

AXO2USB32 Camera Datasheet

USB 3.2 camera with Sony image sensors



AXO2USB32 combines a Sony image sensor, in-camera image processing and a standard USB Video Class interface in a compact enclosure. Choose the IMX662 for low-light Full HD imaging or the IMX900 for global-shutter capture of moving subjects. A single USB-C connection carries video and supplies power.

Key features

- USB 3.2 Gen 1 interface at 5 Gbit/s with UVC 1.5 video streaming.
- FPGA-based video pipeline with automatic white balance and automatic exposure.
- Sony IMX662 and IMX900 sensor options for different imaging requirements.
- Compact camera enclosure with M12 lens mount and integrated motion sensing.

Sensor options

Parameter	Sony IMX662	Sony IMX900
Shutter	Rolling shutter	Global shutter
Image resolution	Full HD 1920 × 1080	3.2 MP sensor
Video frame rate	Up to 90 fps ¹	Depends on selected video mode ¹
Imaging focus	Low-light imaging and NIR sensitivity	Capture of moving objects without rolling-shutter distortion
Typical applications	Monitoring and embedded vision	Robotics and machine vision

¹ Available resolution and frame rate depend on the sensor variant, firmware, output format and host USB bandwidth. Confirm the required mode when ordering

Camera interface

Feature	Specification
USB connection	USB Type-C; USB 3.2 Gen 1, 5 Gbit/s link rate
Video class	USB Video Class 1.5
Video output	Uncompressed YUV 4:2:2, YUY2 / YUYV ²
Power	USB bus powered, 5 V nominal; no separate power input
Image processing	In-camera FPGA video pipeline
Lens mount	S-mount, M12 × 0.5

² YUY2 / YUYV is specified for the IMX662 configuration. Confirm the output modes for the selected IMX900 configuration.

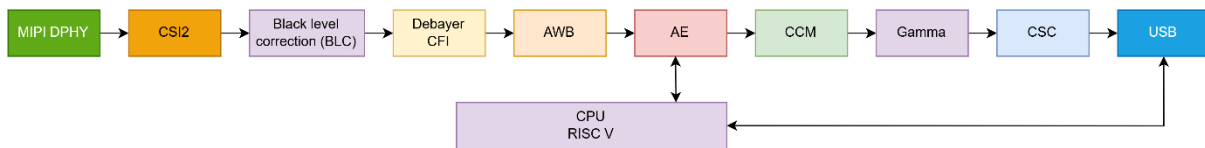
Camera integration and dimensions

Image processing and host integration

The FPGA runs the video pipeline inside the camera and delivers processed video through UVC 1.5. Standard video capture uses the host UVC driver, with no custom camera driver required.

Video processing pipeline

FPGA internal video pipeline:



Black level correction establishes the image baseline. Debayer reconstructs color from the sensor data. Automatic white balance (AWB) and automatic exposure (AE) adjust color balance and brightness. The color correction matrix (CCM), gamma correction, and color space conversion (CSC) prepare the image for USB output.

Software integration

Use UVC-capable video applications for capture. Integration examples are available for ROS 2, OpenCV and Linux V4L2. Application access to camera controls and available video modes depends on the selected firmware and host software.

Hardware triggering and an integrated IMU support vision and robotics integration. A USB3 Vision configuration is available as an ordering option.

Mechanical dimensions

Illustrated enclosure: 40.0 × 31.0 × 28.3 mm, excluding the lens and connected cable. M2 mounting threads have a maximum engagement depth of 3 mm. All drawing dimensions are in millimeters.

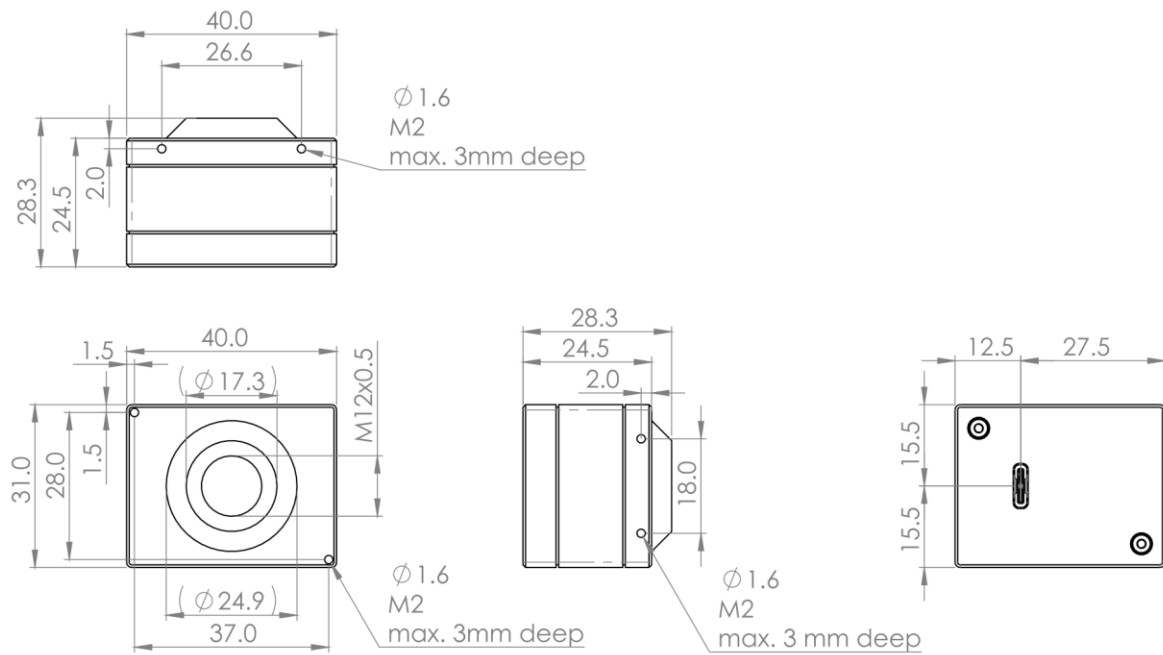


Figure 1: Dimensions apply to the illustrated enclosure configuration. Allow additional clearance for the selected lens and USB cable.

Configuration and ordering

Specify the sensor (IMX662 or IMX900), required resolution and frame rate, lens or field of view, and UVC or optional USB3 Vision interface. Contact DAB-Embedded for the matching camera configuration and integration support.

Baseline order number:

AXO2USB32-<Sensor>-<Lens>.

Sensor	Description
IMX662C	Using Sony IMX662-AAQR1-C sensor (Color)
IMX662M	Using Sony IMX662-AAMR-C sensor (Mono)
IMX900C	Using Sony IMX900-AQR-C sensor (Color)
IMX900M	Using Sony IMX900-AMR-C sensor (Mono)

Lens	Description
NL	No lens
CUSTOM	Custom lens – please specify

Contact details

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