

3.2MP Monochrome USB 3.2 Gen 2x2 UVC Camera based on Sony Pregius S IMX900

Vadzo's Vajra-900MGS is a 3MP monochrome global shutter USB 3.0 camera powered by the Sony® Pregius S™ IMX900 CMOS sensor, designed for high-speed and high-precision imaging. With Quad HDR (up to 120dB), NIR sensitivity, and fast auto-exposure technology, it delivers exceptional sharp high-quality images, even in challenging lighting conditions. The camera's Quad Shutter Control and global shutter technology ensure distortion-free imaging, even in fast-moving subjects & high-speed environments. You shall be able to stream video in Y8 and Y12 format and capture images in BMP and RAW format respectively.

Key Features

- Sensor Model: Sony® Pregius S™ IMX900
- Max Resolution: 3.2 MP
- Pixel: 2.25 μm x 2.25 μm
- Shutter: Global Shutter
- Lens FOV: 74 DFOV
- Compliance: UVC, RoHS 3, REACH



Applications

- **Industrial Automation Cameras:** Barcode reading camera, Picking robot Camera, Autonomous Guided Vehicle Camera, Embedded vision camera.
- **Warehouse Robotics Cameras:** Object Scanning, Document Scanning, OCR, Obstacle Detection.
- **Smart Surveillance Cameras:** Facial Recognition, Day/Night Video Recording, Smart Parking, Pedestrian Safety.

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1. Introduction

Vajra-900MGS is a UVC Compliant USB 3.2 Gen2x2 Fixed-Focus Global Shutter monochrome camera based on Sony® Pregius S™ IMX900 sensor. The camera is designed to be backward compatible with USB 2.0 as well. The camera supports key features like Quad HDR (up to 120dB), Fast Auto-Exposure, Superior NIR Sensitivity, Global shutter, and so on. It supports image capture in Y8, Y12 and video streaming in Y8, Y12 formats.

2. Camera Specifications

General Information	
Product Family	Vajra series
Camera Model	Vadzo Vajra-900MGS
Sensor	
Sensor	IMX900 CMOS Sensor from Sony® Pregius S™
Sensor Format	1/3.1"
Pixel Size	2.25 µm x 2.25 µm
Max Resolution	3.2 MP – 2064(H) x 1552(V)
Shutter	Global Shutter
Chroma	Mono
Camera Data	
Interface	USB 3.2 Gen2x2 Type C connector
Pixel Depth	8bit / 12bit
Output Format	Y8, Y12
Exposure Control	Manual Control via software & Auto-Exposure
GPIO	6 pins. 1x Digital Input, 1x Digital Output, 2x NC, 1xGPIO and GND
Camera Hardware	
Lens	S Mount (M12 Standard)
USB connector	Type C

GPIO connector	Connector on-board: Wurth 665306124022 Mating connector: Wurth 665006113322
Power Supply	USB powered
Power Requirement	Max: 3 W at 5VDC Min: 2.5 W at 5VDC
Operating Temperature	-40°C to 85°C
Dimension	38mm (L) x 38mm (B)
Weight	13 Grams (Without Lens)
Camera Software	
Video Resolutions	VGA, HD, FHD and FULL
Video formats	Y8
Still Image Resolutions	VGA, HD, FHD and FULL
Image Capture formats	BMP
Image Capture Modes	Software trigger
UVC Camera Controls	Brightness, Manual and Auto Exposure
OS Supported	Windows, Linux, Android (need additional SDK)
Conformity	
Conformity	UVC Compliant, RoHS 3, REACH

3. Supported Resolutions

Resolution	USB 3.2 Gen2x2 FPS
	Y8
640 x 480 (VGA)	280
1280 x 720 (HD)	160
1920 x 1080 (FHD)	140
2064 x 1552 (FULL)	125
1032 x 776 (Custom for HDR)	395
2064 x 154 (1/10 subsampling)	620

4. Supported Camera Functions

The List of functions supported by the Vajra-900MGS camera are:

- Resolution Control
- Image Format Setting – Y8, Y12
- Video Format Setting – Y8, Y12
- Image Capture Software Trigger
- Exposure – Auto & Manual
- Brightness Control

5. USB 3.0 Interface

The camera module's USB 3.2 connector is a standard USB Type C connector. It provides a nominal 20 Gbit/s SuperSpeed+ data transfer connection to supply power to the device and to transmit video data and control signals. The power supply must comply with the Universal Serial Bus 3.0 Specification. The nominal operating voltage is 5 VDC, effective on the camera module's connector.

Connection assignments and numbering adhere to the Universal Serial Bus 3.0 standard. USB Certified 3.2 Gen 2x2 or higher cables to be used. Vadzo does not recommend non-certified USB cables.

6. Status LED

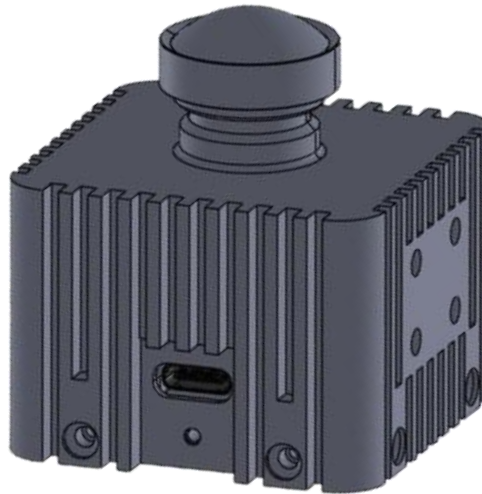
Status LED's indicate the below:

- Red color indicates Device is powered ON with no Streaming.
- Yellow color indicates: Camera is currently Streaming.

7. Temperature and Humidity Specifications

Description	Specification
Operating Temperature	-40 ⁰ C to 85 ⁰ C
Storage Temperature	-40 ⁰ C to 85 ⁰ C
Humidity	20% to 80%, Relative, non-condensing.

8. Enclosure



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