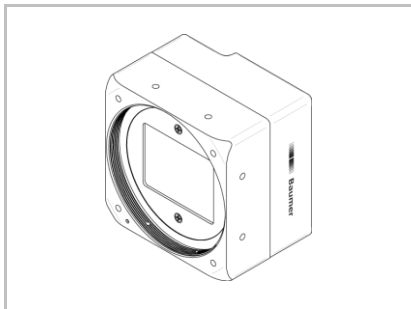
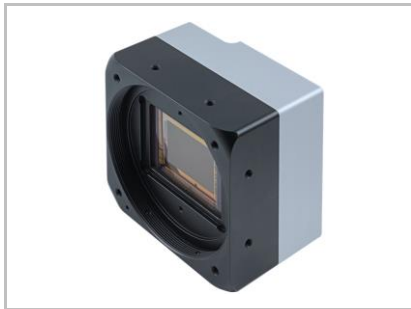
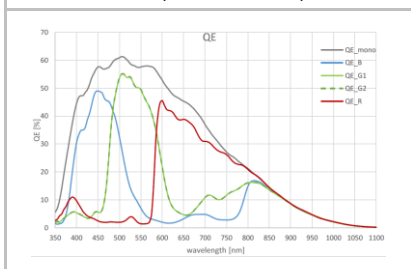


LXC-500M Technical Data 11188975

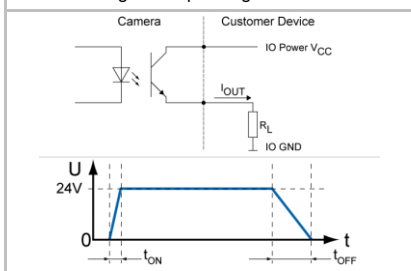
Digital Monochrome Matrix Camera, Camera Link Full



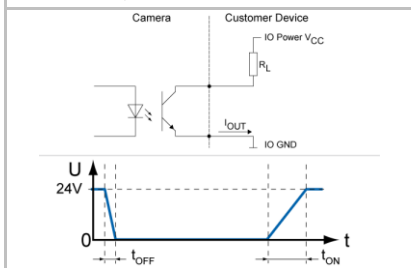
Sensor Graph: Relative Response



Digital Output: High Active



Digital Output: Low Active



Sensor Information

Model Name	CMOSIS CMV-50000
Type	35 mm progressive scan CMOS
Shutter	Global
Native Resolution	7920 x 6004 pixels
Scan Area	36.4 mm x 27.6 mm
Pixel Size	4.6 μm x 4.6 μm

Data Quality

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

Readout Noise (σ)	0.2 LSB @ 8 bit (typical)
Dynamic Range	64 dB (typical)

Acquisition Formats

Image Formats	Format	Resolution	Frame Rate	t_{readout}
	Full Frame	7920 x 6004	15 fps	65,6 msec
Pixel Formats	Mono8, Mono10, Mono12			
Partial Scan	True Partial Scan, Region of Interest (ROI) arbitrary, up to 8 regions			

Image Pre-Processing

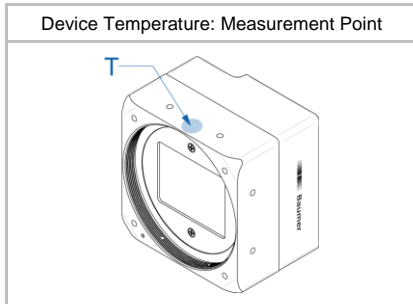
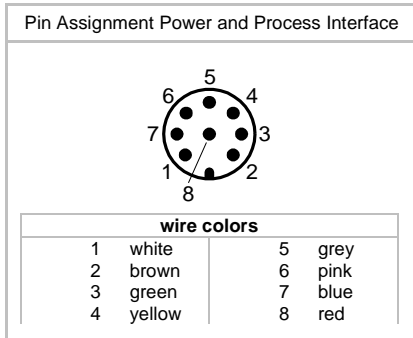
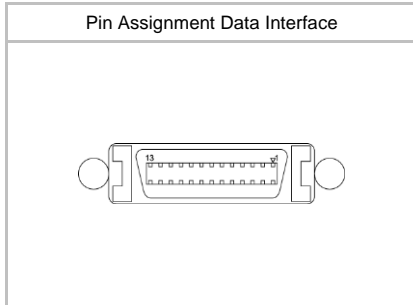
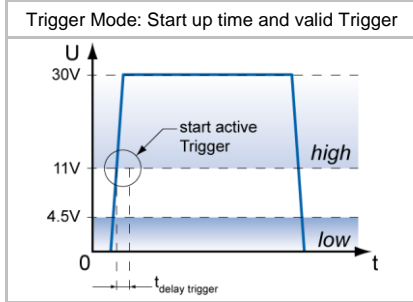
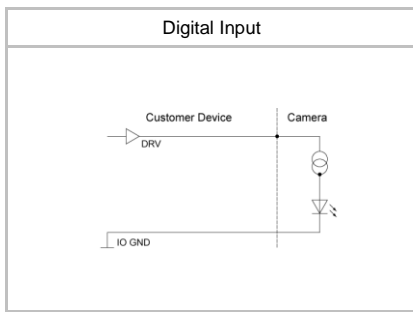
Analog Controls	Exposure Time (95 μsec ... 10 sec Step Size 1 μsec) Gain (0 ... 23.5 dB), Offset (0 ... 255 LSB 12 bit)
Gamma Correction	Gamma (0.1 ... 2 available if LUT is enabled)
LUT	Luminance (12 bit)
Color Models	Mono
Color Tolerance	Only on Color Cameras
Color Processing	Only on Color Cameras
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 ... 3067 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

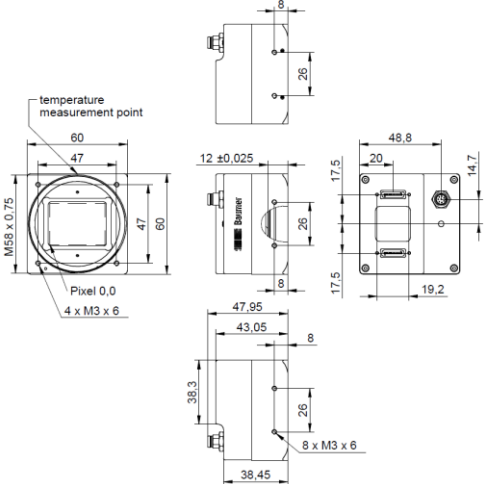
Lines	Input: Line0 Output: Line1
Circuit Times	Output: $t_{\text{ON}} = \text{typ. } 2 \mu\text{sec}$ $t_{\text{OFF}} = \text{typ. } 30 \mu\text{sec}$
Output Sources	Off, ExposureActive, ReadoutActive, FrameActive, TriggerReady, TriggerOverlapped, TriggerSkipped, Line0, UserOutput{1}, Timer{1}Active,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



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 2 – Power VCC 3 – IN1 (Line0) 4 – IO GND
		5 – IO Power VCC 6 – OUT1 (Line1) 7 – GND 8 – NC

Mechanical Data

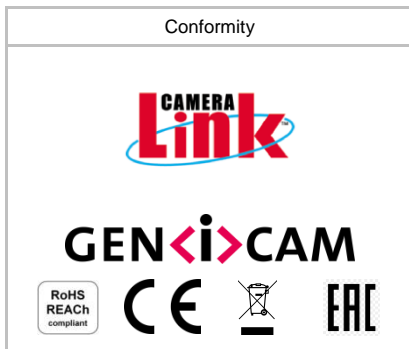
Housing	Aluminum, IP40
Dimensions	
Weight	235 g (M58-Mount), 335 g (F-Mount), 285 g (M42-Mount), 275 g (C-Mount)

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: 420 ... 830 mA
Power over Camera Link (PoCL)	VCC: 12 V DC ± 20%
	I: 830 mA
Power Consumption	approx. 10 W @ 24 VDC and 15 fps approx. 10 W @ 12 VDC (PoCL) and 15 fps
Digital Input	U _{IN(low)} : 0.0 ... 4.5 VDC U _{IN(high)} : 11.0 ... 30.0 VDC I _{IN} : 6.0 ... 10 mA min. Impulse Length: 2.0 µsec Trigger Delay out of treadout: 110.0 µsec max. Trigger Delay during treadout: 110.0 µsec
Digital Output	U _{EXT} : 5 ... 30 V DC I _{OUT} : 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 ... +66 °C @ T= Measurement Point or +10°C ... +71 °C @ T= internal Temperature Sensor Ambient temperature above 28 °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	NA

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

Vendor Specific Features

DSNU / PRNU (FPN)	Based on offset / gain per column
Correction	
Pixel Correction	Averaging filter with threshold to reduce sporadic grey value changes at random positions (salt & pepper noise)
High Dynamic Range (HDR)	NA
Burst Mode	9 full frame images with up to 15 fps
Chunk Info	FrameID, 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
Pixel 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