

# OPERATION MANUAL

Model ISM-BDL120

Binocular LCD Measuring Microscope



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# Content

I. Components Guide .....	3
1 Figure .....	3
2 Introduction .....	3
3 Specifications .....	4
II. Installation .....	4
1 Assembly.....	4
2 Tension Adjustment.....	4
III. Operation.....	5
1 Normal Operation .....	5
2 Data show on the LCD Screen .....	6
3 Illumination Control .....	7
4 Cross Hair & Grid Control .....	7
5 How to use the grid to measure .....	8
6 Selection of function menu .....	8
7 Digital Zoom function menu .....	10
8 Image Capture.....	10
9 Rear input/output ports .....	11
10 USB data communicate .....	12
11 Image view .....	12
IV. Maintenance .....	12

# I. Components Guide

## 1.1 Figure

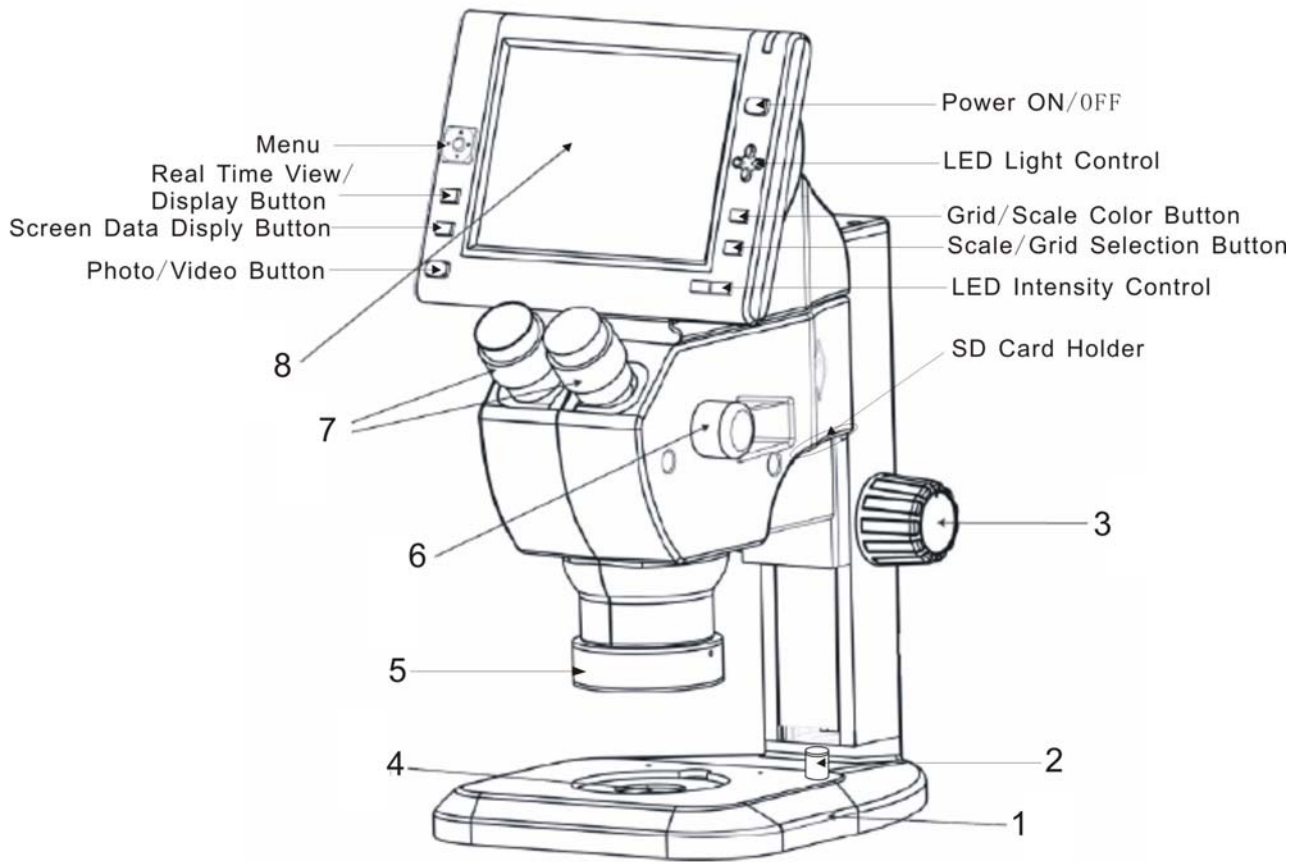


Fig 1- 1 ISM-BDL120

1. Base 2. Light Intensity Control For Base Light 3. Focus Knob 4. Base Light Source  
5. LED Ring Lamp 6. Zoom In/Out Knob 7. Eyepieces 8. LCD Display

## 1.2 Introduction

The ISM-BDL120 is an innovative product integrating a stereo microscope with an LCD Display and software. The stereo zoom microscope allows you to view your object in 3D, and with a switch of a lever the same object can be viewed on the built in LCD Screen. Images viewed on the screen can be instantly captured and saved to the built in SD Card. The BDL120 also has an AV output for connecting a larger monitor and an USB 2.0 output for connecting a PC. Software is included for transferring and capturing images.

## 1.3 Specifications

Continual Zooming ratio	1 : 7.0 (0.65x-4.5x)
Total magnification	9x- 65.5x
Digital amplification	1.0x-4.0x
Display screen	8.0 inch TFT LCD (display screen resolution 640x480 pixels)
CMOS sensor	3.0 MEGA pixels
Working distance	150 mm

Size of field visual	18.5×14-2.5×2mm
Zooming mode	Transverse axis continual magnification change
Illumination	LED ring light

## II. Installation

### 2.1 Assembly

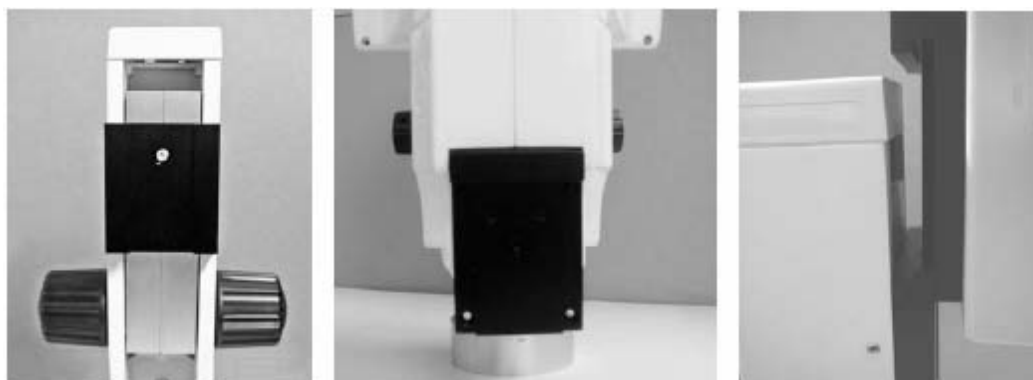
Carefully remove the stand and the body from the packaging. (Avoid touching the LCD Screen).

Locate the dovetail on the body and carefully slide it into the dovetail mounted on the stand.

See diagram below.

Connect the DC adapter to DC IN port and AC power cord to the adapter.

Connect the enclosed cable from DC OUT from the microscope body to the input on the back of the stand.



The dove-tail groove on together

The dove-Tail groove on mainframe

Connect the dove-tail groove trestle table

Fig II- 1

### 2.2 Tension Adjustment

The tension of the Focusing Knob can be adjusted by holding the knobs and rotating them in the opposite direction of each other.

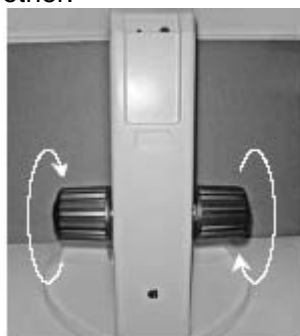


Fig II- 2

## III. Operation

### 3.1 Normal Operation

Press the power switch. "Welcome" should appear on the LCD screen and the LED light should come on.

Use the LED Intensity control knobs to increase or decrease the light intensity and the LED Light Control knobs to control the quadrants of the LED light for your particular application.

**Eye tube diopter:** Set each eye tube diopter to zero by turning the serrated part of the tube to match the " 0 " to the "Tic" mark on the tube.

**Adjust the Inter-Pupillary Distance:** Using both hands adjust the eyepieces until you see one circle on light, centering each tube with your pupil.

**Locate the "Zoom" Knob:** Turn to highest magnification.

**Locate the "main" Focus Knob:** These are the knobs located on the stand. Observing a sample, preferably a flat object, adjust the knob until the image is sharp.

**Locate the "Zoom" knob:** Set the zoom knob to the lowest magnification.

**Locate eye tube diopters:** Turn each eye tube diopter "clockwise" until they come to a stop.



**Adjusting eye tube diopters:** With a business card, or equivalent, cover one eye while looking into the eye tubes. Rotate the eye diopter "counter clockwise" until the image is at its sharpest point. This may require many turns. Reverse the procedure for the opposite eye.

**Fine tune adjustment:** Looking through both eyepieces, rotate zoom knob to the highest magnification and adjust the main focus knob slightly if necessary to bring the image into sharp focus.

Your microscope is now "ParFocaled". Looking at your object through both eye tubes, you should be able to move freely within the zoom range with the object "always" in focus.

### 3.2 Data show on the LCD Screen

Shown on the upper left corner is the Nos of photos that can be taken or the video recording time (143 indicating 143 photos can be taken at the present setup mode; 50:24 indicating the time for video recording at the present setup mode)

 indicates photo mode,  
 indicates video mode.

Shown on the lower left corner is the resolution of photos taken in pixels (2048x1536 indicating the pixels for photo taken at the present setup mode as 2048x1536; 320x240 indicating the pixels for video recording at the present setup mode as 320x240 ). “C” shown on the lower right corner means that SD card is inserted in the machine.

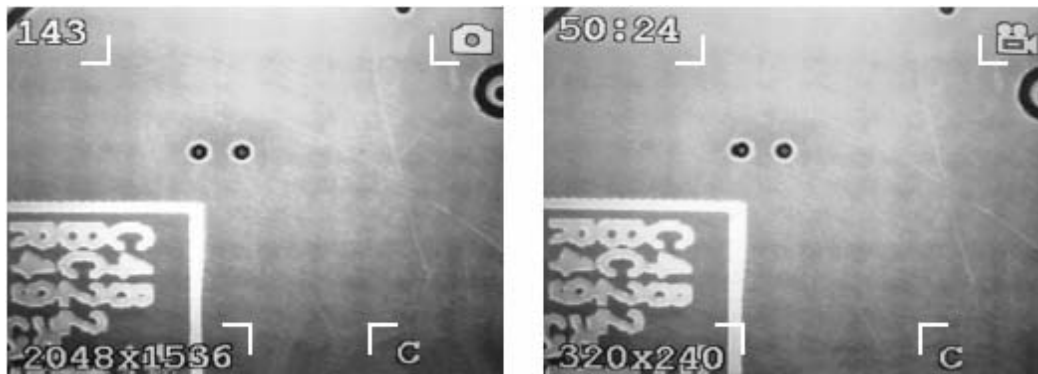


Fig III- 1

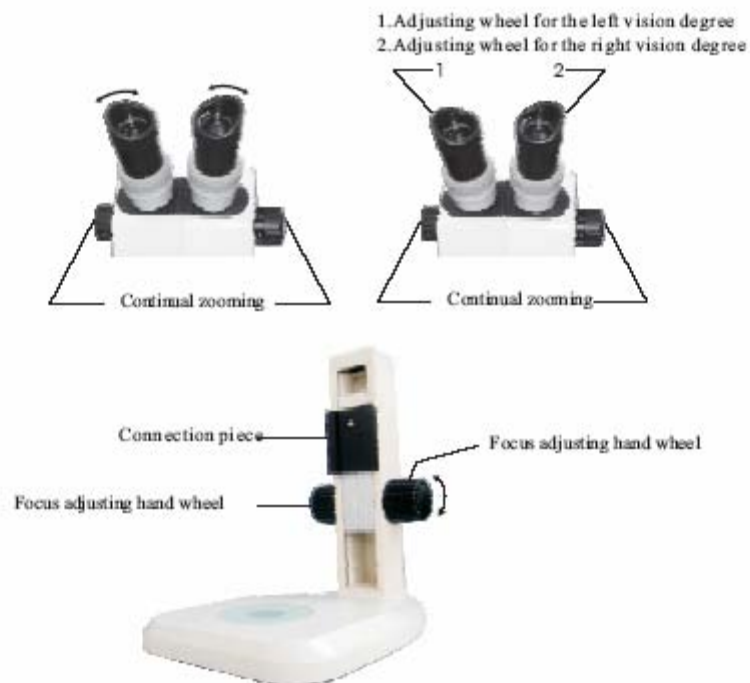





Fig III- 2

### 3.3 Illumination Control

The brightness of LED Light may be increased or decreased with the help of  and .  is respectively used to turn on/off for the corresponding four comers of LED indicator.

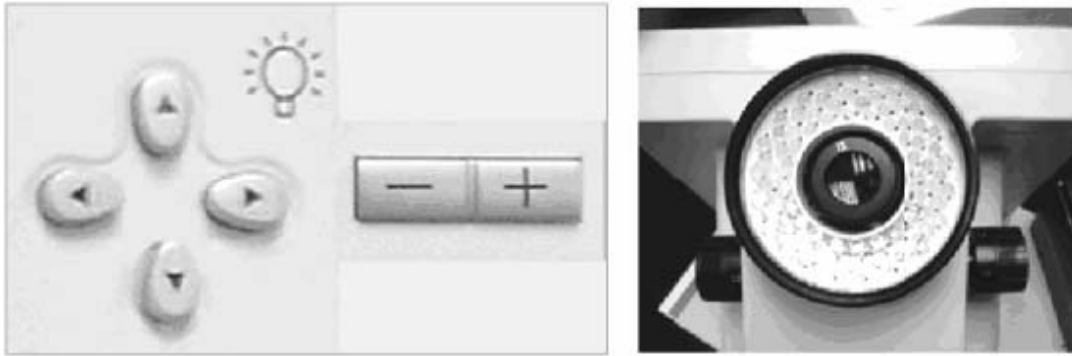


Fig III- 3

If the light throw back from the object is too sharp, user can adjust the position and direction of The LED Light. This can improve the image quality.

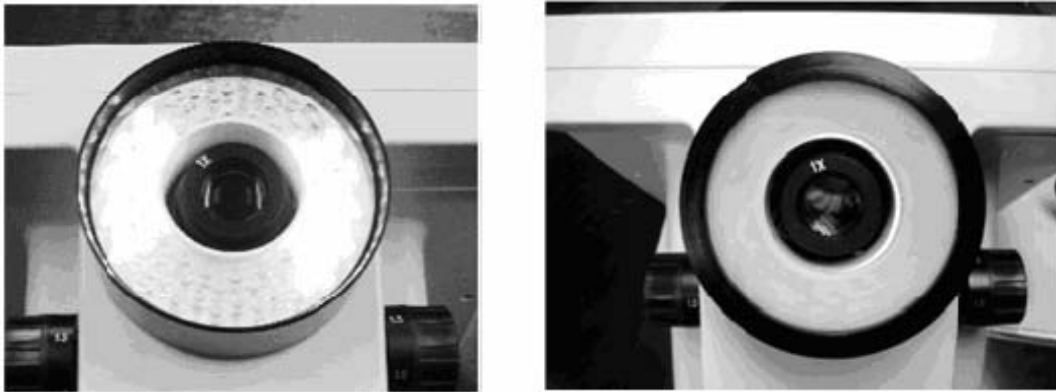



Fig III- 4

### 3.4 Cross Hair & Grid Control

 may be used to select either a cross hair, measurement grid or a lattice


 may be used, choose the color of the grids, from white, blue or red.

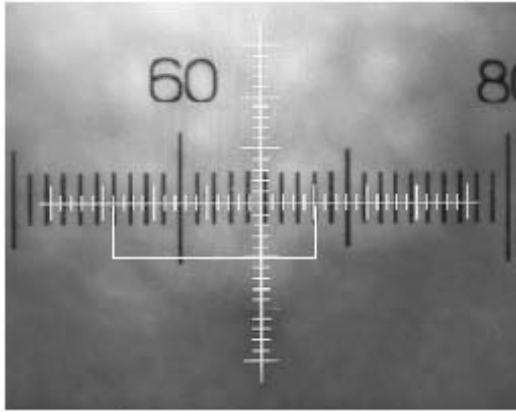



Fig III- 5

### 3.5 How to use the grid to measure

Example: Select the standard graduation of 0.05mm under a given power and move the micro-ruler when clearly focused so that the coordinate corresponds with the micro-ruler. The standard ruler of every 12 graduations correspond to 19 graduations of the coordinate ruler, then , each graduations of the coordinate ruler is about 0.03mm (120.05/19). In this case, user can carry out the measurement for the object observed under microscope according the distance of coordinate ruler (requiring recalibration of the separation of coordinate ruler each time for a changed power).


### 3.6 Selection of function menu



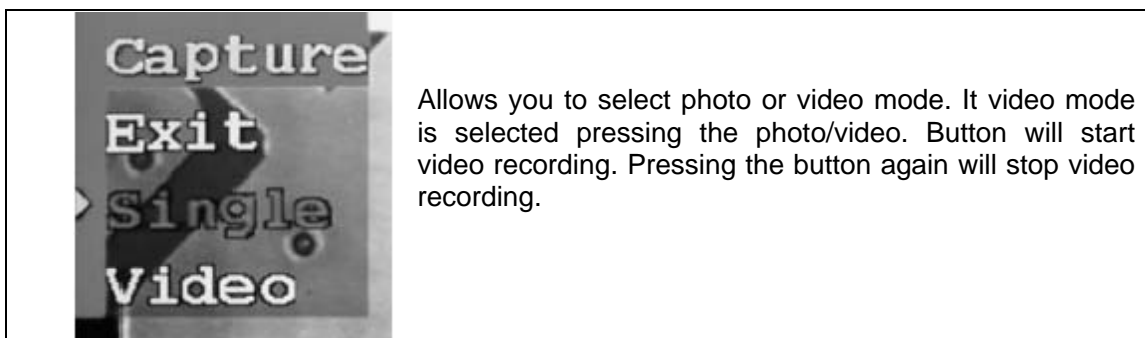
With the help of the  function one is able to carry out the setting for the whole system. The left and right key allows you to choose the following functions.

- A. Photo/video mode
- B. Image Setting
- C. Image Size
- D. Date and time
- E. TV Out
- F. Frequency
- G. Language



Use up & down key to choice each time, press  at last. The up & down keys allows you to select a setting from the above functions. Pressing menu again saves your selection.

#### A. Photo Mode



Allows you to select photo or video mode. If video mode is selected pressing the photo/video. Button will start video recording. Pressing the button again will stop video recording.

#### B. Image Setting






Image Setting  
Exit  
Auto  
> Exposure

Choose auto or exposure , Exposure time can be set up between-1.5s~ +1.5s.

C. Image Size





Image Size  
Exit  
> 2048x1536  
1600x1200  
1280x1024  
640x480

Select image resolution.


D. Date and Time



Date Time  
Exit  
> Date Off Photo  
Date On Photo  
Set

Select day, month, year, hour, minute and second. The up/down, right/left and center button may be used to set up the current date and time. Exit from the setting after confirming the date and the time. The time record on/off: after selecting Time record On and confirm, the present date and time will be indicated on the lower right corner of the photo. Select Time record OFF to turn off the time recording on the photo taken.

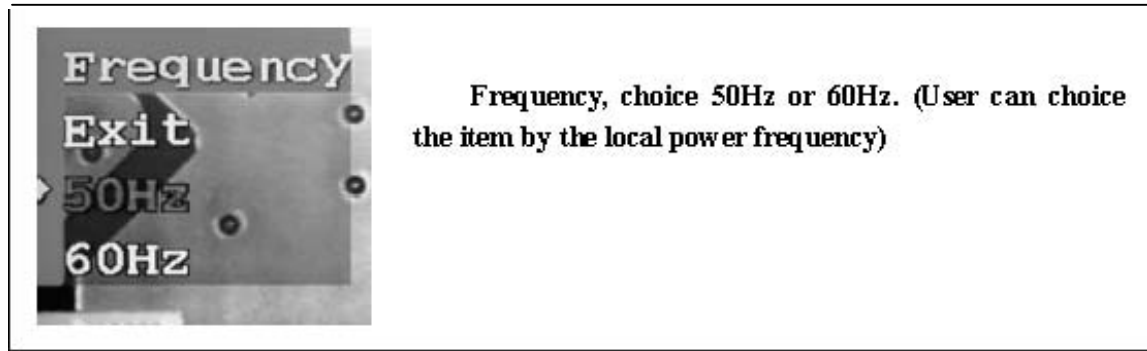
E. TV Out




TV OUT  
Exit  
NTSC  
> PAL

TV Out, choice NTSC or PAL. ( User can choice the item by the local video signal)

## F. Frequency



### 3.7 Digital Zoom function menu

Press the Up/down keys  when the system is in the real time view mode you can digitally zoom the image from 1.0X to 4.0X.

### 3.8 Image Capture

To capture a single image, select photo mode using the menu button. Press the photo/video button. Image will be saved to memory or if an SD card is inserted, Image will be saved to the card.

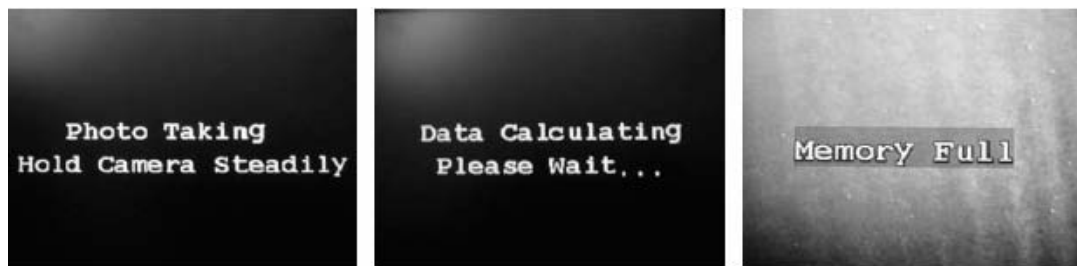




Fig III- 6

You can change from play back mode to photo/video mode by pressing   
In play back mode, you can delete a single photo or delete all the information.  
In play back mode, you can use USB connection to transfer the data to the computer.

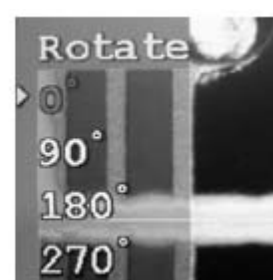
In play back mode, use  function menu to carry out the setting as following:



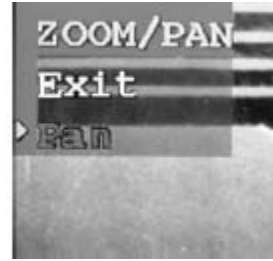
A. Delete the photos





B. Protect the photos



C. To rotate the photo by different angle



D. Choice menu language

E. When the system is on the photo playback station. After digital zoom the image from 1.0X to 4.0X, press the screen data display button, It will show PAN on top left corner, then user can move the photo by up, down, left, right key , also can use  to choice out or move.

### 3.9 Rear input/output ports

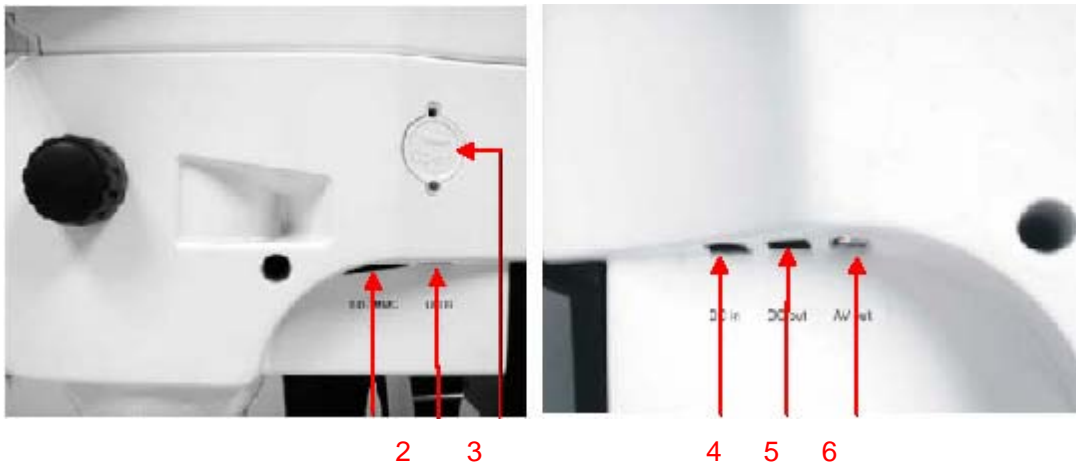
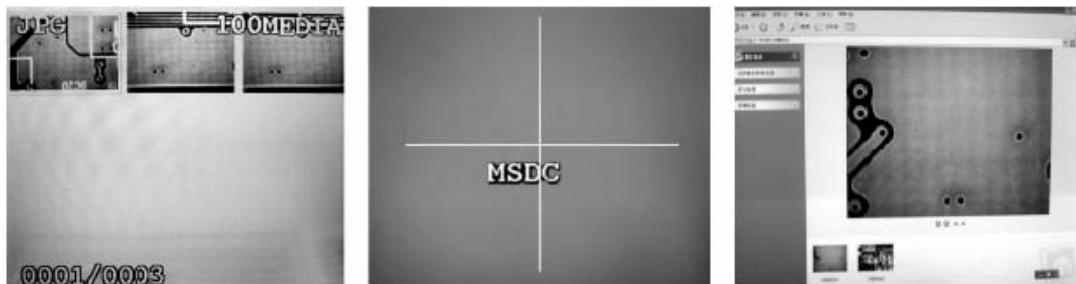


Fig III- 7

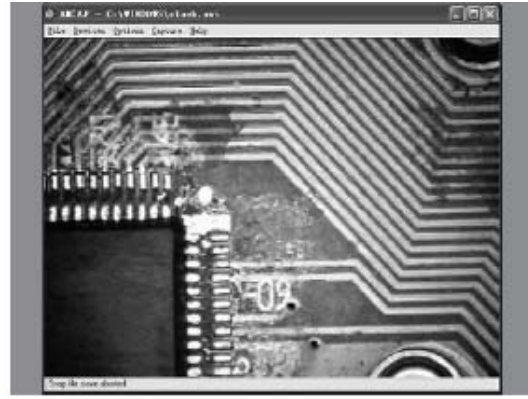
- ①. SD/MMC port is an interface to insert SD memory card. (Warning: Before removing out the SD card, please turn off the system)
- ②. USB port is used for the data communication.
- ③. Battery compartment
- ④. DC in for the main system power supply. (12V DC 3A)
- ⑤. DC out is a power supply port to connect the bed light source.
- ⑥. AV Out port for connecting an external monitor

### 3.10 USB data communicate

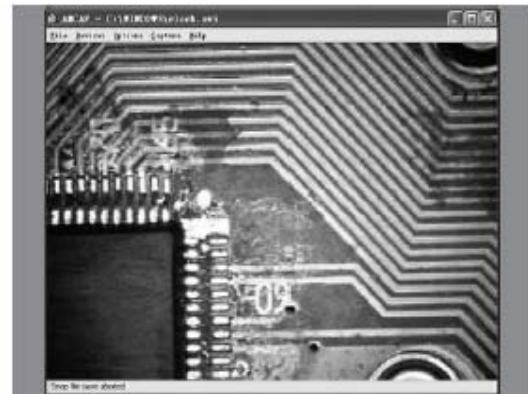
When the system is on the playback station, use USB connection line to transfer the data to the computer.



Playback station the screen show after connecting use computer to read-write to the computer the data When the system is in the real time mode, use USB connection the computer. To view image in real time on your computer.



The screen show after the connecting to the Computer. Open the software “Preview Acamp”



Choose the camera, select the format of the Use computer to view the image Image to view the image.

Included is a CD with software for image capture and drivers for the BDL120, a software disk is provided and the function is install the software & then the drivers.

### 3.11 Image view

A clearer image may be observed from a video Monitor AV output since there is limit of pixels on the LCD screen (640×480). Similarly, the pixels of photo taken with the microscope may reach 2048×1536, and the image will clearer under photo playback mode or when observing images using a PC.

## IV. Maintenance of Binocular digital liquid crystal microscope

To protect your BDL120 avoid dust, water and humidity. Avoid to inching the lens surfaces and clean in a lint free cloth only. When the microscope is not in use, cover with the dust cover provided. The LCD screen should also be wiped gently with a lint free cloth only.