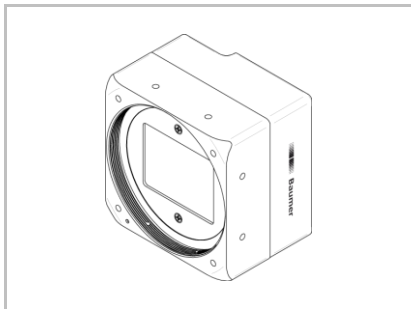
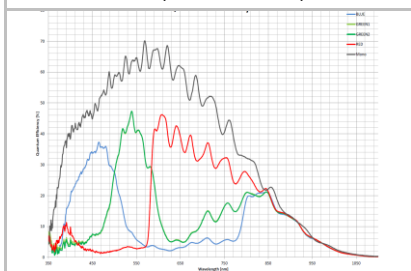


# LXC-200C

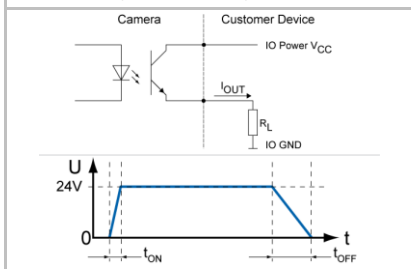
## Technical Data

 Art. No.  
11148674


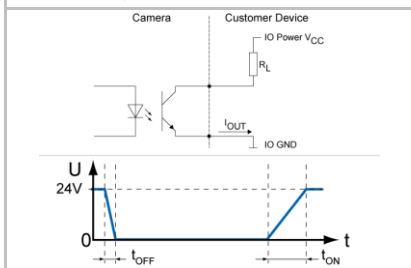
Sensor Graph: Relative Response



Digital Output: High Active



Digital Output: Low Active



### Digital Color 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 ( $\sigma$ ) | 0.2 LSB @ 8 bit |
| Dynamic Range              | 62 dB (typical) |

#### Acquisition Formats

| Image Formats | Format   | Resolution  | Frame Rate | t <sub>readout</sub> |
|---------------|--|-------------|------------|----------------------|
|               | Full Frame   | 5120 x 3840 | 32 fps     | 30,9 msec            |
| Pixel Formats | BayerRG8, BayerRG10, BayerRG12   |             |            |                      |
| Partial Scan  | True Partial Scan, Region of Interest (ROI) arbitrary, up to 8 regions |             |            |                      |

#### Image Pre-Processing

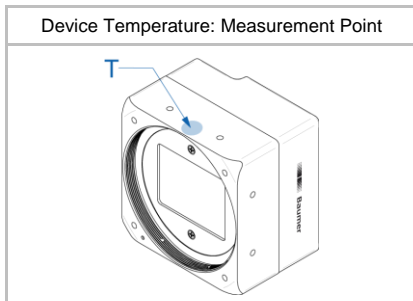
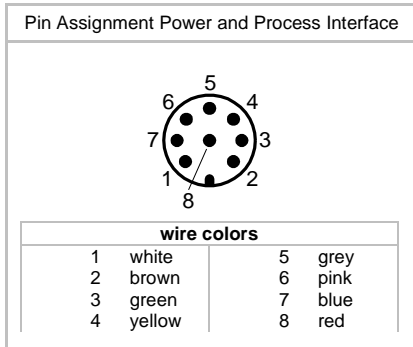
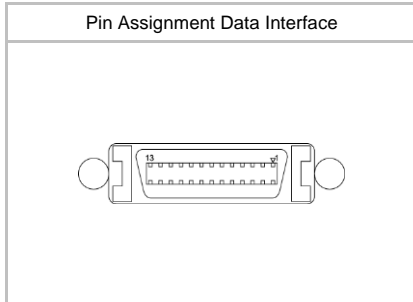
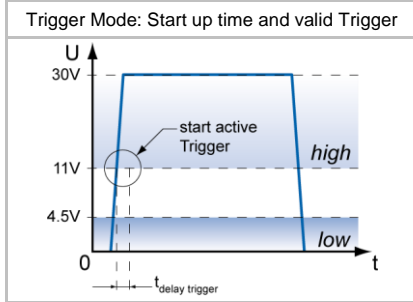
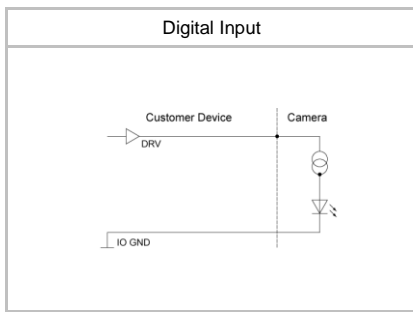
|                         |   |
|-------------------------|---|
| Analog Controls         | Exposure Time (96 μsec ... 1 sec   Step Size 1 μsec)<br>Gain (0 ... 12 dB), Offset (0 ... 255 LSB   12 bit) |
| Gamma Correction        | Gamma (0.1 ... 2   available if LUT is enabled)   |
| LUT                     | Luminance (12 bit)  |
| Color Models            | No (Raw Bayer data only)  |
| Color Tolerance         | -   |
| Color Processing        | No (Raw Bayer data only)  |
| Color Adjustment        | White Balance (manual & one push)   |
| Binning                 | -   |
| 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<br>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,<br>up to 65536 repetitions of sets of parameters,<br>up to 65536 images per trigger event |
| Sequencer Parameters      | Exposure Time, Gain Factor, Output Line, ROI Offset x,<br>ROI offset y   |
| External Flash Sync       | via Exposure Active<br>t <sub>delay flash</sub> ≤ 3 μsec, t <sub>duration</sub> = t <sub>exposure</sub> + 18 μsec                                |

#### Digital I/Os

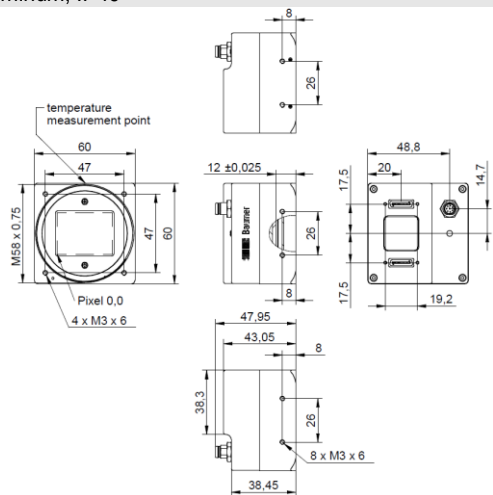
|                |   |
|----------------|---|
| Lines          | Input: Line0<br>Output: Line1   |
| Circuit Times  | Output: t <sub>ON</sub> = typ. 2 μsec t <sub>OFF</sub> = typ. 30 μsec   |
| Output Sources | Off, ExposureActive, ReadoutActive, FrameActive,<br>TriggerReady, TriggerOverlapped, TriggerSkipped,<br>Line0, UserOutput{1}, Timer{1}Active,<br>SequencerOutput{0} |
| Line Debouncer | Low and high signal separately selectable<br>Debouncing Time 0 ... 5 msec, Step Size: 1 μsec  |



## Interfaces and Connectors

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

## Mechanical Data

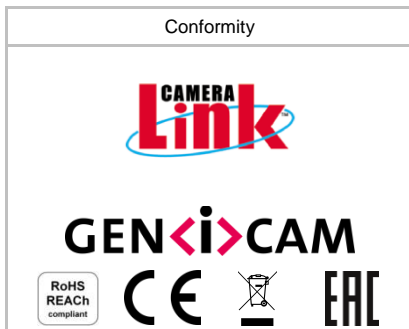
|            |   |
|------------|---|
| Housing    | Aluminum, IP40  |
| Dimensions |  |
| Weight     | 235 g (M58-Mount), 335 g (F-Mount), 285 g (M42-Mount), 275 g (C-Mount)              |

## Optical Data

|                |  |
|----------------|--|
| Lens Mount     | M58-Mount, via optional adapters F-/M42-/C-Mount |
| Optical Filter | UV/IR Cut  |

## 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<br>approx. 5,5 W @ 12 VDC (PoCL) and 32 fps   |
| Digital Input                 | U <sub>IN(low)</sub> : 0.0 ... 4.5 VDC<br>U <sub>IN(high)</sub> : 11.0 ... 30.0 VDC<br>I <sub>IN</sub> : 6.0 ... 10 mA<br>min. Impulse Length: 2.0 µsec<br>Trigger Delay out of treadout: 4.0 µsec<br>max. Trigger Delay during treadout: 30.0 µsec |
| Digital Output                | U <sub>EXT</sub> : 5 ... 30 V DC<br>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<br>+5°C ... +69 °C @ T= internal Temperature Sensor<br>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  | BayerRG8, BayerRG10, BayerRG12 |
|               | Base        | 1X2-1Y  | BayerRG8, BayerRG10, BayerRG12 |
|               | Base        | 1X3-1Y  | BayerRG8                       |
|               | Medium      | 1X3-1Y  | BayerRG8, BayerRG10, BayerRG12 |
|               | Medium      | 1X4-1Y  | BayerRG8, BayerRG10, BayerRG12 |
|               | Full        | 1X8-1Y  | BayerRG8                       |
|               | EightyBit   | 1X8-1Y  | BayerRG10                      |
|               | EightyBit   | 1X10-1Y | BayerRG8                       |
| 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<br>TimerTriggerSource:<br>Off, Line0, Software, Action1, TriggerSkipped<br>ExposureStart, ExposureEnd, FrameStart, FrameEnd,<br>TimerDelay: 0 µsec ... 2 sec, Step Size: 1 µsec<br>TimerDuration: 10 µsec ... 2 sec, Step Size: 1 µsec |
| User Sets         | Factory Settings: Default (read only)<br>Freely Programmable: UserSet1, UserSet2, UserSet3<br>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               | 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            | BayerRG8                                     |
| 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     |