Allied Vision

Alvium
FP3-1236 Coax

- IMX304 CMOS sensor
- 12.4 MP resolution
- ALVIUM image processing
- FPD-Link III interface
- Various hardware options

Model without hardware options

Robust CSI-2 based Alvium cameras with FPD-Link III interface
Benefit from greater flexibility in cable lengths

Alvium FP3 Coax cameras with FPD-Link III (Flat Panel Display Link) interface have been designed to overcome the limitations of standard CSI-2 cameras. The closed housing CSI-2 based cameras come with integrated serializer and a rugged coaxial-based FAKRA connector for thin coax cables. With Alvium FP3 Coax, cable lengths up to 15 meters are possible. The coax cable can also be used to power the camera (Power over coax) enabling a single cable solution.

To operate Alvium FP3 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. All Alvium FP3 Coax 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 systems on chip (SoCs).

In addition to lens mount and housing options, see Customization and OEM Solutions webpage for additional options.

Specifications

Interface	FPD-Link III, based on MIPI CSI-2, up to 4 lanes
Resolution	4112 (H) × 3008 (V)
Spectral range	300 to 1100 nm
Sensor	Sony IMX304
Sensor type	CMOS
Shutter mode	GS (Global shutter)
Sensor size	Type 1.1
Pixel size	3.45 µm × 3.45 µm
Lens mounts (available)	C-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

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	64 %
Temporal dark noise	2.1 e$^-$
Saturation capacity	10400 e$^-$
Dynamic range	72 dB
Absolute sensitivity threshold	2.7 e$^-$

Output

Bit depth	12-bit
Monochrome pixel formats	GenICam for CSI-2 Access: Mono8, Mono10, Mono10p, Mono12, Mono12p
YUV color pixel formats	YUV422 8-bit (UYVY) [MIPI CSI-2 (FOURCC)] | GenICam for CSI-2 Access: YCbCr411_8_CbYYCrYY, YCbCr422_8_CbYCrY, YCbCr8_CbYCr

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RGB color pixel formats	RBG888 (RGB3) [MIPI CSI-2 (FOURCC)] | GenICam for CSI-2 Access: BayerRG8, BayerRG10, BayerRG10p, BayerRG12, BayerRG12p, BGR8, RGB8
Raw pixel formats	RAW8 (GREY), RAW10 (Y10), RAW12 (Y12) [MIPI CSI-2 (FOURCC)]

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
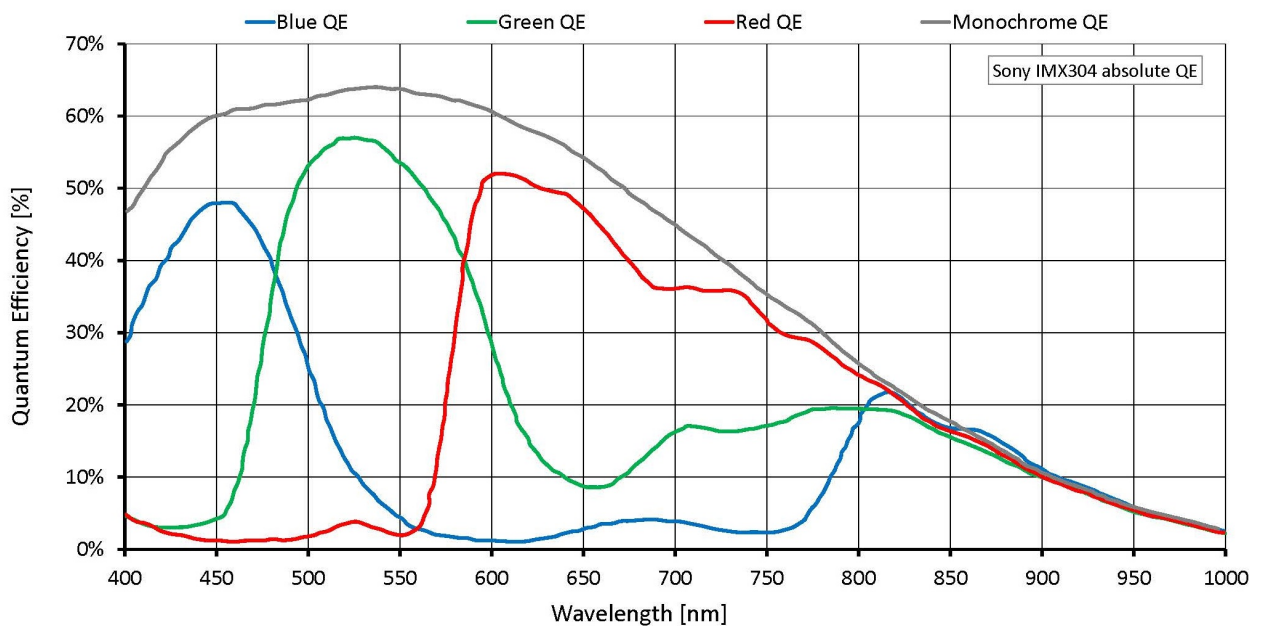
Features

Image control: Auto

- Auto exposure
- Auto gain
- 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
- Serial I/Os*
- Temperature monitoring
- User sets*

*GenICam for CSI-2 Access

43.6

41.3

13 ±0.1

20 ±0.1

M3 - 2.2 (2x)

□29.35 +0.20 / -0.05

□24 ±0.1

M2 - 1.7 (4x)

C-Mount (1x32 TPI-UNS-2B)

7.9

Ø 27.8 +0.3 / -0.1

4.2

8.2

M2 (2x)

2.3

16.8

13 ±0.1

20 ±0.1

M3 - 2.2 (2x)