

10 Microscope USB2.0 CMOS Camera

10.1 ECMOS Series C-mount USB2.0 CMOS Camera

10.1.1 ECMOS Basic Characteristic

ECMOS adopt SONY Exmor CMOS sensor as the image-picking device and USB2.0 is used as the data transfer interface.

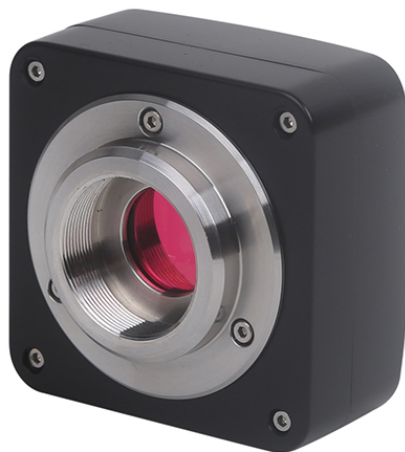
ECMOS hardware resolutions range from 1.2M to 8.3M and come with the integrated CNC aluminum alloy compact housing.

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

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

The basic characteristic of ECMOS cameras are as follows:

- SONY Exmor, Exmor R(Back-illuminated), Exmor RS CMOS sensor with USB2.0 interface;
- Real-time 8/12/14/16bit depth switch(depending on sensor);
- Super high sensitivity up to 2040mV(IMX224);
- Ultra low noise and low power dissipation by using column-parallel A/D conversion;
- With hardware resolution among 1.2M to 8.3M;
- Rolling Shutter;
- Standard C-Mount camera;
- CNC aluminum alloy housing;
- USB2.0 interface ensuring high speed data transmission;
- With advanced video & image processing application ToupView;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#/VB.Net, DirectShow, Twain;



10.1.2 ECMOS Datasheet (7)

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
ECMOS08300KPA EP608300A(New)	8.3M/IMX274(C) 1/2.5"(6.22x3.50)	1.62x1.62	236mv with 1/30s 0.1mv with 1/30s	4@3840x2160 16@1920x1080	1x1 2x2	0.244ms~15s
ECMOS06600KPA EP606600A(New)	6.6M/IMX326(C) 1/2.9"(4.98x3.50)	1.62x1.62	236mv with 1/30s 0.1mv with 1/30s	5@3072x2160 6@2592x1944 6@3072x1728 7@2160x2160	1x1 1x1 1x1 1x1	0.244ms~15s
ECMOS05300KPA EP605300A	5.3M/IMX178(C) 1/1.9"(7.37x4.15)	2.4x2.4	425mv with 1/30s 0.15mv with 1/30s	5.5@3072 x1728 35@1280x720	1x1, 2x2	0.105ms~15s
ECMOS05000KPA EP605000A(New)	5.0M/IMX335(C) 1/2.8"(5.18x3.89)	2.0x2.0	505mv with 1/30s 0.13mv with 1/30s	6.4@2592 x1944 26.7@1296x972	1x1, 2x2	0.1ms~15s
ECMOS03100KPA EP603100A	3.1M/IMX123(C) 1/2.8"(5.12x3.84)	2.5x2.5	600mv with 1/30s 0.15mv with 1/30s	10.5@2048x1536 15@1920x1080	1x1	0.105ms~15s
ECMOS02000KPA EP602000A	2.0M/IMX290(C) 1/2.8"(5.56x3.13)	2.9 x2.9	1300mv with 1/30s 0.15mv with 1/30s	17@1920x1080	1x1	0.105ms~15s
ECMOS01200KPA EP601200A	1.2M/IMX224(C) 1/3"(4.80x3.60)	3.75 x3.75	2040mv with 1/30s 0.15mv with 1/30s	27@1280x960 54@640x480	1x1, 2x2	0.105ms~15s

C: Color; M: Monochrome;

Other Specification for ECMOS 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™ Color Engine/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

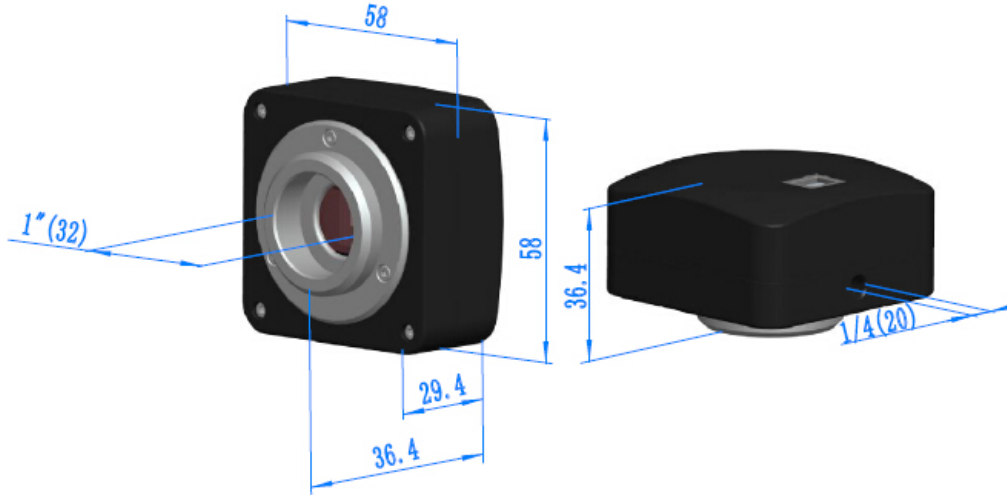
Operating Temperature(in Centidegree)	-10~ 50
Storage Temperature(in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port

Software Environment

Operating System	Microsoft® Windows® XP / Vista / 7 / 8 / 10 (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: USB2.0 Port
	Display: 17" or Larger CD-ROM

10.1.3 Dimension of ECMOS

The ECMOS 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.



Dimension of ECMOS

10.1.4 Packing Information for ECMOS



Packing Information of ECMOS

Standard Camera Packing List			
A	Carton L:52cm W:32cm H:33cm (20pcs, 12~17Kg/ carton), not shown in the photo		
B	Gift box L:15cm W:15cm H:10cm (0.5~0.55Kg/ box)		
C	ECMOS series USB2.0 C-mount CMOS camera		
D	High-speed USB2.0 A male to B male gold-plated connectors cable /2.0m		
E	CD (Driver & utilities software, Ø12cm)		
Optional Accessory			
F	Adjustable lens adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)	108001/AMA037 108002/AMA050 108003/AMA075
		C-mount to Dia.31.75mm eyepiece tube (Please choose 1 of them for your telescope)	108008/ATA037 108009/ATA050 108010/ATA075
G	Fixed lens Adapter	C-mount to Dia.23.2mm eyepiece tube (Please choose 1 of them for your microscope)	108005/FMA037 108006/FMA050 108007/FMA075
		C-Mount to Dia.31.75mm Eyepiece Tube (Please choose 1 of them for your telescope)	108011/FTA037 108012/FTA050 108013/FTA075
Note: For F and G optional items, please specify your camera type(C-mount, microscope camera or telescope camera) , ToupTek engineer will help you to determine the right microscope or telescope camera adapter for your application;			
H	108015(Dia.23.2mm to 30.0mm Ring)/Adapter rings for 30mm eyepiece tube		
I	108016(Dia.23.2mm to 30.5mm Ring)/ Adapter rings for 30.5mm eyepiece tube		
J	108017(Dia.23.2mm to 31.75mm Ring)/ Adapter rings for 31.75mm eyepiece tube		
K	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.)	

10.1.5 Extension of ECMOS with Microscope or Telescope Adapter

Extension	Picture	
C-mount Camera	 <p data-bbox="847 304 1233 427">Machine vision; Medical imaging; Semiconductor equipment; Test instruments; Document scanners; 2D barcode readers; Web camera and security video; Microscope imaging;</p>	
Microscope Camera	 <p data-bbox="424 685 778 712">ECMOS+AMAXXX(23.2mm Adapter)</p>	 <p data-bbox="994 685 1348 712">ECMOS+FMAXXX(23.2mm Adapter)</p>
Telescope Camera	 <p data-bbox="424 960 778 987">ECMOS+ATAXXX(31.75mm Adapter)</p>	 <p data-bbox="994 960 1348 987">ECMOS+FTAXXX(31.75mm Adapter)</p>