Allied Vision

// GOLDEYE SWIR CAMERAS

Machine Vision short-wave infrared cameras

Save time and money to integrate the camera into your system: A compact form factor and multiple mounting options let the camera fit easily into compact system designs. In addition standardized interfaces (GigE Vision including PoE or Camera Link) and comprehensive I/O control options simplify the connection to your software solution and the synchronization with other system components.

Highlights

// High frame rates at multiple resolutions
// Camera Link or GigE Vision interface
// Comprehensive I/O control options
// Automated on-board image correction
// Stabilized sensor cooling, no fan
// Extended operating temperature range

Make use of the locking functionalities provided at all connectors to increase the reliability of your system. Capture outstanding low-noise images under low-light conditions with extended exposure times or in high dynamic scenes. The integrated thermo-electric senor cooling (TEC) and several on-board image correction features are your key factors to see more beyond the visible.

Model	Resolution	Frame rate	Pixel size	Sensitive area	Cooling power	Size [WxHxL, in mm]	Weight
Goldeye G/CL-008 SWIR TEC1	320 x 256	344 fps	30 µm	9.6 mm x 7.68 mm	max ΔT= 25 K	55 x 55 x 78	< 420 g
Goldeye G/CL-032 SWIR TEC1	636 x 508	100 fps	25 µm	15.9 mm x 12.7 mm	max. ΔT= 30 K	55 x 55 x 78	< 420 g
Goldeye G/CL-033 SWIR TEC1	640 x 512	301 fps	15 µm	9.6 mm x 7.68 mm	max. ΔT= 25 K	55 x 55 x 78	< 420 g
Goldeye G-032 SWIR Cool TEC2	636 x 508	100 fps	25 µm	15.9 mm x 12.7 mm	max. ΔT= 60 K	80 x 80 x 90	< 860 g

Options

The modular design concept of the new Goldeye enables to equip the camera easily with different mounting options (C-, F-, or M42-mount) and various wavelength filters.

For applications requiring very long exposure times a scientific-grade version with extended sensor cooling (TEC2) is available. Due to the integrated Nitrogen cooling chamber and fan the dimensions of these cameras are slightly larger.

Smart Features

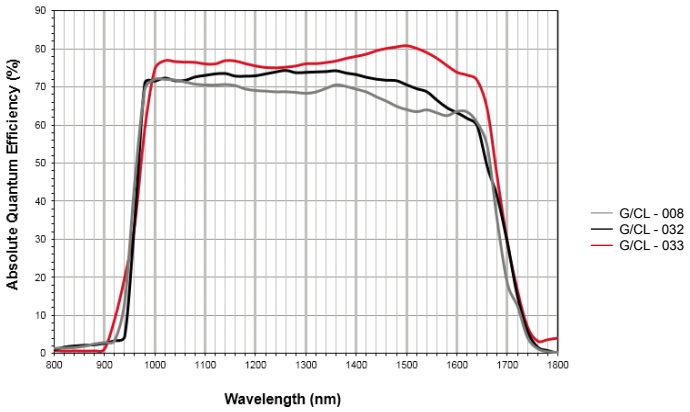
// Multiple acquisition modes: SingleFrame, MultiFrame, Continuous, or RecorderMode
// ROI settings for frame rate and data rate control
// High analog gain mode to increase sensitivity
// Built-in image correction for optimized image quality:
- Background correction
- Defect Pixel correction
- Non-uniformity correction (NUC) with automatic adaption

// Look-up tables (LUTs) to increase contrast
// User sets for simplified camera setup
// Digital binning to increase sensitivity

Operating Conditions

Power requirements	DC 10.8 ... 30 V
Power consumption	5 W to 12.95 W with TEC1 up to 22 W with TEC2 active
Operating temperature	-20 °C ... +55 °C case temp.
Storage temperature	-30 °C ... +70 °C case temp.
Regulations	CE incl. RoHS (2011/65/EU)
Pixel operability	> 99.5 %

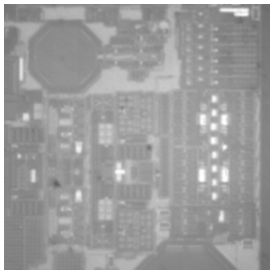
Spectral Sensitivity

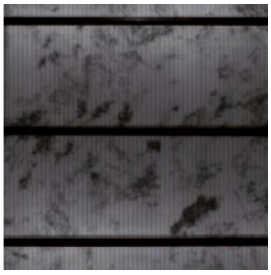


Applications

Goldeye cameras with InGaAs sensor technology enables you to see further into the infrared spectral range than classic CCD/CMOS cameras. Due to the cameras' high sensitivity in a range between 900 – 1700 nm new applications become possible. High frame rates at full resolution and the possibility to increase the frame rate even more by selecting a smaller ROI enable you to access versatile application fields and to speed up your processes.

Semiconductor/ Solar Cell Inspection



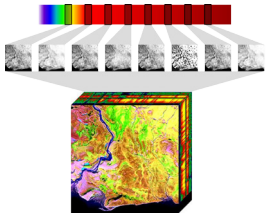


At wavelengths above 1100 nm silicon becomes transparent. Thus, SWIR cameras are perfect for analyzing metallization and electrical contact errors on the backside of wafers.
In addition, light emitted by silicon has a peak at 1150 nm. Therefore, luminescence imaging helps to identify non-uniformities in solar cells by forcing it to emit light:

// Electroluminescence (EL), a solar cell emits light in response to electric current flow

// Photoluminescence (PL), a solar cell emits light in response to being exposed to light

Hyperspectral Imaging



Each inorganic material has a different chemical composition and crystalline structure resulting in an unique spectral response corresponding to its specific light absorption characteristics.

Hyperspectral Imaging combines digital imaging with spectroscopy to obtain detailed information across multiple ranges of the electromagnetic spectrum. Application fields can be found especially in Recycling & Plastic Sorting and Geology & Mineral Inspection.

Further Applications

// Agriculture: Airborne Remote Sensing (UAVs)
// Food Inspection
// Moisture Detection
// Laser Beam Profiling
// Print industry: Banknote inspection
// Glass Production
// Scientific & Medical: Hyperspectral Imaging, Microscopy, OCT
// Vision enhancement and many more...

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