

## **` BMM-4K8MPB Autofocus Digital Macro Microscope**



### **Introduction**

BMM is a series of electric controlled continuous zoom and autofocus all-in-one digital microscope with a large field of view. It is integrated with HDMI camera, Electric Controlled Continuous Zoom Auto-focus Objective and LED Integrated Illumination Light. BMM is the abbreviation of BestScope Macro Microscope. Different products in the BMM series can be formed with different part to satisfy the applicatuon requirement.

BMM can be assembled with various brackets or arms and offer a continuous zooming ratio with different lens. BMM also supports autofocus mode and manual focus mode.

BMM comes with a high-performance SONY CMOS sensor. It also has an embedded ARM core, allowing the camera to be connected directly to the HDMI monitor. The camera has XFCAMView software built within it, including Camera Control Panel, Auto Focus Control Panel, Measurement Toolbar, and Synthesis Camera Control Toolbar. Users can directly control the camera and perform various operations through a USB mouse. The images and videos captured by BMM can be saved on an SD card for on-site analysis and follow-up research.

BMM can be widely used in industrial inspection, medical observation, teaching and scientific research, automation system, and other fields.

BMM-4K8MPB supports HDMI/USB/LAN/WiFi control and video output (ImageView). The frame rate of the output is 4K/30FPS, and the zoom range is 1X~18X. It also supports electric zoom and auto focusing.



BMM-4K8MPB's front and back view



BMM-4K8MPB's side and front (with LED light) view

## Feature

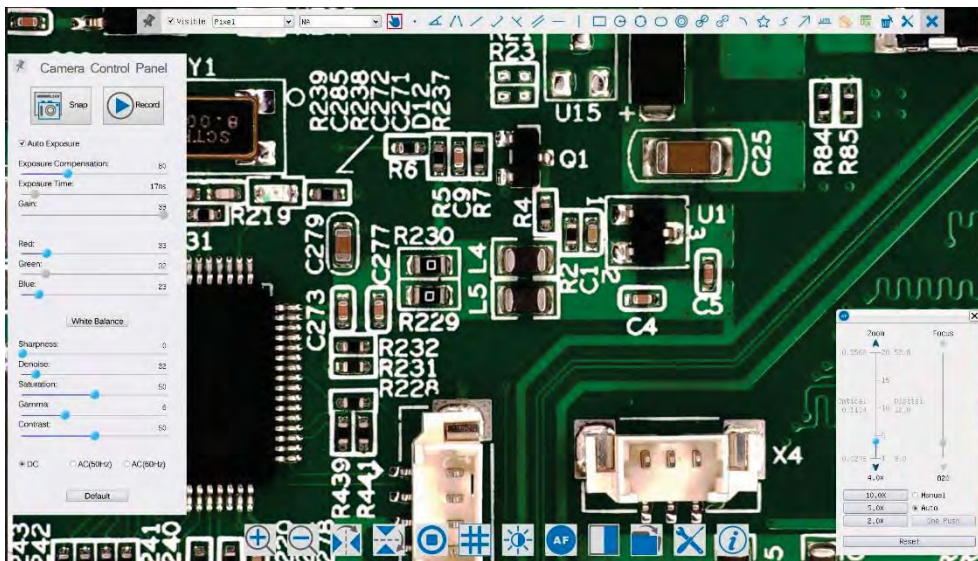
The **BMM-4K8MPB** comes with **BMM-4K8MPB HDMI** camera, **BMM-18X** lens and **BRL-8A** light source(**Optional**);

The Basic Characteristic of BMM-4K8MPB:

1. 5 groups 16 elements lens with 0.0218~0.392X, 18X zoom ratio, supports auto and manual focus;
2. 250mm standard working distance with 205~255mm depth of field;
3. At standard working distance, the large field of view 255mm\*145mm at low magnification, helping users to quickly locate the target object, the small field of view 14.2mm\*8mm at higher magnification, helping users to observe microscopically;
4. Sony 1/2.8" 4K Starvis CMOS with high signal-to-noise ratio;
5. 4K HDMI/USB/ETH/WiFi multiple video outputs;
6. 4K/1080P auto switching according to monitor resolution;
7. SD card/USB flash drive for captured image and video storage, support local preview and playback;
8. Built-in mouse control software XFCAMView, all functions can be realized with USB mouse;
9. Embedded mouse Camera Control Panel, Measurement Toolbar, Synthesis Control Toolbar, AF Control Panel;
10. Multi-language support;
11. Head suction LED ring light, the brightness can be directly controlled by XFCAMView;
12. With the adapter bracket of 76mm diameter, a electric controlled continuous zoom BMM can be built.



BS-210A(bracket)+BMM-4K8MPB+1080P Monitor



Built-in XFCAMView software and Its Control UI

## Specification

### BMM-4K8MPB Camera Module Datasheet

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure (ms)
<b>BMM- 4K8MPB</b>	Sony IMX415LQR-C 1/2.8"(5.57x3.13)	1.45x1.45	300mv/0.13 with 1/30s	30@3840*2160(HDMI) 30@3840*2160(NETWORK) 30@3840*2160(USB)	1x1	0.04~1000

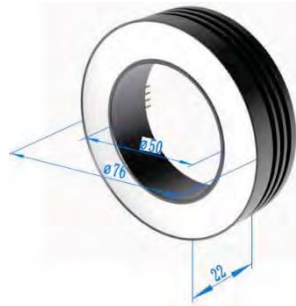
C: Color; M: Monochrome;

## BMM-4K8MPB Lens Module Datasheet

Order Code	Working Distance(mm)	Zoom Range	MTF(lp/mm)	Distortion	FOV@1X(mm)	FOV@20X(mm)
<b>BMM-18X</b>	205~255	0.021X~0.39X	160	0.5%	255x145	14.2x8

1X and 18x are defined as the normalized magnification, which is only used to represent the relative relationship between the lowest and highest magnification. Here, the normalized equations are  $1x = 0.021/0.021$ ;  $18x = 0.39/0.021$ ;

## BMM-4K8MPB Light Module



BRL-8A LED Ring Light

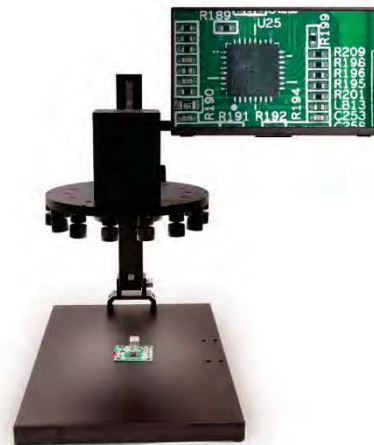
Order Code	LED	Power	Inner Dia.(mm)	Out Dia.(mm)
<b>BRL-8A</b>	8 CREE xpes	3V/3A	50	76

BRL: BestScope LED ring light with adjustable brightness;

BMM-4K can use BRL-12A as external light for the large FOV illumination




BRL-12A LED light



BS-210A(bracket)+BMM-4K8MPB (with BRL-12A)+4K Monitor

## Specification of BMM-4K8MPB

Interface & Button Functions		
	USB Mouse	USB mouse for XFCAMView control
	USB2.0	Connect USB flash drive to save pictures and videos Connect 5G WLAN module to transfer video wirelessly in real time with ImageView/ImageLite
	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

	USB Video	Connect PC or other host device to realize video image transmission with <a href="#">ImageView/ImageLite</a>
	LAN	LAN port to connect router and switch to transfer video with <a href="#">ImageView/ImageLite</a>
	ON/OFF	Power on/off switch
	LED	Power LED indicator
	SD	Comply with SDIO3.0 standard and SD card could be inserted for video and images saving
	DC12V3A	DC12V3A power input
	<b>XFCAMView Software Functions</b>	
UI Operation	With USB mouse to operate on the embedded <a href="#">XFCAMView</a>	
Image Capture	8M (3840*2160) JPEG/TIFF image in SD card or USB flash drive	
Video Record	Video format: 8M(3840*2160) H264/H265 encoded MP4 file Video saving frame rate:30fps	
Camera Control Panel	Including <a href="#">Exposure</a> , <a href="#">Gain</a> , <a href="#">White Balance</a> , <a href="#">Sharpness</a> , <a href="#">Denoise</a> , <a href="#">Denoise</a> , <a href="#">Saturation</a> , <a href="#">Gamma</a> , <a href="#">Contrast</a> , <a href="#">Brightness</a> , <a href="#">Power Frequency</a> control	
Measurement Toolbar	Including <a href="#">Calibration</a> , <a href="#">Measurement</a> , and measurement parameter <a href="#">Export</a> functions	
Synthesis Control Toolbar	Including software <a href="#">Zoom</a> , <a href="#">Flip</a> , <a href="#">Freeze</a> , <a href="#">Crosshair</a> , <a href="#">LED Control</a> , <a href="#">Auto-focus</a> , <a href="#">Comparison</a> , <a href="#">Browser</a> , <a href="#">Setting</a> , <a href="#">Version Check</a> function	
Auto Focus Control Panel	Including <a href="#">Zoom</a> , <a href="#">Auto Focus</a> , <a href="#">One Push</a> , <a href="#">Manual Focus</a> , <a href="#">Reset</a> , and other functions	
<b>Software View/Lite Environment under LAN/WLAN/USB Video Output</b>		
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(32 & 64 bit)/ <a href="#">ImageView</a> OSx(Mac OS X)/ <a href="#">ImageLite</a> Linux/ <a href="#">ImageLite</a>	
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	
<b>Operating Environment</b>		
Operating Temperature(in Centidegree)	-10~ 50	
Storage Temperature(in Centidegree)	-20~ 60	
Operating Humidity	30~80%RH	
Storage Humidity	10~60%RH	
<b>Dimension</b>		
Length x Width x Height	80mm x 80mm x 80mm	
Shipping Weight	0.75kg	

## Dimension



Dimension of BMM-4K8MPB

## Packing Information

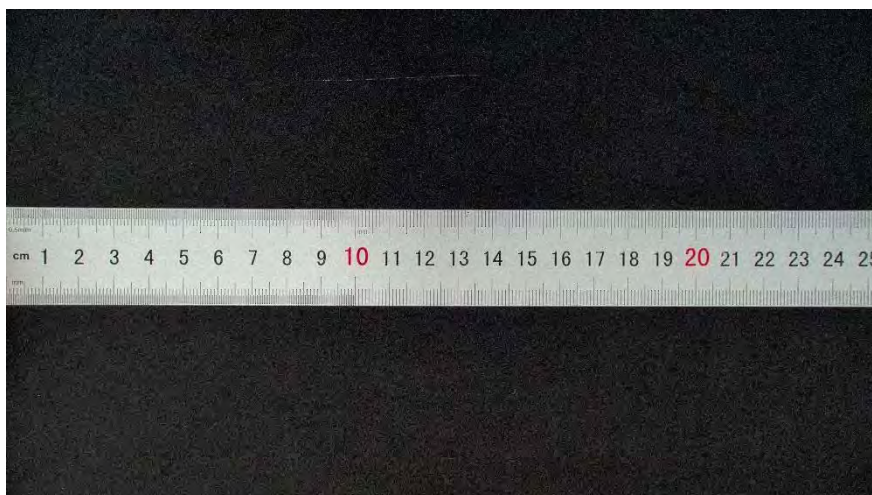


Packing information of BMM-4K8MPB

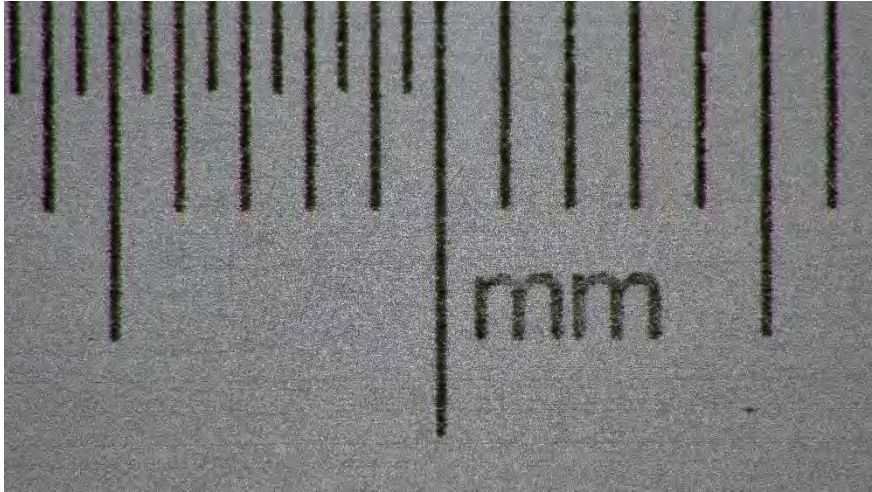
Standard Packing List		
A	Gift box: L:220cm W:220cm H:110cm (1pcs, 2.0kg/box)	
B	BMM-4K8MPB	
C	Power Adapter: Input: AC 100~240V 50Hz/60Hz, Output: DC 12V 3A	American Standard: Model: HKA03612030-7K: UL/CE/FCC(With American Standard AC Power Cable) European Standard: Model: HKA03612030-7K: UL/CE/FCC(With European Standard AC Power Cable) 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)	
<b>Optional Accessory</b>		
H	Ethernet cable	
I	LED Ring Light(BRL-8A)	
J	USB flash drive	
K	USB WLAN adapter	
L	SD card(16G)	
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.)

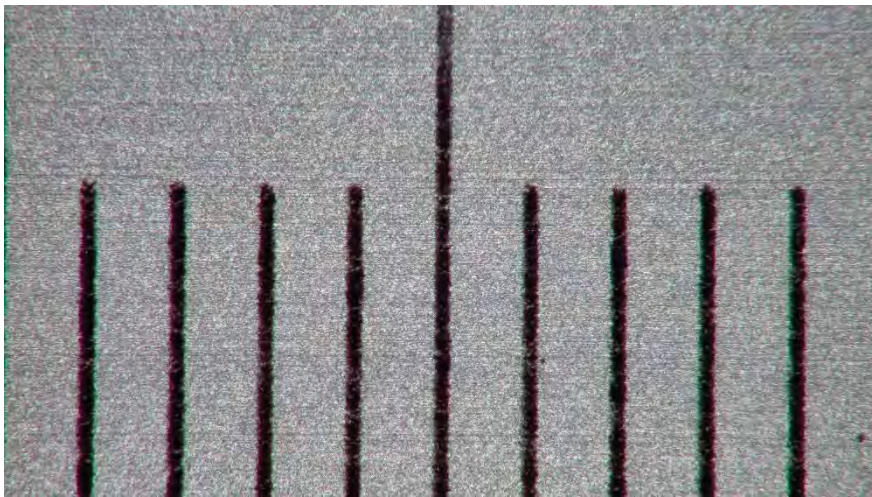
## Sample Images



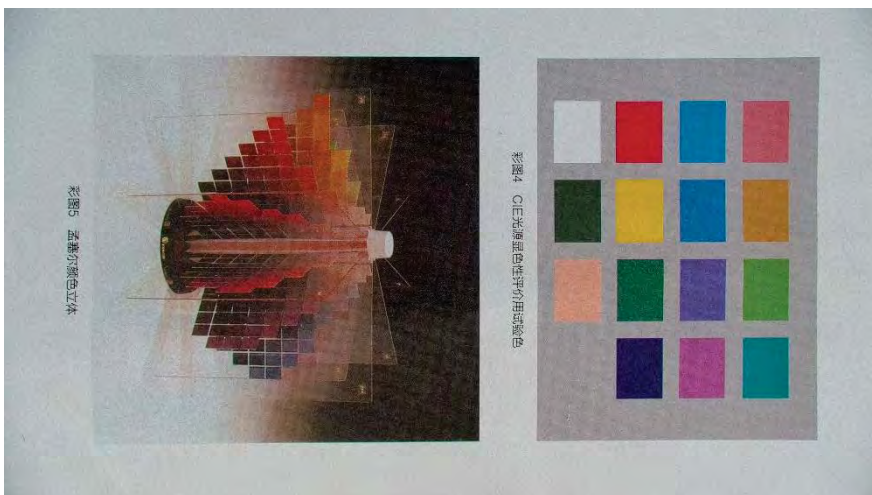
Ruler Captured with BMM-4K8MPB at 1X



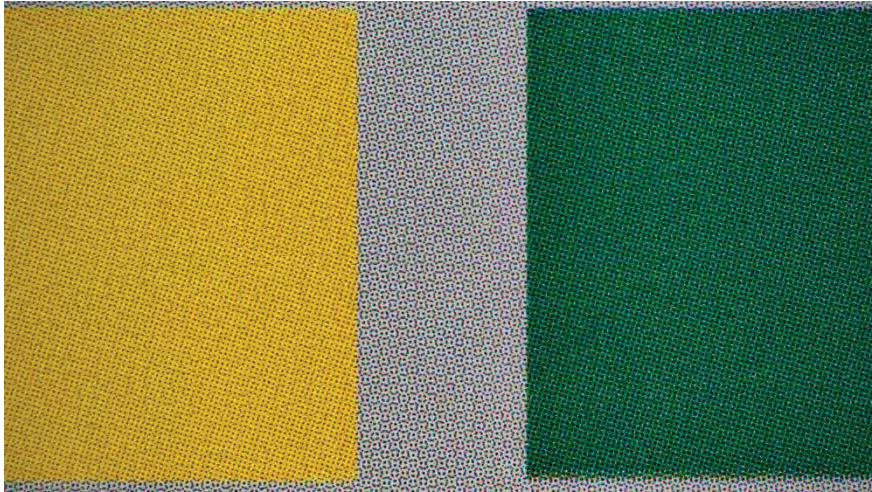
Ruler Captured with BMM-4K8MPB at 10X



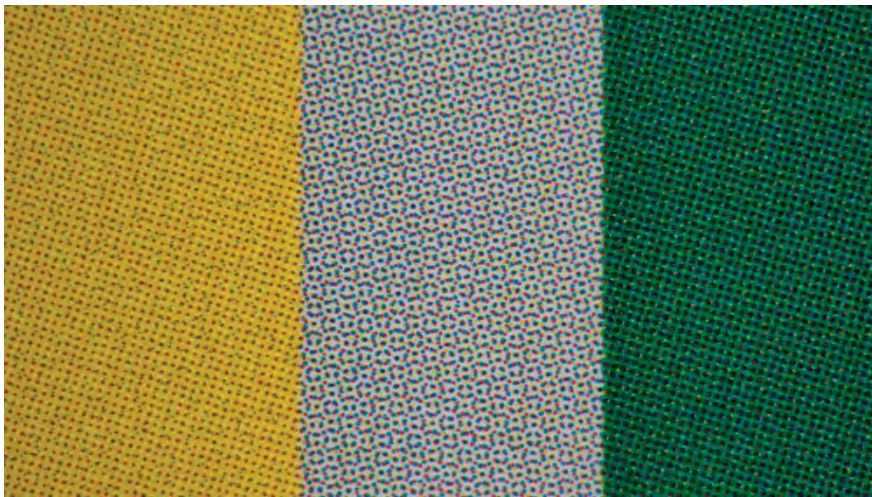
Ruler Captured with BMM-4K8MPB at 18X



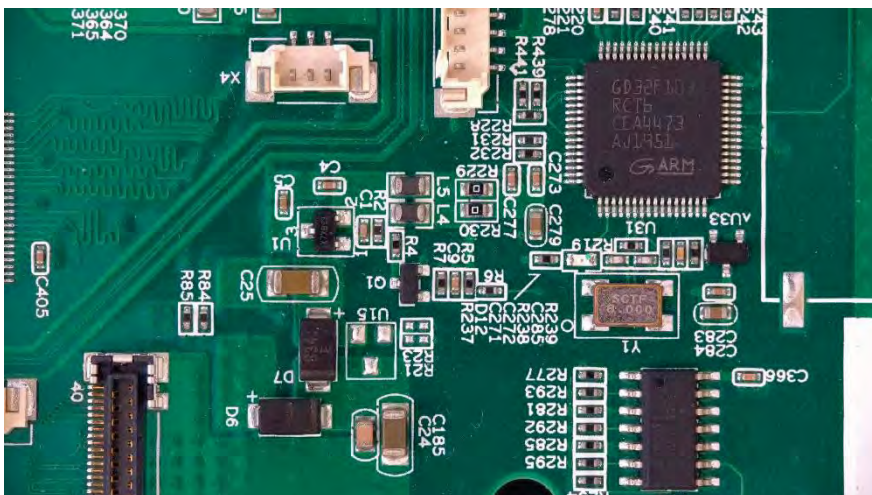
Print Captured with BMM-4K8MPB at 1.0X



Print Captured with BMM-4K8MPB at 10X



Print Captured with BMM-4K8MPB at 18X



PCB Captured with BMM-4K8MPB at 4.0X

