# Alvium
## GM2-500 STP

- AR0521 CMOS sensor
- 5.0 MP resolution
- ALVIUM image processing
- GMSL2 interface
- Various hardware options

Model without hardware options

**Robust CSI-2 based Alvium cameras with GMSL2 interface**

## Benefit from greater flexibility in cable lengths

Alvium GM2 STP cameras with GMSL2 (Gigabit Multimedia Serial Link) interface have been designed to overcome the limitations of standard CSI-2 cameras. The closed housing CSI-2 based cameras come with integrated serializer and a rugged HSD STP connector for cable lengths up to 8 meters. This connection can also be used to power cameras (Power over STP), enabling single cable solutions.

To operate Alvium GM2 cameras on your vision system, Allied Vision provides different access modes: - **GenICam for CSI-2 Access** controls the camera by GenICam features, using the Alvium CSI-2 driver and CSI-2 transport layer (TL) directly. All Alvium GM2 STP models with equivalent 1800 C models are supported. Please find FAQs and installation instructions in the Getting Started with GenICam for CSI-2 application note. - Direct Register Access (DRA) to control the cameras via registers for advanced users. - **Video4Linux2 Access** allows to control the cameras via established V4L2 API and applications like GStreamer and OpenCV. Open-source CSI-2 drivers are available on GitHub for different boards and systems on chip (SoCs).

In addition to lens mount and housing options, see Customization and OEM Solutions webpage for additional options.

Allied Vision

# Specifications

| | |
|---|---|
| Interface | GMSL2, based on MIPI CSI-2, up to 4 lanes |
| Resolution | 2592 (H) × 1944 (V) |
| Spectral range | 300 to 1100 nm |
| Sensor | ON Semi AR0521SR |
| Sensor type | CMOS |
| Shutter mode | RS (Rolling shutter) |
| Sensor size | Type 1/2.5 |
| Pixel size | 2.2 µm × 2.2 µm |
| Lens mounts (available) | C-Mount, CS-Mount, S-Mount 68 |
| Max. frame rate at full resolution | Mainly depends on hardware and register settings. |
| ADC | 10 Bit |
| Image buffer (RAM) | 256 KByte |
| Non-volatile memory (Flash) | 1024 KByte |

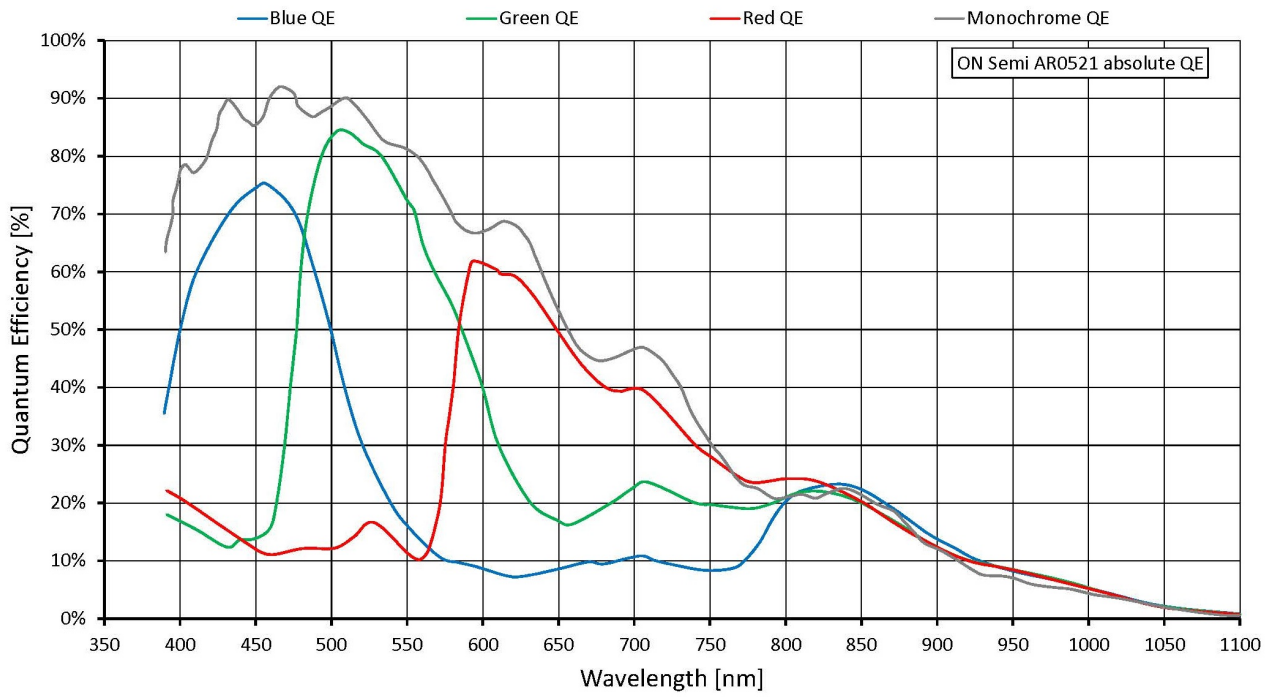
| Imaging performance | |
|---|---|
| Imaging performance data is based on the evaluation methods in the EMVA 1288 Release 3.1 standard for characterization of image sensors and cameras. Measurements are typical values for monochrome models measured without optical filter. | |
| Quantum efficiency at 529 nm | 79 % |
| Temporal dark noise | 5.9 $e^-$ |
| Saturation capacity | 9890 $e^-$ |
| Dynamic range | 63 dB |
| Absolute sensitivity threshold | 7.1 $e^-$ |

| **Output** | |
|---|---|
| Bit depth | 10-bit |
| Monochrome pixel formats | GenICam for CSI-2 Access: Mono8, Mono10, Mono10p |
| YUV color pixel formats | YUV422 8-bit (UYVY) [MIPI CSI-2 (FOURCC)] \| GenICam for CSI-2 Access: YCbCr411_8_CbYYCrYY, YCbCr422_8_CbYCrY, YCbCr8_CbYCr |
| RGB color pixel formats | RAW8 (GREY), RAW10 (Y10), RAW12 (Y12) [MIPI CSI-2 (FOURCC)] |
| Raw pixel formats | RAW8 (GREY), RAW10 (Y10) [MIPI CSI-2 (FOURCC)] |

| General purpose inputs/outputs (GPIOs) | |
|---|---|
| TTL I/Os | 2 programmable GPIOs |

| Operating conditions/dimensions | |
|---|---|
| Operating temperature | -20 °C to +65 °C (housing) |
| Power requirements (DC) | 5 VDC over MIPI CSI-2 |
| Power consumption | Value for the integrated serializer adds to CSI-2 model value. |
| Mass | 70 g |
| Body dimensions (L × W × H in mm) | 41 × 29 × 29 |

# Quantum efficiency



# Features

## Image control: Auto

- Auto exposure
- Auto gain
- Auto white balance (color models)

## Image control: Other

- Adaptive noise correction*
- Binning*
- Black level
- Color transformation (incl. hue, saturation; color models)
- Contrast*
- Custom convolution*
- De-Bayering up to 5×5 (color models)
- DPC (defect pixel correction)
- FPNC (fixed pattern noise correction)
- Gamma
- LUT (look-up table)*
- Reverse X/Y
- ROI (region of interest)
- Sharpness/Blur*

## Camera control

- Acquisition frame rate
- Bandwidth control*
- Counters and timers*
- Firmware update in the field
- I/O and trigger control
- Serial I/Os*
- Temperature monitoring
- User sets*

*GenICam for CSI-2 Access

# Technical drawing