Allied Vision

// Goldeye G/CL-130 TEC1
// Goldeye G/CL-030 TEC1

Machine Vision
VIS-SWIR cameras

Allied Vision's Goldeye SWIR cameras are designed to fulfill the highest quality standards. Every component in the camera was carefully selected to provide a robust vision solution. A small 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.

These two new models incorporate innovative Sony SenSWIR sensors which have a wide waveband from 400 nm to 1700 nm allowing imaging in both visible and SWIR spectrums. The integrated single-stage sensor cooling (TEC1) and several on-board image correction features are your key factors to see more beyond the visible with outstanding image quality.

New Models	Sensor Model	Resolution	Frame Rate	Pixel Size	Optical Format	Cooling Power	Weight
Goldeye G/CL-030 TEC1	Sony IMX991 SenSWIR	656 x 520	234 fps	5 µm	Type 1/4	max. ΔT=25 K	< 344 g
Goldeye G-130 TEC1	Sony IMX990 SenSWIR	1280 x 1024	94 fps	5 µm	Type 1/2	max. ΔT=25 K	344 g
Goldeye CL-130 TEC1	Sony IMX990 SenSWIR	1280 x 1024	100 fps	5 µm	Type 1/2	max. ΔT=25 K	324 g

Smart Features

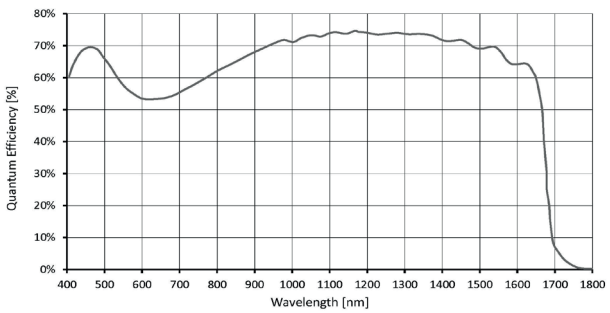
// Multiple acquisition modes: SingleFrame, MultiFrame, Continuous, or RecorderMode
// ROI settings for frame rate and data rate control
// High analog gain mode to increase sensitivity
// Built-in image correction for optimized image quality:
- Non-uniformity correction with automatic adaption
- Defect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

// Look-up tables to increase contrast
// User sets for simplified camera setup
// Digital binning to increase sensitivity
// Auto Gain & Contrast

Camera Highlights

// High visible & SWIR sensitivity
// Camera Link or GigE Vision interface
// Comprehensive I/O control options
// Automated on-board image correction
// Stabilized sensor cooling, fan-less design
// Extended operating temperature range

Absolute Quantum Efficiency



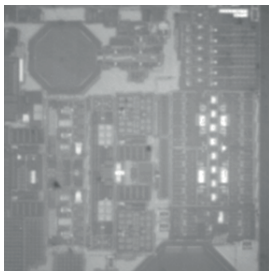
Operating Conditions

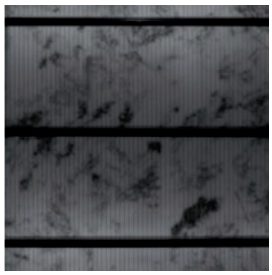
Power requirements	10.8 to 30 VDC	Storage temperature	-30 °C to +70 °C (ambient)
Power consumption	<11.8 W with TEC1 enabled	Regulations	CE, RoHS, FCC Class B, CAN ICES-3 (B)
Operating temperature	-20 °C to +55 °C (case temperature)	Pixel operability	> 99.5 %

Applications

Goldeye cameras with Sony SenSWIR InGaAs sensors enable you to see further into the infrared spectral range than classic CCD/CMOS cameras. Due to the sensor's high quantum efficiency between 400 to 1700 nm many SWIR application fields can benefit from the visible light sensitivity by enabling single camera solutions with lower system costs. In addition, the 5 µm pixel size enables higher inspection precision.

Semiconductor / Solar Cell inspection





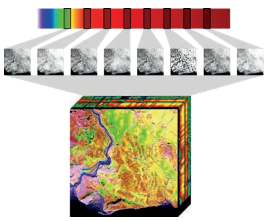
At wavelengths above 1100 nm silicon becomes transparent. Thus, SWIR cameras are perfect for analyzing metallization and electrical contact errors on the backside of wafers.

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: a solar cell emits light in response to electric current flow.

// Photoluminescence: 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. Popular application fields include recycling & plastic sorting and geology & mineral inspection.

Further Applications

// Agriculture such as airborne remote sensing
// Food inspection
// Moisture detection
// Laser beam profiling
// Print industry, for example banknote inspection
// Glass production
// Scientific and medical including hyperspectral imaging, microscopy, and optical coherence tomography
// Vision enhancement and many more...

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