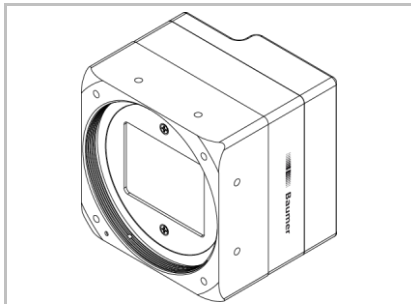
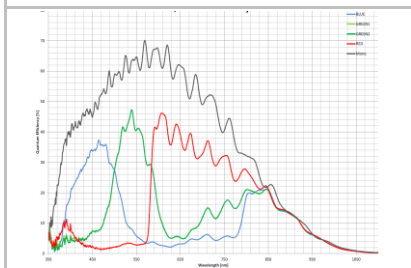


LXG-200C

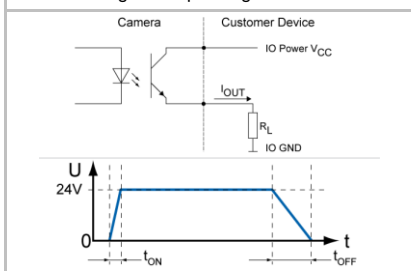
Technical Data

 Art. No.
11117849


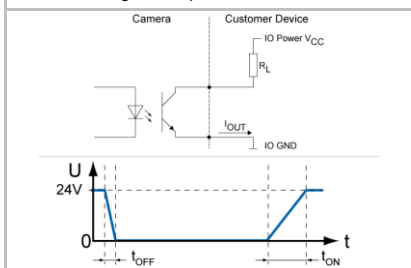
Sensor Graph: Relative Response



Digital Output: High Active



Digital Output: Low Active



Digital Color Matrix Camera, Dual Gigabit Ethernet

Sensor Information

| | |
|-------------------|---------------------------------------|
| Model Name | CMOSIS CMV-20000 |
| 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 | 63 dB (green, typical) |

Acquisition Formats

| Image Formats | Format | Resolution | Frame Rate | t_{readout} |
|---------------|--|-------------|------------|----------------------|
| | Full Frame | 5120 x 3840 | 12 fps | 30,9 msec |
| Pixel Formats | BayerRG8, BayerRG12, BayerRG12 Packed | | | |
| Partial Scan | True Partial Scan, Region of Interest (ROI) arbitrary, up to 8 regions | | | |

Image Pre-Processing

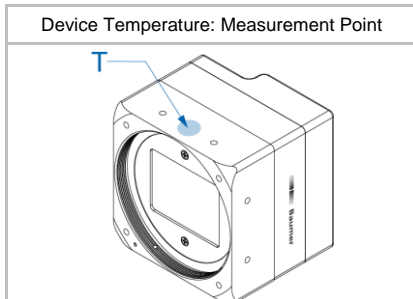
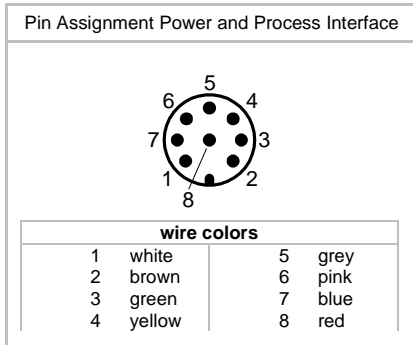
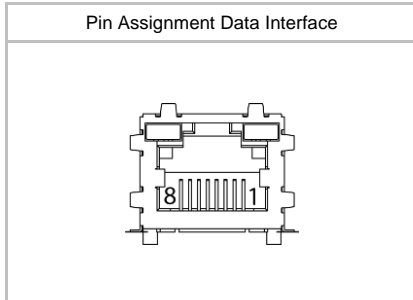
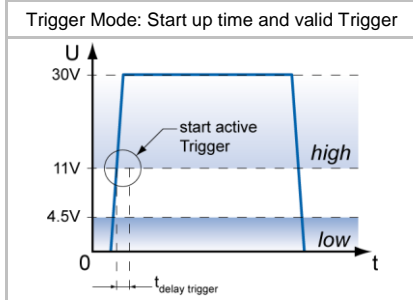
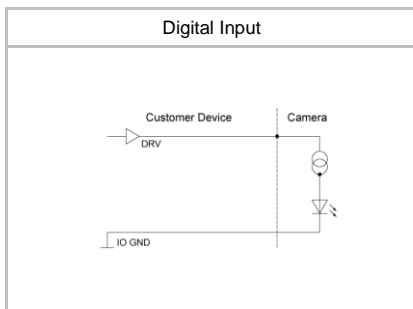
| | |
|-------------------------|--|
| Analog Controls | Exposure Time (96 μsec ... 1 sec Step Size 1 μsec) Gain (0 ... 12 dB), Offset (0 ... 255 LSB 12 bit) |
| Gamma Correction | Gamma (0.1 ... 2 available if LUT is enabled) |
| LUT | Luminance (12 bit) |
| Color Models | No (Raw Bayer data only) |
| 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 Adjustable Acquisition Frame Rate (0.01 ... 4145 Hz) |
| Trigger Sources | Hardware, Software, ActionCommand, 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: Line 0, Output: Line1, Line 2, Line 3 |
| 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, Line 0, UserOutput{1,2,3}, Timer{1,2,3}Active, SequencerOutput{0,1,2} |
| Line Debouncer | Low and high signal separately selectable Debouncing Time 0 ... 5 msec, Step Size: 1 μsec |



Interfaces and Connectors

| | | | |
|-----------------------------|------------------|--|------------------|
| Data Interface (1/2) | Gigabit Ethernet | Transfer Rate | 1000 Mbits/sec |
| | Fast Ethernet | Transfer Rate | 100 Mbits/sec |
| | Connector: | 8P8C Modular Jack (RJ45) screw lock type | |
| | Pin Assignment: | 1 – MX1+ | 5 – MX3- |
| | | 2 – MX1- | 6 – MX2- |
| | | 3 – MX2+ | 7 – MX4+ |
| | | 4 – MX3+ | 8 – MX4- |
| Power and Process Interface | Connector: | SACC-DSI-M8MS-8CON-M8-L180 SH | |
| | Assignment: | 1 – OUT3 (line3) | 5 – IO Power VCC |
| | | 2 – Power VCC | 6 – OUT1 (line1) |
| | | 3 – IN1 (line0) | 7 – GND |
| | | 4 – IO GND | 8 – OUT2 (line2) |

Mechanical Data

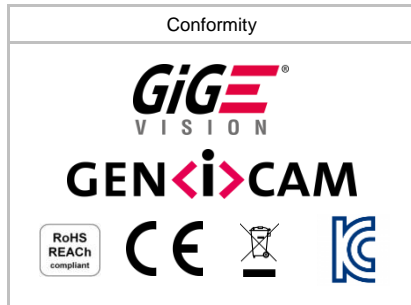
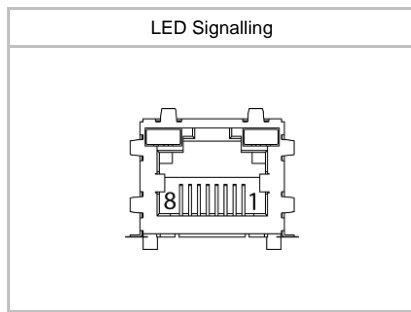
| | |
|------------|--|
| Housing | Aluminum, IP40 |
| Dimensions | |
| Weight | 290 g (M58-Mount), 390 g (F-Mount), 340 g (M42-Mount), 332 g (C-Mount) |

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: 247 ... 497 mA |
| Power over Ethernet | Class 0 device |
| | VCC: 36 ... 57 V DC |
| | I: 150 mA @ 48 VDC |
| Power Consumption | approx. 5.9 W @ 24 VDC and 12 fps |
| | approx. 7.2 W @ 48 VDC (PoE) and 12 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 |
| | max. Trigger Delay during treadout: 30.0 µsec |
| Digital Output | U_{EXT} : 5 ... 30 V DC |
| | I_{OUT} : max. 50 mA |



LED Signalling

| | | |
|-----------------|----------------|---------------------|
| Camera LED | Green on | Power on, link good |
| | Green blinking | Power on, no link |
| | Red on | Error |
| | Red blinking | Warning |
| | Yellow | Readout active |
| RJ45 LEDs (1/2) | Green on | Link on |
| | Green blinking | Link activity |
| | Amber on | GigE speed |
| | Amber blinking | 100 Mb speed |
| | | |

Environmental Data

| | |
|----------------------------|---|
| Storage Temperature | -10 °C ... +70 °C |
| Operating Temperature | +5°C ... +65 °C @ T= Measurement Point or +5°C ... +70 °C @ T= internal Temperature Sensor Ambient temperature above 32 °C requires heat dissipation |
| Int. Temperature Sensor | 0 °C ... +85 °C accuracy: ±1 K |
| Humidity | 10 % ... 90 % non-condensing |
| Conformity | RoHS, REACH, CE |
| KC Registration No. / Date | MSIP-REI-BkR-LXG-200M / 08.09.2017 |

Network Interface Data

| | |
|---------------------------|--|
| Network Interface | Gigabit Ethernet 1000BASE-T 1000 Mbits/sec Fast Ethernet 100 BASE-T 100 Mbits/sec |
| Link Aggregation | According to 802.3ad, static configuration |
| Ethernet IP Configuration | Persistent IP, DHCP, LLA |
| Packet Size | 576 .. 9000 Byte, Jumbo frames supported |

GigE Vision® Features (in compliance with GigE Vision® 1.2)

| | |
|---|--|
| Events Transmission via Asynchronous Message Channel | GigEVisionError, HeartbeatTimeout, EventLost, EventDiscarded, Line{0,1,2,3}RisingEdge, Line{0,1,2,3}FallingEdge, Action1, ExposureStart, ExposureEnd, FrameStart, FrameEnd, TriggerReady, TriggerOverlapped, TriggerSkipped, Timer{1,2,3}End, Phy{0,1}Up, Phy{0,1}Down |
| Frame Counter | up to 2 ³² |
| Payload Size | 4 ... 16.773.332 Byte |
| Transmission Delay | 0 .. 2 ³² -1 Ticks (1 Tick = 8 nsec) |
| Timestamp | 64 bit |
| Packet Delay | 0 .. 2 ³² -1 Ticks (1 Tick = 8 nsec) |
| Packet Resend | Resend Buffer: 128 MB (4 Images) |

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 | |
| High Dynamic Range (HDR) | Piecewise linear response, up to 90 dB |
| Burst Mode | 9 full frame images with up to 32 fps |

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 |
| Transmission Delay | Off |
| Defect Pixel Correction | On |
| FPN Correction | On |
| Digital Input | Line0, invert = false, trigger source = All |
| Digital Output | Line1/2/3, invert = false, line source = Off |