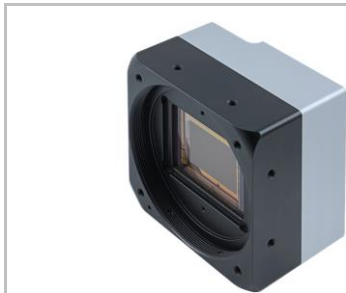


# LXC-250C

## Technical Data

 Art. No.  
11162827


### Digital Color Matrix Camera, Camera Link Full

#### Sensor Information

|                   |                                       |
|-------------------|---------------------------------------|
| Model Name        | ON Semiconductor Python 25k           |
| Type              | APS-H progressive scan CMOS           |
| Shutter           | Global                                |
| Native Resolution | 5120 x 5120 pixels                    |
| Scan Area         | 23.04 mm x 23.04 mm                   |
| Pixel Size        | 4.5 $\mu\text{m}$ x 4.5 $\mu\text{m}$ |

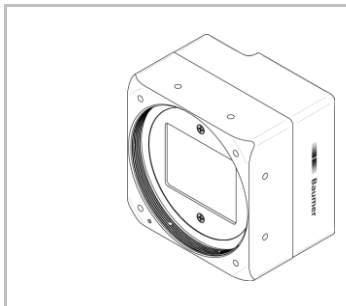
#### Data Quality

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

|                            |                           |
|----------------------------|---------------------------|
| Readout Noise ( $\sigma$ ) | 0,3 LSB @ 8 bit (typical) |
| Dynamic Range              | 55,5 dB (typical)         |

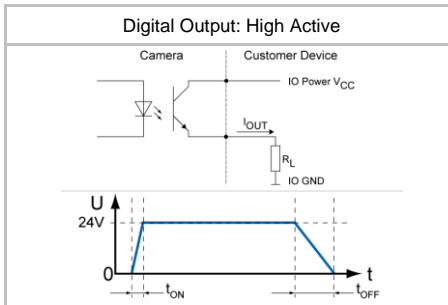
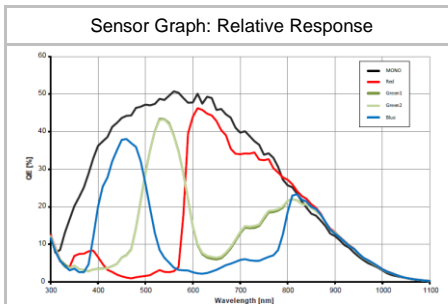
#### Acquisition Formats

| Image Formats | Format   | Resolution  | Frame Rate | $t_{\text{readout}}$ |
|---------------|--|-------------|------------|----------------------|
|               | Full Frame   | 5120 x 5120 | 32 fps     | 29,5 msec            |
| Pixel Formats | BayerGB8, BayerGB10  |             |            |                      |
| Partial Scan  | True Partial Scan, Region of Interest (ROI) arbitrary, up to 8 regions |             |            |                      |



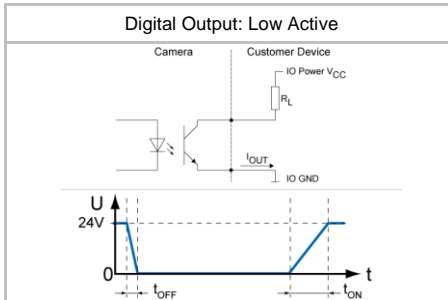
#### Image Pre-Processing

|                         |   |
|-------------------------|---|
| Analog Controls         | Exposure Time (27 $\mu\text{sec}$ ... 1 sec   Step Size 1 $\mu\text{sec}$ )<br>Gain (0 ... 23.5 dB), Offset (0 ... 63 LSB   10 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 1000 Pixel Coordinates   |



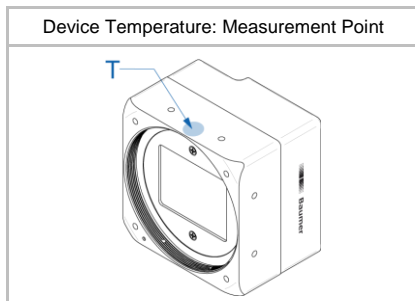
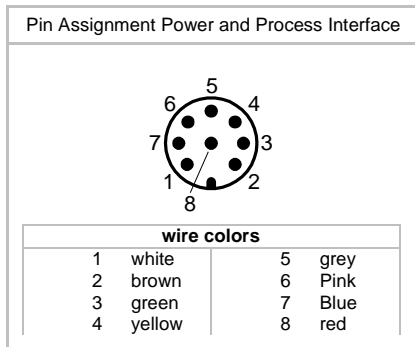
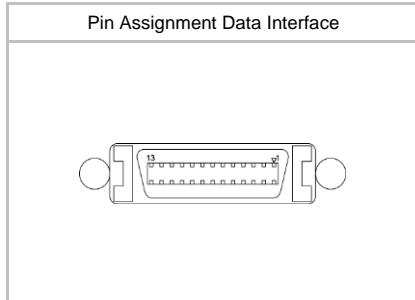
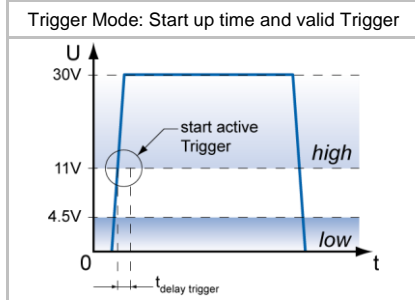
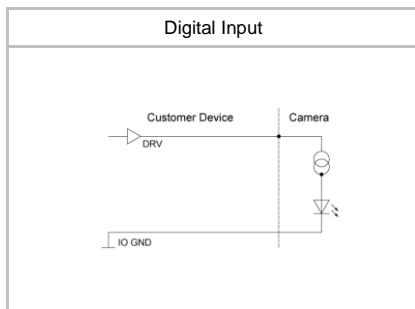
#### Process Synchronization

|                           |  |
|---------------------------|--|
| Modes                     | Free Running, Trigger  |
| Free Running              | Continuous or<br>Adjustable Acquisition Frame Rate (0.01 ... 7299 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>$t_{\text{delay flash}} \leq 3 \mu\text{sec}$ , $t_{\text{duration}} = t_{\text{exposure}} + 18 \mu\text{sec}$            |



#### Digital I/Os

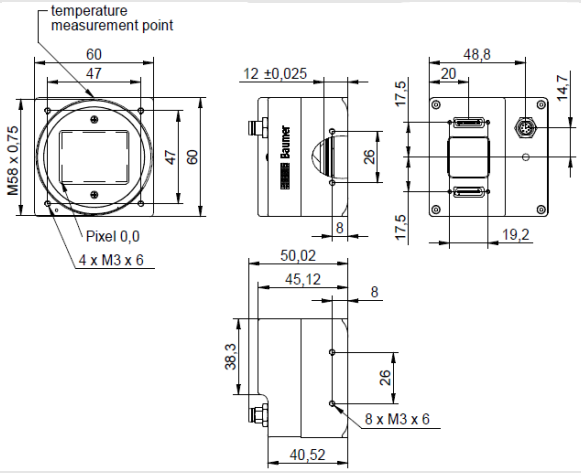
|                |   |
|----------------|---|
| Lines          | Input: Line0<br>Output: Line1   |
| Circuit Times  | Output: $t_{\text{ON}} = \text{typ. } 2 \mu\text{sec}$ $t_{\text{OFF}} = \text{typ. } 30 \mu\text{sec}$   |
| Output Sources | Off, ExposureActive, ReadoutActive, FrameActive,<br>TriggerReady, 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 $\mu\text{sec}$   |



## Interfaces and Connectors

|                             |                  |  |        |                  |               |                  |                 |         |            |
|-----------------------------|------------------|--|--------|------------------|---------------|------------------|-----------------|---------|------------|
| Data Interface (1/2)        | Camera Link:     | Transfer Rate up to 10 tap / 85 MHz  |        |                  |               |                  |                 |         |            |
|                             | Connector:       | Camera Link SDR26 Mini screw lock type   |        |                  |               |                  |                 |         |            |
| Power and Process Interface | Pin Assignment:  | See user manual  |        |                  |               |                  |                 |         |            |
|                             | Connector:       | SACC-DSI-M8MS-8CON-M8-L180 SH  |        |                  |               |                  |                 |         |            |
|                             | Assignment:      | <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1 – NC</td> <td style="width: 50%;">5 – IO Power VCC</td> </tr> <tr> <td>2 – Power VCC</td> <td>6 – OUT1 (Line1)</td> </tr> <tr> <td>3 – IN1 (Line0)</td> <td>7 – GND</td> </tr> <tr> <td>4 – IO GND</td> <td>8 – NC</td> </tr> </table> | 1 – NC | 5 – IO Power VCC | 2 – Power VCC | 6 – OUT1 (Line1) | 3 – IN1 (Line0) | 7 – GND | 4 – IO GND |
| 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 | UV/IR Cut  |

## Electrical Data

|                                     |  |                      |
|-------------------------------------|--|----------------------|
| Power Supply (ext.)                 | VCC:                                     | 12 ... 24 V DC ± 20% |
|                                     | I:                                       | 325 ... 650 mA       |
| Power over Camera Link (PoCL)       | VCC:                                     | 12 V DC ± 20%        |
|                                     | I:                                       | 650 mA               |
| Power Consumption (1X10-1Y, 85 MHz) | approx. 7.8 W @ 24 VDC and 32 fps        |                      |
|                                     | approx. 7.8 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 µsec             |
|                                     | Trigger Delay out of treadout:           | 4.0 µsec             |
| Digital Output                      | max. Trigger Delay during treadout:      | 30.0 µsec            |
|                                     | $U_{EXT}$ :                              | 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 ... +68°C @ T= Measurement Point<br>or<br>+5°C ... +71°C @ T= internal Temperature Sensor<br>Ambient temperature above 27 °C requires heat dissipation |
| Int. Temperature Sensor | 0 °C ... +85 °C accuracy: ±1 K  |
| Humidity                | 10 % ... 90 % non-condensing  |
| Conformity              | RoHS, REACh, CE   |


**Camera Link Data Interface**

|               |             |         |                     |
|---------------|-------------|---------|---------------------|
| Standard      | v. 2.1      |         |                     |
| Pixel Formats | Base        | 1X1-1Y  | BayerGB8, BayerGB10 |
|               | Base        | 1X2-1Y  | BayerGB8, BayerGB10 |
|               | Base        | 1X3-1Y  | BayerGB8            |
|               | Medium      | 1X3-1Y  | BayerGB10           |
|               | Medium      | 1X4-1Y  | BayerGB8, BayerGB10 |
|               | Full        | 1X8-1Y  | BayerGB8            |
|               | EightyBit   | 1X8-1Y  | BayerGB10           |
|               | EightyBit   | 1X10-1Y | BayerGB8            |
| Pixel Clock   | 40 - 85 MHz |         |                     |

**GenCP Features**

(in compliance with GenCP 1.0)

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

**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 15,0 msec  |

**Vendor Specific Features**

|                          |  |
|--------------------------|--|
| DSNU / PRNU (FPN)        | Based on offset / gain per column      |
| Correction               |  |
| High Dynamic Range (HDR) | -                                      |
| Burst Mode               | 12 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            | BayerGB8                                     |
| 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     |