



Alvium 1800 U

-050

- PYTHON 480 CMOS sensor
- ALVIUM image processing
- USB3 Vision
- Various hardware options

Model without hardware options

Versatile USB camera with PYTHON 480 sensor

Alvium USB cameras are designed for use in both machine vision and embedded applications. Offering high image quality and reducing workload for the host, Alvium enables innovation among system designers. The innovative ALVIUM System on Chip (SoC) performs image corrections and preprocessing tasks onboard the camera instead of the host computer. Unlike FPGAs commonly used in machine vision cameras, the ALVIUM SoC is extremely power efficient. With Alvium, integrating hardware and software can be done effortlessly, which ultimately reduces development time. The ON Semi PYTHON 480 CMOS sensor enables imaging at 0.5 megapixel and 115 frames per second. Color models ship with an IR cut filter, monochrome and S-Mount models ship without a filter or protection glass.

Benefits and features

- Monochrome (1800 U-050m) and color (1800 U-050c) models
- ALVIUM® Technology for on-board image processing
- USB3 Vision interface for GenICam SFNC features
- Platform concept that enables the operation of different Alvium camera models with a common software
- Micro-B USB 3.1 Gen 1 connector with screw locks for industrial applications
- Precise sensor-to-lens mount alignment
- Standard M3 mounting holes for top and bottom mounting, standard M2 mounting holes for front mounting
- Industrial performance for both embedded and machine vision applications



Hardware options

- Housings: Bare board, open housing, or closed housing
- Various lens mounts: C-Mount, CS-Mount, or S-Mount
- USB connector position: Select between the back panel or the left side of the camera (seen from the sensor side).

For more information on hardware options, including product codes and technical data, such as technical drawings and mass, see the [Alvium Cameras Hardware Options](#) document.

Available accessories

- Tripod adapter
- USB 3.1 Gen 1 cable with screw connectors in various lengths
- I/O cables in various lengths
- Various lenses and Allied Vision S-Mount lenses with focal lengths 2.97 - 12 mm

Specifications

| Alvium 1800 U | -050 |
|------------------------------------|--------------------------------|
| Interface | USB3 Vision |
| Resolution | 808 (H) × 608 (V) |
| Spectral range | 300 to 1100 nm |
| Sensor | ON Semi PYTHON 480 |
| Sensor type | CMOS |
| Shutter mode | Global shutter |
| Sensor size | Type 1/3.6 |
| Pixel size | 4.8 μm × 4.8 μm |
| Lens mounts (available) | C-Mount, CS-Mount, S-Mount |
| Max. frame rate at full resolution | 115 fps at ≥200 MByte/s, Mono8 |
| ADC | 10 Bit |
| Image buffer (RAM) | 256 KB |
| Non-volatile memory (Flash) | 1024 KB |

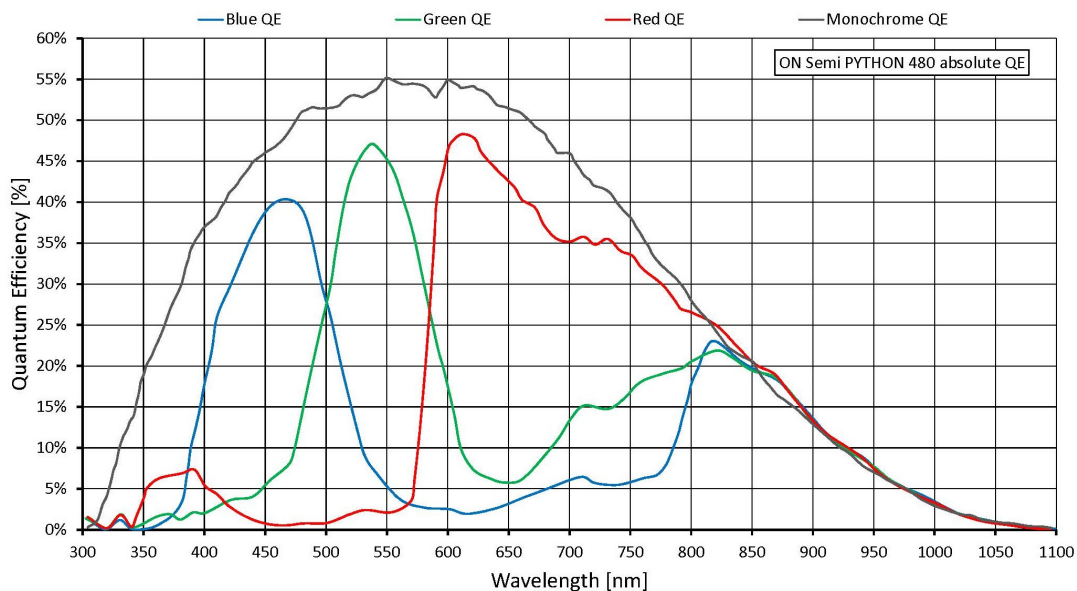
Imaging performance

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 | 53 % |
| Temporal dark noise | 14.5 e ⁻ |
| Saturation capacity | 7230 e ⁻ |
| Dynamic range | 54 dB |

| | |
|---|---|
| Alvium 1800 U | -050 |
| Absolute sensitivity threshold | 14.9 e ⁻ |
| Output | |
| Bit depth | Max. 10 Bit |
| Monochrome pixel formats | Mono8, Mono10 |
| YUV color pixel formats | YCbCr411_8_CbYYCrYY, YCbCr422_8_CbYCrY, YCbCr8_CbYCr |
| RGB color pixel formats | BayerGR8, BayerGR10, BayerGR10p, BGR8, RGB8 |
| General purpose inputs/outputs (GPIOs) | |
| TTL I/Os | 4 programmable GPIOs |
| Operating conditions/dimensions | |
| Operating temperature | +5 °C to +65 °C housing temperature |
| Power requirements (DC) | Power over USB 3.1 Gen 1 External power 5.0 V |
| Power consumption | USB power: 1.5 W (typical) Ext. power: 1.7 W (typical) |
| Mass | 15 g (bare board) |
| Body dimensions (L × W × H in mm) | 13 × 26 × 26 (bare board, standard), 13 × 30 × 26 (bare board, 90°) |
| Regulations | 2011/65/EU, including amendment 2015/863/EU (RoHS) |

Quantum efficiency





Features

Image control

Auto control

- Auto exposure
- Auto gain
- Auto white balance (color models)
- Auto features regions control
- Auto features algorithms control

Other image controls

- Black level
- Contrast
- De-Bayering up to 5×5 (color models)
- DPC (factory calibrated)
- Exposure time
- FPNC (factory calibrated)
- Gain
- Gamma
- Hue (color models)
- Region of interest (ROI)
- Reverse X/Y
- Saturation (color models)

Camera control

- Sync out modes: Trigger ready, input
- Temperature monitoring (sensor board)
- Test image
- LED luminance control
- Firmware update

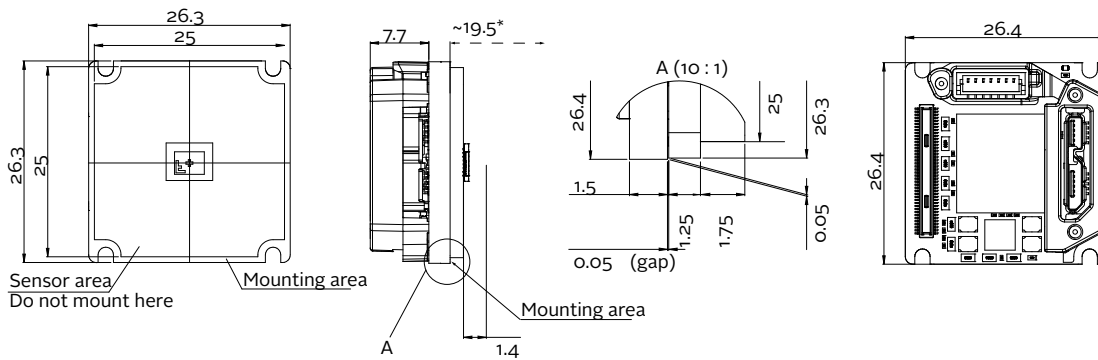
Technical drawing



Camera hardware options

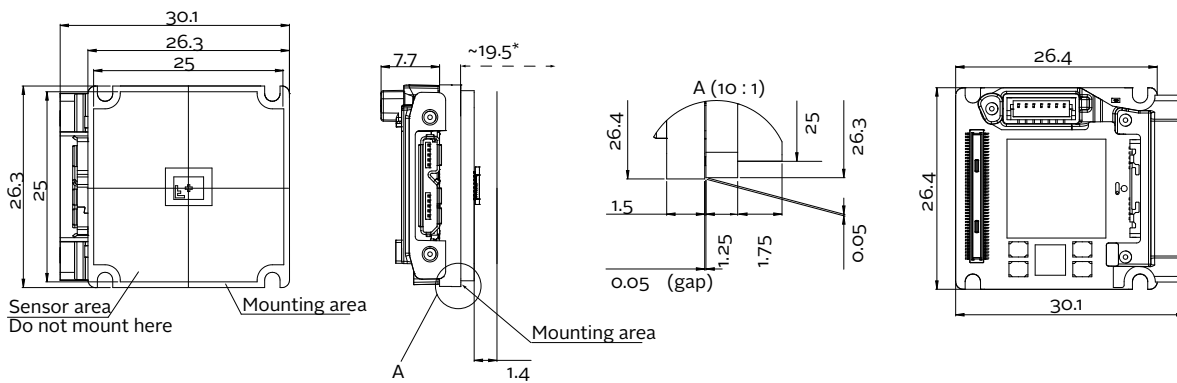
The [Alvium Cameras Hardware Options](#) document informs about submodels, such as bare board or open housing cameras with different lens mounts.

Bare Board



*Mechanical length for C-Mount, for other mounts and details, see the user guide.

Bare board 90°



*Mechanical length for C-Mount, for other mounts and details, see the user guide.