vibration.

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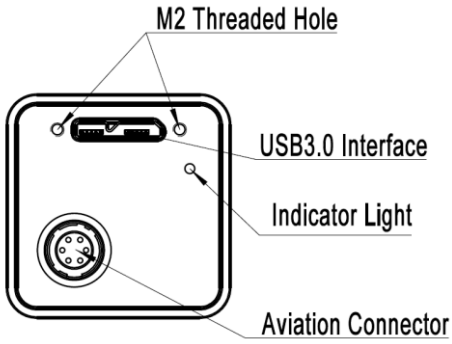


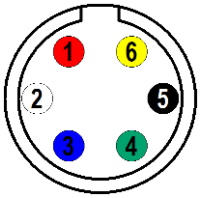
Figure 12-22 Schematic diagram of camera back panel

12.7.4 Power Supply and I/O Connector

The hardware version number of model I3CMOS00500KMA and I3ISPM00500KPA is V1, and the other models is V2.

The pin signal definition for the camera 6 Pin I/O connector of hardware version V1 is shown in Table 12-20.

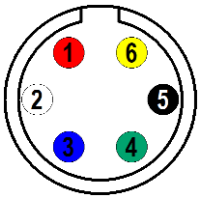
Table 12-20 Pin signal definition



Color	Pin	Signal	Signal description
red	1	DIR_IN	Direct-coupled input signal (line2)
white	2	OPTO_GND	Opto-isolated signal ground
blue	3	OPTO_OUT	Opto-isolated output signal(line1)
green	4	OPTO_IN	Opto-isolated input signal(line0)
black	5	GND	Direct-coupled signal ground
yellow	6	DIR_OUT	Direct-coupled output signal(line3)

The pin signal definition for the camera 6 Pin I/O connector with hardware version number V2 and above is shown in Table 12-21.

Table 12-21 V2.0 and above pin signal definitions



Color	Pin	Signal	Signal description
red	1	DIR_GPIO	Direct-coupled General Purpose I/O (Software configurable input / output) (line2)
white	2	OPTO_GND	Opto-isolated signal ground
blue	3	OPTO_OUT	Opto-isolated output signal(line1)
green	4	OPTO_IN	Opto-isolated input signal(line0)
black	5	GND	Direct-coupled signal ground
yellow	6	5V	5 VDC power input

12.7.5 Packing Informatio

Table 12-22 Packing information and recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	6 Pin cable or extended cable
3	Cable	1	Micro USB3.0 cable
4	Lens (optional)	1	C-mount lens

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12.8 I3 Series GigE Camera

12.8.1 Mechanical Housing Dimensions

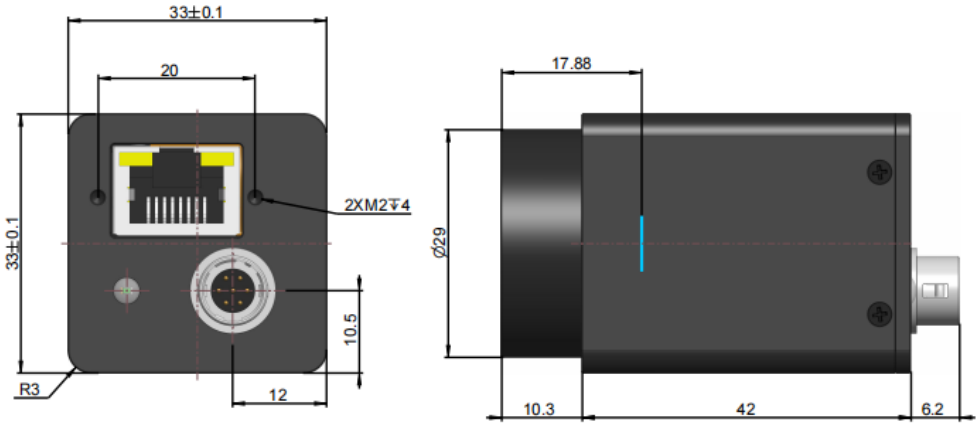


Figure 12-23 Dimensions of camera housing(mm)

12.8.2 Interface Description



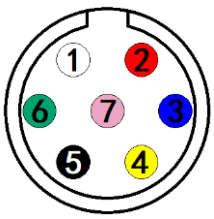
Figure 12-24 Schematic diagram of camera back panel

Table 12-23 I3 Camera interface definition

Item	Specification
1	GigE port
2	Trigger 7PIN

12.8.3 Power Supply and I/O Connector

Table 12-24 Pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.8.4 Packing Informatio

Table 12-25 Packing information and recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	GigE cable

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4	Lens (optional)	1	C-mount lens

12.9 I3 Series 10GigE Camera

12.9.1 Mechanical Dimensions (with Fan)

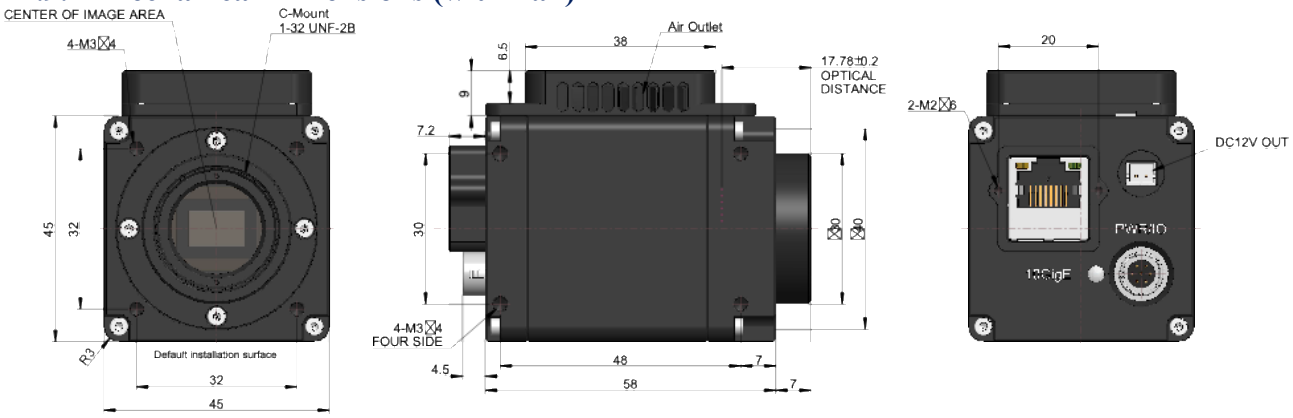


Figure 12-25 Dimensions of camera housing(mm)

12.9.2 Mechanical Housing Dimensions

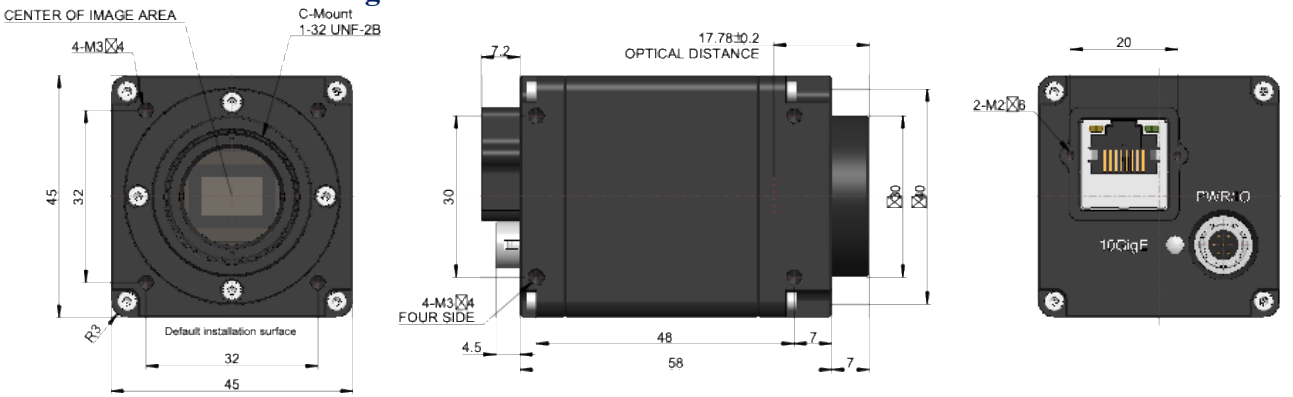


Figure 12-26 Dimensions of camera housing(mm)

12.9.3 Interface Description

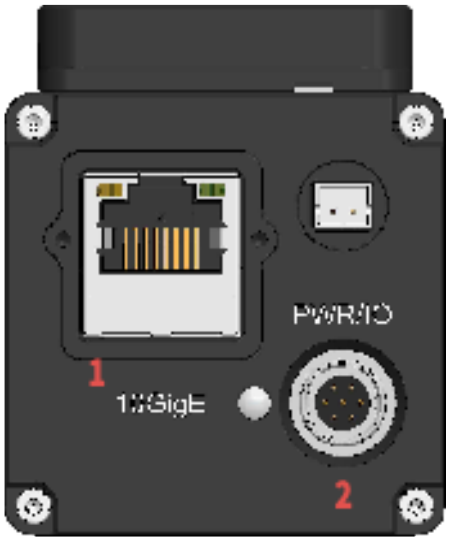


Figure 12-27 Schematic diagram of camera back panel(with Fan)



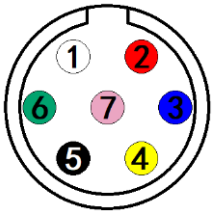
Figure 12-28 Schematic diagram of camera back panel

Table 12-26 I3 Camera interface definition

Item	Specification
1	GigE port
2	Trigger 7PIN

12.9.4 Power Supply and I/O Connector

Table 12-27 Pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.9.5 Packing Informatio

Table 12-28 Packing information and recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	GigE cable

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4	Lens (optional)	1	C-mount lens

12.10 I3 Series CoaXPress Camera

12.10.1Mechanical Housing Dimensions

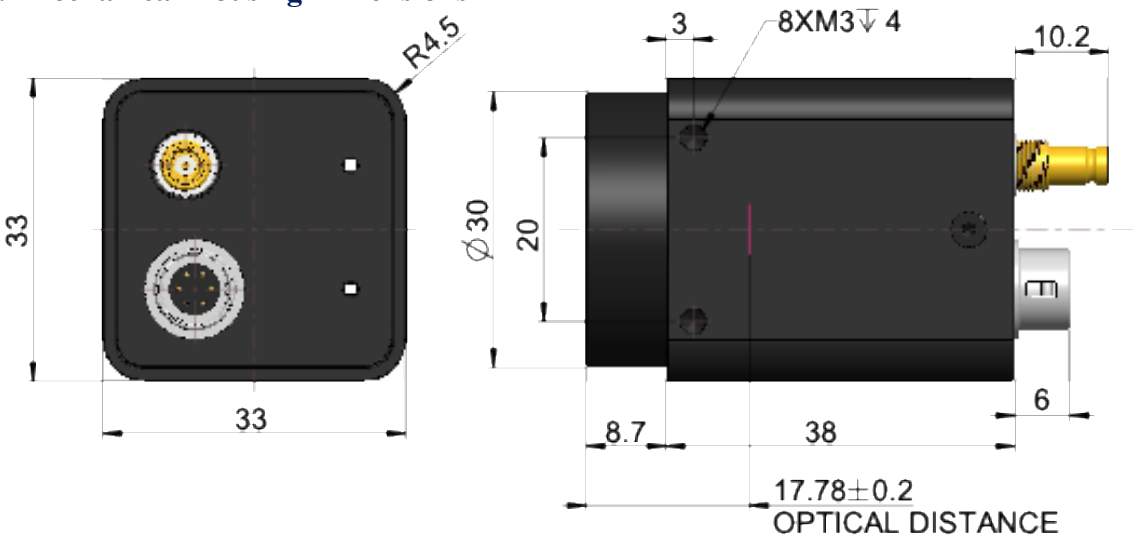


Figure 12-29 Dimensions of camera housing(mm)

12.10.2Interface Description



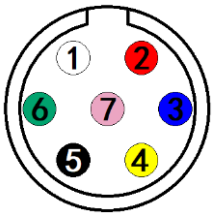
Figure 12-30 Schematic diagram of camera back panel

Table 12-29 I3 Camera interface definition

Item	Specification
1	CoaXPress Interface
2	Trigger 7PIN

12.10.3Power Supply and I/O Connector

Table 12-30 Pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.10.4Packing Informatio

Table 12-31 Packing information and recommended accessories

Order number	Accessories name	Quantity	Instruction

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1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	CoaXPress cable
4	Lens (optional)	1	C-mount lens

12.11 IUA Series USB3 Camera

12.11.1Mechanical Housing Dimensions

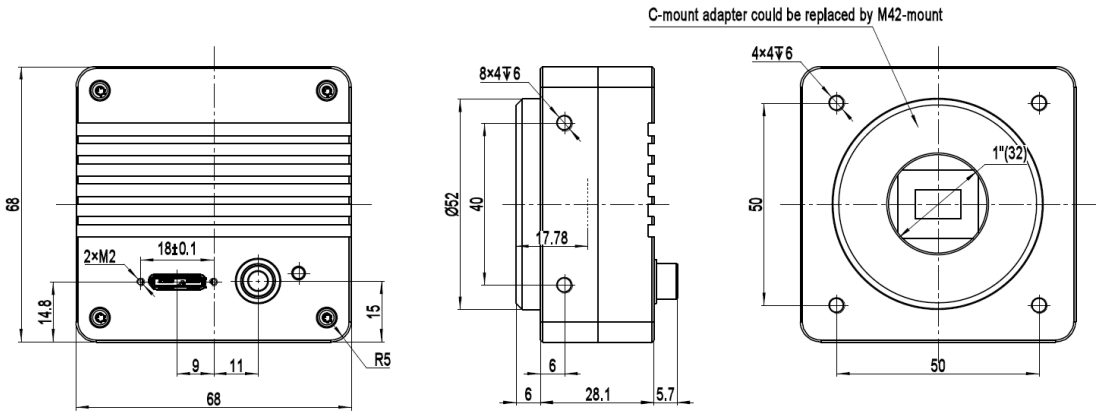


Figure 12-31 Dimensions of IUA camera housing (mm)

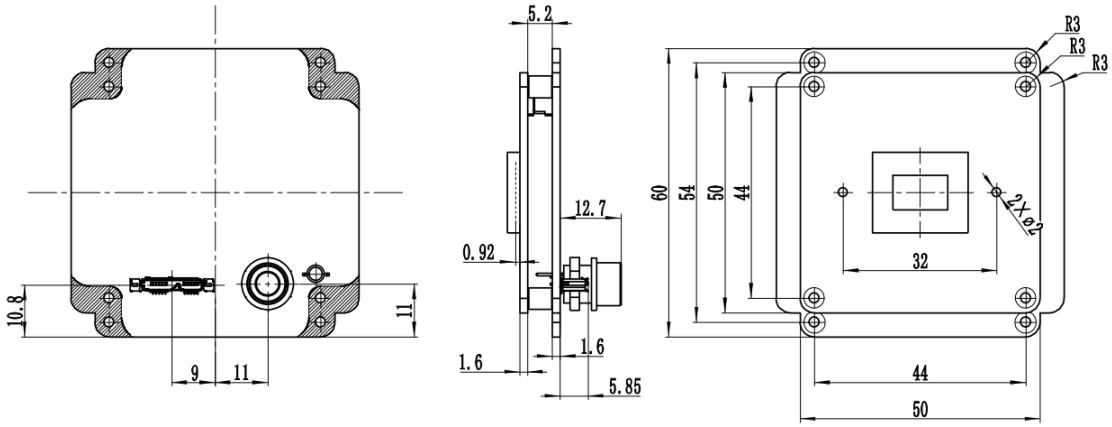


Figure 12-32 Dimensions of IUA circuit board (mm)

12.11.2Interface Description

The back of the industrial camera is shown in Figure 12-33. It has standard USB3.0 output, 7 Pin I/O port (aviation head) and on/off indicator. It has two M2 screw holes on both sides of USB 3.0 port to fix the cable. The holes reduce cable loosening caused by field vibration.

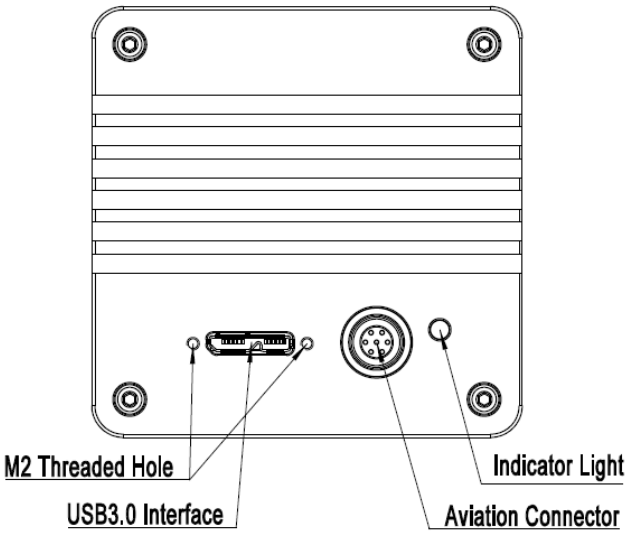
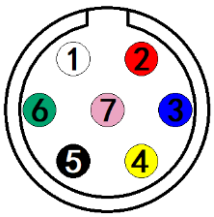


Figure 12-33 Schematic diagram of IUA camera back panel

12.11.3Power Supply and I/O Connector

Table 12-32 IUA series pin signal definition



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.11.4Packing Information

Table 12-33 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	Micro USB3.0 cable
4	Lens (optional)	1	C-mount lens

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12.12 IUB Series USB3 Camera

12.12.1Mechanical Housing Dimensions

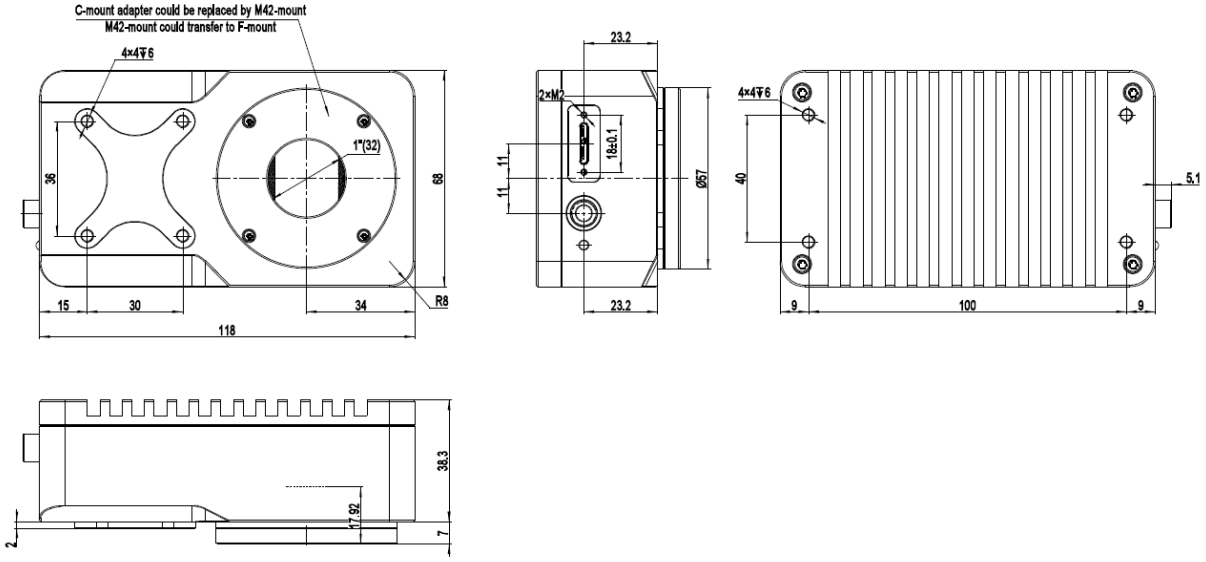


Figure 12-34 Dimensions of IUB camera housing (mm)

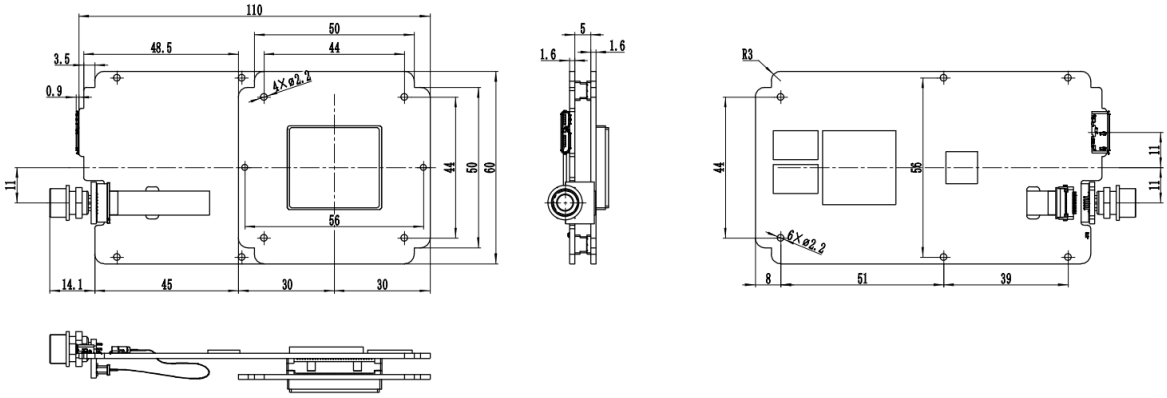


Figure 12-35 Dimensions of IUB circuit board (mm)

12.12.2Interface Description

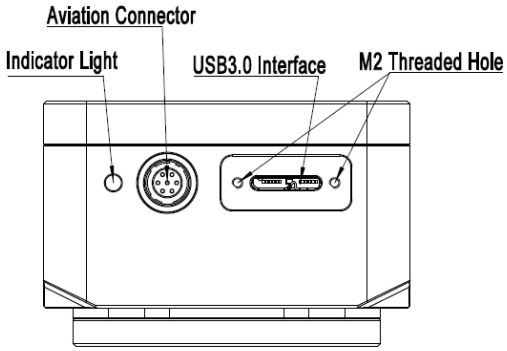
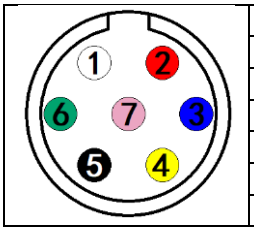


Figure 12-36 Schematic diagram of IUB camera back panel

12.12.3Power Supply and I/O Connector

Table 12-34 IUB series pin signal definitions

	Color	Pin	Signal	Signal description

	White	1	GND	Direct-coupled signal ground
	Red	2	12V	12VDC power input or output
	Blue	3	OPTO_GND	Opto-isolated signal ground
	Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
	Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
	Green	6	OPTO_IN	Opto-isolated input signal (line0)
	Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.12.4Packing Information

Table 12-35 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	Micro USB3.0 cable
4	Power	1	12V/3A air plug power adapter
5	Lens (optional)	1	C-mount lens

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12.13 IUC Series USB3 Camera

12.13.1Mechanical Housing Dimensions

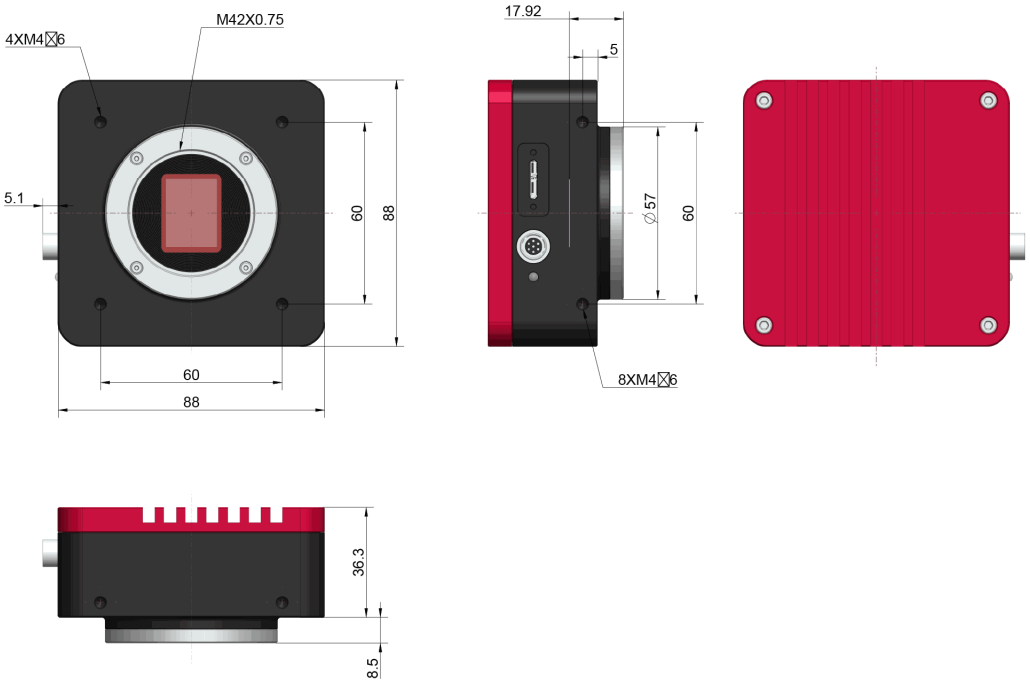


Figure 12-37 Dimensions of IUC camera housing (mm)

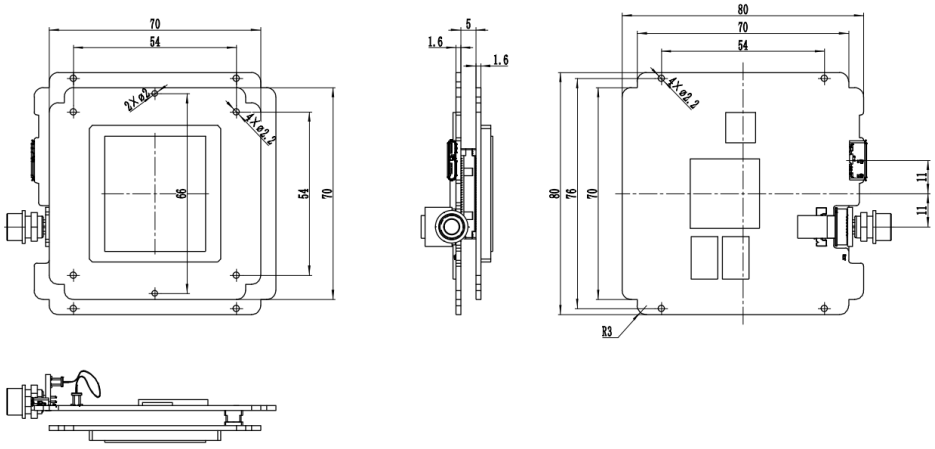


Figure 12-38 Dimensions of IUC circuit board (mm)

12.13.2Interface Description

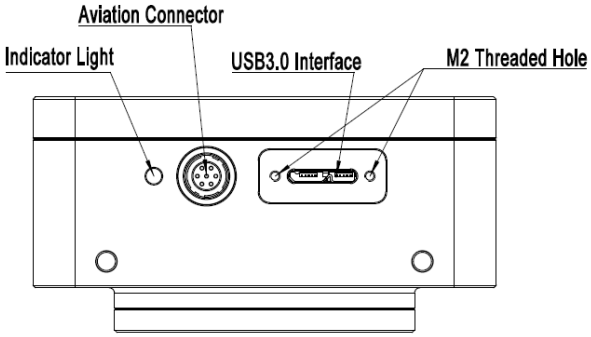
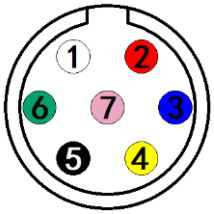


Figure 12-39 Schematic diagram of IUC camera

12.13.3Power Supply and I/O Connector

Table 12-36 IUC series pin signal definitions



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.13.4Packing Information

Table 12-37 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	Micro USB3.0 cable
4	Power	1	12V/3A air plug power adapter
5	Lens (optional)	1	C-mount lens

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12.14 IUC Series GigE Camera

12.14.1Mechanical Housing Dimensions

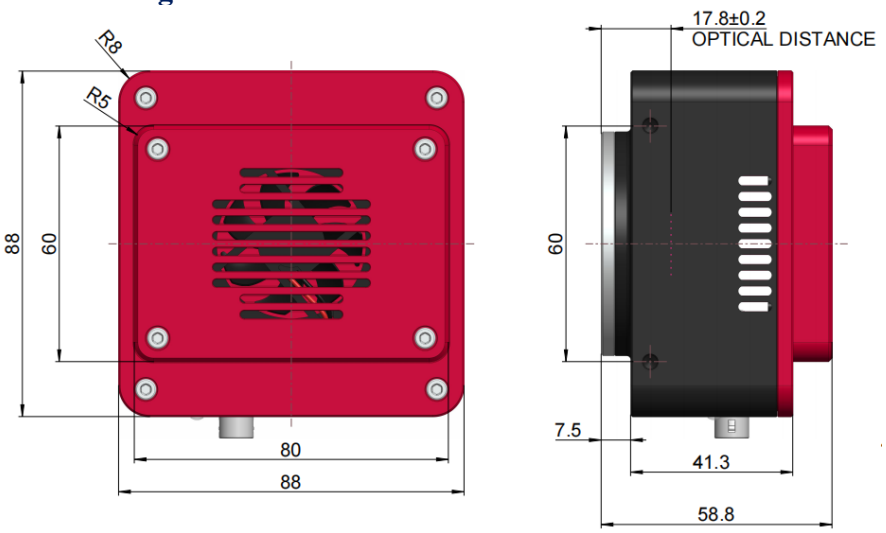


Figure 12-40 Dimensions of IUC camera housing (mm)

12.14.2Interface Description

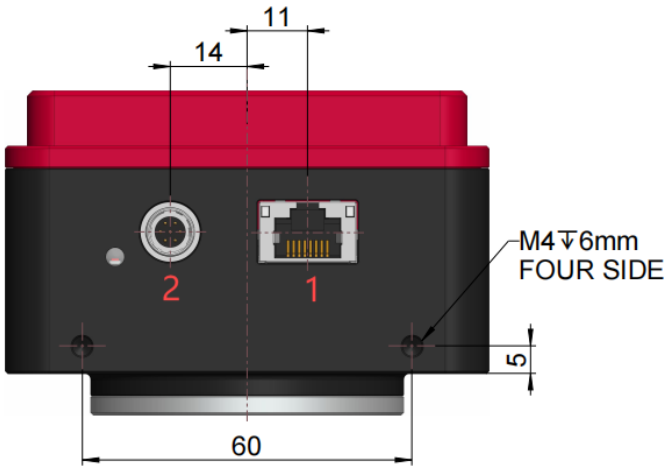


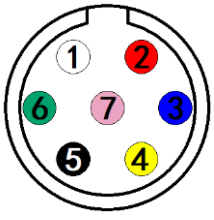
Figure 12-41 Schematic diagram of IUC camera

Table 12-38 IUC Camera interface definition

Item	Specification
1	10GigE port
2	Trigger 7PIN

12.14.3Power Supply and I/O Connector

Table 12-39 IUC series pin signal definitions



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

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12.14.4Packing Information

Table 12-40 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	GigE cable
4	Power	1	12V/3A air plug power adapter
5	Lens (optional)	1	M42-mount lens

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12.15 IUC Series CameraLink Camera

12.15.1Mechanical Housing Dimensions

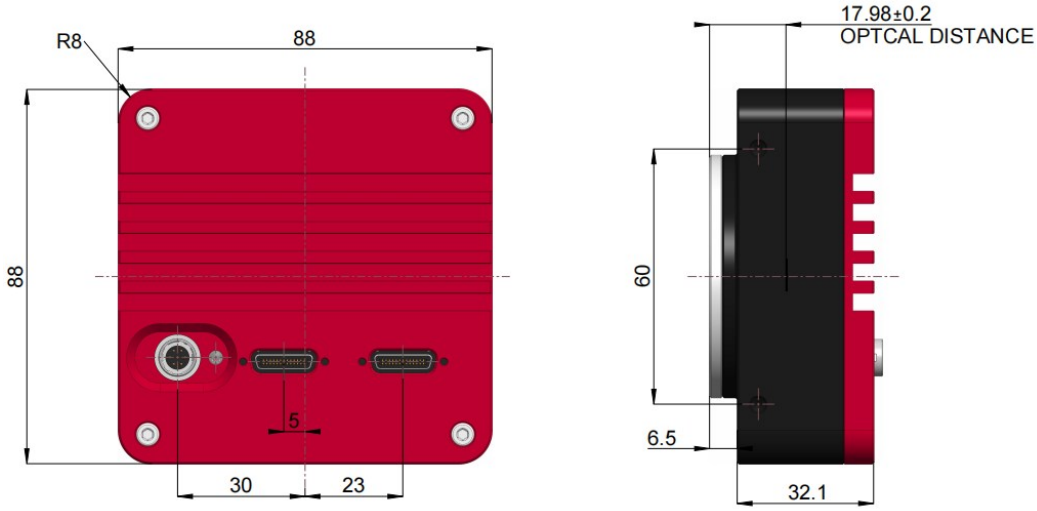


Figure 12-42 Dimensions of IUC camera housing (mm)

12.15.2Interface Description

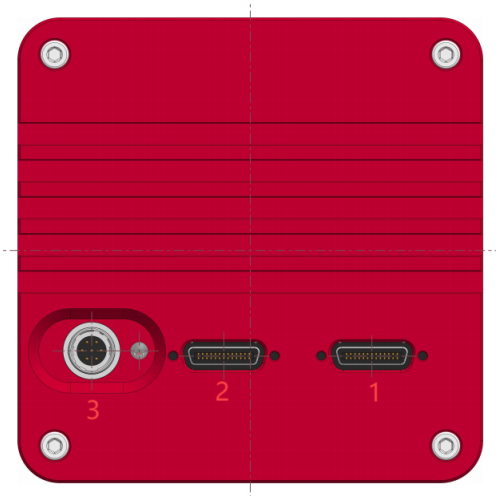


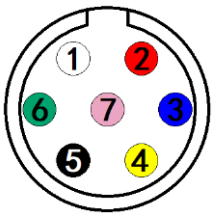
Figure 12-43 Schematic diagram of IUC camera

Table 12-41 IUC Camera interface definition

Item	Specification
1	CameraLink1
2	CameraLink2
3	Trigger 7PIN

12.15.3Power Supply and I/O Connector

Table 12-42 IUC series pin signal definitions



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)

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	Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.15.4Packing Information

Table 12-43 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable
3	Cable	1	CameraLinkcable
4	Power	1	12V/3A air plug power adapter
5	Lens (optional)	1	C-mount lens

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12.16 IUD Series USB3 Camera

12.16.1Mechanical Housing Dimensions

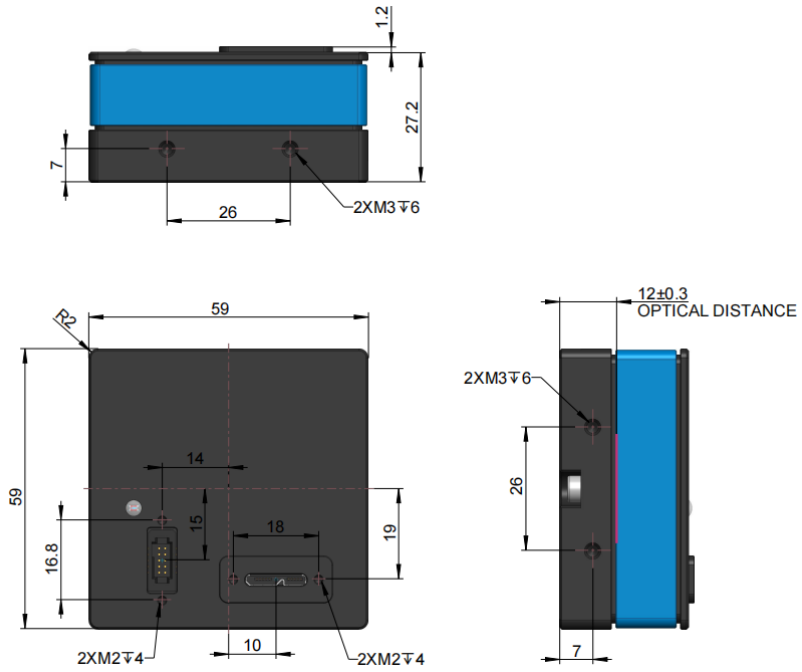


Figure 12-44 Dimensions of IUD camera housing (mm)

12.16.2Interface Description

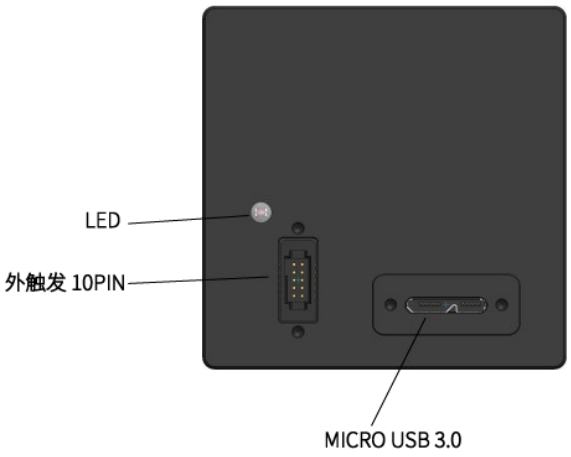
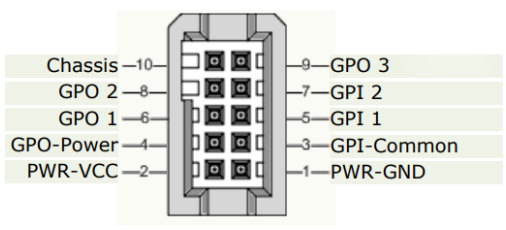


Figure 12-45 Schematic diagram of IUD camera

12.16.3Power Supply and I/O Connector

Table 12-44 IUD series pin signal definitions



Pin	Signal	Signal description
1	GND	Power ground
2	12V	12VDC power
3	GPI_GND	General Input Common Ground
4	GPO-POWER	General Output Common Power
5	GPI1	General External Input 1
6	GPO1	General External Output 1
7	GPI2	Opto-isolated output signal
8	GPO2	General External Output 2

	9	GPO3	General External Output 3
	10	Chassis	Camera Chassis

12.16.4Packing Information

Table 12-45 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	10 Pin cable or extended cable
3	Cable	1	Micro USB3.0 cable
4	Power	1	Power adapter for IUD series
5	Lens (optional)	1	M42-mount lens

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12.17 IUE Series USB3 Camera

12.17.1Mechanical Housing Dimensions

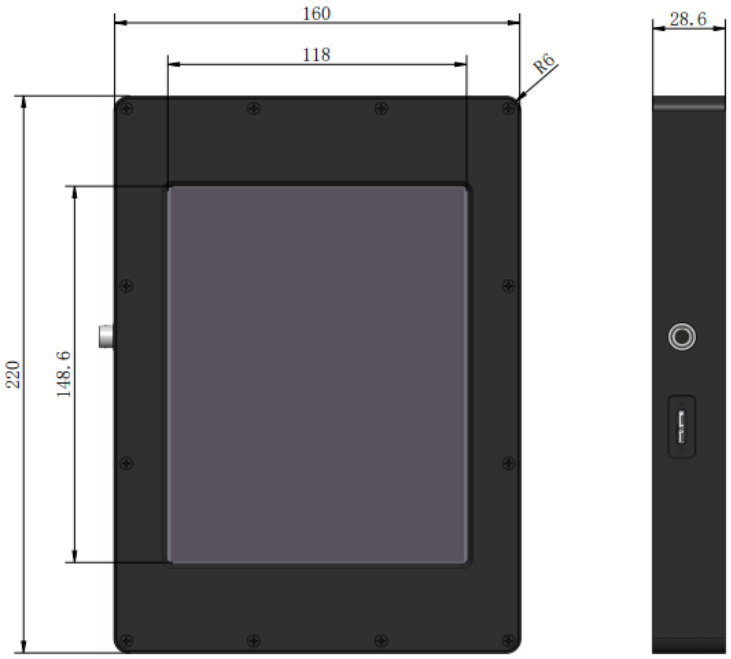


Figure 12-46 Dimensions of IUE camera housing (mm)

12.17.2Interface Description



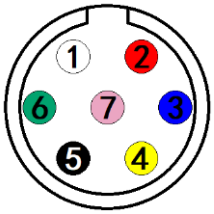
Figure 12-47 Schematic diagram of IUE camera

Table 12-46 IUE Camera interface definition

Item	Specification
1	USB 3.0 port
2	Trigger 7PIN

12.17.3Power Supply and I/O Connector

Table 12-47 IUE series pin signal definitions



Color	Pin	Signal	Signal description
White	1	GND	Direct-coupled signal ground
Red	2	12V	12VDC power input or output
Blue	3	OPTO_GND	Opto-isolated signal ground
Yellow	4	DIR_GPIO0	Direct-coupled General Purpose I/O (Software configurable input/output) (line2)
Black	5	DIR_GPIO1	Direct-coupled General Purpose I/O (Software configurable input/output) (line3)
Green	6	OPTO_IN	Opto-isolated input signal (line0)
Pink	7	OPTO_OUT	Opto-isolated output signal (line1)

12.17.4Packing Information

Table 12-48 Recommended accessories

Order number	Accessories name	Quantity	Instruction
1	Camera	1	Camera referred in this manual
2	I/O cable	1	7 Pin cable or extended cable

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3	Cable	1	Micro USB3.0 cable
4	Power	1	12V/3A air plug power adapter

12.18 AVCAM Series

12.18.1Mechanical Housing Dimensions

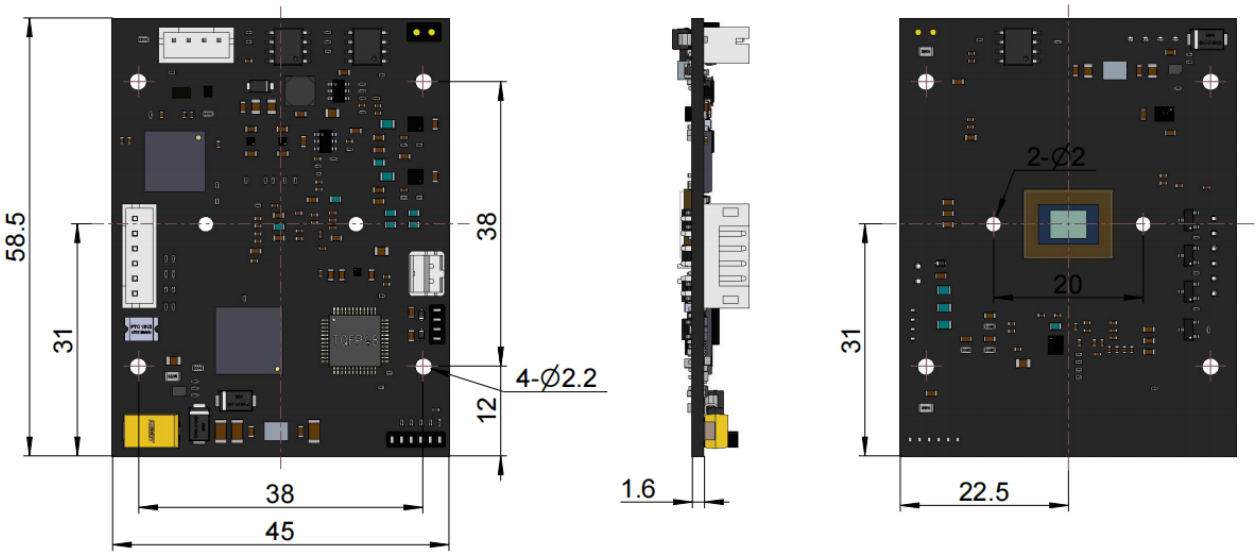


Figure 12-48 Dimensions of AVCAM(mm)

12.19 OEM Series USB3 Camera

12.19.1OEM1 Mechanical Dimensions

The OEM1 camera is provided with a circuit board without a shell, and a flexible PCB is used between the sensor board and the motherboard to facilitate flexible installation of the sensor board.

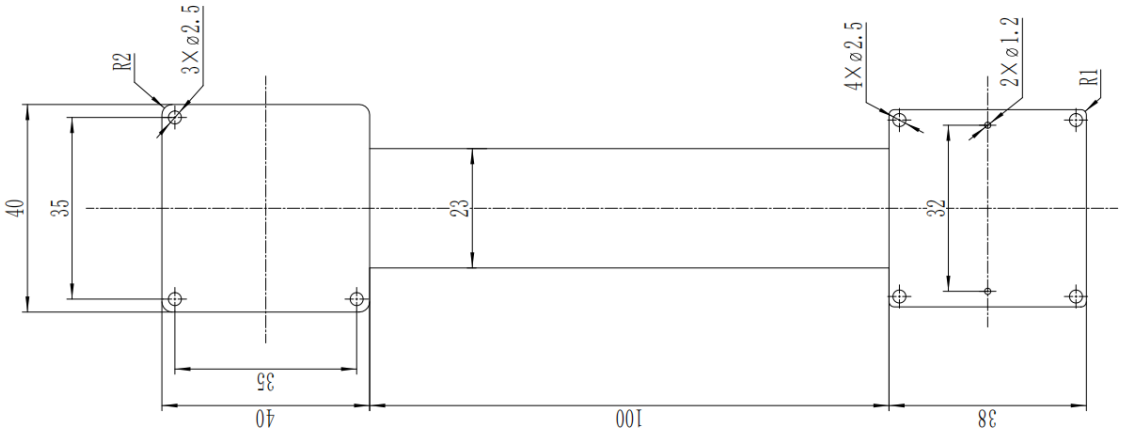


Figure 12-49 Dimensions of OEM1 circuit board (mm)

12.19.2OEM2 Mechanical Dimensions

The OEM2 camera is provided as a circuit board, has no housing, is 30 x 59 x 8.12(mm) in size, and has a very small width and thickness for use in narrow environments.

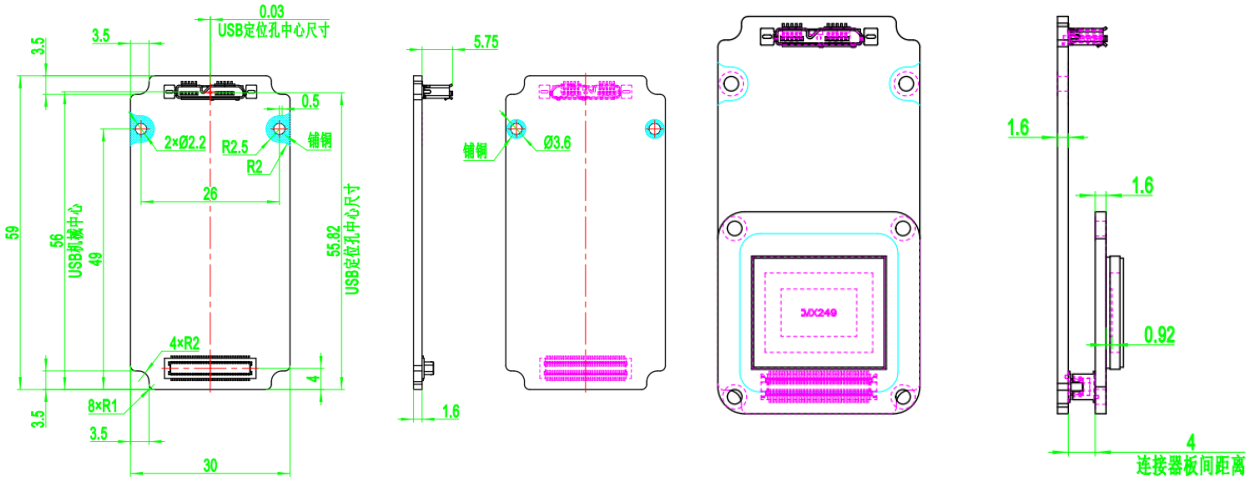


Figure 12-50 Dimensions of OEM2 circuit board (mm)

12.19.3OEM3 Mechanical Dimensions

The OEM3 camera measures 50 x 50 x 36.1(mm), making it more compact and lighter than the regular IUA series.

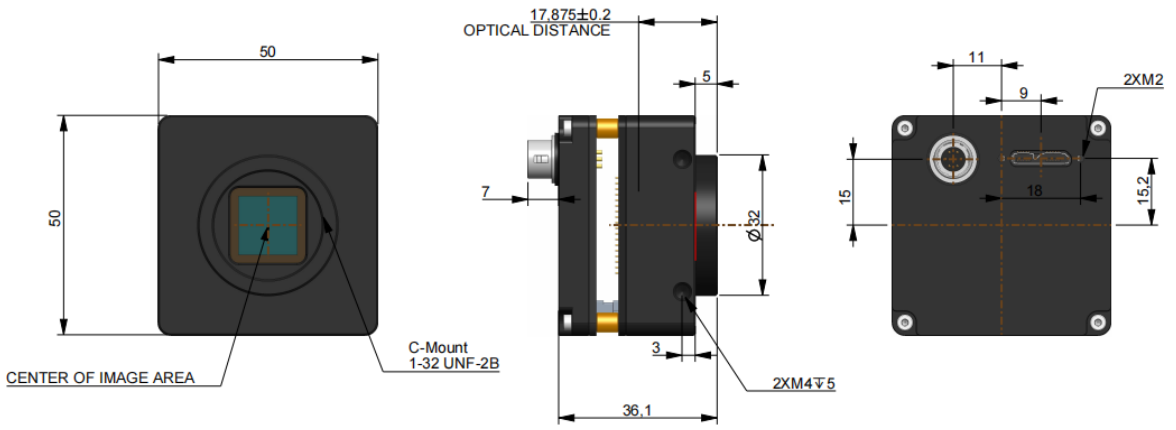


Figure 12-51 Dimensions of OEM3 camera housing (mm)

12.19.4OEM4 Mechanical Dimensions

The OEM4 camera is provided for the circuit board, no case, the width is extremely narrow, only 19mm, the sensor board and the motherboard are connected with a soft cable, which is easy to install the sensor board flexibly.

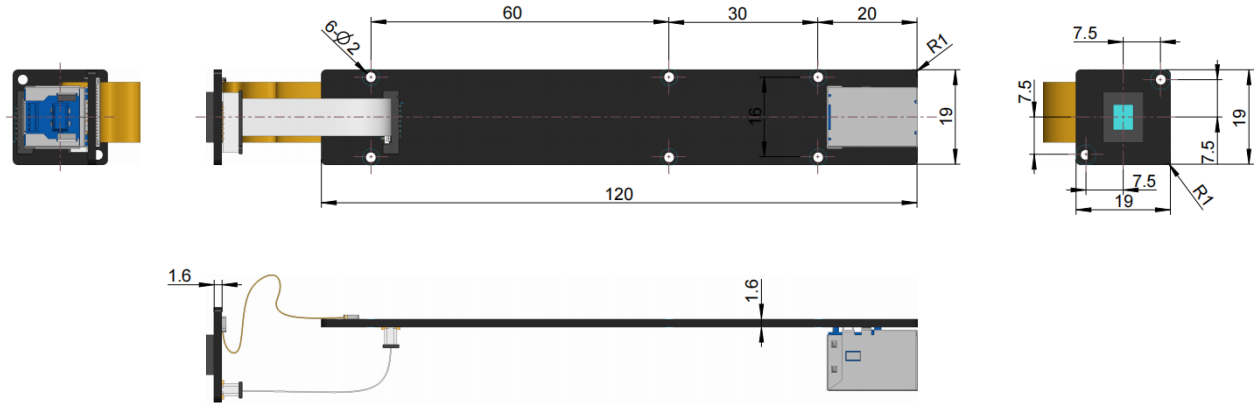


Figure 12-52 Dimensions of OEM4 circuit board (mm)

13 Electrical Characteristics

13.1 7PIN I/ O Electrical Properties

13.1.1 Opto-isolated Input Circuit (line0)

In the camera I/O control, opto-isolated input circuit is shown in Figure 13-1.

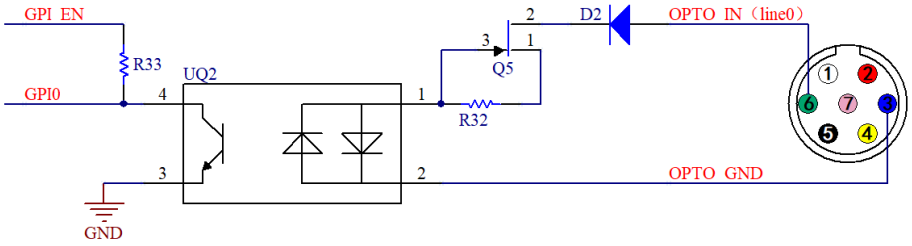


Figure 13-1 Opto-isolated input circuit

Logic 0 input level: 0~2.2VDC (OPTO_IN pin)

Logic 1 input level: 3.3~24VDC (OPTO_IN pin)

Maximum input current: 30mA

The input level is between 2.2V and 3.2V, the circuit action state is uncertain, please avoid the input voltage working in this range.

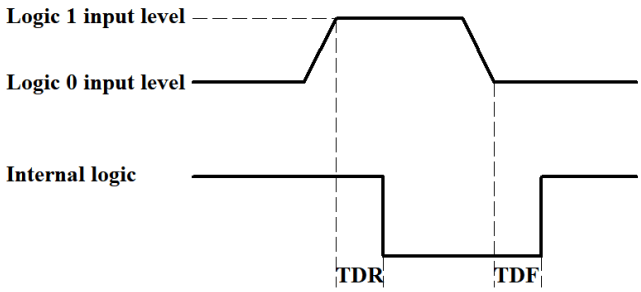


Figure 13-2 Input logic level

Input rise delay (TDR): 6us

Input drop delay (TDF): 6us

13.1.2 Opto-isolated Output Circuit(line1)

In camera I/O control, opto-isolated output circuit is shown in Figure 13-3.

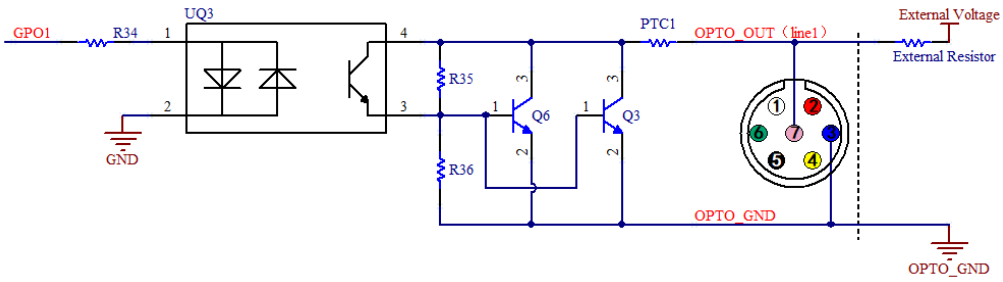


Figure 13-3 Opto-isolated output circuit

Opto-isolated output maximum current: 30mA

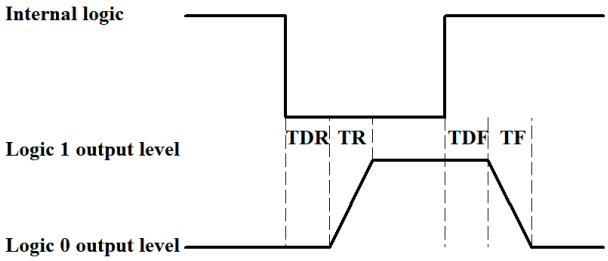


Figure 13-4 Output logic level

The electrical characteristics of the opto-isolated output signal (external voltage 5V, external resistor 1K) are shown in Table 13-1.

Table 13-1 Opto-isolated output signal's electrical characteristics

Parameter name	Parameter symbol	Parameter values
Output logic low level	VL	742mV
Output logic high	VH	4.134V
output rise time	TR	4us
Output downtime	TF	1.8us
Output rising delay	TDR	12us
Output drop delay	TDF	2us

The corresponding current and output logic low level parameters are shown in Table 13-2 when different voltage and resistors are used in external circuit.

Table 13-2 Opto-isolated output logic's low level parameters

External voltage	Non-essential resistance	VL	Output current
3.3V	1KΩ	510mV	2.82mA
5V	1KΩ	742mV	4.31mA
12V	2.4KΩ	795mV	4.68mA
24V	4.7KΩ	850mV	4.97mA

13.1.3 Input and Output I/O Circuit(line2/line3)

Non-isolated configurable input, output I/O circuit is shown in Figure 13-5, Figure 13-6.

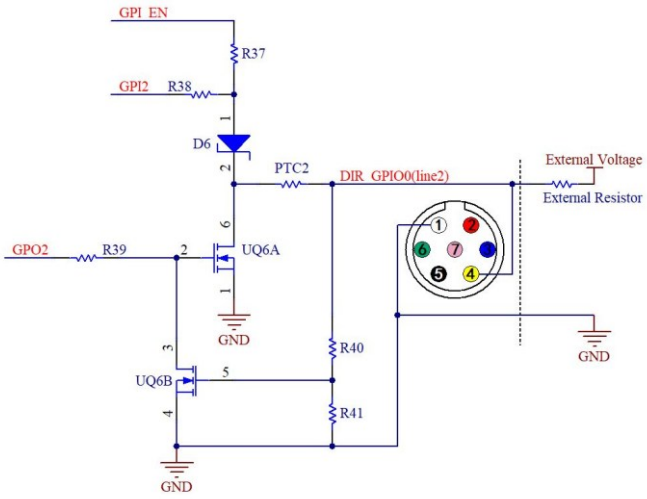


Figure 13-5 Non-isolated configurable input, output I/ O circuit (line2)

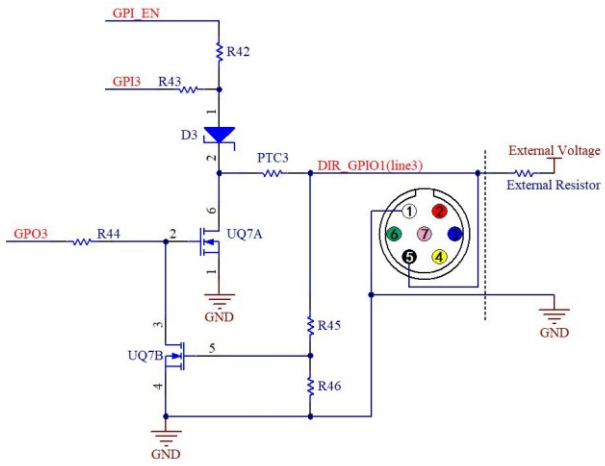


Figure 13-6 Non-isolated configurable input, output I/ O circuit (line3)

1, Line2/line3 set as input pin:

Logic 0 input level: 0-0.6 VDC (DIR_GPIO1/DIR_GPIO2 pin)

Logic 1 input level: 2.0~24VDC (DIR_GPIO1/DIR_GPIO2 pin)

Maximum input current: 25mA

The input level is between 0.6V and 2.0V, the circuit action state is uncertain. Please avoid the input voltage working in this range.

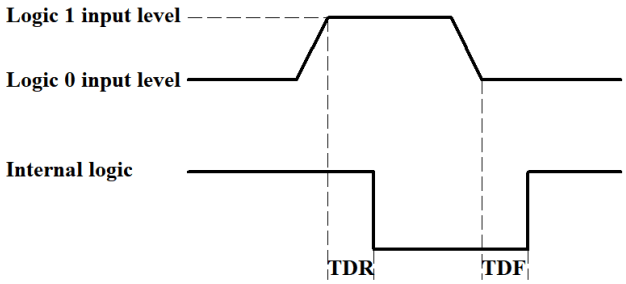


Figure 13-7 Input logic level

To prevent damage to the GPIO pin, connect the GND pin before entering voltage to the Line2 pin.

Input rise delay (TDR): 0.02us

Input drop delay (TDF): 0.02us

2, Line2/line3 set as output pin

The maximum current allowed through this pin is 25 mA.

When the ambient temperature is 25 degrees Celsius, the relationships between the external voltage, resistance and output low level are shown in Table 13-3.

Table 13-3 Non-isolated output logic's low level parameters

External voltage	Non-essential resistance	VL (GPIO)
3.3V	1KΩ	0.11V
5V	1KΩ	0.167V
12V	2.4KΩ	0.184V
24V	4.7KΩ	0.385V

The external pull-up voltage 5V pull-up resistance 1KΩ, GPIO output logic level, electrical characteristics are shown in Figure 13-8.

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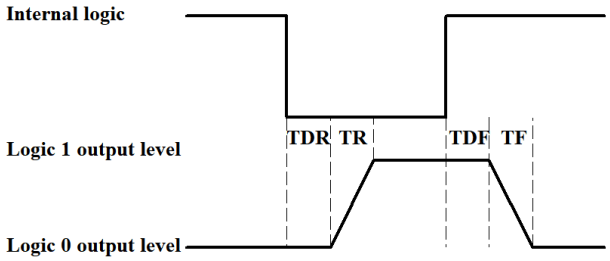


Figure 13-8 Output logic level

Table 13-4 Non-isolated output's electrical characteristics

Parameter name	Parameter symbol	Parameter values
Output rise time	TR	0.08us
Output downtime	TF	0.02us
Output rising delay	TDR	0.1us
Output drop delay	TDF	0.04us

13.2 6PIN I/ O Electrical Properties

13.2.1 Opto-isolated Input Circuit (line0)

In the camera I/O control, opto-isolated input circuit is shown in Figure 13-9.

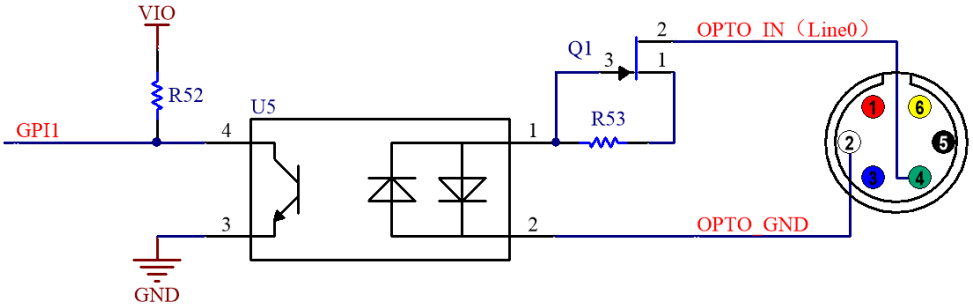


Figure 13-9 Opto-isolated input circuit

Logic 0 input level: 0~1.4VDC (OPTO_IN pin)

Logic 1 input level: 2.2~24VDC (OPTO_IN pin)

Maximum input current: 30mA

The input level is between 1.4V and 2.2V, the circuit action state is uncertain, please avoid the input voltage working in this range.

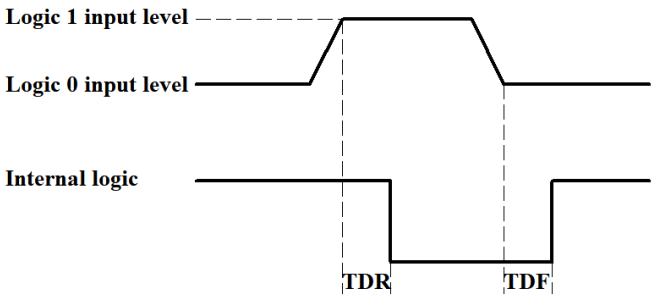


Figure 13-10 Input logic level

Input rise delay (TDR): 5us

Input drop delay (TDF): 25us

13.2.2 Opto-isolated Output Circuit(line1)

In camera I/O control, opto-isolated output circuit is shown in Figure 13-11.

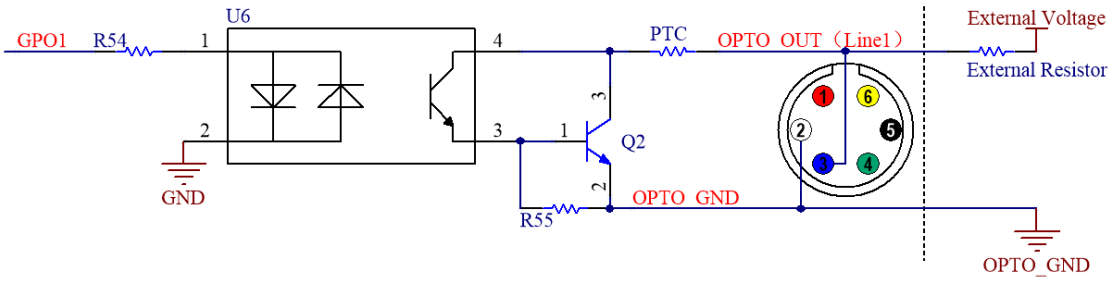


Figure 13-11 Opto-isolated output circuit

Opto-isolated output maximum current: 30mA

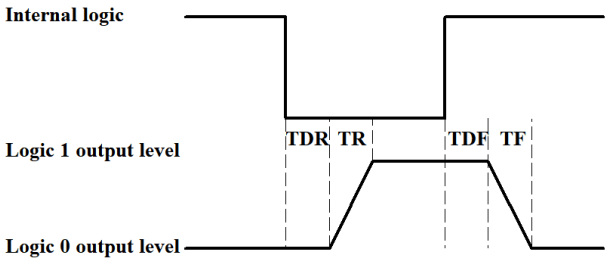


Figure 13-12 Output logic level

The electrical characteristics of the opto-isolated output signal (external voltage 5V, external resistor 1K) are shown in Table 13-5.

Table 13-5 Opto-isolated output signal's electrical characteristics

Parameter name	Parameter symbol	Parameter values
Output logic low level	VL	760mV
Output logic high	VH	5V
output rise time	TR	8.6us
Output downtime	TF	2.2us
Output rising delay	TDR	17.5us
Output drop delay	TDF	4.2us

The corresponding current and output logic low level parameters are shown in Table 13-6 when different voltage and resistors are used in external circuit.

Table 13-6 Opto-isolated output logic's low level parameters

External voltage	Non-essential resistance	VL	Output current
3.3V	1KΩ	668mV	2.82mA
5V	1KΩ	760mV	4.31mA
12V	2.4KΩ	798mV	4.68mA
24V	4.7KΩ	833mV	4.97mA

13.2.3 Input and Output I/O Circuit(line2/line3, applicable to V1.0 hardware version)

In camera I/O control with hardware version number V1.0, non-isolated input, output I/O circuit is shown in Figure 13-13.

1.3 MP 1" CMOS USB3.0 Industrial Camera

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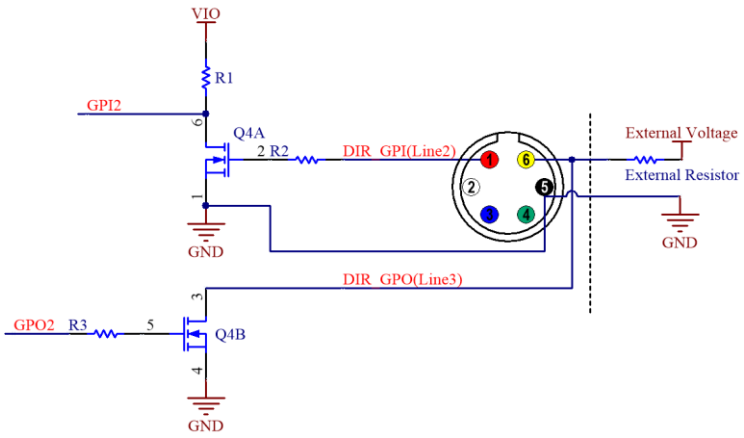


Figure 13-13 Non-isolated input, output I/ O circuit(line2)

1, GPI2 input level parameter:

Logic 0 input level: 0~0.9 VDC (DIR_GPI pin)

Logic 1 input level: 1~20VDC (DIR_GPI pin)

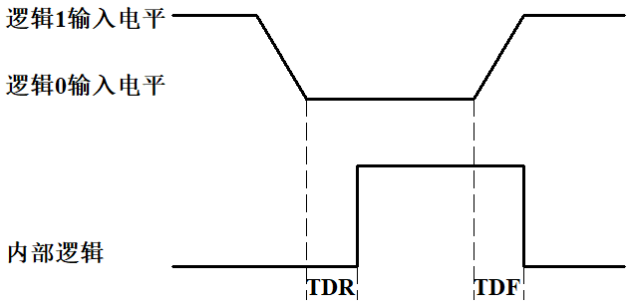


Figure 13-14 Input logic level

To prevent damage to the GPI pin, connect the GND pin before entering voltage to the DIR_GPI pin.

2, GPO2 output level parameter:

The maximum current allowed through this pin is 25 mA.

When the ambient temperature is 25 degrees Celsius, the relationships between the external voltage, resistance and output low level are shown in Table 13-7.

Table 13-7 Non-isolated output logic's low level parameters

External voltage	Non-essential resistance	VL(GPO2)
3.3V	1KΩ	0V
5V	1KΩ	0V
12V	2.4KΩ	0V
24V	4.7KΩ	0V

The external pull-up voltage 5V pull-up resistance 1K Ω, GPO2 output logic level, electrical characteristics are shown in Figure 13-15.

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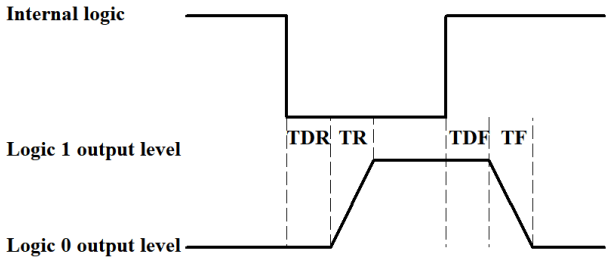


Figure 13-15 Output logic level

Table 13-8 Non-isolated output's electrical characteristics

Parameter name	Parameter symbol	Parameter values
Output rise time	TR	0.01us
Output downtime	TF	0.01us
Output rising delay	TDR	0.02us
Output drop delay	TDF	0.04us

13.2.4 Input and Output I/O Circuits(line2, the hardware version is V2.0 or later)

Camera with hardware version V2.0 and above, its input and output I/O circuits are shown in Figure 13-16.

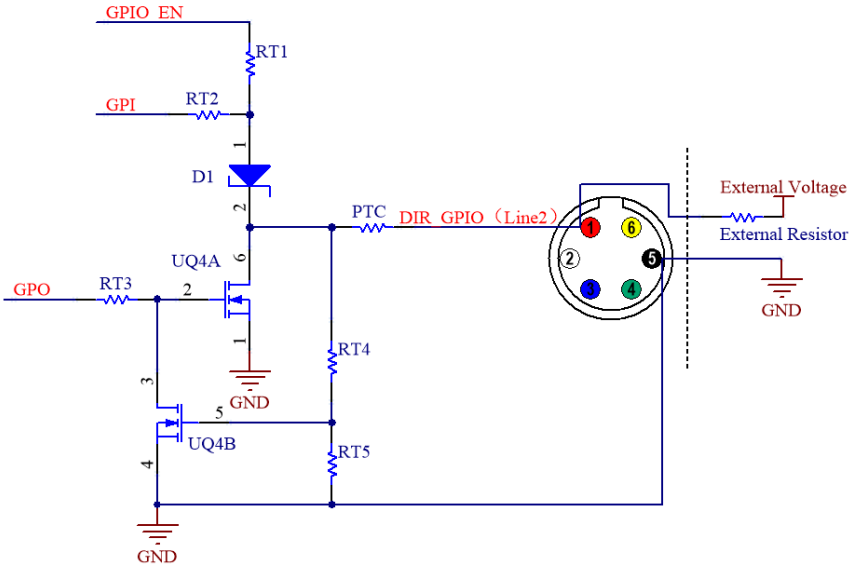


Figure 13-16 Non-isolated configurable input / output I/O circuits

Line2 is set as input pin

Logic 0 input level: 0~0.6VDC (DIR_GPIO pin)

Logic 1 input level: 2~24VDC (DIR_GPIO pin)

Maximum input current: 25mA

When the input level is between 0.6 V and 2 V, the circuit action is uncertain. Please avoid the input voltage working in this range.

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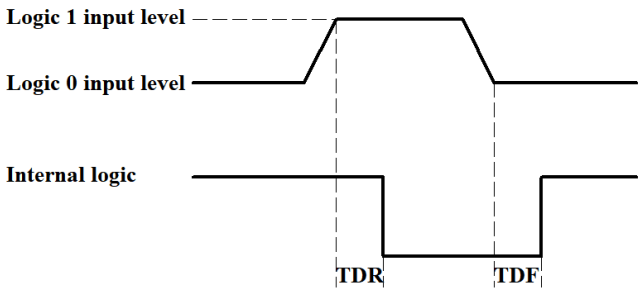


Figure 13-17 Input logic level

To prevent the GPIO pin from being damaged, first connect the ground pin GND and then input the voltage to the Line2 pin.

Input rise delay (TDR): 0.02us

Input drop delay (TDF): 0.02us

Line2 is set as output pin

The maximum current allowed through this pin is 25 mA.

When the ambient temperature is 25 degrees Celsius, the relationships between external voltage, resistance and output low level are shown in Table 13-9.

Table 13-9 Non-isolated output logic low level parameters

External voltage	Non-essential resistance	VL(GPIO)
3.3V	1KΩ	0.11V
5V	1KΩ	0.167V
12V	2.4KΩ	0.184V
24V	4.7KΩ	0.385V

The external pull-up voltage is 5V, the pull-up resistance is 1KΩ, the GPIO is configured as the output logic level and the electrical characteristics are shown in Figure 13-18.

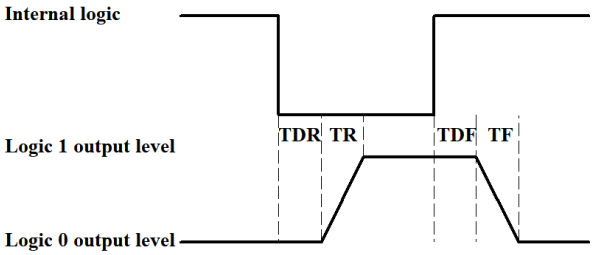


Figure 13-18 Output logic level

Table 13-10 Non-isolated output's electrical characteristics

Parameter name	Parameter symbol	Parameter values
Output rise time	TR	0.08us
Output downtime	TF	0.02us
Output rising delay	TDR	0.1us
Output drop delay	TDF	0.04us

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14 Description of Functions

14.1 Camera Capture Mode

Camera operation mode support: Video Mode or Trigger Mode.

Camera trigger mode supports: Soft Trigger Mode(Software) or External Trigger Mode(Isolated input, GPIO0, GPIO1, Counter or PWM).

14.2 ROI Control

Partial cameras supports hardware ROI. The smaller the ROI size, the faster the frame rate.

14.3 Bandwidth and Precise Frame Rate Control

14.3.1 Bandwidth

Partial cameras supports bandwidth adjustment from 1% to 100%. As shown in Figure 14-1, the camera is @ 100% bandwidth by default, and you can drag the slider to set the desired bandwidth.



Figure 14-1 Bandwidth and precise frame rate settings

14.3.2 Precise Frame Rate Control

Partial cameras series supports precise frame rate control. The frame rate range will vary based on bandwidth, bit depth, resolution, ROI. As shown in Figure 14-1, the current frame rate can be set by dragging the Bandwith or Frame Rate slider bar left or right.

14.4 DDR3 Buffer

Camera has a built-in 512MB (4Gb) DDR3 buffer, which can effectively improve the stability of USB3.0 data transmission and ensure that the camera does not lose frames when working.

14.5 Binning

Camera supports additive or averaged 1×1 to 8×8 digital binning, and averaged 1×1 to 2×2 hardware binning. Hardware binning can achieve higher frame rates than software binning.

14.6 Power Supply and Cooling System

MAX series adopts DC19V power supply, ITR3CMOS series and CTR3CMOS series adopts DC12V power supply. When DC19V or DC12V power supply is plugged in, both the camera cooling system and the imaging system use a unified 19V or 12V power supply.

When the power is disconnected, the camera cooling system stops working, and the imaging system will automatically switch to the USB 5V power supply and the camera can work normally in passive cooling mode.

The cooling system of the camera is TEC cooling, using an external cooling structure and fan assisted cooling, the operating temperature can be adjusted to a specific value, the effective cooling temperature can be lower than the ambient temperature 10-25°C, the efficient cooling system ensures a very low level of dark current.

TEC system adopts PID algorithm to control, so that the TEC can be accurately adjusted to the target temperature, and the temperature deviation is 0.1°C.

There is a Cooling group on the left sidebar in ToupView. To enable the Cooling function, an external 12V power supply is required. By default, the TEC is turned on. One can set the Target Temperature. After entering the value, click "Apply", and the sensor temperature will gradually approach to the Target Temperature. At the same time, ToupView can display the current temperature in real time, as shown in Figure 14-2.



Figure 14-2 TEC settings

The Fan has two gears from Off to High. When High, the Fan speed reaches the highest. When Off, the Fan is turned off, the TEC is also turned off, and the power is 0, as shown in Figure 14-3.



Figure 14-3 Fan settings

When the TEC is turned on, the Fan will automatically turn on preventing the abnormal situation such as the housing temperature is too high if the Fan stops running when the TEC is working; when the Fan is turned off, the TEC will automatically turn off.

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15 Trigger Mode and its Configuration

15.1 Video Mode and Trigger Mode

The trigger function can be found on the Capture & Resolution group on the Camera Sidebar in ToupView. When the camera is opened, it is in Video Mode as shown in Figure 15-1 on the left. In Video Mode, Auto Exposure, Exposure Target, Exposure Time and Gain can be set. One can switch to Trigger Mode by checking the Trigger Mode check box.

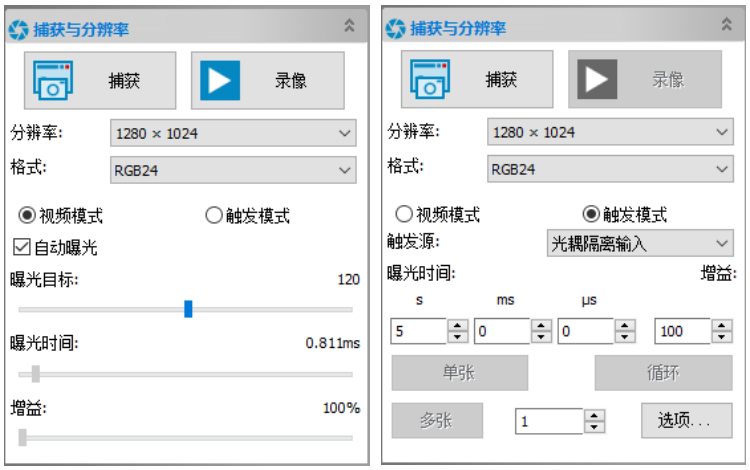


Figure 15-1 Video Mode and Trigger Mode on the Capture & Resolution group in ToupView

After the Trigger Mode is checked, the Capture & Resolution group will switch to Trigger Mode as shown in Figure 15-1 on the right. Where, the Trigger Source, Exposure Time, Gain, Single, Loop, Multiple, Frame Box, and Options can be set.

15.2 Trigger Sources and Their Capture Style

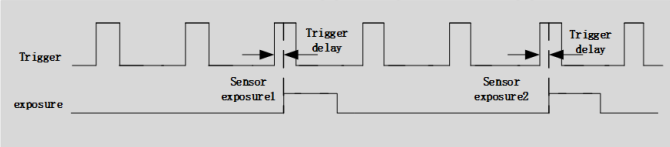
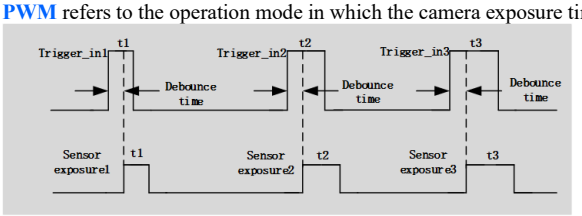
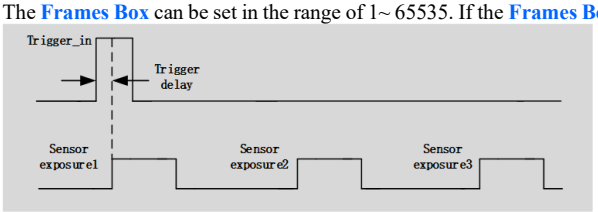
The Trigger Source can be any external input signal inputted into the camera which is called Hardware (Trigger Source), it can also be a command from the application which is called Software (Trigger Source). For the Software Trigger Source, it can be Single, Loop, Multiple, or Sequence style. Figure 15-2 shows the possible Trigger Sources. Table 15-1 shows the designed Trigger Source descriptions and possible capture styles for ToupTek camera.



Figure 15-2 Possible Trigger Sources

Table 15-1 Description of possible Trigger Sources and their capture styles

Trigger Source	Description
Isolated input	Logic 0 input level: 0~2.2VDC; Logic 1 input level: 3.3~24VDC;. Maximum input current: 30mA;
GPIO0	Logic 0 input level: 0~0.6VDC (DIR_GPIO0/DIR_GPIO1 pins); Logic 1 input level: 2.0~24VDC (DIR_GPIO0/DIR_GPIO1 pins); Maximum input current: 25mA; If **GPIO0** is chosen as **Trigger Source**, it should be configurated as **Input** in the **GPIO Mode**'s combo box on the **Options>IO Control** page;
GPIO1	Logic 0 input level: 0~0.6VDC (DIR_GPIO0/DIR_GPIO1 pins); Logic 1 input level: 2.0~24VDC (DIR_GPIO0/DIR_GPIO1 pins); Maximum input current: 25mA; If **GPIO1** is chosen as **Trigger Source**, it should be configurated as **Input** in the **GPIO Mode**'s combo box on the **Options>IO Control** page;
Counter	**Counter** refers to the operation mode in which the camera can divide the frequency of the external input trigger signal through the preset **Counter Value** and perform image acquisition according to the customer's logic. For example, when the counter value( ) is set to 3, the

	camera needs to receive 3 trigger signals to trigger once;  When **Counter** is chosen in **Trigger Source** combo box in the **Capture & Resolution** group, the **Counter Source** can be **Isolated input**, **GPIO0** or **GPIO1** which can be chosen on **Options>IO Control** page; If **GPIO0** or **GPIO1** is chosen in the **Counter Source** combo box on **Options>IO Control** page. It should be configured as **Input** in the **GPIO Mode** combo box; Check **Options>IO Control** page's **Line Select** related items and **Counter** related items for details;
PWM	**PWM** refers to the operation mode in which the camera exposure time is controlled by the input trigger signal's pulse width;  **PWM Trigger Source** can be **Isolated input**, **GPIO0** or **GPIO1**. If **GPIO0** or **GPIO1** is chosen in the **PWM Source** combo box on the **Options>IO Control** page, it should be configured as **Input** in the **GPIO Mode** combo box; Check **Options>IO Control** page's **Line Select** related items and **PWM** related items for details;
Software	When **Software** trigger is chosen, the client software can send the command through USB3.0 to trigger, acquire and transfer images, In ToupView, **Single**, **Loop**, **Multiple,** or **Sequence** can be used to send the **Software** trigger command; If the **Plan** or **Hardware** is chosen in the **Type** combo box on the **Options>Sequence** page, the **Multiple** button will switch to **Sequence** button and the camera will use the **Exposure Time** and **Gain** in the **Sequence table** on this page one by one to capture the specified frames. Check **Single**, **Loop**, **Multiple,** or **Sequence** on **Capture & Resolution** group for the **Software** capture operations; Check **Options>Sequence** page and **Options>Advanced** page for the related **Sequence** and **Software** capture setup options;
Single	When **Single** is clicked, the camera will start to capture the image. At the same time the **Single** button will switch to **Stop** button. Clicking **Stop** button to stop the current **Single** capture operation, the **Stop** button will switch to **Single** button again for the next capture operation; Note: 1) The captured frames will always **Show in the video window** to prevent too many captures; 2) Enabled when **Software** in the **Trigger Source** combo box is chosen or **Always enable software trigger** checkbox is checked on the **Options>Advanced** property page;
Loop	When **Loop** is clicked, the camera will start to capture the image continuously and the **Loop** button will switch to **Stop** button. Clicking **Stop** button to stop **Loop** captures and the **Stop** button will switch to **Loop** button for the next **Loop** capture operation; Note: 1)The captured frames will always **Show in the video window** to prevent too many captures; 2)Enabled to capture continually when **Software** in the **Trigger Source** combo box is chosen or **Always enable software trigger** checkbox is checked on the **Options>Advanced** property page;
Multiple	**Multiple** refers to the operation mode in which the camera receives **Software** trigger signal or command and exports multiple frames of images. An edit box with spin(we call it **Frames Box**) is designed and affiliated to the **Multiple** button (多张 3 选项...) for the setting of the frames to be captured; The **Frames Box** can be set in the range of 1~65535. If the **Frames Box** is 3, a three-frame image will be captured and exported;  Note: 1)**Multiple** capture is enabled to capture continually when **Software** in the **Trigger Source** combo box is chosen; 2) **Multiple** capture is enabled when **Always enable software trigger** is checked on the **Options>Advanced** property page, no matter whether **Trigger Source** is **Software** or **Hardware** on the **Capture & Resolution** group; 3) If the **Plan** or **Hardware** is chosen in the **Type** combo box on the **Options>Sequence** page, the **Multiple** button will switch to **Sequence** button and the camera will use the **Exposure Time** and **Gain** in the **Sequence table** on this page. The captured frames will be displayed either in **Show in the video window**, or **Show in a new window** or **Save to disk** which can be specified on **Options>Output** page;
Sequence	When **Sequence** is clicked, the camera will start to capture the image until the specified frames in the **Frames Box** are captured. At the same time the **Sequence** button will switch to **Stop** button. Clicking **Stop** button will stop the current **Sequence** capture and the **Stop** button will switch to **Sequence** again for the next **Sequence** capture operation; Note: 1) Switched from **Multiple** to **Sequence** to capture the specified frames in the edit box with spin(**Frames Box**) when **Plan** or **Hardware** in the **Type** combo box is chosen on the **Options>Sequence** property page; 2)If the **Plan** or **Hardware** is chosen in the **Type** combo box on the **Options>Sequence** page, the **Sequence** button will be enabled and the capture will use the **Exposure Time** and **Gain** in the **Sequence table** list below one by one on the

	Options>Sequence page; 3) If the **Plan** or **Hardware** is chosen in the **Type** combo box on the **Options>Sequence** page and **Always enable software trigger** is checked on the **Options>Advanced** property page, the **Sequence** button will not switch to **Multiple** button and will be enabled only when the still in Sequence enable 4)If the **Plan** is chosen in the **Type** combo box on the **Options>Sequence** page and the **Software** is chosen in the **Trigger Source** combo box, the **Sequence** button will be enabled. 5)If the **Hardware** is chosen in the **Trigger Source** combo box, the **Sequence** button will be disabled, but the **Frame Box** will still be enabled and the **Sequence** will switch to the **Hardware Sequence** capture. One **Hardware** trigger signal will capture the specified frames on the **Frame Box** using the **Exposure Time** and **Gain** in the **Sequence table** on **Options>Sequence** page; 6)Check **Options>Sequence** page for the related **Sequence** setup options;

15.3 The trigger capture and IO Control configurations

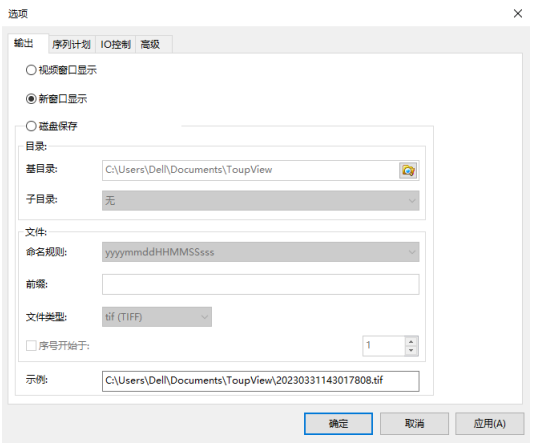


Figure 15-3 Options>Output page

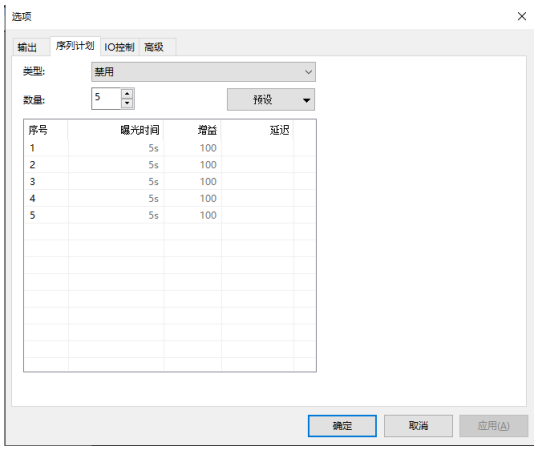


Figure 15-4 Options>Sequence page



Figure 15-5 Options>IO Control page

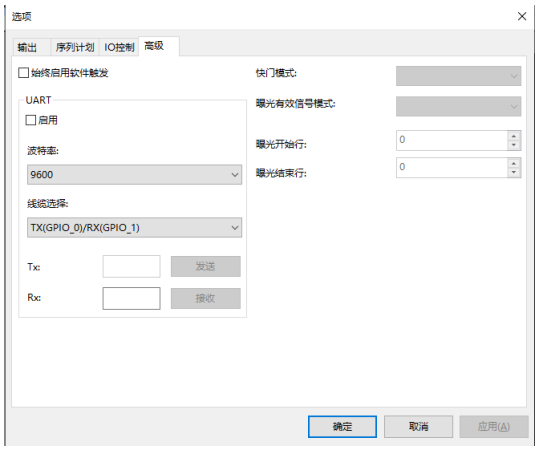


Figure 15-6 Options>Advanced page

The Trigger Source can be Isolated input, GPIO0, GPIO1(when configured as input), Counter, or PWM which can be configurated on the Options property sheet. Also the camera's Isolated output, GPIO0 or GPIO1(can be configurated as Output) can be used as Output or UART (GPIO0, GPIO1 only) applications. All of these configurations can be realized on the Options property sheet described in Table 15-2 below.

About the captured file operation style, one can find it on the Option>Output page;

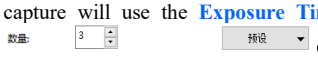
About the Sequence setup, one can find it on the Option>Sequence page;

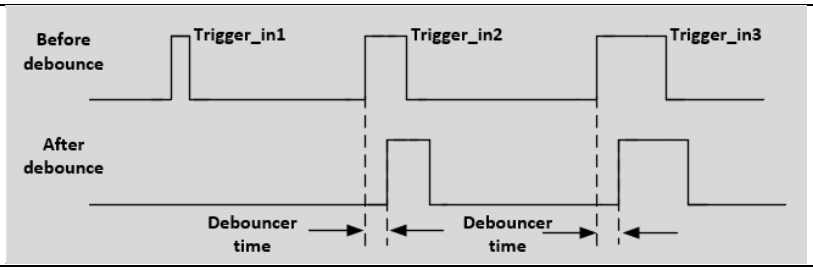
About the camera pin IO Control style, one can find it on the Options>IO Control page;

About the Always enable software trigger and UART setup, Shutter Mode, and Exposure Active Mode, one can find it on the Options>Advance page.

Table 15-2 Options property sheet for Trigger Source or camera pin configuration

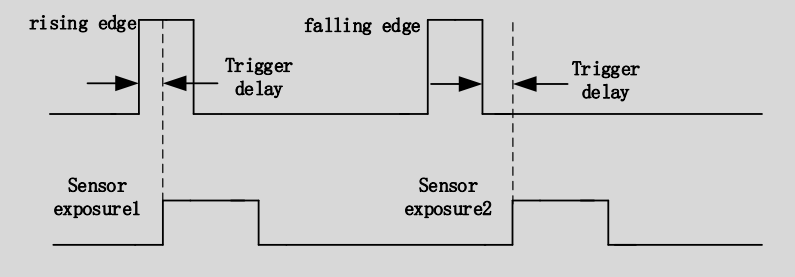
Pages	Items	Descriptions
Output	**Output Destination**	Used to set the captured frame's **Output** destination, can be **Show in the video window**, **Show in a new**

page		**window** or **Save to disk**; When **Save to disk** is checked, the  button will be enabled clicking it to choose the **Base** directory, clicking the **Sub** combo box's dropdown button to choose the **Sub** directory; The **File Name Format**, **File Prefix**, **File Type,** and even **The sequence begin with** can be chosen, set, or defined. Note: 1)Valid only for **Sequence** or **Multiple** capture setup; 2)For **Single** or **Loop** capture, the captured image will be always displayed on the video window;
Sequence page	**Type**	**Disable**: If the **Disable** button is chosen in the **Type** combo box on the **Options>Sequence** page, the **Sequence** button on the **Capture & Resolution** page will switch to **Multiple** button;
		Plan: 1)If **Plan** is chosen in the **Type** combo box on the **Options>Sequence** page, the **Multiple** button on the **Capture & Resolution** group will switch to **Sequence** button; 2) If the **Software Trigger Source** is chosen in the **Capture & Resolution** group or the **Always enable software trigger** is checked on the **Options>Advanced** property page, the **Sequence** button will be enabled After the **Software** trigger signal is arrived(By clicking **Single**, **Loop,** or **Sequence** button), the camera will capture frames specified in the edit box with spin  (we call it **Frames Box**) affiliated to the **Sequence** button; The whole captures will use the **Exposure Time**, **Gain** and **Delay** in the **Sequence table** list under  one by one by the software; 3) If the **Disable** button is chosen in the **Type** combo box on the **Options>Sequence** page, the **Sequence** button on the **Capture & Resolution** page will switch to **Multiple** button; 4) The **Sequence** button will be enabled only when a) the **Plan** in the **Type** combo box is chosen on the **Options>Sequence** page and b) he **Software Trigger Source** is chosen in the **Capture & Resolution** group or c) **Always enable software trigger** is checked on the **Options>Advanced** property page;
		Hardware: 1) if **Hardware** is chosen in the **Type** combo box on the **Options>Sequence** page, the **Multiple** button on the **Capture & Resolution** group will switch to **Sequence** button and will be disabled for **Hardware** trigger. But users can still set the frames number in the **Frame Box** on the **Capture & Resolution** group; 2) After the **Hardware** trigger signal arrives, the camera will capture frames specified in the edit box with spin  (we call it **Frame Box**) affiliated to the **Sequence** button; The whole capture will use the **Exposure Time**, **Gain** (**Delay** is not used) in the **Sequence table** list under  one by one but stored in the camera hardware for the quick operation; 3) If the **Disable** button is chosen in the **Type** combo box on the **Options>Sequence** page, the **Sequence** button on the **Capture & Resolution** page will switch to **Multiple** button. 4) The **Sequence** button is always disabled if a) The **Hardware** is chosen in the **Type** combo box on the **Options>Sequence** page and b)the **Hardware Trigger Source** is chosen in the **Capture & Resolution** group; 5) The **Sequence** button will be enabled if a) the **Software Trigger Source** is chosen in the **Capture & Resolution** group or b) the **Always enable software trigger** checkbox is checked on the **Options>Advanced** property page, in this case, both the **Plan** and **Hardware Sequence** capture are supported;
	Number	The possible **Sequence**(capture) frames to be captured. If the **Number** is larger than the **Sequence Number** in the **Frames Box** on the **Capture & Resolution** group, the other **Indices** will be executed at the next **Sequence** operation one by one recycled;
	Index	The order of the **Number** group;
	Exposure Time	The camera **Exposure Time** for the specified capture **Index** in the **Sequence** capture;
	Gain	The camera **Gain** for the specified capture **Index** in the **Sequence** capture;
	Delay	The **Delay** time for the specified capture **Index** in the **Plan Sequence** capture(Valid for **Plan Sequence** capture only);
	Preset	Choosing **Save** to save the current **Sequence table**'s settings; Clicking **Management** to **Rename** the saved **Sequence table**'s setting files or **Remove** them from the **Management** list;
IO Control page	**Line Select**	Choosing which line to set. Can be **Isolated input**, **Isolated output**, **GPIO0** or **GPIO1 et al**;
	GPIO Mode	To configure whether the line selected in **Line Select** is for **Input** or **Output**. Only **GPIO0** or **GPIO1** can be configured as either **Input** or **Output**; If **Isolated input** or **Isolated output** is chosen, the **GPIO Mode** will be specified as **Input** or **Output** (Not configurable) respectively;
	Format	Specify the current selected signal's **Format** in the **Line Select** combo box, can be **Opto-coupled**(**Isolated input**, **Isolated output**)or **TTL** (**GPIO0** or **GPIO1**)for clarity(Unconfigurable);
	Debouncer Time	Since there may be a glitch in the external trigger input signal if it directly enters into the internal logic circuit of the camera, it will cause false triggering, so the input trigger signal should be debounced. In addition, the effective pulse width of the trigger signal input by the user should be greater than the **Debouncer Time**, otherwise, the trigger signal will be ignored; When **Isolated input**, **GPIO0** or **GPIO1** is chosen in the **Line Select** combo box and **GPIO0** or **GPIO1** is configured as **Input** in the **GPIO Mode** combo box, the **Debouncer Time** will be enabled for the user to input the **Debounter Time** between 0 to 20000us;



Input Activation

When **Isolated input**, **GPIO0** or **GPIO1** is chosen in the **Line Select** combo box and **GPIO0** or **GPIO1** is configured as **Input** in the **GPIO Mode** combo box; The **Input Activation** combo box will be enabled to configure the **Input Activation** as either **Rising Edge** or **Falling Edge**;



Also can be configure as **high level** or **low level**. When **high level** is selectd, the camera keeps triggering the frame when the input signal is high; When **low level** is selectd, the camera keeps triggering the frame when the input signal is low;

Trigger Delay

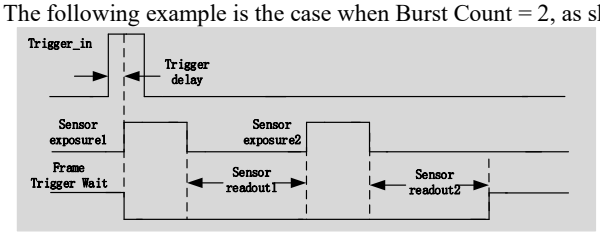
When **Isolated input**, **GPIO0** or **GPIO1** is chosen in the **Line Select** combo box and **GPIO0** or **GPIO1** is configured as **Input** in the **GPIO Mode** combo box, the **Trigger Delay** will be enabled for the user to input the **Trigger Delay** time between 0 to 5000000us;
If the **Trigger Delay** time is set to 1000000us, the camera will wait for 1s to capture the image after receiving the trigger signal;

Output Mode

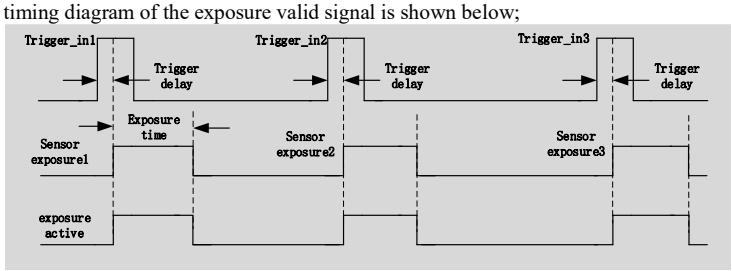


When **Isolated output**, **GPIO0** or **GPIO1** is selected in the **Line Select** combo box and **GPIO0** or **GPIO1** is configured as **Output** in the **GPIO Mode** combo box, the **Output Mode** will be enabled. It can be **Frame Trigger Wait**, **Exposure Active**, **Strobe**, **User Output**, **Counter Output** or **Timer Output**. The chosen mode can be used for diversified applications;

The Frame Trigger Wait signal is pulled low at the start of exposure and pulled high when the last frame of data is read out. The trigger signal input by the user should be in the valid period. If the user inputs a trigger signal when the signal is low, the trigger signal input at this time will be ignored. The following example is the case when Burst Count = 2, as shown below;



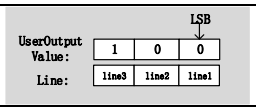
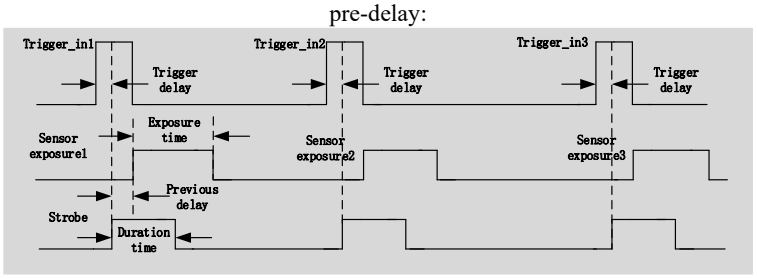
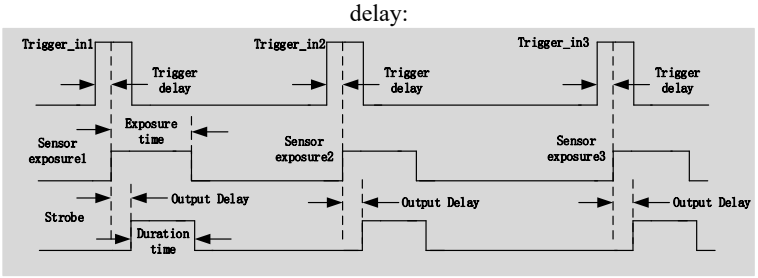
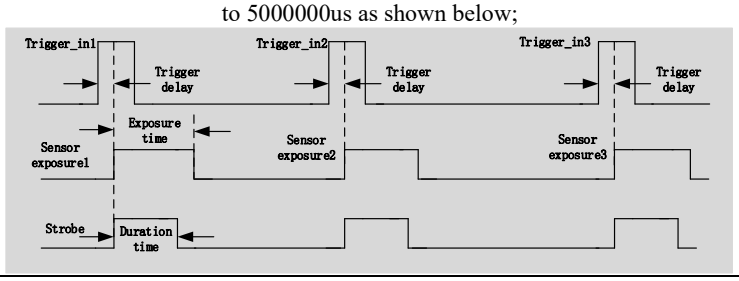
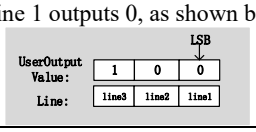
Exposure Active: when this signal is high, it means the sensor is exposing. This signal can be used to control an external mobile device to remain stationary or move at low speed while the camera is at exposure. The timing diagram of the exposure valid signal is shown below;



When the relative position of the camera and the object to be photographed changes, you can refer to **Exposure Active** signal to prevent the captured image from being affected by movement and focus adjustment during the exposure process;

When Strobe is chosen, **Strobe Delay Mode**, **Strobe Delay Time**, **Strobe Duration** will be enabled;

When User Output is chosen, **User Value** will be enabled. lines3, line2, line1 are the combination of **GPIO1**, **GPIO0** and **Isolated output** respectively. If **User Value** is 001, then line **GPIO1** and **GPIO0** will be disabled and **Isolated output** will be enabled;

		
		When the Counter Output is selectd, when the counter value is “m”, the camera triggers “m” times to output a signal.
		When the Timer Output is selectd, the camera keeps output signals. When the **Strobe Delay Time** is **delay**, the pulse width of the high level is determined by the **Strobe Duration**. The pulse width of low level is determined by the **Strobe Delay Time**.
	Output Inverter	When **Isolated output**, **GPIO0** or **GPIO1** is selected in the **Line Select** combo box and **Output** is chosen for **GPIO0** or **GPIO1** in the **GPIO Mode** combo box, the **Output Inverter** will be enabled to configure the current selected line’s output as either inverted or not(**Yes** or **No**).
	Strobe Delay Mode	Strobe can be used to control external devices such as the strobe, and the effective level duration, delay time, and pre-delay time of the strobe signal can be set; When the **Output Mode** is **Strobe**, **Strobe Delay Mode** will be enabled. It can be **pre-delay** or **delay**;
	Strobe Delay Time	When exposure starts, the strobe does not take effect immediately, and the output is delayed according to the value set by **Strobe Delay Time** which is between 0 to 5000000us. The **Strobe Delay Mode** can be **pre-delay** or **delay**; It is described below; pre-delay:  delay: 
	Strobe Duration	The high level duration of the strobe is determined by the **Strobe Duration** which is between 0 to 5000000us as shown below; 
	User Value	Users can input a value at **User Value** edit box with spin to control the line as disable or enable. Enabled when **User Output** is chosen in the **Output Mode** combo box. The logical value 0 or 1’s combination of **GPIO1**(line3), **GPIO0**(line2) and **Isolated output**(line1); When the output mode is selected as **User Output**, the user can input a value at **User Value** edit box to control the corresponding line output with 0 or 1; The value here is only valid for the lower three bits of a binary. For example, when line 1 and line 3 are set to **User Output** mode, and its **User Value** is set to 4 ('b100), then line 3 outputs 1, and line 1 outputs 0, as shown below. 
	Counter Source	When **Counter** is chosen in the **Trigger Source** combo box in the **Capture & Resolution** group, the **Counter Source** can be chosen from **Isolated input**, **GPIO0** or **GPIO1** in this combo box on the **Option>IO Control** page;
	Counter Value	The **Counter Value** is used to divide the frequency of the external input trigger signal when the **Counter Trigger Source** is chosen in the **Capture & Resolution** group; See **Counter** in Table 15-1 for detail;
	Counter Reset	Click **Reset** button can clear the current counting process and begin a new one;

	PWM Source	When **PWM** is chosen in the **Trigger Source** combo box in the **Capture & Resolution** group, the **PWM Source** can be from **Isolated input, GPIO0,** or **GPIO1** in this combo box et al. ;
Advanced page	**Always enable software trigger**	When this button is checked, no matter whether **Trigger Source** is **Software** or **Hardware**, the software trigger buttons(**Single**, **Loop**, **Multiple**) are always enabled; If the **Plan** or **Hardware** is chosen in the **Type** combo box on the **Options>Sequence** page, the **Multiple** button will switch to **Sequence** button; The **Sequence** button will be enabled if a)the **Software Trigger Source** is chosen in the **Capture & Resolution** group or b) the **Always enable software trigger** checkbox is checked on the **Options>Advanced** property page, in this case, both the **Plan** and **Hardware Sequence** captures are supported;
	UART	There is a serial port function on the **Advanced** page, which can be used to communicate with external devices via serial port. Check **Enable** to enable this function. When enabled, **GPIO0** and **GPIO1** can only be used as **UART** transfers; The **Baud Rate** supports 9600-115200. **Cable Select** can configure **GPIO0** and **GPIO1**, which can be configured as **TX** or **RX** respectively. Setting a value at **TX**, clicking **Send** to send the set value out; click **Accept** at **RX** to receive the value from the external device;
	Shutter Mode	Enabled if the camera supports. Users can select **Rolling Shutter** or **Global Reset**;
	Exposure Active Mode	Enabled if the camera supports. Users can select **Specified lines** or **Common exposure time**;
	Exposure Start Line	Enabled when **Specified lines** in the **Exposure Active Mode** combo box is selected. To configure when the Exposure Active signal is valid;
	Exposure End Line	Enabled when **Specified lines** in the **Exposure Active Mode** combo box is selected. To configure when the Exposure Active signal is invalid;

16 Application

16.1 Application installation

In terms of software, customers are welcome to visit our website: https://touptekphotonics.com/download/ to download the latest ToupView, also be used with ASCOM, DirectShow interface. If the third-party software is compatible with these interfaces, customers can also download software drivers from our website and install them into the third-party software.

16.2 Introduction to ToupView

ToupView is a professional software that integrates camera control, image acquisition and processing, image browsing and analysis functions. ToupView has the following characteristics:

- x86: XP SP3 and above ; CPU supports SSE2 and above
- x64: Win7 and above
- Support video mode and Trigger Mode (Raw format or RGB format)
- Automatic capture and quick recording capabilities
- Supports multiple languages
- Hardware ROI and digital binning capabilities
- Rich image processing functions, such as image stitching, real-time overlay, flat field correction, dark field correction, etc.
- Supports all ToupTek cameras

16.2.1 User interface design

- The menus and toolbars are properly set to ensure quick operation
- Professionally integrated with 5 sidebars - Camera, Folders, Undo/Redo, Layers, Measure
- Comfortable operation method (double-click or right-click context menu)
- Detailed help manual

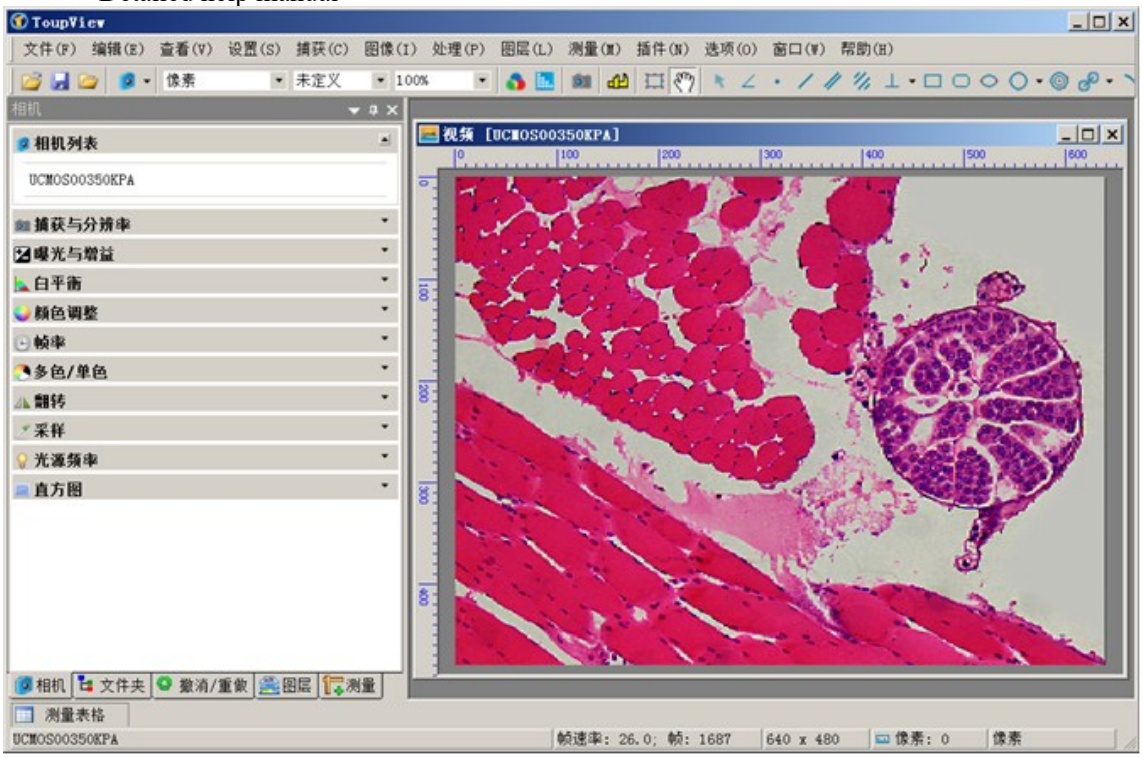


Figure 16-1 ToupView video window

16.2.2 Professional Camera Control Sidebar

Capture & Resolution	Set up live and still capture, snap images, or record video
Exposure & Gain	Auto exposure (preset exposure target value), manual exposure (exposure time can be manually entered and set by slider); gain up to 5 times
White Balance	Advanced one-click smart white balance settings, and you can adjust white balance by manually setting

	color temperature and color
Color Adjustment	Color, saturation, brightness, contrast, gamma initial high-speed adjustment function
Frame Rate Control	For different computer and USB performance, the camera can be super compatible by adjusting the frame rate
Flip	Select "Horizontal" or "Vertical" to adjust the sample orientation to ensure the same orientation as the visual system
Sampling	Neighborhood averaging can improve the signal-to-noise ratio of the video stream; while the sampling extraction mode can ensure the sharpness of the video stream. Supports histogram expansion of video stream, image negative and positive switching, grayscale calibration, and sharpness factor calculation to facilitate video focusing
Bit Depth	8, 12-bit switching, 8-bit is the basic Windows image format. 12-bit has higher image quality but reduces frame rate
Roi	ROI, Region of interest. This function can set the ROI value of the video window. After the ROI group is expanded, a rectangular box will appear in the middle of the video window, and the ROI can be changed. The mouse can adjust the size of the ROI. If there is no problem with the ROI, click "Apply" to set the video to the size of the ROI, and the default value will be restored to the original size.
Dark Field Correction	To enable darkfield correction, you should first capture a field image, then click Enable. Check Enable to enable darkfield correction. Uncheck it to disable darkfield correction
Cooling	Set TEC Target Temperature, fan on/off
Parameter Save	Load, save, overwrite, load, export custom camera panel controls (including calibration information, exposure parameters and color settings information, etc.)

16.2.3 Professional and practical image processing functions

Video Function	Various video professional processing functions: video broadcasting, timing capture, video recording, video watermarking, watermark mobile alignment, watermark rotation alignment, video grid overlay, video measurement, video scaling, gray scale calibration, video high dynamic (HDR), video depth of field extension, video image stitching, video scale, date, etc.
Image Processing and Enhancement	Image contrast control and adjustment, image denoising, various image filtering algorithms, image mathematical morphology algorithms, image rotation, image scaling and image printing, etc.
Image Overlay	The ToupView image overlay denoising function introduces advanced image matching technology. Users only need to record a short video of the image to be superimposed, and they can superimpose and output high fidelity in the case of displacement, rotation and magnification change between multiple frames of the video. images, easy to use

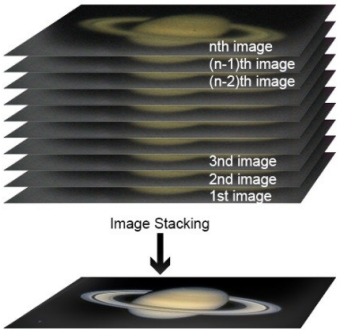


Figure 16-2 Image overlay denoising

16.2.4 Super compatibility

Camera Video Interface	Provide Twain, DirectShow, Labview, SDK installation package (native C++, C#)
Supported Platform and architectures	Compatible with Microsoft® Windows® XP / Vista / 7 / 8 /10 /11(32 & 64 bit), Mac OSX, Linux
Language Support	Language support can be added manually, currently supports English, Simplified Chinese, Traditional Chinese, German, Japanese, Russian, French, Italian, Polish, Turkish

16.2.5 Basic hardware requirements

PC Basic Configuration Requirements	CPU: Intel Core 2 2.8GHz or higher
	RAM: 2GB or more
	USB Port: USB3.0 / USB 2.0
	Monitor: 17" or higher
	CD-ROM

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17 Software development instructions

17.1 SDK description

The download link of the SDK is as follows:

https://www.touptekphotonics.com.cn/download/?dlID=6

17.1.1 SDK support platform

- Windows 32-bit:

x86: Windows XP SP3 and above; the CPU needs to support at least the SSE2 instruction set.

x64: Windows 7 and above.

ARM: Windows 10 and above.

ARM64: Windows 10 and above.

- Windows RT: x86, x64, ARM, ARM64; Windows 10 and above.
- macOS: Universal (x64 + x86); macOS 10.10 and above.
- Linu: core 2.6.27 and above:

x86: The CPU needs to support at least the SSE3 instruction set; glibc 2.8 and above.

x64: glibc 2.14 and above.

armel: glibc 2.17 and above; compiled by toolchain arm-linux-gnueabi (version 4.9.2).

armhf: glibc 2.17 and above; compiled by toolchain arm-linux-gnueabihf (version 4.9.2).

arm64: glibc 2.17 and above; compiled by toolchain aarch64-linux-gnu (version 4.9.2).

- Android:

ARM: armeabi-v7a
ARM64: arm64-v8a
x86: x86
x64: x86_64
compiled by Android NDK r18b.

17.1.2 Introduction to SDK content

ToupCam series cameras support a variety of APIs, including: Native C/C++,.NET/C#/VB.NET, Python, Java, DirectShow, Twain, LabView, Matlab, etc. Compared with other APIs, Native C/C++ API as a low-level API is characterized by using pure C/C++ development without relying on other runtime libraries. The interface is simple and the control is flexible. This SDK zip package contains all the resources and information needed. The directory is as follows:

- inc:

toupcam.h, the C/C++ header file.

- win: Microsoft Windows platform file
  - dotnet:

toupcam.cs, supports C#. toupcam.cs uses P/Invoke to call toupcam.dll. Please copy toupcam.cs to your C# project for use.

toupcam.vb, supports VB.NET. toupcam.vb uses P/Invoke to call toupcam.dll. Please copy toupcam.vb to your VB.NET project for use.

  - x86:

toupcam.lib, x86 lib file.

toupcam.dll, x86 dynamic library file.

democpp.exe, x86 C++ demo execute the procedure.

- x64:

toupcam.lib, x64 lib file.

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toupcam.dll, x64 dynamic library file.

democpp.exe, x64 C++ demo execute the procedure.

- arm:
toupcam.lib, arm lib file.

  toupcam.dll, arm dynamic library file.

- arm64:
toupcam.lib, arm64 lib file.

  toupcam.dll, arm64 dynamic library file.

- winrt:
They can be applied for Dynamic library files of WinRT/ UWP (Universal Windows Platform)/ Windows Store App. They are compatible with Windows Runtime and can be referenced by Universal Windows Platform apps. If you use C# to develop UWP, you can use the toupcam.cs wrapper class.

  Please pay attention to the Device Capability of uwp. Refer to how to add USB device capabilities to the app manifest. (Microsoft seems to limit the Device entry under DeviceCapability to no more than 100) demouwp.zip is a simple example of uwp. Please modify vid and pid. under DeviceCapability in the file Package.appxmanifest before compiling the run example.

- Drivers: (Cameras produced after 2017.1.1 support WinUSB, and drivers no longer need to be installed on Windows 8 and above)
The x86 folder contains the x86 kernel-mode driver files, including toupcam.cat, toupcam.inf and toupcam.sys.

  The x64 folder contains the x64 kernel-mode driver files, including toupcam.cat, toupcam.inf and toupcam.sys.

- samples:
1. democpp, C++ example. This example demonstrates enumerating devices, opening devices, previewing videos, capturing images, setting resolution, triggering, saving images to files in various image formats (.bmp,.jpg,.png, etc.), w mV format video recording, Trigger ModeTrigger Mode, IO control and so on. This example uses the Pull Mode mechanism. To keep the code clean, the WTL library used by the examples can be downloaded from this link http://sourceforge.net/projects/wtl/.

  2. demopush, C++ example, using the Push Mode mechanism, StartPushModeV3.

  3. demomfc, a simple C++ example, uses MFC as a GUI library, supports opening devices, previewing videos, capturing images, setting resolution, saving images to files in various image formats (.bmp,.jpg,.png, etc.), etc. This example uses the Pull Mode mechanism.

  4. demowinformcs1, take C# winform for example, it supports opening devices, previewing videos, capturing images, saving images to files, and setting white balance. This example uses the Pull Mode mechanism, StartPullModeWithWndMsg.

  5. demowinformcs2, take C# winform for example, it supports opening devices, previewing videos, capturing images, saving images to files, and setting white balance. This example uses the Pull Mode mechanism, StartPullModeWithCallback.

  6. demowinformcs3, take C# winform for example, it supports opening devices, previewing videos, capturing images, saving images to files, and setting white balance. This example uses the Push Mode mechanism, StartPushMode.

  7. demowinfor mVb, take VB.NET winform for example, it supports opening devices, previewing videos, capturing images, saving images to files, and setting white balance. This example uses the Pull Mode mechanism.

- linux: Linux platform files
Udev: 99-toupcam.rules, udev rule file.

  Please refer to: http://reactivated.net/writing_udev_rules.html.

- c#: toupcam.cs, Support. Net Core C#. toupcam.cs uses P/Invoke to call libtoupcam.so. Please copy

toupcam.cs to your C# project for use.

- x86: libtoupcam.so, x86 version so file.
- x64: libtoupcam.so, x64 version so file.
- armel: libtoupcam.so, armel version so file, toolchain is arm-linux-gnueabi.
- armhf: libtoupcam.so, armhf version so file, toolchain is arm-linux-gnueabihf.
- arm64: libtoupcam.so, arm64 version so file, toolchain is aarch64-linux-gnu.
- android: libtoupcam.so for four architectures of Android platform arm, arm64, x86, x64.
- mac: macOS platform files.
- python: toupcam.py and example code.
- java: toupcam.java and example code (console and Swing).
- doc: SDK usage documentation, Simplified Chinese, English.
- sample:
- de emosimplest, the simplest example, is about 60 lines of code.
- demoraw, RAW data and still shots, about 120 lines of code.
- extras:
- directshow: DirectShow SDK and demo program.
- twain: TWAIN SDK.
- labview: Labview SDK and demo program.
- matlab: MatLab demo program.