

# Alvium

## 1800 U-291m



- IMX421 CMOS sensor
- ALVIUM image processing
- USB3 Vision
- Various hardware options

Hardware option: Bare Board Standard

### **Alvium 1800 U – Your entry into high-performance imaging**

Industrial USB cameras with attractive price-performance ratio

Alvium 1800 U-291 with Sony IMX421 runs 144.0 frames per second at 2.9 MP resolution.

Alvium 1800 U is your entry into high-performance imaging with ALVIUM® Technology for industrial applications. Equipped with the newest generation of sensors, these small and lightweight cameras deliver high image quality and frame rates at the best price-performance ratio. With its USB3 Vision compliant interface and industrial-grade hardware, it is your workhorse for different machine vision applications whether it is on a PC-based or an embedded system.

Easy software integration with **Vimba X** and compatibility to the most popular third party image-processing libraries.

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

## Specifications

|                                    |                               |
|------------------------------------|-------------------------------|
| Product code                       | 17218                         |
| Interface                          | USB3 Vision                   |
| Resolution                         | 1944 (H) × 1472 (V)           |
| Spectral range                     | 300 to 1100 nm                |
| Sensor                             | Sony IMX421                   |
| Sensor type                        | CMOS                          |
| Shutter mode                       | GS (Global shutter)           |
| Sensor size                        | Type 2/3                      |
| Pixel size                         | 4.5 µm × 4.5 µm               |
| Lens mounts (available)            | C-Mount, CS-Mount             |
| Max. frame rate at full resolution | 144 fps at 450 MByte/s, Mono8 |
| ADC                                | 12 Bit                        |
| Image buffer (RAM)                 | 256 KByte                     |
| Non-volatile memory (Flash)        | 1024 KByte                    |
| Quantum efficiency at 529 nm       | 73 %                          |
| Temporal dark noise                | 5.4 e <sup>-</sup>            |
| Saturation capacity                | 25000 e <sup>-</sup>          |
| Dynamic range                      | 72 dB                         |
| Absolute sensitivity threshold     | 6.2 e <sup>-</sup>            |

### Output

|                          |                                                  |
|--------------------------|--------------------------------------------------|
| Bit depth                | 8-bit, 10-bit, 12-bit; Adaptive (10-bit, 12-bit) |
| Monochrome pixel formats | Mono8, Mono10, Mono10p, Mono12, Mono12p          |

### General purpose inputs/outputs (GPIOs)

|          |                      |
|----------|----------------------|
| TTL I/Os | 4 programmable GPIOs |
|----------|----------------------|

### Operating conditions/dimensions

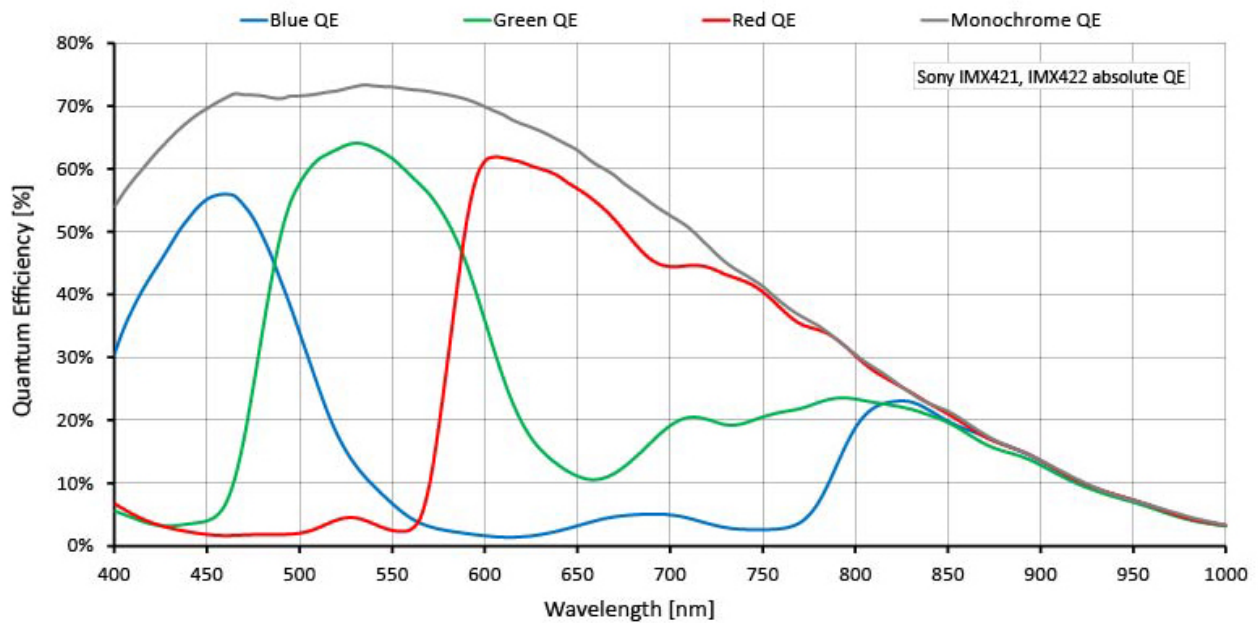
|                         |                                                 |
|-------------------------|-------------------------------------------------|
| Operating temperature   | -20 °C to +85 °C (cooling areas)                |
| Power requirements (DC) | Power over USB 3.1 Gen 1   External power 5.0 V |

Power consumption                      USB power: 1.9 W (typical) | Ext. power: 2.1 W (typical)

Mass                                              15 g

Body dimensions (L × W × H in mm)    14 × 26 × 26

## Quantum efficiency



## Features

### Image control: Auto

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

### Image control: Other

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

### Camera control

- Acquisition frame rate
- Bandwidth control
- Counters and timers
- Event channel
- Firmware update in the field
- I/O and trigger control
- Image chunk data
- Power Saving Mode
- Readout modes (SensorBitDepth)
- Sequencer
- Serial I/Os
- Temperature monitoring
- User sets

## Technical drawing

