

6 Microscope TE-Cooling USB3.0 CCD Camera

6.1 TR3CCD Series C-mount USB3.0 TE-Cooling CCD Camera



6.1.1 TR3CCD Basic Characteristic

- Standard C-Mount camera with SONY ExView HAD CCD II sensor from 1.4M ~ 6M;
- Two-stage TE-cooling with controllable electric fan;
- Working temperature can be regulated to specified temperature;
- Smart structure to assure the heat radiation efficiency and avoid the moisture problem;
- Up to 45 degrees temperature drop ensures high quality image with low noise;
- 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 ToupView;
- Providing Windows/Linux/Mac OS multiple platforms SDK;
- Native C/C++, C#, DirectShow, Twain Control API;

6.1.2 TR3CCCD Datasheet

ToupTek TR3CCCD camera adopts Sony Exview HAD CCD II sensor as the image-picking device with two-stage peltier cooling system. This will greatly increase the signal to noise ratio and decrease the image noise. Besides, smart internal heat transfer structure is used to transfer the heat radiation. Electric fan is used to increase the heat radiation speed. USB3.0 is used as the data transfer interface.

TR3CCCD comes with advanced video & image processing application ToupView; Providing Windows/Linux/OSX multiple platform SDK; Native C/C++, C#, DirectShow, Twain Control API;

The TR3CCCD can be widely used in low light environment and microscope fluorescence image capture and analysis, as well as the astronomy application.

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
TR3CCCD06000KPA RP106000A	6.0M/ICX694AQG(C) 1" (14.6x12.8)	4.54x4.54	1000mv with 1/30s 8mv with 1/30s	7.5@2748x2200 14@2748x1092	1x1	0.22ms~3600s
TR3CCCD02800KPA RP102800A	2.8M/ICX674AQG(C) 2/3" (10.7x9.2)	4.54x4.54	800mv with 1/30s 4mv with 1/30s	15@1940x1460 18@1932x1092	1x1	0.12ms~3600s
TR3CCD01400KPB RP101400B	1.4M/ICX825AQA(C) 2/3" (10.7x8.7)	6.45x6.45	2000mv with 1/30s 4.8mv with 1/30s	25@1360x1024	1x1	0.12ms~3600s
TR3CCD01400KMB RM101400B	1.4M/ICX825ALA(M) 2/3" (10.7x8.7)	6.45x6.45	2000mv with 1/30s 4.8mv with 1/30s	25@1360x1024	1x1	0.12ms~3600s

C:Color; M:Monochrome;

Other Specification for SCCC 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 API	Native C/C++, C#, DirectShow, Twain and Labview
Recording System	Still Picture and Movie
Cooling System*	Two-stage TE-cooling System -45 °C below Ambient Temperature

Operating Environment

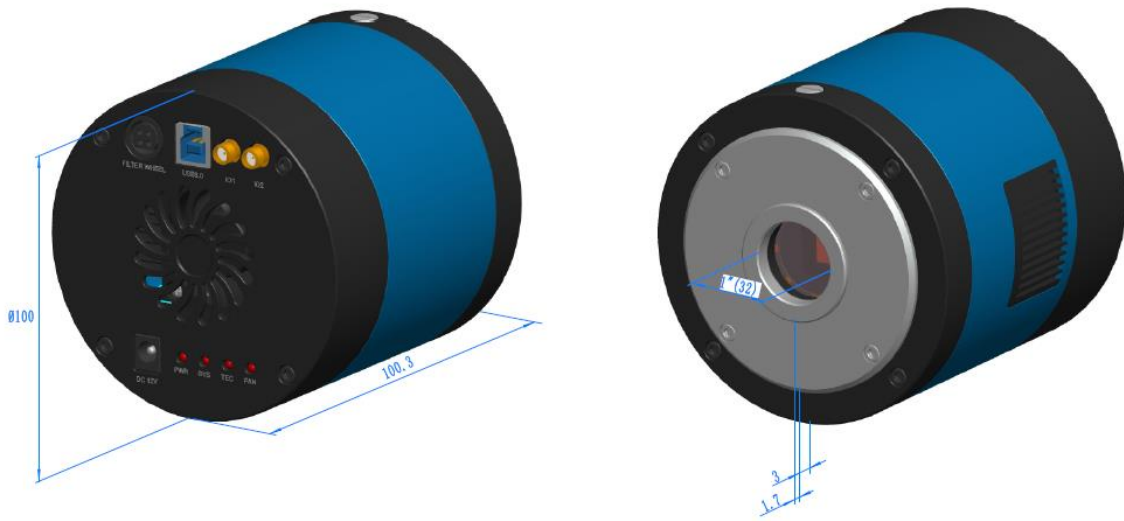
Operating Temperature(in Centidegree)	-10~ 50
Storage Temperature(in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port External Power Adapter for Cooling System, DC12V, 3A

Software Environment

Operating System	Microsoft® Windows® XP / Vista / 7 / 8 / 10 (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

6.1.3 Dimension of TR3CCD Camera

The TR3CCD camera body, made from tough, alloy, ensures a heavy duty, workhorse solution. The camera is designed with a high quality IR-CUT to protect the camera sensor and block the IR light. No moving parts included. These measures ensure a rugged, robust solution with an increased lifespan when compared to other industrial camera solutions.



Drawing of TR3CCCD Camera

6.1.4 Packing Information for TR3CCD Camera



TR3CCD Series USB3.0 CCD Camera Packing Information

Standard Package			
A	Carton L:50cm W:30cm H:30cm (20pcs, 12~17Kg/ carton, 0.045m ³), not shown in the photo		
B	3-A safety equipment case: L:28cm W:23cm H:15cm (1pcs, 3.9Kg/ box); carton size:L:28.2cm W:16.7cm H:25.5cm		
C	TR3CCD series USB3.0 CCD camera(C-mount)		
D	Power adapter: input: AC 100~240V 50Hz/60Hz, output: DC 5V 4.5A		
E	High-Speed USB3.0 A male to B male gold-plated connectors cable /2.0m		
F	CD (Driver & utilities software, Ø12cm)		
Optional Accessory			
G	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
H	Fixed lens adaptor	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;			
I	108015(Dia.23.2mm to 30.0mm Ring)/Adaptor rings for 30mm eyepiece tube		
J	108016(Dia.23.2mm to 30.5mm Ring)/ Adaptor rings for 30.5mm eyepiece tube		
K	External trigger control line		
L	Calibration Lit	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.)	