

10.2 LCMOS Series C-mount USB2.0 CMOS Camera

10.2.1 LCMOS Characteristic

LCMOS is luxurious USB2.0 CMOS camera with frame buffers and it adopts ultra-high performance CMOS sensor as the image-picking device, and USB2.0 is used as the data transfer interface.

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

The LCMOS can be widely used in bright field environment and microscope image capture and analysis with moderate speed.

The basic characteristic of L3CMOS cameras are as follows:

- Stand C-Mount camera with Aptina CMOS sensor;
- With hardware resolution among 1.2M to 14M;
- On-board memory for perfect synchronization, higher frame rate and stable performance;
- High performance cooling structure, ensures low image noise;
- USB2.0 interface ensuring high speed data transmission;
- Ultra-Fine™ color engine with perfect color reproduction capability;
- With advanced video & image processing application ToupView;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#/VB.NET, DirectShow, Twain Control API;



10.2.2 LCMOS Datasheet (10)

Order Code	Sensor & Size(mm)	Pixel(μm)	G Responsivity Dynamic range SNRmax	FPS/Resolution	Binning	Exposure
LCMOS14000KPA LP614000A	14M/MT9F002(C) 1/2.3"(5.73x4.60)	1.4x1.4	0.724v/lux-sec 65.3dB 35.5dB	2.7@4096x3288 10@2048x1644 35@1024 x822	1x1, 2x2, 4x4	0.4ms~2000ms
LCMOS10000KPA LP610000A	10M/MT9J003(C) 1/2.3"(5.98x4.59)	1.67x1.67	0.31v/lux-sec 65.2dB 34dB	3.7@3584x2748 13@1792x1374 35@896 x684	1x1, 2x2, 4x4	0.4ms~2000ms
LCMOS09000KPB LP609000B	9M/Special(C) 1/2.4"(5.83x4.37)	1.67x1.67	0.31v/lux-sec 65.2dB 34dB	3.9@3488x2616 15@1744x1308 47@872 x654	1x1, 2x2, 4x4	0.4ms~2000ms
LCMOS08000KPB LP608000B	8M/Special(C) 1/2.5"(5.45x4.09)	1.67x1.67	0.31v/lux-sec 65.2dB 34dB	4.4@3264x2448 17@1600x1200 55@800x600	1x1, 2x2, 4x4	0.4ms~2000ms
LCMOS05100KPA LP605100A	5.1M/MT9P001(C) 1/2.5"(5.70x4.28)	2.2x2.2	0.53 V/lux-sec 66.5dB 40.5dB	6.8@2592x1944 18@1280x960 55@640x480	1x1, 2x2, 4x4	0.294ms~2000ms
LCMOS03100KPA LP603100A	3.1M/MT9T001(C) 1/2"(6.55x4.92)	3.2x3.2	1.0 V/lux-sec 61dB 43dB	3.9@2048x1536 32@1024x768 45@680x510	1x1, 2x2, 3x3	0.244ms~2000ms
LCMOS03100KPB LP603100B	3.1M/IMX036(C) 1/2.8"(5.12x3.84)	2.5x2.5	200mv with 1/30s 0.5mv with 1/30s	12@2048x1536 48@1024x768 48@680x510	1x1,2x2,3x3	0.244ms~2000ms
LCMOS02000KPB LP602000B	2.0M/Special(C) 1/2.6"(5.12x3.84)	3.2x3.2	1.0 V/lux-sec 61dB 43dB	16@1600x1200 40@800x600	1x1, 2x2	0.244ms~2000ms
LCMOS01300KPA LP601300A	1.3M/MT9M111(C) 1/3"(4.60x3.70)	3.6x3.6	2.1V/lux-sec 68.2dB 45dB	15@1280x1024 26@640x512 48@320x256	1x1, 2x2, 4x4	0.14ms~2000ms
LCMOS01200KPB LP601200B	1.2M/AR0130(C) 1/3"(4.80x3.60)	3.75 x3.75	5.5v/lux-sec 85.3dB 44dB	28@1280x960 30@640x480	1x1, 2x2	0.4ms~2000ms

C: Color; M: Monochrome;

Other Specification for LCMOS Cameras

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 with High Performance Cooling Structure

Operating Environment

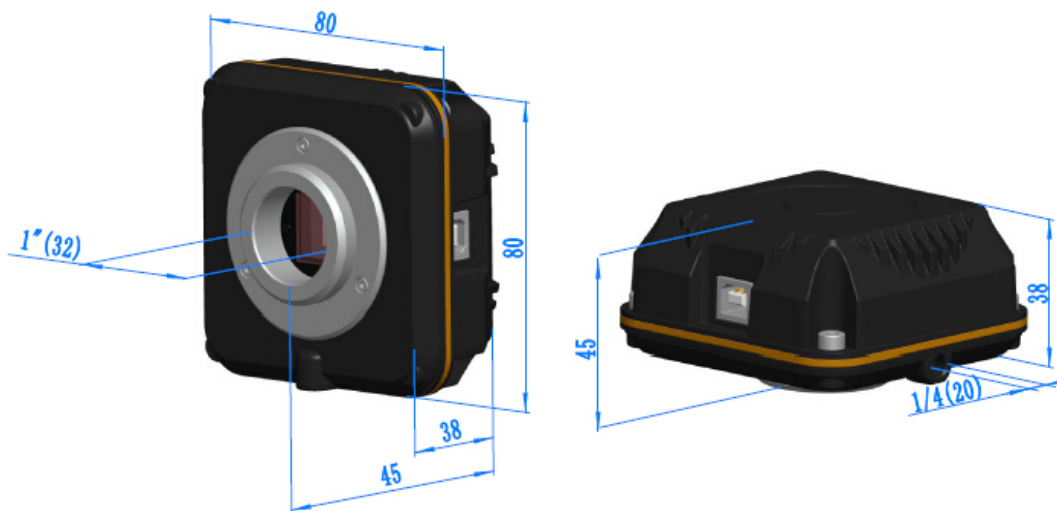
Operating Temperature(in Centidegree)	-10~ 50
Storage Temperature(in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port

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 High-speed Port
	Display:17" or Larger
	CD-ROM

10.2.3 Dimension of LCMOS

The LCMOS body, made from tough, 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 LCMOS

10.2.4 Packing Information of LCMOS



Packing Information of LCMOS

Standard Camera Packing List			
A	Carton L:40cm W:36cm H:36cm (16pcs, 12~17Kg/ carton), not shown in the photo		
B	Gift box L:16.4cm W:16.4cm H:9.6cm (0.7~0.8Kg/ box)		
C	LCMOS 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.)	

10.2.5 Extension of LCMOS with Microscope or Telescope Adapter

Extension	Picture	
C-mount Camera	 <p data-bbox="930 275 1318 398">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="427 645 783 674">LCMOS+AMAXXX(23.2mm Adapter)</p>	 <p data-bbox="1002 645 1358 674">LCMOS+FMAXXX(23.2mm Adapter)</p>
Telescope Camera	 <p data-bbox="427 920 783 949">LCMOS+ATAXXX(31.75mm Adapter)</p>	 <p data-bbox="1002 920 1358 949">LCMOS+FTAXXX(31.75mm Adapter)</p>