

CM1-USB

**USB Computer
Microscope**



Owner's Manual

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Thank you for choosing the Califone® USB Microscope (CM1-USB). Designed specifically for science applications in education settings, it is easy to use and quick to set up.

I encourage you to visit califone.com and register your microscope for its one year warranty coverage. While online, I also invite you to learn more about the full line of Califone audio visual products.

Sincerely,

Roscoe Anthony
President, Califone® International, Inc.

Warranty Coverage

The Califone USB Microscope is built to the same standards as the rest of our products which teachers rely on day in and day out. Califone warrants this player to be free from defective material and workmanship for one year from the purchase date. Our "Project Intercept" Customer Satisfaction program will replace defective parts and repair malfunctioning products under this warranty when the defect occurs under normal installation and use, provided the unit is returned to our factory via prepaid transportation only after the factory issues an RA (Return Authorization) number which must be clearly written on the outside of the box.

Unpacking your Microscope

Check the unit carefully for damage that may have occurred during transit. Each CM1-USB is carefully inspected at the factory and packed in a special carton for safe transport.

All damage claims must be made with the freight carrier

Notify the freight carrier immediately if you observe any damage the shipping carton or product. Repack the unit in the carton and await inspection by the carrier's claim agent. Notify your dealer of the pending freight claim.

Returning your unit for service or repairs

Should your unit require service, contact your dealer or our Customer Service Department at (800) 722-0500 or warranty@califone.com to obtain a Return Authorization (RA) number. All shipments to Califone must include an RA number on the carton and must shipped prepaid. C.O.D. shipments will be refused and returned at your cost.

Contents

- USB microscope w/ integrated USB cable
- This User Manual
- Driver CD
- Microscope Stand

Specifications

Sensor:	Color CMOS
Lens:	F2.4 2P M12 Lens
Focus Range:	Manual Focus from 50 mm-Infinite
Image Resolution Settings:	1280x960, 800x600, 640x480, 352x288, 320x240, 160x120
Color Resolution:	24bit true color
Frame Rate	Max:30 f/s Under 600 Lux Brightness
Flicker Control	50 Hz/60 Hz Option
Video Capture Format	AVI
Power Supply	USB Port (5V DC)
Capture Driver Compatibility	TWAIN/VFW/Direct Show AP (Driver)
Interface	USB1.1 & USB2.0 Compatible (4ft USB cable)
Snap Shot Capability:	Software and Hardware
Transmission rate:	320x240 30F/s, 640x480 15F/s
Signal/Noise ratio:	> 48dB (30F/s 220LUX)
Dynamic range:	> 72dB
Image focus:	4-5cm
Built-in image compression	
Automatic brightness adjustment with integrated bright white LEDs for lighting the subject	
Automatic color compensation	

Minimum System requirements

IBM PC or compatible PC or laptop with USB port
Pentium 700MHz
Windows 98SE/ME/2000/XP or Vista operating systems
20MB free HD space
CD-ROM drive
32MB RAM
VGA card w/ DirectX support

Installation

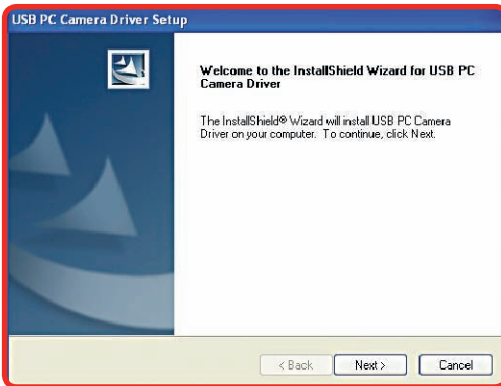


Step 1

Insert the driver/application disc into the CD-ROM drive. The installer screen will automatically open. Click the button with the name of your computer operating system to install the appropriate software.

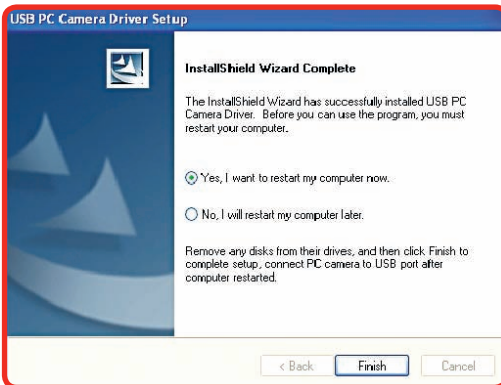
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Installation *continued*



Step 2

Click Next



Step 3

Click Finish



Step 4

Once the installation is finished, restart your computer or manually restart. Once restarted, then plug the microscope into the USB port on your PC. The system may perform some additional operations to complete the installation. Please allow the system to continue the installation and click finish when done. You may be prompted whether to "Continue or Stop" the installation.

Please click the "Continue" button.

When installation is completed, you will find the "Califone" folder with the shortcut to "CM1-USB Viewer" in Start Menu->Programs->Califone->"CM1-USB Viewer".

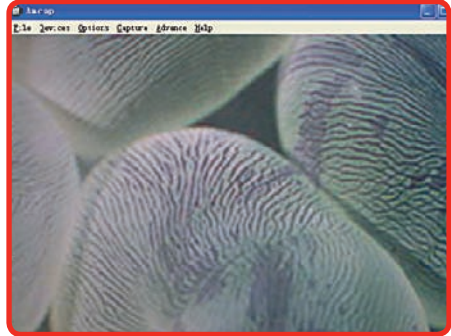
Operation

Viewing and focusing images

Click the "CM1-USB Viewer" shortcut and the image from the microscope will be displayed in real-time. If the image is not displayed and you have another device such as a webcam, you may need to select the "Devices" menu and change the input.



Adjust the wheel to manually focus.



Capturing images

Press the button on the microscope to take a snapshot of the image. The snapshot will display on the PC screen.



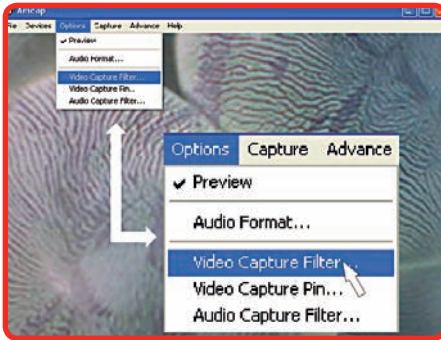
Adjusting capture settings and filters

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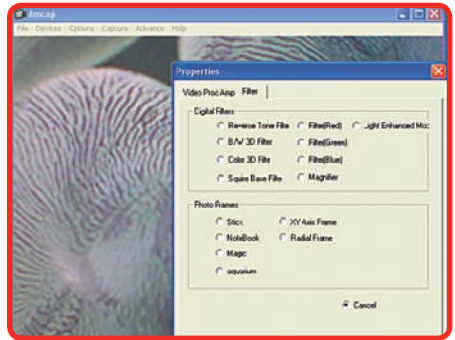
Operation *continued*

Displaying image

Click the “CM1-USB Viewer” shortcut and the image from the microscope will be displayed in real-time. If the image is not displayed and you have another device such as a webcam, you may need to select the “Devices” menu and change the input.



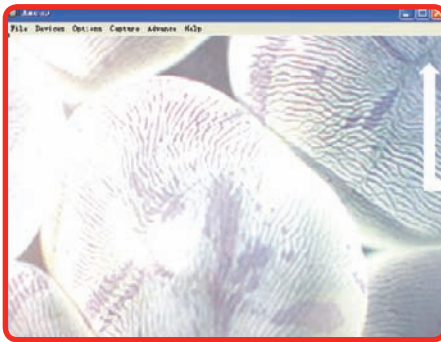
A: Select Video Capture Filter



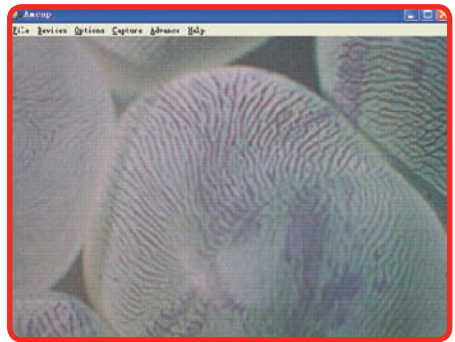
B: Click “filter”

Filtering images

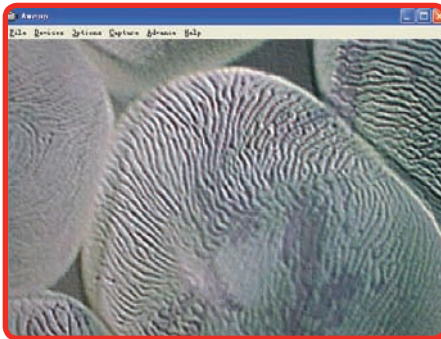
Different microscope filters can be used to highlight various features of the captured image.



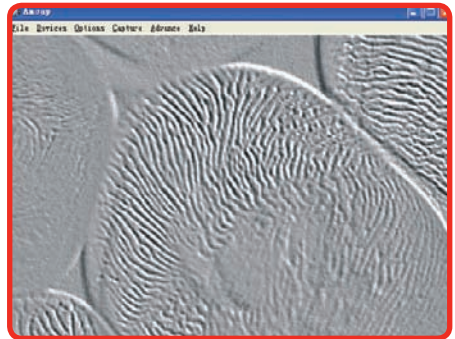
Light Enhanced Moc



Square Bace Filter

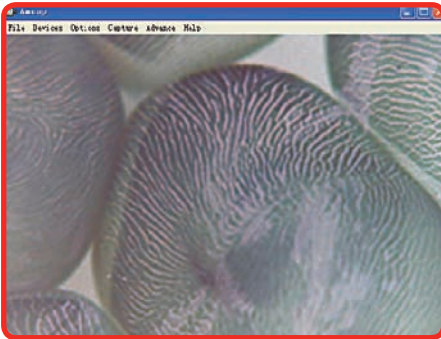


Color 3D Filter

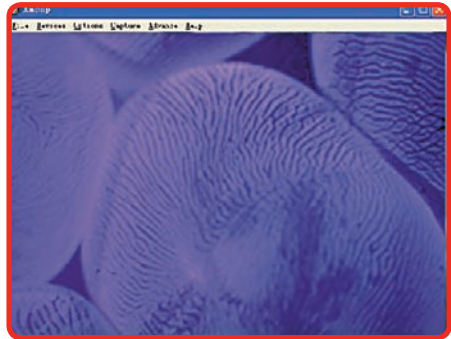


B/W 3D Filter

Examples of Filters *continued*



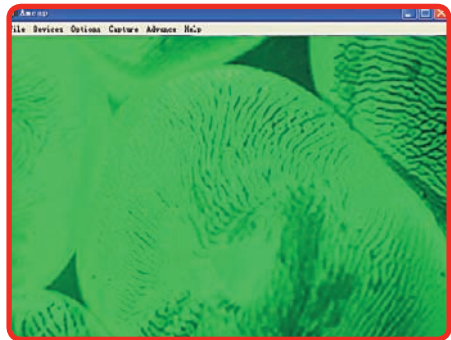
Reverse Tone Filter



Filter (Blue)

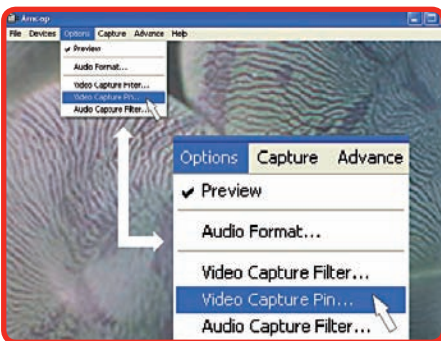


Filter (Red)

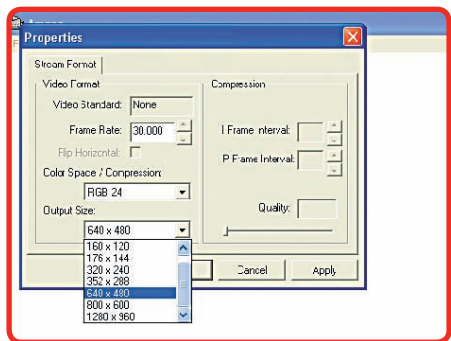


Filter (Green)

Selecting Image Resolution (Size)



A: Select Video Capture Pin



B: Choose the desired resolution

Warning

Avoid touching the lens with fingers or sharp objects which could damage the lens. Use a soft, clean cloth for cleaning. Avoid dropping the microscope. Severe shock to the microscope can cause damage to the lens or electronics.



CAUTION

RISK OF ELECTRIC SHOCK - DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER OR BACK. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.



The lightning flash with arrowhead within a triangle is intended to tell the user that parts inside the product are a risk of electric shock to persons.



The exclamation point within a triangle is intended to tell the user that important operating and servicing instructions are in the papers with the appliance.



This product is not designed to function normally in strong electromagnetic fields. Consequently, the audio quality may degrade while the product is exposed to strong electromagnetic fields. Normal audio quality operation will be recovered when the strong electromagnetic field is no longer present.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, SO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



Ce produit n'est pas conçu pour un fonctionnement dans de forts champs électromagnétiques. Par conséquent, la qualité sonore peut diminuer si ce produit est exposé à un fort champ électromagnétique. La qualité sonore redeviendra normale après affaiblissement du champ électromagnétique.

IMPORTANT SAFETY INSTRUCTIONS

ATTENTION: ALL SAFETY AND OPERATING INSTRUCTIONS SHOULD BE READ BEFORE OPERATING APPLIANCE. ALL OPERATING AND USE INSTRUCTIONS SHOULD BE FOLLOWED WHEN OPERATING THE APPLIANCE. HEED AND ADHERE TO ALL WARNINGS ON THE APPLIANCE AND IN THE OPERATING INSTRUCTIONS. RETAIN ALL SAFETY AND OPERATING INSTRUCTIONS FOR FUTURE REFERENCE.

WATER & MOISTURE - DO NOT USE THE APPLIANCE NEAR WATER; IE. BATHTUB, WASHBOWL, KITCHEN SINK, LAUNDRY TUB, WET BASEMENT OR SWIMMING POOL.

VENTILATION - DO NOT SITUATE THE APPLIANCE SO THAT ITS LOCATION OR POSITION INTERFERES WITH ITS PROPER VENTILATION. FOR EXAMPLE, THE APPLIANCE SHOULD NOT BE SITUATED ON A BED, SOFA, RUG OR SIMILAR SURFACE THAT MAY BLOCK THE VENTILATION OPENINGS. THE APPLIANCE SHOULD NOT BE PLACED IN A BUILT-IN INSTALLATION, SUCH AS A BOOKCASE OR CABINET, THAT MAY IMPEDE THE FLOW OF AIR THROUGH THE VENTILATION OPENINGS.

HEAT - SITUATE THE APPLIANCE AWAY FROM HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES OR OTHER APPLIANCES (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT.

POWER SOURCES - CONNECT THE APPLIANCE ONLY TO A POWER SUPPLY TYPE DESCRIBED IN THE OPERATING INSTRUCTIONS OR MARKED ON THE APPLIANCE.

GROUNDING OR POLARIZATION - PRECAUTIONS SHOULD BE TAKEN SO THAT THE GROUNDING OR POLARIZATION MEANS OF THE APPLIANCE ARE NOT DEFEATED.

POWER CORD PROTECTION - POWER SUPPLY CORDS SHOULD BE ROUTED SO THAT THEY ARE NOT LIKELY TO BE WALKED ON OR PINCHED BY ITEMS PLACED UPON OR AGAINST THEM, PAYING PARTICULAR ATTENTION TO CORDS AT PLUGS, CONVENIENCE RECEPTACLES, AND THE POINT WHERE THEY EXIT FROM THE APPLIANCE.

CLEANING - THE APPLIANCE SHOULD BE CLEANED ONLY AS RECOMMENDED BY THE MANUFACTURER.

NON USE PERIODS - UNPLUG THE APPLIANCE POWER CORD FROM THE OUTLET WHEN LEFT UNUSED FOR A LONG PERIOD OF TIME.

OBJECT & LIQUID ENTRY - CARE SHOULD BE TAKEN SO THAT OBJECTS DO NOT FALL AND LIQUIDS ARE NOT SPILLED INTO THE ENCLOSURE THROUGH OPENINGS.

DAMAGE REQUIRING SERVICE - THE APPLIANCE SHOULD BE SERVICED BY QUALIFIED SERVICE PERSONNEL WHEN: (A) THE POWER SUPPLY CORD OR THE PLUG HAS BEEN DAMAGED (B) OBJECTS HAVE FALLEN OR LIQUID HAS BEEN SPILLED INTO THE APPLIANCE (C) THE APPLIANCE HAS BEEN EXPOSED TO RAIN (D) THE APPLIANCE DOES NOT APPEAR TO BE OPERATING NORMALLY OR EXHIBITS A MARKED CHANGE IN PERFORMANCE (E) THE APPLIANCE HAS BEEN DROPPED OR THE ENCLOSURE DAMAGED.

SERVICING - THE USER SHOULD NOT ATTEMPT TO SERVICE THE APPLIANCE BEYOND THAT DESCRIBED IN THE OPERATING INSTRUCTIONS. ALL OTHER SERVICING REFER TO A QUALIFIED SERVICE PERSONNEL.



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