

## Device Information

Model Name	VCXG-201M.R.I
Vendor Name	Baumer

## Sensor Information

Model 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 $\mu$ m x 2.4 $\mu$ m

## Data Quality

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

Dark Noise ( $\sigma$ )	3 e- typical
Saturation	13000 e- typical
Dynamic Range	71 dB typical
SNR	41 dB typical
Quantum efficiency $\eta$	79.8% @ 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) <sup>2)</sup>
	Full Frame	5472 x 3648	6 fps
	Binning 2x2	2736 x 1824	9 fps
	Binning 2x1	2736 x 3648	6 fps
	Binning 1x2	5472 x 1824	9 fps
Acquisition Frame Rate <sup>1)</sup> (Burst Mode)	9 fps   $t_{\text{readout}} = 104.6$ 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 32, increment 32 Height: minimum 2, increment 2		
Adjustable Acquisition Frame Rate	Off or 0.54 ... 65535 Hz		
Acquisition Mode	Continuous, Single Frame and Multi Frame		
Acquisition Status	AcquisitionActive, AcquisitionTrigger Wait		
Exposure Mode	Timed		
Readout Mode	not available		

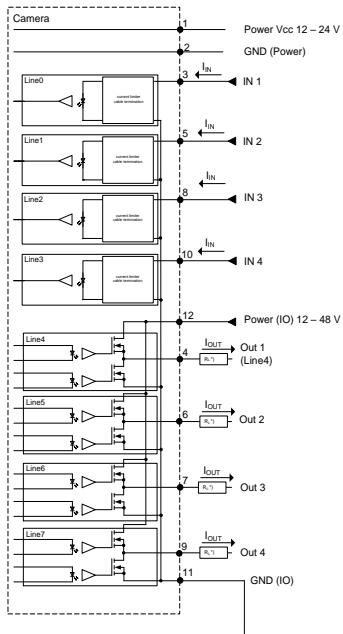
## Image Pre-Processing

Analog Controls	Exposure Time (115 $\mu$ sec ... 60 sec   Step Size 1 $\mu$ sec) Gain (0...20 dB), Offset (0 ... 255 LSB   12 bit)
Auto Function	ExposureAuto and GainAuto with BrightnessAutoPriority based on BrightnessAuto ROI
LUT	Luminance (12 bit)
Color Models	Mono
Color Processing	-
Color Adjustment	-

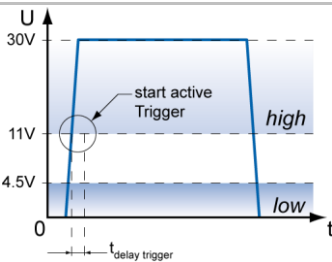
<sup>1)</sup> Sensor readout, different from pixel format

<sup>2)</sup> depends on the used interface

### Digital Input / Output: principle circuit diagram



### Trigger Mode: Start up time and valid Trigger



## Image Pre-Processing

Color Enhancement	-
Color Tolerance	-
Binning Horizontal	1 or 2
Binning Vertical	1 or 2
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, 3), Software, Action CMD (Action 1), All or Off max. Trigger Delay out of $t_{readout}$ : <sup>1)</sup> 104478 $\mu$ sec / 200.9 $\mu$ sec @ 12 bit (Rolling / Global Reset) max. Trigger Delay during $t_{readout}$ : <sup>1)</sup> -
Trigger Delay	0 ... 2 sec, Tracking and buffering of up to 256 triggers
External Flash Sync	via Exposure Active $t_{delay\ flash} \leq 3\ \mu$ sec, $t_{duration} = t_{exposure}$
Encoder Function	-
PTP Function	-

## Digital I/Os

Lines	Input: Line 0 .. 3, Output: Line 4 .. 7, GPIO: no
Output Sources	Off, ExposureActive, Timer1, ReadoutActive, UserOutput 1-3 and TriggerReady
Output Line Mode	yes, Tri-State, PushPull, OpenDrain, OpenSource
Output PWM function	yes, Line 4 .. 7 PWM Mode: Off, One Pulse, FixedFrequency PWM feature: PWMDuration, PWMDutyCycle Configuration Mode for lightning protection: MaxPWMDuration, MaxPWMDutyCycle
Line Debouncer	Low and high signal separately selectable Debouncing Time 0 ... 5 msec, Step Size: 1 $\mu$ sec

## Memory

Image Buffer	58 MB 1 Images (Trigger Mode) / 1 Image (Free Running Mode)
Non-volatile Memory	128 kb

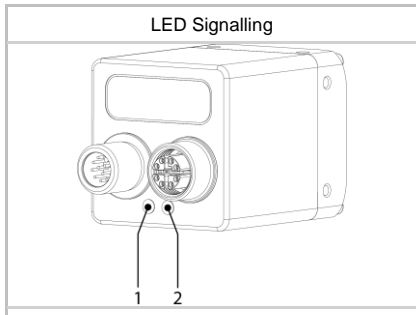
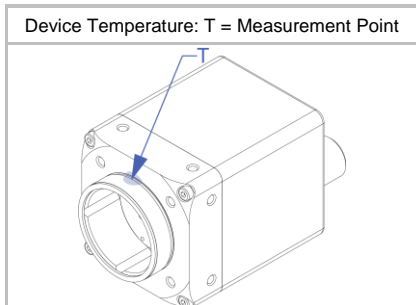
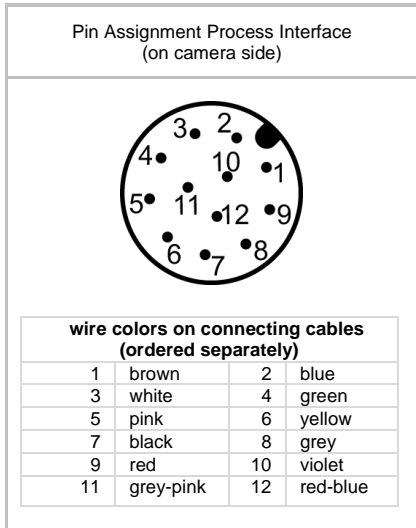
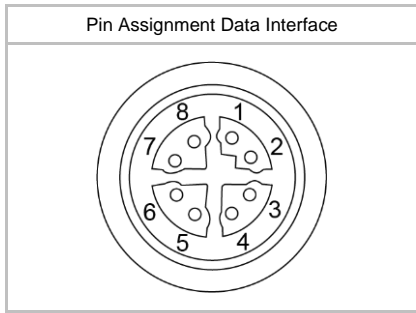
## Network Interface Data

Interface	Gigabit Ethernet 1000BASE-T 1000 Mbits/sec Fast Ethernet 100 BASE-T 100 Mbits/sec
Ethernet IP Configuration	Persistent IP, DHCP, LLA
Packet Size	576 ... 9000 Byte, Jumbo Frames supported

## GigE Vision® Features

Events	DeviceTemperatureStatusChanged, EventLost, ExposureEnd, ExposureStart, FrameEnd, FrameStart, FrameTransferSkipped, GigEVisionError, GigEVisionHeartbeatTimeOut, PrimaryApplicationSwitch, Line0..7 FallingEdge, Line0..7 RisingEdge, TransferBufferFull, TransferBufferReady, TriggerOverlapped, TriggerReady, TriggerSkipped
Transmission via Asynchronous Message Channel	
Action CMD	yes, Action 1 for Trigger
Frame Counter	up to $2^{32}$
Payload Size	0 ... 39923924 Byte
Timestamp	64 bit, resolution in nsec, increment = 8
Packet Delay	0 .. $2^{32} - 1$ nsec
Packet Resend	Resend Buffer: 77 MB (2 Images)
GigE Vision	v2.0 (v1.2 backward compatible)

<sup>1)</sup> Sensor readout, different from pixel format



## Interfaces and Connectors

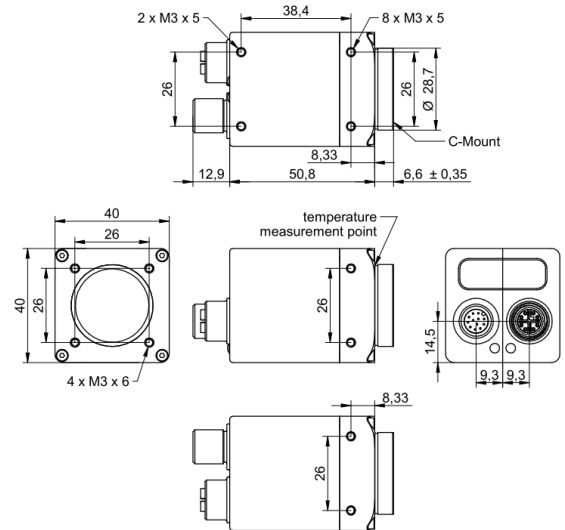
Data and Power Interface	Gigabit Ethernet	Transfer Rate	1000 Mbits/sec
	Fast Ethernet	Transfer Rate	100 Mbits/sec
	Connector:	M12 / 8-pol x-coded (SACC-CI-M12FS-8CON-L180-10G)	
	Assignment:	1 - MX1+	2 - MX1-
		3 - MX2+	4 - MX2-
		5 - MX4+	6 - MX4-
		7 - MX3-	8 - MX3+
Process Interface	Connector:	M12/12-pin a-coded (SACC-CI-M12MS-12CON-L180)	
	Assignment:	1 - Power Vcc	2 - GND (Power)
		3 - IN1 (Line0)	4 - OUT1 (Line4)
		5 - IN2 (Line1)	6 - OUT2 (Line5)
		7 - OUT3 (Line6)	8 - IN3 (Line2)
		9 - OUT4 (Line7)	10 - IN4 (Line3)
		11 - GND (IO)	12 - Power (IO)

## Optical Data

Lens Mount	C-Mount
Optical Filter	-

## Mechanical Data

Housing	aluminum, hard anodized
Protection Class	IP40 (with mounted lens and GigE cable) IP54 (with mounted lens and GigE cable) IP65/67 (with mounted tube and cable) IP69k (with stainless steel housing system)
Weight	137 g
Dimensions	

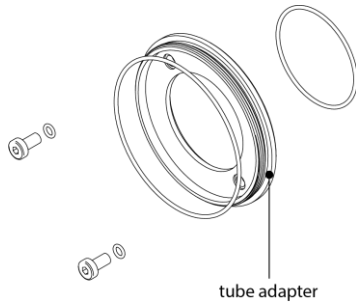


## Environmental Data

Storage Temperature	-10 °C ... + 70 °C
Operating Temperature	0 °C ... +65 °C @ T = Measurement Point or 0 °C ... +75 °C @ internal Temperature Sensor Note: Ambient temperature above 45 °C requires heat dissipation measures.
Int. Temperature Sensor	yes, accuracy: ±2 °C (typ) -40 °C ... 0 °C ±1 °C (typ) 0 °C ... +85 °C
Humidity	10 % ... 90 % non-condensing

<sup>1)</sup> the maximum temperature for Sony sensor characteristics (sensor performance) are guaranteed up to 55 °C @ Measurement Point or up to 59 °C @ internal temperature sensor

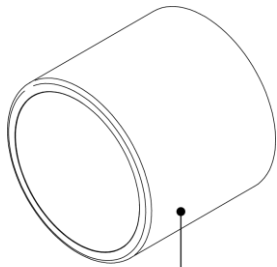
**Optional accessories for IP65/67 protection (ordered separately)**



tube adapter

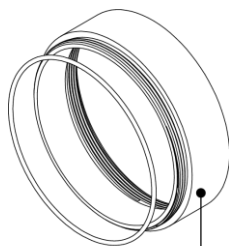
including seals and screws

Article Number	Diameter	Length
11185373	Ø 49,5 mm	5,25 mm
11185377	Ø 65 mm	5,25 mm



tube

Article Number	Diameter	Cover Glass	Length
11185370	Ø 49,5 mm	PMMA (Acryl)	44 mm
11185374	Ø 65 mm	PMMA (Acryl)	58 mm
11701124	Ø 49,5 mm	Tempered laminated safety glass	44 mm
11701125	Ø 65 mm	Tempered laminated safety glass	58 mm



distance ring

including seal

Article Number	Diameter	Length
11185372	Ø 49,5 mm	6 mm
11185371	Ø 49,5 mm	12 mm
11211571	Ø 49,5 mm	36 mm
11185376	Ø 65 mm	6 mm
11185375	Ø 65 mm	12 mm
11198906	Ø 65 mm	36 mm

**LED Signalling**

LED	LED 1	LED 2	
	Yellow static	Yellow flash	Error
	Green static	Green flash	Link ON
			RX active

**Electrical Data**

Power Supply (ext.)	VCC: 12 ... 24 V DC ± 20% I: 97 ... 195 mA
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Power over Ethernet	Class 1 device VCC: 36 ... 57 V DC I: 62 mA @ 48 VDC
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Power Consumption	approx. 2.3 W @ 12VDC and 6 fps approx. 3.0 W @ 48 VDC (PoE) and 6 fps (Factory Setting "Default")
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Digital Input	Isolated, short circuit protection U <sub>IN(low)</sub> : 0.0 ... 4.5 VDC U <sub>IN(high)</sub> : 11.0 ... 30.0 VDC I <sub>IN</sub> : 3.0 ... 10.0 mA min. Impulse Length: 2.0 µsec
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Digital Output	Isolated, short circuit protected U <sub>EXT</sub> : 12 ... 48 V DC [Power (IO)] (See documentation for guidelines when using >30V.)  I <sub>OUT</sub> : Continuously: max. 1.5 A PWM t <sub>ON</sub> max 1s / Duration max 40%: max. 2.5 A (Max. current can be used with one output or as a sum of all outputs used.)  t <sub>ON</sub> = < 0.2 µsec                      t <sub>OFF</sub> = < 0.2 µsec max. Frequency: 500 kHz
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GPIO	no
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**Conformity**

Conformity	CE, RoHS, REACH
KC Registration No. / Date	- / -
MTBF	- / -
	T = Measurement Point

**GenICam™ Features**

Short Exposure Range	-
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Timer	Timer Selector: Timer 1 TimerTriggerSource: Line0, SoftwareTrigger, ExposureStart, ExposureEnd, FrameTransferSkipped, TriggerSkipped, Off TimerDelay: 0 µsec ... 2 sec, Step Size: 1 µsec TimerDuration: 4 µsec ... 2 sec, Step Size: 1 µsec
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Counter	Counter Selector: Counter 1, Counter 2 CounterValue: 0 ... 65535 Counter Event Source: Counter1End or Counter2End, ExposureActive, FrameTransferSkipped, FrameTrigger, TriggerSkipped, Line0..3 and Off Counter Reset Source: Counter1End, Counter2End, Line0..3 and Off
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Sequencer	no
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## GenICam™ Features

User Sets	Factory Settings: UserSet0 (read only) Freely Programmable: UserSet1, UserSet2, UserSet3 Parameters: any user definable Parameter
Acquisition Abort	Delay up to 104.6 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 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
Custom Data	yes, 128 Byte with CustomDataKonfiguration Mode
SFNC Version	v2.4

## 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 .. 3, invert = false, line format = Tri State
Digital Output	Line4 .. 7, invert = false, line source = Off, line format = Open Source
GPIO 1/2	no
TriggerSource	All

## Partial Scan @ FullFrame, min Exposure, Mono8 (monochrome camera) or BayerRG8 (color camera)

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

<sup>2)</sup> depends on the used interface