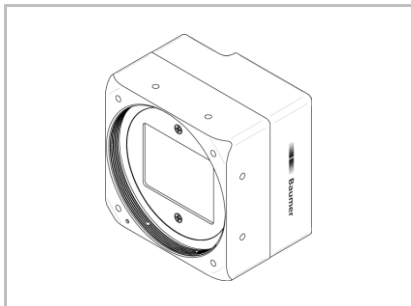
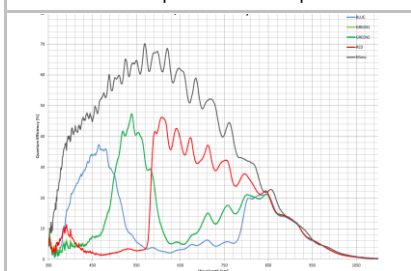


LXC-200M

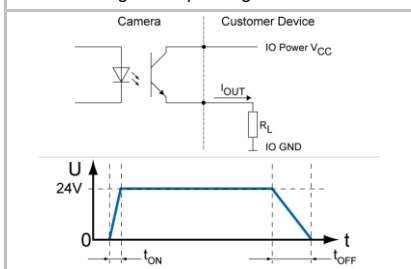
Technical Data

 Art. No.
11148673


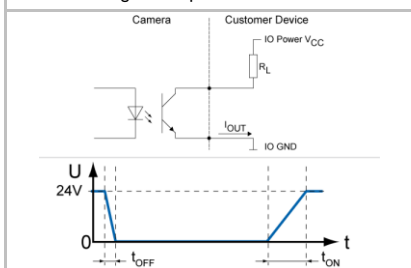
Sensor Graph: Relative Response



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 μm x 6.4 μm |

Data Quality

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

| | |
|----------------------------|---------------------------|
| Readout Noise (σ) | 0.2 LSB @ 8 bit (typical) |
| Dynamic Range | 62.5 dB (typical) |

Acquisition Formats

| Image Formats | Format | Resolution | Frame Rate | t_{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

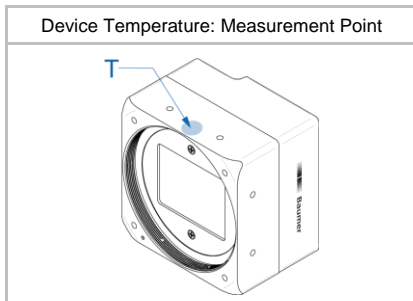
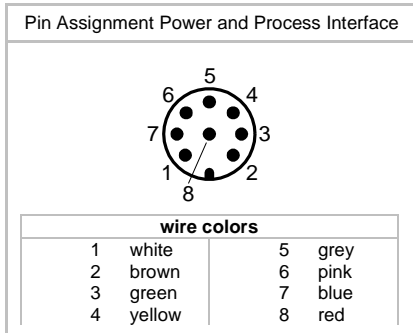
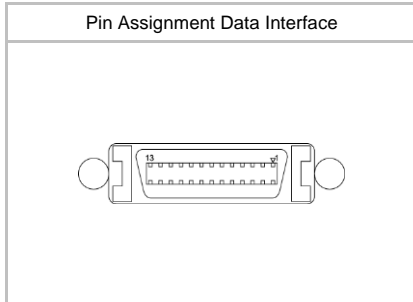
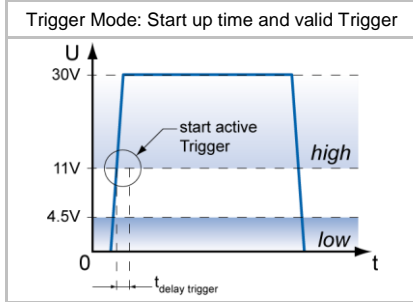
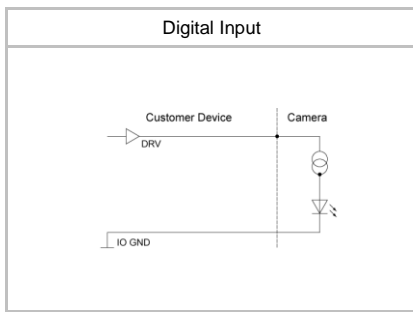
| | |
|-------------------------|--|
| Analog Controls | Exposure Time (96 μsec ... 1 sec Step Size 1 μsec) Gain (0 ... 12 dB), Offset (0 ... 255 LSB 12 bit) |
| Gamma Correction | Gamma (0.1 ... 2 available if LUT is enabled) |
| LUT | Luminance (12 bit) |
| Color Models | Mono |
| Color Tolerance | 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

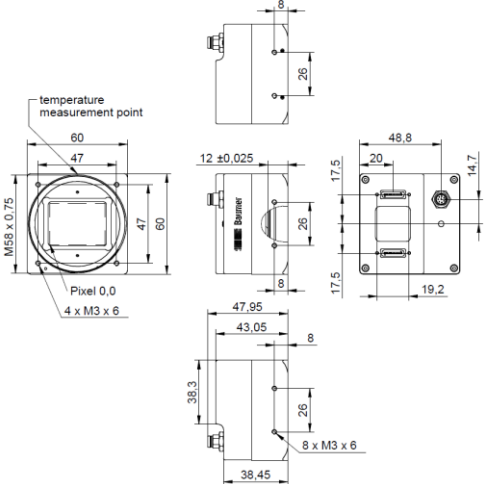
| | |
|----------------|---|
| Lines | Input: Line0 Output: Line1 |
| Circuit Times | Output: $t_{\text{ON}} = \text{typ. } 2 \mu\text{sec}$ $t_{\text{OFF}} = \text{typ. } 30 \mu\text{sec}$ |
| Output Sources | Off, ExposureActive, ReadoutActive, FrameActive, TriggerReady, TriggerOverlapped, TriggerSkipped,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

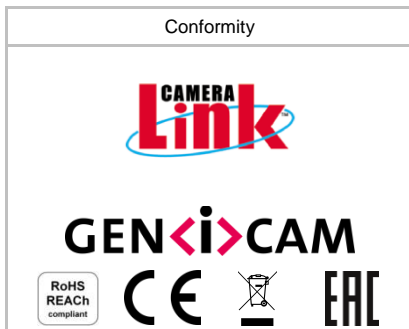
| | |
|------------|---|
| Housing | Aluminum, IP40 |
| Dimensions |  |
| Weight | 235 g (M58-Mount), 335 g (F-Mount), 285 g (M42-Mount), 275 g (C-Mount) |

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: 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 | $U_{IN(low)}$: 0.0 ... 4.5 VDC $U_{IN(high)}$: 11.0 ... 30.0 VDC I_{IN} : 6.0 ... 10 mA min. Impulse Length: 2.0 μ sec Trigger Delay out of treadout: 4.0 μ sec max. Trigger Delay during treadout: 30.0 μ sec |
| 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 ... +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 |

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 |