



Goldeye Pro

G5-320 VSWIR TEC1

- IMX993 SenSWIR sensor
- 5GigE Vision
- Power over Ethernet
- Compact industrial design
- No fan
- Visible and SWIR sensitivity

Excellence in SWIR image quality

High-resolution short-wave infrared (SWIR) cameras with thermo-electric sensor cooling (TEC)

Goldeye Pro G5-320 VSWIR TEC1 with Sony IMX993 | InGaAs runs 159 frames per second at 3.2 MP resolution.

Goldeye Pro cameras are designed to leverage your SWIR vision system to the next level regarding throughput, quality, and imaging performance. The 5 GBit/s GigE Vision compliant interface optimally supports the bandwidth requirements of latest SWIR sensor solutions. An efficient thermoelectric cooling (TEC) stabilizes the sensor temperature and several on-board image correction features facilitate the output of an outstanding and reproducible image quality. Goldeye Pro supports multiple mounting options to let the camera fit easily into space-constraint systems.

GenICam-compliant feature control and **Vimba X SDK** with its comprehensive GUI viewer application provide you a plug-and-play feeling. This simplifies integrating Goldeye Pro cameras into software solutions, even if you are using typical third-party image processing libraries.

AcquireControl adds extensive image analysis functions, such as:

- Pseudo color LUT with several color profiles
- Auto contrast
- Auto brightness
- Analyze multiple regions (rectangular, circle) within the image
- Real-time statistics and histogram display

The **Modular Concept** offers various options for housing designs, optical filters, sensors with removed cover glass and more. See the **Customization and OEM Solutions webpage** for additional options.

Specifications

| | |
|------------------------------------|---|
| Interface | IEEE 802.3: 5GBASE-T or 2.5GBASE-T (NBASE-T) and 1000BASE-T, IEEE 802.3af Power Class 0 PoE |
| Resolution | 2080 (H) × 1544 (V) |
| Spectral range | 400 nm to 1700 nm |
| Sensor | Sony IMX993 InGaAs |
| Sensor type | InGaAs |
| Shutter mode | GS (Global shutter) |
| Sensor size | Type 1/1.8 VSWIR |
| Pixel size | 3.45 µm × 3.45 µm |
| Lens mount (default) | C-Mount |
| Max. frame rate at full resolution | 159 fps at 525 MByte/s, Mono8 |
| ADC | 12 Bit |
| Image buffer (RAM) | 256 MByte |
| Non-volatile memory (Flash) | ≈ 4 GByte (eMMC), 32 MByte (Flash) |
| Cooling temperature | +20 °C (default) +5 °C, +35 °C, +50 °C User configurable |
| Dark current | 8.9 ke ⁻ /s (at +20 °C FPA temperature) |
| Temporal dark noise | 183 e ⁻ (0 dB), 166 e ⁻ (18 dB) |
| Saturation capacity | 72.1 ke ⁻ (0 dB), 4.0 ke ⁻ (18 dB) |
| Dynamic range | 51.9 dB (0 dB), 27.6 dB (18 dB) |

Output

| | |
|--------------------------|--|
| Bit depth | 10-bit; 12-bit |
| Monochrome pixel formats | Mono8, Mono10, Mono10p, Mono10Packed Mono12 (default), Mono12p, Mono12Packed, Mono14, Mono16 |

General purpose inputs/outputs (GPIOs)

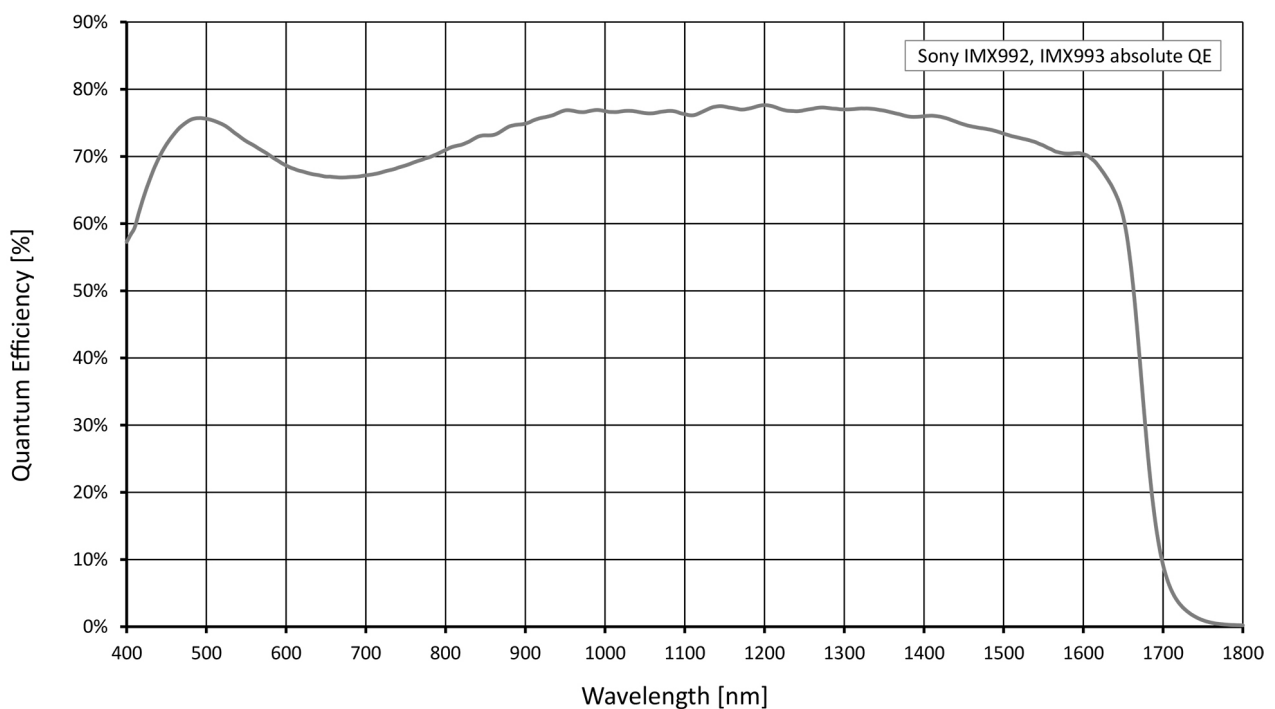
| | |
|--------------------|---------------------------|
| TTL I/Os | 4 bidirectional I/O lines |
| Opto-isolated I/Os | 1 input, 3 outputs |

Operating conditions/dimensions

| | |
|-----------------------|--------------------------|
| Operating temperature | 0 °C to +55 °C (housing) |
|-----------------------|--------------------------|

| | |
|---|--|
| Power requirements (DC) | 12 VDC to 24 VDC ($\pm 10\%$) or via PoE |
| Power consumption | Max: 11.5 W (12 VDC); 11.9 W (24 VDC); 12.5 W (PoE) Values for series production will be lower. |
| Mass | 350 g |
| Body dimensions (L \times W \times H in mm) | 78 \times 55 \times 55 |

Quantum efficiency



Features

Image control

- Black level
- DPC (defect pixel correction)
- High Conversion Gain
- NUC (non-uniformity correction)
- ROI (regions of interest)
- Speed-to-noise priority (IntegrationMode)

Camera control

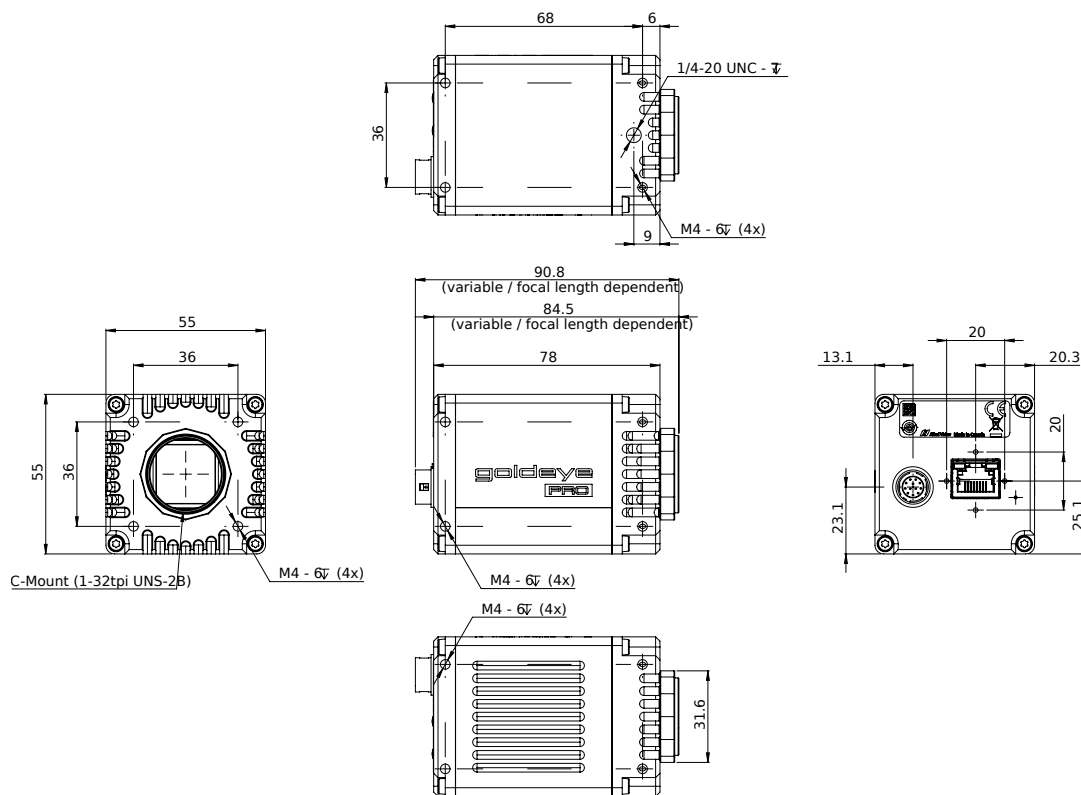
- Acquisition frame rate
- Bandwidth control
- Firmware update in the field
- I/O and trigger control
- Readout modes (SensorBitDepth)
- User sets

Sensor temperature control

- Temperature monitoring
- Sensor temperature control (automatic or manual)

Please note: Future firmware versions will add new features, such as: Look-up tables (LUT) or Binning. Please check our [firmware downloads webpage](#) for latest firmware versions or [contact our support team](#) to obtain a FW update.

Technical drawing



Applications

Goldeye Pro cameras with Sony IMX99x SenSWIR sensor technology are very sensitive in the SWIR and visible spectrum (400 nm - 1,700 nm). They can be used in an extended operating temperature range. Thanks to TEC cooling and integrated image correction, Goldeye Pro cameras achieve an outstanding image quality with low noise. They are well-suited for many typical SWIR applications in various industry branches:

- Semiconductor industry: Solar cell and chip inspection
- Recycling industry: Plastics sorting
- Medical and scientific imaging: Hyperspectral imaging, microscopy, OCT
- Metal and glass industry: Thermal imaging of hot objects (250 °C to 800 °C)
- Agriculture industry: Airborne remote sensing
- Printing industry: Banknote inspection
- Electronics industry: Laser beam profiling
- Surveillance and security: Vision enhancement (e.g., through fog or night vision)
- ... and many more

To learn more about typical applications for SWIR cameras, download the [SWIR brochure](#).