CMOS & CCD Camera for Microscope
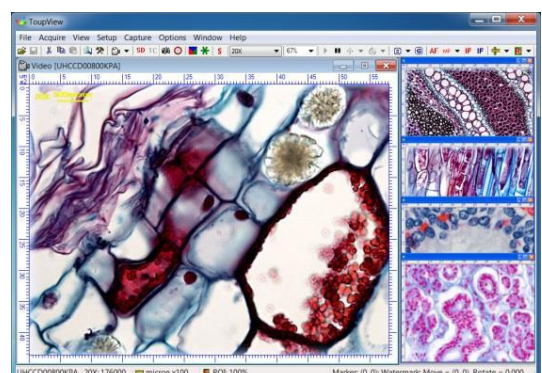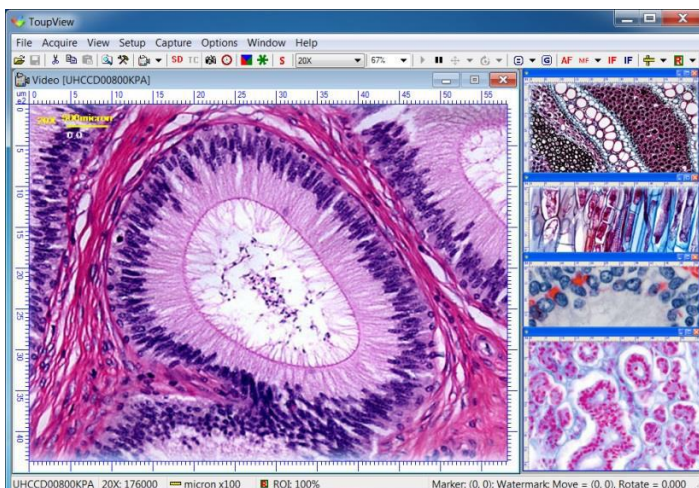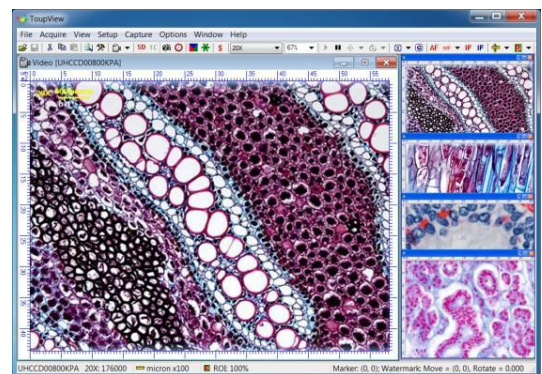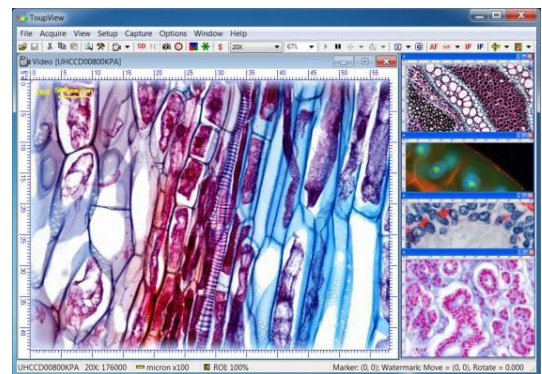
HK Series

Ultra-FineTM Color Engine

USB2.0 High Resolution Perfect Color

K-OPTIC HK3.1   3.1M C-Mount CMOS CAMERA

3.1M C-Mount CMOS Camera

Aptina Sensor with Large Pixel Size (3.2μmX3.2μm) and High Sensitivity

Support Microsoft Windows XP / Vista / 7 /8 (32 & 64 bit)

Support OS X (MAC OS X) and Linux

Support Native C/C++, C#, Directshow, Twain, Labview

With Microscope and Telescope Camera Adaptor, the C-mount Camera Can Be Extended to

Microscope Camera with Fixed Microscope Adaptor

Microscope Camera with Adjustable Microscope Adaptor

Telescope Camera with Fixed Telescope Adaptor

Telescope Camera with Adjustable Telescope Adaptor

K-OPTIC HK3.1   3.1M C-Mount CMOS CAMERA
3.1MP APTINA CMOS SENSOR & DSP CHIP

HARDWARE CONFIGURATION

Image Pickup Device	Aptina MT9T001 CMOS(Color)
Scan Mode	Progressive
Max. Resolution	2048 x 1536 (Approx.3,200,000 Pixels)
Sensor Size (Diagonal)	1/2" (6.55mm(H) x 4.92mm(V), Diagonal 8.19mm)
Pixel Size	3.2µm x 3.2µm
G Sensitivity	1.0v/lux-sec(550nm)
Dynamic Range	61dB
A/D Converter	10-bit, 8-bit R.G.B to PC
SN Ratio	43dB
Spectral Range	380-650nm (with IR-cut Filter)
Video Format & Frame Rate	8fps @2048 x 1536, 22fps @1024 x 768, 43fps @680 x 510
Binning	1 x 1, 2 x 2, 3 x 3
Exposure	0.128ms~2000ms, ROI Auto & Manual
White Balance	ROI White Balance/ Manual Temp Tint Adjustment
Color Rendering Technique	Ultra-Fine™ Color Engine
Peak Quantum Efficiency	N/A
Readout Noise	N/A
Extinction Ratio	N/A
Smear	N/A
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
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 (32 & 64 bit) OS X (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

K-OPTIC HK14   14M C-Mount CMOS CAMERA

14.0M C-Mount CMOS Camera

Aptina Sensor with Large Pixel Size (1.4µmX1.4µm) and High Sensitivity

Support Microsoft Windows XP / Vista / 7 /8 (32 & 64 bit)

Support OS X (MAC OS X) and Linux
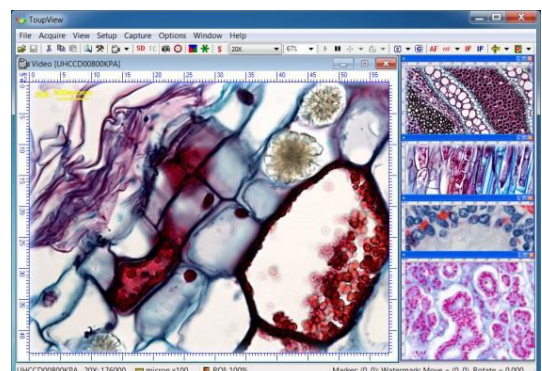
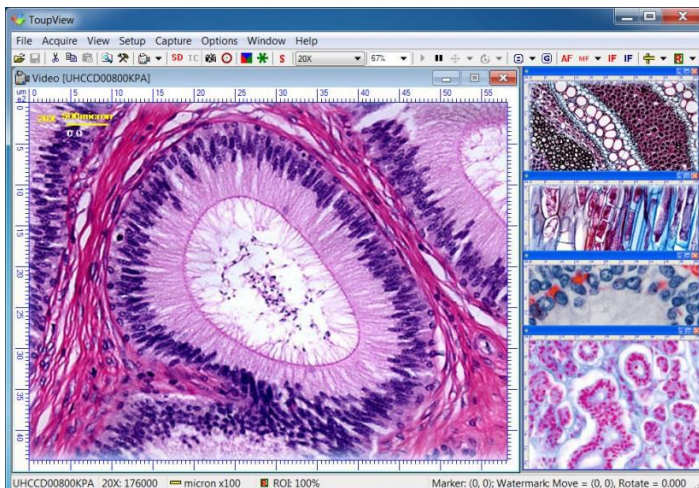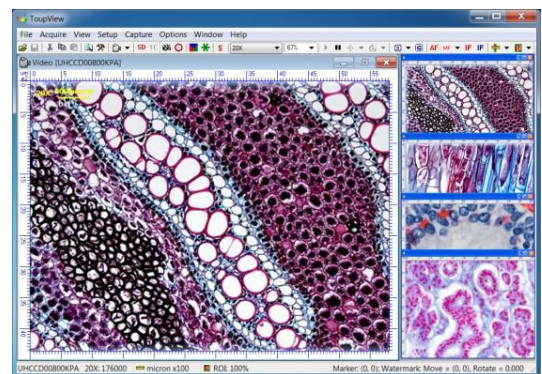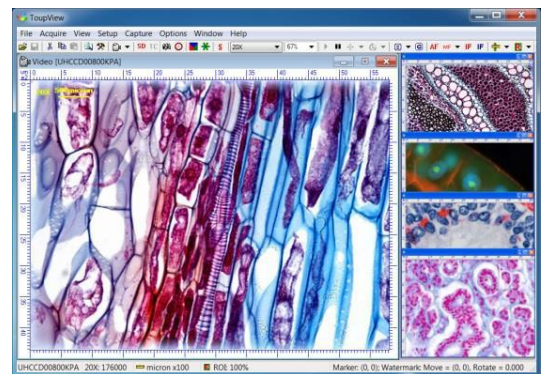Support Native C/C++, C#, Directshow, Twain, Labview

With Microscope and Telescope Camera Adaptor, the C-mount Camera Can Be Extended to

Microscope Camera with Fixed Microscope Adaptor

Microscope Camera with Adjustable Microscope Adaptor

Telescope Camera with Fixed Telescope Adaptor

Telescope Camera with Adjustable Telescope Adaptor

K-OPTIC HK14   14M C-Mount CMOS CAMERA

14MP APTINA CMOS SENSOR & DSP CHIP

HARDWARE CONFIGURATION

Image Pickup Device	Aptina MT9F002 CMOS(Color)
Scan Mode	Progressive
Max. Resolution	4096 x 3288 (Approx. 14,000,000 Pixels)
Sensor Size (Diagonal)	1/2.3" (6.138mm(H) x 4.603mm(V), Diagonal 7.672mm)
Pixel Size	1.4μm x 1.4μm
G Sensitivity	0.724v/lux-sec(550nm)
Dynamic Range	65.3dB
A/D Converter	12-bit, 8-bit R.G.B to PC
SN Ratio	35.5dB
Spectral Range	380-650nm (with IR-cut Filter)
Video Format & Frame Rate	1.8fps @4096 x 3288, 10fps @2048 x 1644, 27fps @1024 x 822
Binning	1 x 1, 2 x 2, 4 x 4
Exposure	0.4ms~2000ms, ROI Auto & Manual
White Balance	ROI White Balance/ Manual Temp Tint Adjustment
Color Rendering Technique	Ultra-Fine^{TM} Color Engine
Peak Quantum Efficiency	N/A
Readout Noise	N/A
Extinction Ratio	N/A
Smear	N/A
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
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 (32 & 64 bit) OS X (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

K-OPTIC HK3.1U3

3.1M C-Mount USB3.0 CMOS CAMERA

1/3" Color Aptina AR0331(Progressive) CMOS Sensor

3.1 Mega Pixels USB3.0 C-Mount CMOS Camera

Square Housing:68 X 68 X 45mm

Support Microsoft Windows XP / Vista / 7 /8 (32 & 64 bit)

Support OS X (MAC OS X) and Linux

Support Native C/C++, C#, Directshow, Twain, Labview

With Microscope and Telescope Camera Adaptor, the C-mount Camera Can Be Extended to

Microscope Camera with Fixed Microscope Adaptor

Microscope Camera with Adjustable Microscope Adaptor

Telescope Camera with Fixed Telescope Adaptor

Telescope Camera with Adjustable Telescope Adaptor
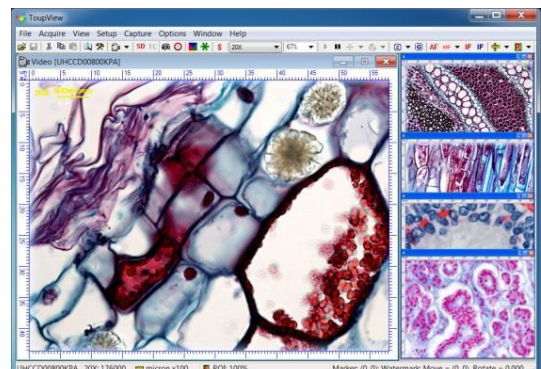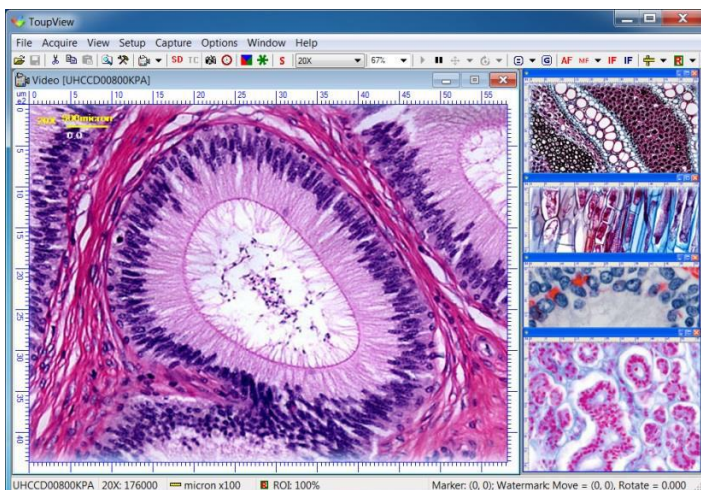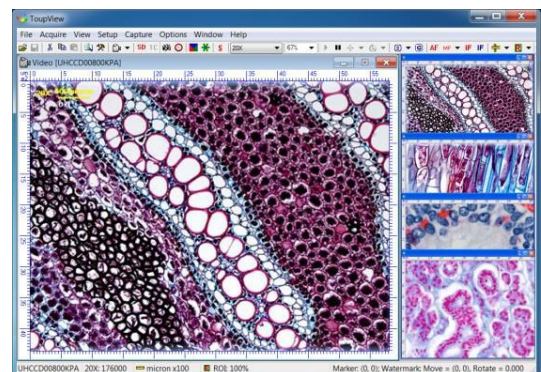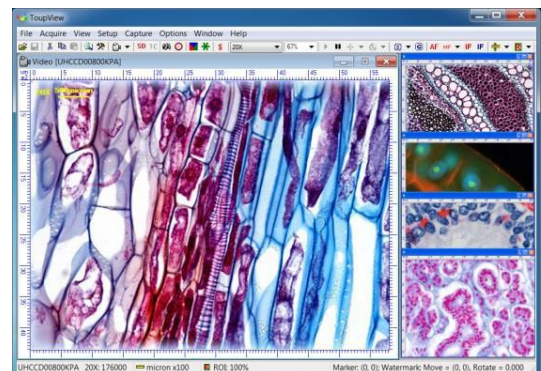
K-OPTIC HK3.1U3

3.1M C-Mount USB3.0 CMOS CAMERA
3.1MP APTINA CMOS SENSOR & DSP CHIP

HARDWARE CONFIGURATION

Image Pickup Device	Aptina AR0330 CMOS Sensor(Color)
Scan Mode	Progressive
Max.Resolution	2048 x 1534 (Approx. 3,140,000 Pixels)
Sensor Size (Diagonal)	1/3" (Diagonal 6.0mm)
Pixel Size	2.2μm x 2.2μm
Imaging Area	4.505mm(H) x 3.375mm(V)
Dynamic Range	72.4dB
A/D Converter	12-bit on Board, 8-bit R-G-B Processed
SN Ratio	39dB
Spectral Range	380-650nm (with IR-cut Filter)
Responsivity	2.0V/lux-sec
Video Format & Max.Frame Rate	27.3fps @2048 x 1534, 53.3fps @1024 x 770 (Multiple Speed Level)
Binning	1 x 1, 2 x 2
Output Rate	98MBytes/s
Exposure	0.1ms~2000ms, ROI Auto & Manual
White Balance	ROI White Balance/ Manual Temp Tint Adjustment
Color Rendering Technique	Ultra-Fine™ Color Engine
Peak Quantum Efficiency	N/A
Readout Noise	N/A
Extinction Ratio	N/A
Smear	N/A
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
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 (32 & 64 bit)
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

K-OPTIC HK5U3

5.0M C-Mount CMOS USB3.0 CAMERA

1/2.5" Color Aptina MT9P006 (Progressive) CMOS Sensor

5.0 Mega Pixels USB3.0 C-Mount CMOS Camera

Square Housing:68 X 68 X 45mm

Support Microsoft Windows XP / Vista / 7 /8 (32 & 64 bit)

Support OS X (MAC OS X) and Linux

Support Native C/C++, C#, Directshow, Twain, Labview

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Microscope Camera with Adjustable Microscope Adaptor

Telescope Camera with Fixed Telescope Adaptor

Telescope Camera with Adjustable Telescope Adaptor
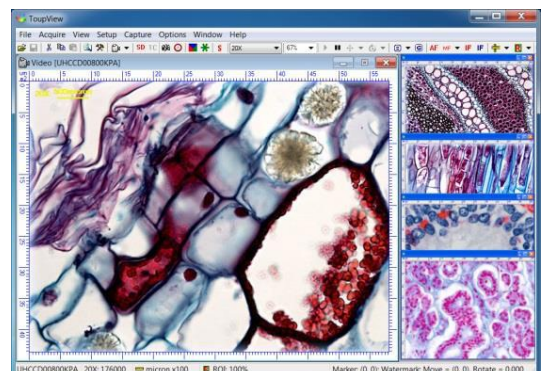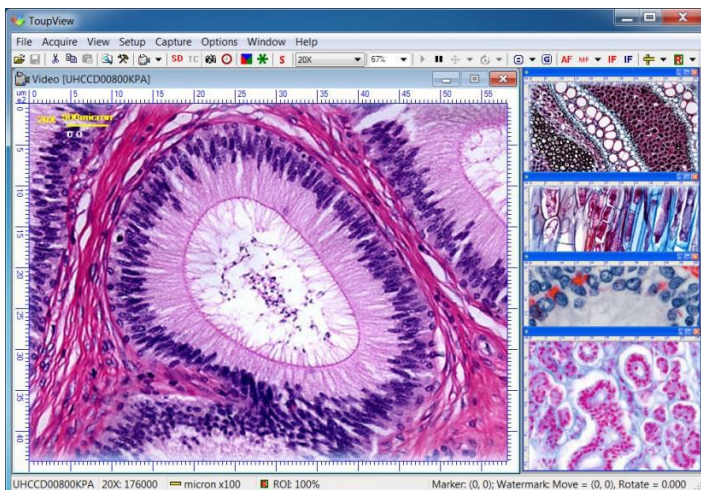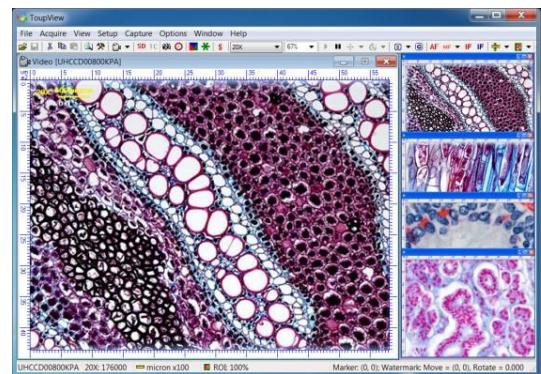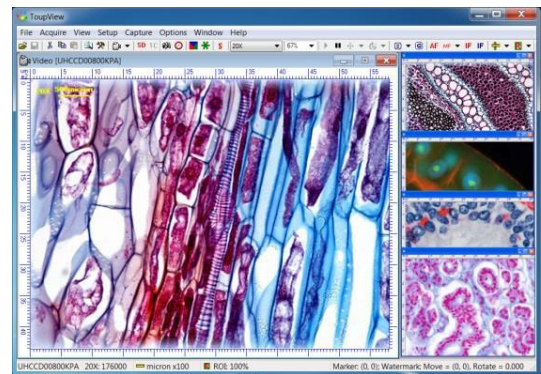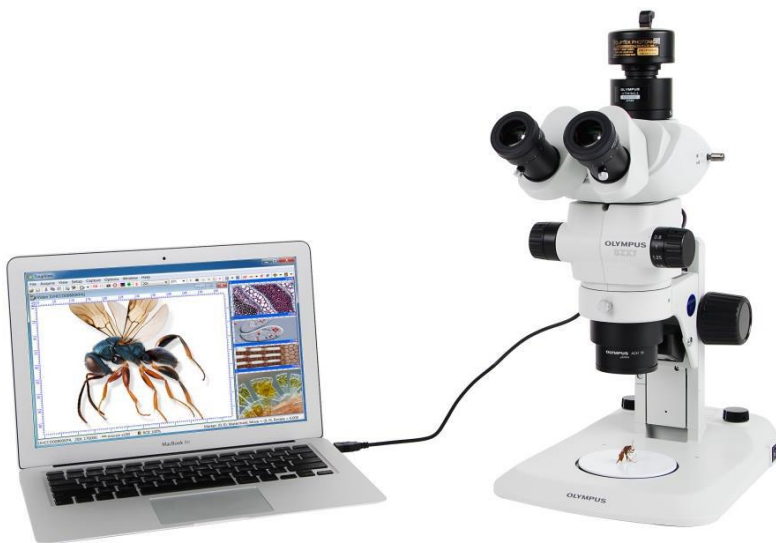
K-OPTIC HK5U3

5.0M C-Mount CMOS USB3.0 CAMERA

5.0MP APTINA CMOS SENSOR & DSP CHIP

HARDWARE CONFIGURATION

Image Pickup Device	Aptina MT9P006 CMOS Sensor(Color)
Scan Mode	Progressive
Max.Resolution	2560 x1922 (Approx. 5,000,000 Pixels)
Sensor Size (Diagonal)	1/2.5" (5.7mm(H) x 4.28mm(V), Diagonal 7.13mm)
Pixel Size	2.2µm x 2.2µm
Imaging Area	5.632mm(H) x 4.228mm(V)
Dynamic Range	67.74dB
A/D Converter	12-bit on Board, 8-bit R-G-B Processed
SN Ratio	38.5dB
Spectral Range	380-650nm (with IR-cut Filter)
Responsivity	1.76V/lux-sec(550nm)
Video Format & Max.Frame Rate	14.2fps @2560 x 1922, 38.3fps @1280 x 960, 101.2fps @640 X 480
Binning	1 x 1, 2 x 2, 4 x 4
Output Rate	96MBytes/s
Exposure	0.05ms~2s, ROI Auto & Manual
White Balance	ROI White Balance/ Manual Temp Tint Adjustment
Color Rendering Technique	Ultra-Fine™ Color Engine
Peak Quantum Efficiency	N/A
Readout Noise	N/A
Extinction Ratio	N/A
Smear	N/A
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
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 (32 & 64 bit)
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

K-OPTIC HK3.1A   3.1M C-Mount CMOS CAMERA

3.1M C-Mount CMOS Camera

Aptina Sensor with Large Pixel Size (3.2μmX3.2μm) and High Sensitivity

Support Microsoft Windows XP / Vista / 7 /8 (32 & 64 bit)

Support OS X (MAC OS X) and Linux

Support Native C/C++, C#, Directshow, Twain, Labview

With Microscope and Telescope Camera Adaptor, the C-mount Camera Can Be Extended to

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Microscope Camera with Adjustable Microscope Adaptor

Telescope Camera with Fixed Telescope Adaptor

Telescope Camera with Adjustable Telescope Adaptor

K-OPTIC HK3.1A   3.1M C-Mount CMOS CAMERA
3.1MP APTINA CMOS SENSOR & DSP CHIP

HARDWARE CONFIGURATION

Image Pickup Device	Aptina MT9T001 CMOS(Color)
Scan Mode	Progressive
Max. Resolution	2048 x 1536 (Approx.3,200,000 Pixels)
Sensor Size (Diagonal)	1/2" (6.55mm(H) x 4.92mm(V), Diagonal 8.19mm)
Pixel Size	3.2μm x 3.2μm
G Sensitivity	1.0v/lux-sec(550nm)
Dynamic Range	61dB
A/D Converter	10-bit, 8-bit R.G.B to PC
SN Ratio	43dB
Spectral Range	380-650nm (with IR-cut Filter)
Video Format & Frame Rate	11.5fps @2048 x 1536, 32fps @1024 x 768, 45fps @680 x 510
Binning	1 x 1, 2 x 2, 3 x 3
Exposure	0.244ms~2000ms, ROI Auto & Manual
White Balance	ROI White Balance/ Manual Temp Tint Adjustment
Color Rendering Technique	Ultra-Fine™ Color Engine
Peak Quantum Efficiency	N/A
Readout Noise	N/A
Extinction Ratio	N/A
Smear	N/A
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
Recording System	Still Picture and Movie
Cooling System*	Natural

OPERATING ENVIRONMENT

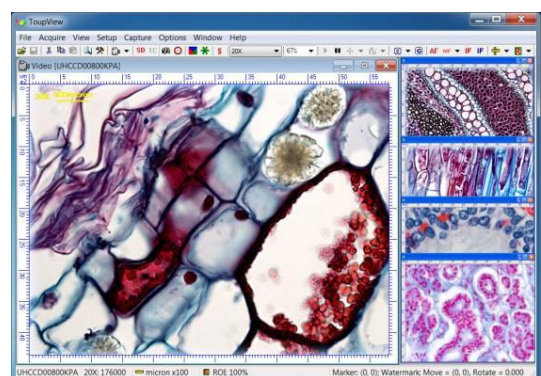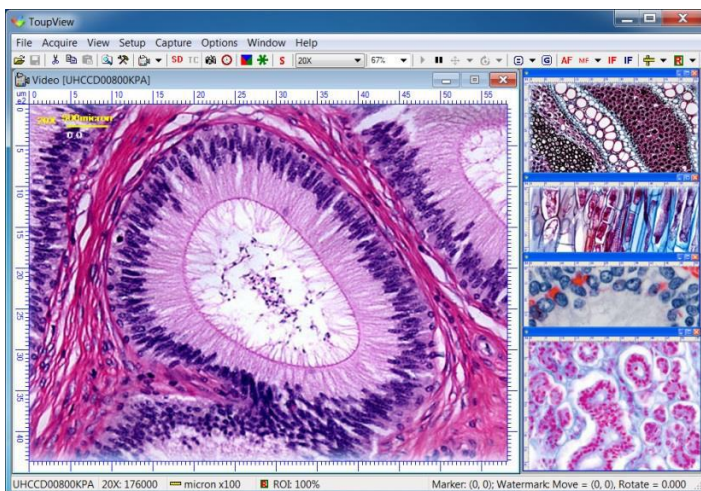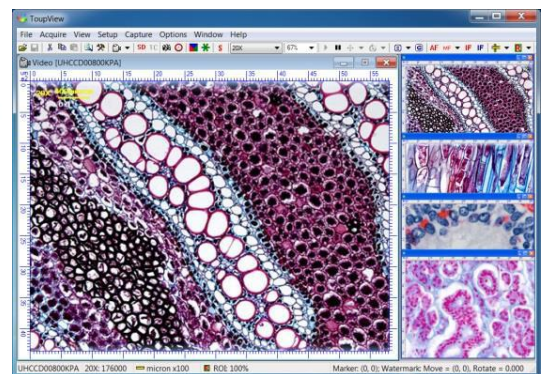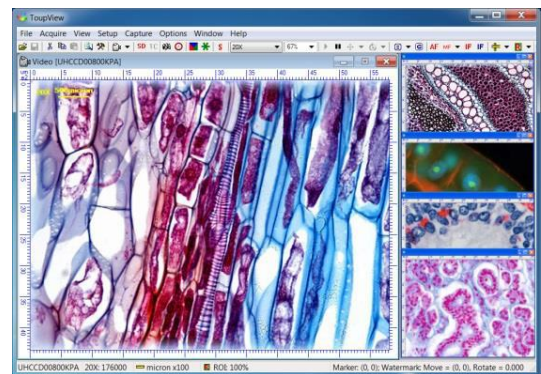|	
Operating Temperature(in Centidegree)	-10~ 50
Storage Temperature(in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH
Power Supply	DC 5V over PC USB Port

SOFTWARE ENVIRONMENT

Operating System	Microsoft® Windows® XP / Vista / 7 / 8 (32 & 64 bit) OS X (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

K-OPTIC HK5CCD

5M C-Mount CCD CAMERA

5.1M C-Mount UHCCD Camera

Sony Sensor with Large Pixel Size (2.775µmX2.775µm) and High Sensitivity

Support Microsoft Windows XP / Vista / 7 /8 (32 & 64 bit)

Support OS X (MAC OS X) and Linux

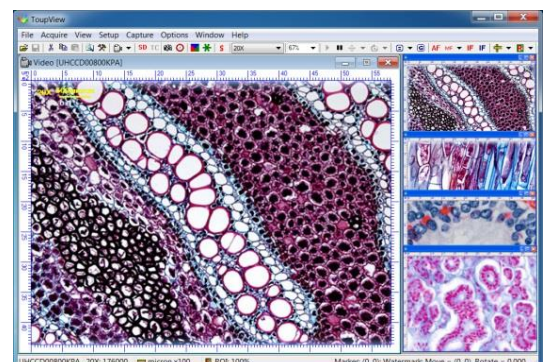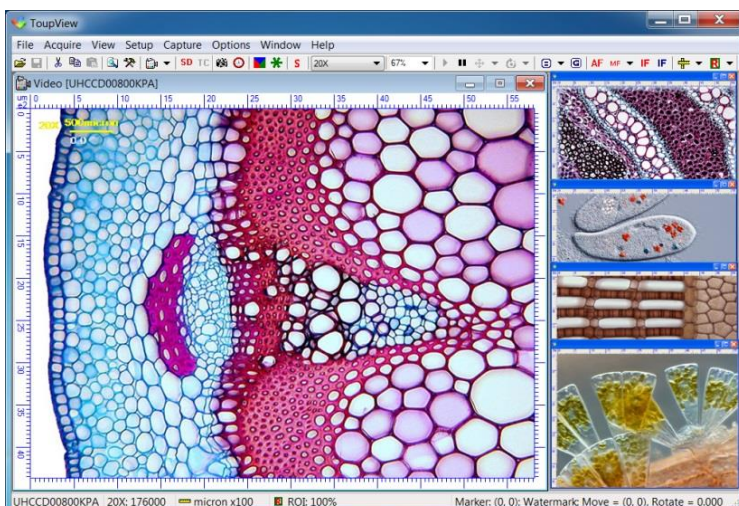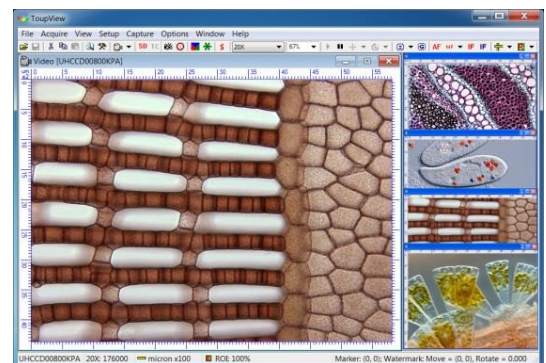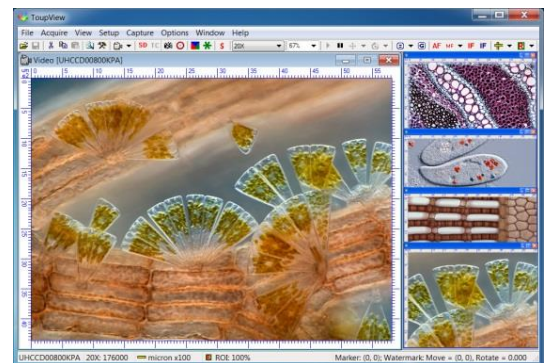Support Native C/C++, C#, Directshow, Twain, Labview

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Telescope Camera with Fixed Telescope Adaptor

Telescope Camera with Adjustable Telescope Adaptor

K-OPTIC HK5CCD   5M C-Mount CCD CAMERA

5MP SONY CCD SENSOR

HARDWARE CONFIGURATION

Image Pickup Device	SONY ICX452AQ CCD(Color)
Scan Mode	Interlaced
Max. Resolution	2592 x 1944 (Approx. 5,040,000 Pixels)
Sensor Size (Diagonal)	1/1.8" (Diagonal 9.04mm)
Pixel Size	2.775μm x 2.775μm
Imaging Area	8.23mm(H) x 6.68mm(V)
G Sensitivity	260mv with 1/30s Accumulation
Dynamic Range	70dB
A/D Converter	12-bit Parallel, 8-bit R.G.B to PC
SN Ratio	62dB
Spectral Range	380-650nm (with IR-cut Filter)
Video Format & Frame Rate	4fps @2592 x 1944, 35fps @300 x 200 (Multiple Speed Level)
Binning	1 x 1, 2 x 2
Exposure	0.22ms~77ms, ROI Auto & Manual
White Balance	ROI White Balance/ Manual Temp Tint Adjustment
Color Rendering Technique	Ultra-Fine™ Color Engine
Peak Quantum Efficiency	N/A
Readout Noise	N/A
Extinction Ratio	N/A
Smear	N/A
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
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 (32 & 64 bit) OS X (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

K-OPTIC HK5CCD-S   5M C-Mount CCD CAMERA

5.0M C-Mount UHCCD Camera

Sony Sensor with Large Pixel Size (3.4μmX3.4μm) and High Sensitivity

Support Microsoft Windows XP / Vista / 7 /8 (32 & 64 bit)

Support OS X (MAC OS X) and Linux

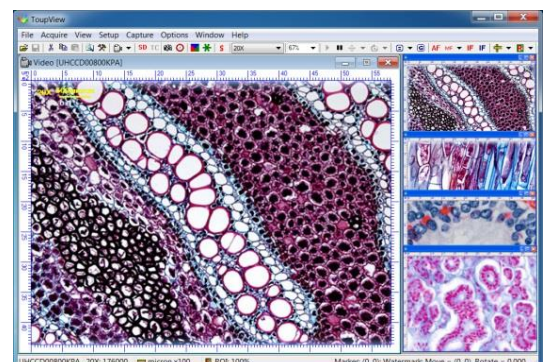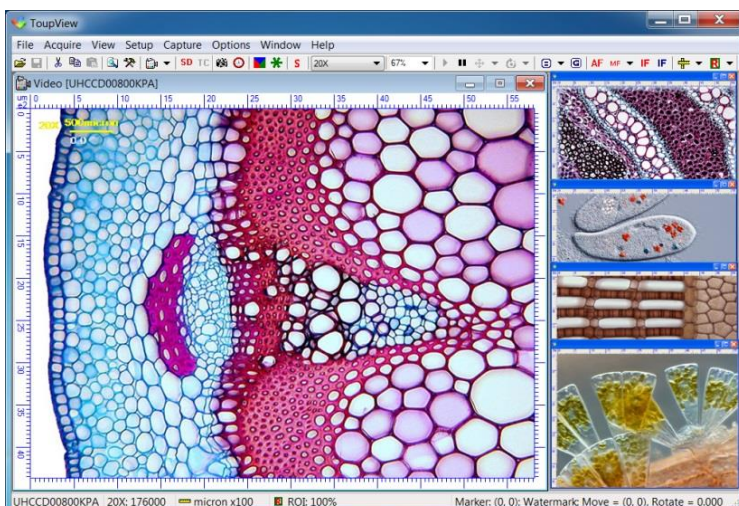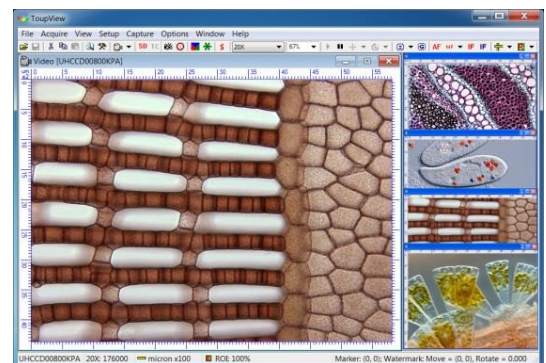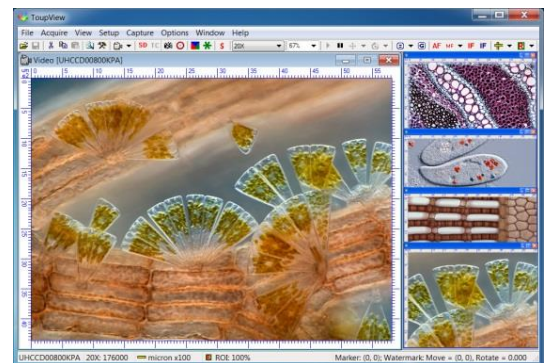Support Native C/C++, C#, Directshow, Twain, Labview

With Microscope and Telescope Camera Adaptor, the C-mount Camera Can Be Extended to

Microscope Camera with Fixed Microscope Adaptor

Microscope Camera with Adjustable Microscope Adaptor

Telescope Camera with Fixed Telescope Adaptor

Telescope Camera with Adjustable Telescope Adaptor

K-OPTIC HK5CCD-S   5M C-Mount CCD CAMERA

5MP SONY CCD SENSOR

HARDWARE CONFIGURATION

Image Pickup Device	SONY ICX282AQ CCD(Color)
Scan Mode	Interlaced
Max. Resolution	2560 x 1920(Approx. 4,900,000 Pixels)
Sensor Size (Diagonal)	2/3" (Diagonal 11mm)
Pixel Size	3.40µm x 3.40µm
Imaging Area	9.74mm(H) x 7.96mm(V)
G Sensitivity	260mv with 1/30s Accumulation
Dynamic Range	70dB
A/D Converter	12-bit Parallel, 8-bit R.G.B to PC
SN Ratio	62dB
Spectral Range	380-650nm (with IR-cut Filter)
Video Format & Frame Rate	4.5fps @2560 x 1920, 9fps @1280 x 960 (Multiple Speed Level)
Binning	1 x 1, 2 x 2
Exposure	0.20ms~105ms, ROI Auto & Manual
White Balance	ROI White Balance/ Manual Temp Tint Adjustment
Color Rendering Technique	Ultra-Fine™ Color Engine
Peak Quantum Efficiency	N/A
Readout Noise	N/A
Extinction Ratio	N/A
Smear	N/A
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
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 (32 & 64 bit) OS X (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

K-OPTIC HK-XCAM720H

CMOS HDMI CAMERA

CAMERA

Image Pickup Device	5MP Aptina MT9P003 CMOS (Color)
Scan Mode	Progressive
Max. Resolution	1280X720 (16:9)
Video Format & Frame Rate	30fps @720P
OSD Cursor	On/Off
Exposure	Auto & Lock
White Balance	Auto , Manual & Lock
Sensor Size (Diagonal)	1/2.5" (5.70mm(H) x 4.28mm(V), Diagonal 7.13mm)
Pixel Size	2.2µm x 2.2µm
Spectral Range	380-650nm (with IR-filter)
Color Rendering Technique	Ultra Fine™ Color Engine
Video Preview	Stream/ Freeze
Image Storage	Save to SD Card

INTERFACE & BUTTON FUNCTIONS

1X HDMI Output Port	
1X SD Card Slot	
1X Power Input Slot	

RED	Cursor ON/OFF
BLUE	Save Image to SD Card
YELLOW	AEWB ON/OFF
WHITE	Video Stream/Freeze

POWER SUPPLY

AC Input	100-240VAC 50/60Hz (AC/DC adapter)
DC Output	DC 5V/1A

OVERALL DIMENSIONS

Width X Depth X Height:	68 mm (2.67") X 68 mm (2.67")X 92mm (3.62")
Shipping Weight:	0.25 kg (0.55 lbs)

ENVIRONMENTAL PARAMETERS

Operating Temperature	0°C (32°F) to 40°C (104°F)
Storage Temperature	−20°C (−4°F) to 60°C (140°F)
Operating Humidity	15% to 85%, Noncondensing
Storage Humidity	10% to 90%, Noncondensing

OPTIONAL ACCESSORIES

|	
Lens	C-mount Lens
Cable	HDMI Cable
Memory Card	SD Card

K-OPTIC HK1.4COOL-CCD 1.4M C-Mount

COOLING CCD CAMERA

1.45M USB2.0 C-Mount Camera
2/3" Color SONY CCD Sensor
SONY ICX285AQ (Progressive)
Square Housing:120 X 120 X 109mm
TE-Cooled System - 20 °C below Ambient Temperature
Support Microsoft Windows XP / Vista / 7 /8 (32 & 64 Bit)
Support OS X (MAC OS X) and Linux
Support Native C/C++, C#, Directshow, Twain, Labview
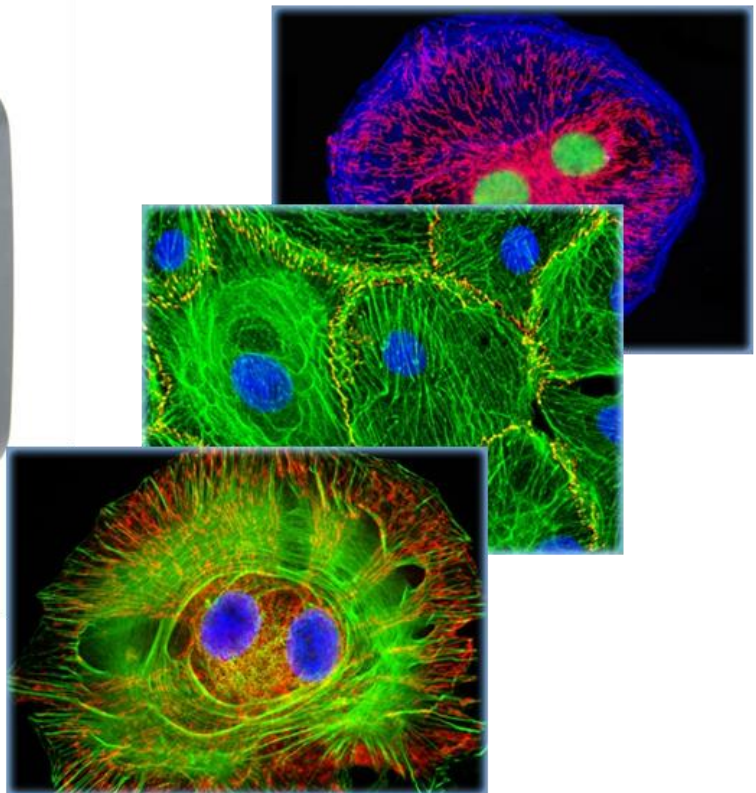
K-OPTIC HK1.4COOL-CCD   1.4M C-Mount
COOLING CCD CAMERA
1.4MP SONY CCD SENSOR & TE-COOLING SYSTEM

HARDWARE CONFIGURATION

Image Pickup Device	SONY ICX285AQ CCD(Color)
Scan Mode	Progressive
Max. Resolution	1360 x 1024 (Approx. 1,400,000 Pixels)
Sensor Size (Diagonal)	2/3" (Diagonal 11mm)
Pixel Size	6.45µm x 6.45µm
Imaging Area	10.2mm(H) x 8.3mm(V)
G Sensitivity	1240mv with 1/30s Accumulation
Dynamic Range	70dB
A/D Converter	12-bit Parallel, 8-bit R.G.B to PC
SN Ratio	75dB
Spectral Range	380-650nm (with IR-cut Filter)
Video Format & Frame Rate	15fps @1360 x 1024(Multiple Speed Level)
Binning	1 x 1
Long Exposure	0.12ms~240s, ROI Auto & Manual
White Balance	ROI White Balance/ Manual Temp Tint Adjustment
Color Rendering Technique	Ultra-Fine™ Color Engine
Peak Quantum Efficiency	N/A
Readout Noise	4.5 e (r.m.s) @ Gain High /5.6 e (r.m.s) @ Gain Low
Extinction Ratio	1 : 2000 @1ms Exposure Time
Smear	< 0.002%
Linearity	Better than 99%
Capture/Control API	Native C/C++, C#, DirectShow, Twain and Labview
Recording System	Still Picture and Movie
Cooling System	TE-cooling System - 20 °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 for Camera External Power Adapter for Cooling System, DC3V, 5A

SOFTWARE ENVIRONMENT

|	
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 (32 & 64 bit) OS X (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

Basic Characteristics

Scientific research grade camera with SONY CCD sensor
Well-designed high-performance TE-cooling structure Up to 20 degrees temperature drop
Higher S/N ratio
USB2.0 interface ensuring high speed data transmission
Supporting up to 4 minutes' long time exposure
Ultra-Fine^{TM} color engine with perfect color reproduction capability

K-OPTIC HK Basic Software

Software Basic

HKBasic，a powerful video analysis, image capture, 2D and 3D image processing, enhancement, and analysis software with extensive measurement and customization.

HKBasic can be used in medical micro-imaging, industrial inspection, machine vision, astronomical observation, etc.
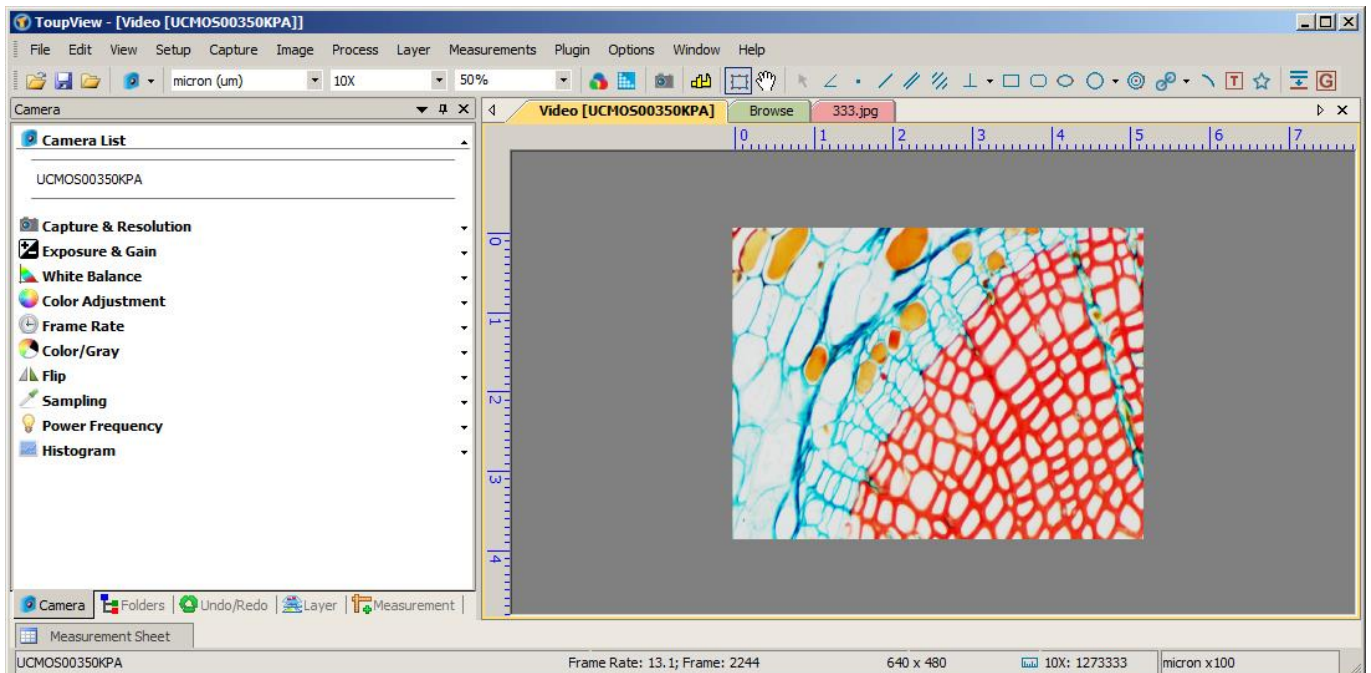
HKBasic is compatible with full arrange of ToupCam cameras and also has the Twain interface. ToupView, with overall control to the camera, friendly operation, powerful function, multi-operating systems and broad compatibility, is one of the best software in the industry and got the special recommendation from the United States Department of Education.

Compatible Operating System

Microsoft® Windows® XP / Vista / 7 / 8 (32 & 64 bit)

Mac: OS X

Linux: Kernel 2.6 or above

Software Function Modules

(9 modules with 128 professional functions)

Camera Controlling Module:

List the installed camera

Capture and set the live & snap resolution

Auto ROI exposure: target setting

Manual exposure: time setting

ROI white balance

Color: hue, saturation, brightness, contrast and Gamma adjustment

Frame rate control

Color mode: color/gray

Flip: horizontal, vertical

Skip and bin sampling

Power frequency setting

Histogram auto RGB & manual level setting

Parameters save and recall
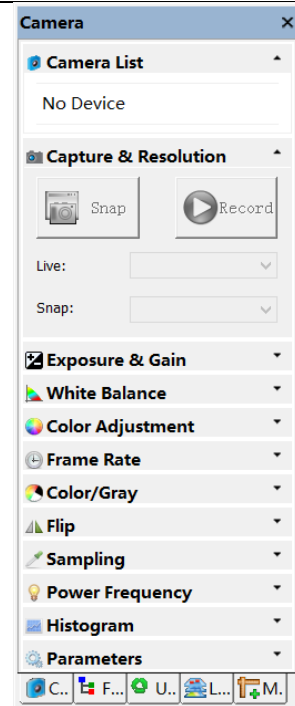
Video Operating Module

Gray Calibration	Ensure the gray scale consistency and continuous of the video pixel
Video Calibration	To setup a relation of the pixel resolution(pixel/meter) under different microscope object magnification
Video Watermark	To compare the similar images dynamically and quickly
Video Marker	Overlay the Scale, Magnification, Date Time, Clarity Factor and Markers on the video dynamically.
Video Stitch	To form a large image with the Stitch function
Video Layer	To setup different Layer to accommodate different Measurement Objects
Video Measurement	To dynamically measure the video object with many shapes
Video Image Fusion	To Fusion the video image manually
The Other Miscellaneous Video Function	Check Video Properties, Auto Grids, Manual Grids, Capture Image, Time-lapse Capture and Video Record

Imaging Processing Module

Filter>Image Enhance	Gauss, High Gauss, Low Pass, High Pass, Equalization, Sharpness, Flatten, Median, Rank
Filter>Edge Enhance	Sobel, Roberts, Sculpt, Laplace, Variance, Horizontal, Vertical
Filter>Morphological	Erode, Dilate, Open, Close, Top hat, Well, Gradient, Distance, Thinning, Watershed.
Filter>Kernel	Filter edit Convolution and Morphological Filter edit, new and delete operation.
Image Adjustment	Curve, Auto Level, Histogram Equalization, Brightness/Contrast, Color Calibration (RGB, CMYK and HLS Mode), HMS (Highlight, Midtone, and Shadow), Gamma, Filter Color, Extract Color and Invert.
Rotate	Horizontal, Vertical, 90(CW), 180(CW), 270(CW) and Arbitrary
Image Crop	Crop the unselected and keep the selected
Image Scale	Scale the image with Nearest Neighbor, Bilinear, and Bicubic method
Histogram Distribution	Range, Segmentation, Binary
Emboss	Gradient, Different, and Prewitt (support the Live and Background Color Select)
The Other Miscellaneous Processing Function	Pseudo Color, 3D Surface Plot, Line Profile and Diffuse, Granulate, Mosaic, Fusion et

Image Measurement Module

"Angle"
"Point"
"Line" (Arbitrary Line, Horizontal line, Vertical Line)
"Parallel"
"Vertical" (Three Points, Four Points)
"Rectangle"
"RoundRect"
"Ellipse"
"Circle" (Centre+Radius, Two Points, Three Points)
"Two Circles" (Centre+Radius)
"Arc"
"Text"
Layer: Export to image
Export: EXCEL, HTML
Measurement Object Properties Setup: Dash line, Active line, Arrow line, Width, Color, Font and Size

Object Select
∠ Angle
· Point
Line ▶
∥ Parallel
⫽ Two Parallels
Vertical ▶
☐ Rectangle
◠ RoundRect
◯ Ellipse
Circle ▶
◎ Annulus
Two Circles ▶
╲ Arc
🆃 Text
☆ Polygon
Z Order ▶

Measurement Object Edit: Including Appearance, Calculation and Coordinates edit, move and delete et al.	

Image Stitching Module

Intelligent identification, Matrix Mosaic, no need to set the order of images

Plugin (user can find extensions to install)

Line Width: Skeleton Extraction, Line Detection, and Line Pair Width Marker

Segmentation: Quantization Segmentation, Excessive Segmentation and Insufficient Segmentation

Count: Confinement Area Range, Confinement Perimeter Range, Confinement Gray Scale Range

FFT: The Fast Fourier Transform and FFT filter and IFFT operation.