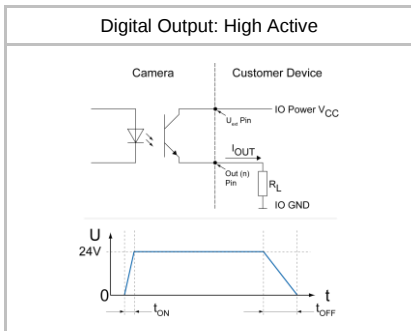
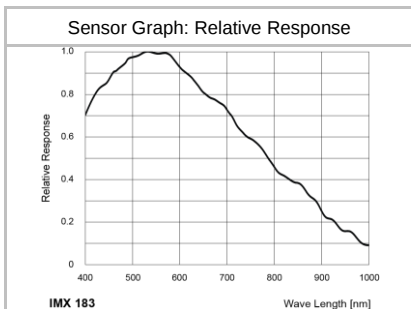




Device Information

Model Name	VCXU.2-201M.R
Vendor Name	Baumer

Sensor Information

Sensor Name	Sony IMX183
Type	1" progressive scan CMOS
Shutter	Rolling Shutter, Global Reset Shutter
Resolution	5472 x 3648 pixels
Scan Area	13.13 mm x 8.75 mm
Pixel Size	2.4 μ m x 2.4 μ m

Data Quality

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

Dark Noise (σ)	3 e- typical
Saturation	13000 e- typical
Dynamic Range	71 dB typical
SNR	41 dB typical
Quantum efficiency η	80% @ 536 nm typical

Acquisition

Resolution	5472 px x 3648 px
Interface Frame Rate (depends on used interface performance)	Format Resolution max. Frame Rate (@ Trigger Mode) ²⁾
	Full Frame 5472 x 3648 15 fps
	Binning 2x2 2736 x 1824 20 fps
	Binning 2x1 2736 x 3648 15 fps
	Binning 1x2 5472 x 1824 15 fps

Acquisition Frame Rate ¹⁾ 20 fps | $t_{\text{readout}} = 49.8 \text{ msec}$ (max. Res. Full Frame) @ 12 bit

Pixel Formats	Mono8, Mono10, Mono12, Mono12p
Partial Scan	True Partial Scan without increasing Frame Rate, Region of Interest (ROI) arbitrary Width: minimum 16, increment 16 Height: minimum 2, increment 2
Adjustable Acquisition Frame Rate	Off or 1, 15 ... 65535 Hz
Acquisition Mode	Continuous, Single Frame and Multi Frame
Acquisition Status	AcquisitionActive, AcquisitionTrigger Wait
Exposure Mode	Timed
Shutter Mode	Rolling, Global Reset
Readout Mode	not available

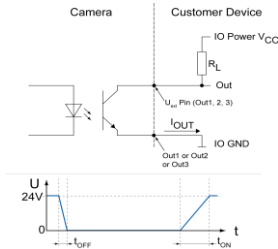
Image Pre-Processing

Analog Controls	Exposure Time (29 μ sec ... 60 sec Step Size 1 μ sec) Gain (0...20 dB), Offset (0 ... 255 LSB 12 bit)
Auto Function	ExposureAuto and GainAuto with BrightnessAutoPriority based on BrightnessAuto ROI
Gamma Correction	Gamma (0.1 ... 2 available if LUT is enabled)
LUT	Luminance (12 bit)
Color Models	Mono
Color Processing	-
Color Enhancement	-

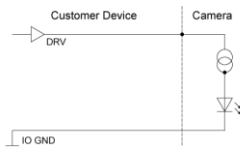
¹⁾ Sensor readout, different from pixel format

²⁾ depends on the used interface

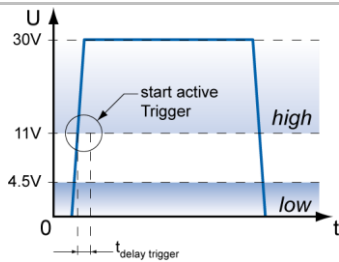
Digital Output: Low Active



Digital Input



Trigger Mode: Start up time and valid Trigger



GPIO

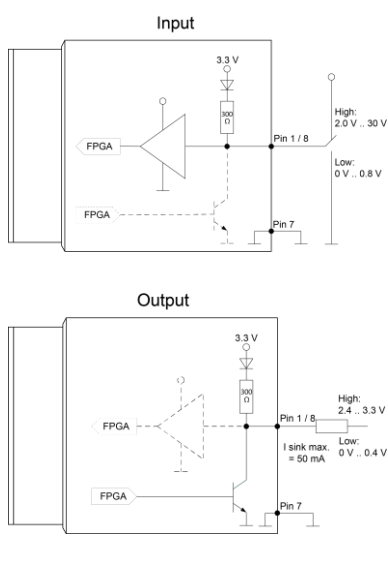


Image Pre-Processing

Color Tolerance	-
Binning Horizontal	1 or 2
Binning Vertical	1 or 2
Defect Pixel Correction	yes, static DPC: Defect Pixel List with up to 512 Pixel Coordinates
Image Flipping	Horizontal, vertical
Fix Pattern Noise Correction	-

Process Synchronization

Trigger Mode	Off (Free Running), On (Trigger)
Trigger Overlap Type	Trigger Mode On: Off Trigger Mode Off: Not available
Trigger Sources	Hardware (Line0, 1, 2), Software, Counter 1, 2 End, All or Off max. Trigger Delay out of t_readout: ¹⁾ 49766 μsec / 98 μsec @ 12 bit (Rolling / Global Reset) max. Trigger Delay during t_readout: ¹⁾ -
Trigger Delay	0 ... 2 sec, Tracking and buffering of up to 256 triggers
External Flash Sync	via Exposure Active t_delay flash ≤ 3 μsec, t_duration = t_exposure
Encoder Function	yes, via Counter and Trigger Source
PTP Function	-

Digital I/Os

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

Memory

Image Buffer	229 MB 8 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 / 0x0171

USB 3 Vision® Features

Events Transmission via Asynchronous Message Channel	DeviceTemperatureStatusChanged, EventLost, ExposureEnd, ExposureStart, FrameEnd, FrameStart, FrameTransferSkipped, Line0..2 FallingEdge, Line0..2 RisingEdge, TransferBufferFull, TransferBufferReady, TriggerOverlapped, TriggerReady, TriggerSkipped
Frame Counter	up to 2 ³²
Payload Size	0 ... 39923924 Byte
Timestamp	64 bit, resolution in nsec, increment = 8
USB Vision	v1.0.1

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		
Pin Assignment:	1 - VBUS	2 - D-	
	3 - D+	4 - ID	
	5 - GND	6 - MicB_SSTX-	
	7 - MicB_SSTX+	8 - GND_DRAIN	
	9 - MicB_SSRX-	10 - MicB_SSRX+	

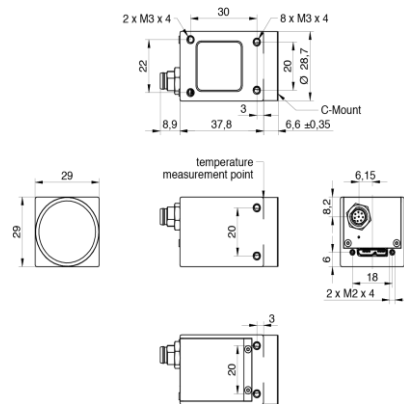
¹⁾ Sensor readout, different from pixel format

A diagram of a 10-position slide rule scale. It consists of a horizontal bar with a central notch. On the left side of the notch, there are five positions numbered 1, 2, 3, 4, and 5. On the right side of the notch, there are five positions numbered 6, 7, 8, 9, and 10. Each position is represented by a small rectangular block with a vertical line indicating its center.

A circular arrangement of 8 dots. The dots are numbered 1 through 8, with the numbers placed outside the circle. The numbers are arranged clockwise starting from the bottom: 1 (bottom), 2 (bottom-right), 3 (right), 4 (top-right), 5 (top), 6 (top-left), 7 (left), and 8 (bottom-left). A line connects the center of the circle to the dot labeled 8.

1	White	5	Grey
2	Brown	6	Pink
3	Green	7	Blue
4	Yellow	8	Red

A line drawing of the front panel of the device. It shows a rectangular box with a circular LED indicator on the left side. A label 'LED' with a line points to the indicator. On the right side, there are two circular ports, one of which is labeled 'GND'.



Electrical Data

Power Supply	bus powered via USB3.0 interface
Power Consumption	approx. 2.9 W @ 15 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, UL Recognized
KC Registration No. / Date	- / -
MTBF	68 years @ T = 45 °C / 45 years @ T = 60 °C T = Measurement Point

GenICam™ Features

Short Exposure Range	-
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, Line0..2 and Off Counter Reset Source: Counter1End, Counter2End, Line0..2 and Off
Sequencer	no

GenICam™ Features

User Sets	Factory Settings: UserSet0 (read only) Freely Programmable: UserSet1, UserSet2, UserSet3 Parameters: any user definable Parameter
Acquisition Abort	Delay up to 49.8 msec
Chunk Data	yes, Chunk Selector: Binning, BlackLevel, CounterValue, DeviceTemperature, ExposureTime, FrameID, Gain, Height, Image, ImageControl, LineStatusAll, OffsetX, OffsetY, PixelFormat, , Timestamp, Width
Device Temperature	InHouse Event generation, if temperature status changed from 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
Custom Data	yes, 128 Byte with CustomDataKonfiguration Mode
Calibration Data	yes, camera calibration values can stored: CalibrationMatrix, CalibrationMatrixNew, CalibrationFocalLenght, CalibrationAngularAperture, GeometryDistortionValue: k1, k2, p1, p2, k3, CalibrationVector: tvec, rvec and CalibrationDataVersion
SFNC Version	2.4.0

Factory Settings after Start-Up

Trigger Mode	Off (Free Running)
Analog Controls	Exposure Time: 4 msec, Gain: 0 dB, Offset: 0
Pixel Format	Mono8
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 (monochrome camera) or BayerRG8 (color camera)

	Resolution	max. fps acquisition	max. fps interface ²⁾
HXGA	4096 x 3072	24,1	24,1
UHD (4K)	3840 x 2160	34,1	34,1
Full HD	1920 x 1080	44,5	44,5
SXGA	1280 x 1024	44,5	44,5
HD720	1280 x 720	44,5	44,5
XGA	1024 x 768	44,5	44,5
SVGA	800 x 600	44,5	44,5
VGA	640 x 480	44,5	44,5
CIF	352 x 288	44,5	44,5
QVGA	320 x 240	44,5	44,5
QCIF	176 x 144	44,5	44,5
LineScan	5472 x 2048	35,9	35,9
	5472 x 1024	44,5	44,5
	5472 x 512	44,5	44,5
	5472 x 256	44,5	44,5
	5472 x 128	44,5	44,5
	5472 x 64	44,5	44,5
	5472 x 32	44,5	44,5
	5472 x 16	44,5	44,5
	5472 x 8	44,5	44,5
	5472 x 4	44,5	44,5
	5472 x 2	44,5	44,5
	5472 x 1	44,5	44,5

²⁾ depends on the used interface