

BUC51C Series TE-Cooling M52/C-mount USB3.0 CMOS Camera



BUC51C Series (Square Housing)

BUC51C 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.

BUC51C series comes with advanced video & image processing application ImageView; Providing Windows/Linux/ OS X multiple platform SDK; Native C/C++, C#/VB.NET, DirectShow, Twain Control API;

The **BUC51C** series can be widely used in low light environment and microscope fluorescence image capture and analysis, as well as the astronomy deep sky application.

The Basic Characteristic of BUC51C Series

The basic characteristic of **BUC51C** 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.

BUC51C Series Datasheet

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
BUC51C-6200AM	61M/IMX455(M) 2.7"(35.98x23.99) Full Frame	3.76x3.7 6	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	1x1 2x2 3x3 9x9	0.1ms~1000 s
BUC51C-6200AC	61M/IMX455(C) 2.7" (35.98x23.99) Full Frame	3.76x3.7 6	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	1x1 2x2 3x3 9x9	0.1ms~1000 s
BUC51C-2400AC	24M/IMX410(C) 2.7" (36.02x24.00) Full Frame	5.94x5.9 4	573mv with 1/30s 0.037mv with 1/30s 87.3dB/50.2dB	15.3@6064x4040(14bit) 41@3024x2012 114@2016x1342	1x1 2x2 3x3	0.1ms~1000 s
BUC51C-400AM	4.2M/ GSENSE2020e(M) 1.2" (13.31x13.31)	6.5x 6.5	8.1x10 ⁷ (e-/((W/m ²).s)) Peak QE 64.2% @595nm 13(e-/s/pix) 66.6dB/46dB	44.5@2048x2048 44.5@1024 x 1022	1x1 2x2	0.1ms~1000 s
BUC51C-400BM	4.2M/ GSENSE2020BSI (M, UV) 1.2" (13.31x13.31)	6.5 x 6.5	1.1x10 ⁸ (e-/((W/m ²).s)) Peak QE 93.7% @550nm 80(e-/s/pix) 65.8dB/47dB	43.5@2048 x2048 43.5@1024 x1024	1x1 2x2	0.1ms~1000 s
BUC51C-400CM	4.2M/GSENSE400BSI (M, UV) 2.0" (22.53x22.53)	11 x 11	3.25x10 ⁸ (e-/((W/m ²).s)) Peak QE 95.3% @560nm 345(e-/s/pix) 68.5dB/50dB	37@2048 x2048 37@1024 x1024	1x1 2x2	0.1ms~1000 s

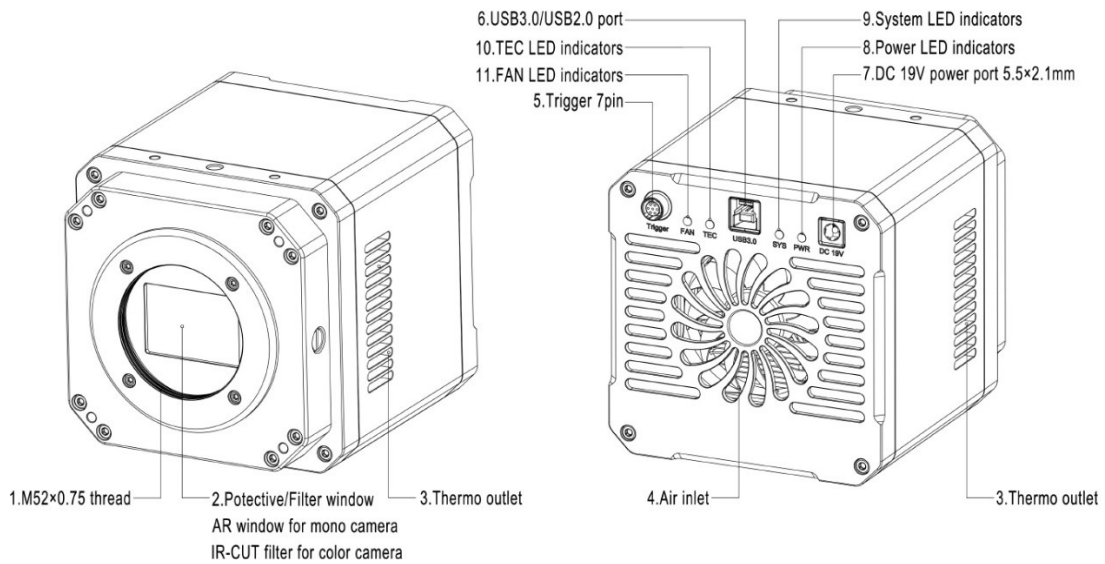
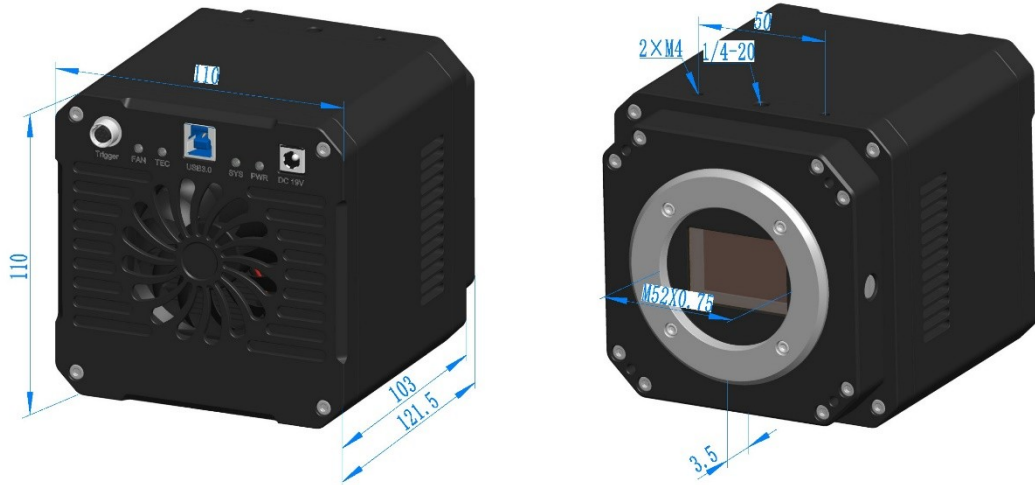
C: Color; M: Monochrome; UV: Ultra-violet sensitive

Other Specification for BUC51C 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 of BUC5IC Series and Connection

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
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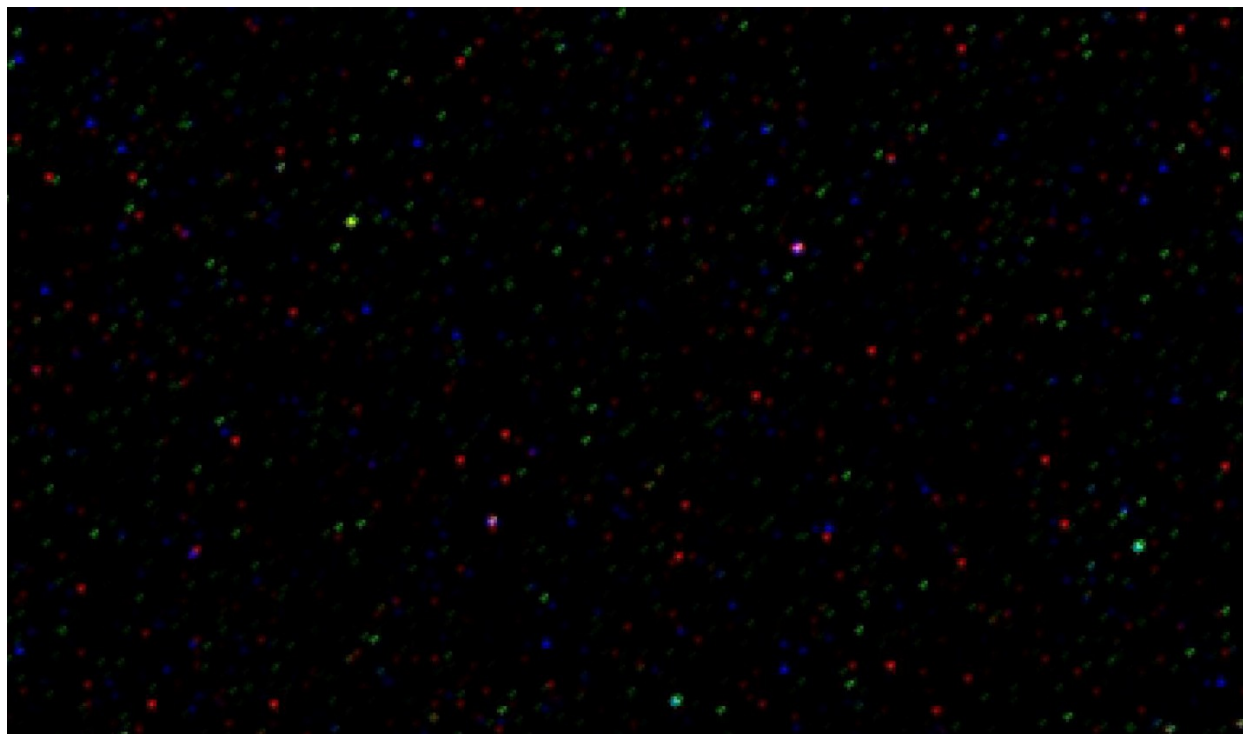
Packing Information for BUC5IC Series



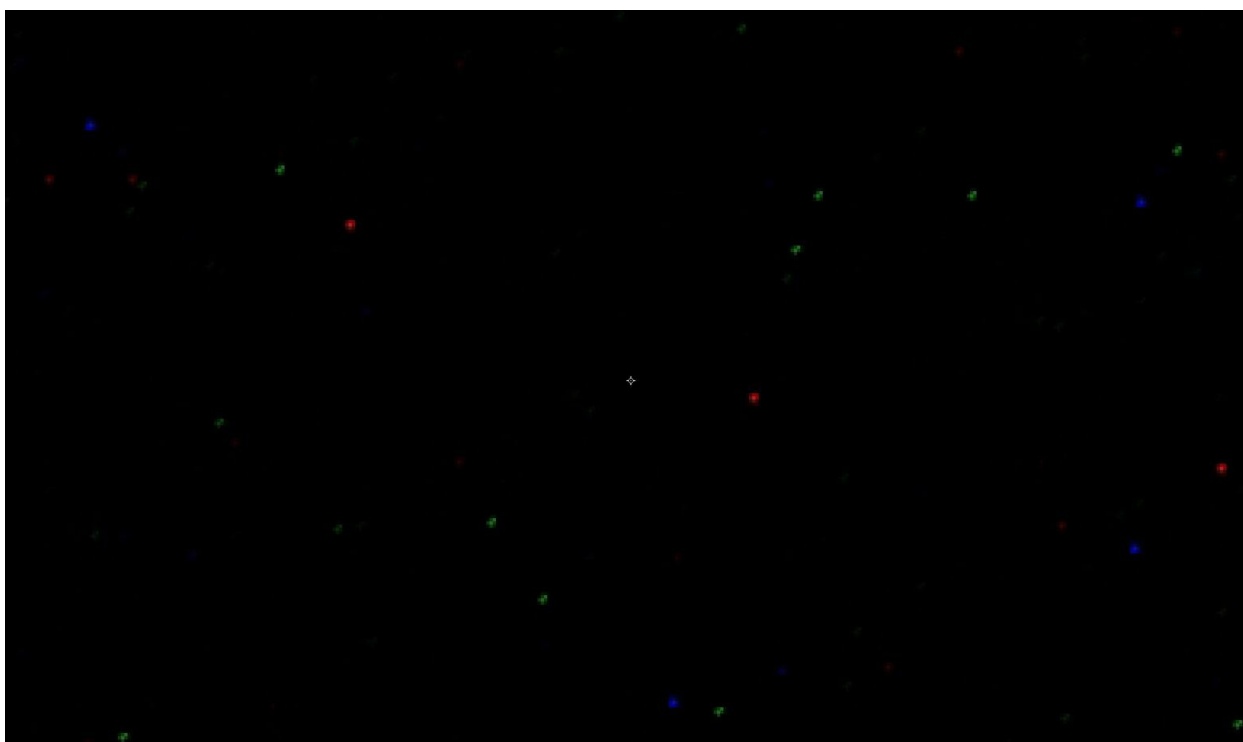
Packing Information of BUC5IC Series(Square)

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