

## E3 ISPM系列CMOS相机

### 产品描述

E3 ISPM系列相机采用Sony索尼 Exmor, Exmor R, Exmor RS 背照式CMOS传感器, EXmor 系列CMOS传感器采用双层降噪技术, 具有超高的灵敏度以及超低噪声。

E3 ISPM系列相机集成了12位的超精细硬件图像信号处理器视频流引擎 (Ultra-fine™ HISP VP), 通过该HISP VP实现硬件Demosaic, 自动曝光控制, 增益调节, 一键单击白平衡, 图像颜色调整, 饱和度调整, 伽马校正, 亮度调节, 对比度调整, Bayer格式图像转RAW数据供最终以8/12bit 输出。HISP VP将传统的本应由计算机CPU处理的转移到了硬件处理, 大大提升了相机的传输速度, 降低了CPU的占用率。利用USB3.0数据传输技术实现数据传输, 视频传输快速而稳定。

E3 ISPM系列相机分辨率横跨150万~4500万, 图像传输速度快。

E3 ISPM系列相机随机提供高级视频与图像处理应用软件ToupView/ToupLite; 提供Windows/Linux/OSX多平台SDK; 支持原生C/C++, C#/VB.Net, Directshow, Twain API。

E3 ISPM系列相机的上述特性可用于普通明场或弱光或荧光光场显微图像的拍摄。



### 产品特点

- 采用Sony Exmor CMOS背照式传感器的C接口CMOS USB3.0相机
- 采用並列A / D转换技术实现超低噪声、低功耗
- 实时8/12位切换, 任意ROI尺寸
- 锌铝合金精密CNC外壳
- USB3.0接口确保高传输速率
- Ultra-Fine硬件ISP视频流引擎确保颜色精准再现与快速 (对2100万像素相机, 速度达17帧/每秒)
- 随相机提供高级视频与图像处理应用软件ToupView/ToupLite
- 提供Windows/Linux/macOS/Android多平台标准SDK

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### 参数

名称	传感器型号与尺寸	像素(μm)	G光灵敏度 暗电流	FPS/分辨率	采样平均	曝光时间
E3ISPM450 00KPA IP145000A (2021)	45M/IMX294(C) 1.4 " (18.93x13.00)	2.315x2.315	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
E3ISPM450 00KPB IP145000B (2022)	45M/IMX492(C,RS) 1.4 " (18.93x13.00)	2.315x2.315	108mv with 1/30s 0.03mv with 1/30s	8.1@8176x5616(C) 30.0@4080x2808(M) 8.1@7408x5556(C) 33.0@3696x2778(M) 10.4@8176x4320(C) 34.7@4096x2160(M) 62.5@2048x1080(M) 86.5@1344x720(M)	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
E3ISPM320 00KPA IP132000A (2021)	32M/IMX294(C) 1.15 " (12.96x12.96)	2.315x2.315	108mv with 1/30s 0.03mv with 1/30s	8.1@5600x5600 30.0@2800x2800 30.0@1400x1400	1x1 2x2 4x4	0.1ms~15s
E3ISPM250 00KPA IP125000A (20220808)	25M/IMX511(C) 1/2.3 " (5.519x5.519)	1.12x1.12	96.3mv with 1/30s 0.1mv with 1/30s	12@4928x4928 46@2464x2464 100@1648x1648	1x1 2x2 3x3	0.013ms~15s
E3ISPM210 00KPA IP121000A (2020)	21M/IMX269(C) 4/3 " (17.4x13.0)	3.3x3.3	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
E3ISPM204 00KPA IP120400A 20230326	20.4M/IMX541(C,GS) 1.1 " (12.32x12.32)	2.74x2.74	1574mv with 1/30s 0.15mv with 1/30s	17.5@4496x4496 64.4@2240x2240 64.4@1120x1120	1x1 2x2 4x4	0.03ms~15s
E3ISPM200 00KPA IP120000A	20M/IMX183(C,RS) 1 " (13.06x8.76)	2.4x2.4	462mv with 1/30s 0.21mv with 1/30s	15@5440x3648 50@2736x1824 60@1824x1216	1x1 2x2 3x3	0.1ms~15s
E3ISPM200 00KPC IP120000C (2021)	20M/IMX183(C,RS) 1 " (13.06x8.76)	2.4x2.4	462mv with 1/30s 0.21mv with 1/30s	20@5440x3648 48@2736x1824 58@1824x1216	1x1 2x2 3x3	0.1ms~15s
E3ISPM180 00KPA IP118001A	18M/SONY Special(C) 1/2.2 " (5.86x4.46)	1.2x1.2	130mv with 1/30s 0.1mv with 1/30s	17@4880x3720 40@2448x1836 50@1728x1296	1x1 2x2 3x3	0.1ms~15s
E3ISPM156 00KPA IP115600A	15.6M/SONY Special (C) 1.1 " (13.0x13.0)	3.3x3.3	399mv with 1/30s 0.1mv with 1/30s	17@3952x3952 56@1976x1976 67@1316x1316	1x1 2x2 3x3	0.1ms~15s
E3ISPM124 00KPA IP112400A 20230326	12.4M/IMX545(C,GS) 1/1.1 " (11.22x8.22)	2.74x2.74	1337mv with 1/30s 0.15mv with 1/30s	28.2@4096x3000 100.9@2048x1500 100.9@1024x750	1x1 2x2 4x4	0.03ms~15s
E3ISPM123 00KPA IP112300A	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

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E3ISPM12000KPA 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
E3ISPM12000KPB 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~5s
E3ISPM12000KPC IP112000C (20230717)	12M/IMX676(C) 1/1.6 “(7.07x7.07)	2.0x2.0	3637mv with 12 bit converted value(HCG) 0.15mv with 1/30s	27@3536x3536 60@1768x1768	1x1 2x2	0.013ms~15s
E3ISPM09000KPA IP109000A	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
E3ISPM09000KPB 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
E3ISPM08300KPA 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
E3ISPM08300KPB 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
E3ISPM08300KPC 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
E3ISPM08300KPD 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
E3ISPM08300KPE 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
E3ISPM08000KPA IP108000A	8.0M/IMX294(C) 1.15 “(13.00x13.00)	4.63x4.63	419mv with 1/30s 0.12mv with 1/30s	30@2808x2808(14bit) 139@1392x1392 139@696x696	1x1 2x2 4x4	0.1ms~15s
E3ISPM06300KPA IP106300A	6.3M/IMX178(C,RS) 1/1.8 “(7.37x4.92)	2.4x2.4	425mv with 1/30s 0.15mv with 1/30s	30@3072 x2048 38@1536x 1024	1x1 2x2	0.1ms~15s
E3ISPM06300KPB IP106300B	6.3M/IMX178(C,RS) 1/1.8 “(7.37x4.92)	2.4x2.4	425mv with 1/30s 0.15mv with 1/30s	59@3072 x2048 59@1536x 1024	1x1 2x2	0.02ms~15s
E3ISPM05100KPA IP105100A 20230326	5.1M/IMX547(C,GS) 1/1.8 “(6.71x5.61)	2.74x2.74	1337mv with 1/30s 0.15mv with 1/30s	63@2448x2048 208.4@1224x1024	1x1 2x2	0.03ms~15s
E3ISPM05000KPA IP105000A	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

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E3ISPM031 00KPA IP103100A	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
E3ISPM031 00KPB 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
E3ISPM021 00KPA IP102100A (2021)	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
E3ISPM020 00KPA IP102000A	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
E3ISPM015 00KPA IP101500A	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

C: 彩色; M: 单色或黑白; GS: 全局快门; 红色带删除线的表示已经停产

#### 硬件配置

光谱响应范围	380-650nm (有红外截止滤光片情况下)
白平衡	ROI 白平衡/手动Temp-Tint调整
色彩还原技术	Ultra-Fine硬件ISP视频处理引擎
捕获与控制API	Windows/Linux/macOS/Android多平台SDK (原生C/C++, C#/VB.NET, Python, Java, DirectShow, Twain等)
位深度	8 Bit / 12 Bit
记录方式	图像和视频
致冷方式*	自然冷却

#### 相机工作环境

工作温度 (摄氏度)	-10~ 50
贮存温度 (摄氏度)	-20~ 60
工作湿度	30~80%RH
贮存湿度	10~60%RH
供电电源	相机通过USB3.0接口供电 (兼容USB2.0)

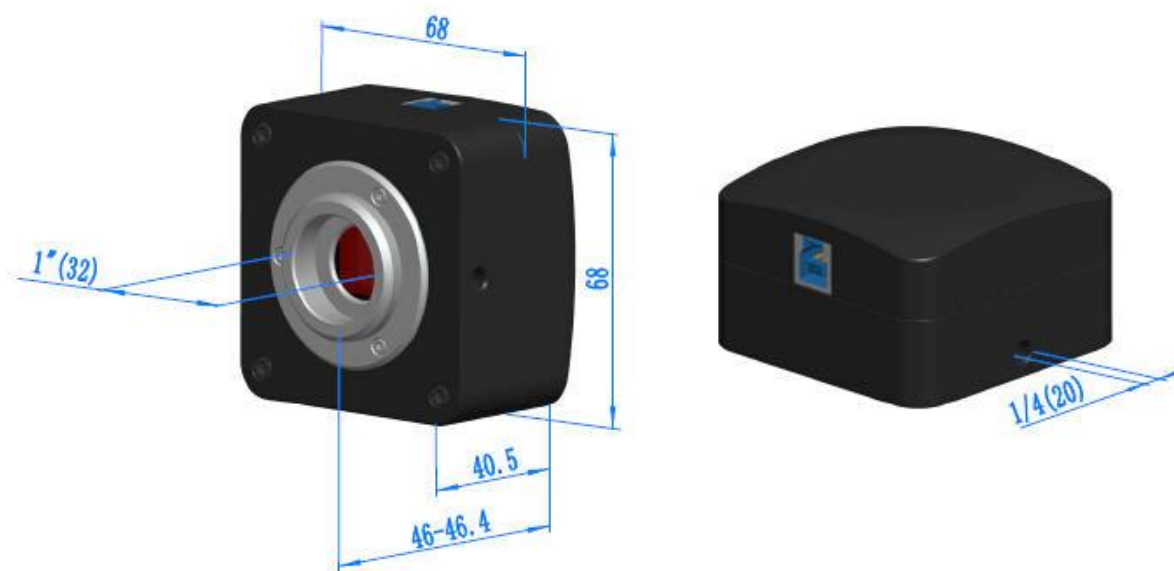
#### 软件运行环境

操作系统	Microsoft® Windows®XP/ Vista / 7 / 8 / 10 / 11(32 & 64 位)
计算机配置	CPU: Intel Core 2 2.8GHz 或更高
	内存: 2GB或更大
	USB接口: USB3.0高速接口或USB2.0接口
	显示器: 17" 或以上
	CD-ROM

## E3ISPM系列CMOS相机

### 外形尺寸

E3ISPM系列相机外形尺寸示意图。相机壳体由坚硬锌铝合金经CNC机械加工而成，美观大方。相机传感器的前端安装有高品质的IR-CUT或双AR膜，主要起到滤除成像中的红外光波，同时保护相机传感器作用。相比其他品牌相机，格物光学的相机无运动部件以确保相机坚固可靠、经久耐用，同时不存在由于运动部件抖动而引发的成像模糊。



E3ISPM系列相机外形尺寸示意图

## E3 I SPM系列CMOS相机

### 装箱清单



#### 标准装箱清单


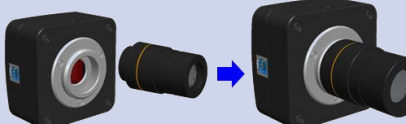
A	包装箱规格: L:52cm W:32cm H:33cm (20pcs, 12~17Kg/纸箱), 上图中未给出
B	包装盒规格: L:15cm W:15cm H:10cm (0.58~0.6Kg/ box)
C	E3ISPM系列相机
D	高速USB3.0 A公到B公镀金头数据线/2.0m
E	CD (驱动以及应用软件, Ø12cm)

#### 可选附件

F	可调焦式目镜筒适配器	Dia.23.2mm目镜筒转C接口 (请根据你的相机与显微镜选择其中之一)	108001/AMA037 108002/AMA050 108003/AMA075 108004/AMA100
		Dia.31.75mm目镜筒转C接口 (请根据你的相机与望远镜选择其中之一)	108008/ATA037 108009/ATA050 108010/ATA075 108011/ATA100
G	固定式目镜筒适配器	Dia.23.2mm目镜筒转C接口 (请根据你的相机与显微镜选择其中之一)	108005/FMA037 108006/FMA050 108007/FMA075 108008/FMA100
		Dia.31.75mm目镜筒转C接口 (请根据你的相机与望远镜选择其中之一)	108011/FTA037 108012/FTA050 108013/FTA075 108014/FTA100
注意: 对F和G选项, 请先确定你的相机型号 (C接口, 显微镜相机或望远镜相机), 格物光学的工程师会根据你的应用帮助你选定合适的显微镜或望远镜适配器;			
H	108015 (Dia.23.2mm to 30.0mm环) /用于直径30mm目镜筒转接环		
I	108016 (Dia.23.2mm to 30.5mm环) /用于直径30.5mm目镜筒转接环		
J	108017 (Dia.23.2mm to 31.75mm环) /用于直径31.75mm目镜筒转接环		
K	测微尺	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.)	

## E3 I SPM系列CMOS相机

### 扩展成显微镜或望远镜用电子目镜

扩展	图例	
C接口相机	 <p>机器视觉；学成像； 半导体设备；测试仪器； 文件扫描仪；2D码扫描仪； Web相机或视频监控； 显微成像</p>	
显微镜电子目镜	 <p>E3 I SPM+AMAXXX(23.2mm Adapter)</p>  <p>E3 I SPM+FMAXXX(23.2mm Adapter)</p>	
望远镜电子目镜	 <p>E3 I SPM+ATAXXX(31.75mm Adapter)</p>  <p>E3 I SPM+FTAXXX(31.75mm Adapter)</p>	