

(7) BUC5IA Series Cooled C-mount USB3.0 CMOS Camera

BUC5IA-2000C/M Cooled C-mount USB3.0 CMOS Camera



BUC5IA-2000C/M Cooled CMOS Camera

BUC5IA-2000 series cameras have adopted SONY IMX183 CMOS sensor(20.0MP resolution) and USB3.0 interface to increase the frame rate.

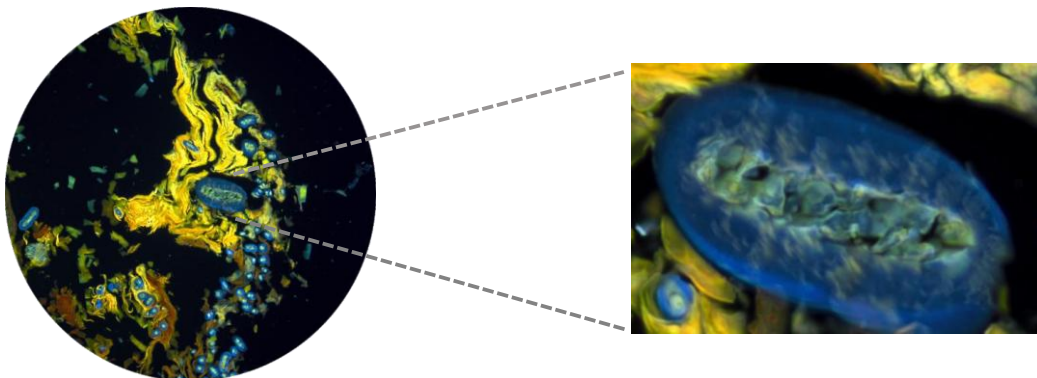
With the two-stage peltier cooling sensor chip to -40 degree below ambient temperature. This will greatly increase the signal to noise ratio and decrease the image noise. Smart structure is designed to assure the heat radiation efficiency and avoid the moisture problem. Electric fan is used to increase the heat radiation speed.

The BUC5IA-2000 series cameras can be widely used in low light environment and microscope fluorescence image capture and analysis.

Feature

1. 20 megapixels, capturing high-definition detailed images in one shot.

The BUC5IA-2000C/M's 1-inch sensor image can cover the most uniform central area of the image plane, with a resolution of up to 20 megapixels, you can capture the high-definition details of your samples in one shot.



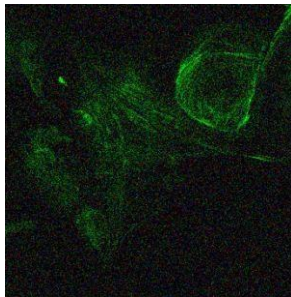
2. Thermoelectric cooling noise reduction technology to meet more professional fluorescence imaging needs.

With the top-level cooled camera technology, the BUC51A-2000C/M cooled camera operates at -15 °C and can ensure long-term reliable operation, significantly reducing the hot pixels caused by the accumulation of dark current, and obtaining a purer fluorescent background image. More than twice the sensitivity of a CCD, to meet the needs of professional fluorescence imaging.

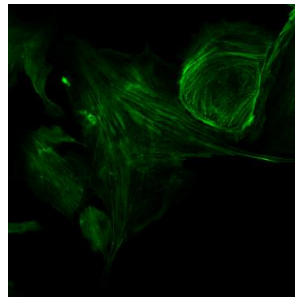
3. Real-time intelligent image processing, focused on improving image quality.

Without sacrificing speed and image information, the BUC51A-2000C/M offers a variety of real-time intelligent image processing capabilities that allow you to view and capture flawless sample images in real time with the click of a button.

- ☐ Real-time 3D noise reduction, effectively eliminating random background noise

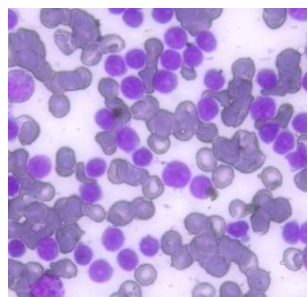


Before

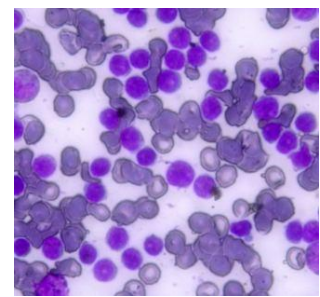


After

- ☐ Real-time sharpening, enhanced detail, and more transparent



Before



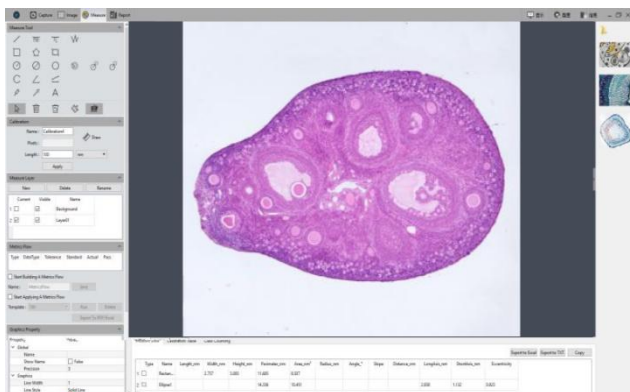
After

4. >50fps high speed video at 5.0MP resolution.

Resolution	BUC51A-2000C/M	CCD
20MP	15fps	<1fps
5MP	53fps	4fps

With a guaranteed field of view, the BUC51A-2000C/M offers a variety of high-speed imaging modes that can be adjusted for fast focus and positioning for an efficient image capture experience.

5. Revolutionary PC Computing Imaging Software Capture V2.0



Unique from the cumbersome process of traditional technology to obtain images after processing, the Capture V2.0 provides real-time image stitching and real-time depth of field fusion. This can automatically complete the image while the operator moves the stage -productivity at its best.

6. Advanced Cooling Technology Reduces Dark Current Down to 0.001e-/pixel/s.

BUC5IA-2000C/M can achieve a dark current noise control level as low as 0.001e/sec, which significantly reduces the hot pixel noise during long exposure time.

Specification

Product Model	BUC5IA-2000C	BUC5IA-2000M
Color/Mono	Color	Mono
Sensor Model	Sony	Sony
Quantum Efficiency	84%@535nm	84%@495nm
Resolution	5472(H) x 3648(V)	5472(H) x 3648(V)
Pixel Size	2.40μm x 2.40μm	2.40μm x 2.40μm
Sensor Size	15.86mm; 1inch	15.86mm; 1inch
Shutter Mode	Rolling	Rolling
Read Noise	<1e-	<0.8e-
Dark current	0.001e-/pixel/s	0.001e-/pixel/s
Cooling	Forced air (Ambient at +25°C): -15 °C	Forced air (Ambient at +25°C): -15 °C
Frame Rate	14fps@5472x3648, 53fps@2736x1824 67fps@1824x1216	16fps@5472x3648(8bit), 8fps@5472x3648(16bit), 53fps@2736x1824(8bit), 22fps@2736x1824(16bit)
Binning	2x2, 4x4	2x2, 3x3, 4x4, 8x8
Exposure Settings	Auto/Manual	Auto/Manual
Exposure Time	0.244ms - 2mins	0.244ms - 60mins
Picture Format	JPG/PNG/TIFF/DICOM	JPG/PNG/TIFF/DICOM
Data Interface	USB3.0	USB3.0
Bit Depth	16bit/8bit	16bit/8bit
Camera Size	85mm x 85mm x 100mm	85mm x 85mm x 100mm
Power Supply	12V/8A	12V/8A
Camera Weight	1200g	1200g
PC Software	Captrue V2.0	Captrue V2.0
Operating System	Windows(32bit/64bit)	Windows(32bit/64bit)
Operating Environment	Operating: 0-40°C. Humidity: 10%-85%	Operating: 0-40°C. Humidity: 10%-85%

CaptureV2.0 Feature Function

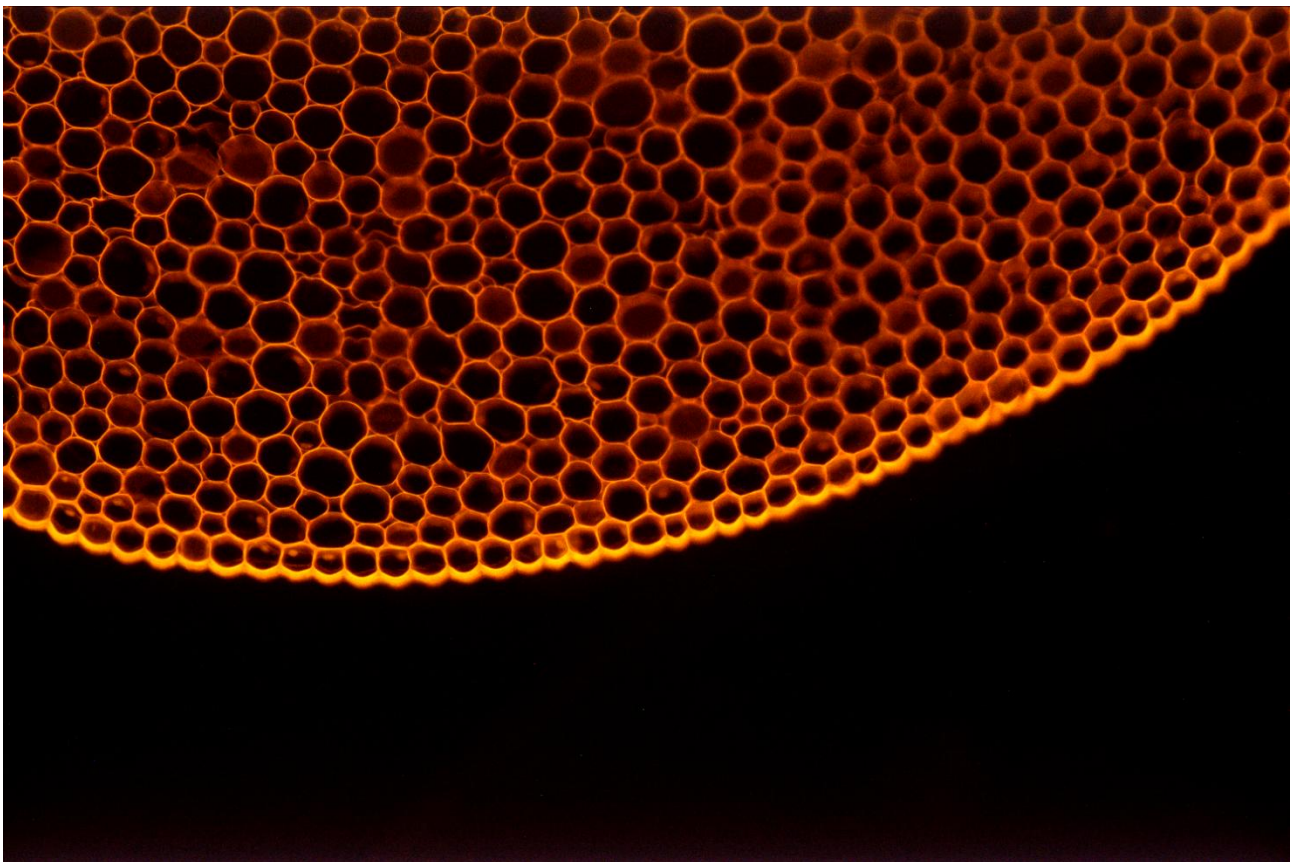
BUC5IA-2000C/M supports our standard, it supports Microsoft Directshow, Twain video interface and supports Capture 2.0 software.

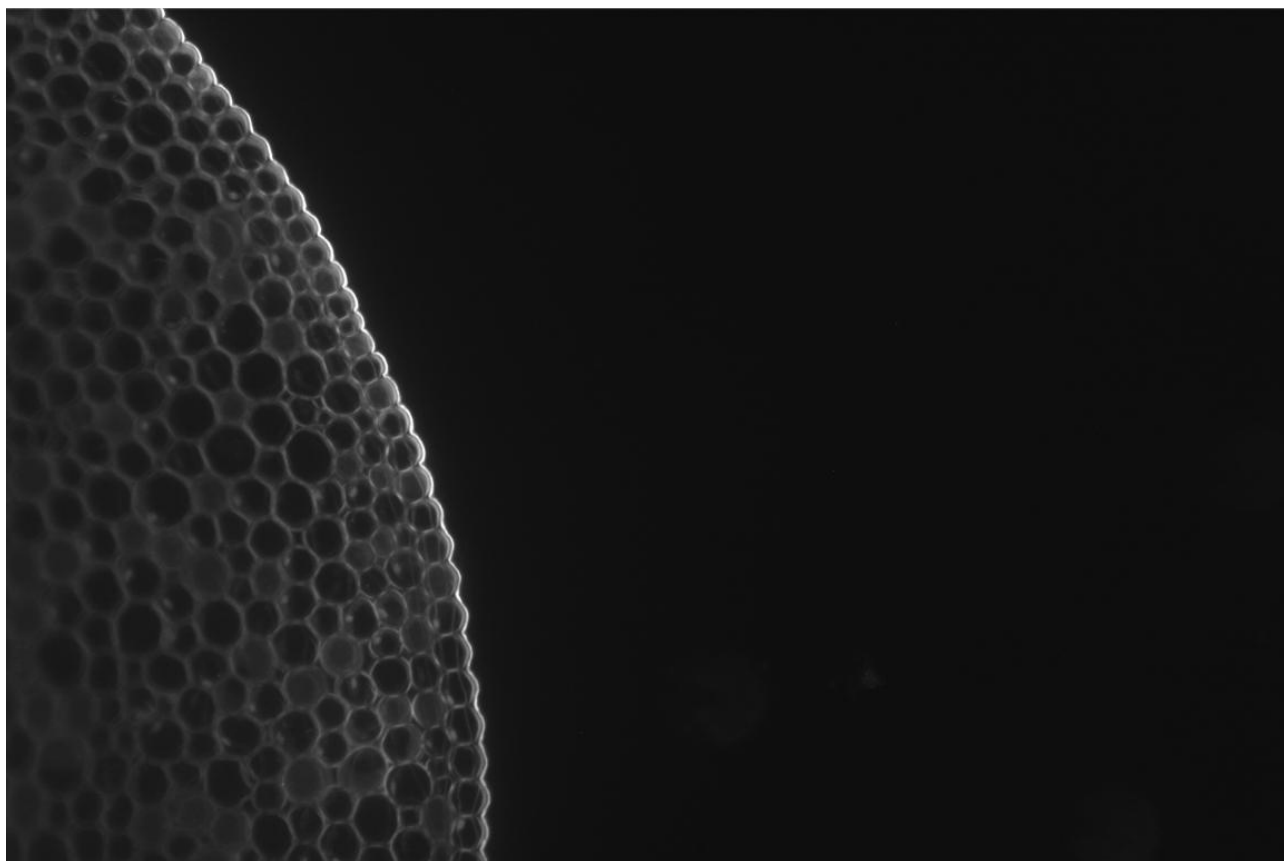
Capture 2.0 software is a large imaging software developed by us to support our new cameras. It has three modules: camera control, image processing and measurement. Its core features include compatibility with Microsoft Windows and Apple Mac OS dual-systems with advanced "real-time stitching" and "real-time EDF" algorithms and so on.

* Real-time Image Stitching\ EDF \ 3D Noise Reduction;

- * Real-time fluorescence image synthesis and editing;
- * HDR image synthesis;
- * Micro-imaging-based intelligent automatic exposure;
- * Intelligent flat field correction based on dynamic calculation Smart measurement workflow;
- * Supports single shot, delayed camera;
- * User parameter group save and load Dynamic\static measurement;
- * Customize measuring gauges, layers, precision;
- * Customize image naming, style, save location;
- * Implements drawing: points, lines, rectangles, polygons, circles, arcs, angles, Data export as TXT or Excel, report generation and printing.

Sample Images





BUC5IA-900M/2600M Cooled CMOS Camera



BUC5IA-900M Cooled CMOS Camera



BUC5IA-2600M Cooled CMOS Camera

BUC5IA-900M/2600M cooled CMOS camera designed for long exposure imaging. It not only incorporates high sensitivity and low noise advantages from latest sensor technologies, but also leverages many experiences on cooling chamber design and advanced image processing. BUC5IA-900M/2600M is able to capture clean and even images for up to 60 minutes exposure time.

Feature

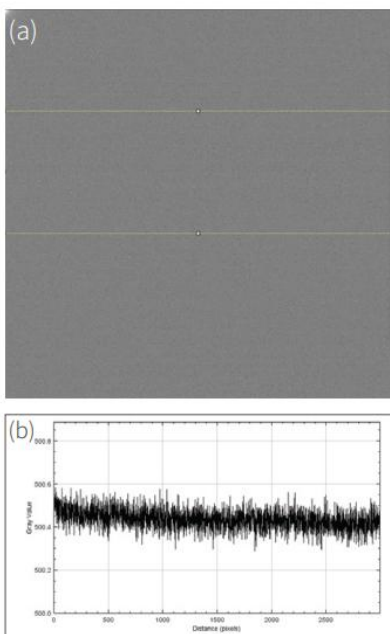
1. SONY BSI CMOS

SONY BSI CMOS, 92 % peak QE, 0.9 e- readout noise and no glow.

2. Dark current

Dark current < 0.0005 e-/p/s, equivalent to the cooled CCD for long exposure imaging.

3. Pixel correction technology



High background quality ensures more accurate quantitative analysis. BUC5IA-900M and BUC5IA-2600M have excellent background uniformity, as it has basically eliminated the bad factors such as amplifier grow and bad pixels.

Figure (a) is the background image taken by BUC5IA-900M/2600M with 600s exposure.

Figure (b) is the grayscale intensity curve corresponding to the yellow region, showing excellent background uniformity.

4. Dynamic range

Dynamic range 16000:1, more than 4 times that of the CCD, greatly expanding the signal detection range.

5. Flexible binning mode

Improving the sensitivity and dynamic range capability.

6. High reliability cooling chamber

Cooled to -25 °C @ 22 °C, no condensation or other problems.

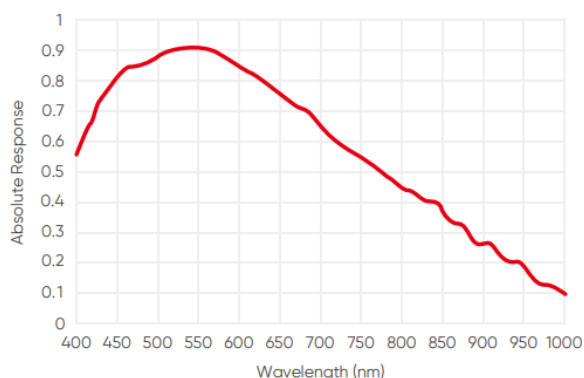
7. Compact design

Conducive to instrument system integration.

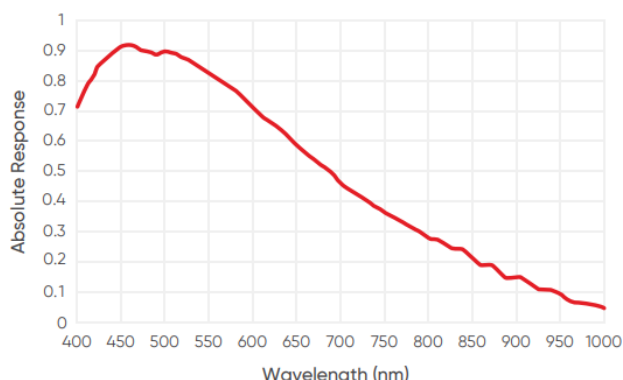
Application

BUC5IA-900M/2600M cooled CMOS camera are typically used in chemiluminescence, bioluminescence, PCR, fluorescence imaging.

Quantum Efficiency



BUC5IA-900M



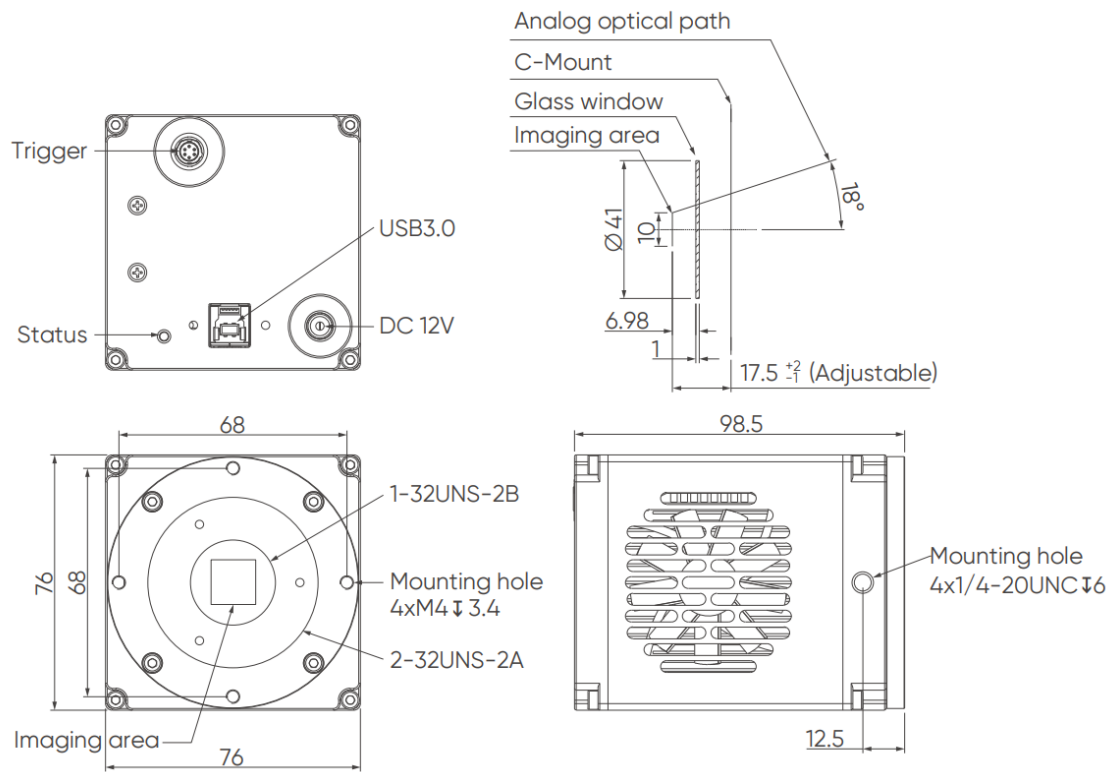
BUC5IA-2600M

Specification

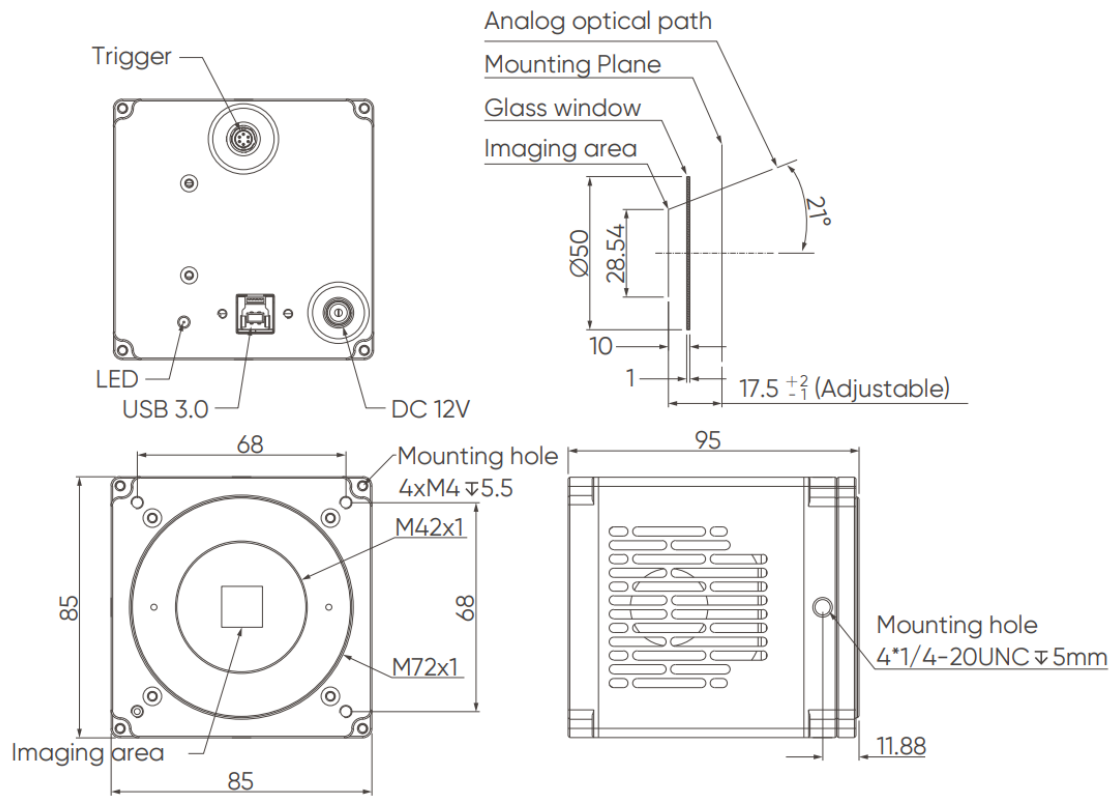
Product Model	BUC5IA-900M	BUC5IA-2600M
Color/Mono	Mono	Mono
Sensor Type	BSI CMOS	BSI CMOS
Sensor Model	Sony IMX533CLK-D	Sony IMX571BLR-J
Array Diagonal	15.96mm (1")	28.3mm (1.8")
Effective Area	11.28mm*11.28mm	23.4mm*15.6mm
Pixel Size	3.76μm*3.76μm	3.76μm*3.76μm
Resolution	3000*3000, 9MP	6244*4168
Quantum Efficiency	92%@530nm	92%@460nm

Dark Current	<0.0005e-/p/s			<0.0005e-/p/s		
Gain Mode	Gain 0 -High-Capacity	Gain 1 - Balanced	Gain 2 - Sensitive	Gain 0 -High-Capacity	Gain 1 - Balanced	Gain 2 - Sensitive
Full well capacity	Gain 0: 47ke-@bin1; >180ke- with binning	Gain 1: 16ke-@bin1; >64ke- with binning	Gain2: 3ke-@bin1; >12ke- with binning	50ke-@Gain 0	15ke-@Gain 1	3ke-@Gain 2
Readout Modes	Standard, low-noise			Standard, low-noise		
Readout Noise (Standard)	3.2e-@Gain0	1.2e-@Gain1	1.0e-@Gain2	3.2e-@Gain0	1.2e-@Gain1	1.0e-@Gain2
Readout Noise (Low-noise)	2.5e-@Gain0	1.0e-@Gain1	0.9e-@Gain2	2.5e-@Gain0	1.0e-@Gain1	0.9e-@Gain2
Frame Rate	18fps@Standard Mode, 12fps@Low Noise Mode			6.5fps		
Shutter Mode	Rolling			Rolling		
Exposure Time	12.2μs-60min			34.7μs-60min		
Image Processing	DPC			DPC		
ROI	Supported			Supported		
Binning	2*2, 3*3, 4*4, 6*6, 8*8			2*2, 3*3, 4*4, 5*5, 6*6, 8*8, 16*16		
Cooling Method	Air			Air		
Cooling Temperature	Cooled to -25°C@Ambient temperature (22°C)			Cooled to -25°C@Ambient temperature (22°C)		
Trigger Mode	Hardware, software			Hardware, software		
Output Trigger Signals	Exposure start, Global, Readout end, High level, Low level			Exposure start, Global, Readout end, High level, Low level		
Trigger Connector	Horise			Horise		
SDK	C, C++, C#			C, C++, C#		
Data Interface	USB 3.0			USB 3.0		
Optical Interface	C-Mount, Customizable			M42, Customizable		
Bit Depth	14 bit@bin1, extended to 16 bit with FPGA binning			16 bit		
Power	12V/ 6A			12V/ 6A		
Power Consumption	≤40W			≤55W		
Dimensions	76mm*76mm*98.5mm			85mm*85mm*95mm		
Camera Weight	835g			945g		
Operating System	Windows/ Linux			Windows/ Linux		
Operating Environment	Working: Temperature 0-40°C, Humidity 10-85% Storage: Temperature -10-60°C, Humidity 0-85%			Working: Temperature 0-40°C, Humidity 10-85% Storage: Temperature -10-60°C, Humidity 0-85%		

Dimension



BUC51A-900M



BUC51A-2600M

(8) BUC5IB Series Cooled C-mount USB3.0 CMOS Camera



(Both cylindrical and cuboid housing are available)

BUC5IB series cameras have adopted SONY Exmor CMOS sensor as the image-picking device and USB3.0 is used as the transfer interface to increase the frame rate.

With the two-stage peltier cooling sensor chip to -42 degree below ambient temperature. This will greatly increase the signal to noise ratio and decrease the image noise. Smart structure is designed to assure the heat radiation efficiency and avoid the moisture problem. Electric fan is used to increase the heat radiation speed.

BUC5IB series cameras come with advanced video & image processing application ImageView; Providing Windows/Linux/OSX multiple platform SDK; Native C/C++, C#/VB.NET, DirectShow, Twain Control API.

The **BUC5IB** series cameras can be widely used in low light environment and microscope fluorescence image capture and analysis, as well as the astronomy deep sky applications.

Feature

The basic characteristic of BUC5IB can be summarized as follows:

1. Standard C-Mount camera with SONY Exmor CMOS sensors;
2. Two-stage TE-cooling with controllable electric fan;

3. Sensor chip cooling up to 42°C below ambient temperature;
4. Working temperature can be regulated to specified temperature in 5 minutes;
5. Smart structure to assure the heat radiation efficiency and avoid the moisture problem;
6. IR-CUT/AR coated windows;
7. Up to 1-hour long time exposure;
8. USB3.0 5Gbit/second interface ensuring high speed data transmission;
9. Ultra-Fine™ color engine with perfect color reproduction capability;
10. With advanced video & image processing application ImageView;
11. Support both video and trigger modes;
12. Providing Windows/Linux/Mac OS multiple platforms SDK;
13. Native C/C++, C#/VB.NET, DirectShow, Twain control API.

Specification

Model	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
BUC5IB-4500M	45M/IMX492(M, RS) 4/3 "(19.11x13.00)	2.315 x2.315	351mV with 1/30s 0.12mV with 1/30s	8.1@8176x5616 30.0@4080x2808 8.1@7408x5556 33.0@3696x2778 10.4@8176x4320 34.7@4096x2160 62.5@2048x1080 86.5@1360x720 8 Bit / 12 Bit	1x1(3:2) 2x2(3:2) 1x1(4:3) 2x2(4:3) 1x1(17:9) 2x2(17:9) 3x3(17:9) 4x4(17:9)	0.1ms~3600s
BUC5IB-2600C	26M/IMX571(C, RS) 1.8 "(23.48x15.67) APS-C	3.76 x3.76	485mv with 1/30s 0.07mv with 1/30s	14@6224x4168 37@3104x2084 110@2064x1386 8 Bit/ 16 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IB-2600M	26M/IMX571(M, RS) 1.8 "(23.48x15.67) APS-C	3.76x3.76	871mv with 1/30s 0.070mv with 1/30s	14@6224x4168 37@3104x2084 110@2064x1386 8 Bit / 16 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IB-2100C	21M/IMX269(C) 4/3 "(17.4x13.1)	3.3 x3.3	400mv with 1/30s 0.1mv with 1/30s	17@5280x3954 17@3952x3952 56@2640x1976 67@1760x1316 192@584x438 8 Bit / 12 Bit	1x1 1x1 2x2 3x3 9x9	0.1ms~3600s

BUC5IB-2000C	20M/IMX183(C, RS) 1 "(13.056x8.755)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	19@5440x3648 48.8@2736x1824 59.4@1824x1216 8 Bit / 12 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IB-2000M	20M/IMX183(M, RS) 1 "(13.056x8.755)	2.4 x2.4	388mv with 1/30s 0.21mv with 1/30s (F8.0)	19@5440x3648 48.8@2736x1824 59.4@1824x1216 8 Bit / 12 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IB-1600C	16M/MN34230PLJ(C) 4/3" (17.6x13.3)	3.8x3.8	2413LSB 89.1LSB (Gain = 0dB)	6@4640x3506 20@2304x1750 48@1536x1160 8 Bit/ 12 Bit	1x1 2x2 3x3	0.15ms~3600s
BUC5IB-1600M	16M/MN34230ALJ(M) 4/3" (17.6x13.3)	3.8x3.8	2650LSB 89.1LSB (Gain = 0dB)	22.5@4648x3506 43.0@2304x1750 48.0@1536x1168 8 Bit / 12 Bit	1x1 2x2 3x3	0.15ms~3600s
BUC5IB-1030C	10.3M/IMX294(C) 4/3 "(19.11x13.0)	4.63 x4.63	419mv with 1/30s 0.12mv with 1/30s	30.0@4128x2808 38.5 @4096x2160 59.8@2048x1080 87.2@1360x720 8 Bit / 14 Bit	1x1 1x1 2x2 3x3	0.15ms~3600s
BUC5IB-1030M	10.3M/IMX492(M, RS) 4/3 "(19.11x13.0)	4.63 x4.63	701mv with 1/30s 0.12mv with 1/30s	30.0@4128*2808 38.5@ 4096*2160 59.8@2048*1080 87.2@1360*720 8 Bit / 14 Bit	1x1 1x1 2x2 3x3	0.15ms~3600s
BUC5IB-900C	9M/IMX533(C) 1"(11.28x11.28)	3.76 x3.76	534mv with 1/30s 0.04mv with 1/30s	40@2992x3000 62@1488x1500 186@992x998 8 Bit / 14 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IB-900M	9M/IMX533(M) 1"(11.28x11.28)	3.76 x3.76	877mv with 1/30s 0.04mv with 1/30s	40@2992x3000 62@1488x1500 186@992x998 8 Bit / 14 Bit	1x1 2x2 3x3	0.1ms~1h
BUC5IB-830C	8.3M/IMX585(C, RS) 1/1.2"(11.14x6.26)	2.9x2.9	5970mv with 1/30s 0.15mv with 1/30s	45@3840x2160 70@1920x1080 8 Bit / 12 Bit	1x1 2x2	0.1ms~3600s
BUC5IB-700C	7.0M/IMX428(C, GS) 1.1 "(14.4x9.9)	4.5 x4.5	2058mv with 1/30s 0.15mv with 1/30s	51.3@3200x2200 133.8@1584x1100 8 Bit / 12 Bit	1x1 1x1	0.1ms~3600s
BUC5IB-700M	7.0M/IMX428(M, GS)	4.5 x4.5	3354mv with 1/30s 0.15mv with 1/30s	51.3@3200x2200 133.8@1584x1100	1x1 1x1	0.1ms~3600s

	1.1 "(14.4x9.9)			8 Bit / 12 Bit		
BUC5IB-230C	2.3M/SC2110(C, RS) 1.69"(23.0x14.4)	12x12	120000 mV/lux-s @HCG	120@1920x1200 8 Bit / 12 Bit	1x1	0.1ms~3600s
BUC5IB-230M	2.3M/SC2110(M, RS) 1.69"(23.0x14.4)	12x12	120000 mV/lux-s @HCG	120@1920x1200 8 Bit / 12 Bit	1x1	0.1ms~3600s
BUC5IB-170C	1.7M/IMX432(C, GS) 1.1 "(14.4x9.9)	9.0 x9.0	4910mv with 1/30s 0.3mv with 1/30s	98.6@1600x1100 8 Bit / 12 Bit	1x1	0.1ms~3600s
BUC5IB-170M	1.7M/IMX432(M, GS) 1.1 "(14.4x9.9)	9.0 x9.0	8100mv with 1/30s 0.3mv with 1/30s	98.6@1600x1100 8 Bit / 12 Bit	1x1	0.1ms~3600s

C:Color; M:Monochrome; GS: Global shutter

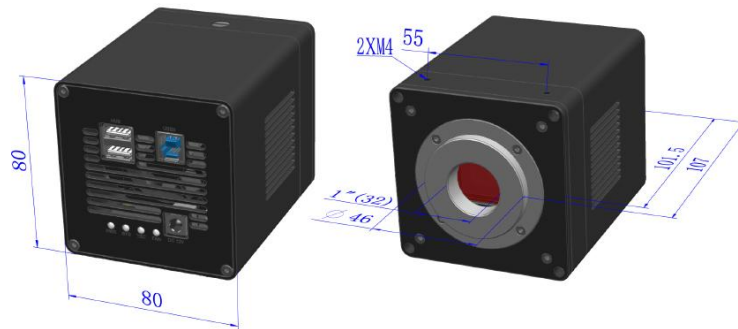
Other Specification for BUC5IB Cameras	
Spectral Range	380-650nm (with IR-cut Filter)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/NA for Monochromatic Sensor
Color Technique	Ultra-Fine™ Color Engine/NA for Monochromatic Sensor
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK (Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc.)
Recording System	Still Picture and Movie
Cooling System*	Two-stage TE-cooling System -45 °C below Camera Body Temperature
Operating Environment	
Operating Temperature (in Centidegree)	-10~ 50
Storage Temperature (in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port External Power Adapter for Cooling System, DC12V, 3A
Software Environment	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 / 10 / 11 (32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 2GB or More
	USB Port: USB3.0 High-speed Port
	Display: 17" or Larger
	CD-ROM

Dimension

The BUC5IB body, made from tough, alloy with CNC technique, ensures a heavy duty, workhorse solution. The camera is designed with a high quality IR-CUT or AR to block the IR light or protect the camera sensor. The fan's vibration is minimized to the low level to eliminate the vibration caused imaging blur. This design ensures a rugged, robust solution with an increased lifespan when compared to the other industrial camera solutions.



Dimension of BUC5IB (Cylindrical housing)



Dimension of BUC5IB (Cuboid housing)

Packing Information for BUC5IB Cameras



Packing Information of BUC5IB Camera (Cylindrical housing)

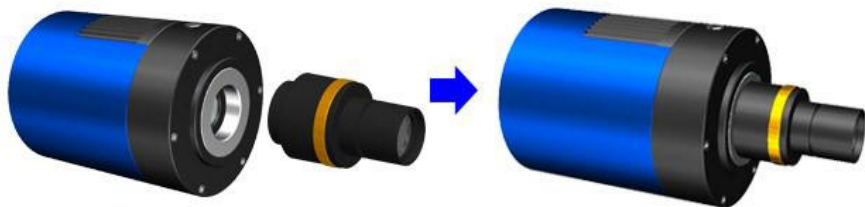


Packing Information of BUC5IB Camera (Cuboid housing)

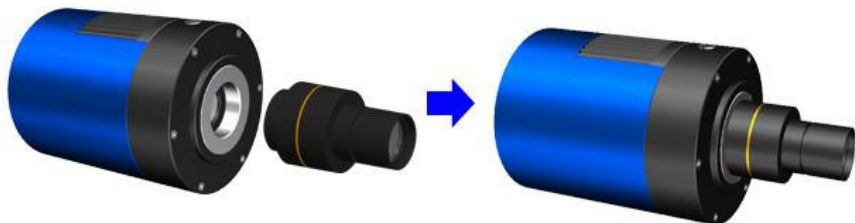
Standard Package			
A	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton), not shown in the photo (TBD)		
B	3-A safety equipment case: L:28cm W:23cm H:15cm (1pcs, 2.8Kg/ box); Carton size: L:28.2cm W:25.2cm H:16.7cm (TBD)		
C	BUC5IB camera(C-mount)		
D	Drying tube and desiccant		
E	Power adapter: input: AC 100~240V 50Hz/60Hz, output: DC12 V 3A		
F	High-Speed USB3.0 A male to B male gold-plated connectors cable /1.5m		
G	CD (Driver & utilities software, Ø12cm)		
Optional Accessory			
H	Adjustable lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)	BCN2A-0.37× BCN2A-0.5× BCN2A-0.75× BCN2A-1×
		C-Mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)	BCN3A-0.37× BCN3A-0.5× BCN3A-0.75× BCN3A-1×
I	Fixed lens Adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)	BCN2F-0.37× BCN2F-0.5× BCN2F-0.75× BCN2F-1×
		C-mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)	BCN3F-0.37× BCN3F-0.5× BCN3F-0.75×

			BCN3F-1×
	Note: For H and I optional items, please specify your camera type (C-mount, microscope camera or telescope camera), our engineer will help you to determine the right microscope or telescope camera adapter for your application.		
J	(Dia.23.2mm to 30.0mm Ring)/Adapter rings for 30mm eyepiece tube		
K	(Dia.23.2mm to 30.5mm Ring)/ Adapter rings for 30.5mm eyepiece tube		
L	Calibration kit	106011/TS-M1(X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)	

Extension of BUC5IB with Microscope Adapter

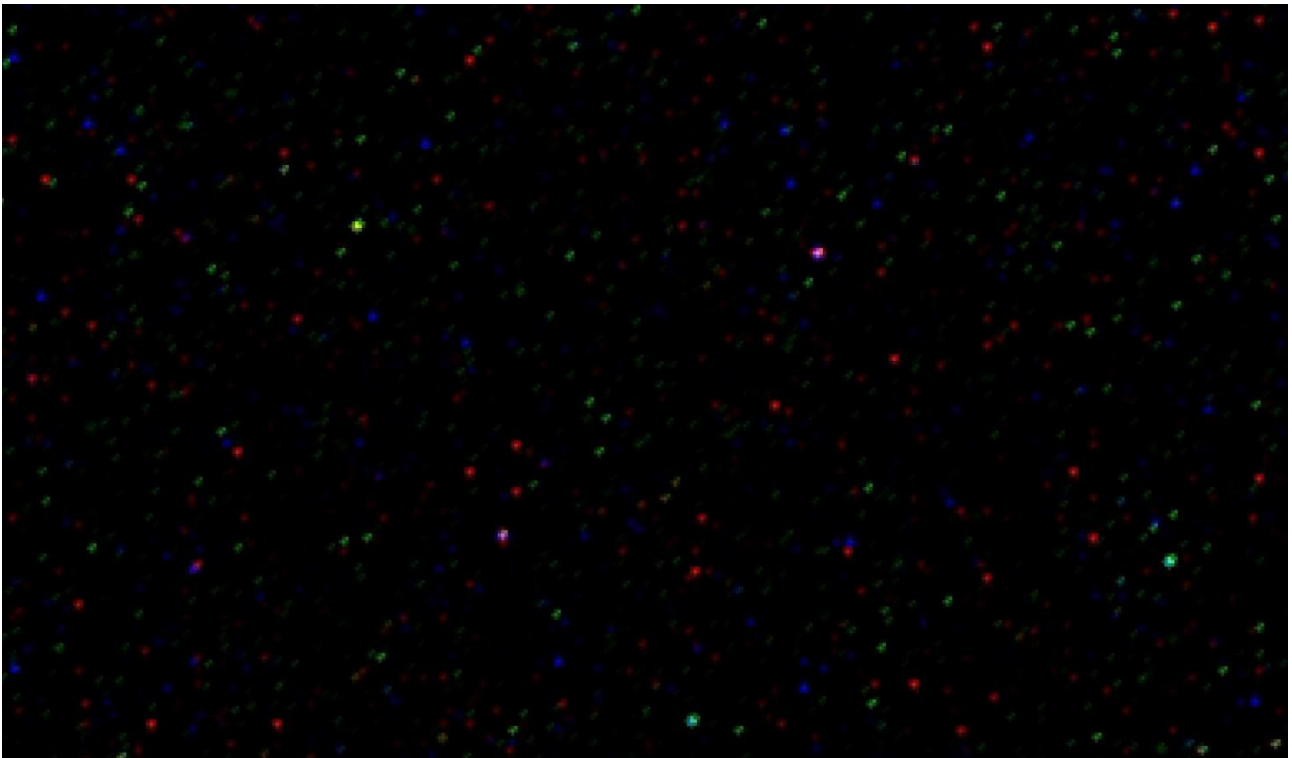


BUC5IB+ BCN2A-XXX(23.2mm Adapter)

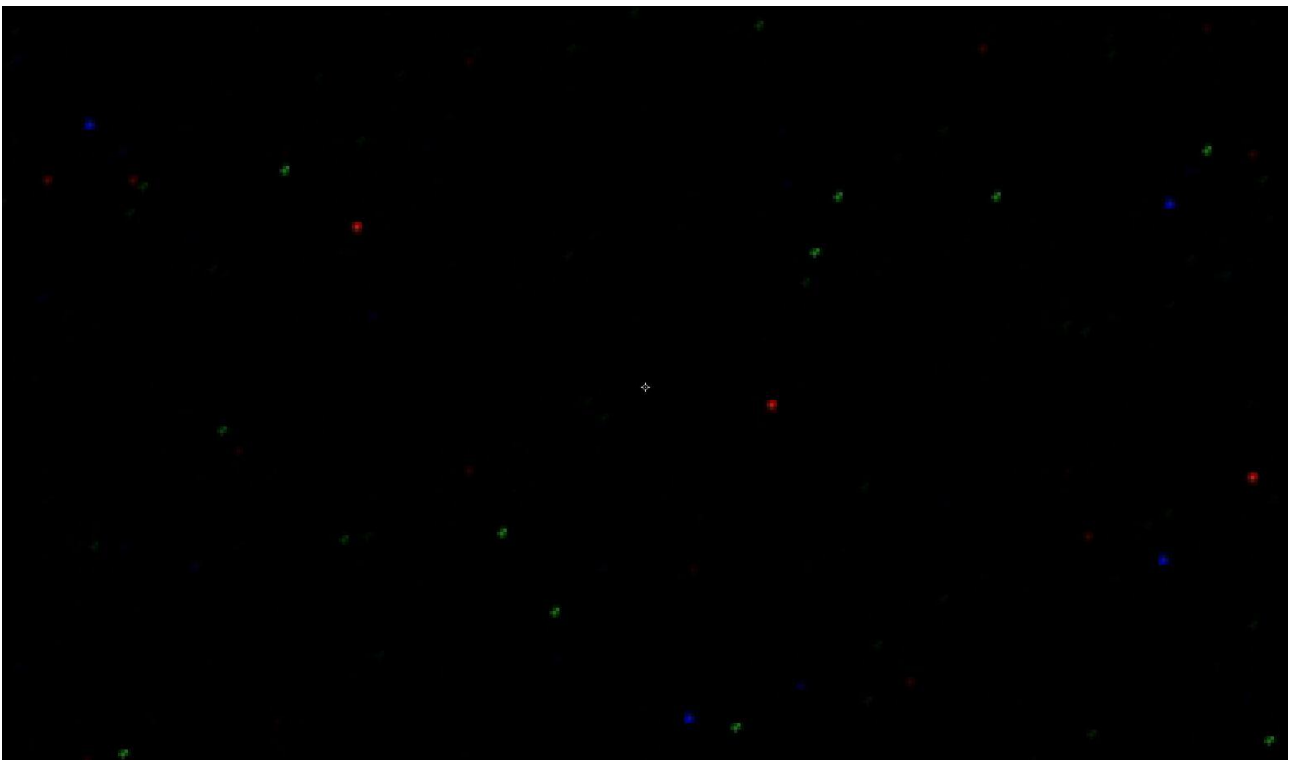


BUC5IB+ BCN2F-XXX(23.2mm Adapter)

Sample Image



Hot noise for the BUC5IB-1600C at Gain 20 , 600 seconds, 15 Centidegree



Hot noise for the BUC5IB-1600C Gain 20, 600 seconds, minus 15 Centidegree

(9) BUC5IC Series TE-Cooling M52/C-mount USB3.0 CMOS Camera



BUC5IC Series (Square Housing)

BUC5IC series camera adopts SONY Exmor or GSENSE with big pixel size or full-frame CMOS sensor as the image-picking device and USB3.0 is used as the transfer interface to increase the frame rate.

With the two-stage peltier cooling sensor chip to -40°C below ambient temperature. This will greatly increase the signal to noise ratio and decrease the image noise. Smart structure is designed to assure the heat radiation efficiency and avoid the moisture problem. Electric fan is used to increase the heat radiation speed.

BUC5IC series comes with advanced video & image processing application ImageView; Providing Windows/Linux/ OSX multiple platform SDK; Native C/C++, C#/VB.NET, DirectShow, Twain Control API;

The BUC5IC series can be widely used in low light environment and microscope fluorescence image capture and analysis, as well as the astronomy deep sky application.

Feature

The basic characteristic of BUC5IC series can be summarized as follows:

1. Standard camera with SONY Exmor or GSENSE CMOS sensors;
2. Big pixels or full-frame sensor size;
3. Two-stage TE-cooling with controllable electric fan;
4. Sensor chip cooling up to -40°C below ambient temperature;
5. Working temperature can be regulated to specified temperature in 5 minutes;
6. Smart structure to assure the heat radiation efficiency and avoid the moisture problem;
7. IR-CUT/AR coated windows (Optional);
8. M52 x0.75 or C-mount
9. USB3.0 5Gbit/second interface ensuring high speed data transmission;

10. Up to 1000 seconds long time exposure;
11. Embedded up to 16bit hardware ISP module;
12. Including 2-D denoising and sharpening;
13. Ultra-Fine color engine with perfect color reproduction capability;
14. Support the capture of video and image in software / hardware trigger mode;
15. With advanced video & image processing application ImageView;
16. Support both video and trigger modes;
17. Providing Windows/Linux/Mac OS multiple platforms SDK;
18. Native C/C++, C#/VB.NET, DirectShow, Twain control API.

BUC5IC Series Datasheet

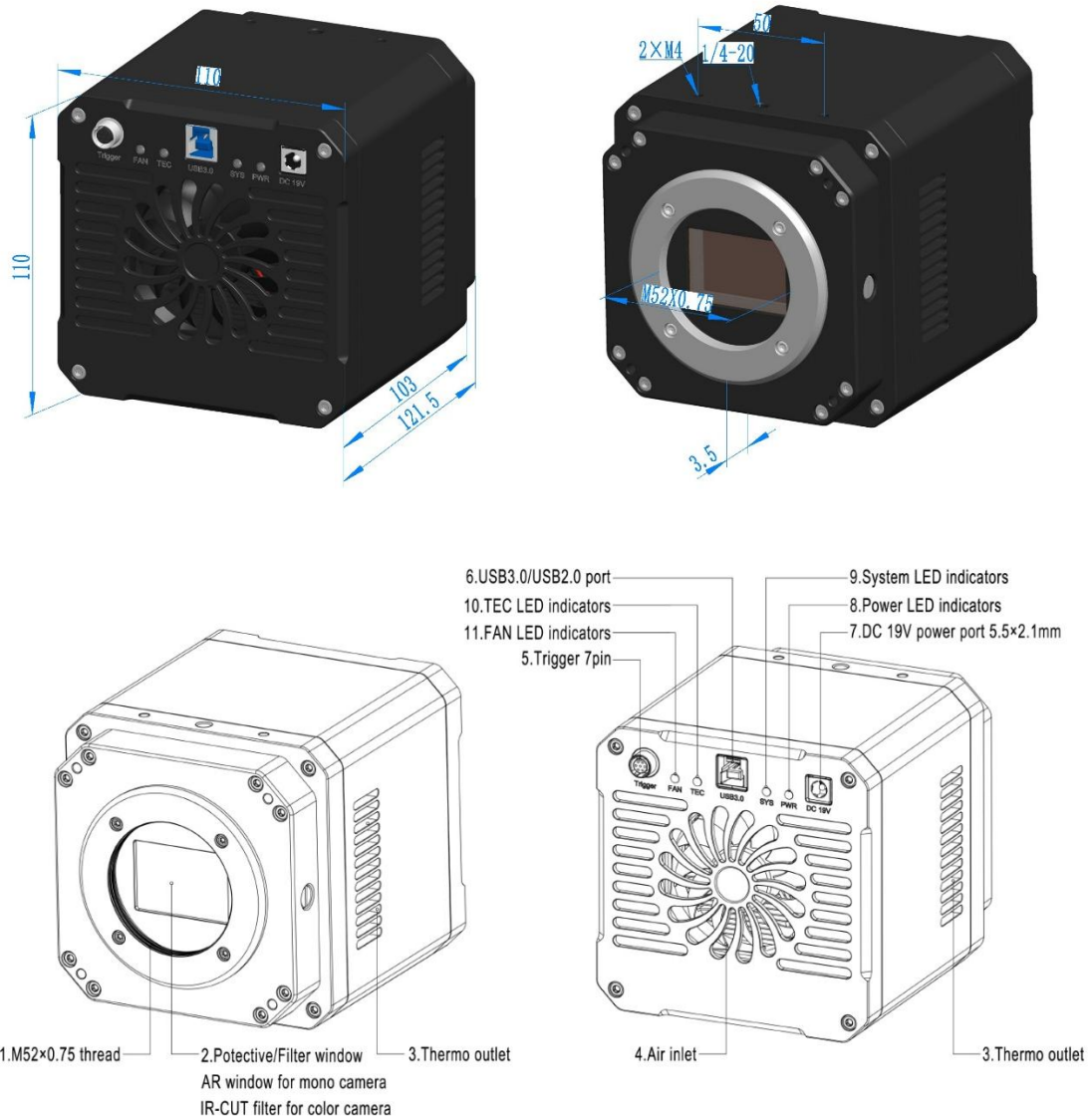
Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
BUC5IC-6200AM	61M/IMX455(M, RS) 2.7"(35.98x23.99) Full Frame	3.76x3.76	871mv with 1/30s 0.039mv with 1/30s 88.3dB/47.1dB	6.1@9568x6380(16bit) 19.1@4784x3190 55.6@3184x2124 191@1040x706 8 Bit / 16 Bit	1x1 2x2 3x3 9x9	0.1ms~1000 s
BUC5IC-6200AC	61M/IMX455(C, RS) 2.7" (35.98x23.99) Full Frame	3.76x3.76	484.5mv with 1/30s 0.039mv with 1/30s 85.8dB/47.0dB	6.1@9568x6380(16bit) 19.1@4784x3190 55.6@3184x2124 191@1040x706 8 Bit / 16 Bit	1x1 2x2 3x3 9x9	0.1ms~1000 s
BUC5IC-2400AC	24M/IMX410(C, RS) 2.7" (36.02x24.00) Full Frame	5.94x5.94	573mv with 1/30s 0.037mv with 1/30s 87.3dB/50.2dB	15.3@6064x4040(14bit) 41@3024x2012 114@2016x1342 8 Bit / 14 Bit	1x1 2x2 3x3	0.1ms~1000 s
BUC5IC-400AM	4.2M/GSENSE2020e(M, NIR, RS) 1.2" (13.31x13.31)	6.5x 6.5	8.1x10 ⁷ (e-/((W/m ²).s)) Peak QE 64.2% @595nm 0.12(e-/s/pix)@-10C 81.6dB/46.5dB	45@2048x2048 45@1024 x 1024 8 Bit / HDR 16 Bit	1x1 2x2	0.1ms~1000 s
BUC5IC-400BM	4.2M/GSENSE2020BSI (M, UV, RS) 1.2" (13.31x13.31)	6.5 x 6.5	1.1x10 ⁸ (e-/((W/m ²).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	1x1 2x2	0.1ms~1000 s
BUC5IC-400CM	4.2M/GSENSE400BSI (M, UV, RS) 2.0" (22.53x22.53)	11 x 11	3.25x10 ⁸ (e-/((W/m ²).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	1x1 2x2	0.1ms~1000 s

C: Color; M: Monochrome; UV: Ultra-violet sensitive

Other Specification for BUC5IC Series	
Spectral Range	200-1000nm (The spectral response range of each model is different. Please refer to the product manual of each model for detailed parameters)
Protect Windows	IR CUT (AR protection glass is optional)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/NA for Monochromatic Sensor
Color Technique	Ultra-Fine Color Engine/NA for Monochromatic Sensor
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK (Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc.)
Recording System	Still Picture and Movie (Free running mode or trigger mode)
Cooling System*	Two-stage TE-cooling System -40 °C below Camera Body Temperature
IO Interface	One optocoupler isolation input, one optocoupler isolation output, two direct connection GPIO
Operating Environment	
Operating Temperature (in Centidegree)	-10~ 50
Storage Temperature (in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port External Power Adapter for Cooling System, DC19V, 4A
Software Environment	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 /10 /11 (32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 2GB or More
	USB Port: USB3.0 High-speed Port
	Display: 17" or Larger
	CD-ROM

Dimension

The **BUC5IC** series body, made from tough, alloy with CNC technique, ensures a heavy duty, workhorse solution. The camera is designed with a high quality IR-CUT or AR to block the IR light or protect the camera sensor. The fan's vibration is minimized to the low level to eliminate the vibration caused imaging blur. This design ensures a rugged, robust solution with an increased lifespan when compared to the other industrial camera solutions.



Dimension of BUC51C (Square) Series

Item	Specification
1	M52F × 0.75 thread
2	Protective window, 39 × 27 × 1.1mm, AR window for mono camera, IR-cut for color camera
3	Thermo outlet
4	Air inlet
5	Trigger (7 pin)
6	USB 3.0/ USB 2.0 port
7	DC 19V 4.74A power port, 5.5 × 2.1mm
8	Power LED indicators
9	System LED TEC LED
10	TEC LED indicators
11	Fan LED indicators

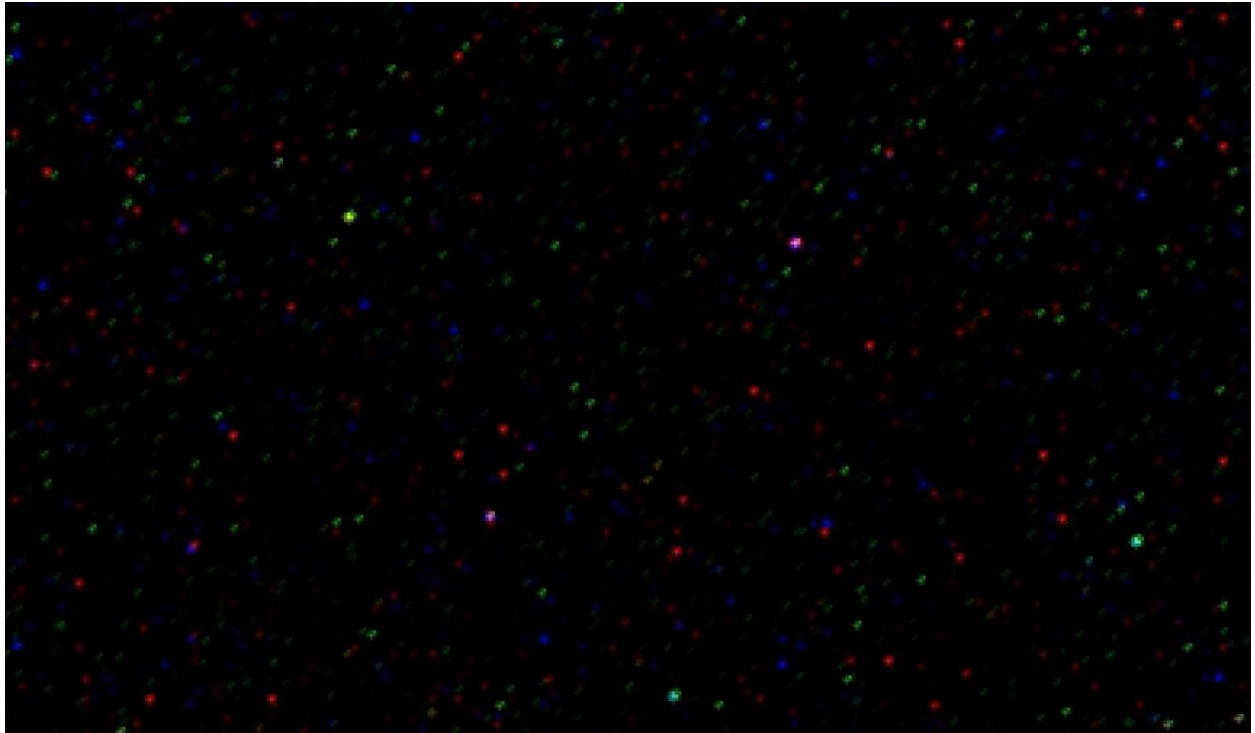
Packing Information for BUC5IC Series



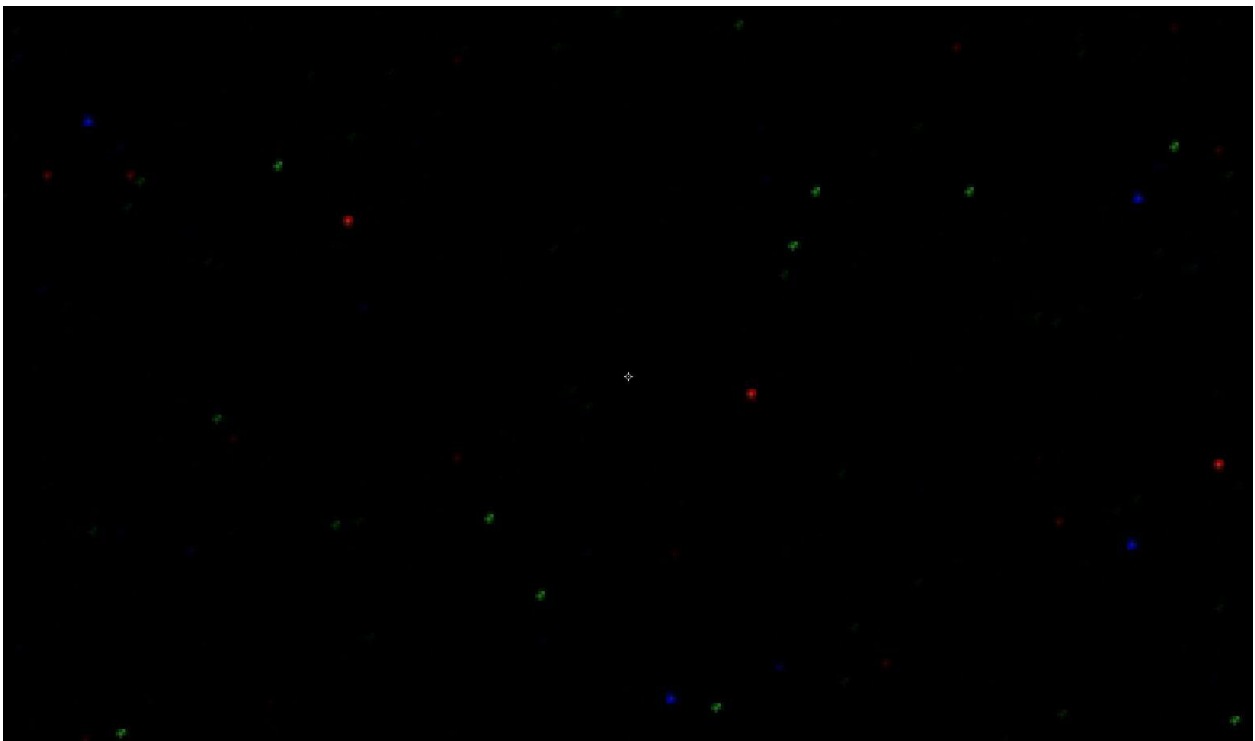
Packing Information of BUC5IC Series(Square)

Standard Package		
A	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton), not shown in the photo (TBD)	
B	3-A safety equipment case: L:28cm W:23cm H:15cm (1pcs, 2.8Kg/ box); Carton size: L:28.2cm W:25.2cm H:16.7cm (TBD)	
C	One BUC5IC series camera	
D	Power adapter: input: AC 100~240V 50Hz/60Hz, output: DC19 V 4A	
E	High-Speed USB3.0 A male to B male gold-plated connectors cable /1.5m	
F	IO cable	
G	CD (Driver & utilities software, Ø12cm)	
L	Calibration kit	106011/TS-M1(X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)

Sample Images Captured with BUC5IC Series (TBD)



Hot noise for the BUC5IC at Gain 20 , 600 second, 15 Centidegree



Hot noise for the BUC5IC Gain 20 , 600 second, minus 15 Centidegree

(10) BUC5ID Series TE-Cooling C-mount USB3.0 /Camera Link CMOS

Camera



BUC5ID Series

BUC5ID series camera adopts [GSENSE](#) with big pixel size or full-frame CMOS sensor as the image-picking device and USB3.0 /CameraLink is used as the data transfer interface to increase the frame rate.

With the two-stage Peltier cooling sensor chip to 40°C below ambient temperature. This will greatly increase the signal to noise ratio and decrease the image noise. Smart structure is designed to assure the heat radiation efficiency and avoid the moisture problem. Electric fan is used to increase the heat radiation speed.

BUC5ID series comes with advanced video & image processing application ImageView; Providing Windows/Linux/ OSX multiple platform SDK; Native C/C++, C#/VB.NET, DirectShow, Twain Control API.

The BUC5ID series can be widely used in low light environment and microscope fluorescence image capture and analysis, as well as the astronomy deep sky application.

Feature

The basic characteristic of BUC5ID series camera can be summarized as follows:

1. Standard camera with GSENSE CMOS sensors;
2. Big pixels or full-frame sensor size;
3. Two-stage TE-cooling with controllable electric fan;
4. Sensor chip cooling up to 40°C below ambient temperature;
5. Working temperature can be regulated to specified temperature in 5 minutes;
6. Smart structure to assure the heat radiation efficiency and avoid the moisture problem;
7. IR-CUT/AR coated window (Optional);
8. USB3.0 /Camera Link 5Gbit/second or 1000MB/second interface ensuring high speed data transmission;

9. Up to 1h long time exposure;
10. Embedded up to 16bit hardware ISP module;
11. Ultra-Fine color engine with perfect color reproduction capability;
12. Including 2-D denoising and sharpening;
13. Support the capture of video and image in software / hardware trigger mode;
14. With advanced video & image processing application ImageView;
15. Support both video and trigger modes;
16. Providing Windows/Linux/Mac OS multiple platforms SDK;
17. Native C/C++, C#/VB.NET, DirectShow, Twain control API.

Specification

Order Code	Sensor & Size(mm)	Pixel (μm)	G Sensitivity Dark Signal	FPS/Resolution ADC	Binning	Exposure
BUC5ID-420AM	4.2M/GSENSE2020BS I(M, UV, RS) 1.2"(13.31x13.31)	6.5 x 6.5	1.1x10 ⁸ (e-/((W/m ²).s)) Peak QE 94% @550nm 0.21(e-/s/pix) @-20C 65.58dB/34.83dB	74@2048 x2048(11-bit ADC) 74@1024 x1024(11-bit ADC) 8 Bit / HDR 16 Bit	1x1 2x2	0.012ms~3 600s
BUC5ID-420BM	4.2M/GSENSE2020BS I(M, UV, RS) 1.2"(13.31x13.31)	6.5 x 6.5	1.1x10 ⁸ (e-/((W/m ²).s)) Peak QE 94% @550nm 0.21(e-/s/pix) @-20C	100@2048 x2048(11-bit ADC) 100@1024 x1024(11-bit ADC) 8 Bit / HDR 16 Bit	1x1 2x2	0.012ms~3 600s

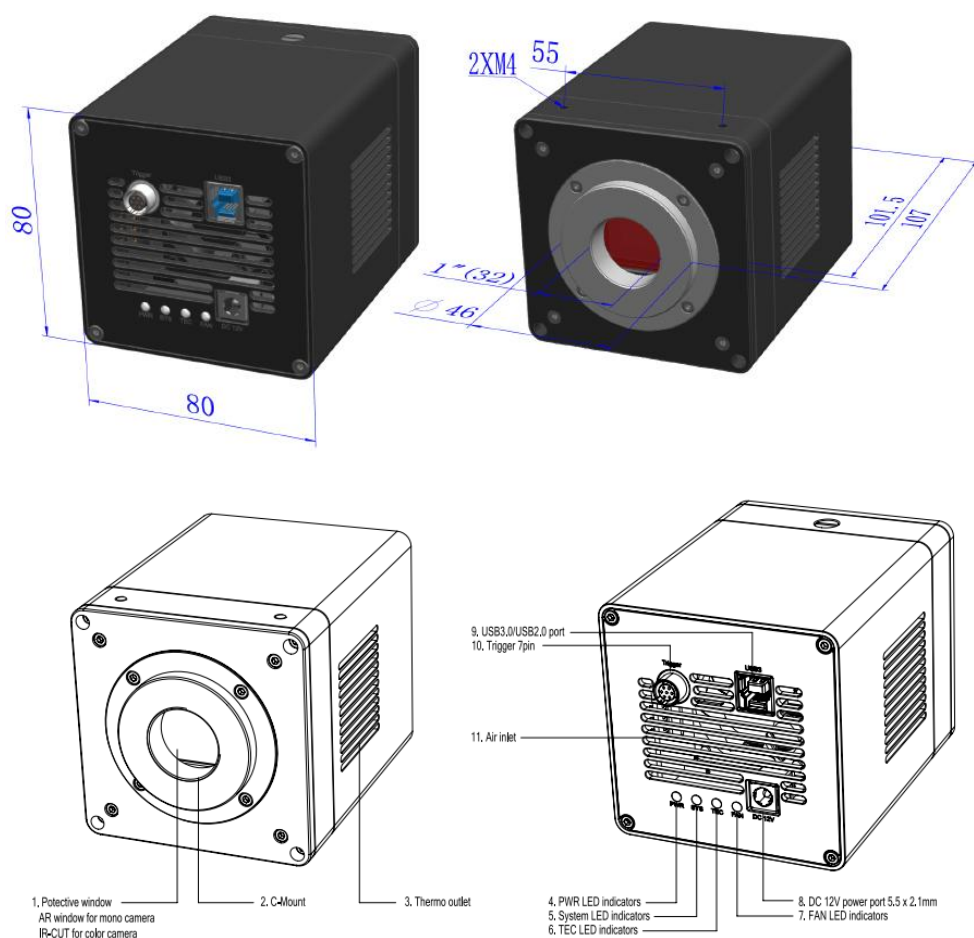
C: Color; M:Monochrome; UV: Ultra-violet sensitive; CL: Camera Link

Other Specification for BUC5ID Cameras	
Spectral Range	200-1000nm(The spectral response range of each model is different. Please refer to the product manual of each model for detailed parameters)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/NA for Monochromatic Sensor
Color Technique	Ultra-Fine Color Engine/NA for Monochromatic Sensor
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK (Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc.)
Recording System	Still Picture and Movie (Free running mode or trigger mode)
Cooling System*	Two-stage TE-cooling System -40 °C below Camera Body Temperature
Operating Environment	
Operating Temperature (in Centidegree)	-10~ 50
Storage Temperature (in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	External Power Adapter for Camera and Cooling System, DC19V, 4A

Software Environment	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 / 10 / 11 (32 & 64 bit)
	OSx(Mac OS X)
	Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 2GB or More
	USB Port: USB3.0 High-speed Port
	CL Port: PCIE Slot
	Display: 17" or Larger
	CD-ROM

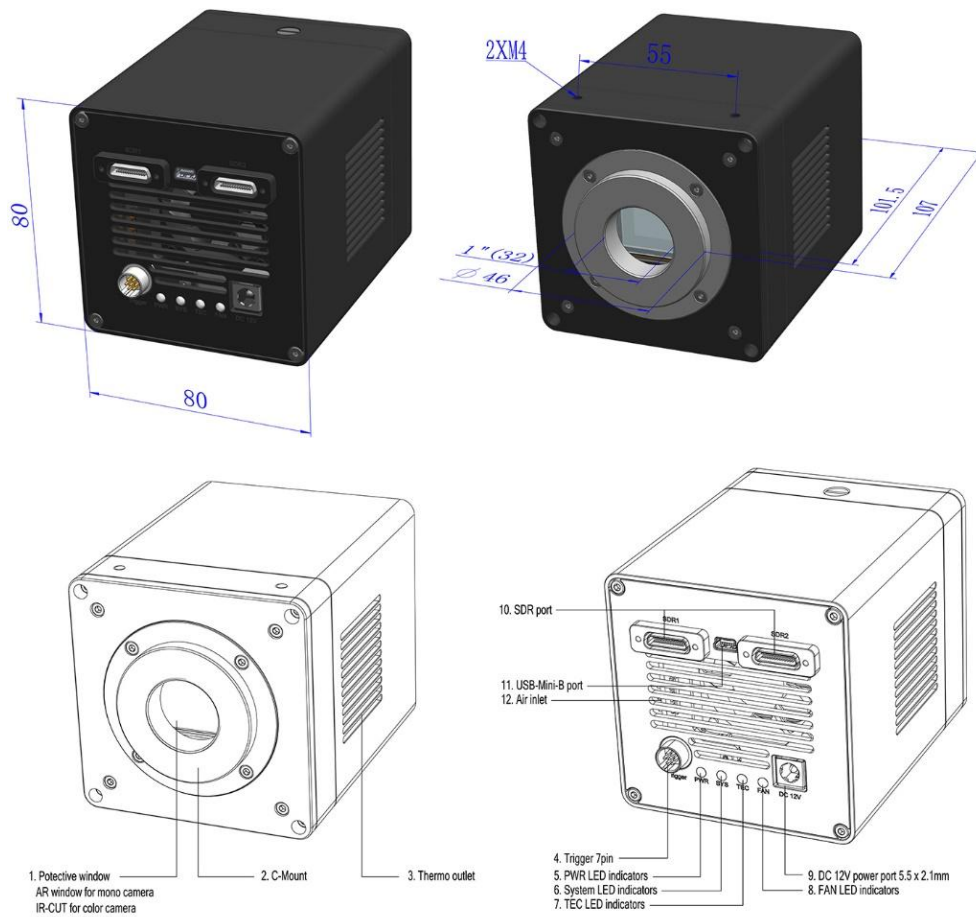
Dimension

The BUC5ID series body, made from tough, alloy with CNC technique, ensures a heavy duty, workhorse solution. The camera is designed with a high-quality IR-CUT or AR to block the IR light or protect the camera sensor. The fan 's vibration is minimized to the low level to eliminate the vibration caused imaging blur. This design ensures a rugged, robust solution with an increased lifespan when compared to the other industrial camera solutions.



Dimension of BUC5ID (Square) Series(USB3.0)

Item	Specification
1	Protective window, AR window for mono camera, IR-cut for color camera
2	C / M42 thread
3	Thermo outlet
4	LED indicators
5	System LED TEC LED
6	TEC LED indicators
7	Fan LED indicators
8	DC 12V power port, 5.5 × 2.1mm
9	USB 3.0/ USB 2.0 port
10	Trigger(7 pin)
11	Air inlet Power



Dimension of BUC5ID (Square) Series(Camera Link)

Packing Information for BUC5ID Series Camera (USB3.0)



Packing Information of BUC5ID Series Camera(USB3.0)

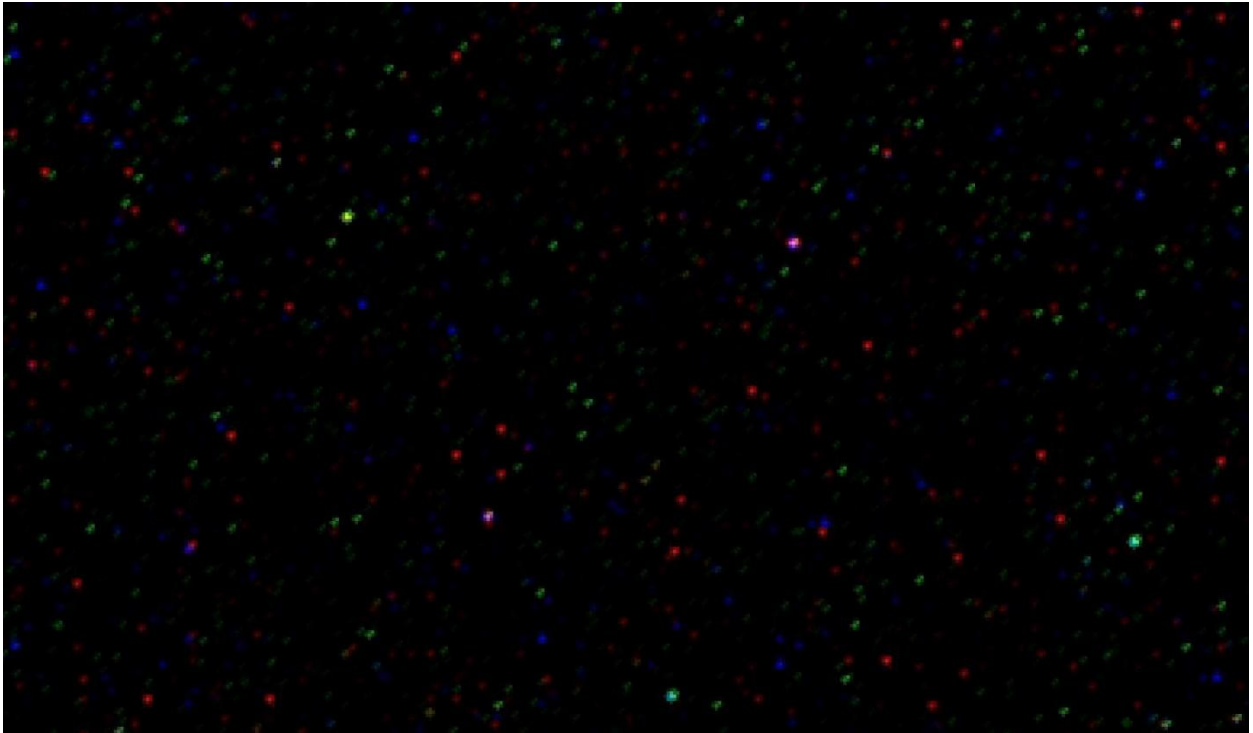
Standard Package		
A	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton), not shown in the photo (TBD)	
B	3-A safety equipment case: L:28cm W:23cm H:15cm (1pcs, 2.8Kg/ box); Carton size: L:28.2cm W:25.2cm H:16.7cm(TBD)	
C	One ITR3CMOS series camera(C-mount)	
D	Drying tube and desiccant	
E	Power adapter: input: AC 100~240V 50Hz/60Hz, output: DC12 V 3A	
F	High-Speed USB3.0 A male to B male gold-plated connectors cable /1.5m	
G	IO cable	
H	CD (Driver & utilities software, Ø12cm)	
Optional Accessory (Not shown in the Phot)		
I	Adjustable lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)
J	Fixed lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)
	Note: For I and J optional items, please specify your camera type (C-mount, microscope camera or telescope camera), The engineer will help you to determine the right microscope or telescope camera adapter for your application;	
K	108015(Dia.23.2mm to 30.0mm ring)/Adapter rings for 30mm eyepiece tube	
L	108016(Dia.23.2mm to 30.5mm ring)/ Adapter rings for 30.5mm eyepiece tube	
M	Calibration kit	106011/TS-M1(X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)

Packing Information for BUC5ID Series Camera(Camera Link)

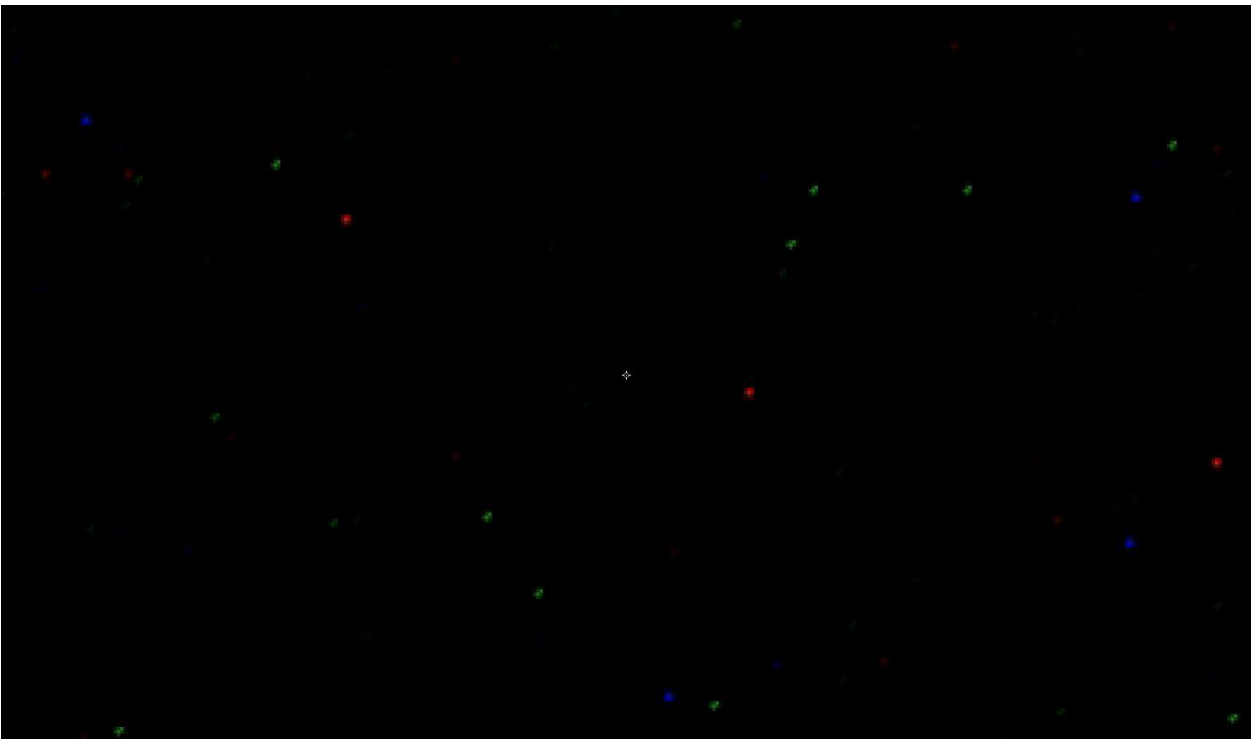


1. Standard Packing information	
A	3-A equipment case: L:28cm W:23cm H:15.5cm (1pcs, 2.8Kg/ box)
B	BUC5ID Camera Link interface camera
C	2 CameraLink cables
D	12V/3A 6 PIN air plug power adapter
E	Power cord. National standard, American standard, European standard, British standard power cord (D1, D2, D3, D4) for choosing
F	One external trigger control cable
2. Optional Accessory	

Sample Photos



Hot noise for the MAX at Gain 20, 600 second, 15 Centidegree



Hot noise for the MAX Gain 20, 600 second, minus 15 Centidegree

(11) BUC5IE Series TE-Cooling C-mount USB3.0 CMOS Camera with Trigger Function



BUC5IE Series (Square Housing)

BUC5IE series camera adopts SONY Exmor CMOS sensor as the image-picking device and USB3.0 is used as the transfer interface to increase the frame rate.

With the two-stage Peltier cooling sensor chip to 40 degree below ambient temperature. This will greatly increase the signal to noise ratio and decrease the image noise. Smart structure is designed to assure the heat radiation efficiency and avoid the moisture problem. Electric fan is used to increase the heat radiation speed.

BUC5IE series comes with advanced video & image processing application ImageView; Providing Windows/Linux/OSX multiple platform SDK; Native C/C++, C#/VB.NET, DirectShow, Twain Control API;

The ITR3CMOS series can be widely used in low light environment and microscope fluorescence image capture and analysis, as well as the astronomy deep sky application.

Feature

The basic characteristic of BUC5IE series can be summarized as follows:

1. Standard C-Mount camera with SONY Exmor CMOS sensors;
2. Two-stage TE-cooling with controllable electric fan;
3. Sensor chip cooling up to 40°C below ambient temperature;
4. Smart structure to assure the heat radiation efficiency and avoid the moisture problem;
5. IR-CUT/AR coated windows;
6. Up to 1-hour long time exposure;
7. USB3.0 5Gbit/second interface ensuring high speed data transmission;

8. Embedded up to 16bit hardware ISP module;
9. Support the capture of video and image in software / hardware trigger mode
10. Ultra-Fine color engine with perfect color reproduction capability;
11. With advanced video & image processing application ImageView;
12. Providing Windows/Linux/Mac OS multiple platforms SDK.

Specification

Order Code	Sensor & Size (mm)	Pixel (μm)	G Sensitivity Dark Signal	FPS/Resolution ADC	Binning	Exposure
BUC5IE-4500M	45M/IMX492(M,RS) 4/3"(19.11x13.00)	2.315x2.315	351mV with 1/30s 0.12mV with 1/30s	8.1@8176x5616 30.0@4080x2808 8.1@7408x5556 33.0@3696x2778 10.4@8176x4320 34.7@4096x2160 62.5@2048x1080 86.5@1360x720 8 Bit / 12 Bit	1x1(3:2) 2x2(3:2) 1x1(4:3) 2x2(4:3) 1x1(17:9) 2x2(17:9) 3x3(17:9) 4x4(17:9)	0.1ms~3600s
BUC5IE-2600C	26M/IMX571(C,RS) 1.8"(23.48x15.67) APS-C	3.76x3.76	485mv with 1/30s 0.07mv with 1/30s	14@6224x4168 37@3104x2084 110@2064x1386 8 Bit / 16 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IE-2600M	26M/IMX571(M,RS) 1.8 "(23.48x15.67) APS-C	3.76x3.76	871mv with 1/30s 0.07mv with 1/30s	14@6224x4168 37@3104x2084 110@2064x1386 8 Bit / 16 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IE-2100C	21M/IMX269(C) 4/3"(17.4x13.1)	3.3 x3.3	400mv with 1/30s 0.1mv with 1/30s	17@5280x3954 17@3952x3952 56@2640x1976 67@1760x1316 192@584x438 8 Bit / 12 Bit	1x1 1x1 2x2 3x3 9x9	0.1ms~3600s
BUC5IE-2000C	20M/IMX183(C,RS) 1 "(13.056x8.755)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	19@5440x3648 48.8@2736x1824 59.4@1824x1216 8 Bit / 12 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IE-2000M	20M/IMX183(M,RS) 1 "(13.056x8.755)	2.4 x2.4	388mv with 1/30s 0.21mv with 1/30s (F8.0)	19@5440x3648 48.8@2736x1824 59.4@1824x1216 8 Bit / 12 Bit	1x1, 2x2 3x3	0.1ms~3600s
BUC5IE-	10.3M/IMX294(C)	4.63x4.63	419mv with 1/30s	30.0@4128x2808	1x1	0.15ms~3600s

1030C	4/3 "(19.11x13.0)		0.12mv with 1/30s	38.5 @4096x2160 59.8@2048x1080 87.2@1360x720 8 Bit / 14 Bit	1x1 2x2 3x3	
BUC5IE-1030M	10.3M/IMX492(M, RS) 4/3 "(19.11x13.0)	4.63x4.63	701mv with 1/30s 0.12mv with 1/30s	30.0@4128*2808 38.5@ 4096*2160 59.8@2048*1080 87.2@1360*720 8 Bit / 14 Bit	1x1 1x1 2x2 3x3	0.15ms~3600s
BUC5IE-900C	9M/IMX533(C) 1"(11.28x11.28)	3.76x3.76	534mv with 1/30s 0.04mv with 1/30s	40@2992x3000 62@1488x1500 186@992x998 8 Bit / 14 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IE-900M	9M/IMX533(M) 1"(11.28x11.28)	3.76x3.76	877mv with 1/30s 0.04mv with 1/30s	40@2992x3000 62@1488x1500 186@992x998 8 Bit / 14 Bit	1x1 2x2 3x3	0.1ms~3600s
BUC5IE-830C	8.3M/IMX585(C) 1/1.2"(11.14x6.26)	2.9x2.9	5970mv with 1/30s 0.15mv with 1/30s	45@3840x2160 70@1920x1080 8 Bit / 12 Bit	1x1 2x2	0.1ms~3600s
BUC5IE-700C	7.0M/IMX428(C, GS) 1.1 "(14.4x9.9)	4.5 x4.5	2058mv with 1/30s 0.15mv with 1/30s	51.3@3200x2200 133.8@1584x1100 8 Bit / 12 Bit	1x1 1x1	0.1ms~3600s
BUC5IE-700M	7.0M/IMX428(M, GS) 1.1 "(14.4x9.9)	4.5 x4.5	3354mv with 1/30s 0.15mv with 1/30s	51.3@3200x2200 133.8@1584x1100 8 Bit / 12 Bit	1x1 1x1	0.1ms~3600s
BUC5IE-170C	1.7M/IMX432(C, GS) 1.1 "(14.4x9.9)	9.0 x9.0	4910mv with 1/30s 0.3mv with 1/30s	98.6@1600x1100 8 Bit / 12 Bit	1x1	0.1ms~3600s
BUC5IE-170M	1.7M/IMX432(M, GS) 1.1 "(14.4x9.9)	9.0 x9.0	8100mv with 1/30s 0.3mv with 1/30s	98.6@1600x1100 8 Bit / 12 Bit	1x1	0.1ms~3600s
BUC5IE-130M	1.3M/GLUX9701BSI(M, UV, RS) 1 "(12.493x9.994)	9.76x9.76	2.57x108(e-/((W/m2).s)) QE89%@610nm 0.08(e-/s/pix) @-28C	30fps@1280x1024 30fps@640x512 8 Bit / HDR 16 Bit	1x1 2x2	0.1ms~3600s
BUC5IE-50M	0.5M/GLUX1605BSI(M, UV, RS) 1 "(12.8x9.6)	16.0x16.0	6.4x108e-/((W/m2).s)) QE91%@550nm 50(e-/s/pix)	60.0@800x600 60.0@400x300 8 Bit / HDR 16 Bit	1x1 2x2	0.1ms~3600s

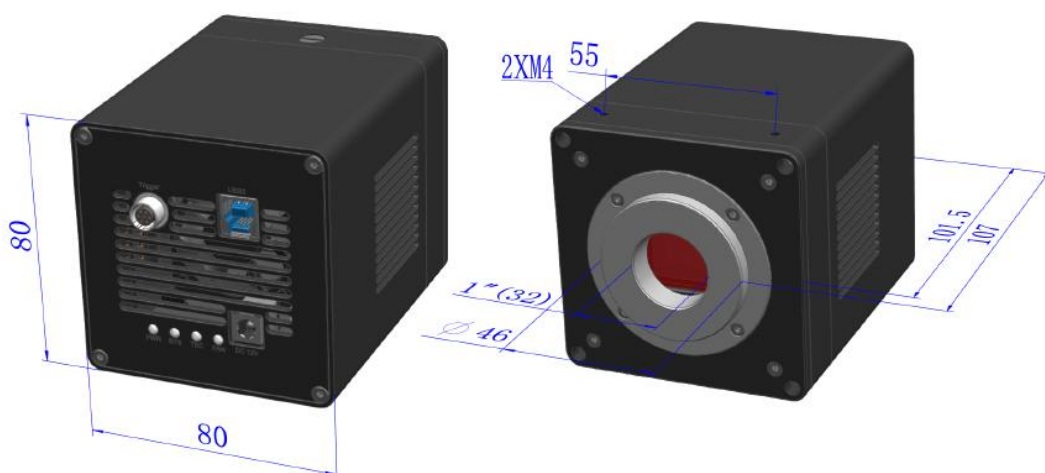
C: Color; M: Monochrome; UV: Ultra-violet sensitive; CL: Camera Link

Other Specification for BUC5IE Cameras	
Spectral Range	380-650nm (with IR-cut Filter)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/NA for Monochromatic Sensor
Color Technique	Ultra-Fine Color Engine/NA for Monochromatic Sensor
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK(Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc.)

Recording System	Still Picture and Movie
Cooling System*	Two-stage TE-cooling System -45 °C below Camera Body Temperature
Operating Environment	
Operating Temperature (in Centidegree)	-10~ 50
Storage Temperature (in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port External Power Adapter for Cooling System, DC12V, 3A
Software Environment	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 /10 /11 (32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 2GB or More
	USB Port: USB3.0 High-speed Port
	Display: 17" or Larger
	CD-ROM

Dimension

The BUC5IE series body, made from tough, alloy with CNC technique, ensures a heavy duty, workhorse solution. The camera is designed with a high-quality IR-CUT or AR to block the IR light or protect the camera sensor. The fan's vibration is minimized to the low level to eliminate the vibration caused imaging blur. This design ensures a rugged, robust solution with an increased lifespan when compared to the other industrial camera solutions.



Dimension of BUC5IE Series

Packing Information for BUC5IE Series



Packing Information of BUC5IE Series

Standard Package		
A	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton), not shown in the photo (TBD)	
B	3-A safety equipment case: L:28cm W:23cm H:15cm (1pcs, 2.8Kg/ box); Carton size: L:28.2cm W:25.2cm H:16.7cm (TBD)	
C	One BUC5IE series camera(C-mount)	
D	Drying tube and desiccant	
E	Power adapter: input: AC 100~240V 50Hz/60Hz, output: DC12 V 3A	
F	High-Speed USB3.0 A male to B male gold-plated connectors cable /1.5m	
G	IO cable	
H	CD (Driver & utilities software, Ø12cm)	
Optional Accessory		
I	Adjustable lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)
		C-Mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)
J	Fixed lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)
		C-mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)
	Note: For H and I optional items, please specify your camera type(C-mount, microscope camera or telescope camera), The engineer will help you to determine the right microscope or telescope camera adapter for your application;	
L	108015(Dia.23.2mm to 30.0mm ring)/Adapter rings for 30mm eyepiece tube	
K	108016(Dia.23.2mm to 30.5mm ring)/ Adapter rings for 30.5mm eyepiece tube	
M	Calibration kit	106011/TS-M1(X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)

(12) BUC5IF Series TE-Cooling C-mount USB3.0/GigE CMOS Camera



BUC5IF Series

BUC5IF series camera adopts SONY Exmor CMOS sensor as the image-picking device and USB3.0/GigE is used as the transfer interface to increase the frame rate.

With the Peltier cooling sensor chip to 5-10 degree below ambient temperature. This will greatly increase the signal to noise ratio and decrease the image noise. Smart structure is designed to assure the heat radiation efficiency and avoid the moisture problem. Electric fan is used to increase the heat radiation speed.

BUC5IF series comes with advanced video & image processing application ImageView; Providing Windows/Linux/OSX multiple platform SDK; Native C/C++, C#/VB.NET, DirectShow, Twain Control API;

The BUC5IF series can be widely used in low light environment and microscope fluorescence image capture and analysis, as well as the astronomy deep sky application.

Feature

The basic characteristic of BUC5IF series can be summarized as follows:

1. Standard C-Mount camera with SONY Exmor CMOS sensors;
2. TE-cooling with controllable electric fan;
3. Sensor chip cooling up to 5~10°C below ambient temperature;
4. Working temperature can be regulated to specified temperature in 5 minutes;
5. Smart structure to assure the heat radiation efficiency and avoid the moisture problem;
6. Up to 5-minutes long time exposure;
7. USB3.0 5Gbit/second/ GigE 1000Mb/s interface ensuring high speed data transmission;
8. Support capture image with video /trigger mode;
9. Support external IO synchronization trigger mode;

10. Ultra-Fine color engine with perfect color reproduction capability;
11. With advanced video & image processing application ImageView;
12. Providing Windows/Linux/Mac OS multiple platforms SDK;
13. Native C/C++, C#/VB.NET, DirectShow, Twain control API.

Specification

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution ADC	Binning	Exposure
BUC5IF-4500M	45M/IMX492(M, RS) 4/3"(19.11x13.00)	2.315x2.315	351mV with 1/30s 0.12mV with 1/30s	8.1@8176x5616 30.0@4080x2808 8.1@7408x5556 33.0@3696x2778 10.4@8176x4320 34.7@4096x2160 62.5@2048x1080 86.5@1360x720 8 Bit / 12 Bit	1x1(3:2) 2x2(3:2) 1x1(4:3) 2x2(4:3) 1x1(17:9) 2x2(17:9) 3x3(17:9) 4x4(17:9)	0.1ms~300s
BUC5IF-2000C	20M/IMX183(C, RS) 1 "(13.056x8.755)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	19.0@5440x3648 48.8@2736x1824 59.4@1824x1216 8 Bit / 12 Bit	1x1 2x2 3x3	53us~300s
BUC5IF-2000M	20M/IMX183(M, RS) 1 "(13.056x8.755)	2.4 x2.4	776mv with 1/30s 0.21mv with 1/30s	19.0@5440x3648 48.8@2736x1824 59.4@1824x1216 8 Bit / 12 Bit	1x1 2x2 3x3	53us~300s
BUC5IF-700C	7.0M/IMX428(C, GS) 1.1 "(14.4x9.9)	4.5 x4.5	2058mv with 1/30s 0.15mv with 1/30s	51.3fps@3200x2200 133.8fps@1584x110 0 8 Bit / 12 Bit	1x1 1x1	6us~300s
BUC5IF-700M	7.0M/IMX428(M, GS) 1.1 "(14.4x9.9)	4.5 x4.5	3354mv with 1/30s 0.15mv with 1/30s	51.3fps@3200x2200 133.8fps@1584x110 0 8 Bit / 12 Bit	1x1 1x1	6us~300s
BUC5IF-170C	1.7M/IMX432(C, GS) 1.1 "(14.4x9.9)	9.0 x9.0	4910mv with 1/30s 0.3mv with 1/30s	98.6fps@1600x1100 8 Bit / 12 Bit	1x1	6us~300s
BUC5IF-170M	1.7M/IMX432(M, GS) 1.1 "(14.4x9.9)	9.0 x9.0	8100mv with 1/30s 0.3mv with 1/30s	98.6fps@1600x1100 8 Bit / 12 Bit	1x1	6us~300s
BUC5IF-50M	0.5M/IMX426(M, GS) 1/1.7"(7.2x5.58)	9.0 x9.0	8100mV with 1/30s 0.3mV with 1/30s	20fps@800x620 8 Bit / 12 Bit	1x1	6us~300s
BUC5IF-39M	0.39M/IMX287(M, GS) 1/2.9"(4.97x3.73)	6.9 x6.9	7320mV with 1/30s 0.76mV with 1/30s	20fps@720x540 8 Bit / 12 Bit	1x1	6us~300s

BUC5IF-2000C-G	20M/IMX183(C, RS) 1“(13.056x8.755)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	4.5@5440x3648 18.5@2736x1824 41.7@1824x1216 8 Bit / 12 Bit	1x1 2x2 3x3	53us~300s
BUC5IF-2000M-G	20M/IMX183(M, RS) 1“(13.056x8.755)	2.4 x2.4	776mv with 1/30s 0.21mv with 1/30s	4.5@5440x3648 18.5@2736x1824 41.7@1824x1216 8 Bit / 12 Bit	1x1 2x2 3x3	53us~300s
BUC5IF-700C-G	7.0M/IMX428(C, GS) 1.1“(14.4x9.9)	4.5 x4.5	2058mv with 1/30s 0.15mv with 1/30s	16.4fps@3200×2200 66fps@1600×1100 8 Bit / 12 Bit	1x1 1x1	6us~300s
BUC5IF-700M-G	7.0M/IMX428(M, GS) 1.1“(14.4x9.9)	4.5 x4.5	3354mv with 1/30s 0.15mv with 1/30s	16.4fps@3200×2200 66fps@1600×1100 8 Bit / 12 Bit	1x1 1x1	6us~300s
BUC5IF-170C-G	1.7M/IMX432(C, GS) 1.1“(14.4x9.9)	9.0 x9.0	4910mv with 1/30s 0.3mv with 1/30s	66fps@1600×1100 8 Bit / 12 Bit	1x1	6us~300s
BUC5IF-170M-G	1.7M/IMX432(M, GS) 1.1“(14.4x9.9)	9.0 x9.0	8100mv with 1/30s 0.3mv with 1/30s	66fps@1600×1100 8 Bit / 12 Bit	1x1	6us~300s

C:Color; M:Monochrome;G:GigE

Other Specification for BUC5IF Cameras	
Spectral Range	380-650nm (with IR-cut Filter)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/NA for Monochromatic Sensor
Color Technique	Ultra-Fine Color Engine/NA for Monochromatic Sensor
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK (Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc.)
Recording System	Still Picture and Movie
Cooling System*	Two-stage TE-cooling System 25 °C below Camera Body Temperature
Operating Environment	
Operating Temperature (in Centidegree)	-10~ 50
Storage Temperature (in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	External Power Adapter for camera and cooling system, DC12V, 3A
Software Environment	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 /10 /11 (32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 2GB or More
	USB Port: USB3.0 High-speed Port

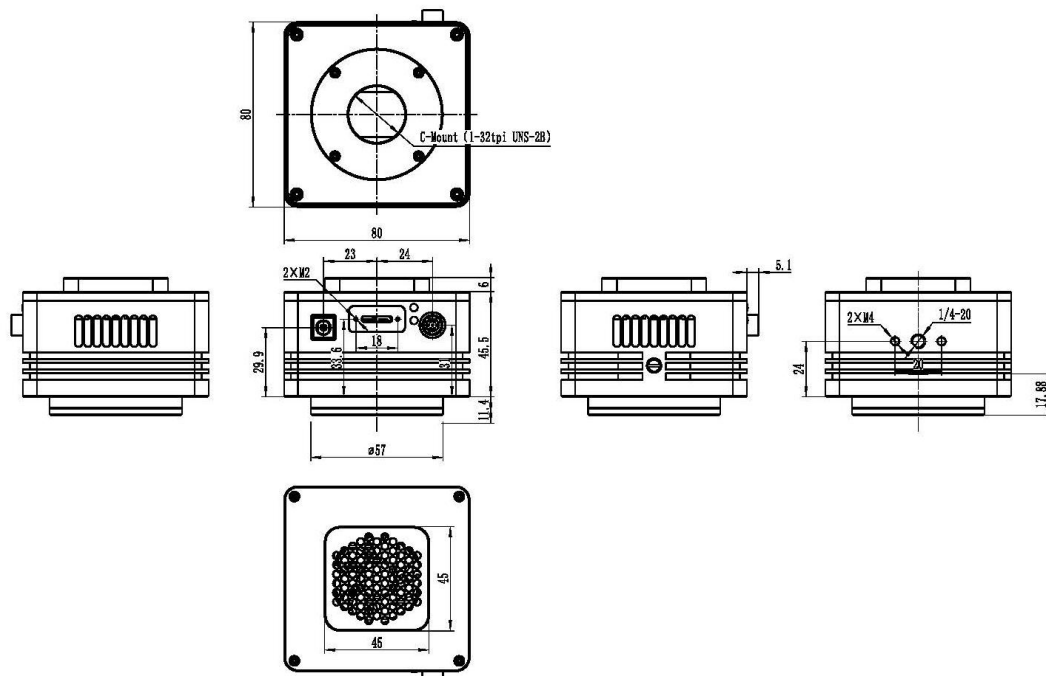
	Display: 17" or Larger
	CD-ROM

Dimension

The BUC51F series body, made from tough, alloy with CNC technique, ensures a heavy duty, workhorse solution. The camera is designed with a high-quality IR-CUT or AR to block the IR light or protect the camera sensor. The fan's vibration is minimized to the low level to eliminate the vibration caused imaging blur. This design ensures a rugged, robust solution with an increased lifespan when compared to the other industrial camera solutions.



Dimension of BUC5IF Series



Dimension of BUC5IF Series

Packing Information for BUC5IF Series (USB)



Packing Information of BUC5IF Series

Standard Package		
A	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton), not shown in the photo (TBD)	
B	B1: L:20.4cm W:20.4cm H:10cm (1pcs, 1.04kg/ box) B2:3-A safety equipment case: L:28cm W:23cm H:15cm (1pcs, 2.1Kg/ box); Carton size: L:28.2cm W:25.2cm H:16.7cm (TBD)	
C	One BUC5IF series camera(C-mount)	
D	With National standard, American Standard, European standard, and British standard power lines respectively (Optional)	
E	Power adapter: input: AC 100~240V 50Hz/60Hz, output: DC12 V 3A	
F	High-Speed USB3.0 A male to B male gold-plated connectors cable /3m	
G	One external trigger control cable	
H	USB flash driver (Driver & utilities software)	
Optional Accessory (Not shown in the Photo)		
I	Adjustable lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)
		C-Mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)
J	Fixed lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)
		C-mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)
Note: For I and J optional items, please specify your camera type (C-mount, microscope camera or telescope camera), the engineer will help you to determine the right microscope or telescope camera adapter for your application;		
K	108015(Dia.23.2mm to 30.0mm ring)/Adapter rings for 30mm eyepiece tube	

L	108016(Dia.23.2mm to 30.5mm ring)/ Adapter rings for 30.5mm eyepiece tube	
M	Calibration kit	106011/TS-M1(X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)

Packing Information for BUC5IF Series Camera (GigE)



Standard Packaging List	
A	External box for B (not shown in this figure) Carton size: L:28.2cm W:25.2cm H:16.7cm
B	3-A safety equipment case: L:28cm W:23cm H:15.5cm (1pcs, 2.8Kg/ box)
C	One SWIR series GigE camera
D	Power cord. National standard, American standard, European standard, British standard power cord (D1, D2, D3, D4) for choosing
E	Power adapter: Input: AC 100~240V 50Hz/60Hz, Output: DC 12V 3A
F	One external trigger control cable
G	GigE cable: G1:3m G2:5m G3:10m(G4:50m not shown in this figure)
H	USB flash disk (with driver and application software in it)