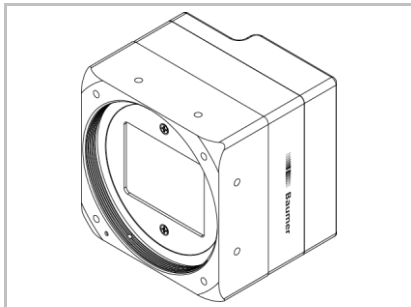
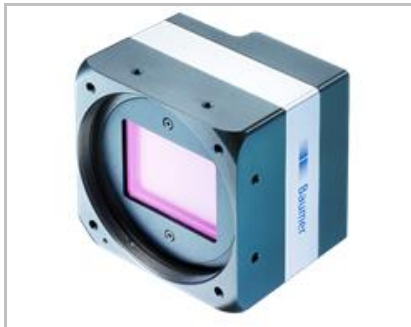
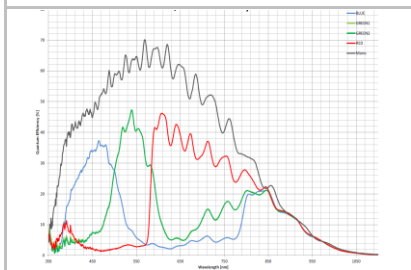


# LXG-200M Art. No. 11117848

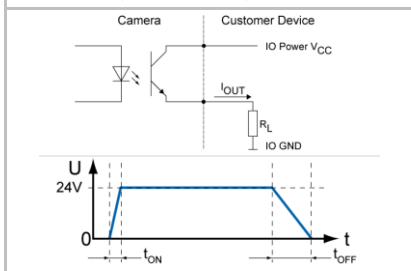
## Technical Data



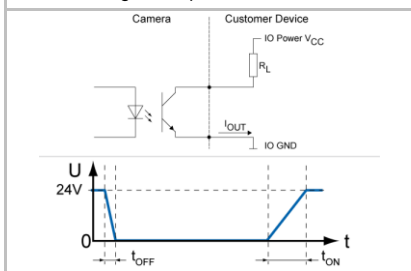
Sensor Graph: Relative Response



Digital Output: High Active



Digital Output: Low Active



### Digital Monochrome 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 $\mu\text{m}$ x 6.4 $\mu\text{m}$

#### Data Quality

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

Readout Noise ( $\sigma$ )	0.2 LSB @ 8 bit (typical)
Dynamic Range	63 dB (typical)

#### Acquisition Formats

Image Formats	Format	Resolution	Frame Rate	$t_{\text{readout}}$
	Full Frame	5120 x 3840	12 fps	30,9 msec
Pixel Formats	Mono8, Mono12, Mono12 Packed			
Partial Scan	True Partial Scan, Region of Interest (ROI) arbitrary, up to 8 regions			

#### Image Pre-Processing

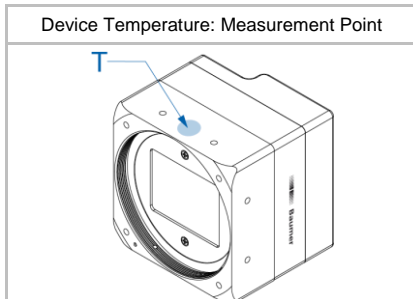
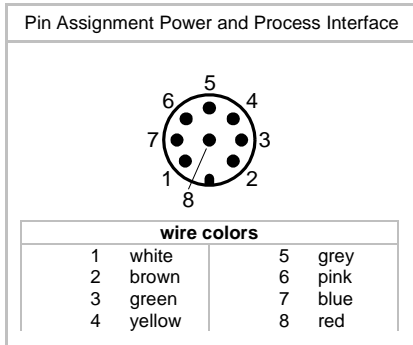
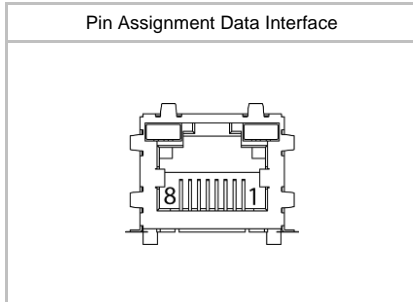
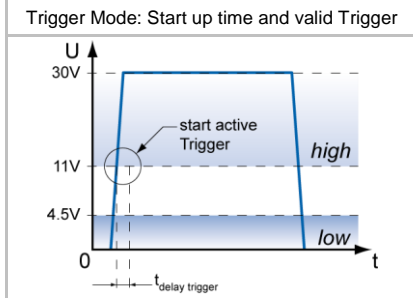
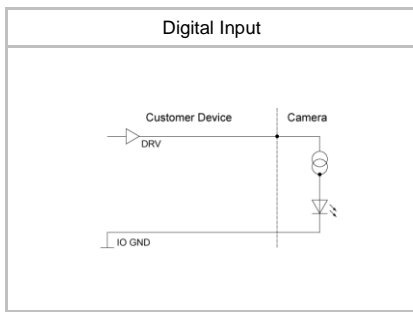
Analog Controls	Exposure Time (96 $\mu\text{sec}$ ... 1 sec   Step Size 1 $\mu\text{sec}$ ) Gain (0 ... 12 dB), Offset (0 ... 255 LSB   12 bit)
Gamma Correction	Gamma (0.1 ... 2   available if LUT is enabled)
LUT	Luminance (12 bit)
Color Models	Mono
Color Tolerance	Only on Color Cameras
Color Processing	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 ... 4440 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 $\mu\text{sec}$

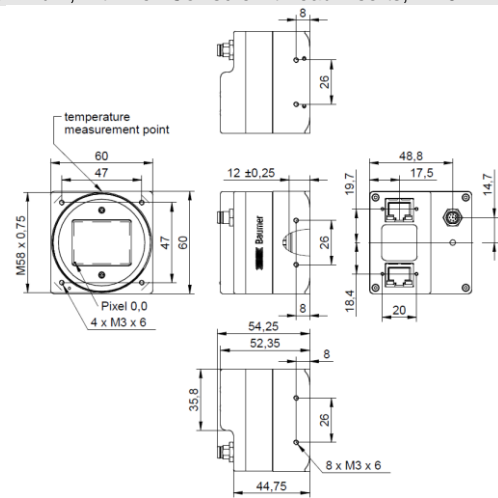


## Interfaces and Connectors

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, with Heli-Coil screw thread inserts, IP40
Dimensions	



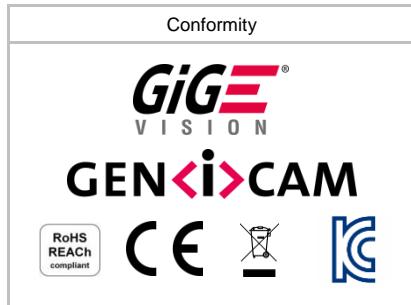
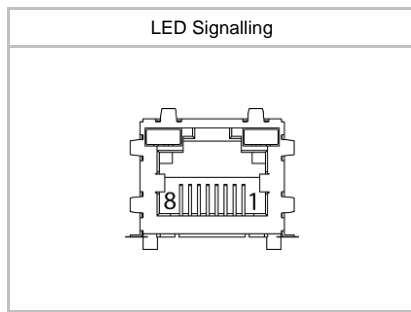
Weight	290 g (M58-Mount), 390 g (F-Mount), 340 g (M42-Mount), 332 g (C-Mount)
--------	--

## Optical Data

Lens Mount	M58-Mount, via optional adapters F-/M42-/C-Mount
Optical Filter	None

## 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 <sup>32</sup>
Payload Size	4 ... 16.773.332 Byte
Transmission Delay	0 .. 2 <sup>32</sup> -1 Ticks (1 Tick = 8 nsec)
Timestamp	64 bit
Packet Delay	0 .. 2 <sup>32</sup> -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	Mono8
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