

Microscope USB3.0 CMOS Camera

1.1 M3ISPM Series C-mount USB3.0 CMOS Camera with Hardware ISP and Video Pipeline

1.1.1 M3ISPM Basic Characteristic

M3ISPM adopt SONY Exmor CMOS sensor as the image-picking device and USB3.0 is used as the transfer interface.

M3ISPM hardware resolutions range from 3.1M to 20M and come with the integrated CNC aluminum alloy compact housing.

M3ISPM integrated with 12 bit Ultra-fine™ Hardware Image Signal Processor Video Pipeline(Ultra-fine™ HISP VP) for Demosaic, Adjustments, 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 accelerating the processing speed.

M3ISPM comes with advanced video & image processing application ; Providing Windows/Linux/ OSX multiple platforms SDK; Native C/C++, C#/VB.NET, DirectShow, Twain Control API;

The M3ISPM can be widely used in bright field light environment and microscope image capture and analysis with higher frame rate.

The basic characteristic of M3ISPM cameras are as follows:

- 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(Up to 15 frames for 20M Resolution);
- Super high sensitivity up to 1120mV(IMX264);
- Ultra low noise and low power dissipation by using column-parallel A/D conversion;
- With hardware resolution among 3.1M to 20M;
- Rolling Shutter or Global Shutter;
- Standard C-Mount camera;
- CNC aluminum alloy housing;
- With advanced video & image processing application View;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#/VB.Net, DirectShow, Twain, LabView



1.1.1 M3ISPM Datasheet (18)

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
M3ISPM21000KPA IP121000A	21M/IMX269 (C) 4/3“(17.4x13.0)	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
M3ISPM20000KPA 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
M3ISPM18000KPA IP118000A(New)	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
M3ISPM15600KPA IP115600A(New)	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
M3ISPM12300KPA IP112300A(New)	12.3M/IMX304(C, GS) 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
M3ISPM12000KPA 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
M3ISPM09000KPA IP109000A(New)	9.0M/IMX305(C, GS) 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
M3ISPM09000KPB IP109000B(New)	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
M3ISPM08300KPA IP108300A(New)	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
M3ISPM08300KPB IP108300B(New)	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
M3ISPM08300KPC IP108300C(New)	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
M3ISPM06300KPA IP106300A	6.3M/IMX178(C) 1/1.8“(7.37x4.92)	2.4x2.4	425mv with 1/30s 0.15mv with 1/30s	30@3072 x2048 38@1536x 1024 @8 or 12bit	1x1 2x2	0.1ms~15s
M3ISPM06300KPB IP106300B(New)	6.3M/IMX178(C) 1/1.8“(7.37x4.92)	2.4x2.4	425mv with 1/30s 0.15mv with 1/30s	59@3072 x2048 59@1536x 1024 @8 or 10 bit	1x1 2x2	0.02ms~15s
M3ISPM05000KPA IP105000A(New)	5.0M/IMX264(C, GS) 2/3”(8.45x7.07)	3.45x3.45	1146mv with 1/30s 0.15mv with 1/30s	35@2448x2048 50@1224x1024	1x1 1x1	0.1ms~15s
M3ISPM03100KPA IP103100A(New)	3.1M/IMX265(C, GS) 1/1.8”(7.07x5.30)	3.45x3.45	1146mv with 1/30s 0.15mv with 1/30s	53@2048x1536 85@1024x768	1x1 1x1	0.1ms~15s
M3ISPM03100KPB IP103100B	3.1M/IMX123(C) 1/2.8”(5.12x3.84)	2.5x2.5	600mv with 1/30s 0.15mv with 1/30s	50@2048x1536 50@1920x1080	1x1 1x1	0.1ms~15s
M3ISPM02000KPA IP102000A(New)	2M/IMX385(C) 1/2”(7.2x4.05)	3.75x3.75	2350mv with 1/30s 0.15mv with 1/30s	125@1920x1080	1x1	0.1ms~15s
M3ISPM01500KPA IP101500A(New)	1.5M/IMX273(C, GS) 1/2.9”(4.968x3.726)	3.45x3.45	1146mv with 1/30s 0.15mv with 1/30s	164@1440x1080 320@720x540	1x1 2x2	0.1ms~15s
M3ISPM45000KPA IP145000A(New)	45M/SONY Special(C) 1.4”(18.93x13.00)	2.315x2.315	419mv 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@1360x720	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
M3ISPM32000KPA IP132000A(New)	32M/SONY Special(C) 1.15”(12.96x12.96)	2.315x2.315	419mv with 1/30s 0.03mv with 1/30s	8.1@5600x5600 30.0@2800x2800 30.0@1400x1400	1x1 2x2 4x4	0.1ms~15s
M3ISPM08000KPA IP108000A(New)	8.0M/IMX294(C) 1.15”(13.00x13.00)	4.63 x4.63	419mv with 1/30s 0.12mv with 1/30s	30@2808x2808(14bit) 139@1392x1392 139@696x696	1x1 2x2 4x4	0.1ms~15s
M3ISPM02100KPA IP102100A(20210524)	2.1M/IMX482(C) 1/1.2”(11.14x6.26)	5.8x5.8	8935mv with 1/30s 0.6mv with 1/30s	96@1920x1080	1x1	14us~15s
M3ISPM20000KPC IP120000C(20210825)	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

C: Color; M: Monochrome; GS: Global Shutter

Other Specification for M3ISPM Camera

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 API	Native C/C++, C# /VB.Net., DirectShow, Twain and Labview
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 (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