

## 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 8935mV(IMX482);
5. Ultra low noise and low power dissipation by using column-parallel A/D conversion;

6. With hardware resolution from 2.0M 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<br>Dark Signal          | FPS/Resolution  | Binning  | Exposure    |
|---------------------|---------------------------------------|----------------|---------------------------------------|---|--|-------------|
| <b>BUC5F-4500C</b>  | 45M/IMX294(C)<br>1.4" (18.93x13.00)   | 2.315x2.315    | 108mv with 1/30s<br>0.03mv with 1/30s | 8.1@8176x5616<br>30.0@4088x2808<br>8.1@7408x5556<br>33.0@4088x2808<br>10.4@8176x4320<br>34.7@4096x2160<br>62.5@2048x1080<br>86.5@1344x720                         | 1x1(3:2)<br>2x2(3:2)<br>1x1(4:3)<br>2x2(4:3)<br>1x1(17:9)<br>2x2(17:9)<br>3x3(17:9)<br>4x4(17:9) | 0.1ms~15s   |
| <b>BUC5F-4500BC</b> | 45M/IMX492(C)<br>1.4" (18.93x13.00)   | 2.315x2.315    | 108mv with 1/30s<br>0.03mv with 1/30s | 8.1@8176x5616(C)<br>30.0@4080x2808(M)<br>8.1@7408x5556(C)<br>33.0@3696x2778(M)<br>10.4@8176x4320(C)<br>34.7@4096x2160(M)<br>62.5@2048x1080(M)<br>86.5@1344x720(M) | 1x1(3:2)<br>2x2(3:2)<br>1x1(4:3)<br>2x2(4:3)<br>1x1(17:9)<br>2x2(17:9)<br>3x3(17:9)<br>4x4(17:9) | 0.1ms~15s   |
| <b>BUC5F-3200C</b>  | 32M/IMX294(C)<br>1.15" (12.96x12.96)  | 2.315x2.315    | 108mv with 1/30s<br>0.03mv with 1/30s | 8.1@5600x5600<br>30.0@2800x2800<br>30.0@1400x1400   | 1x1<br>2x2<br>4x4  | 0.1ms~15s   |
| <b>BUC5F-2500C</b>  | 25M/IMX511(C)<br>1/2.3" (5.519x5.519) | 1.12x1.12      | 96.3mv with 1/30s<br>0.1mv with 1/30s | 12@4928x4928<br>46@2464x2464<br>100@1648x1648   | 1x1<br>2x2<br>3x3  | 0.013ms~15s |
| <b>BUC5F-2100C</b>  | 21M/IMX269 (C)<br>4/3" (17.4x13.0)    | 3.3 x3.3       | 399mv with 1/30s<br>0.1mv with 1/30s  | 17@5280x3954<br>17@3952x3952<br>56@2640x1976<br>67@1760x1316<br>192@584x438   | 1x1<br>1x1<br>2x2<br>3x3<br>9x9  | 0.1ms~15s   |

|                     |   |            |  |  |                   |             |
|---------------------|---|------------|--|--|-------------------|-------------|
| <b>BUC5F-2000C</b>  | 20M/IMX183(C)<br>1" (13.06x8.76)                  | 2.4 x2.4   | 462mv with 1/30s<br>0.21mv with 1/30s  | 15@5440x3648<br>50@2736x1824<br>60@1824x1216         | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| <b>BUC5F-2000CC</b> | 20M/IMX183(C)<br>1" (13.06x8.76)                  | 2.4 x2.4   | 462mv with 1/30s<br>0.21mv with 1/30s  | 20@5440x3648<br>48@2736x1824<br>58@1824x1216         | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| <b>BUC5F-1800C</b>  | 18M/SONY Special(C)<br>1/2.2" (5.86x4.46)         | 1.2 x1.2   | 130mv with 1/30s<br>0.1mv with 1/30s   | 17@4880x3720<br>40@2448x1836<br>50@1728x1296         | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| <b>BUC5F-1560C</b>  | 15.6M/SONY Special (C)<br>1.1" (13.0x13.0)        | 3.3 x3.3   | 399mv with 1/30s<br>0.1mv with 1/30s   | 17@3952x3952<br>56@1976x1976<br>67@1316x1316         | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| <b>BUC5F-1230C</b>  | 12.3M/IMX304(C, <b>GS</b> )<br>1.1" (14.13x10.35) | 3.45x3.45  | 1146mv with 1/30s<br>0.1mv with 1/30s  | 23.4@4096x3000<br>46.3@2048x1500                     | 1x1<br>1x1        | 0.244ms~15s |
| <b>BUC5F-1200C</b>  | 12M/IMX226(C)<br>1/1.7" (7.40x5.55)               | 1.85x1.85  | 280mv with 1/30s<br>0.1mv with 1/30s   | 25@4000x3000<br>50@2048x1080                         | 1x1<br>2x2        | 0.1ms~15s   |
| <b>BUC5F-1200BC</b> | 12M/IMX577(C)<br>1/2" (6.29x4.71)                 | 1.55x1.55  | 250mv with 1/30s<br>0.25mv with 1/30s  | 30@4056x3040<br>60@2028x1520<br>120@1014x760         | 1x1<br>2x2<br>4x4 | 0.1ms~5s    |
| <b>BUC5F-900C</b>   | 9.0M/IMX305(C, <b>GS</b> )<br>1" (14.13x7.45)     | 3.45x3.45  | 1146mv with 1/30s<br>0.15mv with 1/30s | 34@4096x2160<br>60@2048x1080                         | 1x1<br>1x1        | 0.1ms~15s   |
| <b>BUC5F-900BC</b>  | 9.0M/IMX533(C)<br>1" (11.31x11.28)                | 3.76x3.76  | 535mv with 1/30s<br>0.04mv with 1/30s  | 40@3008x3000<br>123@1488x1500<br>186@992x998         | 1x1<br>2x2<br>3x3 | 0.1ms~15s   |
| <b>BUC5F-830CC</b>  | 8.3M/IMX485(C)<br>1/1.2" (11.14x6.26)             | 2.9x2.9    | 2188mv with 1/30s<br>0.15mv with 1/30s | 45@3840x2160<br>70@1920x1080                         | 1x1<br>2x2        | 0.02ms~15s  |
| <b>BUC5F-830DC</b>  | 8.3M/IMX585(C)<br>1/1.2" (11.14x6.26)             | 2.9x2.9    | 5970(mV/lx/s)<br>0.13mv with 1/30s     | 45@3840x2160<br>70@1920x1080                         | 1x1<br>2x2        | 0.02ms~15s  |
| <b>BUC5F-830EC</b>  | 8.3M/IMX678(C)<br>1/1.8" (7.68x4.32)              | 2.0x2.0    | 3541(mV/lx/s)<br>0.15mv with 1/30s     | 45@3840x2160<br>70@1920x1080                         | 1x1<br>2x2        | 0.02ms~15s  |
| <b>BUC5F-800C</b>   | 8.0M/IMX294(C)<br>1.15" (13.00x13.00)             | 4.63 x4.63 | 419mv with 1/30s<br>0.12mv with 1/30s  | 30@2808x2808 (14bit)<br>139@1392x1392<br>139@696x696 | 1x1<br>2x2<br>4x4 | 0.1ms~15s   |
| <b>BUC5F-630C</b>   | 6.3M/IMX178(C)<br>1/1.8" (7.37x4.92)              | 2.4x2.4    | 425mv with 1/30s<br>0.15mv with 1/30s  | 30@3072x2048<br>38@1536x1024                         | 1x1<br>2x2        | 0.1ms~15s   |
| <b>BUC5F-630BC</b>  | 6.3M/IMX178(C)<br>1/1.8" (7.37x4.92)              | 2.4x2.4    | 425mv with 1/30s<br>0.15mv with 1/30s  | 59@3072x2048<br>59@1536x1024                         | 1x1<br>2x2        | 0.02ms~15s  |

|                    |  |           |  |                              |            |           |
|--------------------|--|-----------|--|------------------------------|------------|-----------|
| <b>BUC5F-500C</b>  | 5.0M/IMX264(C, <b>GS</b> )<br>2/3" (8.45x7.07)   | 3.45x3.45 | 1146mv with 1/30s<br>0.15mv with 1/30s | 35@2448x2048<br>50@1224x1024 | 1x1<br>1x1 | 0.1ms~15s |
| <b>BUC5F-310C</b>  | 3.1M/IMX123(C)<br>1/2.8" (5.12x3.84)             | 2.5x2.5   | 600mv with 1/30s<br>0.15mv with 1/30s  | 50@2048x1536<br>50@1920x1080 | 1x1<br>1x1 | 0.1ms~15s |
| <b>BUC5F-310BC</b> | 3.1M/IMX265(C, <b>GS</b> )<br>1/1.8" (7.07x5.30) | 3.45x3.45 | 1146mv with 1/30s<br>0.15mv with 1/30s | 53@2048x1536<br>85@1024x768  | 1x1<br>1x1 | 0.1ms~15s |
| <b>BUC5F-210C</b>  | 2.1M/IMX482(C)<br>1/1.2" (11.14x6.26)            | 5.8x5.8   | 8935mv with 1/30s<br>0.6mv with 1/30s  | 96@1920x1080                 | 1x1        | 14us~15s  |
| <b>BUC5F-200C</b>  | 2M/IMX385(C)<br>1/2" (7.2x4.05)                  | 3.75x3.75 | 2350mv with 1/30s<br>0.15mv with 1/30s | 125@1920x1080                | 1x1        | 0.1ms~15s |

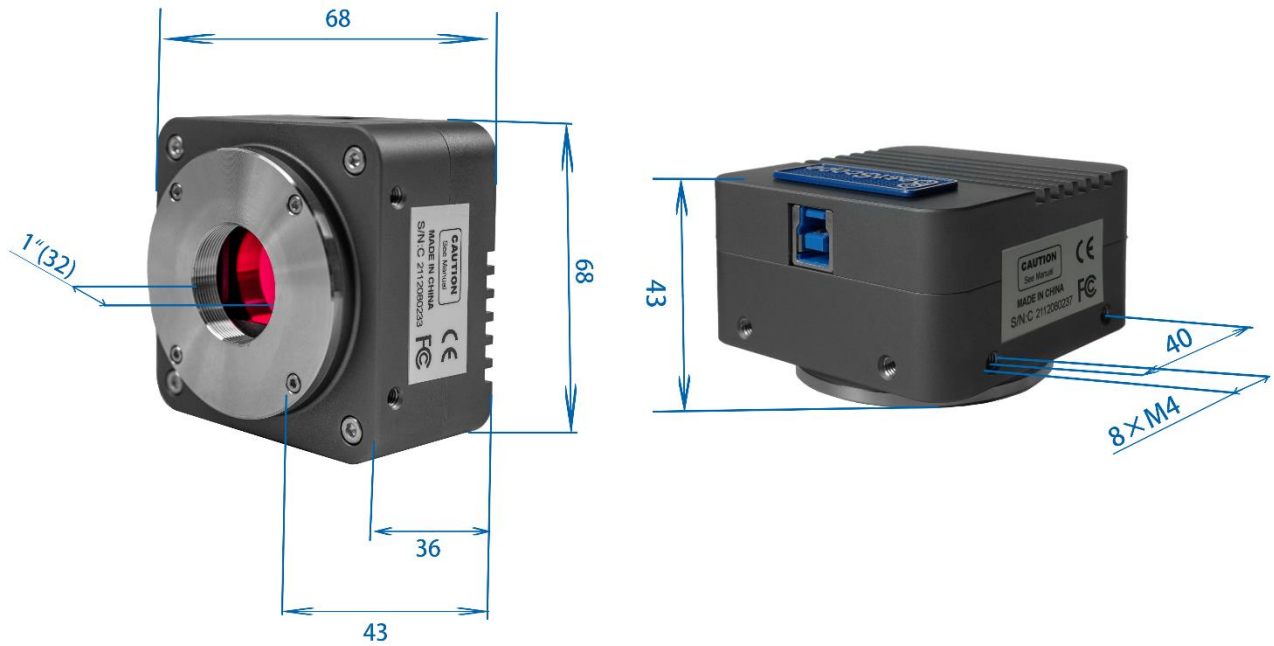
Note: C: Color; M: Monochrome; GS: Global Shutter

| 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)<br>OSx(Mac OS X)<br>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 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.







## 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<br>(Please choose 1 of them for your microscope) |
|                              |  | C-mount to Dia.31.75mm eyepiece tube<br>(Please choose 1 of them for your telescope) |
| G                            | Fixed lens adapter   | C-mount to Dia.23.2mm eyepiece tube<br>(Please choose 1 of them for your microscope) |
|                              |  | C-Mount to Dia.31.75mm Eyepiece Tube<br>(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    |                                      |  |
| Microscope Camera |  <p>23.2mm Adjustable Adapter</p>    |  |
| Telescope Camera  |  <p>31.75mm Adjustable Adapter</p> |  |
|                   |  <p>31.75mm Fixed Adapter</p>     |  |



Sample Image

