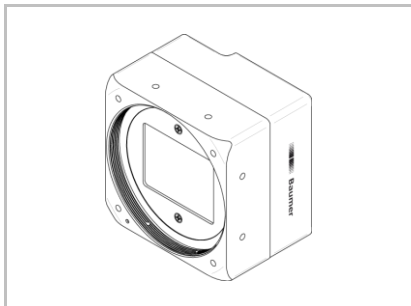
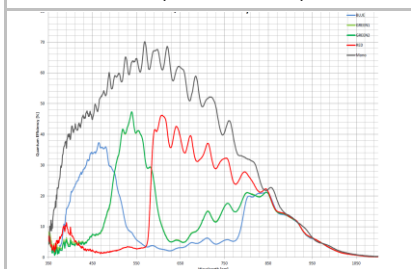


# LXC-200M

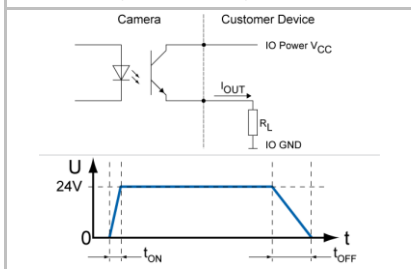
## Technical Data

 Art. No.  
11148673


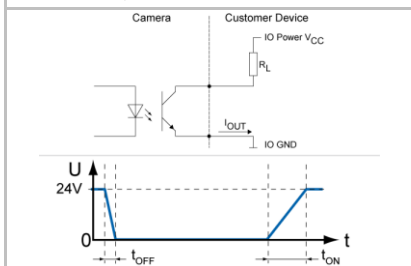
Sensor Graph: Relative Response



Digital Output: High Active



Digital Output: Low Active



### Digital Monochrome Matrix Camera, Camera Link Full

#### Sensor Information

Model Name	CMOSIS CMV20000
Type	35 mm progressive scan CMOS
Shutter	Global
Native Resolution	5120 x 3840 pixels
Scan Area	32.768 mm x 24.576 mm
Pixel Size	6.4 $\mu\text{m}$ x 6.4 $\mu\text{m}$

#### Data Quality

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

Readout Noise ( $\sigma$ )	0.2 LSB @ 8 bit (typical)
Dynamic Range	62.5 dB (typical)

#### Acquisition Formats

Image Formats	Format	Resolution	Frame Rate	$t_{\text{readout}}$
	Full Frame	5120 x 3840	32 fps	30,9 msec
Pixel Formats	Mono8, Mono10, Mono12			
Partial Scan	True Partial Scan, Region of Interest (ROI) arbitrary, up to 8 regions			

#### Image Pre-Processing

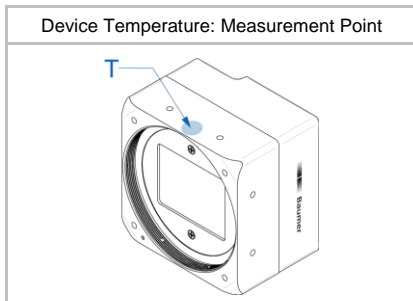
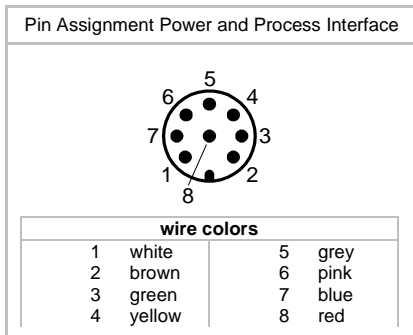
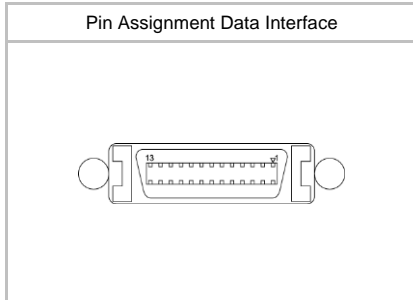
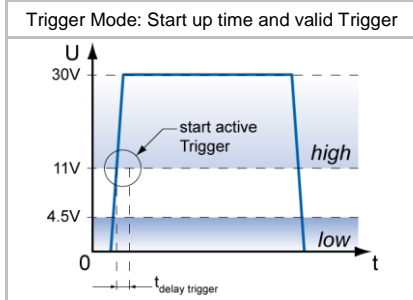
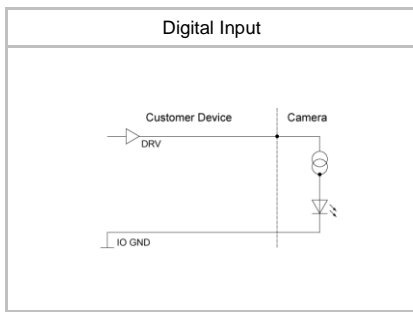
Analog Controls	Exposure Time (96 $\mu\text{sec}$ ... 1 sec   Step Size 1 $\mu\text{sec}$ ) Gain (0 ... 12 dB), Offset (0 ... 255 LSB   12 bit)
Gamma Correction	Gamma (0.1 ... 2   available if LUT is enabled)
LUT	Luminance (12 bit)
Color Models	Mono
Color Tolerance	Only on Color Cameras
Color Processing	Only on Color Cameras
Color Adjustment	Only on Color Cameras
Binning	1 or 2 (Horizontal and Vertical)
Decimation	1 or 2 (Horizontal and Vertical)
Image Flipping	Horizontal, vertical
Defect Pixel Correction	via Defect Pixel List with up to 511 Pixel Coordinates

#### Process Synchronization

Modes	Free Running, Trigger
Free Running	Continuous or Adjustable Acquisition Frame Rate (0.01 ... 4424 Hz)
Trigger Sources	Hardware, Software, FrameGrabber (CC1), All or Off
Trigger Delay	0 ... 2 sec, Tracking and buffering of up to 512 triggers
Sequencer Characteristics	up to 128 sets of parameters, up to 65536 loop passes, up to 65536 repetitions of sets of parameters, up to 65536 images per trigger event
Sequencer Parameters	Exposure Time, Gain Factor, Output Line, ROI Offset x, ROI offset y
External Flash Sync	via Exposure Active $t_{\text{delay flash}} \leq 3 \mu\text{sec}$ , $t_{\text{duration}} = t_{\text{exposure}} + 18 \mu\text{sec}$

#### Digital I/Os

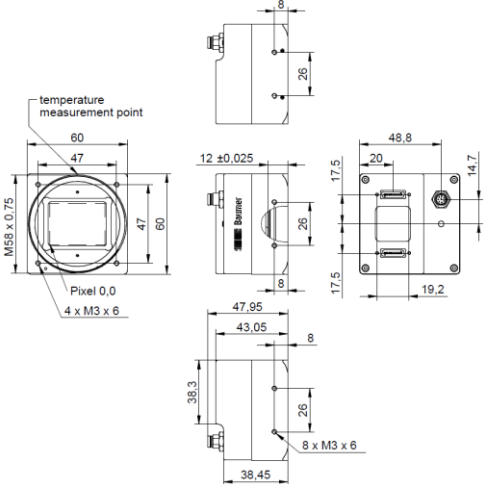
Lines	Input: Line0 Output: Line1
Circuit Times	Output: $t_{\text{ON}} = \text{typ. } 2 \mu\text{sec}$ $t_{\text{OFF}} = \text{typ. } 30 \mu\text{sec}$
Output Sources	Off, ExposureActive, ReadoutActive, FrameActive, TriggerReady, TriggerOverlapped, TriggerSkipped, Line0, UserOutput{1}, Timer{1}Active, SequencerOutput{0} Low and high signal separately selectable
Line Debouncer	Debouncing Time 0 ... 5 msec, Step Size: 1 $\mu\text{sec}$



## Interfaces and Connectors

Data Interface (1/2)	Camera Link: Connector:	Transfer Rate up to 10 tap / 85 MHz Camera Link SDR26 Mini screw lock type
	Pin Assignment:	See user manual
Power and Process Interface	Connector: Assignment:	SACC-DSI-M8MS-8CON-M8-L180 SH 1 – NC                      5 – IO Power VCC 2 – Power VCC          6 – OUT1 (Line1) 3 – IN1 (Line0)        7 – GND 4 – IO GND                8 – NC

## Mechanical Data

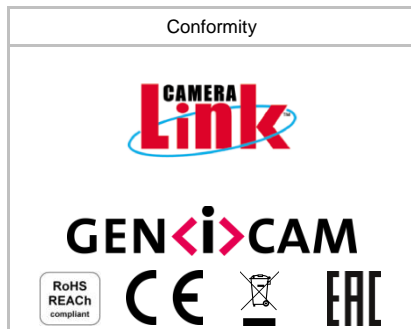
Housing	Aluminum, IP40
Dimensions	
Weight	235 g (M58-Mount), 335 g (F-Mount), 285 g (M42-Mount), 275 g (C-Mount)

## Optical Data

Lens Mount	M58-Mount, via optional adapters F-/M42-/C-Mount
Optical Filter	None

## Electrical Data

Power Supply (ext.)	VCC: 12 ... 24 V DC ± 20%
	I: 230 ... 460 mA
Power over Camera Link (PoCL)	VCC: 12 V DC ± 20%
	I: 460 mA
Power Consumption	approx. 5,5 W @ 24 VDC and 32 fps approx. 5,5 W @ 12 VDC (PoCL) and 32 fps
Digital Input	U <sub>IN(low)</sub> : 0.0 ... 4.5 VDC U <sub>IN(high)</sub> : 11.0 ... 30.0 VDC I <sub>IN</sub> : 6.0 ... 10 mA min. Impulse Length: 2.0 µsec Trigger Delay out of treadout: 4.0 µsec max. Trigger Delay during treadout: 30.0 µsec
Digital Output	U <sub>EXT</sub> : 5 ... 30 V DC I <sub>OUT</sub> : max. 50 mA



### LED Signalling

Camera LED	Green on	Power on
	Red on	Error
	Red blinking	Warning
	Yellow	Readout active

### Environmental Data

Storage Temperature	-10 °C ... +70 °C
Operating Temperature	+5°C ... +65 °C @ T= Measurement Point or +5°C ... +69 °C @ T= internal Temperature Sensor Ambient temperature above 46 °C requires heat dissipation
Int. Temperature Sensor	0 °C ... +85 °C accuracy: ±1 K
Humidity	10 % ... 90 % non-condensing
Conformity	RoHS, REACH, CE, EAC
KC Registration No. / Date	R-R-BkR-LXC-200M / 2020-07-31

### Camera Link Data Interface

Standard	v. 2.1		
Pixel Formats	Base	1X1-1Y	Mono8, Mono10, Mono12
	Base	1X2-1Y	Mono8, Mono10, Mono12
	Base	1X3-1Y	Mono8
	Medium	1X3-1Y	Mono8, Mono10, Mono12
	Medium	1X4-1Y	Mono8, Mono10, Mono12
	Full	1X8-1Y	Mono8
	EightyBit	1X8-1Y	Mono10
	EightyBit	1X10-1Y	Mono8
Pixel Clock	40 - 85 MHz		

### GenCP Features

(in compliance with GenCP 1.0)

Events	EventLost, EventDiscarded, Line{0,1}RisingEdge, Line{0,1}FallingEdge, ExposureStart, ExposureEnd, FrameStart, FrameEnd, TriggerReady, TriggerOverlapped, TriggerSkipped, Timer{1,2,3}End
Transmission via Asynchronous Message Channel	

### GeniCam™ Features

(in compliance with SFNC 2.1.0)

Timer	Timer Selector: Timer 1 ... 3 TimerTriggerSource: Off, Line0, Software, Action1, TriggerSkipped ExposureStart, ExposureEnd, FrameStart, FrameEnd, TimerDelay: 0 µsec ... 2 sec, Step Size: 1 µsec TimerDuration: 10 µsec ... 2 sec, Step Size: 1 µsec
User Sets	Factory Settings: Default (read only) Freely Programmable: UserSet1, UserSet2, UserSet3 Parameters: any user definable Parameter
Acquisition Abort	Delay up to 30,9 msec

### Vendor Specific Features

DSNU / PRNU (FPN)	Based on offset / gain per column
Correction	
High Dynamic Range (HDR)	Piecewise linear response, up to 90 dB
Burst Mode	16 full frame images with up to 32 fps
Chunk Info	FramelD, RegionID, Timestamp, CRC32

### Factory Settings after Start-Up

Operation Mode	Free Running, overlapped mode
Analog Controls	Exposure Time: 4 msec, Gain: 0 dB, Offset: 0
Pixel Format	Mono8
Partial Scan	Off
Acquisition Frame Rate	Off
Timer	Off
Defect Pixel Correction	On
FPN Correction	On
Camera Link interface	2 tap Camera Link Base, 80 MHz
Digital Input	Line0, invert = false, trigger source = All
Digital Output	Line1, invert = false, line source = Off