OV9281 Global Shutter Camera Module for Raspberry Pi 4B / 5 (1MP, FOV 79°)

$25.90

SKU: SEN0534

Quantity: 1 +

Volume Discount

Purchase this product and earn 259 reward points, which are tied to VIP membership program. Learn More >

4Lane 8MP FOV 79° $19.90

4Lane 8MP FOV 120° $21.90

12.3MP FOV 79° $29.90

12.3MP FOV 120° Wide-Angle $39.90

1MP FOV 79° Global Shutter $25.90

OV9281 Global Shutter Camera Module for R... $25.90 Add to Cart Shop Now

Raspberry Pi 5 Single Board Computer - 4GB $60.00

Raspberry Pi 5 Single Board Computer - 8GB $80.00

Raspberry Pi 4 Model B - 8GB $72.00 $79.00

Raspberry Pi 4 Model B - 4GB $53.00 $55.00

Raspberry Pi 4 Model B - 2GB $45.00

Introduction

The global shutter camera module utilizes the OV9281 photosensitive chip, featuring a 3μm x 3μm pixel size and OmniPixel3-GS™ technology. The global shutter technology allows for simultaneous exposure of all pixels, eliminating motion distortion, and enhancing the ability to **capture fast-moving objects** with clarity. Its 1280x800 resolution and 1 million pixels ensure detailed image capture even in low-light environments, making it ideal for applications like night monitoring and indoor shooting where lighting conditions may be suboptimal. The module's compact design includes two FPC cables for easy connection to Raspberry Pi single-board computers, facilitating a quick setup without additional purchases.

Global Shutter for Clear Capture of Moving Objects

The global shutter enables the camera to capture fast-moving objects, such as rotating fan blades, without distortion or motion blur. Unlike rolling shutter cameras, which suffer from the "jelly effect," the global shutter captures a complete image at once, ensuring sharp, undistorted images even in dynamic conditions. This makes the module ideal for high-speed motion applications.

Global Shutter | Rolling Shutter

Figure: Global Shutter Camera vs Rolling Shutter Camera

Low-Light Performance with High-Resolution Imaging

Thanks to its 3μm x 3μm pixel size and global shutter technology, this camera excels in low-light conditions, offering clear and detailed images where other cameras may struggle. The fixed focus, high aperture of f/2.0, and integrated infrared filter work together to deliver sharp, high-quality images in challenging lighting environments, such as night surveillance and indoor monitoring.

Easy Integration with Raspberry Pi

The module includes two FPC cables for seamless connection to the Raspberry Pi 4 / Raspberry Pi 5, eliminating the need for additional cables. This feature makes setup simple and convenient for users working with Raspberry Pi-based projects. The MIPI-CSI-2Lane interface ensures high-speed data transmission, making it suitable for real-time applications.

Figure: Global shutter camera module compatible with Raspberry Pi 4 & 5

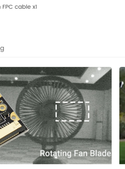


Figure: Dimension of Global shutter camera module

Raspberry Pi CSI Camera Selection Table

Name	IMX219-77 4Lane 8MP Camera	IMX219-120 4Lane 8MP Camera	IMX378-77 12.3MP Camera	IMX378-160 12.3MP Camera	OV9281-79 1MP Global Shutter Camera
SKU	SEN0521	SEN0521	SEN0522	SEN0523	SEN0534
Photosensitive Chip	IMX219	IMX219	IMX378	IMX378	OV9281
Pixel	8MP	8MP	12.3MP	12.3MP	1MP
Resolution	3280x2464	3280x2464	4056x3040	4056x3040	1280x800
Channels	CSI-2	CSI-2	CSI-2	CSI-2	CSI-2
Interface	Clk 1Gbps	Clk 1Gbps	Clk 1Gbps	Clk 1Gbps	Clk 1Gbps
Pixel Size	1.12μm	1.12μm	1.55μm	1.55μm	3μm
Shutter Mode	Rolling Shutter	Rolling Shutter	Rolling Shutter	Rolling Shutter	Global Shutter
Imaging Type	Color	Color	Color	Color	Black and White
Distortion	< 1%	< 1%	< 1.5%	< 50%	< 1%
Compatible	Raspberry Pi 5	Raspberry Pi 5	Raspberry Pi 4B & Raspberry Pi 5	Raspberry Pi 4B & Raspberry Pi 5	Raspberry Pi 4B & Raspberry Pi 5

Figure: Raspberry Pi CSI Camera Selection Table

Applications

- Gesture Detection
- Head and Eye Tracking
- Depth and Motion Detection

Specification

- Photosensitive chip: black and white OV9281
- Pixels: 1 million
- Chip pixel size: 3um×3um
- Resolution: 1280x800
- Camera type: black and white
- Shutter mode: global shutter
- Focus mode: fixed focus
- CMOS size: 1/4 inch
- Infrared filter: integrated
- Aperture: 2.0
- Focal length: 2.85mm
- Field of view: 79.3°
- Distortion: < 1%
- Interface: MIPI-CSI-2Lane
- Lens size: 6.5*6.5mm
- PCB size: 38*38mm

Documents

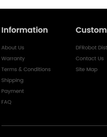
- Tutorial
- OV9281 DataSheet
- Interface Schematic
- Module Specifications

Shipping List

- OV9281-79 1MP Global Shutter Raspberry Pi Camera x1
- 15 Pin to 15 Pin FPC cable x1
- 15 Pin to 22 Pin FPC cable x1

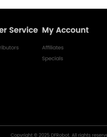
Resource

All | Blog



Blog **Global Shutter Camera Module Test Report and Performance Evaluation**

DFRobot Dec 05, 2024



Blog **Rolling Shutter vs. Global Shutter in Machine Vision**

DFRobot Dec 05, 2024

Raspberry Pi Projects

Copyright © 2025 DFRobot. All rights reserved.