

# Alvium

## 1800 U-291



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

Model without hardware options

### **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

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
YUV color pixel formats	YCbCr411_8_CbYYCrYY, YCbCr422_8_CbYCrY, YCbCr8_CbYCr
RGB color pixel formats	RGB8 (default), BGR8
Raw color pixel formats (Bayer)	BayerRG8, BayerRG10, BayerRG10p, BayerRG12, BayerRG12p

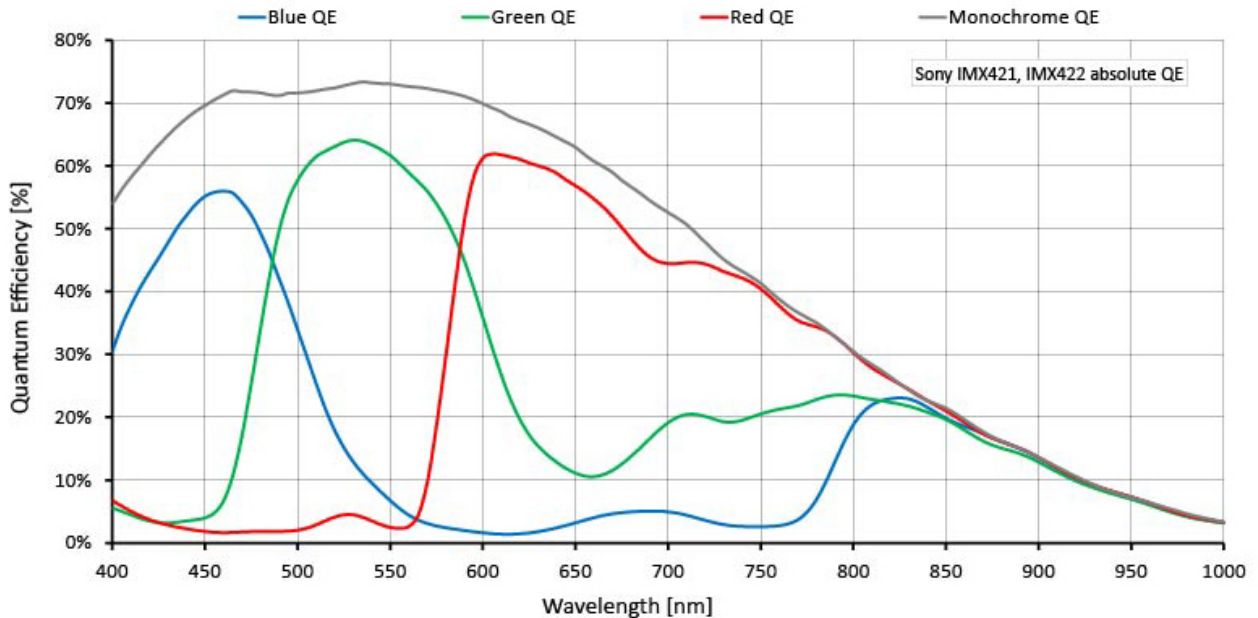
### General purpose inputs/outputs (GPIOs)

TTL I/Os	4 programmable GPIOs
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### Operating conditions/dimensions

Operating temperature	-20 °C to +65 °C (housing)
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	60 g
Body dimensions (L × W × H in mm)	38 × 29 × 29

### 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

