

Microscope USB3.0 CMOS Camera UV Enhanced MCMOS-UVE Series



2022 V1

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Microscope USB3.0 CMOS UV Enhanced Camera – MCMOS-UVE Series system adopts Sony Exmor, Exmor R, Exmor RS back-illuminated CMOS sensor, or GSENSE large-size sensor. The EXmor series CMOS sensors adopt double-layer noise reduction technology, which has ultra-high sensitivity and ultra-low noise. The GSENSE series sensor has a large pixel size. Its chip adopts advanced back-illuminated processing technology, and the peak quantum efficiency is as high as 94%; through correlated multi-sampling technology (CMS), the chip readout noise is less than $1.2e^-$. With a dynamic range of up to 90dB, it is ideal for biological imaging and scientific applications. At the same time, GSENSE2020BSI supports global reset rolling shutter exposure with a high frame rate. It provides a new solution for the application of high-performance ultraviolet industrial detection, corona detection, and so on.



MCMOS-UVE + F-mount



MCMOS-UVE + F-mount +
Lens



MCMOS-UVE with F-mount &
Lens

Features

- Large scientific CMOS sensor (SONY or GSENSE Back-illuminated CMOS sensor);
- Wide spectrum range, some models even have high response in the ultra-violet to infrared wavelength;
- Real-time 8/12bit depth switch(depending on sensor);
- Ultra-Fine HISP VP and USB3.0 5 Gbps interface ensuring high frame rates(Up to 30 frames for 10M resolution);
- Ultra-low noise and low power dissipation by using column-parallel A/D converter;
- Rolling Shutter or Global Shutter;
- Standard M42 mount, M42 to C-mount adapter or F-mount;
- CNC aluminum alloy housing;
- With advanced video & image processing applications;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#/VB.Net, DirectShow, Twain;

Specifications

Order Code	Sensor & Size(mm)*	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
MCMOS-UVE10000KPA BP910000A(New)	10.3M/IMX294(C) 4/3 "(17.47x12.86)	4.63 x4.63	419mv with 1/30s 0.12mv with 1/30s	30@3704x2778 34.5@4096x2160 39.5@2760x2072 62@2048x1080 86@1360x720	1x1 1x1 1x1 2x2 3x3	0.1ms~15s
MCMOS-UVE4200KMA BM94200A(New)	4.2M/GSENSE2020e(M) 1.2"(13.31x13.31)	6.5 x 6.5	8.1x107 (e-/((W/m2).s)) Peak QE 72.5% @595nm 13(e-/s/pix)	45@2048x2048 45@1024 x 1022	1x1 2x2	0.01ms~60s
MCMOS-UVE4200KMB BM94200B	4.2M/GSENSE2020BSI (M,UV) 1.2"(13.31x13.31)	6.5 x 6.5	1.1x108 (e-/((W/m2).s)) Peak QE 93.7% @550nm 80(e-/s/pix)	22@2048 x2048 22@1024 x1024	1x1 2x2	0.01ms~60s
MCMOS-UVE4200KMC BM94200C	4.2M/GSENSE2020BSI (M,UV) 1.2"(13.31x13.31)	6.5 x 6.5	1.1x108 (e-/((W/m2).s)) Peak QE 93.7% @550nm 80(e-/s/pix)	44@2048x2048(12bit) 44@1024x1024(12bit) 44@680x680(12bit) 44@512x512(12bit)	1x1 2x2	0.01ms~60s
MCMOS-UVE4200KMD BM94200D	4.2M/GSENSE2020BSI (M,UV) 1.2"(13.31x13.31)	6.5 x 6.5	1.1x108 (e-/((W/m2).s)) Peak QE 93.7% @550nm 80(e-/s/pix)	44@2048x2048(16bit) 44@1024x1024(16bit)	1x1 2x2	0.01ms~60s
MCMOS-UVE4200KMB BM94201B-MIPI	4.2M/GSENSE2020BSI (M,UV) 1.2"(13.31x13.31)	6.5 x 6.5	1.1x108 (e-/((W/m2).s)) Peak QE 93.7% @550nm 80(e-/s/pix)	22@2048x2046(12bit)	1x1	0.01ms~60s
MCMOS-UVE4200KME BM94200E	4.2M/GSENSE400BSI (M,UV) 2.0"(22.53x22.53)	11 x 11	3.25x108 (e-/((W/m2).s)) Peak QE 95.3% @560nm 345(e-/s/pix)	37@2048 x2048 37@1024 x1024	1x1 2x2	0.01ms~60s
MCMOS-UVE1300KMA BM91300A 20210610	1.3M/GLUX9701BSI (M,UV) 1"(12.49x9.99)	9.76 x 9.76	2.57x108 (e-/((W/m2).s)) Peak QE 89% @610nm 40(e-/s/pix)	30@1280x1024(16bit) 30@640x512	1x1 2x2	0.05ms~60s

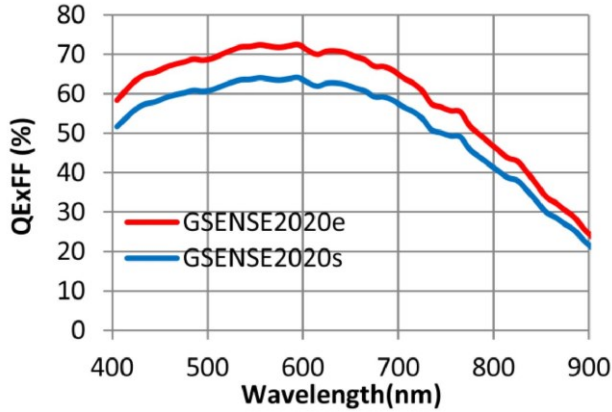
* C: Color; M: Monochrome; UV: Ultra-Violet sensitive; Default shutter: Rolling Shutter

The characteristic of [MCMOS-UVE4200KMB](#), [MCMOS-UVE4200KMC](#), [MCMOS-UVE4200KMD](#) and [MIPI4200KMB](#) are as follow

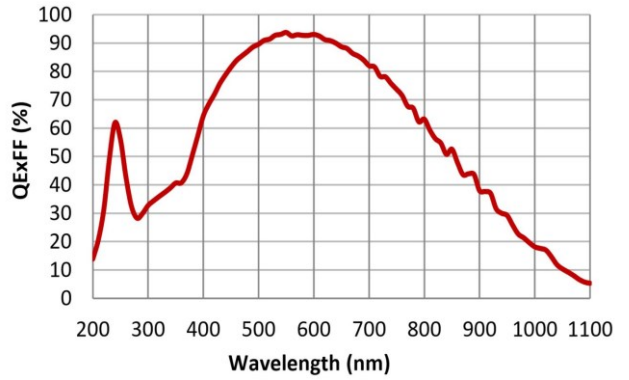
Order Code	Power Consumption(W)	Characteristic and Data Output Format	FPS/Resolution
MCMOS-UVE4200KMB BM94200B	2.5~2.9	Support 2D denoising, hardware Auto Level (Default is not supported. The power consumption is 2.9w after upgrading), RAW12 format	22@2048 x2048(12bit) 22@1024 x1024(12bit)
MCMOS-UVE4200KMC BM94200C	3.0	High frame rate, RAW12 format	44@2048 x2048(12bit) 44@1024 x1024(12bit)
MCMOS-UVE4200KMD BM94200D	3.0	High frame rate and high dynamic range, Combined HDR 16bit(HG 12bit format and LG 12bitformat output, and is combined to 16bit with FPGA)	44@2048 x2048(16bit) 44@1024 x1024(16bit)
MCMOS-UVE4200KMB BM94201B-MIPI	TBD	MIPI D-PHY CSI-2 1Ch 4Lane(For HiSilicon and Road chip embedded system)	22@2048 x2046(12bit)

Spectral Response

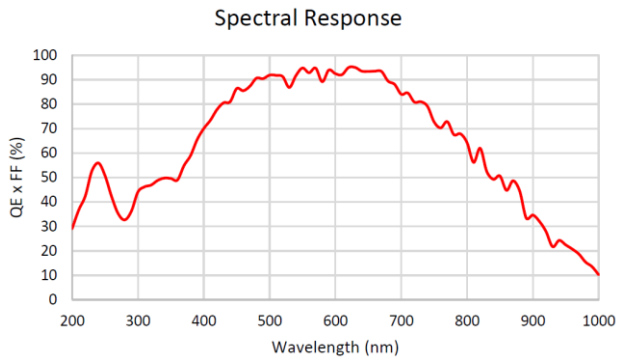
The characteristic of [MCMOS-UVE4200KMB](#), [MCMOS-UVE4200KMC](#), [MCMOS-UVE4200KMD](#) are the same.



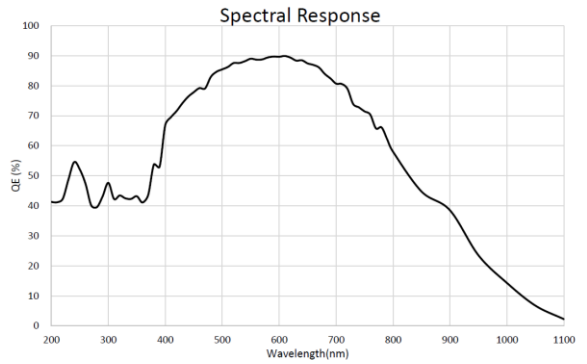
Spectral Response of GSENSE2020e and GSENSE2020s



Spectral Response of GSENSE2020BSI



Spectral Response of GSENSE400BSI



Spectral Response of GLUX9701BSI

Other Specification for MCMOS-UVE Series

Spectral Range	200-1100nm (UV without IR-cut Filter) or 400-900nm (Upon on sensor)
White Balance	ROI White Balance/ Manual Temp Tint Adjustment/NA for Monochromatic Sensor
Color Technique	Ultra-Fine HISPVP /NA for Monochromatic Sensor
Capture/Control SDK	Windows/Linux/macOS/Android Multiple Platform SDK(Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc)
Recording System	Still Picture and Movie
Cooling System*	Natural

Operating Environment

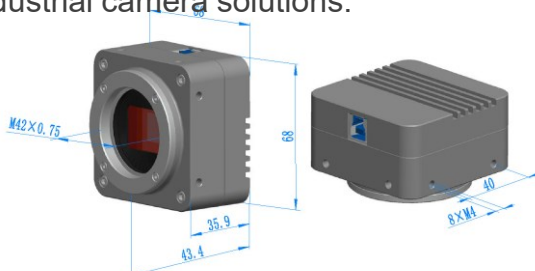
Operating Temperature (in Centidegree)	-10~ 50
Storage Temperature (in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port

Software Environment

Operating System	Microsoft® Windows® XP / Vista / 7 / 8 / 10 / 11 (32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 2GB or More
	USB Port: USB3.0 High-speed Port
	Display: 17" or Larger CD-ROM

Dimension

The MCMOS-UVE series body, made from tough, CNC aluminum alloy, ensures a heavy-duty, workhorse solution. The camera is designed with a high-quality IR-CUT or AR glass to protect the camera sensor. No moving parts included. This design ensures a rugged, robust solution with an increased lifespan when compared to other industrial camera solutions.



Packing Information



Standard Package	
A	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton), not shown in the photo
B	Gift box L: 15cm W: 15cm H: 10cm (0.58~0.6Kg/box)
C	One MCMOS-UVE series camera
D	High-speed USB3.0 A male to B male gold-plated connectors cable /2.0m
E	CD (Driver & utilities software, Ø12cm)
Optional Accessory	
F	M42x0.75mm-mount to C-mount converter (If C-mount adapter is used)
G	M42x0.75mm-mount to F-mount converter (If F-mount lens is used)
H	Phototube to M42x0.75 mount adapter (U-TV1.2XT2) for Olympus microscope
I	Phototube to M42x0.75 mount adapter (MQD42120 MBB42120) for Nikon microscope
J	Phototube to M42x0.75 mount adapter (P95-T2 4/ P95-C 1" 1.0 x 3" 1.2x) for Zeiss Primo Star series , Zeiss Primo vert series microscope
K	Phototube to M42x0.75 mount adapter (11541510-120 HT2-1.2X) for Leica microscope
L	Phototube to M42x0.75 mount adapter (60N-T2 4/3" 1.2x) for Zeiss Axio series microscope
M	Calibration kit 106011/TS-M1 (X=0.01mm/100Div.); 106012/TS-M2(X,Y=0.01mm/100Div.); 106013/TS-M7(X=0.01mm/100Div., 0.10mm/100Div.)

Note: For 4/3" sensor, 1.2X adapter with M42x0.75 mount should be chosen, for the 1.2" sensor, 1.0X adapter with C-mount could be used to get the better FOV;