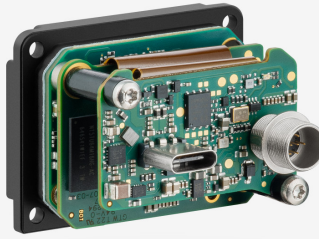
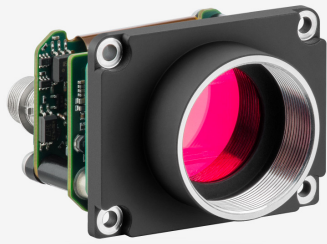


U3-3991SE-C-HQ Rev.1.2 (AB12985)

In series

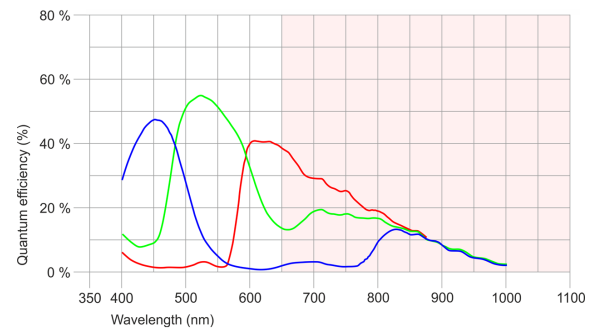
The model is in series and available for the long term.



Specification

Sensor

| | |
|---|-----------------------|
| Sensor type | CMOS Color |
| Shutter | Global Shutter |
| Sensor characteristic | Linear |
| Readout mode | Progressive scan |
| Pixel Class | 20 MP |
| Resolution | 20.36 Mpix |
| Resolution (h x v) | 4512 x 4512 Pixel |
| Aspect ratio | 1:1 |
| ADC | 12 bit |
| Color depth (camera) | 12 bit |
| Optical sensor class | 1.1" |
| Optical Size | 12.363 mm x 12.363 mm |
| Optical sensor diagonal | 17.48 mm |
| Pixel size | 2.74 μ m |
| Micro lens shift | 0.00 |
| Manufacturer | Sony |
| Sensor Model | IMX541AAQJ-C |
| Gain (master/RGB) | 15.9x/- |
| AOI horizontal | same frame rate |
| AOI vertical | increased frame rate |
| AOI image width / step width | 256 / 8 |
| AOI image height / step width | 2 / 2 |
| AOI position grid (horizontal/vertical) | 8 / 2 |
| Binning horizontal | same frame rate |
| Binning vertical | same frame rate |
| Binning method | M/C automatic |
| Binning factor | 2 / 4 / 8 |
| Subsampling horizontal | same frame rate |
| Subsampling vertical | same frame rate |
| Subsampling method | M/C automatic |
| Subsampling factor | 2, 4, 8 |



Subject to technical modifications (2023-12-14)

Model

| | |
|---|--------------------|
| Frame rate freerun mode (in 8-bit mode) | 19 fps |
| Frame rate trigger (continuous) | 19 fps |
| Frame rate trigger (maximum) | 20 fps |
| Exposure time (minimum - maximum) | 0.013 ms - 2000 ms |
| Long exposure (maximum) | 104000 ms |
| Power consumption | 1.9 W - 5.8 W |
| Image memory | 128 MB |

Ambient conditions

The temperature values given below refer to the outer device temperature of the camera housing.
For PCB versions, refer to the separate hints in the respective documentation.

| | |
|-------------------------------------|---------------------------------|
| Device temperature during operation | 0 °C - 55 °C / 32 °F - 131 °F |
| Device temperature during storage | -20 °C - 60 °C / -4 °F - 140 °F |
| Humidity (relative, non-condensing) | 20 % - 80 % |

Connectors

| | |
|---------------------|---|
| Interface connector | USB Type-C |
| I/O connector | 8-pin Hirose connector (HR25-7TR-8PA(73)) |
| Power supply | USB cable |

Pin assignment I/O connector

| | |
|---|--|
| 1 | Ground (GND) |
| 2 | Flash output with optocoupler (-) - Line 1 |
| 3 | General Purpose I/O (GPIO) 1, 3.3 V - Line 2 |
| 4 | Trigger input with optocoupler (-) - Line 0 |
| 5 | Flash output with optocoupler (+) - Line 1 |
| 6 | General Purpose I/O (GPIO) 2, 3.3 V - Line 3 |
| 7 | Trigger input with optocoupler (+) - Line 0 |
| 8 | Output supply voltage, 5 V (100 mA) |



Design

| | |
|------------------|-----------------------------|
| Lens Mount | C-Mount |
| IP code | - |
| Dimensions H/W/L | 34.0 mm x 44.0 mm x 31.0 mm |
| Mass | 45 g |

Features

| | | |
|-------------------|-----------------------------|---|
| Image Acquisition | Freerun | ✓ |
| | Software trigger | ✓ |
| | Hardware trigger | ✓ |
| | Trigger controlled exposure | ✓ |
| | Denoisier | ✓ |
| | Long exposure | ✓ |
| | Line scan | - |
| | Line scan highspeed | - |
| Flashing | Flashing | ✓ |
| | PWM flashing | ✓ |

Subject to technical modifications (2023-12-14)

| | | |
|---------------------------|--------------------------------|---|
| Image Adjustments | Auto exposure | ✓ |
| | Auto gain | ✓ |
| | Auto whitebalance | ✓ |
| | Color correction | ✓ |
| | Gamma | ✓ |
| | LUT | ✓ |
| | Mirror/flip | X/Y |
| On-board Image Processing | Pixel formats | Mono8 BayerRG8 BayerRG10 BayerRG10p BayerRG12 BayerRG12p BGR8 RGB8 BGR10p32 RGB10p32 |
| | Region of interest | ✓ |
| | Decimation (FPGA) | ✓ |
| | Decimation (Sensor) | - |
| | Binning (FPGA) | ✓ |
| | Binning (Sensor) | - |
| | | |
| Others | Chunks | ✓ |
| | Sequencer | ✓ |
| | Events | ✓ |
| | Firmware update | ✓ |
| | 1st supported firmware version | 2.20.17746 |