

Sensor Information

| | |
|------------|-----------------------------|
| Model Name | Sony IMX267 |
| Type | 1" progressive scan CMOS |
| Shutter | Global Shutter |
| Resolution | 4096 x 2160 pixels |
| Scan Area | 14.13 mm x 7.45 mm |
| Pixel Size | 3.45 μ m x 3.45 μ m |

Data Quality

@ 20 °C, gain = 1, exposure time = 4 msec

| | |
|---------------------------|---|
| Dark Noise (σ) | 2 e- typical |
| Saturation | 9500 e- typical |
| Dynamic Range | 71 dB typical |
| SNR | 40 dB typical |
| Quantum efficiency η | 48 % @ 465 nm, 58 % @ 536 nm, 54 % @ 631 nm typical |

Acquisition

| | | | |
|---|---|-------------|---|
| Resolution | 4096 px x 2160 px | | |
| Interface Frame Rate (depends on used interface performance) | Format | Resolution | max. Frame Rate (@ Trigger Mode) ²⁾ |
| | Full Frame | 4096 x 2160 | 39 fps |
| | Binning 2x2 | 2048 x 1080 | 39 fps |
| | Binning 2x1 | 2048 x 2160 | 39 fps |
| | Binning 1x2 | 4096 x 1080 | 39 fps |
| Acquisition Frame Rate ¹⁾ | 40 fps $t_{\text{readout}} = 25$ msec (max. Res. Full Frame) @ 12 bit | | |

| | |
|---------------|--|
| Pixel Formats | BayerRG8, BayerRG10, BayerRG12, BayerRG12p Mono8, Mono10, Mono12, Mono12p, RGB8, BGR8 |
|---------------|--|

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| Partial Scan | True Partial Scan with increasing Frame Rate on Y direction, Region of Interest (ROI) arbitrary Width: minimum 16, increment 16 Height: minimum 4, increment 4 |
|--------------|--|

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|-----------------------------------|--|
| Adjustable Acquisition Frame Rate | Off or 0.01 ... 1430 Hz |
| Acquisition Mode | Continuous, Single Frame and Multi Frame |
| Acquisition Status | AcquisitionActive, AcquisitionTrigger Wait |
| Exposure Mode | Timed |
| Shutter Mode | - |
| Readout Mode | Overlapped, Sequential |

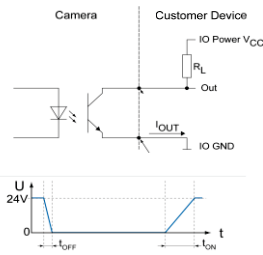
Image Pre-Processing

| | |
|-------------------------|---|
| Analog Controls | Exposure Time (1 μ sec ... 60 sec Step Size 1 μ sec) Gain (0...48 dB), Offset (0 ... 255 LSB 12 bit) |
| Gamma Correction | Gamma (0.1 ... 2 available if LUT is enabled) |
| LUT | Luminance (12 bit) |
| Color Models | Mono, Raw Bayer, RGB and BGR |
| Color Processing | Integrated color processor for high quality color calculation |
| Color Adjustment | Manual White Balance Automatic White Balance (Once or Continuous) |
| Color Enhancement | Color Transformation to sRGB color space by optimized Matrix for 6500 K, 3000 K Lightsource or User defined Matrix |
| Color Tolerance | - |
| Binning Horizontal | 1 or 2 |
| Binning Vertical | 1 or 2 |
| Image Flipping | Horizontal, vertical |
| Defect Pixel Correction | via Defect Pixel List with up to 512 Pixel Coordinates |
| Fix Pattern Noise | - |
| Correction | |

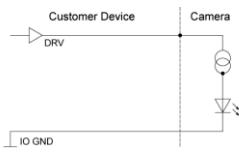
¹⁾ Sensor readout, different from pixel format

²⁾ depends on the used interface

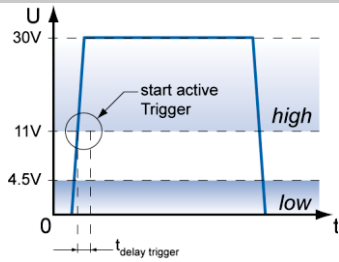
Digital Output: Low Active



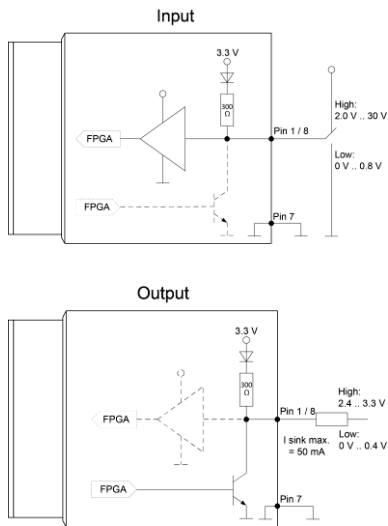
Digital Input



Trigger Mode: Start up time and valid Trigger



GPIO



Process Synchronization

| | |
|----------------------|---|
| Trigger Mode | Off (Free Running), On (Trigger) |
| Trigger Overlap Type | Readout |
| Trigger Sources | Hardware (Line0,1,2), Software, All or Off fixed Trigger Delay out of $t_{readout}$: ¹⁾ 66.9 μsec @ 12 bit max. Trigger Delay during $t_{readout}$: ¹⁾ 73 μsec @ 12 bit |
| Trigger Delay | 0 ... 2 sec, Tracking and buffering of up to 256 triggers |
| External Flash Sync | via Exposure Active $t_{delay\ flash} \leq 3\ \mu\text{sec}$, $t_{duration} = t_{exposure}$ |

Digital I/Os

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|----------------|---|
| Lines | Input: Line 0, Output: Line3, GPIO: Line 1, Line 2 |
| Output Sources | Off, ExposureActive, Timer1, ReadoutActive, UserOutput 1-3 and TriggerReady |
| Line Debouncer | Low and high signal separately selectable Debouncing Time 0 ... 5 msec, Step Size: 1 μsec |

Memory

| | |
|---------------------|--|
| Image Buffer | 330 MB 13 Images (Trigger Mode) / 1 Image (Free Running Mode) |
| Non-volatile Memory | 128 kb |

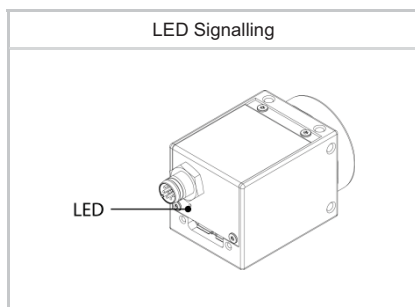
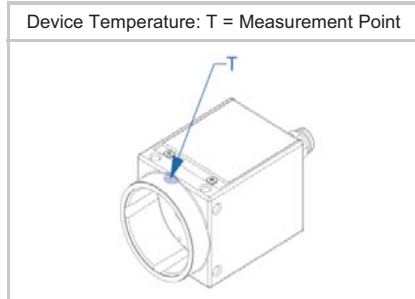
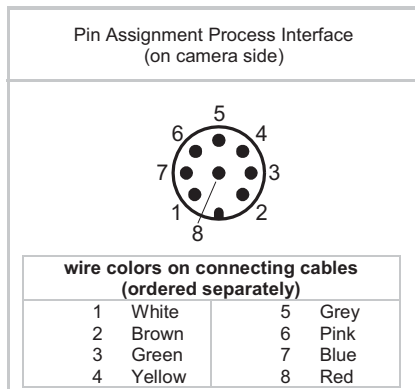
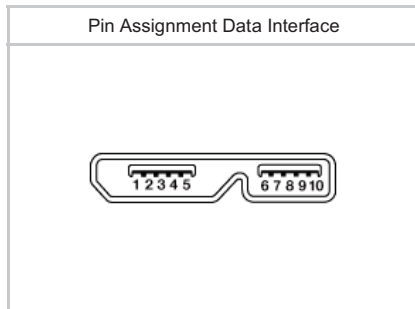
Interface Data

| | |
|----------------------------|-------------------------|
| Interface | USB3.0 (5000 Mbits/sec) |
| USB Vendor ID / Product ID | 0x2825 / 0x14A |

USB 3 Vision® Features

| | |
|---|--|
| Events | DeviceTemperatureStatusChanged, EventLost, ExposureEnd, ExposureStart, FrameEnd, FrameStart, FrameTransferSkipped, Line0..3 FallingEdge, Line0..3 RisingEdge, TransferBufferFull, TransferBufferReady, TriggerOverlapped, TriggerReady, TriggerSkipped |
| Transmission via Asynchronous Message Channel | |
| Frame Counter | up to 2^{32} |
| Payload Size | 0 ... 26542280 Byte |
| Timestamp | 64 bit, resolution in nsec, increment = 10 |
| USB Vision | v1.0.1 |

¹⁾ Sensor readout, different from pixel format



Interfaces and Connectors

| | | | |
|--------------------------|-----------------|---------------------------------------|-----------------|
| Data and Power Interface | USB 3.0 | Transfer Rate | 5000 Mbits/sec |
| | USB 2.0 | Transfer Rate | 480 Mbits/sec |
| | Connector: | | USB 3.0 Micro B |
| Process Interface | Connector: | M8/8-pin (SACC-DSI-M8MS-8CON-M8-L180) | |
| | Assignment: | 1 - VBUS | 6 - MicB_SSTX- |
| | | 2 - D- | 7 - MicB_SSTX+ |
| | | 3 - D+ | 8 - GND_DRAIN |
| | | 4 - ID | MicB_SSRX- |
| | | 5 - GND | MicB_SSRX+ |
| | | 1 - GPIO (Line2) | 5 - Power VCC |
| | | 2 - not connected | OUT1 |
| | 3 - IN1 (Line0) | 6 - OUT1 (Line3) | |
| | 4 - GND IN1 | 7 - GND GPIO | |
| | | 8 - GPIO (Line1) | |

Caution

* Note GPIOs: Ground loops are to be avoided and can lead to destruction of the device.

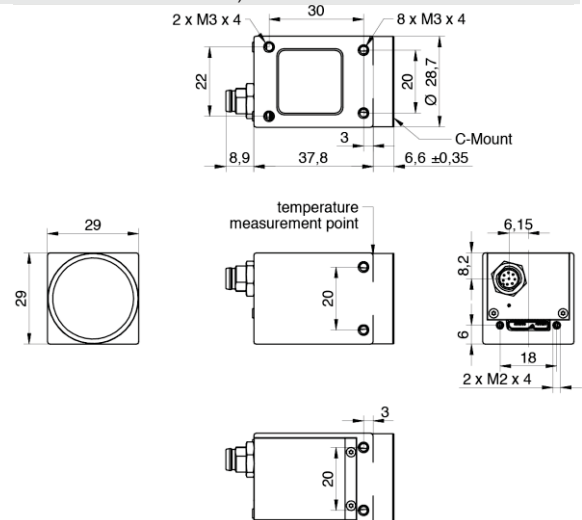
Optical Data

| | |
|----------------|---------------|
| Lens Mount | C-Mount |
| Optical Filter | IR cut filter |

Mechanical Data

| | |
|---------|--|
| Housing | Zinc die casting, nickel-chrome-plated, IP40 (with mounted lens and USB 3.0 cable) |
|---------|--|

Dimensions



| | |
|--------|------|
| Weight | 90 g |
|--------|------|

Environmental Data


| | |
|-------------------------|---|
| Storage Temperature | -10 °C ... +70 °C |
| Operating Temperature | +5 °C ... +65 °C @ T = Measurement Point or *) +5 °C ... +72 °C @ internal Temperature Sensor Ambient temperature above 28 °C requires heat dissipation measures. |
| Int. Temperature Sensor | yes, accuracy: ±1 °C (typ) 0 °C ... +85 °C |
| Humidity | 10 % ... 90 % non-condensing |

*) the maximum temperature for Sony sensor characteristics (sensor performance) are guaranteed up to 47°C @ Measurement Point or 56°C @ internal temperature sensor

LED Signalling

| | | |
|-----|-------------|------------------------------|
| LED | Green flash | Power on, no link active |
| | Green | Link active USB 3.0 |
| | Red | Error or Link active USB 2.0 |
| | Yellow | Sensor Readout activity |
| | Red flash | Update |

Electrical Data

| | |
|---|--|
| Power Supply | bus powered via USB3.0 interface |
| Power Consumption | approx. 3.7 W @ 39 fps (Factory Setting "Default") |
| Digital Input | Optocoupler $U_{IN(low)}$: 0.0 ... 4.5 VDC $U_{IN(high)}$: 11.0 ... 30.0 VDC I_{IN} : 3.0 ... 10.0 mA min. Impulse Length: 2.0 μ sec |
| Digital Output | Optocoupler U_{EXT} : 5 ... 30 V DC I_{OUT} : max. 50 mA t_{ON} = typ. 3 μ sec t_{OFF} = typ. 40 μ sec |
| GPIO | direct, without optocoupler |
| GPIO used as Input: | $U_{IN(low)}$: 0.0 ... 0.8 VDC $U_{IN(high)}$: 2.0 ... 30.0 VDC min. Impulse Length: 2.0 μ sec |
| GPIO used as Output: | $U_{Out(low)}$: 0.0 ... 0.4 VDC ($I_{sink\ max}$: 50 mA) $U_{Out(high)}$: 2.4 ... 3.3VDC (I_{max} : 1 mA) |
| Caution  | * The General Purpose I/Os (GPIOs) are not potential-free and do not have an overrun cut-off. Incorrect wiring (overvoltage, undervoltage or voltage reversal) can lead to defects in the electronic system. Ground loops are to be avoided and can lead to destruction of the device. |

Conformity

| | |
|----------------------------|--|
| Conformity | CE, RoHS, REACh |
| KC Registration No. / Date | - / - |
| MTBF | 56 years @ T = 45 °C / 36 years @ T = 60 °C T = Measurement Point |

GenICam™ Features

| | |
|----------------------|---|
| Short Exposure Range | yes, ShortExposureTimeEnable Short Exposure Range 1 μ sec ... 60 sec Default Exposure Range 15 μ sec ... 60 sec |
| Timer | Timer Selector: Timer Selector: Timer 1 TimerTriggerSource: Line0, SoftwareTrigger, ExposureStart, ExposureEnd, FrameTransferSkipped, TriggerSkipped, Off TimerDelay: 0 μ sec ... 2 sec, Step Size: 1 μ sec TimerDuration: 4 μ sec ... 2 sec, Step Size: 1 μ sec |
| Counter | Counter Selector: Counter 1, Counter 2 CounterValue: 0 ... 65535 Counter Event Source: Counter1End or Counter2End, ExposureActive, FrameTransferSkipped, FrameTrigger, TriggerSkipped and Off Counter Reset Source: Counter1End, Counter2End, Line0 and Off |
| Sequencer | Sequencer Characteristics: up to 128 sets, up to 4 possible paths for triggered set transitions, 6 trigger sources: Counter1End, Counter2End, ExposureActive, Line0, ReadoutActive, Timer1End Sequencer Parameters for Exposure, Gain, Trigger, ROI and Output: ExposureTime, CounterDuration, CounterEventActivation, CounterEventSource, CounterResetSource, ExposureMode, ExposureTime, Gain, Height, OffsetX, OffsetY, TriggerMode, UserOutputValue, UserOutputValueAll, Width |

GenICam™ Features

| | |
|------------------------------|---|
| User Sets | Factory Settings: UserSet0 (read only) Freely Programmable: UserSet1, UserSet2, UserSet3 Parameters: any user definable Parameter |
| Acquisition Abort | Delay up to 25 msec |
| Chunk Data | yes, Chunk Selector: Binning, Black Level, DeviceTemperature, ExposureTime, FrameID, Gain, Height, Image, ImageControl, LineStatusAll |
| Device Temperature | InHouse Event generation for Normal to High, High to Exceeded and Exceeded to Normal Exceeded (no image transfer) = max. internal temperature sensor + 1 °C |
| Device Link Throughput Limit | yes, up to max. Device Link Speed |
| SFNC Version | v2.3 |

Factory Settings after Start-Up

| | |
|--------------------------------|--|
| Trigger Mode | Off (Free Running) |
| Analog Controls | Exposure Time: 4 msec, Gain: 0 dB, Offset: 0 |
| Pixel Format | BayerRG8 |
| Partial Scan | Off |
| Acquisition Frame Rate | Off |
| Timer/Counter/Sequencer | Off |
| Defect Pixel Correction | ON |
| Fixed Pattern Noise Correction | - |
| Digital Input | Line0, invert = false |
| Digital Output | Line3, invert = false, line source = Off |
| GPIO 1/2 | Line1, Line2, invert = false, LineMode = Input |
| TriggerSource | All |

Partial Scan @ FullFrame, min Exposure, Mono8 or BayerRG8

| | Resolution | max. fps acquisition | max. fps interface ²⁾ |
|----------|-------------|----------------------|----------------------------------|
| UHD (4K) | 3840 x 2160 | 39 | 39 |
| Full HD | 1920 x 1080 | 77 | 77 |
| SXGA | 1280 x 1024 | 82 | 82 |
| XGA | 1024 x 768 | 107 | 107 |
| SVGA | 800 x 600 | 134 | 134 |
| VGA | 640 x 480 | 164 | 164 |
| CIF | 352 x 288 | 255 | 255 |
| QCIF | 176 x 144 | 436 | 436 |
| LineScan | 4096 x 2048 | 42 | 42 |
| | 4096 x 1024 | 81 | 81 |
| | 4096 x 512 | 155 | 155 |
| | 4096 x 256 | 281 | 281 |
| | 4096 x 128 | 473 | 473 |
| | 4096 x 64 | 718 | 718 |
| | 4096 x 32 | 970 | 970 |
| | 4096 x 16 | 1175 | 1175 |
| | 4096 x 8 | 1314 | 1314 |
| | 4096 x 4 | 1397 | 1397 |
| | 4096 x 2 | 1397 | 1397 |
| | 4096 x 1 | - | - |

²⁾ depends on the used interface

Distribution in the UK & Ireland



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