FALCON-900MGS

3.2MP Monochrome USB 3.0 UVC Camera based on Sony Pregius S IMX900 Sensor

Vadzo's Falcon-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 & 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

Falcon-900MGS is a UVC Compliant USB 3.0 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	Falcon series
Camera Model	Vadzo Falcon-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 Gen1 Backward compatible to USB 2.0
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

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GPIO connector	Connector on-board: Wurth 665306124022 Mating connector: Wurth 665006113322
Power Supply	USB powered
Power Requirement	Max: 1.75 W at 5VDC Min: 1.05 W at 5VDC
Operating Temperature	-40^{0}C to 85^{0}C
Dimension	38mm (L) x 38mm (B) convertible to 32mm (L) x 32mm (B)
Weight	13 Grams (Without Lens)
Camera Software	
Video Resolutions	VGA, HD, FHD and FULL
Video formats	Y8 and Y12
Still Image Resolutions	VGA, HD, FHD and FULL
Image Capture formats	BMP and RAW
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

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3. Supported Resolutions

Resolution	Frame Rates (FPS) in USB 3.0		Frame Rates (FPS) in USB 2.0	
	Y8	Y12	Y8	Y12
640 x 480 (VGA)	190	140	100	80
1280 x 720 (HD)	140	100	35	25
1920 x 1080 (FHD)	100	70	15	10
2064 x 1552 (FULL)	75	50	10	10
1032 x 776 (Custom for HDR)	220	165	-	-

4. Supported Camera Functions

The List of functions supported by the Falcon-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 interface

The camera module's USB 3.0 connector is a standard USB Type C connector. It provides a nominal 5 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 3.0 Gen 1 or higher cables to be used. Vadzo does not recommend non-certified USB cables.

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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. General Purpose I/O Lines

GPIO lines are terminated through Six (6) pin socket connector from Würth Elektronik part number 665306124022.Refer to the below table for GPIO Connector Pin Numbering and Assignments.

Pin No	Signal Name	(Min)	(Typ)	(Max)
Pin 1	+5V	4.75 V	5.0 V	5.25 V
Pin 2	GPIO	1.71 V	1.8 V	1.98 V
Pin 3	SEN_FLASH	1.71 V	1.8 V	1.98 V
Pin 4	External Trigger	1.71 V	1.8 V	1.98 V
Pin 5	NC	-	-	-
Pin 6	GND	-	-	-

**Vadzo engineering team shall be able to enable the IOs on the firmware level as per the end user technical requirements under the purview of Vadzo Imaging customisation program.*

Recommended mating connector from Würth Elektronik part number 665006113322.

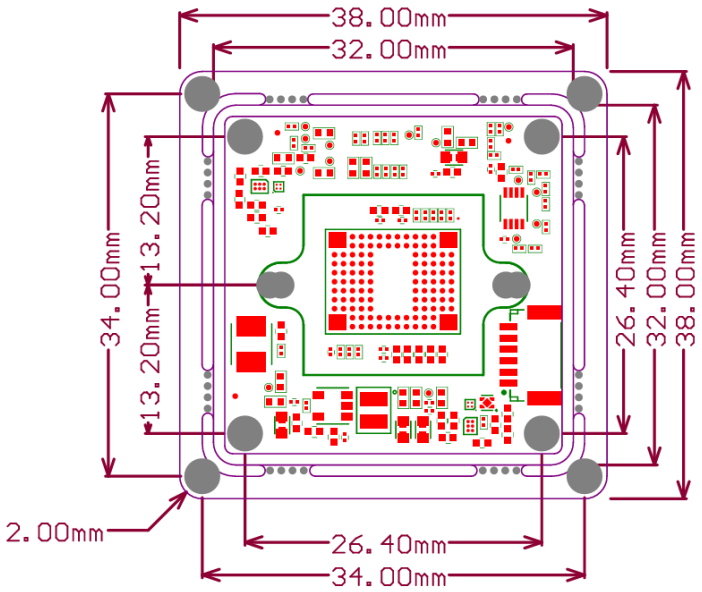
8. Temperature and Humidity Specifications

Description	Specification
Operating Temperature	-40^{o}C to 85^{o}C
Storage Temperature	-40^{o}C to 85^{o}C
Humidity	20% to 80%, Relative, non-condensing.

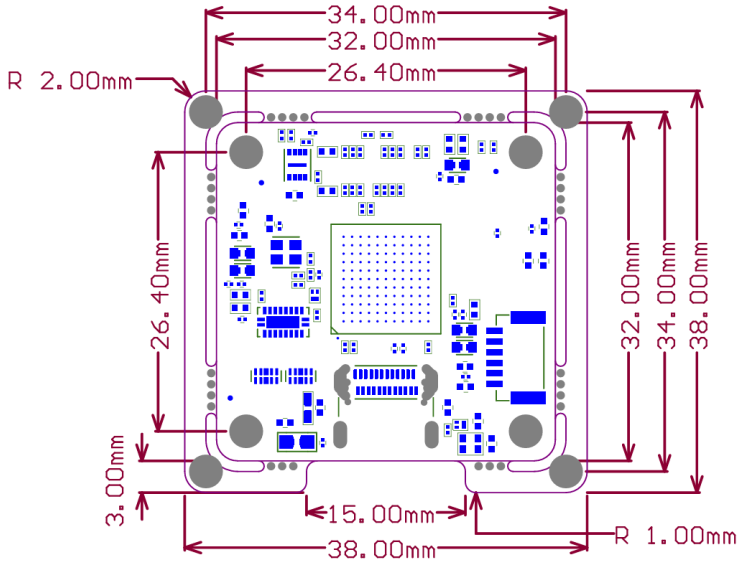
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9. Dimensions

Board Top Side – 2D



Board Bottom Side - 2D



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