

Optional Accessory		
F	M42x0.75mm-mount to C-mount converter (If C-mount adapter is used)	
G	M42x0.75mm-mount to F-mount converter (If F-mount lens is used)	
H	Phototube to M42x0.75 mount adapter (U-TV1.2XT2) for Olympus microscope	
I	Phototube to M42x0.75 mount adapter (MQD42120 MBB42120) for Nikon microscope	
J	Phototube to M42x0.75 mount adapter (P95-T2 4/ P95-C 1" 1.0 x 3" 1.2x) for Zeiss Primo Star series, Zeiss Primo vert series microscope	
K	Phototube to M42x0.75 mount adapter (11541510-120 HT2-1.2X) for Leica microscope	
L	Phototube to M42x0.75 mount adapter (60N-T2 4/3" 1.2x) for Zeiss Axio series microscope	
	Note: For 4/3" sensor, 1.2X adapter with M42x0.75 mount should be chosen, for the 1.2" sensor, 1.0X adapter with C-mount could be used to get the better FOV;	
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.)

(4) BUC5D Series USB3.0 CMOS Digital Cameras



Introduction

BUC5D series cameras are ultra-high performance USB3.0 CMOS cameras and they adopt ultra-high performance CMOS sensor as the image capture device and USB3.0 is used as the data transfer interface.

BUC5D hardware resolutions range from 3.0M to 14M and come with the integrated zinc aluminum alloy compact housing.

BUC5D comes with advanced video & image processing application ImageView; Providing Windows/Linux/ OSx multiple platforms SDK; Native C/C++, C#/VB.NET, DirectShow, Twain Control API.

The BUC5D can be widely used in bright field light environment and microscope image capture and analysis with higher frame rate.

Features

The basic characteristic of the BUC5D cameras are as follows:

1. Standard C-Mount camera with Aptina CMOS sensor;
2. With hardware resolution from 3.0MP to 18MP;
3. CNC aluminum alloy housing;
4. USB3.0 5 Gbps interface ensuring high frame rate;
5. With advanced video & image processing application ImageView;
6. Providing Windows/Linux/Mac OS multiple platforms SDK;
7. Native C/C++, C#/VB.NET, DirectShow, Twain Control API.

Specification

Order Code	Sensor & Size	Pixel(μm)	G Responsivity Dynamic range SNRmax	FPS/Resolution	Binning	Exposure
BUC5D-1601M	16M/MN34230ALJ(M) 4/3" (17.6x13.3)	3.8x3.8	A: 2650LSB B: 2650LSB C: 2650LSB D: 2650LSB (Gain = 0dB)	22@4640x3506 36@3840x2160 43@2304x1750 43@1920x1080 49@1536x1168	1x1 2x2 3x3	0.224ms~15s
BUC5D-1200C	12M/IMX577(C) 1/2.1" (5.95x4.71)	1.55x1.55	250mv with 1/30s 0.25mv with 1/30s	8.5@3840x3040 49@1920x1516 137@960x758	1x1 2x2 4x4	0.1ms~2000ms
BUC5D-1000BC	10M/IMX577(C) 1/2.3" (5.68x4.26)	1.55x1.55	250mv with 1/30s 0.25mv with 1/30s	8.5@3664x2748 49@1832x1374 137@912x686	1x1 2x2 4x4	0.1ms~2000ms
BUC5D-1000M	10M/MT9J003(M) 1/2.3" (5.98x4.58)	1.67x1.67	0.4v/lux-sec 65.2dB 34dB	7.2@3584x2746 24.5@1792x1372	1x1 2x2 4x4	0.4ms~2000ms
BUC5D-850BC	8.5M/Special(C) 1/2.4" (5.16x3.95)	1.55x1.55	250mv with 1/30s 0.25mv with 1/30s	10@3328x2548 56@1664x1272	1x1 2x2	0.1ms~2000ms
BUC5D-510C	5.1M/AR0521(C) 1/2.5" (5.70x4.28)	2.2x2.2	18.8ke-/lux 73dB 40dB	15.5@2592x1944 49.5@1296x972 97.5@648x486	1x1 2x2 4x4	0.1ms~2000ms
BUC5D-300C	3.1M/AR0330(C) 1/3" (4.51x3.38)	2.2x2.2	1.9v/lux-sec 100dB 39dB	27.3@2048x1534 53.3@1024x770	1x1 2x2	0.1ms~2000ms

C: Color; M: Monochrome

Other Specification for BUC5D Camera	
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 API	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	Natural
Operating Environment	
Operating Temperature(in	-10~ 50

Centigrade)	
Storage Temperature(in Centigrade)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port
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 of BUC5D

The BUC5D series body, made from tough, zinc alloy, ensures a heavy duty, workhorse solution. The camera is designed with a high quality IR-CUT to protect the camera sensor. No moving parts included. These measures ensure a rugged, robust solution with an increased lifespan when compared to other industrial camera solutions.



Dimension of BUC5D

Packing Information for BUC5D



Packing Information of BUC5D

Standard Camera Packing List		
A	Carton L:52cm W:32cm H:33cm (20pcs, 12~17Kg/ carton), not shown in the photo	
B	Gift box L:15cm W:15cm H:10cm (0.67~0.7Kg/ box)	
C	BUC5D series USB3.0 C-mount CMOS camera	
D	High-speed USB3.0 A male to B male gold-plated connectors cable /2.0m	
E	CD (Driver & utilities software, Ø12cm)	
Optional Accessory		
F	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)
G	Fixed lens adaptor	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 F and G 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.		
H	108015(Dia.23.2mm to 30.0mm Ring)/Adaptor rings for 30mm eyepiece tube	
I	108016(Dia.23.2mm to 30.5mm Ring)/ Adaptor rings for 30.5mm eyepiece tube	
J	108017(Dia.23.2mm to 31.75mm Ring)/ Adaptor rings for 31.75mm eyepiece tube	
K	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 BUC5D with Microscope or Telescope Adapter

Extension	Picture	
C-mount Camera		Machine vision; Medical imaging; Semiconductor equipment; Test instruments; Document scanners; 2D barcode readers; Web camera and security video; Microscope imaging;
Microscope Camera	 23.2mm Adjustable Adapter  23.2mm Fixed Adapter	
Telescope Camera	 31.75mm Adjustable Adapter  31.75mm Fixed Adapter	

(5) BUC5F Series C-mount USB3.0 CMOS Camera(HISPVP)



BUC5F series USB3.0 digital cameras adopt SONY Exmor CMOS sensor as the image-picking device and USB3.0 is used as the transfer interface.

BUC5F series cameras hardware resolutions range from 1.5MP to 45MP and come with the integrated CNC aluminum alloy compact housing.

BUC5F series cameras integrated with 12 bit Ultra-fine™ Hardware Image Signal Processor Video Pipeline(Ultra-fine™ HISP VP) for Demosaic, Automatic Exposition, Gain Adjustment, One Push White Balance, Chrominance Adjustment, Saturation Adjustment, Gamma Correction, Luminance Adjustment, Contrast Adjustment, Bayer and finally form RAW data for 8/12 bit output. This will move the heavy burden of the processing from the PC to the Ultra-fine™ HISP VP and greatly accelerating the processing speed.

BUC5F series cameras come with advanced video & image processing application ImageView; Providing Windows/ Linux/ macOS/ Android multiple platforms SDK (Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc).

The BUC5F series cameras can be widely used in bright field, dark field, fluorescent light environment and normal microscope image capture and analysis with higher frame rate.

Feature

The basic characteristic of BUC5F series cameras are as follows:

1. SONY Exmor, Exmor R(Back-illuminated), Exmor RS CMOS sensor with USB3.0 interface;
2. Real-time 8/12bit depth switch (depending on sensor);
3. Ultra-fine™ HISP VP and USB3.0 5 Gbps interface ensuring high frame rates;
4. Super high sensitivity up to 2188mV(IMX264);
5. Ultra-low noise and low power dissipation by using column-parallel A/D conversion;
6. With hardware resolution from 1.5M to 45M;

7. Rolling Shutter or Global Shutter;
8. Standard C-Mount camera;
9. CNC aluminum alloy housing;
10. With advanced video & image processing application ImageView;
11. Providing Windows/Linux/Mac OS multiple platforms SDK;
12. Native C/C++, C#/VB.Net, DirectShow, Twain, LabView.

Specification

Order Code	Sensor & Size(mm)	Pixel Size(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
BUC5F-4500C	45M/IMX294(C) 1.4" (18.93x13.00)	2.315x2.315	108mv with 1/30s 0.03mv with 1/30s	8.1@8176x5616 30.0@4088x2808 8.1@7408x5556 33.0@4088x2808 10.4@8176x4320 34.7@4096x2160 62.5@2048x1080 86.5@1344x720	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~ 15s
BUC5F-4500BC	45M/IMX492(C, RS) 1.4" (18.93x13.00)	2.315x2.315	108mv with 1/30s 0.03mv with 1/30s	8.1@8176x5616(C) 30.0@4080x2808(M) 8.1@7408x5556(C) 33.0@3696x2778(M) 10.4@8176x4320(C) 34.7@4096x2160(M) 62.5@2048x1080(M) 86.5@1344x720(M)	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~ 15s
BUC5F-3200C	32M/IMX294(C) 1.15" (12.96x12.96)	2.315x2.315	108mv with 1/30s 0.03mv with 1/30s	8.1@5600x5600 30.0@2800x2800 30.0@1400x1400	1x1 2x2 4x4	0.1ms~ 15s
BUC5F-2500C	25M/IMX511(C) 1/2.3" (5.519x5.519)	1.12x1.12	96.3mv with 1/30s 0.1mv with 1/30s	12@4928x4928 46@2464x2464 100@1648x1648	1x1 2x2 3x3	0.013m s~15s
BUC5F-2100C	21M/IMX269 (C) 4/3" (17.4x13.0)	3.3 x3.3	399mv with 1/30s 0.1mv with 1/30s	17@5280x3954 17@3952x3952 56@2640x1976 67@1760x1316 192@584x438	1x1 1x1 2x2 3x3 9x9	0.1ms ~15s

BUC5F-2040C	20.4M/IMX541(C, GS) 1.1“(12.32x12.32)	2.74 x2.74	1574mv with 1/30s 0.15mv with 1/30s	17.5@4496x4496 64.4@2240x2240 64.4@1120x1120	1x1 2x2 4x4	0.03ms s~15s
BUC5F-2000C	20M/IMX183(C, RS) 1”(13.06x8.76)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	15@5440x3648 50@2736x1824 60@1824x1216	1x1 2x2 3x3	0.1ms ~15s
BUC5F-2000CC	20M/IMX183(C, RS) 1”(13.06x8.76)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	20@5440x3648 48@2736x1824 58@1824x1216	1x1 2x2 3x3	0.1ms ~15s
BUC5F-1560C	15.6M/SONY Special (C) 1.1”(13.0x13.0)	3.3 x3.3	399mv with 1/30s 0.1mv with 1/30s	17@3952x3952 56@1976x1976 67@1316x1316	1x1 2x2 3x3	0.1ms ~15s
BUC5F-1240C	12.4M/IMX545 (C, GS) 1/1.1“(11.22x8.22)	2.74 x2.74	1337mv with 1/30s 0.15mv with 1/30s	28.2@4096x3000 100.9@2048x1500 100.9@1024x750	1x1 2x2 4x4	0.03ms s~15s
BUC5F-1230C	12.3M/IMX304(C, GS) 1.1”(14.13x10.35)	3.45x3.45	1146mv with 1/30s 0.1mv with 1/30s	23.4@4096x3000 46.3@2048x1500	1x1 1x1	0.244ms ~15s
BUC5F-1200C	12M/IMX226(C) 1/1.7”(7.40x5.55)	1.85x1.85	280mv with 1/30s 0.1mv with 1/30s	25@4000x3000 50@2048x1080	1x1 2x2	0.1ms ~15s
BUC5F-1200BC	12M/IMX577(C) 1/2”(6.29x4.71)	1.55x1.55	250mv with 1/30s 0.25mv with 1/30s	30@4056x3040 60@2028x1520 120@1014x760	1x1 2x2 4x4	0.1ms ~5s
BUC5F-1200CC	12M/IMX676(C) 1/1.6“(7.07x7.07)	2.0x2.0	3637mv with 12 bit converted value(HCG) 0.15mv with 1/30s	27@3536x3536 60@1768x1768	1x1 2x2	0.013ms ~15s
BUC5F-900C	9.0M/IMX305(C, GS) 1”(14.13x7.45)	3.45x3.45	1146mv with 1/30s 0.15mv with 1/30s	34@4096x2160 60@2048x1080	1x1 1x1	0.1ms ~15s
BUC5F-900BC	9.0M/IMX533(C) 1”(11.31x11.28)	3.76x3.76	535mv with 1/30s 0.04mv with 1/30s	40@3008x3000 123@1488x1500 186@992x998	1x1 2x2 3x3	0.1ms ~15s
BUC5F-830DC	8.3M/IMX585(C) 1/1.2”(11.14x6.26)	2.9x2.9	5970(mV/lx/s) 0.13mv with 1/30s	45@3840x2160 70@1920x1080	1x1 2x2	0.02ms s~15s

BUC5F-830EC	8.3M/IMX678(C) 1/1.8" (7.68x4.32)	2.0x2.0	3541(mV/lx/s) 0.15mv with 1/30s	45@3840x2160 70@1920x1080	1x1 2x2	0.02m s~15s
BUC5F-800C	8.0M/IMX294(C) 1.15" (13.00x13.00)	4.63 x4.63	419mv with 1/30s 0.12mv with 1/30s	30@2808x2808 (14bit) 139@1392x1392 139@696x696	1x1 2x2 4x4	0.1ms ~15s
BUC5F-630C	6.3M/IMX178(C, RS) 1/1.8" (7.37x4.92)	2.4x2.4	425mv with 1/30s 0.15mv with 1/30s	30@3072x2048 38@1536x1024	1x1 2x2	0.1ms ~15s
BUC5F-630BC	6.3M/IMX178(C, RS) 1/1.8" (7.37x4.92)	2.4x2.4	425mv with 1/30s 0.15mv with 1/30s	59@3072x2048 59@1536x1024	1x1 2x2	0.02m s~15s
BUC5F-510C	5.1M/IMX547(C, GS) 1/1.8" (6.71x5.61)	2.74x2.74	1337mv with 1/30s 0.15mv with 1/30s	63@2448x2048 208.4@1224x1024	1x1 2x2	0.03m s~15s
BUC5F-500C	5.0M/IMX264(C, GS) 2/3" (8.45x7.07)	3.45x3.45	1146mv with 1/30s 0.15mv with 1/30s	35@2448x2048 50@1224x1024	1x1 1x1	0.1ms ~15s
BUC5F-310C	3.1M/IMX123(C) 1/2.8" (5.12x3.84)	2.5x2.5	600mv with 1/30s 0.15mv with 1/30s	50@2048x1536 50@1920x1080	1x1 1x1	0.1ms ~15s
BUC5F-310BC	3.1M/IMX265(C, GS) 1/1.8" (7.07x5.30)	3.45x3.45	1146mv with 1/30s 0.15mv with 1/30s	53@2048x1536 85@1024x768	1x1 1x1	0.1ms ~15s
BUC5F-210C	2.1M/IMX482(C) 1/1.2" (11.14x6.26)	5.8x5.8	8935mv with 1/30s 0.6mv with 1/30s	96@1920x1080	1x1	14us~ 15s
BUC5F-200C	2M/IMX385(C) 1/2" (7.2x4.05)	3.75x3.75	2350mv with 1/30s 0.15mv with 1/30s	125@1920x1080	1x1	0.1ms ~15s

Note: C: Color; M: Monochrome; GS: Global Shutter

Other Specification for BUC5F Series 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™ HISPVP /NA for Monochromatic Sensor
Capture/Control API	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*	Natural
Operating Environment	
Operating Temperature (in Centigrade)	-10~ 50
Storage Temperature (in Centigrade)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port
Software Environment	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 /10 /11(32 & 64 bit)

PC Requirements	OSx(Mac OS X)
	Linux
	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 BUC5F body, made from tough, CNC aluminum alloy, ensures a heavy duty, workhouse solution. The camera is designed with a high quality IR-CUT to protect the camera sensor. No moving parts included. These measures ensure a rugged, robust solution with an increased lifespan when compare to other industrial camera solutions.



Dimension of BUC5F

Packing Information for BUC5F

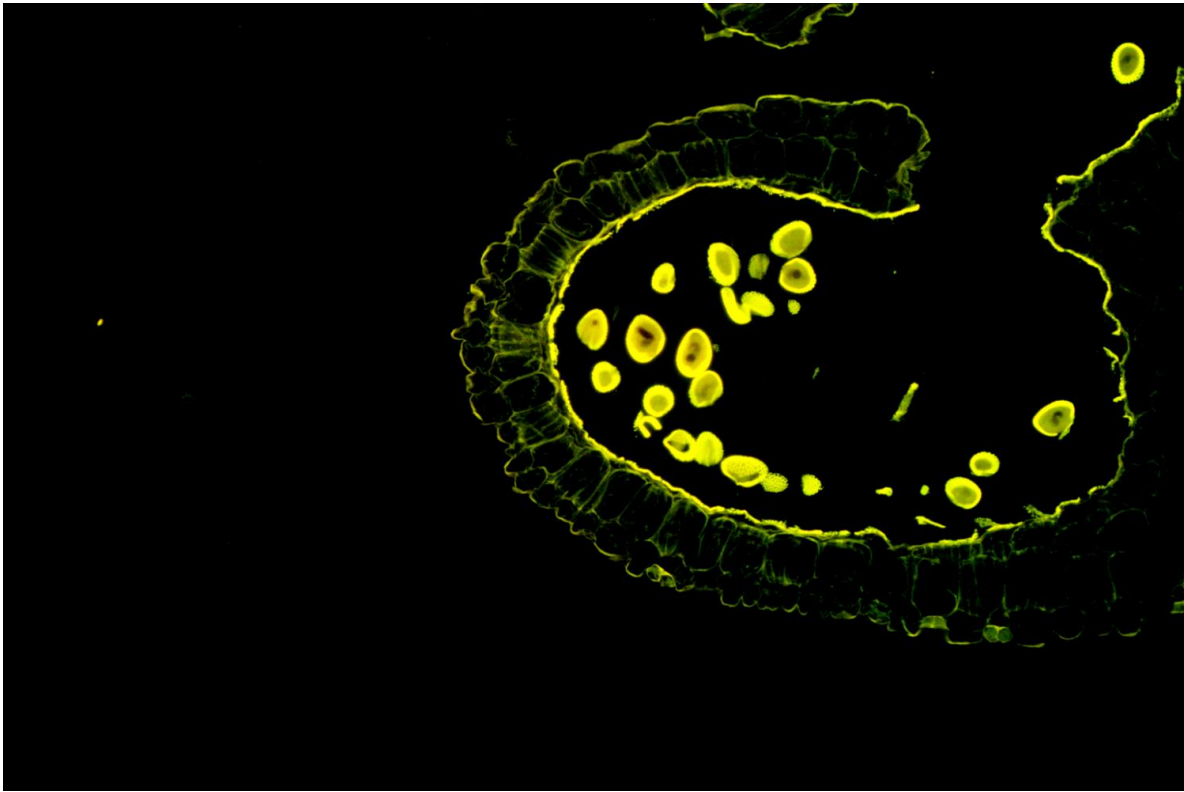


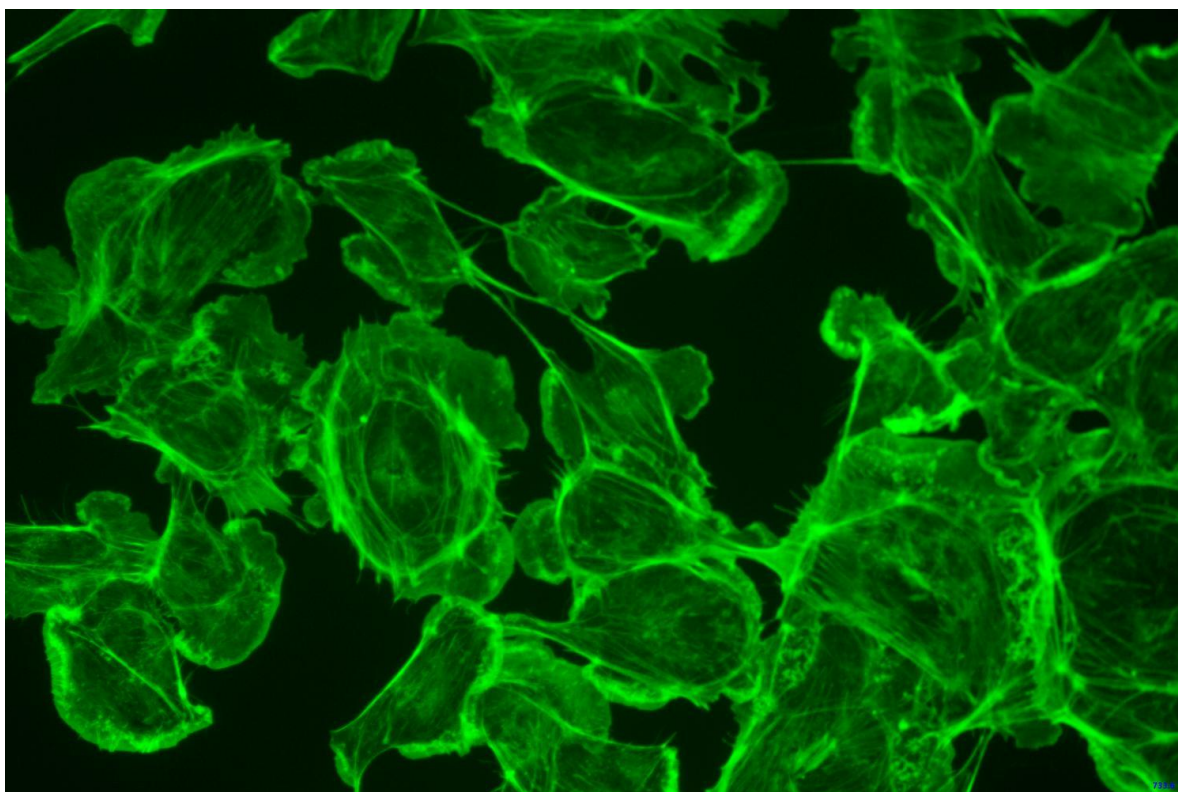
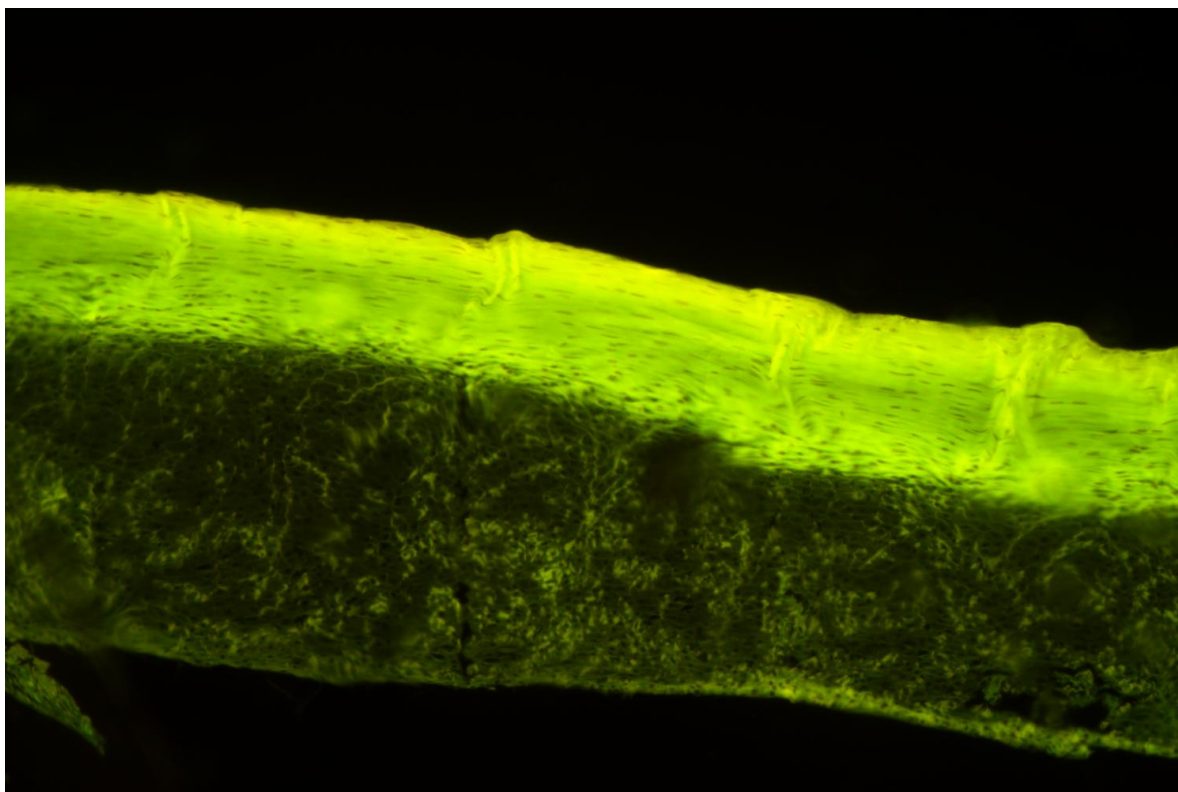
Standard Camera Packing List		
A	Carton L:52cm W:32cm H:33cm (20pcs, 12~17Kg/ carton), not shown in the photo	
B	Gift box L:15cm W:15cm H:10cm (0.58~0.6Kg/ box)	
C	BUC5F series USB3.0 C-mount CMOS camera	
D	High-speed USB3.0 A male to B male gold-plated connectors cable /2.0m	
E	CD (Driver & utilities software, Ø12cm), we have used USB flash drive to replace the CD.	
Optional Accessory		
F	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)
G	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 F and G 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.	
H	(Dia.23.2mm to 30.0mm Ring)/Adaptor rings for 30mm eyepiece tube	
I	(Dia.23.2mm to 30.5mm Ring)/ Adaptor rings for 30.5mm eyepiece tube	
J	(Dia.23.2mm to 31.75mm Ring)/ Adaptor rings for 31.75mm eyepiece tube	
K	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.)

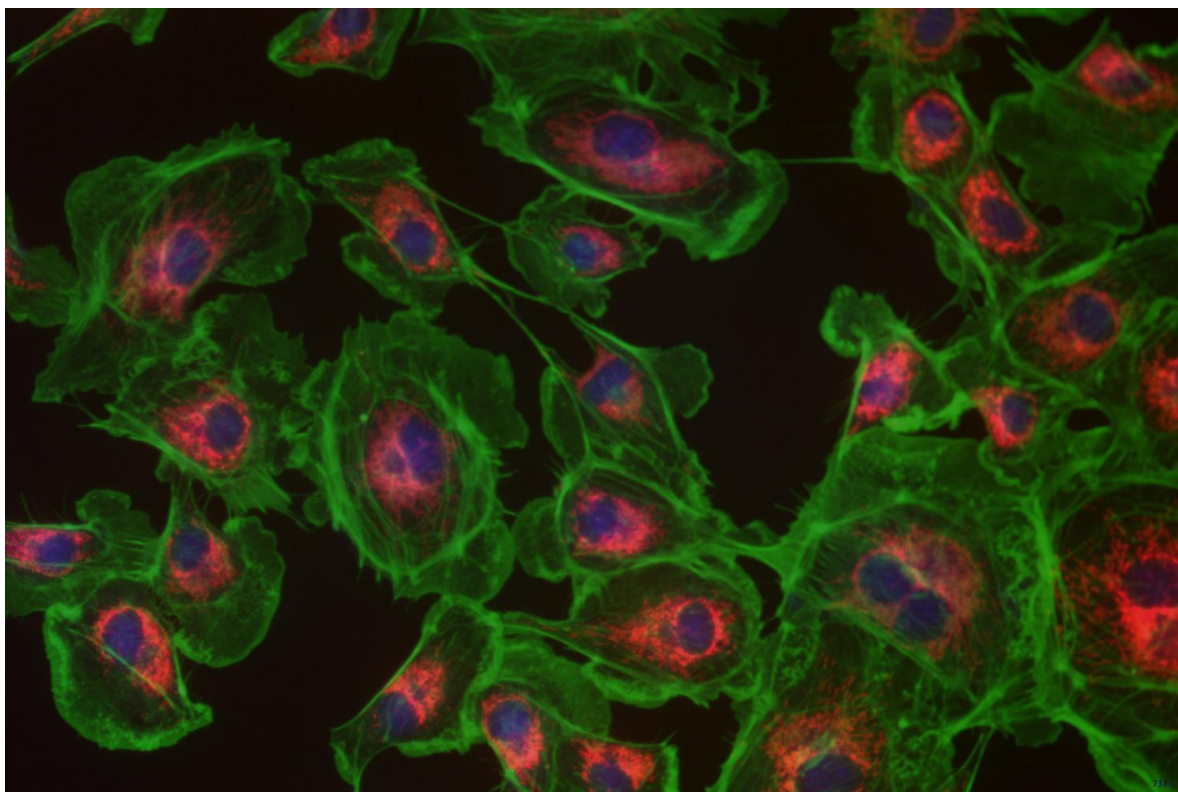
Extension of BUC5F with Microscope or Telescope Adapter

Extension	Picture	
C-mount Camera		Machine vision; Medical imaging; Semiconductor equipment; Test instruments; Document scanners; 2D barcode readers; Web camera and security video; Microscope imaging;
Microscope Camera	 23.2mm Adjustable Adapter  23.2mm Fixed Adapter	
Telescope Camera	 31.75mm Adjustable Adapter  31.75mm Fixed Adapter	

Sample Image







(6) BUC5H Series USB3.0 Digital camera



BUC5H series USB3.0 digital cameras use Sony sensor, the software has real-time image stitching & depth-of-field fusion function, BUC5H-500C has global shutter, BUC5H-2000C has 1-inch sensor. The BUC5H series cameras can be widely used with bright field, dark field, polarizing, fluorescent microscopes and normal microscope image capture and analysis with high frame rate.

Specification

Model	BUC5H-500C	BUC5H-600C	BUC5H-1600C	BUC5H-2000C
Shutter Mode	Global	Rolling	Rolling	Rolling
Sensor Model	IMX264LQR-C	IMX178LQJ-C	IMX206CQC	IMX183CQJ-J
Sensor Type	CMOS 2/3" Color	CMOS 1/1.8" Color	CMOS 1/2.3" Color	CMOS 1" Color
Pixel Size	3.45x3.45(μm)	2.4x2.4(μm)	1.34x1.34(μm)	2.4x2.4(μm)
Resolution	2448(H)x2048(V)	3072(H)x2048(V)	4608(H)x3456(V)	5472(H)x3648(V)
Frame Rate	35fps(2448x2048) 35fps(1224x1024 2x2bin) 88fps(1224x1024)	41fps(3072x2048) 41fps(1536x1024 2x2bin)	12fps(4608x3456) 15fps(4608x2736) 19fps(3648x2736)	15fps(5472x3648) 53fps(2736x1824) 67fps(1824x1216)
Color Temperature	2000-15000K			
Picture Format	JPG/PNG/TIFF			
Interface	Data Interface: USB3.0, Optical Interface: Standard C-Mount			
Multiple Cameras	Supports 4 Cameras Simultaneously in SDK			
PC Software	Capture V2.0			
Operating System	Windows is supported and Linux/Mac is under development			
PC Configuration	CPU: Intel Core i5 or better (Quad or more Core); RAM: 8G or more, OS: Windows 7/8/10 64bit			
Size & Weight	Size: 68x68x46mm Weight: 330g			

Sample Image

