



Microscope TE-Cooling C-mount USB3.0 CMOS Camera

MTECMOS Series



2022 V1

For customized projects please Contact us:
info@simtrum.com

Microscope TE-Cooling USB3.0 CMOS Camera adopts a SONY Exmor CMOS sensor as the image-picking device and USB3.0 is used as the transfer interface to increase the frame rate.

With the two-stage Peltier cooling sensor chip to -42 degree below ambient temperature. This will greatly increase the signal-to-noise ratio and decrease the image noise. A smart structure is designed to assure heat radiation efficiency and avoid moisture problems. The electric fan is used to increase the heat radiation speed.

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

The MTECMOS series can be widely used in low light environments and microscope fluorescence image capture and analysis, as well as the astronomy deep sky application.



MTECMOS Series - Cylinder Housing



MTECMOS Series – Square Housing

Features

- Standard C-Mount camera with SONY Exmor or GSENSE CMOS sensors;
- Two-stage TE-cooling with controllable electric fan;
- Sensor chip cooling up to 42°C below ambient temperature;
- Working temperature can be regulated to a specified temperature in 5 minutes;
- Smart structure to assure the heat radiation efficiency and avoid the moisture problem;
- IR-CUT/AR coated windows;
- Up to 1 hour long time exposure;
- USB3.0 5Gbit/second interface ensuring high-speed data transmission;
- Ultra-Fine color engine with perfect color reproduction capability;
- With advanced video & image processing application;
- Support both video and trigger modes;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#/VB.NET, DirectShow, Twain control API;

Specifications

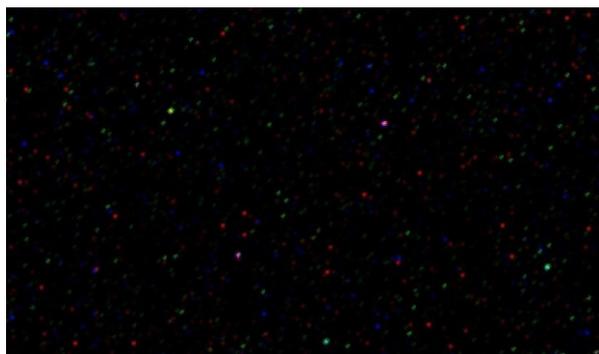
Order Code	Sensor & Size(mm)*	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
MTECMOS45000KMA MTRM145000A(2020)	45M/IMX492(M) 4/3"(19.11x13.00)	2.315 x2.315	351mv with 1/30s 0.12mv with 1/30s	8@8256x5616 31@4128x2808	1x1 2x2	0.1ms~3600s
MTECMOS26000KPA MTRP126000A	26M/IMX571(C) 1.8"(23.48x15.67) APS-C	3.76 x3.76	485mv with 1/30s 0.07mv with 1/30s	6.8@6224x4168(16bit) 14@6224x4168 37@3104x2084 110@2064x1386	1x1 1x1 2x2 3x3	0.1ms~3600s
MTECMOS26000KMA MTRM126000A	26M/IMX571(M) 1.8"(23.48x15.67) APS-C	3.76 x3.76	871mv with 1/30s 0.07mv with 1/30s	6.8@6224x4168(16bit) 14@6224x4168 37@3104x2084 110@2064x1386	1x1 1x1 2x2 3x3	0.1ms~3600s
MTECMOS21000KPA MTRP121000A	21M/IMX269(C) 4/3"(17.4x13.1)	3.3 x3.3	400mv with 1/30s 0.1mv with 1/30s	5@5280x3956 6@3952x3952 15@2640x1978 50@1760x1318 100@584x440	1x1 1x1 2x2 3x3 9x9	0.1ms~3600s
MTECMOS20000KPA MTRP120000A	20M/IMX183(C) 1"(13.056x8.755)	2.4 x2.4	462mv with 1/30s 0.21mv with 1/30s	5@5440x3648 10@4096x2160 15@2736x1824 30@1824x1216	1x1 1x1 2x2 3x3	0.1ms~3600s
MTECMOS20000KMA MTRM120000A	20M/IMX183(M) 1"(13.056x8.755)	2.4 x2.4	388mv with 1/30s 0.21mv with 1/30s (F8.0)	17.8@5440x3648 41@4096x2160 51@2736x1824 64@1824x1216	1x1 1x1 2x2 3x3	0.1ms~3600s
MTECMOS16000KPA MTRP116000A	16M/MN34230PLJ(C) 4/3"(17.6x13.3)	3.8x3.8	241LSB 89.1LSB (Gain = 0dB)	6@4640x3506 20@2304x1750 48.0@1536x1160	1x1 2x2 3x3	0.15ms~3600s
MTECMOS16000KMA MTRM116000A	16M/MN34230ALJ(M) 4/3"(17.6x13.3)	3.8x3.8	2650LSB 89.1LSB (Gain = 0dB)	22.5@4648x3506 43.0@2304x1750 48.0@1536x1168	1x1 2x2 3x3	0.15ms~3600s
MTECMOS10300KPA MTRP110300A	10.3M/IMX294(C) 4/3"(19.11x13.0)	4.63 x4.63	419mv with 1/30s 0.12mv with 1/30s	30.2@4128x2808 38.5 @4096x2160 69.5@2048x1080 96.1@1360x720	1x1 1x1 2x2 3x3	0.15ms~3600s
MTECMOS10300KMA MTRM110300A(2021)	10.3M/IMX492(M) 4/3"(19.11x13.0)	4.63 x4.63	701mv with 1/30s 0.12mv with 1/30s	33.3@4128*2808 8.0@ 8184*5616 69.5@2048*1080 96.2@1360*720	1x1 Quad* 2x2 3x3	0.15ms~3600s
MTECMOS09000KPA MTRP109000A	9M/IMX533(C) 1"(11.28x11.28)	3.76 x3.76	534mv with 1/30s 0.1mv with 1/30s	20@2992x3000(14bit) 40@2992x3000 62@1488x1500 186@992x998	1x1 1x1 2x2 3x3	0.1ms~3600s
MTECMOS08300KPA MTRP108300A	8.3M/IMX485(C) 1/1.2"(11.14x6.26)	2.9x2.9	2188mv with 1/30s 0.15mv with 1/30s	43@3840x2160 66@1920x1080	1x1 2x2	0.1ms~3600s
MTECMOS07100KPA MTRP107100A	7.0M/IMX428(C, GS) 1.1"(14.4x9.9)	4.5 x4.5	2058mv with 1/30s 0.15mv with 1/30s	12@3200x2200 33@1600x1100	1x1 1x1	0.1ms~3600s
MTECMOS07100KMA MTRM107100A	7.0M/IMX428(M, GS) 1.1"(14.4x9.9)	4.5 x4.5	3354mv with 1/30s 0.15mv with 1/30s	51@3200x2200 133@1600x1100	1x1 1x1	0.1ms~3600s
MTECMOS01700KPA MTRP101700A	1.7M/IMX432(C, GS) 1.1"(14.4x9.9)	9.0 x9.0	4910mv with 1/30s 0.3mv with 1/30s	33@1600x1100	1x1	0.1ms~3600s
MTECMOS01700KMA MTRM101700A	1.7M/IMX432(M, GS) 1.1"(14.4x9.9)	9.0 x9.0	8100mv with 1/30s 0.3mv with 1/30s	94@1600x1100	1x1	0.1ms~3600s

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

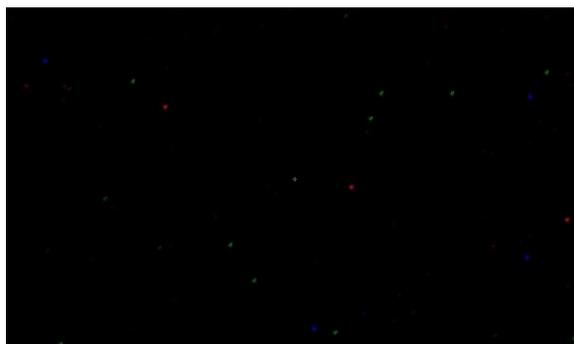
Specifications

Other Specifications for MTECMOS 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 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*	Two-stage TE-cooling System -45 °C below Camera Body Temperature
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 External Power Adapter for Cooling System, DC12V, 3A
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

Sample Photos Captured with MTECMOS Series



Hot noise for the MTECMOS at Gain 20,
600 second, 15 Centidegree



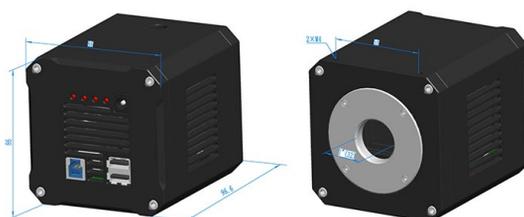
Hot noise for the MTECMOS at Gain 20,
600 second, minus 15 Centidegree

Dimension

The MTECMOS series body, made from tough, alloy with CNC technique, ensures a heavy-duty, workhorse solution. The camera is designed with a high-quality IR-CUT or AR to block the IR light or protect the camera sensor. The fan's vibration is minimized to a low level to eliminate the vibration caused by imaging blur. This design ensures a rugged, robust solution with an increased lifespan when compared to the other industrial camera solutions.



MTECMOS Series - Cylinder Housing



MTECMOS Series – Square Housing

Packing Information



Cylinder Housing

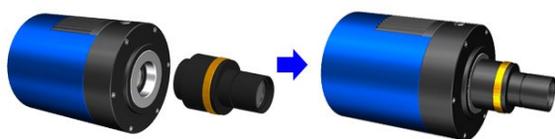


Square Housing

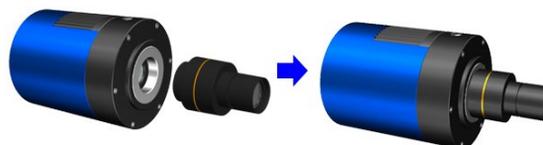
Standard Package		
A	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton), not shown in the photo (TBD)	
B	3-A safety equipment case: L:28cm W:23cm H:15cm (1pcs, 2.8Kg/ box); Carton size:L:28.2cm W:25.2cm H:16.7cm (TBD)	
C	One MTECMOS series camera(C-mount)	
D	Drying tube and desiccant	
E	Power adapter: input: AC 100~240V 50Hz/60Hz, output: DC12 V 3A	
F	High-Speed USB3.0 A male to B male gold-plated connectors cable /1.5m	
G	CD (Drive & utilities software, Ø12cm)	
Optional Accessory		
H	Adjustable lens adapter	C-mount to Dia. 23.2mm eyepiece tube
		C-mount to Dia. 31.75mm eyepiece tube
I	Fixed lens adapter	C-mount to Dia. 23.2mm eyepiece tube
		C-mount to Dia. 31.75mm eyepiece tube
J	108015(Dia.23.2mm to 30.0mm ring)/Adapter rings for 30mm eyepiece tube	
K	108016(Dia.23.2mm to 30.5mm ring)/Adapter rings for 30.5mm eyepiece tube	
L	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 H and I 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 MTECMOS Series with Microscope or Telescope Adapter



MTECMOS + AMAXXX(23.2mm Adapter)



MTECMOS + FMAXXX(23.2mm Adapter)