BWHC2-4K Series HDMI/NETWORK/USB Multi-outputs Camera

Introduction

The BWHC2-4K series cameras are intended for acquisition of digital images and videos from stereo microscopes, biological microscopes and other optical microscopes, or online interactive teaching. The cameras are equipped with HDMI, USB2.0, WIFI and network output.

Features

The basic characteristics are listed as below:

- Sony Exmor/STARVIS back-illuminated CMOS sensor
- 4K HDMI/ NETWORK/ USB multiple video outputs
- 4K/1080P auto switching according to monitor resolution
- SD card/USB flash drive for captured image and video storage, support local preview and playback
- Embedded XCamView for the control of the camera and image processing
- Excellent ISP with local tone mapping and 3D denoising
- ImageView software for PC
- iOS/Android applications for smart phones or tablets

Specification

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity/ Dark Signal	FPS/Resolution	Binning	Exposure(ms)
BWHC2-4K8MPA	Sony IMX334(C) 1/1.8"(7.68x4.32)	2.0x2.0	505mv with 1/30s 0.1mv with 1/30s	30@3840*2160(HDMI) 30@3840*2160(NETWORK) 30@3840*2160(USB)	1x1	0.04~1000
BWHC2-4K8MPB	Sony IMX485(C) 1/1.2"(11.14x6.26)	2.9x2.9	2188mv with 1/30s 0.39mv with 1/30s	30@3840*2160(HDMI) 30@3840*2160(NETWORK) 30@3840*2160(USB)	1x1	0.04~1000

Available Ports on the Back Panel of the Camera Body

Interface or Button	Function Description
USB Mouse	Connect USB mouse for easy operation with embedded XCamView software
USB2.0	Connect USB flash drive to save pictures and videos Connect 5G WLAN module to transfer video wirelessly in real time(WIFI)
USB Video	Connect PC or other host device to realize video image transmission
HDMI	Comply with HDMI1.4 standard. 4K/1080P format video output and supporting automatic switch between 4K and 1080P format according to the connected monitors
LAN	LAN port to connect router and switch to transfer video
SD	Comply with SDIO3.0 standard and SD card could be inserted for video and images saving
ON/OFF	Power switch
LED	LED status indicator
DC12V	Power adapter connection (12V/1A)
Video Output Interface	**Function Description**
HDMI Interface	Comply with HDMI1.4 standard 30fps@4K or 30fps@1080P
LAN Interface	support real time resolution switching(4K/1080P/720P) H264 encoded video DHCP configuration or manual configuration Unicast/multicast configuration
WLAN Interface	Connecting 5G WLAN adapter (USB2.0 slot) in AP/STA mode
USB Video Interface	Connecting USB Video port of PC for video transfer MJPEG format video
Other Function	**Function Description**
Video Saving	Video format: 8MP(3840*2160) H264/H265 encoded MP4 file Video saving frame rate: 30fps
Image Capture	8MP (3840*2160) JPEG/TIFF image in SD card or USB flash drive
Measurement Saving	Measurement information saved in different layer with image content Measurement information is saved together with image content in burn in mode
ISP	Exposure(Automatic / Manual Exposure) / Gain, White Balance(Manual / Automatic / ROI Mode),

	Sharpening, 3D Denoise, Saturation Adjustment, Contrast Adjustment, Brightness Adjustment, Gamma Adjustment, Color to Gray, 50HZ/60HZ Anti-flicker Function
Image Operation	Zoom In/Zoom Out (Up to 10X), Mirror/Flip, Freeze, Cross Line, Compare (Comparison between real time video and images in SD card or USB flash drive), Embedded Files Browser, Video Playback, Measurement Function
Embedded RTC(Optional)	To support accurate time on board
Restore Factory Settings	Restore camera parameters to its factory status
Multiple Language Support	English / Simplified Chinese / Traditional Chinese / Korean / Thailand / French / German / Japanese / Italian / Russian

Software Environment under LAN/WLAN/USB Video Output	
White Balance	Auto White Balance
Color Technique	Ultra-Fine Color Engine
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 or Movie
Operating System	Microsoft® Windows® XP / Vista / 7 / 8 / 8.1 /10/11 (32 & 64 bit) OSx(Mac OS X) Linux
PC Requirements	CPU: Equal to Intel Core2 2.8GHz or Higher
	Memory: 4GB or More
	Ethernet Port: RJ45 Ethernet Port
	Display:19" or Larger
	CD-ROM

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 12V/1A Adapter

Dimension
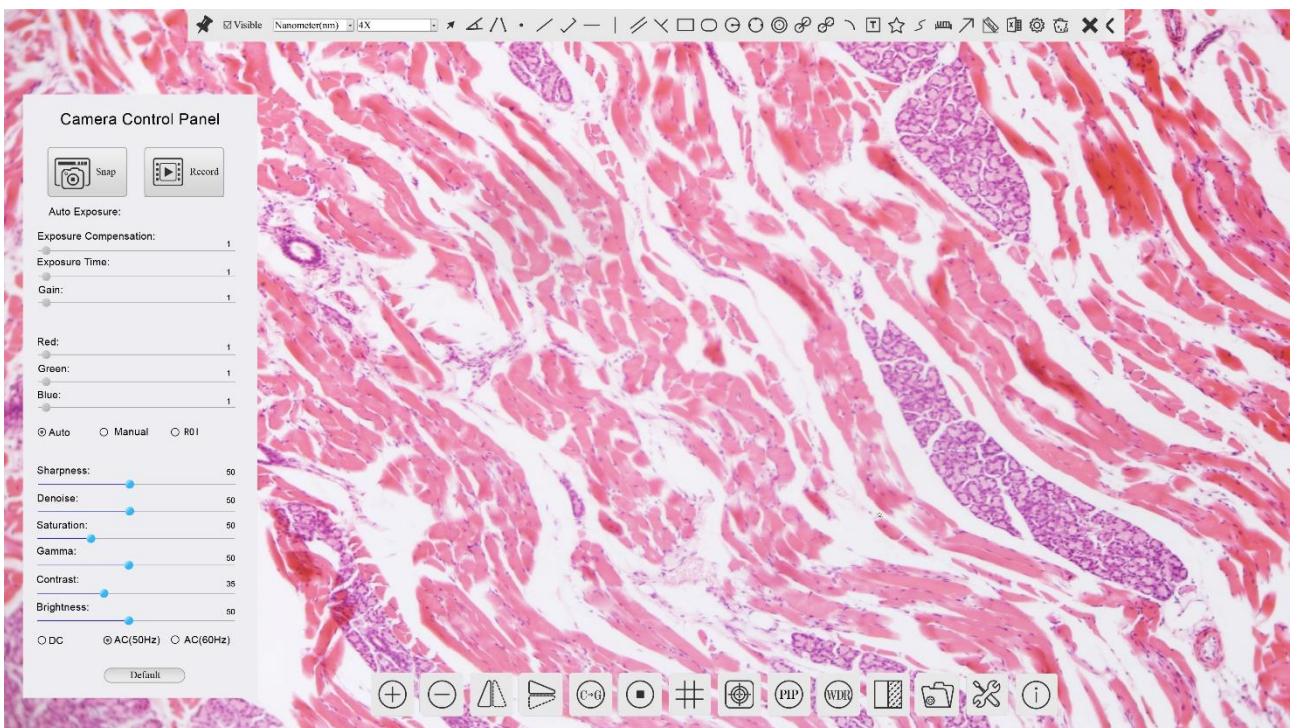

Dimension of BWHC2-4K Series Camera

Extension of BWHC2-4K Series Camera with Microscope or Telescope Adapter

Extension	Picture
C-mount Camera	Scientific research, digital teaching (teaching, demonstration and academic discussing); Digital laboratory, medical research; Machine vision (PCB detection, IC quality control); Medical treatment (pathological observation); Food (microbial colony observation and counting); Aviation and military;
Microscope Camera	(23.2mm Adapter) (23.2mm Adapter)
Telescope Camera	(31.7mm Adapter) (31.7mm Adapter)

BWHC2-4K Series Camera and HDMI Displayer

The BWHC2-4K Series Camera's Control GUI

BWHC2-4K Series Camera and Leica Microscope

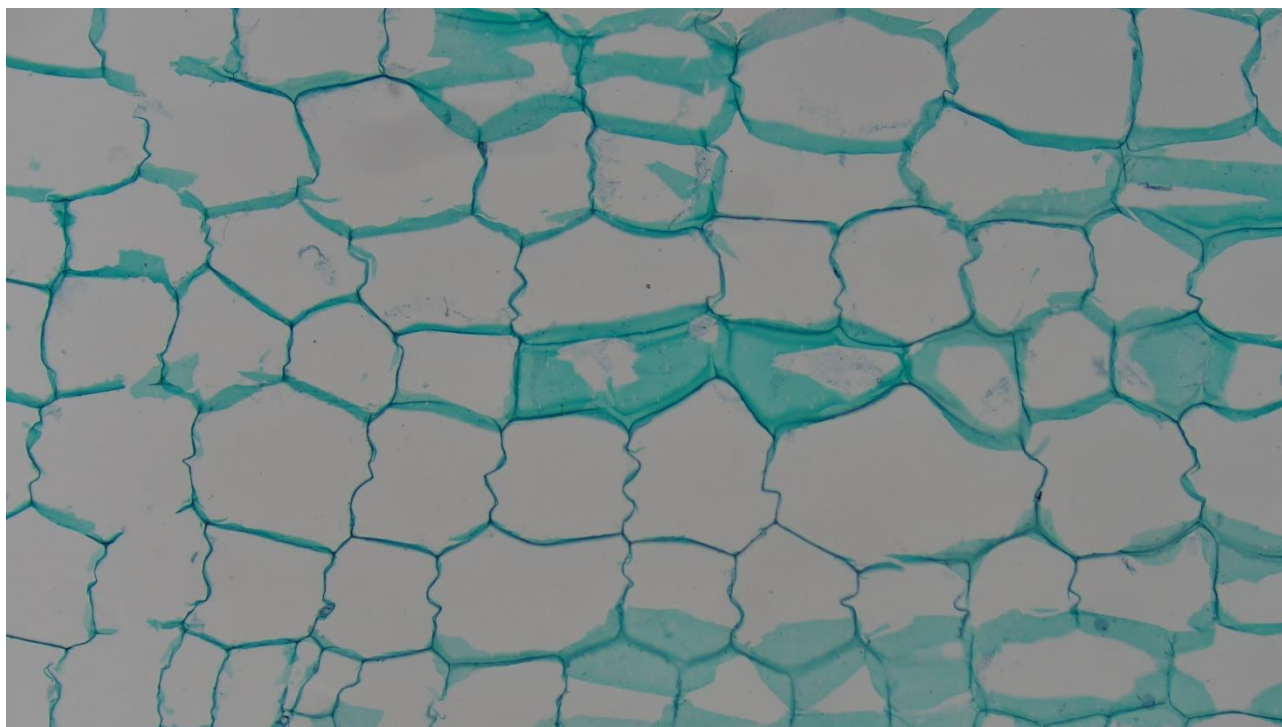BWHC2-4K Series Camera and Zeiss Microscope

Packing Information

BWHC2-4K Series Camera Packing Information

Standard Packing List	
A	Gift box : L:25.5cm W:17.0cm H:9.0cm (1pcs, 1.57Kg/ box)
B	BWHC2-4K Camera (One of the two models)
C	Power Adapter: Input: AC 100~240V 50Hz/60Hz, Output: DC 12V 1A American standard: Model: POWER-U-12V1A(MSA-C1000IC12.0-12W-US): UL/CE/FCC European standard: Model: POWER-E-12V1A(MSA-C10001C12.0-12W-DE): UL/CE/FCC EMI standard: FCC Part 15 Subpart B EMS standard: EN61000-4-2,3,4,5,6
D	USB Mouse
E	HDMI Cable
F	USB2.0 A male to A male gold-plated connectors cable /2.0m
G	CD (Driver & utilities software, Ø12cm), we also can supply USB flash drive to replace CD
Optional Accessory	
H	SD Card(16G or above; Speed: class 10)

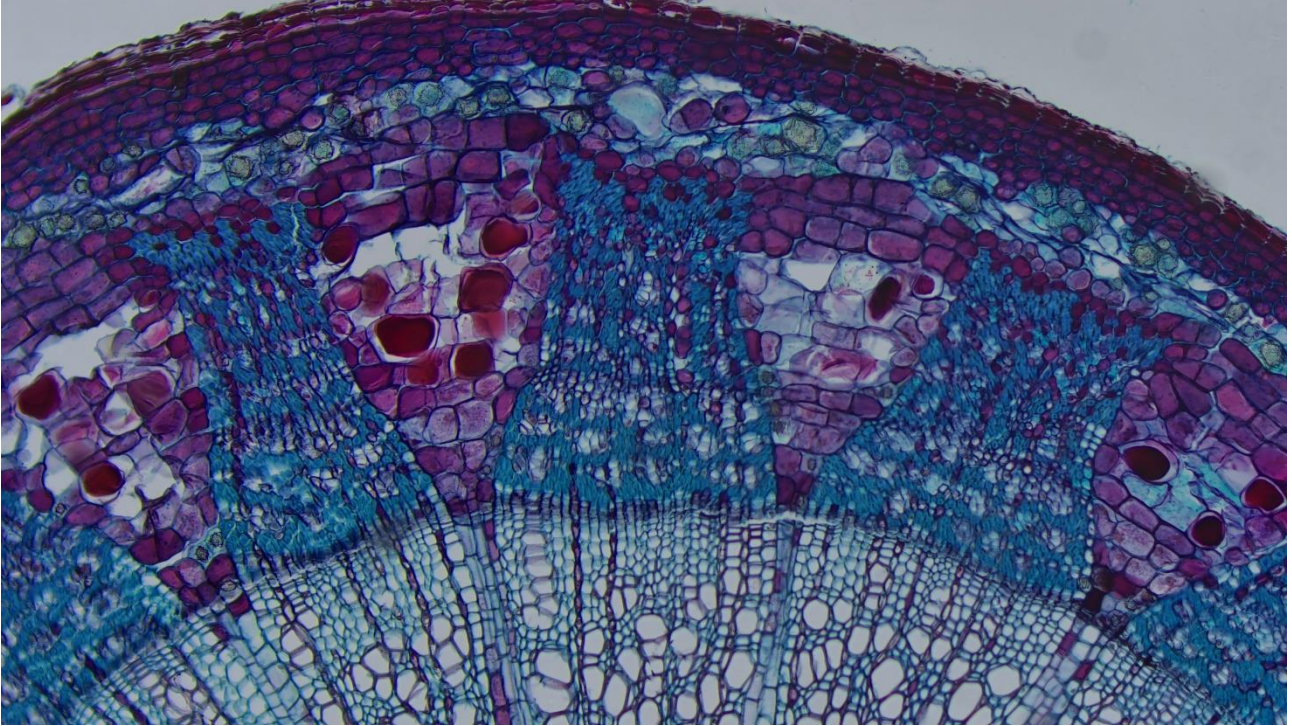|			
I	Adjustable lens adapter	C-Mount to Dia.23.2mm Eyepiece Tube (Please choose 1 of them for your microscope)	BCN2A-0.37× BCN2A-0.5× BCN2A-0.75× BCN2A-1×
J	Fixed lens adapter	C-Mount to Dia.23.2mm Eyepiece Tube (Please choose 1 of them for your microscope)	BCN2F-0.37× BCN2F-0.5× BCN2F-0.75× BCN2F-1×

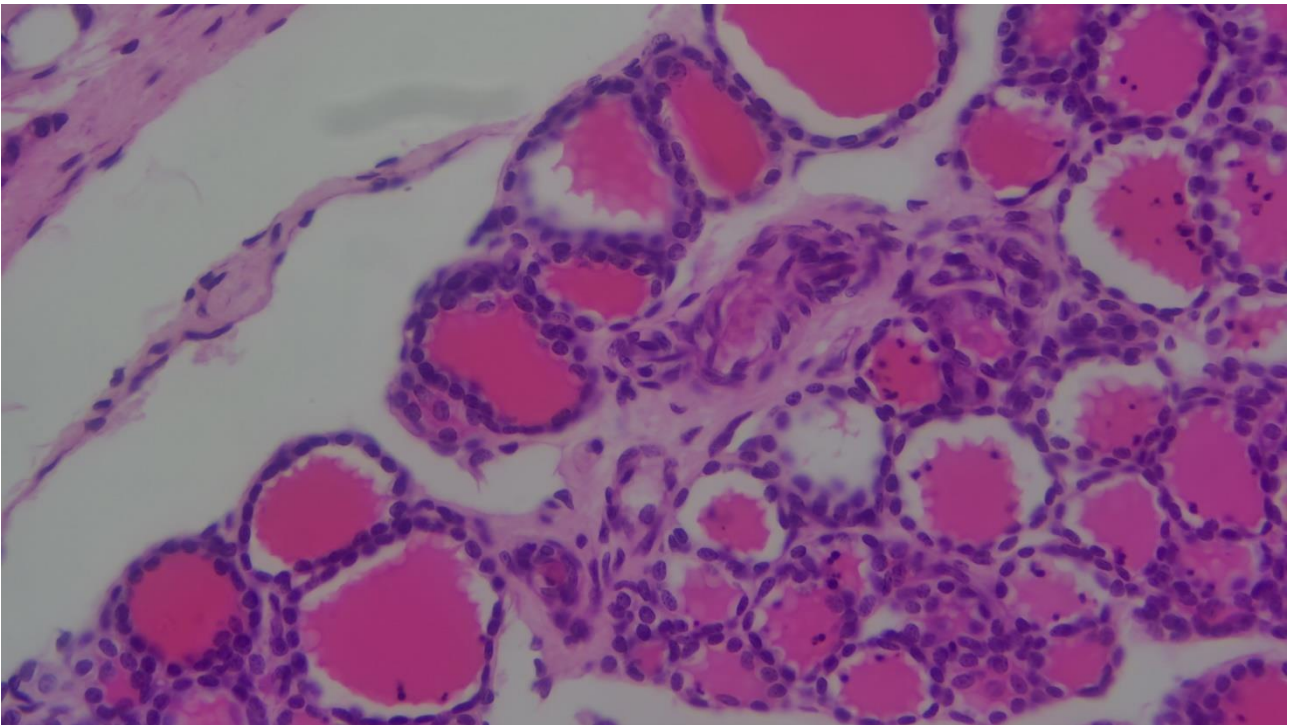|	Note: For K and L optional items, please specify your camera type (C-mount, microscope camera or telescope camera), our engineer will help you to determine the right microscope or telescope camera adapter for your application;	
K	108015(Dia.23.2mm to 30.0mm Ring)/Adapter rings for 30mm eyepiece tube	
L	108016(Dia.23.2mm to 30.5mm Ring)/ Adapter rings for 30.5mm eyepiece tube	
M	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.)
N	USB flash drive	
O	USB WLAN adapter	
P	Ethernet cable	

Sample Images
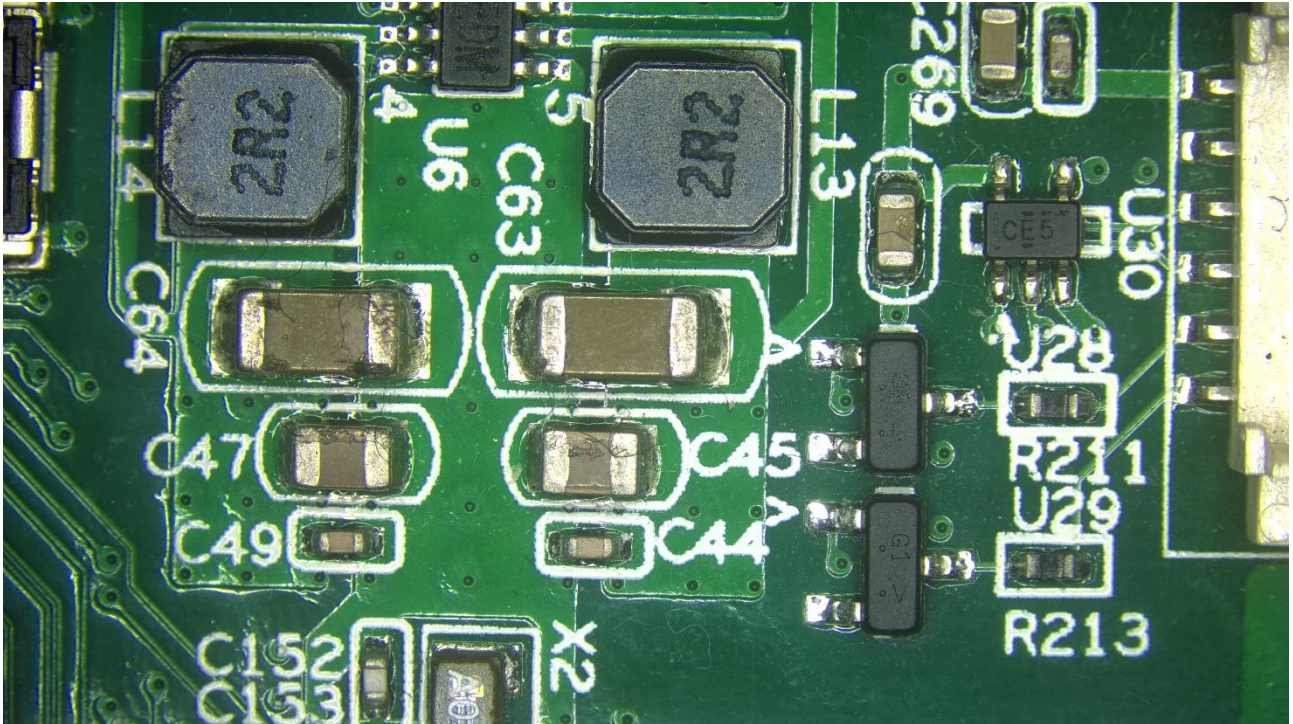

Cucurbit Stem.L.S. Captured with BWHC2-4K8MPA

Two Year Tilia Stem.C.S. Captured with BWHC2-4K8MPA

Simple Cuboidal Epithelium.Sec. Captured with BWHC2-4K8MPA

Circuit Board Captured with BWHC2-4K8MPA