PCE-MM200 Digital Microscope

User's Manual

Welcome

Thank you for choosing PCE-MM200 digital microscope!
The PCE-MM200 digital microscope is an exciting new device that let's you view clear many micro- objects with it, and has a wide scope of applications, such as,

- Industrial Inspection

- Computer Parts inspection

- Telecom module inspection

- Scientific teaching tool

- Medical analysis

- School Research tool

- Insect dissection / examination

- Plant dissection / examination

- Skin examination

- Textile Inspection

- Collections / Coin/ Jewelry Inspection

- Printing Inspection

- And more…………..

Please read this manual carefully before using PCE-MM200 digital microscope!!!

Contents

Product Specifications

- Operation system: Windows XP SP2 /Vista/ Window 7/Win8
- PC interface: USB 2. 0
- Image Sensor: 1. 3 Mega or 2.0 Mega pixels or 5.0 Mega pixels
- Video Capture Resolution: 1.3MPixel   1280x1024, 640x480, 320x240
  - 2.0MPixel   1600x1200, 1280x960, 640x480
  - 5.0MPixel   2592x1944, 2048X1536, 600x1200, 1280x1024, 640x480
- Color: YUV or 24bit RGB or MJPG
- Lens: Dual Axis 27X & 100X Microscope Lens
- Focus Range Manual Focus From 8mm to 300mm
- Magnification Ratio 5X to 200X
- White Balance: Auto.
- Exposure: Auto
- Light Source: 8 adjustable LED White Light
- Power supply: 5V DV from USB Port
- Size: 120mm (L) X36mm (R)
- USB Cable:1.8m

Safety Cautions

1. Avoid touching the lens with finger to dirty it and protect the product from electrostatic damage.
2. Do not attempt to disassembly any part of this product.
3. Do not attempt to service this product yourself. Opening the covers may expose you to dangerous voltage points or other risks.
4. Storing and operating PCE-MM200 digital microscope at Temp: -20 ~ 45°C, Humidity: 45% ~ 85%, as this will extend Product life and prevent damage to the product.
5. Do not allow this product to have contact with water or other liquids. If water or other liquids enter the product interior, immediately unplug the product from PC. Continued use of the product may result in fire or an electrical shock.
6. Do not use any detergent or volatile solution, which will damage the camera case, painted surfaces and lens. Only use a soft cleaning cloth to clean it.
7. Do not place this product near a heat source or expose direct flame, avoid the lens damaged by high temperature or humidity
8. If the lens is dirty, please use a kens brush on soft cloth to wipe clean. Avoid touching it with your fingers. Exercise care to avoid scratching the lens.
9. Need to read PCE-MM200 digital microscope User's Manual before using and storing it.
10. To avoid electric shock, remove all electricity source before moving PC.

Package Contents

The PCE-MM200 digital microscope package includes the following:

1. USB microscope
2. CD ROM (Software) and Quick manual
3. Stand or Holding ring (Plastic)
4. 2pcs Cover

System Requirements

In order to install PCE-MM200 digital microscope, you will need the following minimal systems:

①. OS: Windows XP SP2 and Vista and windows 7
②. CPU: Pentium IV 1.0G, Celeron, AMD Athlon
③. CD-ROM drive
④. Available USB port (if it is USB1.1,please use PCE-MM200-Beta.exe application inside CD)
⑤. 256MB RAM
⑥. 100MB available hard disk space
⑦. Graphic card: 16-bit

Recommended PC specification for optimal performance:

√ OS: Windows XP SP2 or Vista SP1 or Window 7 above
√ CPU: Pentium IV 1.6G, Celeron, AMD Athlon or above
√ CD-ROM drive
√ Available USB 2.0
√ 512MB RAM or above
√ 10GB available hard disk space or above
√ Graphic card: 16-bit or above

Software Installation process

The following instructions will guide you to through the process of installing the PCE-MM200 digital microscope:
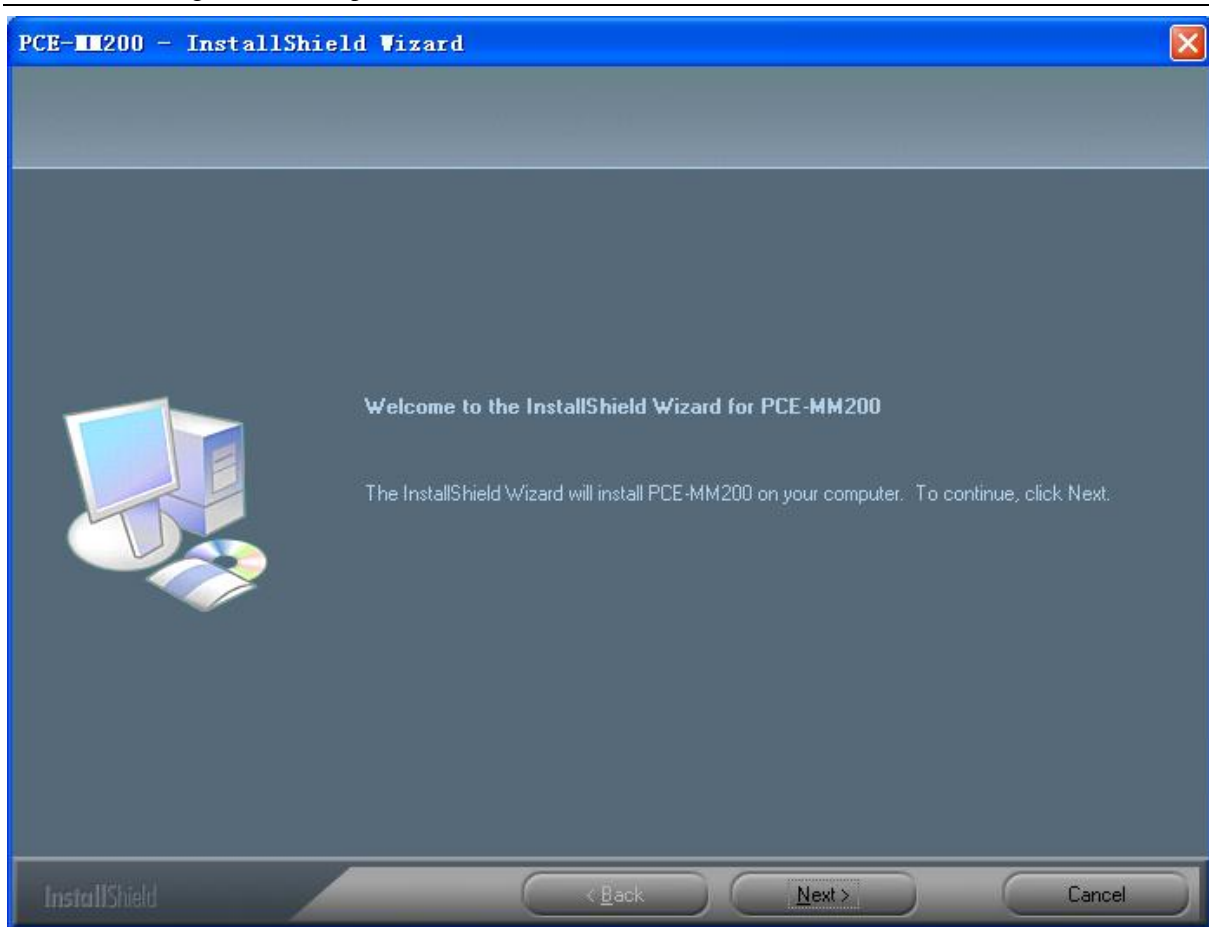
I.   Power on PC and place installation CD into CD-ROM driver, do not connect USB Cable from PCE-MM200 USB Device to PC before software installation.

II. Select "Install Software", and follow the instructions to complete installation.

III. As driver installation completed, and if system asking for restarting, please restarting PC.
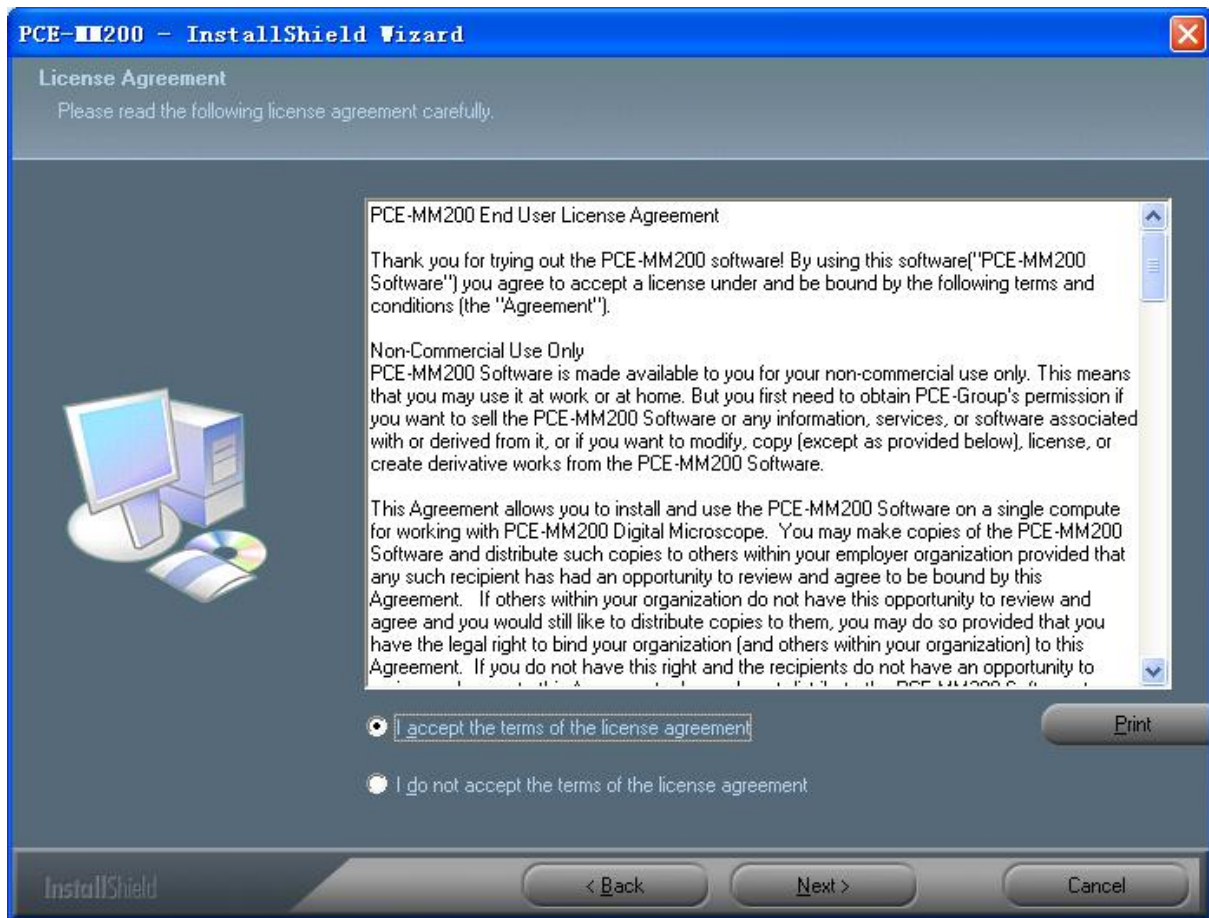
Window XP OS Installation

1.   Place the installation CD-ROM into CD-ROM drive, the installation program should be started automatically. Otherwise, please execute the AUTORUN.EXE directly from the CD-ROM. Or PCE-MM200_Setup.exe


2.   Select "SOFTWARE" item, you will see the following popup .Press "Next" to proceed or "Cancel" to abort installation.

3.   You will see the End User License Agreement. If you accept the License Agreement, then you can Click the "Next" button which is availability to process, or "Cancel" to abort installation.
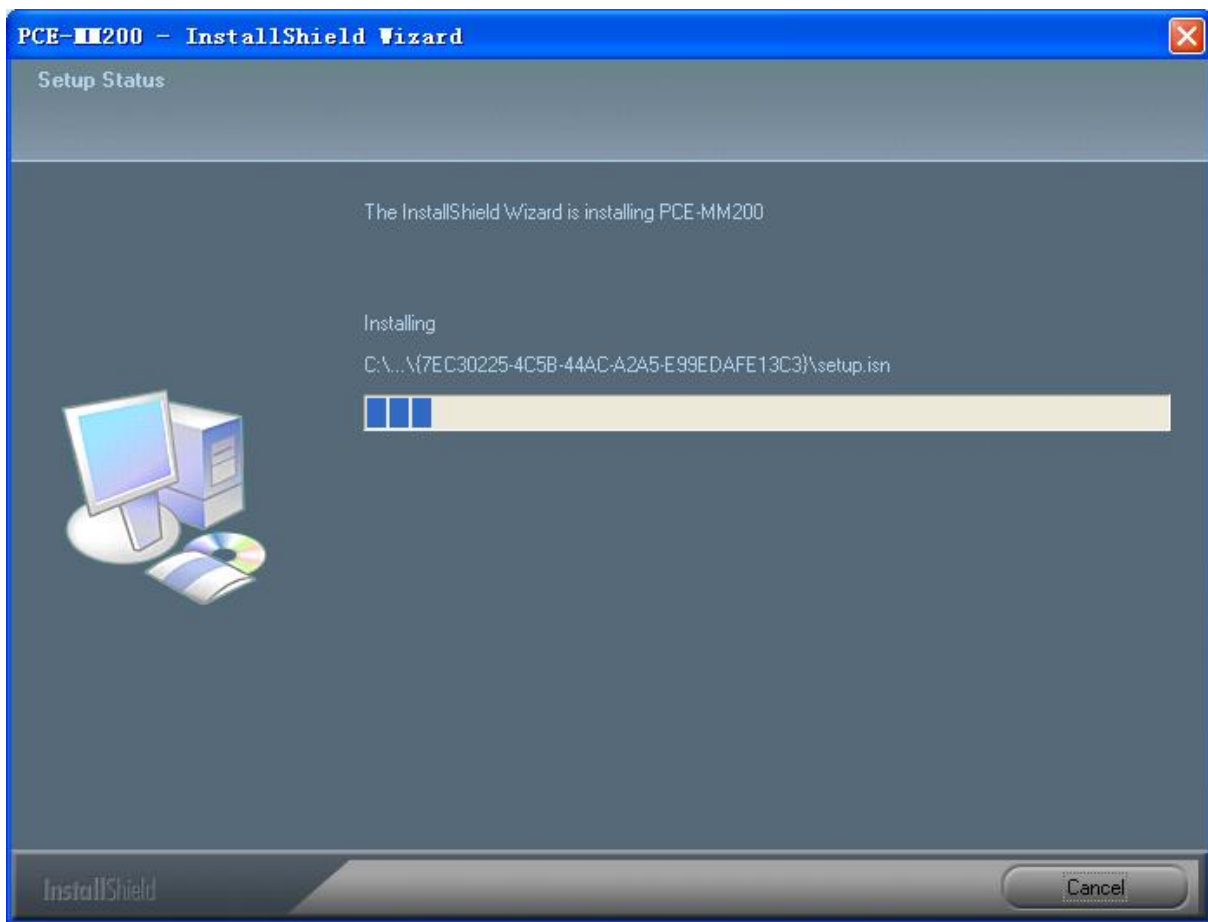
4. Click "Install" to start to install the application, click "Cancel" button to abort installation. Click on "Back" to back to read the End User License Agreement again.
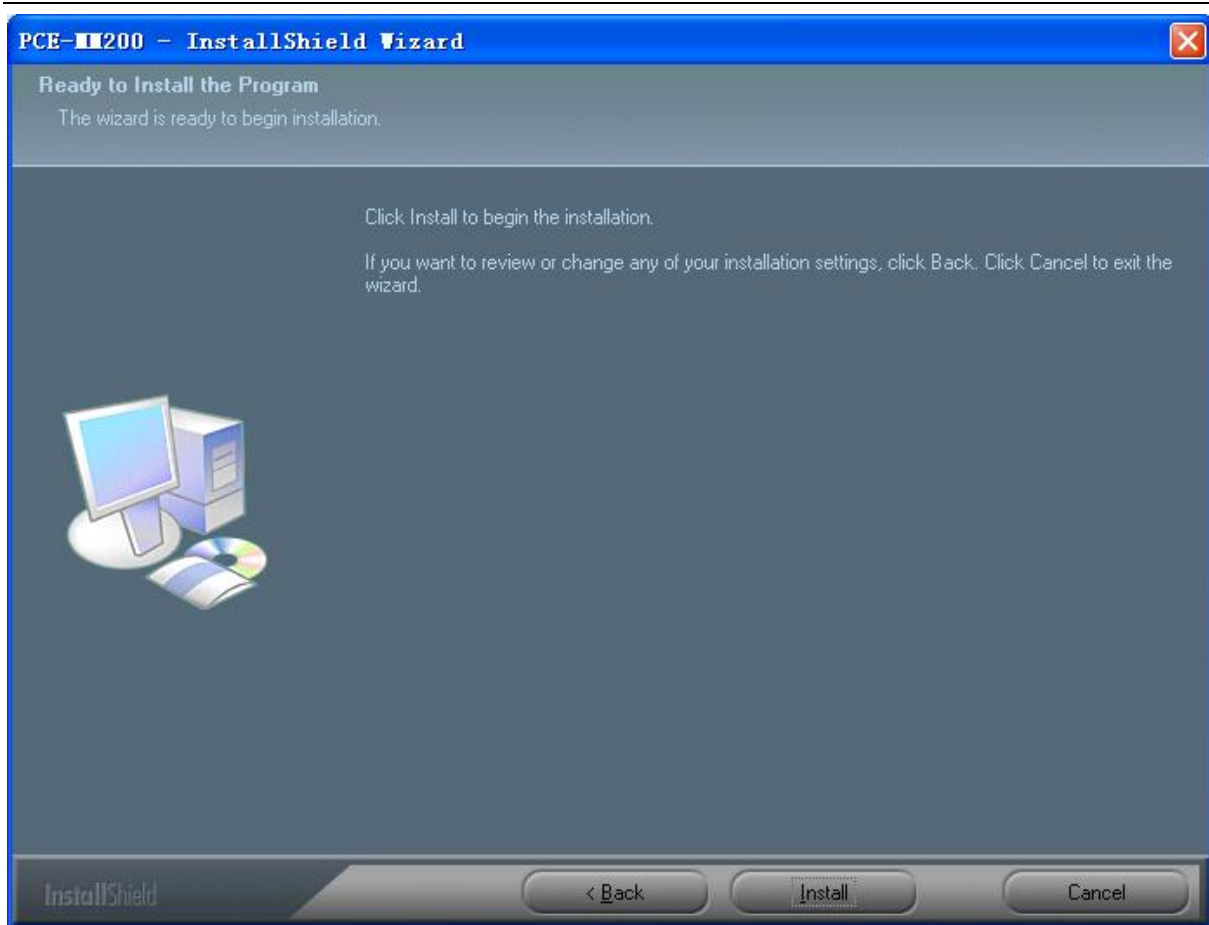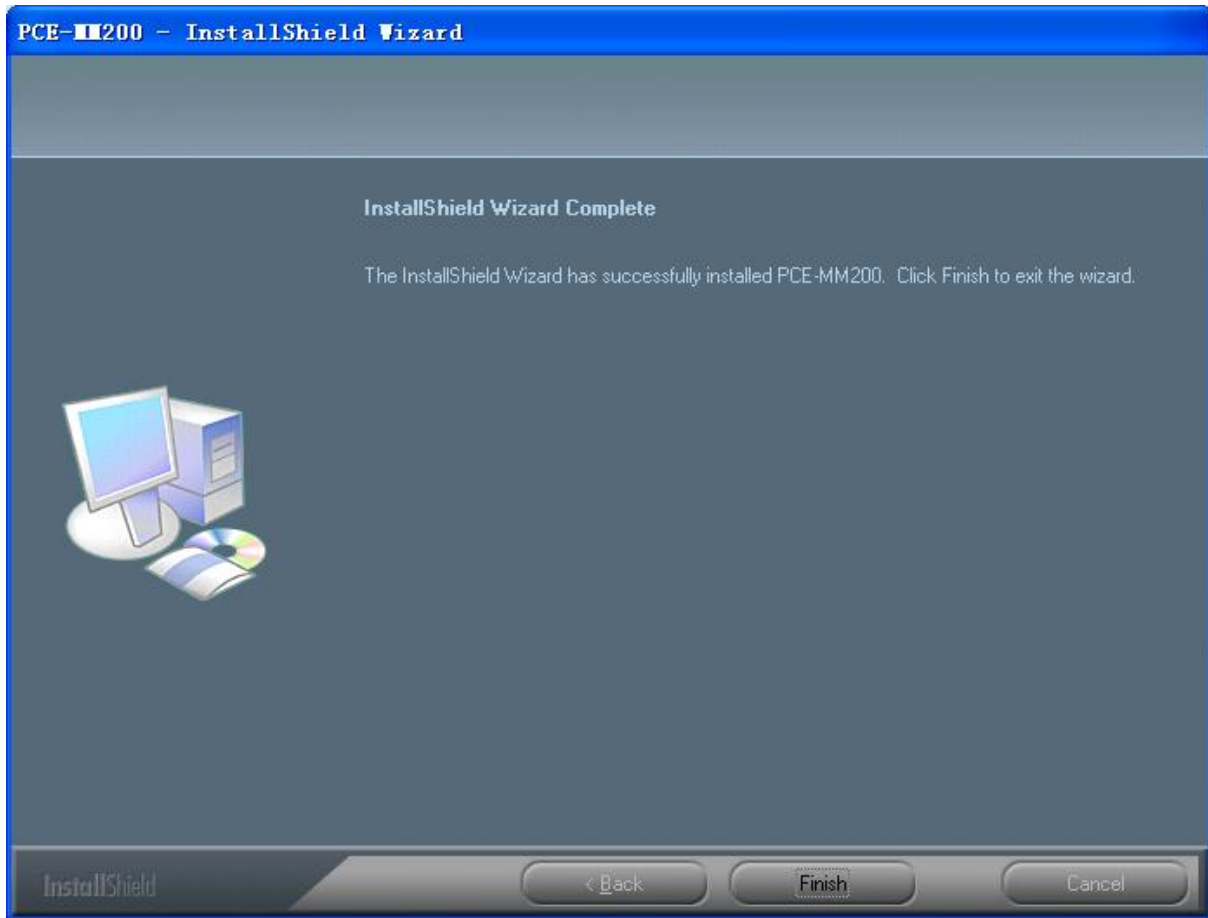
5. You will see the following progress bar below indicating that the installation is proceeding. If click "Cancel" button, it will abort installation.
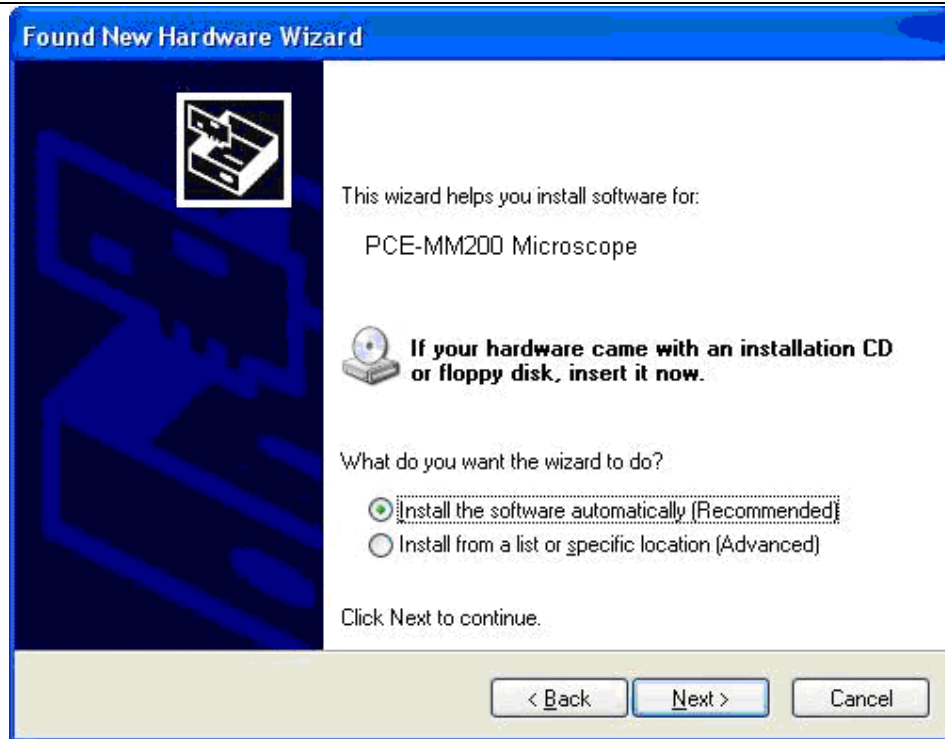
6. Wait until you see the following popup and press "Finish" button.

7.   Please plug USB cable to PCE-MM200 digital microscope Device to connect with PC and power on. You will see the following popup window.
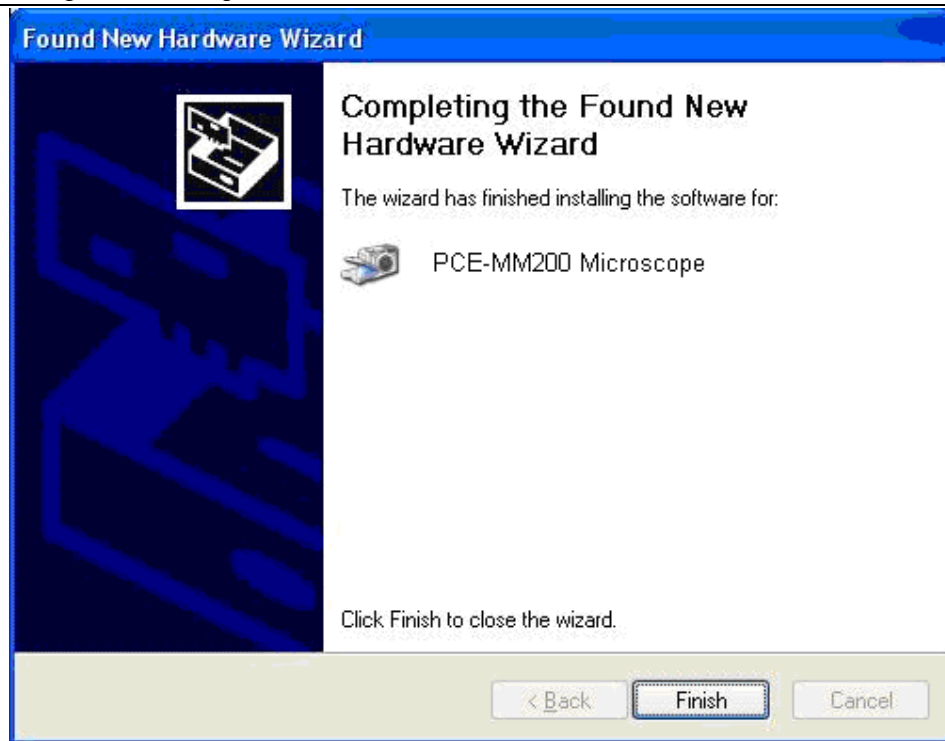

8.   Please select "No,not this time" and click "Next" to continue.

9. Please select "Install the software automatically (Recommended)" and click "Next" to continue. It would popup the following window.

10. Please click "Continue Anyway" to continue till popup the following window.

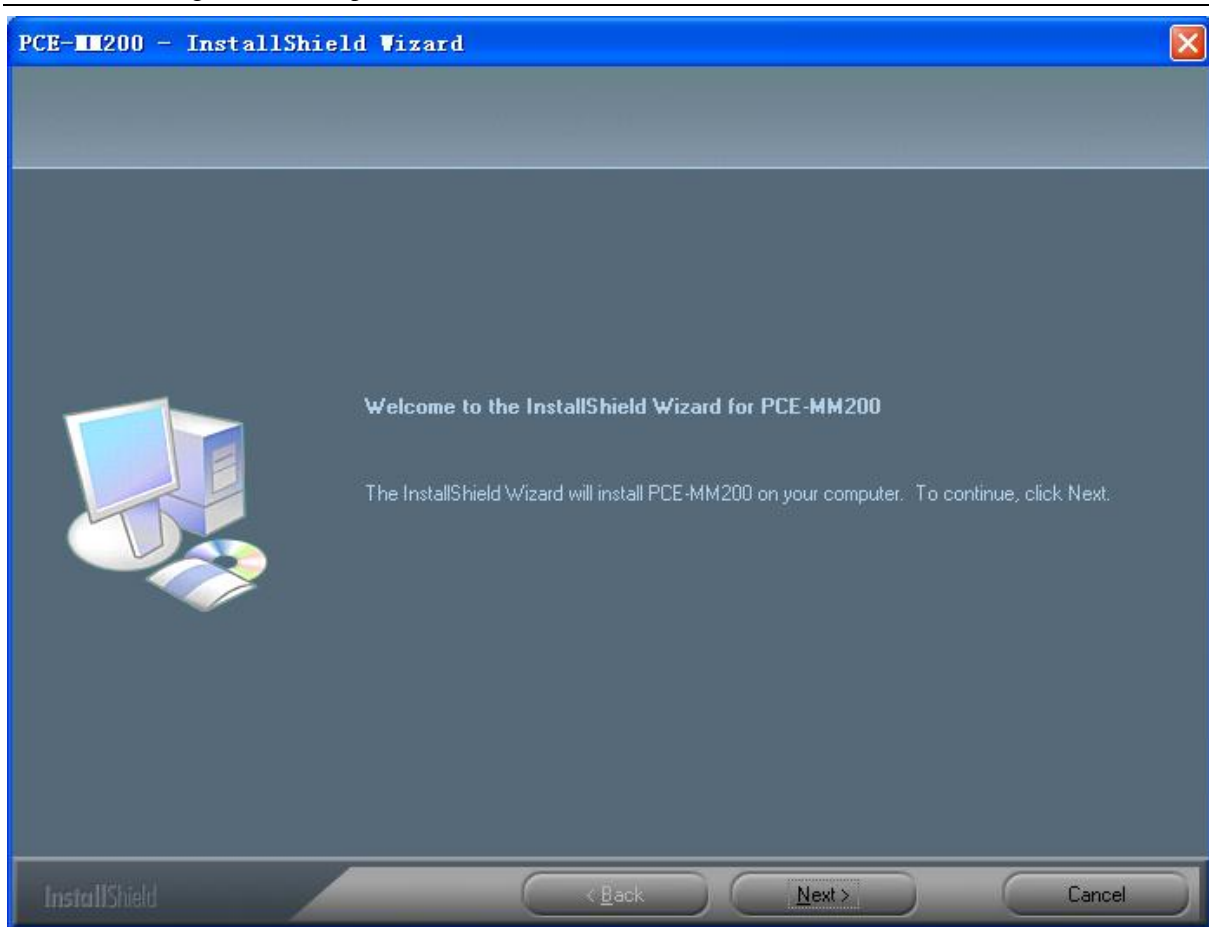11.   Click "Finish" to finish all software installation.

Now the software installation was completed, you can use free PCE-MM200 digital microscope.
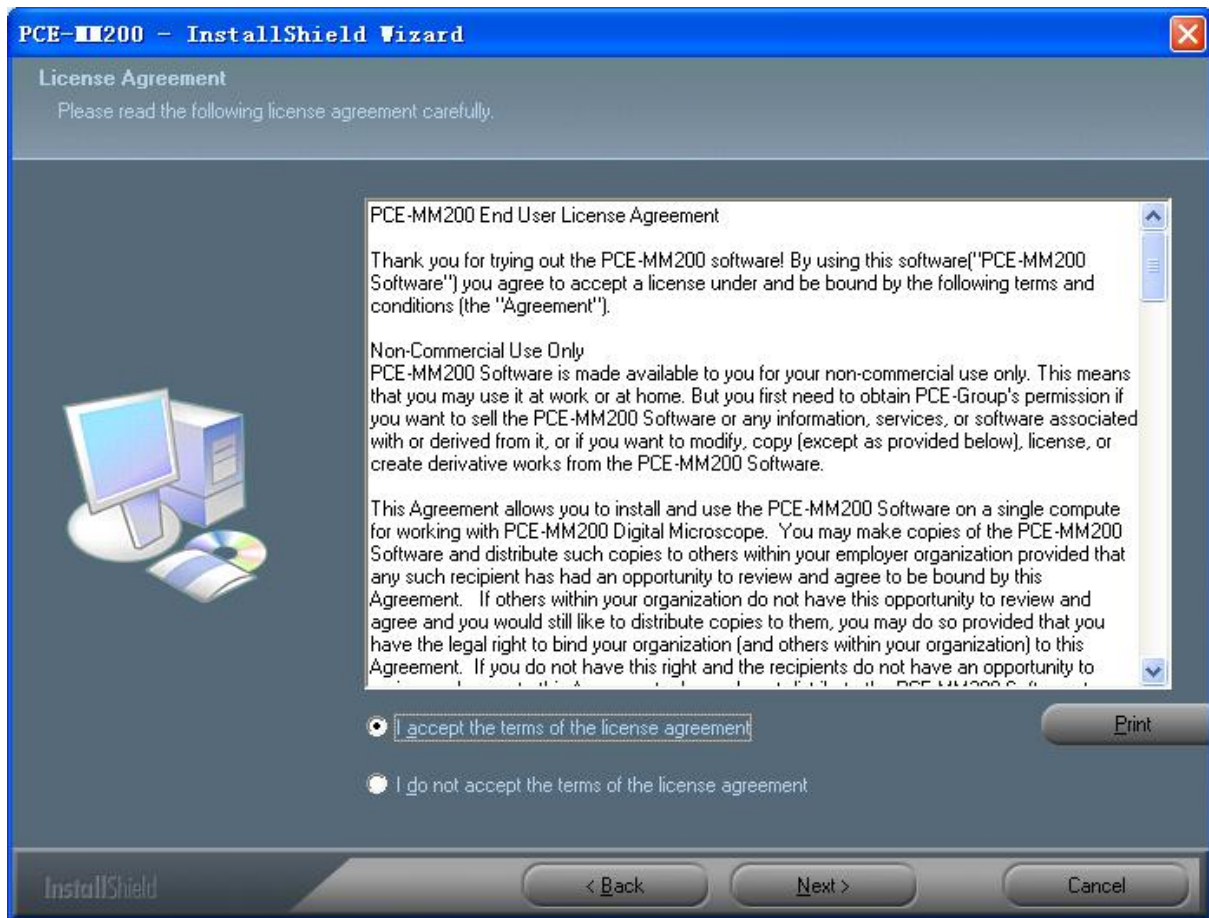
Window Vista OS Installation

1.   Place the installation CD-ROM into CD-ROM drive, the installation program should be started automatically. Otherwise, please execute the AUTORUN.EXE directly from the CD-ROM or PCE-MM200_Setup.exe.

2. Select "SOFTWARE" item, you will see a "User account control" popup. Please press "Allow" to continue or "Cancel" to abort installation.
3. You will see the following popup .Press "Next" to proceed or "Cancel" to abort installation.

4. You will see the End User License Agreement. If you accept the License agreement, then you can Click the "Next" button which is availability to process, or "Cancel" to abort installation.
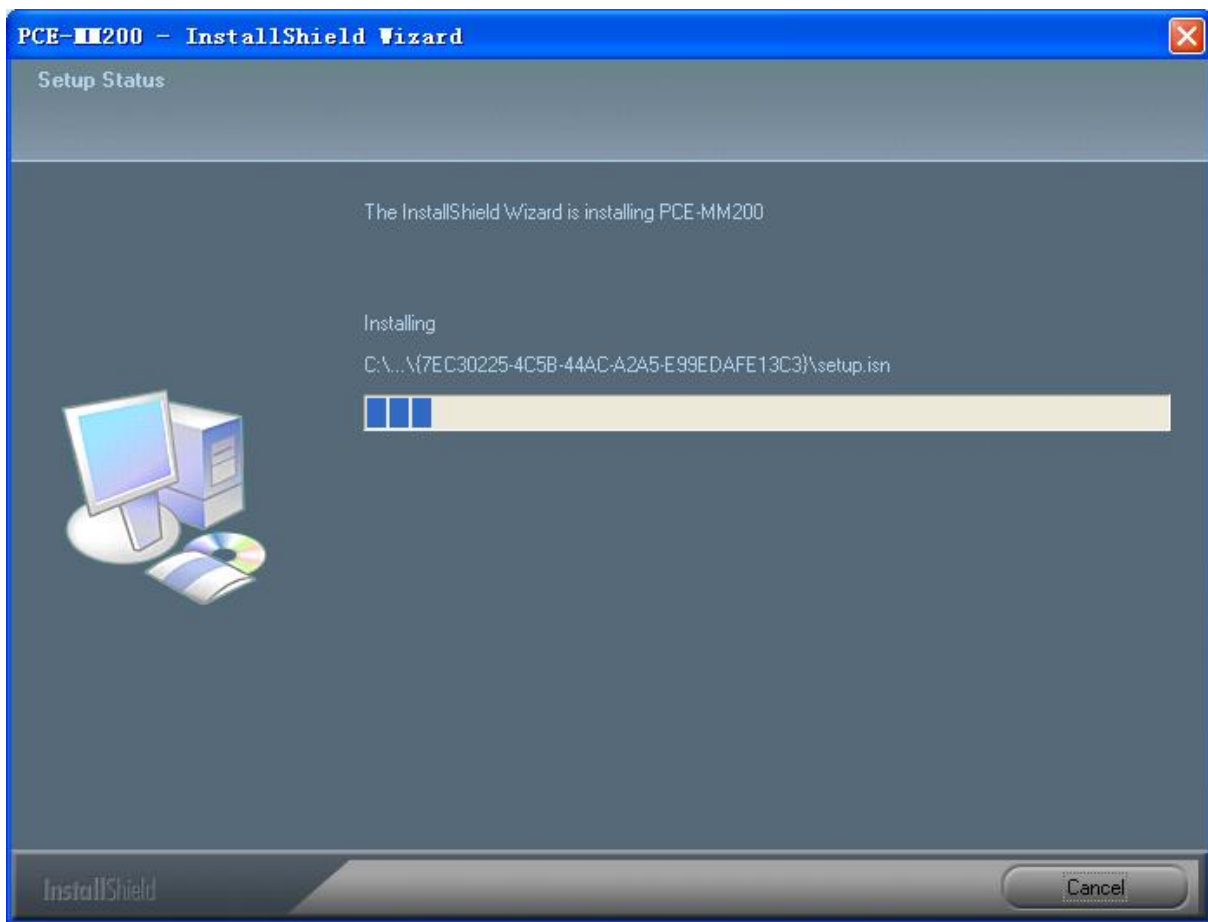
5. Click "Install" to start to install the application, click "Cancel" button to abort installation. Click on "Back" to back to read the End User License Agreement again.
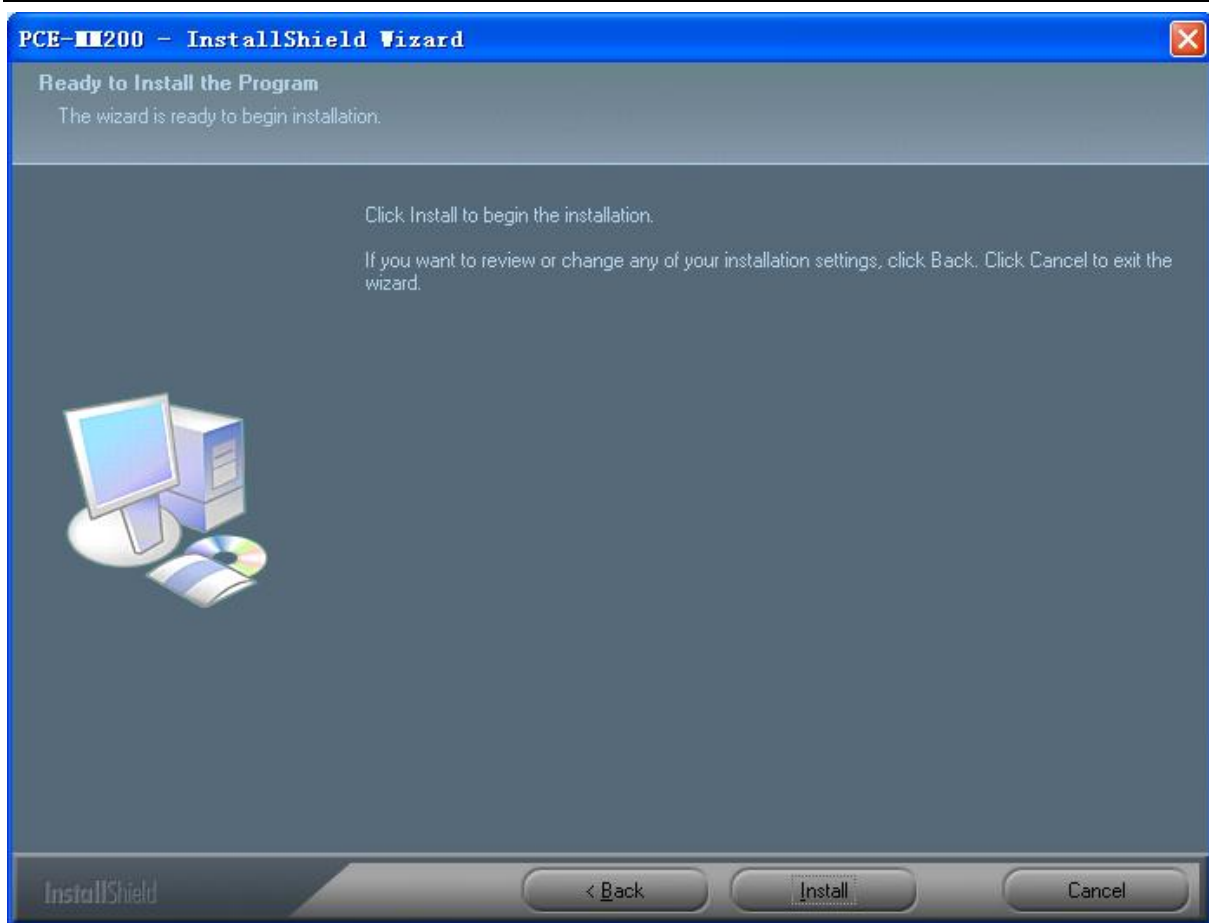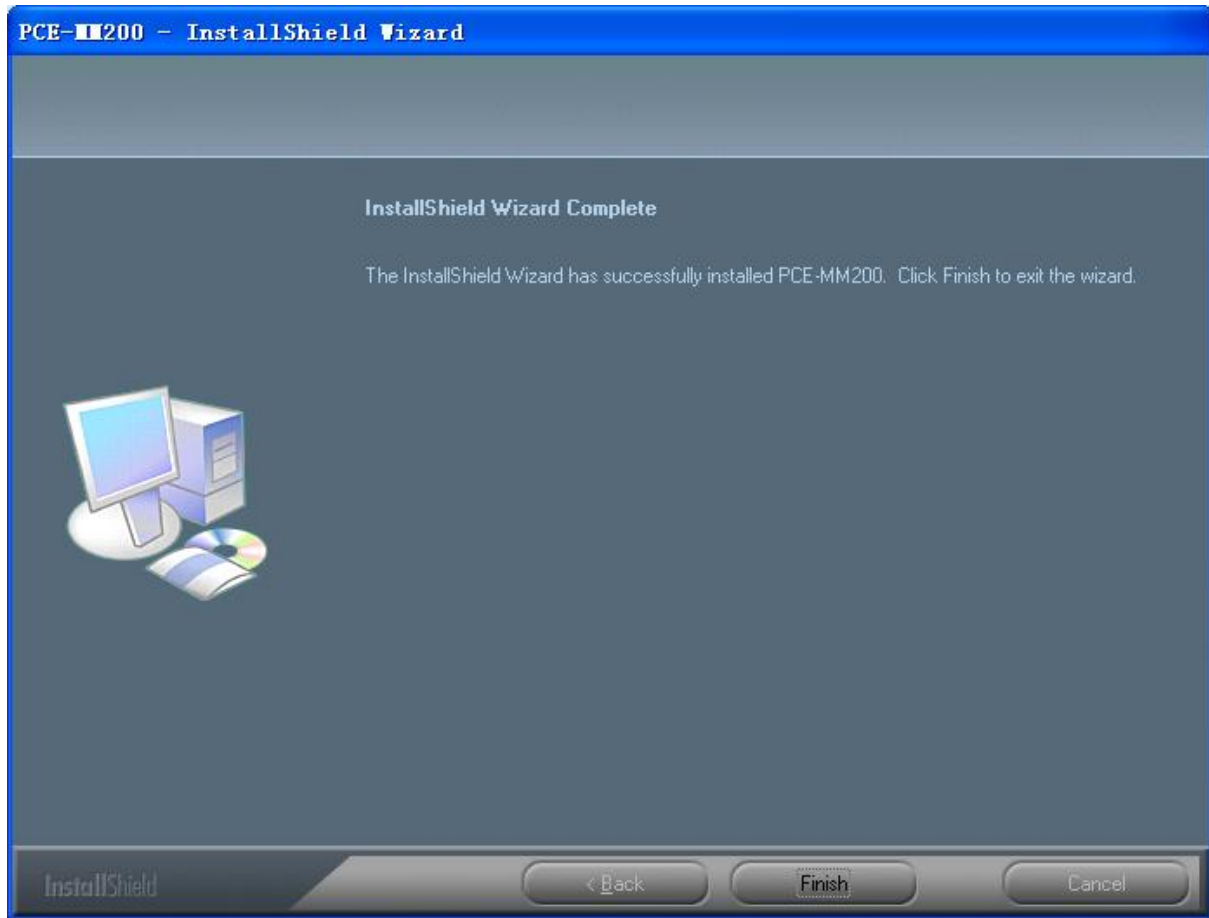
6. You will see the following progress bar below indicating that the installation is proceeding. Click "Cancel" button to abort installation.

7. Wait until you see the following popup and press "Finish" button.

8. Please plug USB cable to PCE-MM200 digital microscope Device to connect with PC and Power on. System will automatically search and install the driver. Wait until you see this message that system show "Your new hardware is installed and ready to use".

Now the software installation was completed, you can use free PCE-MM200 digital microscope.

PCE-MM200 Digital Microscope Connecting

The following procedure will show you how to properly connect PCE-MM200 digital microscope with your PC.

   i.   Connect USB Cable on PCE-MM200 digital microscope to PC USB port and Power on

ii.   The PCE-MM200 digital microscope has one switch for power on and LED adjusting on one side as shown:

Operating PCE-MM200 Digital Microscope Process

The following process will show you how to operate PCE-MM200 digital microscope.

①. To have a right image, suggested holding PCE-MM200 digital microscope as shown:
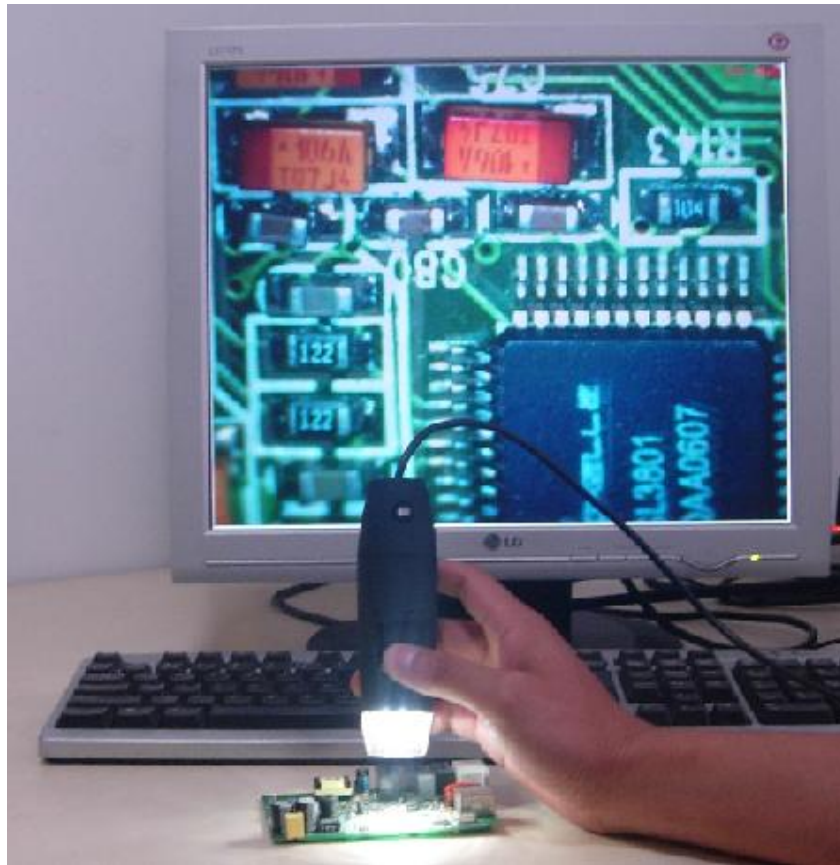
②. Put the to-be-observed object near the PCE-MM200 digital microscope, the distance between both (object distances) don't exceed to 30CM.

③. Adjust the focus: Use any finger to rotate the roller, till the image is clear.

④. The Zoom time will be larger as PCE-MM200 digital microscope is closer to the observed object.

⑤. When the observed object is located at the top of the transparent cover, there are two focus positions you can be found by rotating the roller: long cover—60X and 200X; short Cover—80X and 150X. If you want other zoom time, you must adjust the object distance and ever must take off the transparent cover to adjust it.

PCE-MM200 Application Software

Note: Before start PCE-MM200 program, please make sure PCE-MM200 digital microscope has been connected to PC via USB line and Power on.

Double-Click PCE-MM200 icon on desktop , the PCE-MM200 main screen will be shown as below:
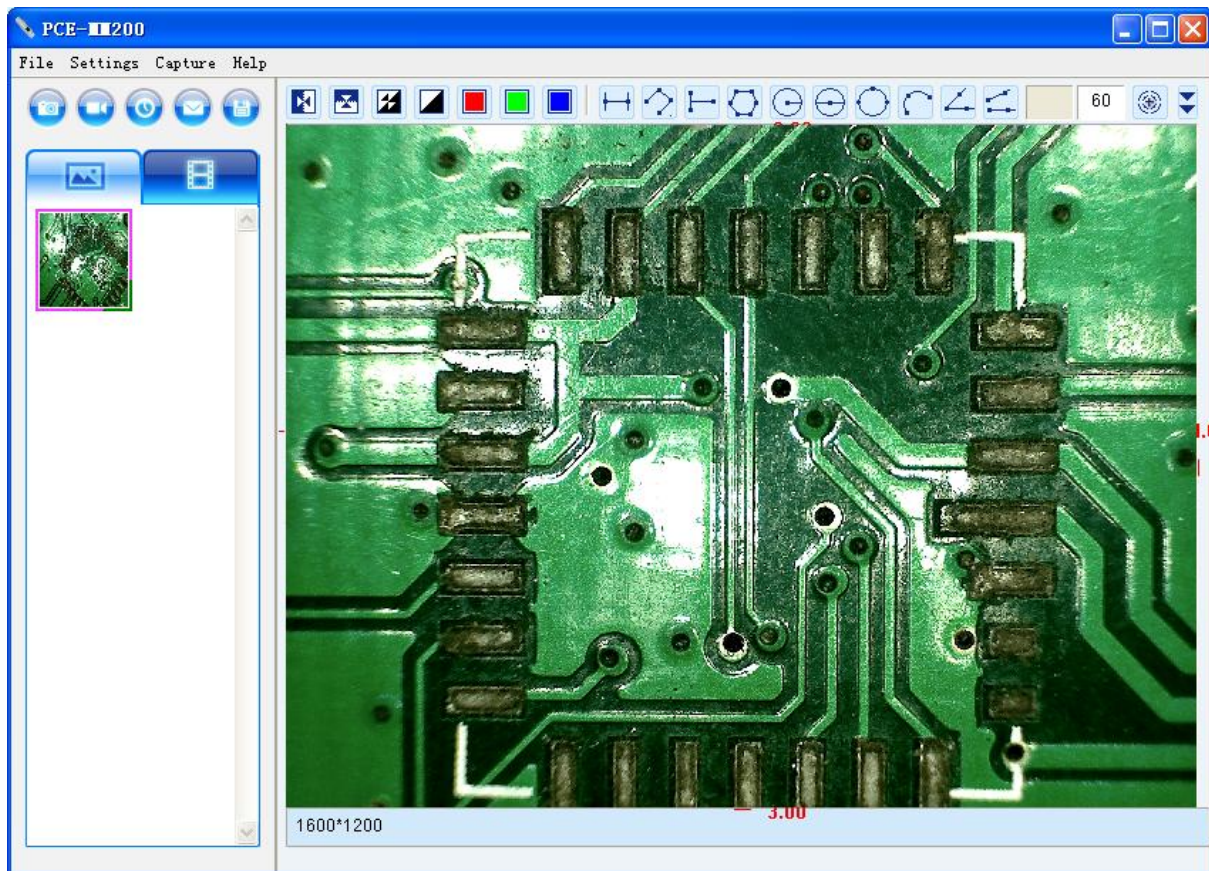
If PCE-MM200 digital microscope has not been found while opening the PCE-MM200 program, the message will be shown as below:
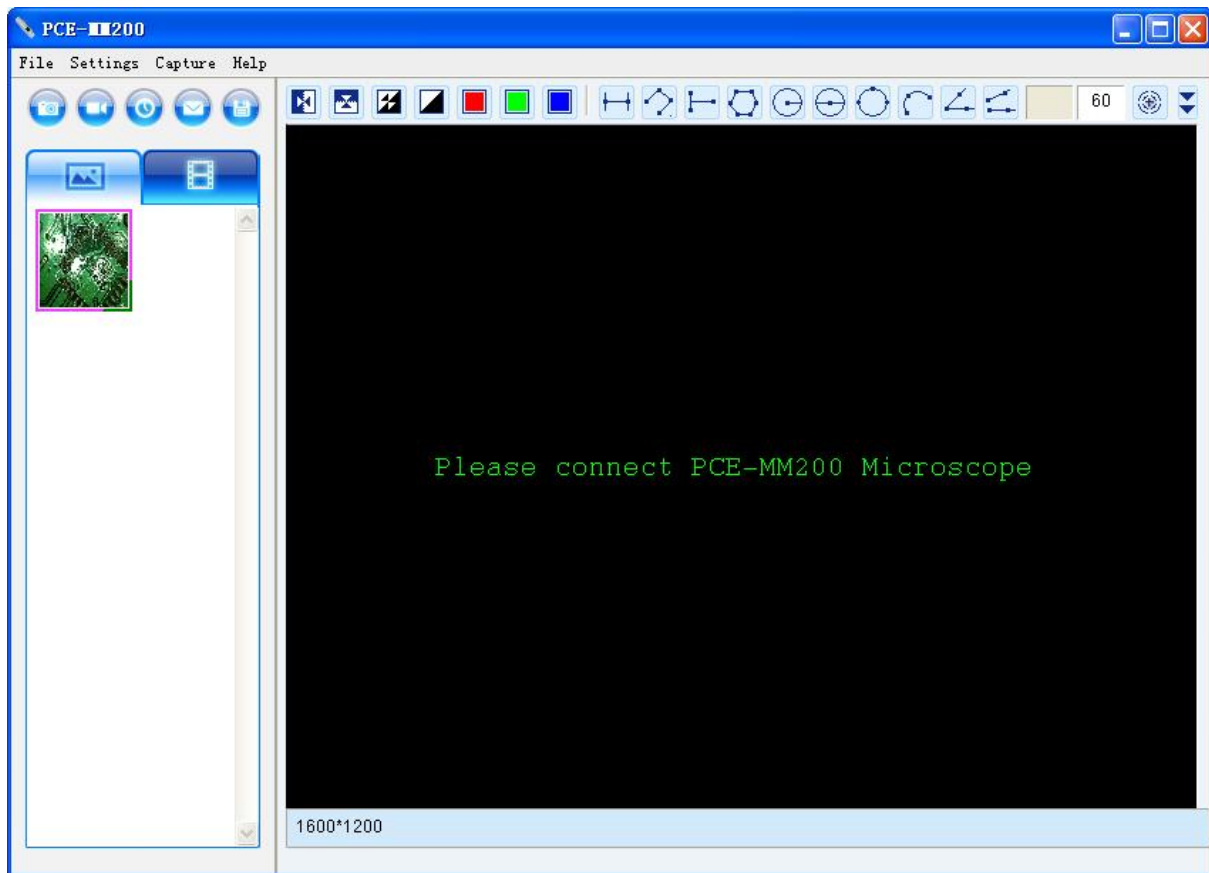
Menu Bar

File

Select a photo or video in Photo or Video folder; click "File" on menu bar or right key of mouse to pup-up the drop-down menu for operating it.

Note: Open - open the selected file for measure or playing.

Open

-Opens a selected picture or video to be viewed.

Save As

-open the "Save as" window which allows you to save your files into the desired folder and file format (Or

please click [icon] button to do the same action)

Save All

-open the "Save All" window which allows you to save all your files in the photo or video folder into the desired folder.

Delete

-Allow you to delete the selected image or video. You will be prompted to confirm your decision.

Delete All

-Allow you to delete all the images or videos in the photo or video folder. You will be prompted to confirm your decision.

Send email

-Allow you to send the selected images through your default email account. (Or please click [image] button to do the same action)

Setting

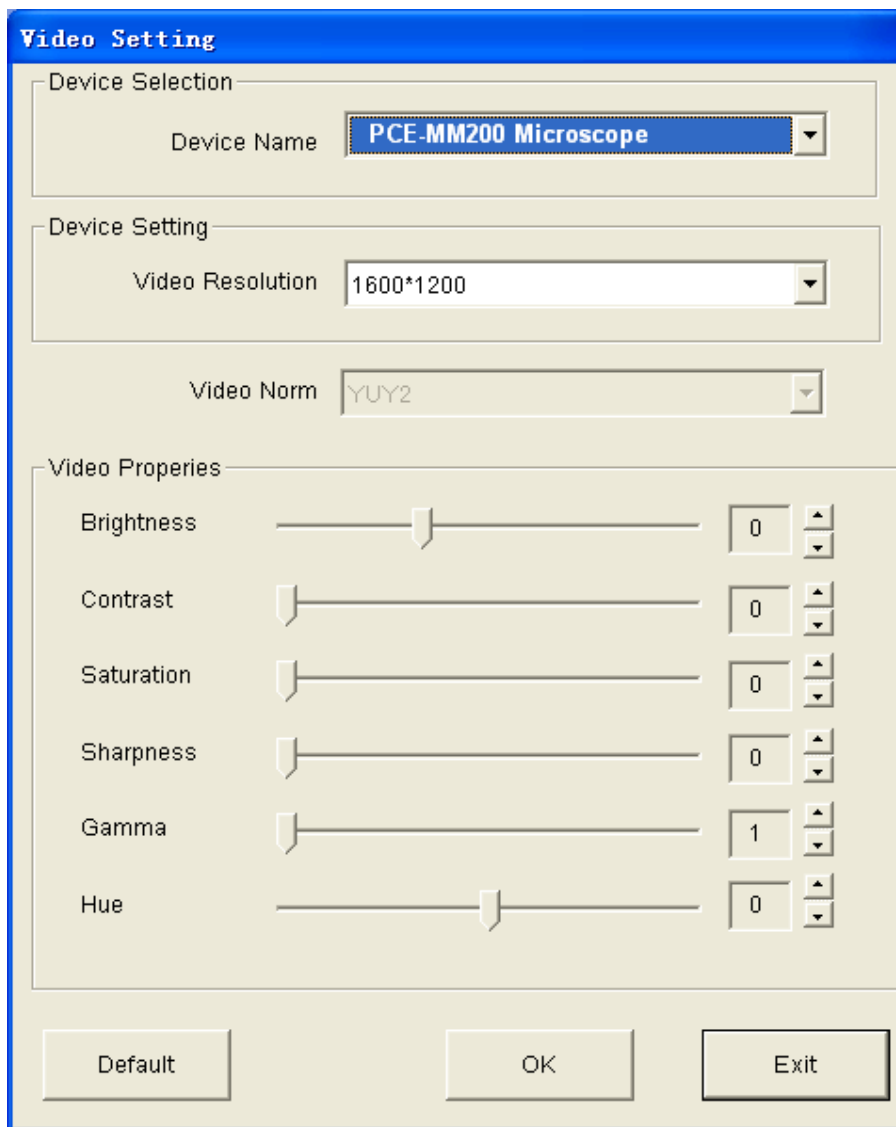Click "Setting" on menu bar to pup-up the drop-down menu:
Video Setting
   -Select "Video setting" to pop-up the below window for video parameter setting:
Video Norm:
      MJPEG: Image quality is good, but the frame rate is up to 30fps in 5.0Mpixel resolution
      YUY2: Image quality is the best, but the frame rate is only 2-3fps in 3.0M or 5.0Mpixel resolution

If the video color is distortion a little, please adjust "Hue" parameter till it is right.
Measurement setting
   - -Select "Measurement setting" to pop-up the below window for setting:
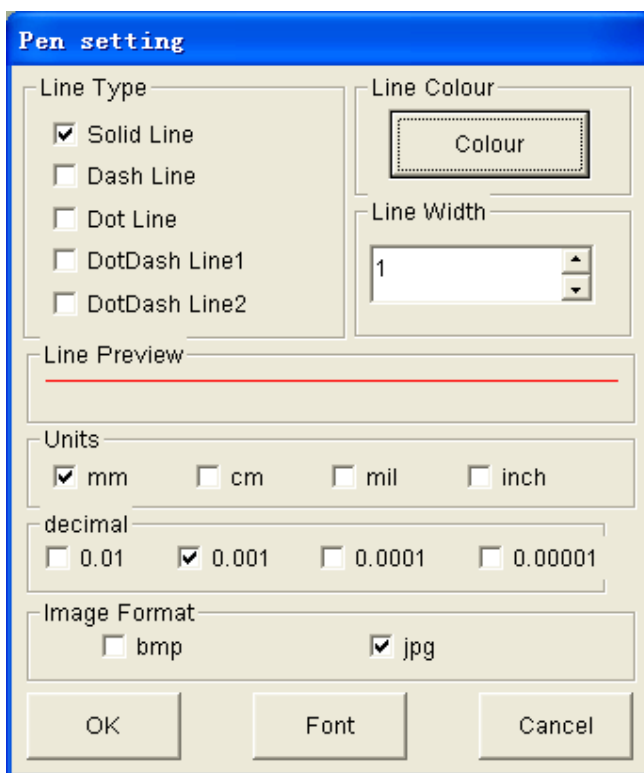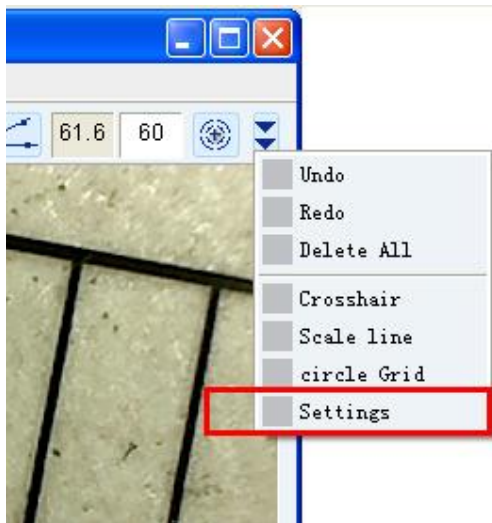
Crosshair / Scale Line / Circle Grid

Add in Crosshair / Scale Line / Circle Grid on preview area: click "Crosshair / Scale Line / Circle Grid" on the drop-down menu as below.
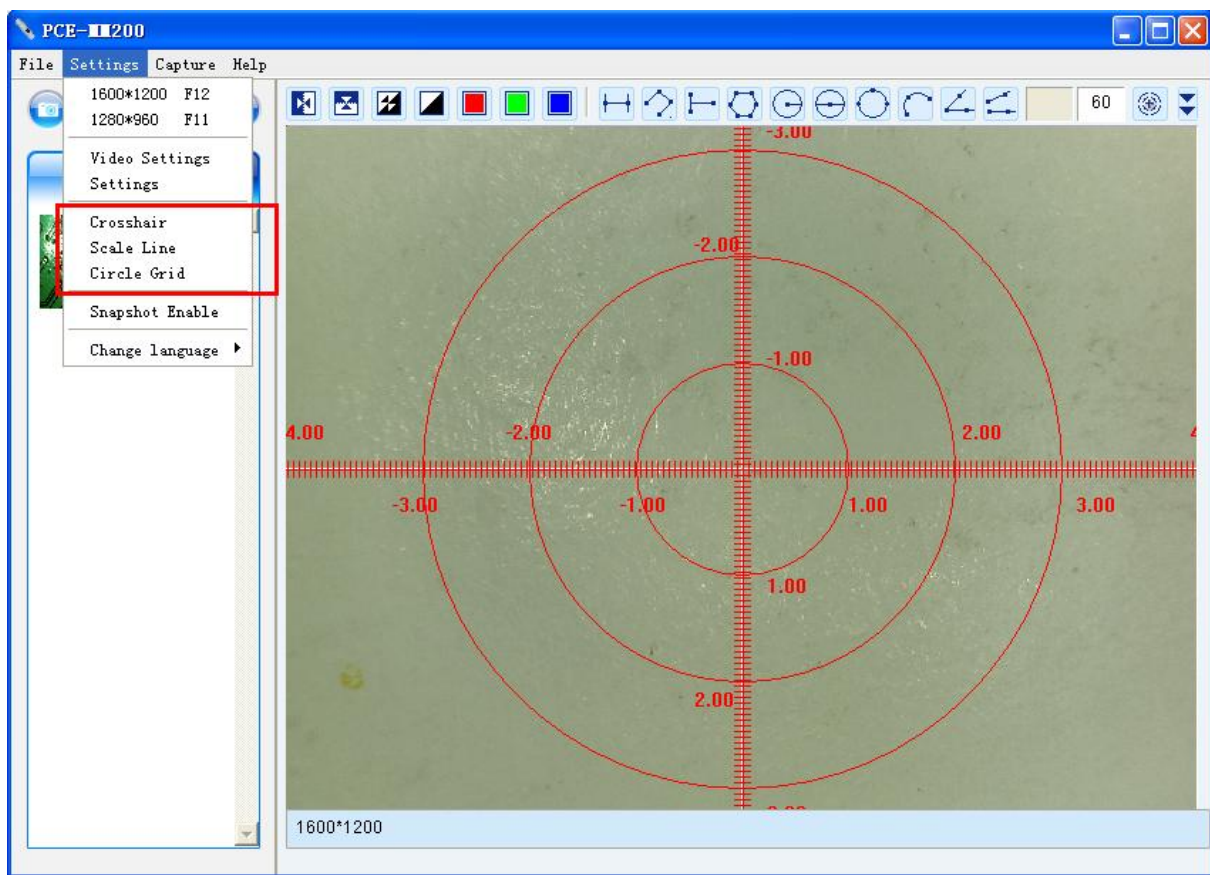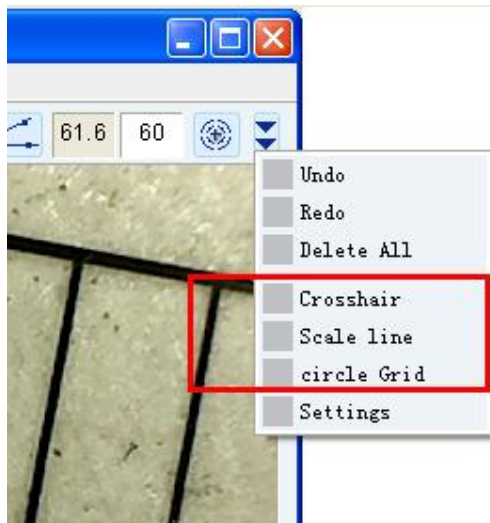
Snapshot Enable and Snapshot Disable: the default is enable snapshot.

Suggestion: *If you need more performance of the video preview, please disable it, or maybe there is video delay.*

Change Language

 -The language selection allows you to select the PCE-MM200 interface language.

Capture

1. Take Picture

-You can take image by clicking the [snapshot icon] snapshot Button or press this [camera icon] button on PCE-MM200 device.
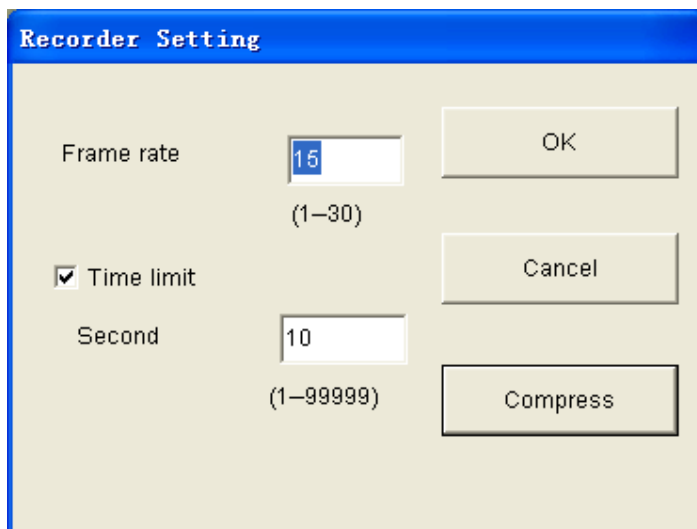
2. **Take Video/Stop Video**

-In the active live video window, click on the [video icon] button to record a video.
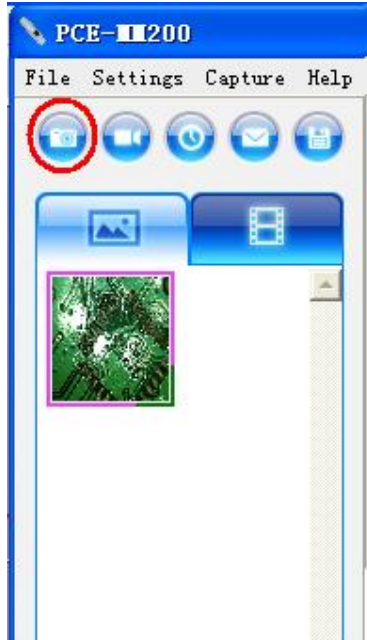
Recorder setting:
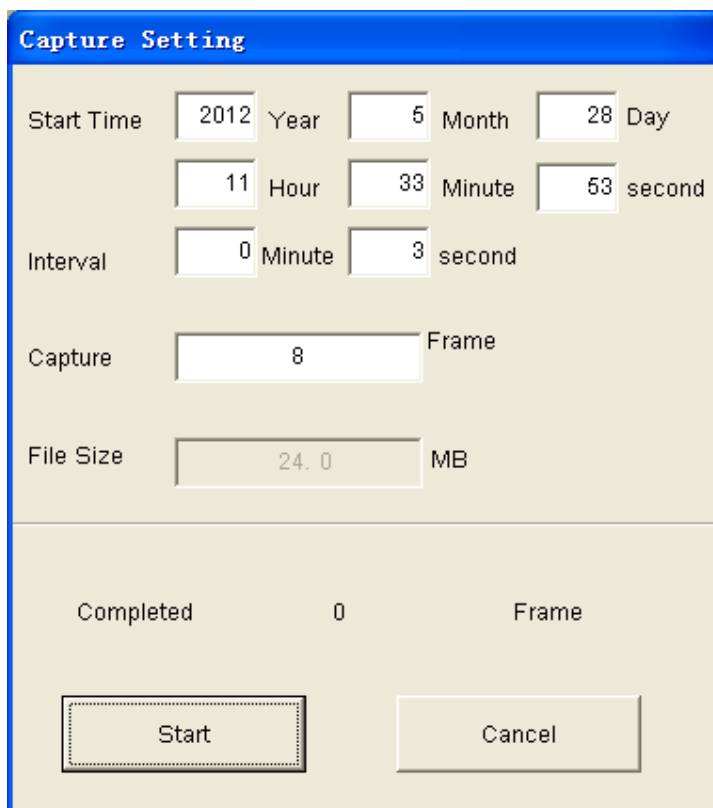
1. **Frame rate**: it is the number of frames or images that are projected or displayed per second. The number range is 1~30
2. **Timer limit**: it is the time of video recording to avoid video file size exceed to the space of disk. The number range is 1~99999
3. **Compress**: click it and you can select the video compressed format to reduce video size. It loads automatically compress programs according to your PC system. The video quality may be varied with different compress program.

3. Take time lapsed images

-Press the time-lapsed [icon] button on the active preview window,

Help

Click "Help" on menu bar to pop-up the following message:

1. PCE-MM200 User manual: will instruct you how to use PCE-MM200 application software.
2. About PCE-MM200: you can check your present version.

Video Process Tool Bar

Horizontal Mirror

Vertical Mirror

Negative

Binary Segmentation

Display Red

Display Green

Display Blue

Measurement Tool Bar

Calibration on Video

It is strongly suggestion: To obtain more accurate the measurement data, please make firstly calibration before any measurement functions.

Select a known measurement standard as the to-be-observed object, such as a ruler, to be used for calibration. Bring image of the selected ruler into focus by turning the "Focus & Magnification adjustment wheel", determine the magnification by taking a reading from the scale on the focus dial as below(The default magnification is 60):
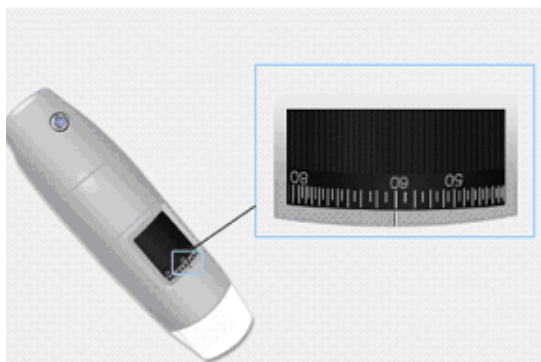
Enter the scale value in the "Scale" box in the right-hand scale box of the screen as below:

In the live video window click on the calibration button , and then click and drag to 2mm length, a small

window pop up , enter the actual length(The example is 2mm) to click "OK" Button..
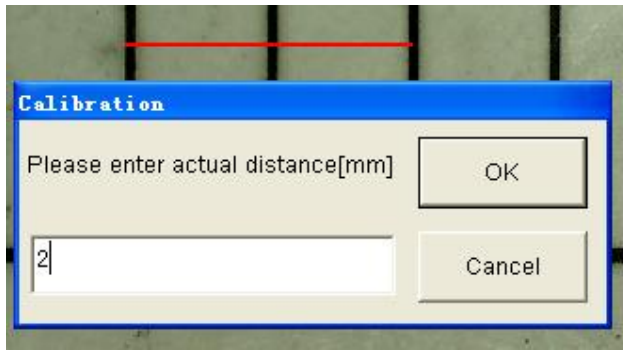
The software will automatically calibrate the scale of magnification and will show the calibrated scale of magnification at the right-hand box of calibration button as below:
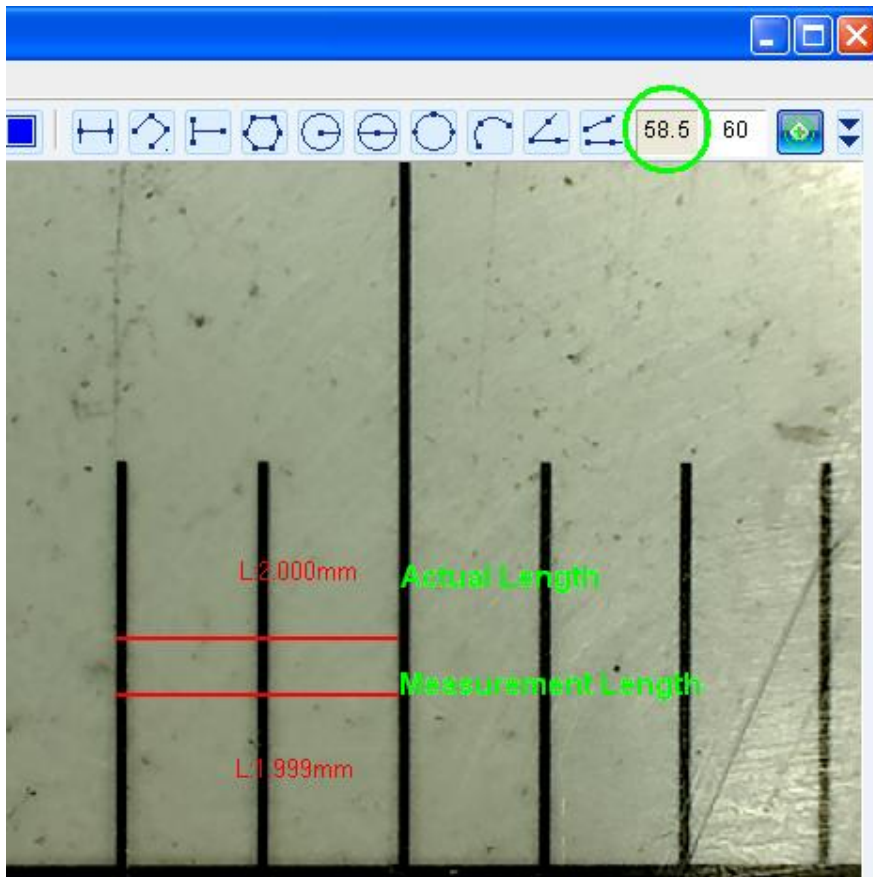
Now the calibration is completed, you can make measurement features accurately on taken images or real-time video at this focus point *(Don't adjust the "Focus & Magnification adjustment wheel").If the image you changed to view the object is not clearing, please only be able to adjust the distance between the microscope and the object till the image is clearing, and then capture the image to measure it*.

Measurement features on video:

Line Measurement

The line measurement allows you to measure the linear distance between two points.
Simply left click and drag to the desired length, and click again to finish.

Continuous Line Measurement

The continuous line function allows measurement of the distance between multiple connecting lines. Simply click and drag to form one section of distance, click again to start another section. Continue until the total desired distance is measured. Double click to finish.

Point to Line Measurement

The point to line measurement feature allows measurement of a line 90 degree from a certain line. Simply create a line to represent the base by clicking once to start, drag, and then click again to set the endpoint. Branch off from the base line to start measuring the line that is 90 degree from the base line and a final click to finish the measurement.

Polygon Measurement

The polygon measurement feature allows measurement of a polygon. Simply click and drag to form the desired length, and click again to start the next section, double click to finish the polygon measurement.

Radius of Circle Measurement

The radius of circle measurement allows you to measure the circumference, area, and radius of a circle. Simply click and extend out to the desired radius.

Diameter of Circle Measurement

The diameter of a circle measurement allows you to measure the circumference, area, and radius of a circle. Simply click and extend out to the desired diameter.

Three Point Circle Measurement

The three points' circle measurement allows the measurement of the circumference, area, and radius of a circle. Simply click on any three points on the circle you wish to measure.

Three Point Arc Measurement

The three points' arc measurement allows a measurement of an arc. Click on three consecutive points on an arc to measure.

Three Point Angle Measurement

The three points' angle measurement allows the measurement of an angle. Start at the pivot point and extend out to start measuring an angle.

Four Points Angle Measurement

The four points' angle measurement allows the measurement of an angle by selecting four points. Simply select two points from one line segment and another two points from another line segment to complete the angle measurement.

Photo Viewing and Measure

You can double-click the selected image in Photo folder to measure and view it as below shown:
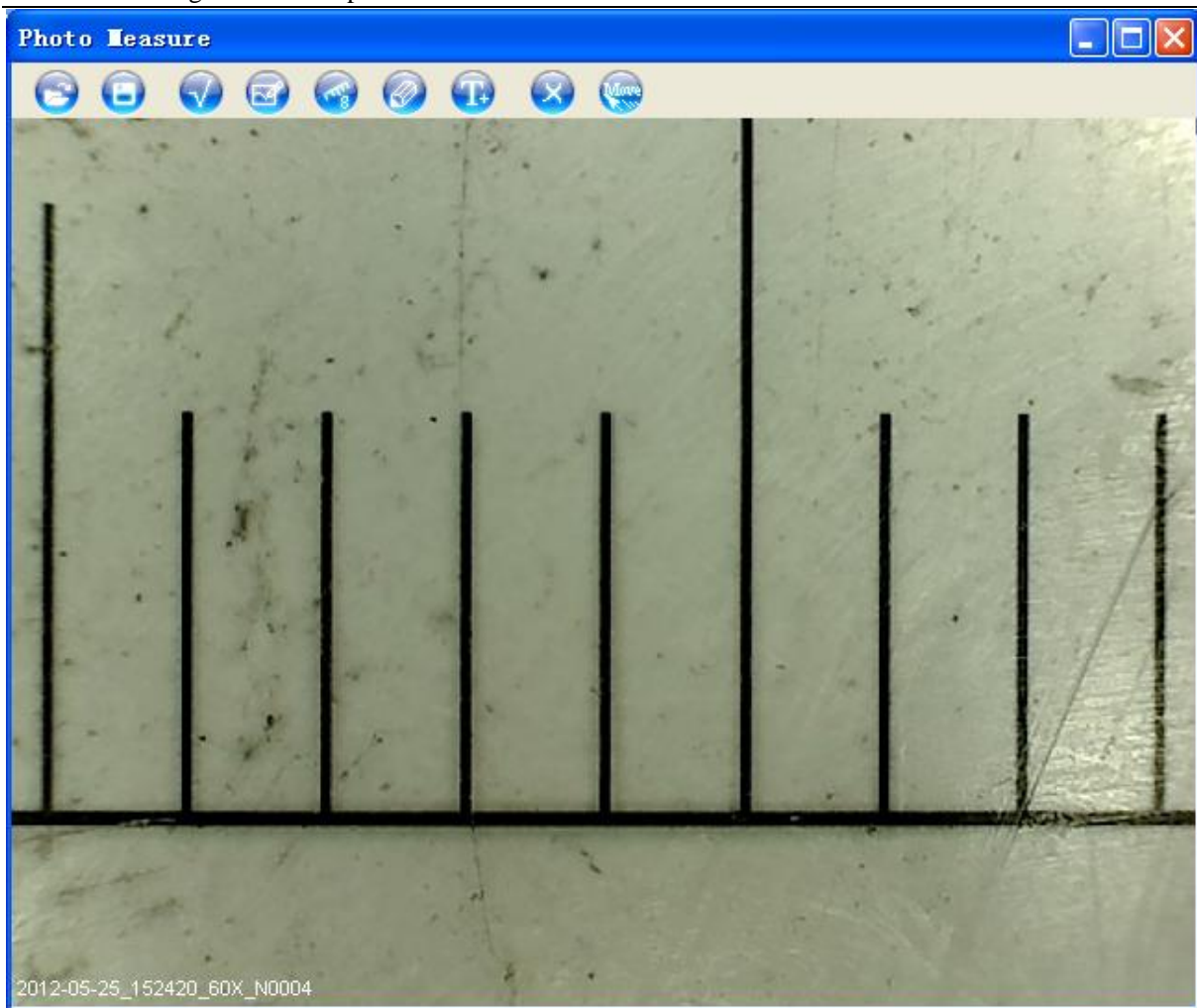
To obtain a more accurate measurement data, please calibrate firstly in live video window.

Image file name: Still_yyyy-mm-dd_hhmmss_nnnx_Nxxxx is combined by date, time, magnification and serial number. For example, Still_2009-03-06_102949_060X_N0002 figures: Number is 0002, magnification is 60, date is Mar-06-2009, time is AM10:29:49.

The program will auto load the magnification when you measured it if you finished the calibration function before you capture the image.

：Open an image for measure from other folder, but the image must be captured by PCE-MM200.

：Save as.

：Paint: you can draw "Line, Continuous Line, Angle, Rectangle and Circle etc into the image.

：Measure for "Line, Continuous Line, Rectangle, Polygon, Radius Circle, Diameter Circle, Three Points Circle, Angle and Four Points Angle".

：Pen setting for "Paint" and "Measure".

：Add text.

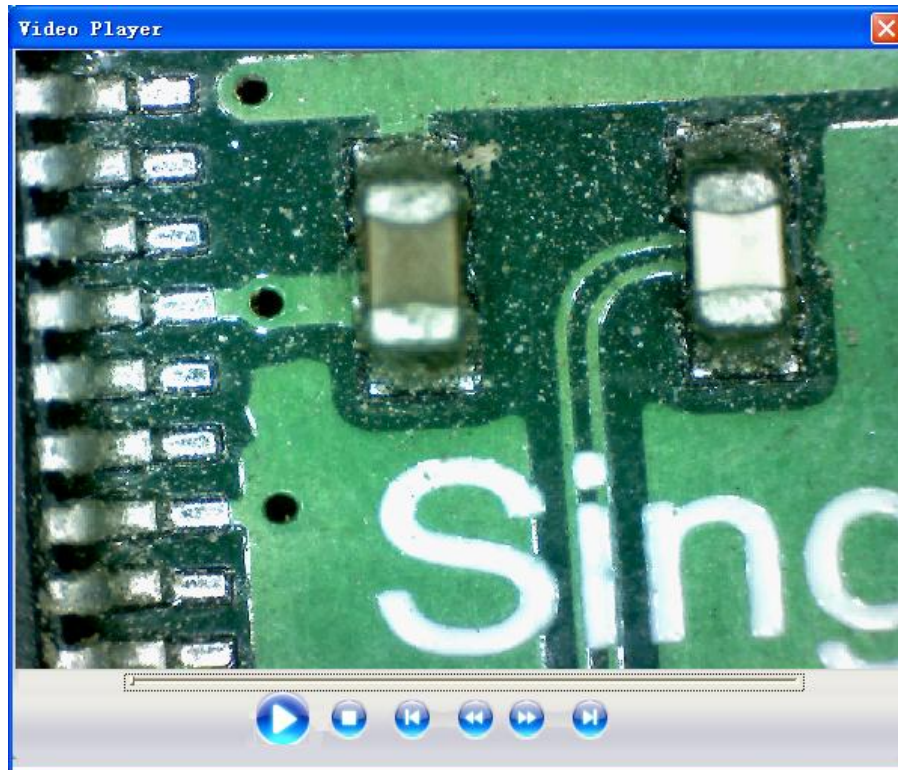：Delete the selected target.

: Move the selected target.

: Undo.

: Redo.

Video player

You can double-click the selected video in video folder to play back it as below shown:

Troubleshooting

Common Fix

A. If the PCE-MM200 device and PCE-MM200 application were working OK and suddenly stops working properly, Please try the following:

1. Unplug or Power off PCE-MM200 device from PC, close PCE-MM200 program.
2. After waiting for 1 minute, plug and power on PCE-MM200 device, open PCE-MM200 program to try

B. For under **Recommended PC specification (see 4th page),** maybe PCE-MM200 program does not work properly, please use PCE-MM200-Beta.exe on CD: run it directly—double click.

C. For Vista first version OS system (Nor Vista SP1), maybe there is this issue: there are not any images (black

screen) on preview area, please try: Toolbar->setting->default->Ok)

D. After PC resume from standby or hibernate, maybe PCE-MM200 will not work properly, please close it and re-open to try.

E. If USB PCE-MM200 microscope driver can't be installed completely, maybe your pc OS is not XP SP2 or above, please update it. If you installed the driver and application completely, but there is a tips: please connect PCE-MM200 device after running the program, please uninstall PCE-MM200 and reboot PC, then re-install PCE-MM200 to try again.

Q&A

Q1. Why the object cannot be found on the display of the PCE-MM200 microscope—black screen?
A: a. **If your PC USB port is USB 1.1 nor USB2.0, please use PCE-MM200-Beta.exe on CD to try.**
   b. Please put power switch on LED, then the illumination LEDs are light.
   C. **Please try to connect PCE-MM200 to another USB port, one by one to try.**

Q2. How to install PCE-MM200 application and driver?
A: a. Do not connect USB cable to PCE-MM200 Microscope before driver installation completed.
   b. Place installation CD into CD-ROM drive, and select "Install Software" to install.

Q3. How to uninstall driver and PCE-MM200 software?
A: In order to uninstall PCE-MM200 software, click on the uninstall utility from the Start button ->Control Panel -> Add or Remove Programs.

Q4. When connecting to PC, why the real-time display is slow or unsmooth?
A: a. Probably your PC's configuration is not sufficient enough. Please check the **Recommended PC specification** as mentioned in this User's Manual.
   b. Probably your PC's CPU or memory is overloaded by executing too many applications software. Try to close applications or restart your PC to release the memory.
   c. Probably your system has being attacked by virus, which may dramatically degrade your system's performance.

Importance Remark:

1. Maybe sometimes you need a few presses on the snapshot button to capture one image on Window 7.
2. It is right that it takes 10 sec to capture one image by pressing the snapshot button, because 5.0Mpixel image is a big size.
3. It is strong suggestion to disable the snapshot feature on PCE-MM200->setting->Snapshot disable, please use Hotkey F2 or click to capture image. Or the video preview will delay a little.
4. The Power dissipation is about 1W on 5Mpixel resolution, so the device temperature is about 40°C.