Robust CSI-2 based Alvium cameras with GMSL2 interface

Benefit from greater flexibility in cable lengths

Alvium GM2 Coax cameras with GMSL2 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 GM2 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 GM2 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 GM2 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.
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<th>Specifications</th>
<th>Details</th>
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<tr>
<td>Interface</td>
<td>GMSL2, based on MIPI CSI-2, up to 4 lanes</td>
</tr>
<tr>
<td>Resolution</td>
<td>2848 (H) × 2848 (V)</td>
</tr>
<tr>
<td>Spectral range</td>
<td>300 to 1100 nm</td>
</tr>
<tr>
<td>Sensor</td>
<td>Sony IMX546</td>
</tr>
<tr>
<td>Sensor type</td>
<td>CMOS</td>
</tr>
<tr>
<td>Shutter mode</td>
<td>GS (Global shutter)</td>
</tr>
<tr>
<td>Sensor size</td>
<td>Type 2/3</td>
</tr>
<tr>
<td>Pixel size</td>
<td>2.74 µm × 2.74 µm</td>
</tr>
<tr>
<td>Lens mounts (available)</td>
<td>C-Mount, CS-Mount</td>
</tr>
<tr>
<td>Max. frame rate at full resolution</td>
<td>Mainly depend on hardware and register settings.</td>
</tr>
<tr>
<td>ADC</td>
<td>12 Bit</td>
</tr>
<tr>
<td>Image buffer (RAM)</td>
<td>256 KByte</td>
</tr>
<tr>
<td>Non-volatile memory (Flash)</td>
<td>1024 KByte</td>
</tr>
<tr>
<td>Output</td>
<td></td>
</tr>
<tr>
<td>Bit depth</td>
<td>12-bit</td>
</tr>
<tr>
<td>YUV color pixel formats</td>
<td>YUV422 8-bit (UYVY) [MIPI CSI-2 (FOURCC)]</td>
</tr>
<tr>
<td>RGB color pixel formats</td>
<td>RGB888 (RGB3) [MIPI CSI-2 (FOURCC)]</td>
</tr>
<tr>
<td>Raw pixel formats</td>
<td>RAW8 (GREY), RAW10 (Y10), RAW12 (Y12) [MIPI CSI-2 (FOURCC)]</td>
</tr>
<tr>
<td>General purpose inputs/outputs (GPIOs)</td>
<td></td>
</tr>
<tr>
<td>TTL I/Os</td>
<td>2 programmable GPIOs</td>
</tr>
<tr>
<td>Operating conditions/dimensions</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-20 °C to +65 °C (housing)</td>
</tr>
<tr>
<td>Power requirements (DC)</td>
<td>5 VDC over MIPI CSI-2</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Value for the integrated serializer adds to CSI-2 model value.</td>
</tr>
<tr>
<td>Mass</td>
<td>70 g</td>
</tr>
<tr>
<td>Body dimensions (L × W × H in mm)</td>
<td>41 × 29 × 29</td>
</tr>
</tbody>
</table>
Quantum efficiency

![Quantum Efficiency Graph](image)

Sony IMX540, IMX541, IMX542 absolute QE
## Features

### Image control: Auto
- Auto exposure
- Auto gain
- Auto white balance (color models)

### Image control: Other
- Black level
- Color transformation (incl. hue, saturation; color models)
- De-Bayering up to 5x5 (color models)
- DPC (defect pixel correction)
- FPNC (fixed pattern noise correction)
- Gamma
- Reverse X/Y
- ROI (region of interest)

### Camera control
- Acquisition frame rate
- Firmware update in the field
- I/O and trigger control
- Temperature monitoring