

Alvium

1800 U-2040



- IMX541 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-2040 with Sony IMX541 runs 21.0 frames per second at 20.4 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	4512 (H) × 4512 (V)
Spectral range	300 to 1100 nm
Sensor	Sony IMX541
Sensor type	CMOS
Shutter mode	GS (Global shutter)
Sensor size	Type 1.1
Pixel size	2.74 μm × 2.74 μm
Lens mounts (available)	C-Mount, CS-Mount
Max. frame rate at full resolution	21 fps at 450 MByte/s, Mono8
ADC	12 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	68 %
Temporal dark noise	2.3 e ⁻
Saturation capacity	9400 e ⁻
Dynamic range	70 dB
Absolute sensitivity threshold	2.9 e ⁻

Output

Bit depth	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

BayerRG8, BayerRG10, BayerRG10p, BayerRG12, BayerRG12p

General purpose inputs/outputs (GPIOs)

TTL I/Os 4 programmable GPIOs

Operating conditions/dimensions

Operating temperature -20 °C to +65 °C (housing)

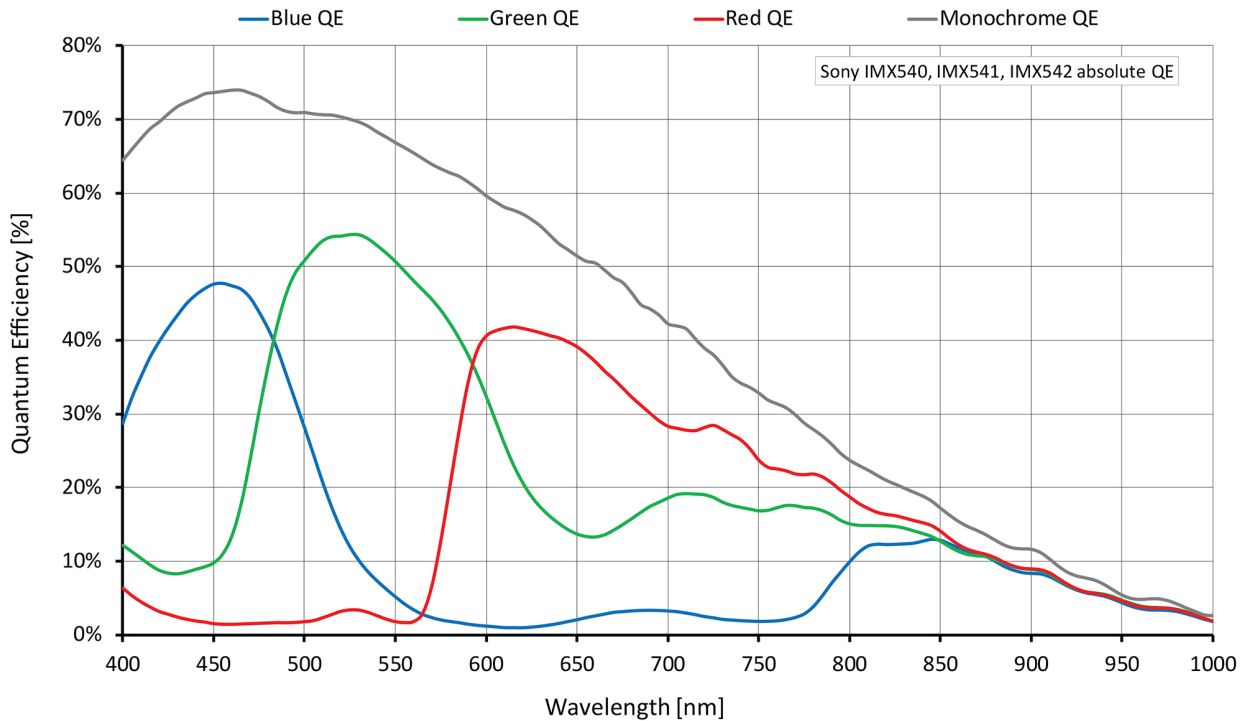
Power requirements (DC) Power over USB 3.1 Gen 1 | External power 5.0 V

Power consumption USB power: 3.9 W (typical) | Ext. power: 4.1 W (typical)

Mass 65 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
- 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
- Sequencer
- Serial I/Os
- Temperature monitoring
- U3 Power Saving Mode
- User sets

Technical drawing

