

Alvium

FP3-291



- IMX421 CMOS sensor
- ALVIUM image processing
- FPD-Link III interface
- Various hardware options

Model without hardware options

Alvium FP3: Benefit from greater flexibility in cable lengths

Robust CSI-2 based Alvium cameras with FPD-Link III interface

Alvium FP3 cameras with FPD-Link III (Flat Panel Display Link) interface have been designed to overcome the limitations of standard CSI-2 cameras. With a large choice of over 30 high-quality CMOS global and rolling shutter sensors Allied Vision is offering the broadest variety of FPD-Link III cameras in the market. The CSI-2 based closed housing cameras come with an integrated serializer, 2 GPIOs (General Purpose Input/Output) on the camera, and two rugged interface connectors to choose from.

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. Alvium FP3 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 system on chips (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	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	Mainly depends on hardware and register settings
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 ⁻
Saturation capacity	25000 e ⁻
Dynamic range	72 dB
Absolute sensitivity threshold	6.2 e ⁻

Output

Bit depth	8-bit, 10-bit, 12-bit; Adaptive (10-bit, 12-bit)
Monochrome pixel formats	PFNC: Mono8, Mono10, Mono10p, Mono12, Mono12p CSI-2: RAW8, RAW10, RAW12 FOURCC: GREY, Y10, Y12
YUV color pixel formats	PFNC: YCbCr411_8_CbYYCrYY, YCbCr422_8_CbYCrY, YCbCr8_CbYCr CSI-2: YUV422 8-bit FOURCC: UYVY
RGB color pixel formats	PFNC: RGB8 (default), BGR8 CSI-2: RGB888 (default) FOURCC: RGB3
Raw color pixel formats (Bayer)	PFNC: BayerGR8, BayerGR10, BayerGR10p, BayerGR12, BayerGR12p

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)*
- Reverse X/Y
- ROI (region of interest)
- Sharpness/Blur*

Camera control

- Acquisition frame rate
- Counters and timers*
- Firmware update in the field
- I/O and trigger control
- Image chunk data*
- Readout modes (SensorBitDepth)*
- Serial I/Os*
- Temperature monitoring
- User sets*

*GenICam for CSI-2 Access

Technical drawing

