



## Alvium

### GM2-530 VSWIR

- IMX992 VSWIR sensor
- ALVIUM image processing
- GMSL2 interface
- Various hardware options

Model without hardware options

### Alvium GM2: Benefit from greater flexibility in speed and range

### CSI-2 based Alvium cameras with GMSL2™ interface

Alvium GM2 cameras with GMSL2™ (Gigabit Multimedia Serial Link) interface have been designed to overcome the limitations of standard CSI-2 cameras. With a large choice of over 30 high-quality CMOS global and rolling shutter sensors Allied Vision is offering the broadest variety of GMSL2™ cameras in the market. The CSI-2 based closed housing cameras come with an integrated serializer, 2 GPIOs (General Purpose Input/Output) on the camera and two rugged interface connectors to choose from.

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. Alvium GM2 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 system on chips (SoCs).

In addition to lens mount and housing options, see [Customization and OEM Solutions webpage](#) for additional options.

## Specifications

|                                    |                                                  |
|------------------------------------|--------------------------------------------------|
| Interface                          | GMSL2, based on MIPI CSI-2, up to 4 lanes        |
| Resolution                         | 2592 (H) × 2056 (V)                              |
| Spectral range                     | 400 to 1700 nm                                   |
| Sensor                             | Sony IMX992   InGaAs                             |
| Sensor type                        | InGaAs                                           |
| Shutter mode                       | GS (Global shutter)                              |
| Sensor size                        | Type 1/1.4 VSWIR                                 |
| Pixel size                         | 3.45 μm × 3.45 μm                                |
| Lens mounts (available)            | C-Mount, CS-Mount                                |
| Max. frame rate at full resolution | Mainly depends on hardware and register settings |
| ADC                                | 12 Bit                                           |
| Image buffer (RAM)                 | 256 KByte                                        |
| Non-volatile memory (Flash)        | 1024 KByte                                       |

## Output

|                                 |                                                                                                       |
|---------------------------------|-------------------------------------------------------------------------------------------------------|
| Bit depth                       | 8-bit, 10-bit, 12-bit; Adaptive (10-bit, 12-bit)                                                      |
| Monochrome pixel formats        | PFNC: Mono8, Mono10, Mono10p, Mono12, Mono12p  <br>CSI-2: RAW8, RAW10, RAW12   FOURCC: GREY, Y10, Y12 |
| Raw color pixel formats (Bayer) | PFNC: BayerGR8, BayerGR10, BayerGR10p, BayerGR12,<br>BayerGR12p                                       |

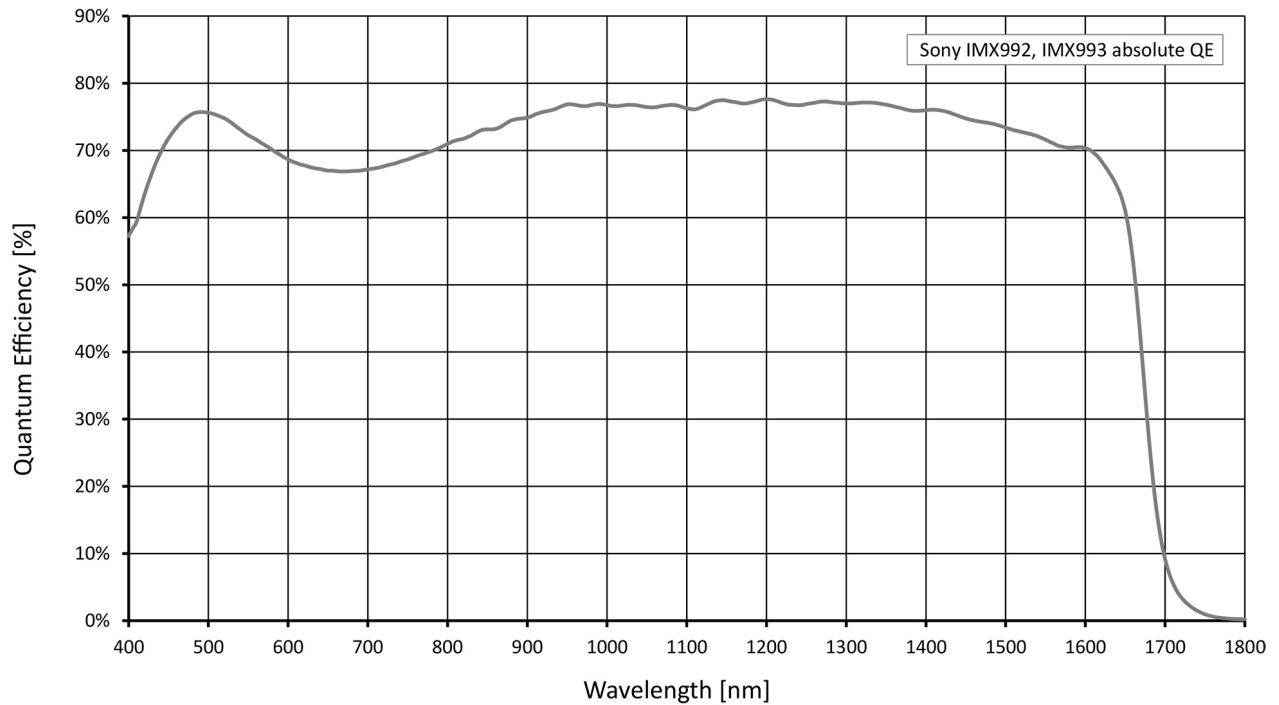
## General purpose inputs/outputs (GPIOs)

|          |                      |
|----------|----------------------|
| 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

### Image control: Other

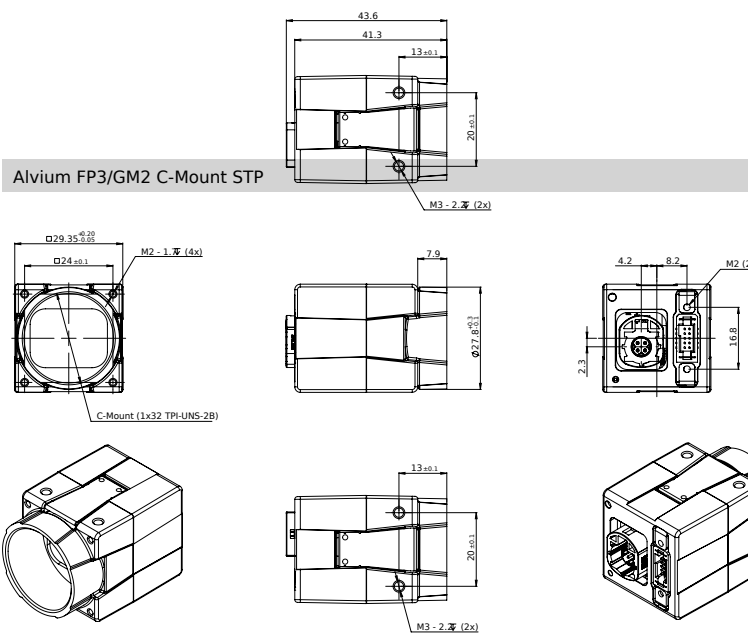
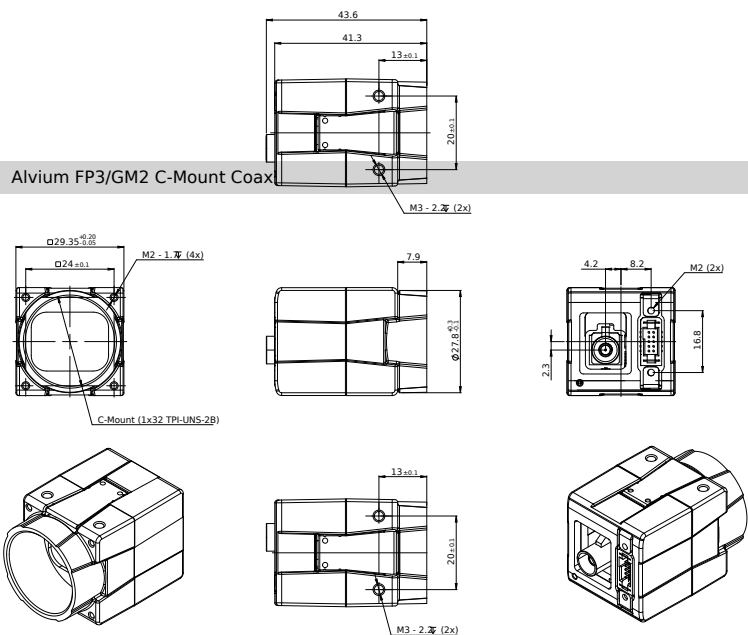
- Adaptive noise correction\*
- Binning (digital)
- Black level
- Contrast\*
- Custom convolution\*
- DPC (defect pixel correction)
- Gamma
- Lens shading correction\*
- LUT (look-up table)\*
- Reverse X/Y
- ROI (region of interest)
- Sharpness/Blur\*

### Camera control

- Acquisition frame rate
- Counters and timers\*
- Firmware update in the field
- I/O and trigger control
- Image chunk data\*
- Readout modes (SensorBitDepth)\*
- Serial I/Os\*
- Temperature monitoring
- User sets\*

\*GenICam for CSI-2 Access

## Technical drawing



## Applications

Alvium GM2-530 VSWIR cameras are sensitive in the visible and the SWIR spectrum and are well-suited for many typical SWIR applications in various industry branches:

- Semiconductor industry: Solar cell and chip inspection
- Recycling industry: Plastic sorting
- Medical imaging, sciences: Hyper- and multi-spectral imaging
- Glass industry: Defect detection through hot glass
- Agriculture industry: Airborne remote sensing
- Printing industry: Seeing hidden features
- Surveillance: Vision enhancement (for example, seeing through fog or haze)
- Security: Counterfeit detection (such as for money, faked hair, or skin)