

# xiJ, xiB<sub>sCMOS</sub>

- scientific grade CCD and sCMOS sensors
- fastest in class through USB3.1 and PCIe interface
- ultra-low noise with active sensor cooling



USB3.1 and PCIe scientific camera series

# xiJ, xiB<sub>sCMOS</sub>

**xiJ** and **xiB (sCMOS)** are ultra-compact camera families for scientific and low-light industrial applications featuring the latest CCD and scientific CMOS (sCMOS) sensors with modern, high speed interfaces such as USB3.1 Gen1 and PCI express (PCIe). USB models are offered with Peltier cooling for outstanding dark current performance and highest dynamic range. The PCIe interface provides the ultimate in speed for the fastest readout available from these high performance sensors.

## Quick facts

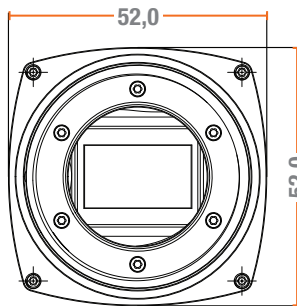
xiJ : USB3, cooled CCD and sCMOS

- highest dynamic range, lowest noise
- cooled sensors down to -20°C
- 4.2 - 29.5 MPixel

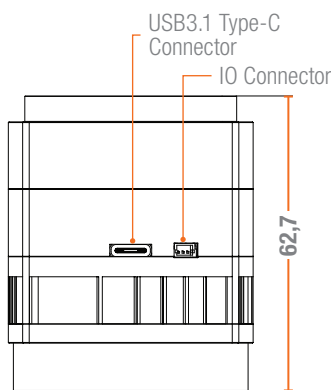
xiB<sub>sCMOS</sub> : PCIe, sCMOS

- high dynamic range, low noise
- high frame rates, low latencies
- 4.2, 15 MPixel

## Cooled USB3.1 Gen1 cameras

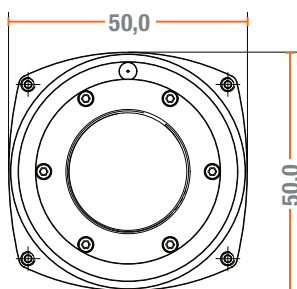
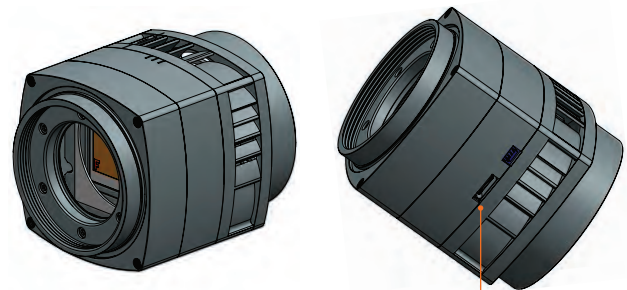


### MJ042 (sCMOS) & MJ150

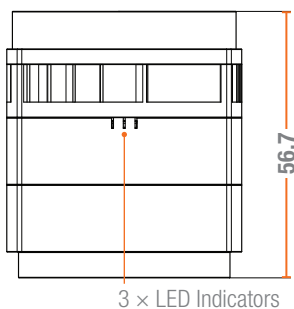


## xiJ cooled housings

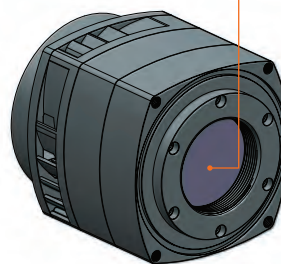
- Compact housings with C-mount, M42-mount or custom M58 thread with various mount adapters
- Micro-B and Type-C USB connectors



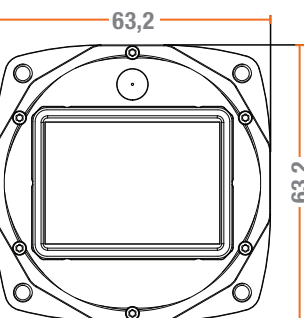
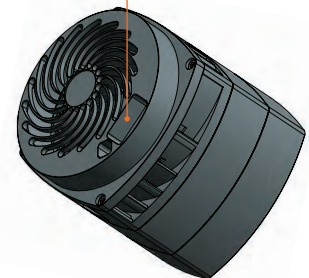
### MJ042 (CCD) & MJ081



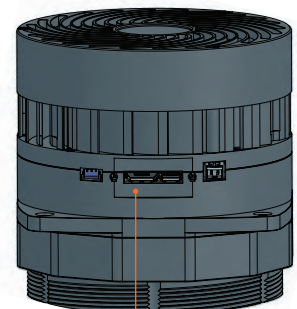
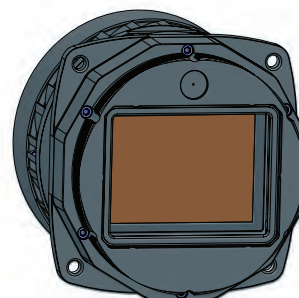
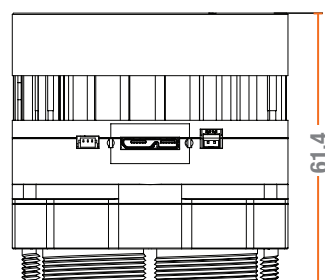
Standard C lens mount or M42 lens mount with hard AR coated glass or IR filter



USB3.1 Type-C Connector



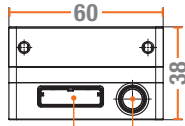
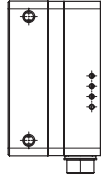
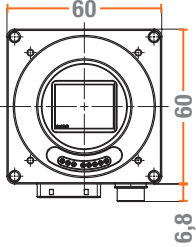
### MJ160 & MJ290



USB3 Micro-B Connector

## PCI Express Gen2 x4 cameras

CB042



12 pin Hirose connector for AUX power and GPIOs:  
 2 \* opto-isolated inputs  
 2 \* opto-isolated outputs  
 4 \* fast non-isolated bidirectional IOs

iPass External PCIe x4 connector



### xiB housing, PCIe Gen2 x4

- Compact housing with optional C-mount or active Canon EF mount adapters
- iPass PCIe cables with up to 100m length

## Compatibility

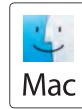
### Supported operating systems



Windows



Linux



MacOS

## Standards



### About us

**Big**  
about  
**small**

#### Why would we make that claim?

We say that because we just love to make cameras small, and excel at this task. Nobody makes the same thing any smaller. Is that a good thing? We certainly think so, especially when our products exceed customer satisfaction and specification. With small, comes low mass, another massive advantage for all our customers. High density means we have to take extraordinary care regarding power consumption and heat dissipation. But... that does not mean we allow any compromises. Everything we include in our products is of industry standard or better. Thanks to the full metal body, our cameras – literally and figuratively – are extremely cool, and because of our love for speed they are also fast. This design paradigm optimizes for the most ideal specifications for the broadest set of customers.

Our passion about small things also extends to the company itself.

We take conscious action to stay small and agile as a company. Consequentially our people must be extraordinarily talented to ensure efficient processes and cover all bases. We have well defined outsourcing interfaces with close interactions internally and externally with management as a part of the team. Being small keeps everyone focused and aware of what is going on, which quickly translates into customer satisfaction.

Thanks for your time.

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## xiB - Uncooled cameras, PCIe Gen2 x4 or Gen3 x8

Model <sup>1)</sup>	Sensor Type	Resolution	Pixel size [µm]	ADC [bits]	Dark Noise RS/GS [e-] <sup>2)</sup>	DR [dB] <sup>2)</sup>	Sensor size/diagonal [mm]	FPS RS/GS <sup>2),3)</sup>
CB042xG-GP	GPixel GSENSE2020 sCMOS – RS & GS	2048 x 2048 4.2 MPix	6.5	2x 10, 12	<2 <6	85	13.3 x 13.3 18.8	45.7 @ 2x 12bit 82.2 @ 4x 10bit <sup>4)</sup>
CB150xG-GP	GPixel GSENSE5130 sCMOS – RS & GS	5056 x 2968 15 MPix	4.25	2x 10, 11, 12	1.5 5	83	21,76 x 12.61 APS-C	67 @ 2x 10bit 70 @ 2x 11bit

**Note 1:** Please replace 'x' with M for monochrome and C for color model

**Note 2:** RS = Rolling Shutter, GS = Global Shutter. Preliminary values based on sensor vendor specifications

**Note 3:** Expected frame rate on transport layer, RAW image data. Online host CPU based processing (unpacking, merging) may result in lower values

**Note 4:** '4x' means four 10bit values for each pixel: Low, High, Low-reset, High-reset. Reset values allow compensation of black offsets while merging on host

## xiJ - Cooled cameras, USB 3.1 Gen 1

Model	Sensor Type	Resolution	Pixel size [µm]	ADC [bits]	Sensor Temp [°C]	Dark Noise [e-] <sup>1)</sup>	DR [dB] <sup>1)</sup>	FWC [Ke-]	Sensor size/diagonal [mm]	FPS
MJ042MC-GP	GPixel GSENSE2020 sCMOS - RS	2048 x 2048 4.2 MPix	6.5	2x 12	0	<2	87 (TBD)	45 (TBD)	13.3 x 13.3 18.8	40+ (TBD)
MJ042MC-GP -BSI	GPixel GSENSE2020BSI sCMOS - RS	2048 x 2048 4.2 MPix	6.5	2x 12	0	1.6 1.2 (CMS) <sup>2)</sup>	90 (TBD)	54 (TBD)	13.3 x 13.3 18.8	40+ (TBD)
MJ150MC-GP <sup>4)</sup>	GPixel SENSE5130 sCMOS - RS	5056 x 2968 15 MPix	4.25	2x 12	0 -10 (CMS)	1.4 0.98	82 85	19	21.76 x 12.61 APS-C	17 <sup>3)</sup>
MJ042MC-TS <sup>5)</sup>	Onsemi KAI-04070 Interline CCD - GS	2048 x 2048 4.2 MPix	7.4	16	0 -20 (CMS)	14.2 3.8	70 80	45 40	15.2 x 15.2 21.4	31 0.33
MJ081MC-TS <sup>6)</sup>	Onsemi KAI-08052 Interline CCD - GS	3296 x 2472 8.1 MPix	5.5	16	0 -20 (CMS)	8.5 2.2	69 80	25 22	18.13 x 13.60 22.26	20 0.2
MJ160MC-TS	Onsemi KAI-16070 Interline CCD - GS	4864 x 3232 16 MPix	7.4	16	0	16	69	44	36.0 x 23.9 43.2	8.8
MJ290MC-TS	Onsemi KAI-29052 Interline CCD - GS	6576 x 4384 29 MPix	5.5	16	0	9	68	20	36.17 x 24.11 43.47	5.3

**Note 1:** Preliminary values

**Note 2:** CMS = correlated multiple sampling

**Note 3:** 16bit wide pixel values are compressed into 12bit transport stream

**Note 4:** Dark Current 0.1e-/p/s @ -10C

**Note 5:** Dark Current 0.006e-/p/s @ -20C

**Note 6:** Dark Current 0.007e-/p/s @ -20C

## Contact

Please visit [www.ximea.com](http://www.ximea.com) for complete product information.

Get in touch with our teams at [sales@ximea.com](mailto:sales@ximea.com).

We will be glad to assist and consult you regarding our products.

Worldwide  
**XIMEA GmbH**

Am Mittelhafen 16  
48155 Münster  
Germany

[info@ximea.com](mailto:info@ximea.com)

Tel: +49 251 202 408-0  
Fax: +49 251 202 408-99

Slovakia and Czech Republic  
**XIMEA s.r.o.**

Lesna 52  
900 33 Marianka  
Slovakia

[info@ximea.com](mailto:info@ximea.com)

Tel: +421 (2) 205 104 26  
Fax: +421 (2) 205 104 27

Americas  
**XIMEA Corp.**

8725 W 14th Ave  
80215 Lakewood, CO  
USA

[info@ximea.com](mailto:info@ximea.com)

Tel: +1 (303) 389 9838  
Fax: +1 (303) 202 6350