



# Microscope USB3.0 CMOS Camera with ISP

MCMOS-ISP Series



**2022 V1**

For customized projects please Contact us:

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**Microscope USB3.0 CMOS Camera with ISP** – MCMOS-ISP Series adopts SONY Exmor CMOS sensor as the image-picking device and USB3.0 is used as the transfer interface.

MCMOS-ISP series hardware resolutions range from 1.5M to 45M and come with integrated CNC aluminum alloy compact housing.

MCMOS-ISP series integrated with 12-bit Ultra-Fine Hardware Image Signal Processor Video Pipeline(Ultra-Fine HISP VP) for Demosaic, Automatic Exposition, Gain Adjustment, One Push White Balance, Chrominance Adjustment, Saturation Adjustment, Gamma Correction, Luminance Adjustment, Contrast Adjustment, Bayer and finally form RAW data for 8/12 bit output. This will move the heavier burden of the processing from the PC to the Ultra-Fine HISP VP and greatly accelerate the processing speed.

MCMOS-ISP series comes with advanced video & image processing application, providing Windows/ Linux/ macOS /Android multiple platform SDK (Native C/C++, C#/VB.NET, Python, Java, DirectShow, Twain, etc);

The MCMOS-ISP series can be widely used in bright field light environments and microscope image capture and analysis with a higher frame rate.



## Features

- SONY Exmor, Exmor R(Back-illuminated), Exmor RS CMOS sensor with USB3.0 interface;
- Real-time 8/12bit depth switch(depending on sensor);
- Ultra-Fine HISP VP and USB3.0 5 Gbps interface ensuring high frame rates;
- Super high sensitivity up to 2188mV(IMX264);
- Ultra-low noise and low power dissipation by using column-parallel A/D conversion;
- With hardware resolution among 1.5M to 45M;
- Rolling shutter or global shutter;
- Standard C-Mount camera;
- CNC aluminum alloy housing;
- With advanced video & image processing application;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#/VB.Net, DirectShow, Twain, LabView

## Specifications

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
MCMOS-ISP45000KPA IP145000A(2021)	45M/IMX294(C) 1.4" (18.93x13.00)	2.315 x2.315	108mv with 1/30s 0.03mv with 1/30s	8.1@8176x5616 30.0@4088x2808 8.1@7408x5556 33.0@4088x2808 10.4@8176x4320 34.7@4096x2160 62.5@2048x1080 86.5@1344x720	1x1(3:2) 2x2(3:2) 1x1(4:3) 2x2(4:3) 1x1(17:9) 2x2(17:9) 3x3(17:9) 4x4(17:9)	0.1ms~15s
MCMOS-ISP45000KPB IP145000B(2022)	45M/IMX492(C) 1.4" (18.93x13.00)	2.315 x2.315	108mv with 1/30s 0.03mv with 1/30s	8.1@8176x5616	1x1	0.1ms~15s
MCMOS-ISP32000KPA IP132000A(2021)	32M/IMX294(C) 1.15" (12.96x12.96)	2.315 x2.315	108mv with 1/30s 0.03mv with 1/30s	8.1@5600x5600 30.0@2800x2800 30.0@1400x1400	1x1 2x2 4x4	0.1ms~15s
MCMOS-ISP21000KPA IP121000A(2020)	21M/IMX269(C) 4/3"(17.4x13.1)	3.3 x3.3	399mv with 1/30s 0.1mv with 1/30s	17@5280x3954 17@3952x3952 56@2640x1976 67@1760x1316 192@584x438	1x1 1x1 2x2 3x3 9x9	0.1ms~15s
MCMOS-ISP20000KPA IP120000A	20M/IMX183(C) 1 "(13.06x8.76)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	15@5440x3648 50@2736x1824 60@1824x1216	1x1 2x2 3x3	0.1ms~15s
MCMOS-ISP20000KPC IP120000C(2021)	20M/IMX183(C) 1 "(13.06x8.76)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	20@5440x3648 48@2736x1824 58@1824x1216	1x1 2x2 3x3	0.1ms~15s
MCMOS-ISP18000KPA IP118001A	18M/SONY Special(C) 1/2.2 "(5.86x4.46)	1.2 x1.2	130mv with 1/30s 0.1mv with 1/30s	17@4880x3720 40@2448x1836 50@1728x1296	1x1 2x2 3x3	0.1ms~15s
MCMOS-ISP15600KPA IP115600A	15.6M/SONY Special (C)1.1 "(13.0x13.0)	3.3 x3.3	399mv with 1/30s 0.1mv with 1/30s	17@3952x3952 56@1976x1976 67@1316x1316	1x1 2x2 3x3	0.1ms~15s
MCMOS-ISP12300KPA IP112300A	12.3M/IMX304(C, <b>GS</b> ) 1.1"(14.13x10.35)	3.45x3.45	1146mv with 1/30s 0.1mv with 1/30s	23.4@4096x3000 46.3@2048x1500	1x1 1x1	0.244ms~15s
MCMOS-ISP12000KPA IP112000A	12M/IMX226(C) 1/1.7"(7.40x5.55)	1.85x1.85	280mv with 1/30s 0.1mv with 1/30s	25@4000x3000 50@2048x1080	1x1 2x2	0.1ms~15s
MCMOS-ISP12000KPB IP112000B(2022)	12M/IMX577(C) 1/2"(6.29x4.71)	1.55x1.55	250mv with 1/30s 0.25mv with 1/30s	30@4056x3040 60@2028x1520 120@1014x760	1x1 2x2 4x4	0.1ms~15s
MCMOS-ISP09000KPA IP109000A	9.0M/IMX305(C, <b>GS</b> ) 1" (14.13x7.45)	3.45x3.45	1146mv with 1/30s 0.15mv with 1/30s	34@4096x2160 60@2048x1080	1x1 1x1	0.1ms~15s
MCMOS-ISP09000KPB IP109000B	9.0M/IMX533(C) 1" (11.31x11.28)	3.76x3.76	535mv with 1/30s 0.04mv with 1/30s	40@3008x3000 123@1488x1500 186@992x998	1x1 2x2 3x3	0.1ms~15s
MCMOS-ISP08300KPA IP108300A	8.3M/IMX274(C) 1/2.5"(6.22x3.50)	1.62x1.62	236mv with 1/30s 0.1mv with 1/30s	32@3840x2160 65@1920x1080	1x1 2x2	0.244ms~15s
MCMOS-ISP08300KPB IP108300B	8.3M/IMX334(C) 1/1.8"(7.68x4.32)	2.0x2.0	505mv with 1/30s 0.1mv with 1/30s	35@3840x2160 60@1920x1080	1x1 2x2	0.02ms~15s
MCMOS-ISP08300KPC IP108300C	8.3M/IMX485(C) 1/1.2"(11.14x6.26)	2.9x2.9	2188mv with 1/30s 0.15mv with 1/30s	45@3840x2160 70@1920x1080	1x1 2x2	0.02ms~15s
MCMOS-ISP08300KPD IP108300D(2022)	8.3M/IMX585(C) 1/1.2"(11.14x6.26)	2.9x2.9	5970(mV/lx/s) 0.13mv with 1/30s	45@3840x2160 70@1920x1080	1x1 2x2	0.02ms~15s
MCMOS-ISP08300KPE IP108300E(2022)	8.3M/IMX678(C) 1/1.8"(7.68x4.32)	2.0x2.0	3541(mV/lx/s) 0.15mv with 1/30s	45@3840x2160 70@1920x1080	1x1 2x2	0.02ms~15s

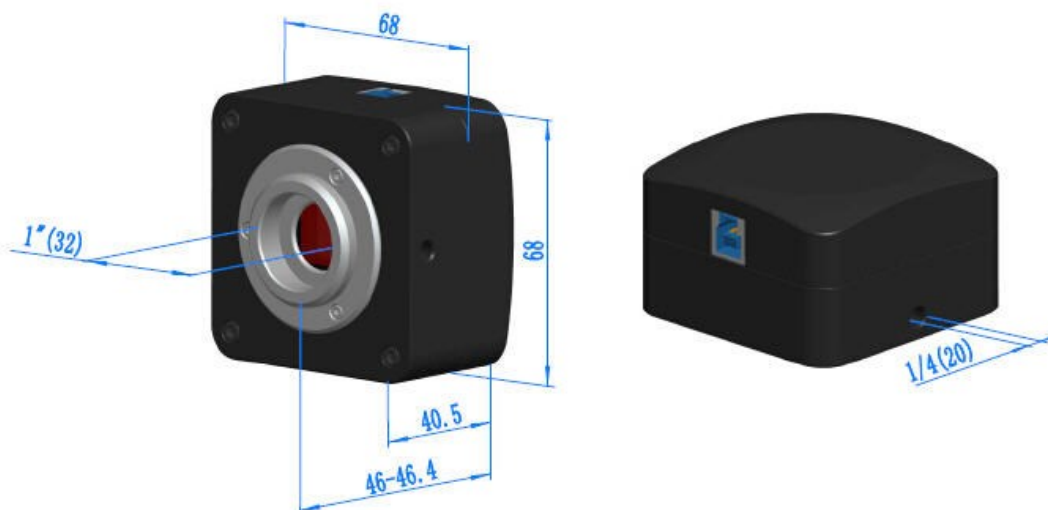
C: Color; M: Monochrome; GS: Global Shutter; Default shutter: Rolling Shutter

## Specifications

Other Specification for MCMOS-ISP Series	
Spectral Range	380-650nm (with IR-cut Filter)
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-ISP series body, made from tough, CNC aluminum alloy, ensures a heavy-duty, workhorse solution. The camera is designed with a high-quality IR-CUT 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	
<b>A</b>	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton), not shown in the photo
<b>B</b>	Gift box L:15cm W:15cm H:10cm (0.58~0.6Kg/ box)
<b>C</b>	One MCMOS-ISP series camera
<b>D</b>	High-Speed USB3.0 A male to B male gold-plated connectors cable /2.0m
<b>E</b>	CD (Driver & utilities software, Ø12cm)
Optional Accessory	
<b>F</b>	Adjustable lens adapter
	C-mount to Dia. 23.2mm eyepiece tube C-mount to Dia. 31.75mm eyepiece tube
<b>G</b>	Fixed lens adapter
	C-mount to Dia. 23.2mm eyepiece tube C-mount to Dia. 31.75mm eyepiece tube
<b>H</b>	108015(Dia.23.2mm to 30.0mm ring)/Adapter rings for 30mm eyepiece tube
<b>I</b>	108016(Dia.23.2mm to 30.5mm ring)/Adapter rings for 30.5mm eyepiece tube
<b>J</b>	108016(Dia.23.2mm to 30.5mm ring)/Adapter rings for 30.5mm eyepiece tube
<b>K</b>	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 F and G optional items, please specify your camera type (C-mount, microscope camera, or telescope camera), SIMTRUM will help you to determine the right microscope or telescope camera adapter for your application.

## Extension of MCMOS-ISP Series with Microscope / Telescope Adapter

Extension	Picture	
<b>C-mount Camera</b>		
	<p>Machine vision; Medical imaging; Semiconductor equipment; Test instruments; Document scanners; 2D barcode readers; Web camera and security video; Microscope imaging;</p>	
<b>Microscope Camera</b>	<p>MCMOS-ISP + AMAXXX(23.2mm Adapter)</p>	<p>MCMOS-ISP + FMAXXX(23.2mm Adapter)</p>
<b>Telescope Camera</b>	<p>MCMOS-ISP + AMAXXX(31.75mm Adapter)</p>	<p>MCMOS-ISP + FMAXXX(31.75mm Adapter)</p>