Allied Vision

Manta
G-2040

- Sony IMX541 CMOS sensor
- Power over Ethernet option
- Angled-head and board level variants
- Video-iris lens control

Simplify your setup of multi-camera applications

Modular machine vision camera with GigE Vision interface

Manta G-2040 with Sony IMX541 runs 5.9 frames per second at 20.4 MP resolution.

Manta is Allied Vision's most versatile GigE Vision camera series. It provides the largest choice of image sensors and its advanced feature set simplifies the setup of multi-camera applications. With its modular hardware concept, Manta offers nearly endless configuration possibilities to adapt the camera to your application.

Easy software integration with Allied Vision's Vimba Suite and compatibility to the most popular third party image-processing libraries.

See the Modular Concept for lens mount, housing variants, optical filters, case design, and other modular options. See the Customization and OEM Solutions webpage for additional options.

Specifications

Manta G-2040	
Interface	IEEE 802.3 1000BASE-T, IEEE 802.3af (PoE) optional
Resolution	4512 (H) × 4512 (V)
Spectral range	300 to 1100 nm
Sensor	Sony IMX541
Sensor type	CMOS
Shutter mode	Global shutter
Sensor size	Type 1.1

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Pixel size	2.74 μm × 2.74 μm
Lens mounts (available)	C-Mount, CS-Mount
Max. frame rate at full resolution	5.9 fps
ADC	12 Bit
Image buffer (RAM)	128 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 monochrome models measured at full resolution without optical filter. Contact Sales or AE for more information.

Quantum efficiency at 529 nm	70 %
Temporal dark noise	2.1 e$^-$
Saturation capacity	9400 e$^-$
Dynamic range	70.8 dB
Absolute sensitivity threshold	2.7 e$^-$

Output

Bit depth	8/12 Bit
Monochrome pixel formats	Mono8, Mono12Packed, Mono12
YUV color pixel formats	YUV411Packed, YUV422Packed, YUV444Packed
RGB color pixel formats	RGB8Packed, BGR8Packed
Raw pixel formats	BayerRG8, BayerRG12, BayerRG12Packed

General purpose inputs/outputs (GPIOs)

Opto-isolated I/Os	2 inputs, 2 outputs
RS232	1

Operating conditions/dimensions

Operating temperature	+5 °C to +45 °C ambient (without condensation)
Power requirements (DC)	8 to 30 VDC AUX or IEEE 802.3af PoE
Power consumption	External power: 3.3 W at 12 VDC | Power over Ethernet: 3.9 W
Mass	190 g; 200 g (PoE)
Body dimensions (L × W × H in mm)	86.3 × 44 × 29 (including connectors)

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Regulations	CE: 2014/30/EU (EMC), 2011/65/EU, including amendment 2015/863/EU (RoHS); FCC Class B; CAN ICES-3 (B)

## Quantum efficiency
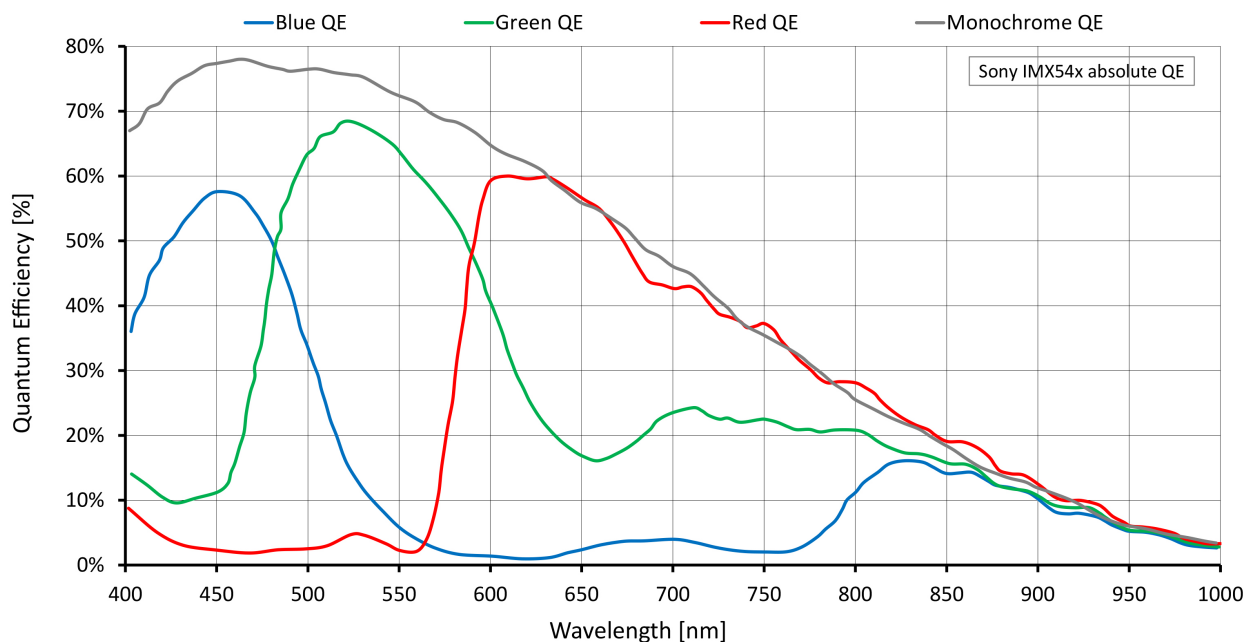
Features

Image optimization features:

- Auto gain (manual gain control: 0 to 40 dB; 0.1 dB increments)
- Auto exposure (exposure time control: 4 us to 171.8 s; 1 µs increments)
- Auto white balance (G-2040C only)
- Binning
- Black level (offset)
- Color correction, hue, saturation (G-2040C only)
- Decimation
- Defect pixel masking (user defined with Defect Mask Loader tool)
- Gamma correction

- Contrast enhancement via look-up table

- Region of interest, separate region for auto features

- Reverse X/Y

Camera control features:

- Auto-iris (video type)

- Event channel

- Image chunk data

- IEEE 1588 Precision Time Protocol

- Storable user sets

- StreamBytesPerSecond (bandwidth control)

- Stream hold

- Sync out modes: Trigger ready, input, exposing, readout, imaging, strobe, GPO

- Temperature monitoring (main board)

- Trigger over Ethernet Action Commands

Technical drawing
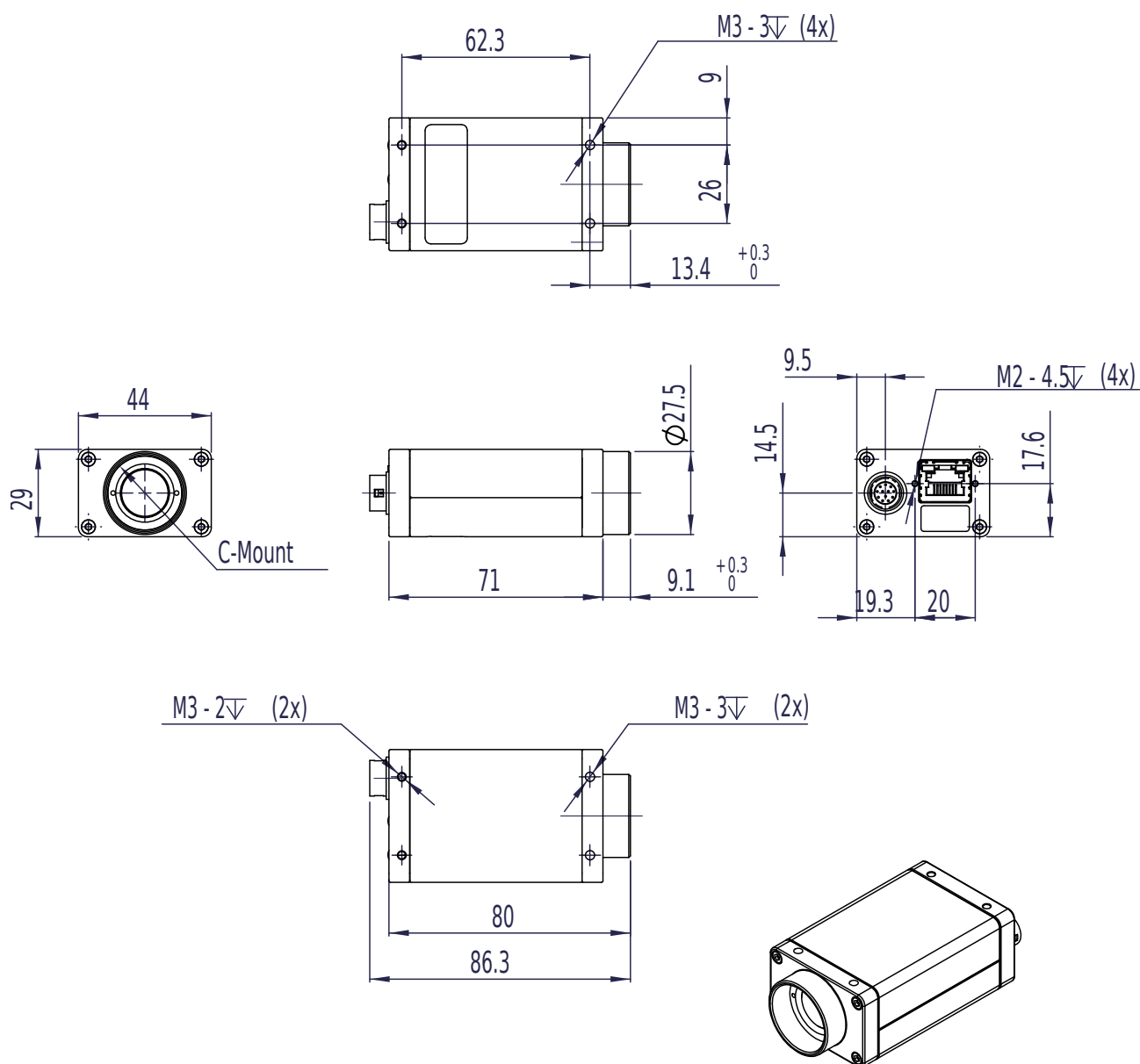
Applications

Manta G-2040 is ideal for a wide range of applications including:

- Machine Vision
- Broadcast analysis requiring Full HD such as sports analytics

- Industrial inspection

- Security and surveillance

- Intelligent traffic solutions (ITS) including traffic monitoring, speed enforcement, and toll collection

- Low light or high sensitivity conditions

- Outdoor applications with dynamic lighting situations