

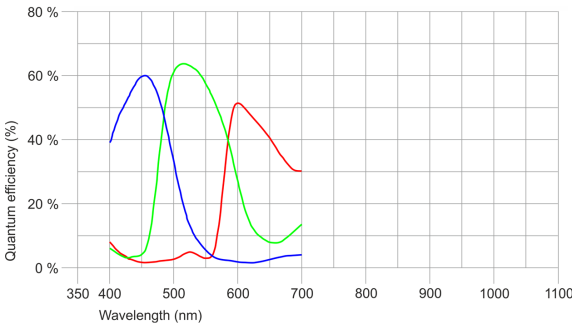
**In series**  
The model is in series and available for the long term.



Specification

Sensor

|                                         |                                           |
|-----------------------------------------|-------------------------------------------|
| Sensor type                             | CMOS Color                                |
| Shutter                                 | Rolling shutter / Global Start Shutter    |
| Sensor characteristic                   | Linear                                    |
| Pixel Class                             | 6 MP                                      |
| Resolution                              | 6.41 Mpix                                 |
| Resolution (h x v)                      | 3088 x 2076 Pixel                         |
| Aspect ratio                            | 3:2                                       |
| ADC                                     | 12 bit                                    |
| Color depth (camera)                    | 12 bit                                    |
| Optical sensor class                    | 1/1.8"                                    |
| Optical Size                            | 7.411 mm x 4.982 mm                       |
| Optical sensor diagonal                 | 8.93 mm 1/1.8"                            |
| Pixel size                              | 2.4 µm                                    |
| CRA (Chief Ray Angle)                   | 0 °                                       |
| Manufacturer                            | Sony                                      |
| Sensor Model                            | IMX178LQJ-C                               |
| Gain (master/RGB)                       | 16x/16x                                   |
| AOI horizontal                          | same frame rate                           |
| AOI vertical                            | increased frame rate                      |
| AOI image width / step width            | 256 / 2                                   |
| AOI image height / step width           | 2 / 2                                     |
| AOI position grid (horizontal/vertical) | 2 / 2                                     |
| Binning horizontal                      | increased frame rate                      |
| Binning vertical                        | increased frame rate                      |
| Binning method                          | Horizontal: addition / Vertical: addition |
| Binning factor                          | 2x2                                       |
| Decimation (subsampling) horizontal     | -                                         |
| Decimation (subsampling) vertical       | -                                         |
| Decimation (subsampling) method         | M/C automatic                             |



## Model

|                                    |                    |
|------------------------------------|--------------------|
| Frame rate freerun mode            | 17 fps             |
| Frame rate trigger (continuous)    | 18 fps             |
| Frame rate trigger (maximum)       | 17 fps             |
| Exposure time (minimum - maximum)  | 0.031 ms - 2000 ms |
| Long exposure (maximum)            | 60043 ms           |
| Line rate freerun mode (line scan) | 705 1/s            |
| Line rate trigger mode (line scan) | 996 1/s            |
| Lines per frame (line scan)        | 8000               |
| Power consumption                  | 1.8 W - 2.9 W      |
| Image memory                       | 128 MB             |

## Ambient conditions

For PCB versions, refer to the separate hints in the respective documentation.

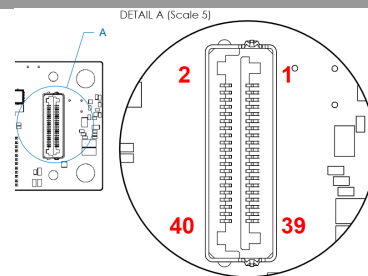
|                                             |                                 |
|---------------------------------------------|---------------------------------|
| Allowed device temperature during operation | 0 °C - 55 °C / 32 °F - 131 °F   |
| Allowed device temperature during storage   | -20 °C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

## Connectors

|                     |                                                    |
|---------------------|----------------------------------------------------|
| Interface connector | Samtec LSHM 40-pin                                 |
| I/O connector       | 40-pin header (Samtec LSHM-120-L2.5-L-DV-A-S-K-TR) |
| Power supply        | 12 V - 24 V                                        |

## Pin assignment I/O connector

|    |                                                |
|----|------------------------------------------------|
| 1  | Input power supply (VCC) 12-24 V DC $\pm$ 10 % |
| 2  | Do not connect (for future use)                |
| 3  | Input power supply (VCC) 12-24 V DC $\pm$ 10 % |
| 4  | Do not connect (for future use)                |
| 5  | Ground (GND)                                   |
| 6  | Do not connect (for future use)                |
| 7  | Flash output without optocoupler 3.15 V 8 mA   |
| 8  | Do not connect (for future use)                |
| 9  | Trigger input without optocoupler 3.15 V       |
| 10 | Ground (GND)                                   |
| 11 | Do not connect (for future use)                |
| 12 | Ground (GND)                                   |
| 13 | Do not connect (for future use)                |
| 14 | Do not connect (for future use)                |
| 15 | I2C SDA (signal data) 3.15 V                   |
| 16 | Do not connect (for future use)                |
| 17 | I2C SCL (signal clock) 3.15 V                  |
| 18 | Do not connect (for future use)                |
| 19 | Do not connect (for future use)                |
| 20 | RJ45 MX0 (-)                                   |
| 21 | Do not connect (for future use)                |
| 22 | RJ45 MX0 (+)                                   |
| 23 | General Purpose I/O (GPIO) 2, 3.15 V 8 mA      |
| 24 | Do not connect (for future use)                |
| 25 | General Purpose I/O (GPIO) 1, 3.15 V 8 mA      |
| 26 | RJ45 MX1 (-)                                   |
| 27 | Ethernet, LED green, output 3.15 V             |
| 28 | RJ45 MX1 (+)                                   |
| 29 | Power, LED green, output 3.15 V                |
| 30 | Do not connect (for future use)                |
| 31 | Power, LED red, output 3.15 V                  |
| 32 | RJ45 MX2 (+)                                   |
| 33 | Ethernet, LED red, output 3.15 V               |
| 34 | RJ45 MX2 (-)                                   |
| 35 | Do not connect (for future use)                |
| 36 | Do not connect (for future use)                |
| 37 | Do not connect (for future use)                |
| 38 | RJ45 MX3 (+)                                   |
| 39 | Ground (GND)                                   |
| 40 | RJ45 MX3 (-)                                   |



## Design

|                  |                             |
|------------------|-----------------------------|
| Lens Mount       | No mount                    |
| IP code          | -                           |
| Dimensions H/W/L | 84.0 mm x 30.0 mm x 14.3 mm |
| Mass             | 25 g                        |
| Housing material | -                           |

## Features

List of on-camera image pre-processing features.

All features of the table are available via our IDS peak software for image pre-processing on the host computer (sensor model dependent).

|                           |                                |                              |
|---------------------------|--------------------------------|------------------------------|
| Image Acquisition         | Freerun                        | ✓                            |
|                           | Software trigger               | ✓                            |
|                           | Hardware trigger               | ✓                            |
|                           | Trigger controlled exposure    | -                            |
|                           | Denoiser                       | ✓                            |
|                           | Long exposure                  | ✓                            |
|                           | Line scan                      | ✓                            |
|                           | Global start                   | ✓                            |
| Flashing                  | Flashing                       | ✓                            |
|                           | PWM flashing                   | ✓                            |
| 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)               | 2x2<br>Increases frame rate. |
| Others                    | IP settings                    | ✓                            |
|                           | Bandwidth management           | ✓                            |
|                           | Chunks                         | ✓                            |
|                           | Sequencer                      | -                            |
|                           | PTP                            | ✓                            |
|                           | Firmware update                | ✓                            |
|                           | 1st supported firmware version | 2.10                         |