



Mako G

G-419B NIR

- CMOSIS/ams NIR enhanced sensor
- Power over Ethernet
- Trigger over Ethernet
- IEEE 1588 PTP

CMOSIS/ams CMV4000 sensor, NIR optimized, global shutter

Mako G-419B NIR is a 4.2 megapixel GigE machine vision camera that incorporates the high quality Type 1 (16.0 mm diagonal) CMOSIS/ams CMV4000 CMOS NIR enhanced sensor. At full resolution, this camera runs 26.3 frames per second. With a smaller region of interest, higher frame rates are possible.

Mako G cameras have an ultra-compact form factor and the same mounting positions as many analog cameras. All models include Power over Ethernet (PoE), three opto-isolated outputs, and a 64 MB image buffer. The image quality profits from the precisely aligned sensor. By default NIR models ship with no optical filter.

Benefits and features:

- 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-5e or CAT-6)
- Comprehensive I/O functionality for simplified system integration
- IEEE 1588 Precision Time Protocol (PTP) allows for easy synchronization of multiple cameras and devices on network
- Trigger over Ethernet (ToE) Action Commands allow for a single cable solution to reduce system cost
- Popular C-Mount lens mount
- Easy camera mounting via standard M3 threads on top and bottom of housing or optional tripod adapter
- Easy software integration with Allied Vision's [Vimba SDK](#) and compatibility to the most popular [third party image-processing libraries](#).
- Defect pixel masking feature with the Defect Mask Loader tool that allows you to manage a user defined defective pixel list to match your application and optimize the life cycle of the camera.
- Available with protection glass, IR cut filter, or IR pass filter

See the [Modular Concept](#) for lens mount and optical filter options.



See the [Customization and OEM Solutions](#) webpage for additional options.

Specifications

| Mako G | G-419B NIR |
|---|---|
| Interface | IEEE 802.3 1000BASE-T, IEEE 802.3af (PoE) |
| Resolution | 2048 (H) × 2048 (V) |
| Sensor | CMOSIS/ams CMV4000 NIR |
| Sensor type | CMOS |
| Shutter mode | Global shutter |
| Sensor size | Type 1 |
| Pixel size | 5.5 μm × 5.5 μm |
| Lens mounts (available) | C-Mount, CS-Mount, F-Mount |
| Max. frame rate at full resolution | 26.3 fps |
| ADC | 12 Bit |
| Image buffer (RAM) | 64 MByte |
| 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 NIR models measured at full resolution without optical filter. Contact Sales or AE for more information. | |
| Quantum efficiency at 529 nm | 79 % |
| Quantum efficiency at 850 nm | 44 % |
| Temporal dark noise | 13.6 e ⁻ |
| Saturation capacity | 9500 e ⁻ |
| Dynamic range | 56.6 dB |
| Absolute sensitivity threshold | 14.1 e ⁻ |
| Output | |
| Bit depth | 8/12 Bit |
| Monochrome pixel formats | Mono8, Mono12, Mono12Packed |
| General purpose inputs/outputs (GPIOs) | |
| Opto-isolated I/Os | 1 input, 3 outputs |
| Operating conditions/dimensions | |
| Operating temperature | +5 °C to +45 °C housing temperature |
| Power requirements (DC) | 12 to 24 VDC AUX or 802.3at Type 1 PoE |
| Power consumption | 2.3 W at 12 VDC; 2.7 W PoE |
| Mass | 80 g (with C-Mount) |
| Body dimensions (L × W × H in mm) | 60.5 × 29.2 × 29.2 (including connectors) |

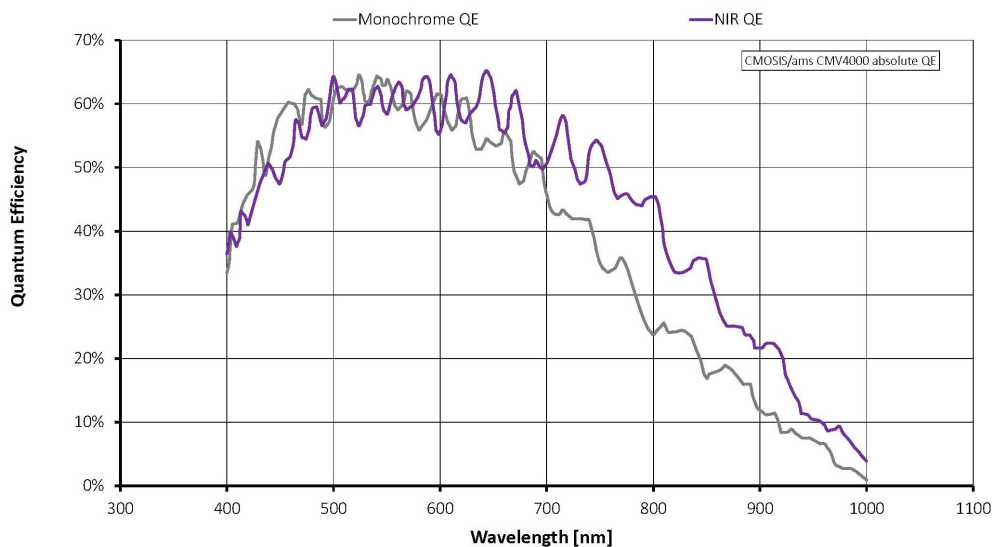
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Regulations

G-419B NIR

CE: 2014/30/EU (EMC), 2011/65/EU, including amendment 2015/863/EU (RoHS); FCC Class B; CAN ICES-003

Quantum efficiency



Features

Image optimization features:

- Auto gain (manual gain control: 0 to 26 dB; 1 dB increments)
- Auto exposure (manual exposure control: 41 μ s to 153 s; 1 μ s increments)
- Defect pixel masking (user defined with Defect Mask Loader tool)
- Gamma correction
- One look-up table (LUT)
- Piecewise Linear HDR mode
- Region of interest (ROI), separate ROI for auto features

Camera control features:

- Event channel
- Image chunk data
- IEEE 1588 Precision Time Protocol (PTP)
- Storable user sets



- StreamBytesPerSecond (bandwidth control)
- Stream hold
- Sync out modes: Trigger ready, input, exposing, readout, imaging, strobe, GPO
- Temperature monitoring (main board only)
- Trigger over Ethernet (ToE) Action Commands



Applications

Mako G-419B NIR is suitable for a wide range of applications including:

- Robotics
- Quality control
- Inspection, surveillance
- Industrial imaging
- Machine vision
- Logistics