1.2 megapixel machine vision camera for extreme environments

Prosilica GT1290 is a 1.2 megapixel camera with a GigE Vision compliant Gigabit Ethernet port and Hirose I/O port. Prosilica GT1290 is offered in both monochrome and color models. This camera incorporates the high-quality Type 1/3 (6.0 mm diagonal) Sony ICX445 EXview HAD CCD sensor providing excellent monochrome and color image quality. The EXview HAD CCD is a sensor that drastically improves light efficiency by including near infrared light region as a basic structure of HAD (Hole-Accumulation Diode) sensor. At full resolution, this camera runs 33.3 frames per second. With a smaller region of interest, higher frame rates are possible. It is a robust camera designed to operate in extreme environments and fluctuating lighting conditions. This camera offers Precise iris lens control allowing users to fix the aperture size to optimize depth of field, exposure, and gain without the need for additional control elements. By default monochrome models ship with no optical filter and color models ship with a Type IRC30 IR cut filter.

Benefits and features

- Monochrome (GT1290) and color (GT1290C) models
- GigE Vision interface with Power over Ethernet
- Screw mount RJ45 Ethernet connector for secure operation in industrial environments
- Supports cable lengths up to 100 meters (CAT-6 recommended)
- Trigger over Ethernet Action Commands allow for a single cable solution to reduce system costs
- Comprehensive I/O functionality for simplified system integration
- Popular C-Mount lens mount
- Easy camera mounting via standard M3 threads or optional tripod adapter
- Easy software integration with Allied Vision's Vimba Suite and compatibility to the most popular third party image-processing libraries.
Hardware options

- Various lens mounts: Select between C-Mount CS-Mount, F-Mount, EF-Mount Birger, or M42-Mount
- Various optical filters: Select between B 270 ASG protection glass and filter types: IRC30 IR cut filter, RG715 IR pass filter, or RG830 IR pass filter.

See the Modular Concept for lens mount and optical filters options. See the Customization and OEM Solutions webpage for additional options.

Specifications

<table>
<thead>
<tr>
<th>Prosilica GT</th>
<th>1290</th>
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</thead>
<tbody>
<tr>
<td>Interface</td>
<td>IEEE 802.3 1000BASE-T, IEEE 802.3af (PoE)</td>
</tr>
<tr>
<td>Resolution</td>
<td>1280 (H) × 960 (V)</td>
</tr>
<tr>
<td>Spectral range</td>
<td>300 to 1100 nm</td>
</tr>
<tr>
<td>Sensor</td>
<td>Sony ICX445</td>
</tr>
<tr>
<td>Sensor type</td>
<td>CCD Progressive</td>
</tr>
<tr>
<td>Shutter mode</td>
<td>Global shutter</td>
</tr>
<tr>
<td>Sensor size</td>
<td>Type 1/3</td>
</tr>
<tr>
<td>Pixel size</td>
<td>3.75 µm × 3.75 µm</td>
</tr>
<tr>
<td>Lens mounts (available)</td>
<td>C-Mount, CS-Mount, F-Mount, Birger EF-Mount, M42-Mount</td>
</tr>
<tr>
<td>Max. frame rate at full resolution</td>
<td>33.3 fps</td>
</tr>
<tr>
<td>ADC</td>
<td>14 Bit</td>
</tr>
<tr>
<td>Image buffer (RAM)</td>
<td>128 MByte</td>
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</table>

**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 at full resolution without optical filter.

- Quantum efficiency at 529 nm: 56 %
- Temporal dark noise: 9.6 e⁻
- Saturation capacity: 8400 e⁻
- Dynamic range: 58.3 dB
- Absolute sensitivity threshold: 10.1 e⁻

**Output**

- Bit depth: 12/14 Bit
- Monochrome pixel formats: Mono8, Mono12, Mono12Packed, Mono14
- YUV color pixel formats: YUV411Packed, YUV422Packed, YUV444Packed
- RGB color pixel formats: RGB8Packed, BGR8Packed
- Raw pixel formats: BayerRG8, BayerRG12, BayerRG12Packed
### General purpose inputs/outputs (GPIOs)

<table>
<thead>
<tr>
<th>TTL I/Os</th>
<th>1 input, 2 outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opto-isolated I/Os</td>
<td>1 input, 2 outputs</td>
</tr>
<tr>
<td>RS232</td>
<td>1</td>
</tr>
</tbody>
</table>

### Operating conditions/dimensions

- **Operating temperature**: -20 °C to +65 °C ambient (without condensation)
- **Power requirements (DC)**: 7 to 25 VDC AUX or IEEE 802.3at Type 1 PoE
- **Power consumption**: External power: 2.9 W at 12 VDC | Power over Ethernet: 3.5 W
- **Mass**: 211 g
- **Body dimensions (L × W × H in mm)**: 86 × 53.3 × 33 (including connectors)
- **Regulations**: CE: 2014/30/EU (EMC), 2011/65/EU, including amendment 2015/863/EU (RoHS); FCC Class A; CAN ICES-3 (A)

### Quantum efficiency

![Quantum efficiency graph](chart.png)

**Features**

**Image optimization features:**

- Auto gain (manual gain control: 0 to 33 dB; 1 dB increments)
- Auto exposure (manual exposure control: 12 µs to 77.3 s; 1 µs increments)
• Auto white balance (GT1290C only)
• Binning (horizontal and vertical)
• Color correction, hue, saturation (GT1290C only)
• Decimation X/Y
• Gamma correction
• Three look-up tables
• Region of interest, separate region for auto features

Camera control features:

• P-Iris and DC-Iris lens control
• Event channel
• Image chunk data
• IEEE 1588 Precision Time Protocol
• RS232
• Storable user sets
• StreamBytesPerSecond (bandwidth control)
• Stream hold
• Sync out modes: Trigger ready, input, exposing, readout, imaging, strobe, GPO
• Temperature monitoring (main board and sensor board)
• Trigger over Ethernet Action Commands
Technical drawing
Applications

Prosilica GT1290 is ideal for a wide range of applications including:

- Outdoor imaging
- Traffic imaging and Intelligent Traffic Systems
- Public security and surveillance
- Industrial inspection
- Machine vision
- Military and space applications