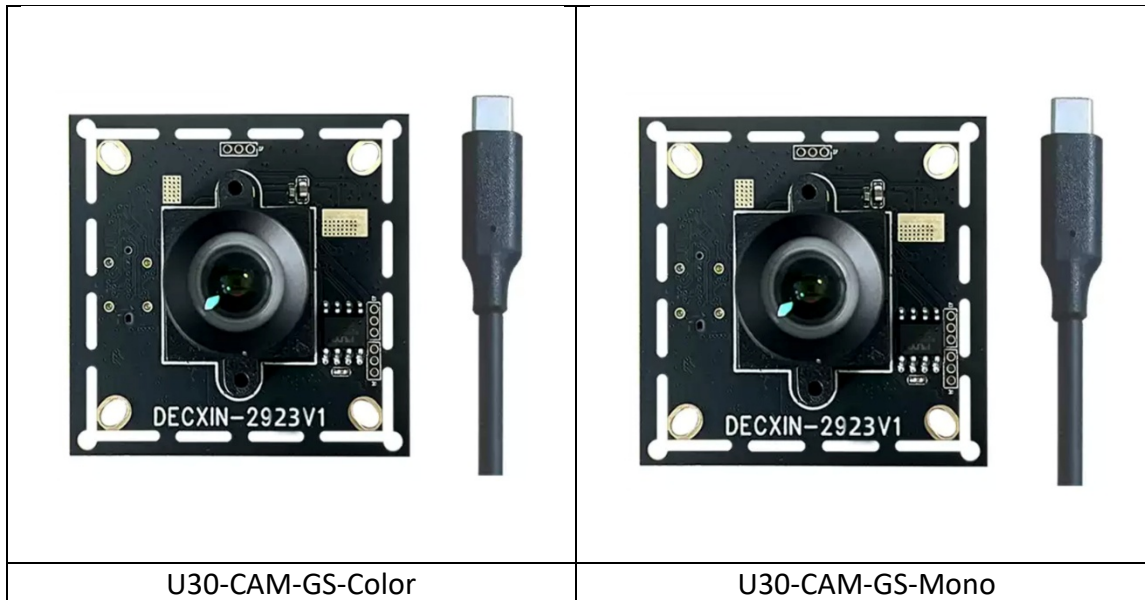


# BUELEC

**U30-CAM-GS**  
High-performance 1.3MP Global Shutter  
USB 3.0 UVC-compliant camera module

## U30-CAM-GS User Manual



| Date       | Version | Description |
|------------|---------|-------------|
| 2025/01/01 | V10     |             |

## 1 Description

### 1.1 Overview

The Buelec U30-CAM-GS is a professional-grade 1.3MP global shutter USB 3.0 camera engineered for ultra-high frame rate applications.

Powered by a large 1/2.0" CMOS sensor with 4.8µm pixels, it delivers distortion-free 720P at 200fps and full 1.3MP at 200fps (MJPEG), with up to 400fps at reduced resolutions — perfect for slow-motion analysis, machine vision, robotics, and high-speed automation.

Equipped with a high-quality 120° diagonal wide-angle lens (2.26mm F1.8), the U30-CAM-GS offers an expansive field of view while maintaining sharp center resolution.

Fully UVC compliant and driver-free on Windows, Linux, macOS, and Android, it works instantly with OBS, Amcap, PotPlayer, and most third-party software.

Available in both color and monochrome versions to suit different application needs.

### 1.2 Features

- Resolution: 1.3 Megapixels (1280×1024)
- Sensor: 1/2.0" global shutter CMOS, 4.8µm pixel size
- Max frame rate: 200fps @ 1280×1024 / 1280×720 (MJPEG), up to 400fps @ 640×512 / 640×480 (MJPEG)
- Output formats: MJPEG / YUY2 (YUV)
- Interface: USB 3.0 High-Speed, UVC compliant (plug & play)
- Lens specifications Size:
  - 1/2.8 focal length: 2.26mm
  - Aperture: F1.8
  - FOV: 120° (diagonal)
  - Interface: M12 × P0.2
- Protocol: Standard UVC/UAC – truly plug-and-play, no drivers required on Windows, Linux, macOS, Android, and Raspberry Pi
- Software Compatibility: Instantly recognized by OBS, Amcap, PotPlayer, OpenCV, HALCON, and nearly all third-party vision software
- Available in color and monochrome (B/W) versions
- Fixed focus, excellent center sharpness (600 LW/PH)

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- Dynamic range: 77dB | S/N ratio: 37.5dB
- Minimum illumination: 0.5 lux
- Full auto functions: AEC, AWB, AGC supported
- Power: USB powered

## 2 Hardware

### 2.1 Specification

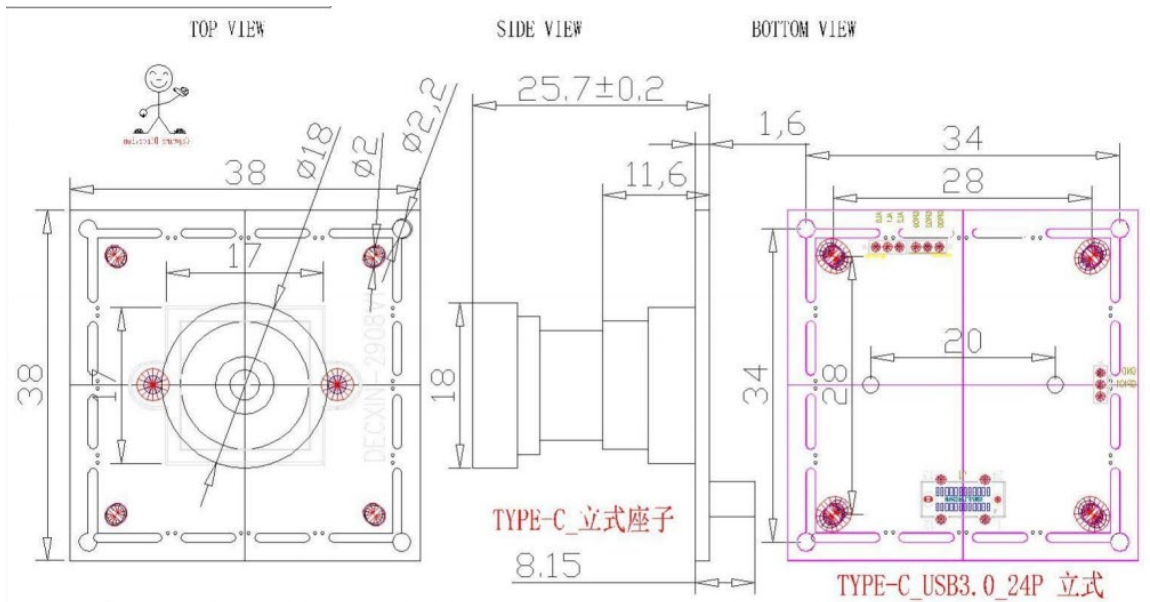
|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model Name:<br>U30-CAM-GS -Color | Color Sensor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Model Name:<br>U30-CAM-GS -Mono  | Mono Sensor, Black and White                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Image Sensor                     | Sensor Type: 1/2.0" CMOS Global Shutter<br>Effective Pixels: 1280 (H) × 1024 (V) — 1.3 Megapixel<br>Pixel Size: 4.8 μm × 4.8 μm<br>Active Image Area: TBD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Sensor:                          | Maximum effective pixel:1280(H) × 1024(V)<br>Lens Size:1/2.0 inch (16:9)<br>Pixel Size: 4.8um × 4.8um<br>Output image format: MJPEG / YUV2 (YUYV)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Performance                      | Maximum Frame Rates (MJPEG): <ul style="list-style-type: none"><li>• 1280×1024 @ 200 fps</li><li>• 1280×720 @ 200 fps</li><li>• 960×540 @ 200 fps</li><li>• 848×480 @ 200 fps</li><li>• 640×512 @ 400 fps</li><li>• 640×480 @ 400 fps</li></ul> Maximum Frame Rates (YUV422): <ul style="list-style-type: none"><li>• 1280×1024 @ 100 fps</li><li>• 1280×720 @ 100 fps</li><li>• 960×540 @ 200 fps</li><li>• 848×480 @ 200 fps</li><li>• 640×480 @ 400 fps</li></ul> Shutter Type: Global Shutter<br>Dynamic Range: 77 dB<br>Signal-to-Noise Ratio (SNR): 37.5 dB<br>Sensitivity: 1.4 V/lux-sec (550 nm)<br>Minimum Illumination: 0.5 lux<br>Center Resolution: 600 LW/PH |
| Output & Interface               | Video Format: MJPEG / YUV2 (YUYV)<br>Interface: USB 3.0 High-Speed (5 Gbps), backward compatible with USB 2.0<br>Protocol: UVC 1.0 compliant (driver-free)<br>Power Supply: 5V via USB (typical 1.2W)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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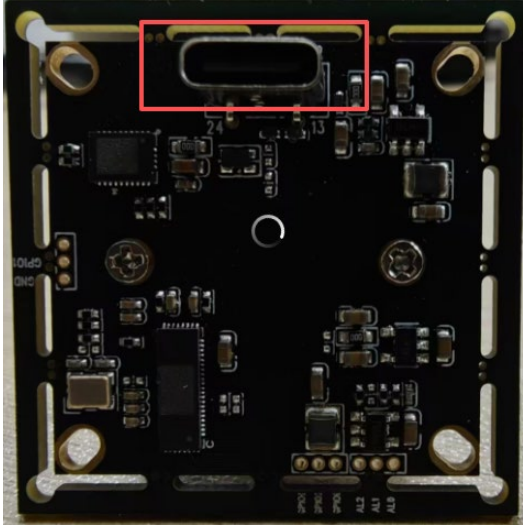
|                           |                                                                                                                                                           |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Auto Functions            | Automatic Exposure Control (AEC): Supported<br>Automatic White Balance (AWB): Supported<br>Automatic Gain Control (AGC): Supported                        |
| Manual Functions          |                                                                                                                                                           |
| Physical                  | Assembly Process: SMT<br>Operating Temperature: -10°C to +50°C<br>Dimensions: TBD (standard USB module board)<br>Variants: Color (Bayer RGB) / Monochrome |
| Lens specifications Size: | 1/2.8 focal length: 2.26mm<br>Aperture: F1.8<br>FOV: 120° (diagonal)<br>Interface: M12 × P0.2                                                             |
| Compatibility             | Windows 7/8/10/11, Linux (Ubuntu, etc.),<br>macOS, Android, Raspberry Pi, Jetson<br>Nano/Xavier                                                           |
| Protocol:                 | Standard UVC/UAC – truly plug-and-play, no<br>drivers                                                                                                     |
| Software Compatibility:   | Instantly recognized by OBS, Amcap, PotPlayer,<br>OpenCV, HALCON, and nearly all third-party<br>vision software                                           |
| Device Name:              | DEXIN CAMERA                                                                                                                                              |

## 2.2 Size Information



|                 |                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|
| <h1>BUELEC</h1> | <div> <div>U30-CAM-GS</div> <div>High-performance 1.3MP Global Shutter</div> <div>USB 3.0 UVC-compliant camera module</div> </div> |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|

### 2.3 Pins Out

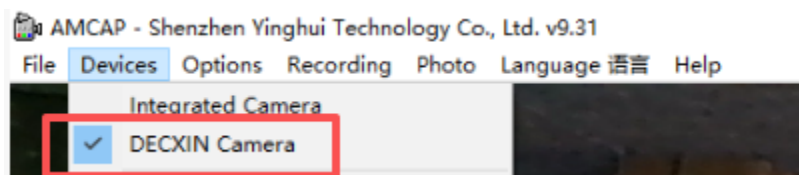
|                                                                                    |                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <div> <div>Brand:XUNPU(讯普)</div> <div>Part Number:TYPEC-303-ACP16</div> </div>                                                                                                                                            |
|  | <div> <div>GPIO</div> <div>GPIO</div> <div>GPIO</div> <div>AL2</div> <div>AL1</div> <div>AL0</div> <div>AVDD(Analog VDD): 2.8V</div> <div>DVDD(Digital VDD): 1.2V</div> <div>DOVDD(Digital Output VDD): 1.8V</div> </div> |
|                                                                                    |                                                                                                                                                                                                                           |

## 3 Software Sources

### 3.1 AMCAP

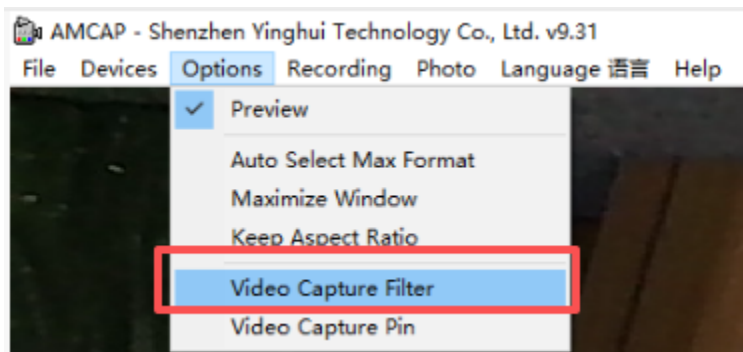
#### 3.1.1 Open Device

DEVICES-DECXIN



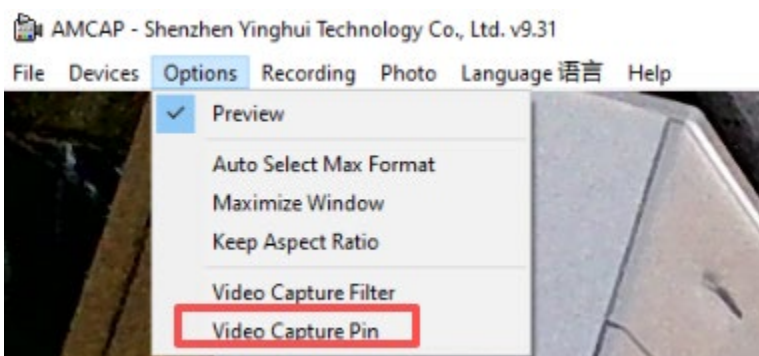
#### 3.1.2 Function

Options-Video Capture Filter



#### 3.1.3 Framerate and Resolutions

Options Capture Pin



## 3.2 q4l2

### 3.2.1 Install q4l2

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```
sudo apt-get install qv4l2
```

### 3.2.2 Open q4l2

```
sudo qv4l2
```

## 3.3 OpenCV

OpenCV (opencv-python): OpenCV is an open-source computer vision library that allows easy access to UVC cameras via cv2.VideoCapture.

Official documentation link: <https://opencv.org/>

PyPI installation link: <https://pypi.org/project/opencv-python/4>. Packing List

## 4 Packing List

1XU30-CAM-GS

1x1metre USB-A To USB-C Cable