

## 2. USB2.0 CMOS Microscope Digital Cameras

### (1) BUC1D Series C-mount USB2.0 CMOS Camera



#### Introduction

BUC1D series cameras adopt ultra-high performance CMOS sensor as the image-capture device. USB2.0 is used as the data transfer interface.

BUC1D series cameras' hardware resolutions ranges from 2.1MP to 12MP and come with the zinc aluminum alloy compact housing. BUC1D 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 BUC1D can be widely used in bright field light environment and microscope image capture and analysis with moderate frame rate.

#### Feature

1. Standard C-Mount camera with Sony or OnSemi CMOS sensor;
2. USB2.0 interface ensuring high speed data transmission;
3. Integrated with large capacity memory chip ensures data synchronous transmission, low latency, high frame rate and stability;
4. Compatible with Microsoft USB Video Class protocol and support the third-party software development;
5. Built in Ultra-fine hardware ISP engine ensures high color restoration;
  - (1) Support automatic/manual exposure switching, accurate exposure time control, and real-time adjustment of exposure target area;
  - (2) Support automatic/manual/ROI white balance;
  - (3) Support color adjustment/color mode selection/image flipping;

(4) Support histogram adjust/flat field correction/dark field correction/video ROI;

7. High performance MJPEG compression algorithm, combined with the unique decoding method of image restoration algorithm ensure highest frame rate of USB2.0 camera in the industry. The FPS for 5MP and 8MP can be up to 30FPS; the FPS for 12MP can be up to 15FPS;
8. Comply with CE and FCC agreements;
9. CNC aluminum alloy housing;
10. With advanced video & image processing application ImageView;
11. Providing Windows/Linux/Mac OS multiple platforms SDK;
12. Very competitive pricing.

## Specification

| Order Code         | Sensor & Size(mm)                    | Pixel(μm) | G Responsivity<br>Dynamic range<br>SNRmax | FPS/Resolution                                            | Binning           | Exposure    |
|--------------------|--------------------------------------|-----------|-------------------------------------------|-----------------------------------------------------------|-------------------|-------------|
| <b>BUC1D-1200C</b> | 12M/IMX577(C)<br>1/2.3" (5.95x4.71)  | 1.55x1.55 | 250LSB<br>70dB<br>43dB                    | 20@3840x3040<br>20@1920x1520<br>20@960x760                | 1x1<br>1x1<br>1x1 | 0.1-2000 ms |
| <b>BUC1D-830C</b>  | 8.3M/IMX274(C)<br>1/2.5" (6.22x3.50) | 1.62x1.62 | 236mV<br>70dB<br>43dB                     | 30@3840x2160<br>30@1920x1080<br>30@1280x720<br>30@960x540 | 1x1<br>1x1<br>1x1 | 0.1-2000 ms |
| <b>BUC1D-510AC</b> | 5.1M/AR0521(C)<br>1/2.5" (5.70x4.28) | 2.2x2.2   | 18.8ke-/lus<br>73dB<br>40dB               | 30@2592x1944<br>30@1280x960<br>30@640x480                 | 1x1<br>1x1<br>1x1 | 0.1-1000 ms |
| <b>BUC1D-510BC</b> | 5.1M/IMX335(C)<br>1/2.8" (5.18x3.89) | 2.0x2.0   | 505mV<br>70dB<br>43dB                     | 26@2592x1944<br>26@1280x960<br>26@640x480                 | 1x1<br>1x1<br>1x1 | 0.1-2000 ms |
| <b>BUC1D-310C</b>  | 3.1M/Aptina(C)<br>1/2.5" (5.73x4.3)  | 2.8x2.8   | 18.8ke-/lus<br>73dB<br>40dB               | 30@2048x1536<br>30@1024x768                               | 1x1<br>1x1        | 0.1-1000 ms |
| <b>BUC1D-210C</b>  | 2.1M/IMX307(C)<br>1/2.8" (5.73x4.3)  | 2.9x2.9   | 1300mV<br>73dB<br>43dB                    | 38@1920x1080<br>38@1024x768                               | 1x1<br>1x1        | 0.1-2000 ms |

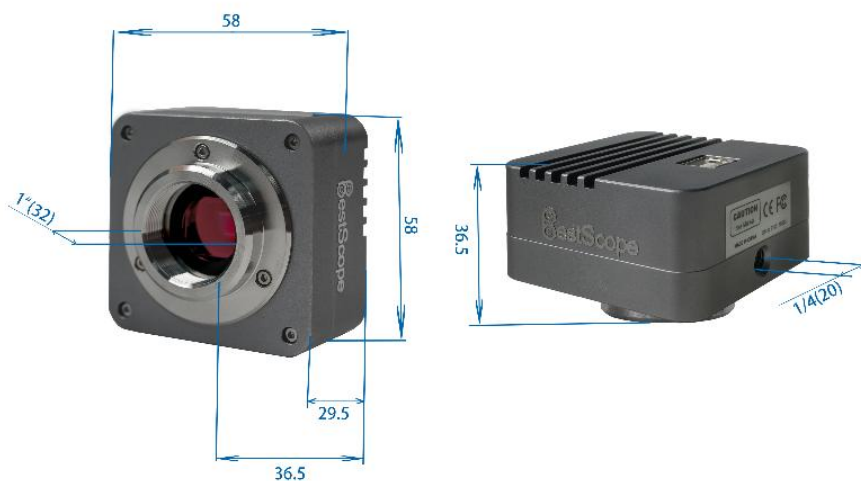
C: Color; M: Monochrome;

| Other Specification for BUC1D Camera |                                                                                          |
|--------------------------------------|------------------------------------------------------------------------------------------|
| Spectral Range                       | 380-650nm (with IR-cut Filter)                                                           |
| White Balance                        | Auto/Manual/ROI White Balance/Manual Temp Tint Adjustment/NA for Monochromatic Sensor    |
| Color Technique                      | Ultra-fine hardware ISP 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*                        | Natural                                                   |
| <b>Operating Environment</b>           |                                                           |
| 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                                    |
| <b>Software Environment</b>            |                                                           |
| Operating System                       | Microsoft® Windows® XP / Vista / 7 / 8 / 10 (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: USB2.0 High-speed Port                          |
|                                        | Display: 17" or Larger                                    |
|                                        | CD-ROM                                                    |

## Dimension of BUC1D

The BUC1D body, made from tough, aluminum 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. This design ensures a rugged, robust solution with an increased lifespan when compared to other industrial camera solutions.



Dimension of BUC1D

## Packing Information for BUC1D



Packing Information of BUC1D

| 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 (0.5~0.55Kg/ box)                                                                                                                                                                                    |                                                                                                                        |
| C                            | BUC1D series USB2.0 C-mount CMOS camera                                                                                                                                                                                            |                                                                                                                        |
| D                            | High-speed USB2.0 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<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                            | 108015(Dia.23.2mm to 30.0mm Ring)/Adapter rings for 30mm eyepiece tube                                                                                                                                                             |                                                                                                                        |
| I                            | 108016(Dia.23.2mm to 30.5mm Ring)/ Adapter rings for 30.5mm eyepiece tube                                                                                                                                                          |                                                                                                                        |
| J                            | 108017(Dia.23.2mm to 31.75mm Ring)/ Adapter rings for 31.75mm eyepiece tube                                                                                                                                                        |                                                                                                                        |
| K                            | Calibration kit                                                                                                                                                                                                                    | 106011/TS-M1(X=0.01mm/100Div.);<br>106012/TS-M2(X,Y=0.01mm/100Div.);<br>106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.) |

Extension of BUC1D with Microscope or Telescope Adapter

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