

# Mako G-419



## Description

### GigE camera with CMOSIS CMV4000 sensor, global shutter

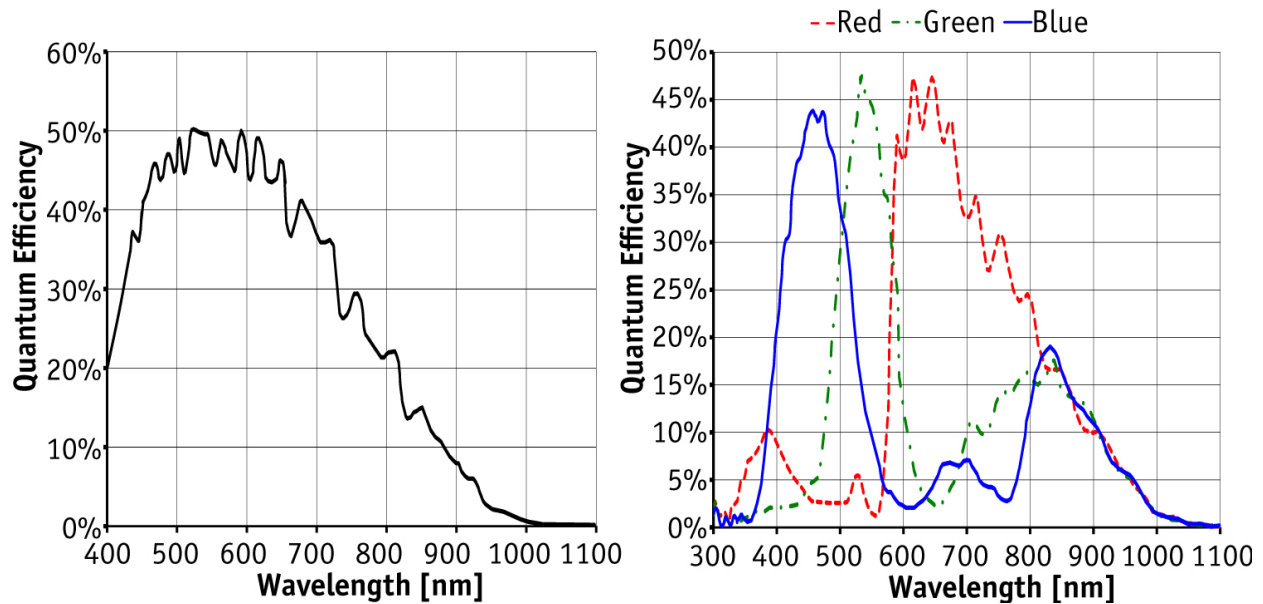
The Mako G-419B/C is an industrial GigE camera with the CMOSIS CMV4000 sensor. Mako cameras have the same compact form factor and the same mounting positions as many analog cameras. All models include PoE, three optocoupled outputs, and a 64 MB image buffer. The image quality profits from the precisely aligned sensors.

- CMOSIS CMV4000 sensor (CMOS, type 1)
- 26.3 fps @ 124 MB/s
- 4 Megapixels, global shutter
- Trigger
  - External trigger event: rising/falling/any edge, level high/low
  - External trigger delay: 0 to 306 s in 1  $\mu$ s increments
- Sync modes
  - Trigger ready, trigger input, exposing, readout, imaging, strobe, GPO
- Modular options
  - Various IR cut/pass filters, protection glass
  - White medical housing

## Specifications

| Mako                                     | G-419   |
|--|---|
| <b>Interface</b>                         | IEEE 802.3 1000baseT                          |
| <b>Resolution</b>                        | 2048 x 2048                                   |
| <b>Sensor</b>                            | CMOSIS CMV4000                                |
| <b>Sensor type</b>                       | CMOS Progressive                              |
| <b>Sensor size</b>                       | Type 1  |
| <b>Cell size</b>                         | 5.5 µm  |
| <b>Lens mount</b>                        | C/CS-Mount                                    |
| <b>Max frame rate at full resolution</b> | 26.3 fps                                      |
| <b>A/D</b>                               | 12 bit  |
| <b>On-board FIFO</b>                     | 64 MB   |
|  | <b>Output</b>                                 |
| <b>Bit depth</b>                         | 8/12 bit                                      |
| <b>Mono modes</b>                        | Mono8, Mono12, Mono12Packed                   |
| <b>Color modes YUV</b>                   | YUV411Packed, YUV422Packed, YUV444Packed      |
| <b>Color modes RGB</b>                   | RGB8Packed, BGR8Packed                        |
| <b>Raw modes</b>                         | BayerRG8, BayerRG12, BayerRG12Packed          |
|  | <b>General purpose inputs/outputs (GPIOs)</b> |
| <b>Opto-coupled I/Os</b>                 | 1 input, 3 outputs                            |
|  | <b>Operating conditions/Dimensions</b>        |
| <b>Operating temperature</b>             | + 5 °C ... + 45 °C                            |
| <b>Power requirements (DC)</b>           | PoE /12 V - 24 V                              |
| <b>Power consumption (12 V)</b>          | 2.7 W (PoE) / 2.3 W (non-PoE)                 |
| <b>Mass</b>                              | 80 g  |
| <b>Body Dimensions (L x W x H in mm)</b> | 60.5 x 29 x 29 mm, incl. connectors           |
| <b>Regulations</b>                       | CE, FCC Class B, RoHS                         |

[Download technical drawing \(click here\)](#)



## Smart features

- ROI (Region of Interest Readout)
- Camera temperature monitoring
- Exposure
  - Auto/one push/programmable
  - Exposure time 1  $\mu$ s to 153 s
- White balance
  - Auto/one push/programmable
- On-board debayering
- Hue, saturation
- Gain
  - Auto/one push/programmable
  - Manual gain control: 0 to 24 dB (1 dB/step)
- Look-up table (LUT), gamma correction
- DSP subregion (selectable ROI for auto features)
- Stream hold
- StreamBytesPerSecond (easy bandwidth control)
- Event channel
- Chunk data
- 3 storable user sets

## Applications

The Mako is an inexpensive industrial GigE camera with a compact form factor. It is suitable for all typical machine vision applications:

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