

DARAY[®]

HEALTHCARE PRODUCTS



VISION 600

INSTALLATION AND OPERATING MANUAL

DARAY[®]

HEALTHCARE PRODUCTS

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1. INTRODUCTION

Daray's Vision 600 digital biological microscope is a technologically advanced product successfully developed by perfectly combining superior optical microscope technology, advanced optoelectronic conversion technology, and sophisticated computer image-processing technology.

Its primary use is for the study and to assist analysis of microscopic biological imagery.

It can be used to capture, store, transfer and print images.

The 10x high eye-position and wide angle ocular lens as standard allows a user wearing glasses to view images with ease. Each ocular lens is provided with fine adjustment to compensate for binocular errors. Coaxial coarse and fine tuning can be performed at a lower position.

Technologies, such as multiple-plated film, anti-astigmatism, chromatic aberration correction and anti-mildew are applied to all optical components.

The Vision 600 digital biological microscope is designed for and used in the areas of biology, bacteriology, histology and pharmaceutical chemistry, and also in clinical experiment in medical practice and teaching in laboratories in schools.

It is suitable for use in biological, pathological, bacteriological observation, teaching, specialised research, clinical experiment and conventional medical check-up conducted in medical and public health organisations, laboratories, research institutes and institutes of higher-learning.

Optional accessories such as phase-contrast, dark-field and polarization devices are available for this microscope.

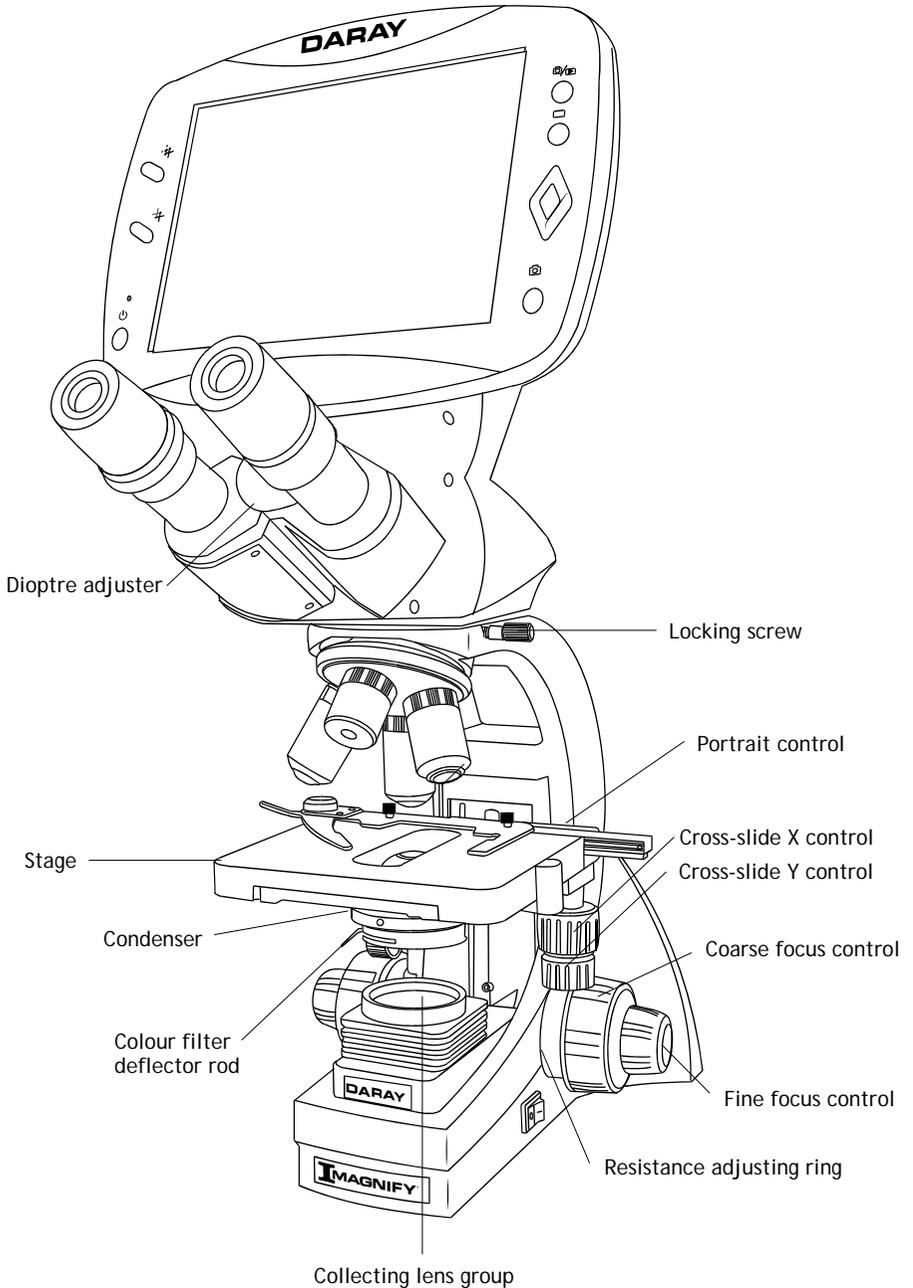
2. SPECIFICATIONS

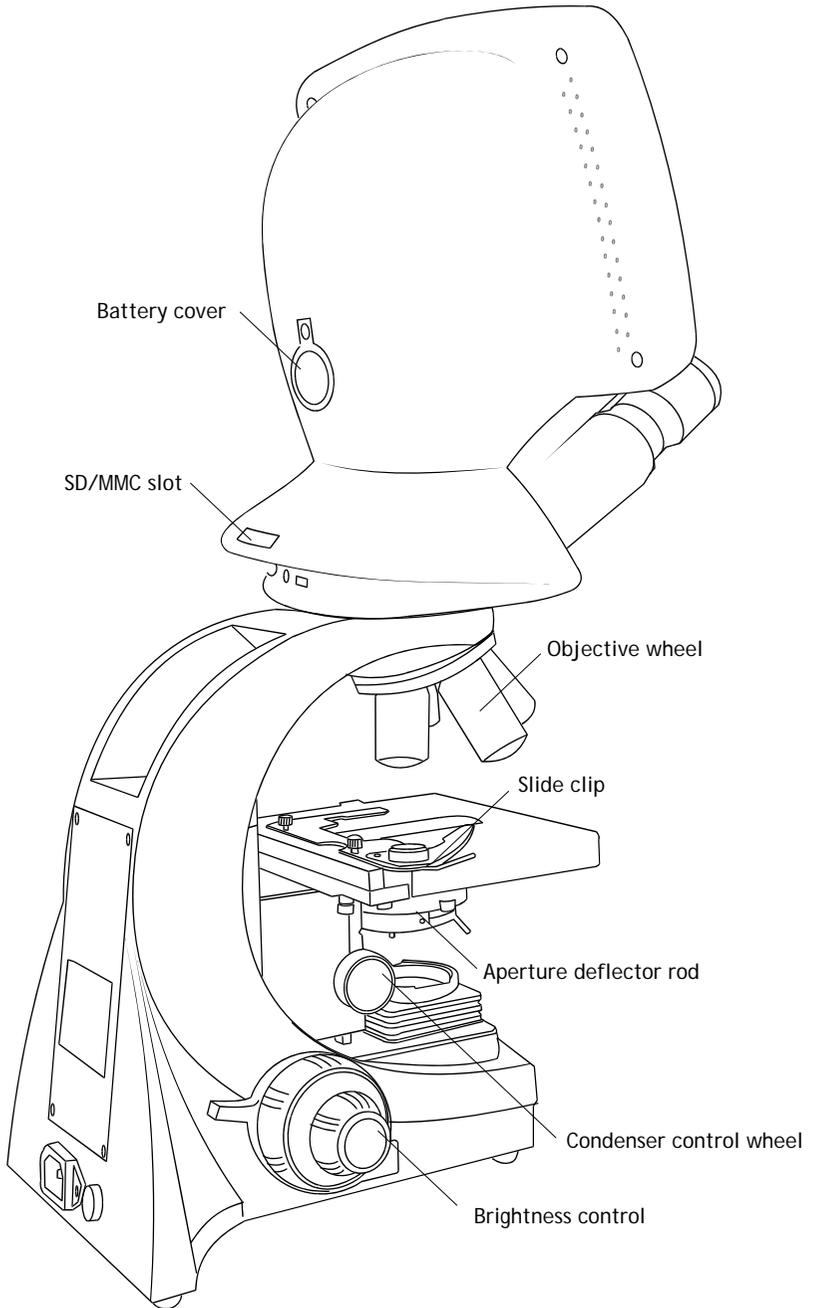
General	
Microscope body	Upright
Eyepiece	Extra-wide view and high eye-point ocular
Separation of ocular tubes	52 - 75mm
Objective	Plan achromatism 4X, 10X, 40X, 100X
Display screen	8.0" TFT LCD
Image sensor	3 mega pixels COMS
Total X factors	108X - 2700X
Power input	12V DC 3.0A
Digital ports	USB, SD/MMC card, AV
Lighting source	LED lighting device for microscope, soft light, long service life (approx. 10,000 hours), low heat.
Stage	Double layer movable stage: Moving range:
Iris diaphragm	Ø2 - Ø30mm adjustable iris diaphragm
Colour filter	Yellow Green Blue
Condenser	Abbe condenser: N.A. 1.25
Focusing	Coaxial coarse And fine focusing mechanism
Net weight	About 7.7kg
Gross weight	About 13.4kg

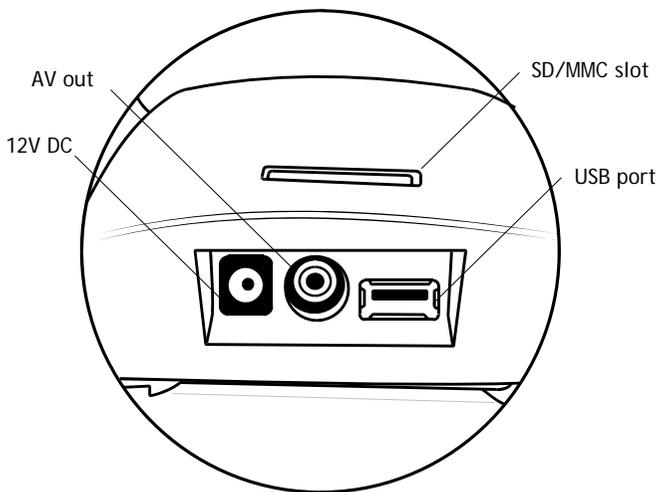
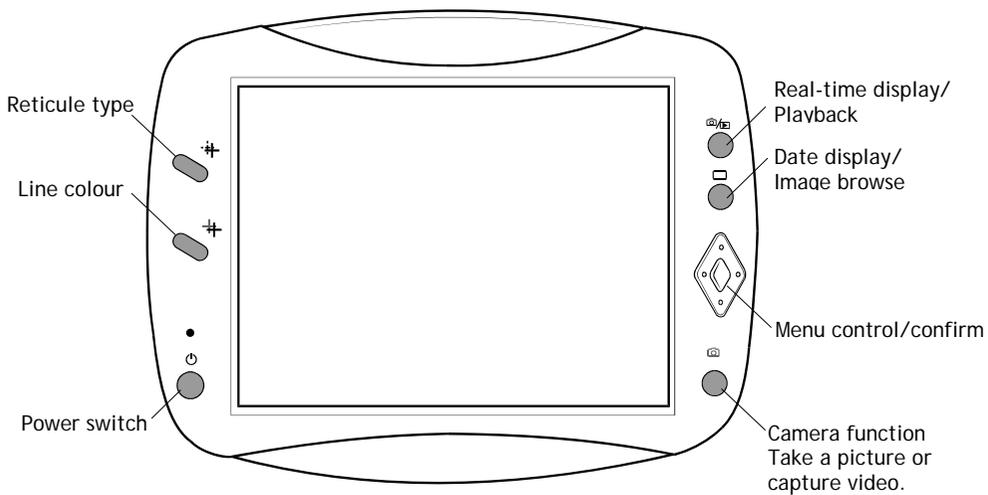
Objectives (plan achromatism)			
X factors	Numerical aperture (NA)	Cover glass thickness (mm)	Working mode
4X	0.1	0.17	Dry
10X	0.25	0.17	Dry
40X	0.65	0.17	Dry
100X	1.25	0.17	Oil

Optical magnification				
Ocular Objectives	4X	10X	40X	100X(Oil)
High eye point wide field of view 10X	40X	100X	400X	1000X
WF 16X	64X	160X	640X	1600X

3. CONTROLS







4. INSTALLATION

Direct light affects image contrast and affects quality of vision. Choose a working area without direct light, place the V600 away from windows and not facing a window as

V600 working environment

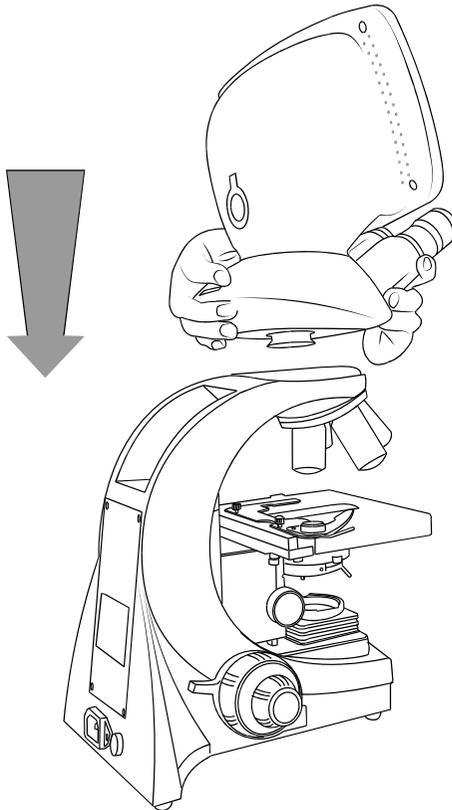
- Environment temperature: 0° - 40°
- Maximum relative humidity: 85%
- Too high a temperature or humidity produces fogging or moisture on the microscope, and can harm the equipment.
- Avoid dirty environments, and use a dust-cover when not in use.

Be careful when unpacking to avoid lenses and other accessories falling out of the box.

Check the packing list.

Undo the locking screw. Remove the plastic dust cap on the crank.

Install the main head of the microscope as illustrated below, and tighten the locking screw.



5. OPERATION

Ocular installation

Take off the dust-cap on the ocular. Insert the required ocular.

Objective installation

Lower the object stage to the lowest limit.

Remove the plastic dust cap on the objective converter.

Whilst still in their plastic containers and in order of from low to high, screw in the objectives anticlockwise into the converter, according to the magnification X indicated and tighten. Do not over-tighten.

Input voltage check

The supply voltage should be the same as the input voltage marked on the bottom of power adapter, otherwise it can seriously damage the microscope.

Colour filter installation

If a colour filter is required, swing out the deflector rod on the colour filter stage clockwise, place the colour filter on the stage, then swing back the deflector rod anticlockwise.

Press the power switch. The screen displays "Welcome". The LED ring lamp will illuminate.

Adjust the brightness control.

Rotate the objectives converter. Place the 4X objective into light-path.

Turn condenser up/down control to place the condenser in a suitable position. The condenser should be raised when a high magnification objective is needed and lowered when a low magnification objective is needed.

Place the specimen to be observed into the centre of object stage. Hold it in place with the slide clip.

Use the cross slide X/Y controls to adjust the position of the specimen.

Make sure the cover glass is uppermost when placing the slide as the specimen will not be visible when high magnification objectives are used.

Adjust the iris diaphragm deflector rod to set the aperture iris diaphragm to its central position.

To avoid the specimen colliding with the objectives, the object stage should be raised first setting the specimen close to the objectives, then lower the specimen to focus.

Turn the coarse focus control to lower the specimen while looking at the image on the screen until the outline of the specimen is visible. Adjust focus with the fine focus control until the image of the specimen is clear. You can now change objectives at this time to reach parfocalization without collision with the specimen.

Individual dioptre adjustment

Whilst viewing, turn the dioptre adjusting ring on the left and right eyepieces to make the image clear.

Adjust the pupillary distance.

Hold the outside of the eyepieces and turn them to make the distance apart suitable for your pupillary distance and the focused image overlap through the eyepiece images is observed.

Aperture iris diaphragm

Adjust the size of aperture iris diaphragm to achieve an image with good contrast.

When switching between objectives and a blurred outline of the object is viewed, focus the image with the fine focus control again.

5.1 NOTES

- When using a 100X oil objective, you should add right amount of special oil between objective and specimen; between glass slide and condenser.
- While using high magnification objectives, the thickness of the cover glass should be $0.17\text{mm} \pm 0.01$, otherwise it will affect image clarity.
- The tightness of the coarse focus control is preset. If it's too loose (object stage glides automatically under its own weight), turn the resistance adjusting ring clockwise to tighten.
- Left and right coarse focus controls should be turned in the same direction. Turning the controls in different directions will damage the focusing mechanism.

Adjusting the contrast grade of object image

Fine contrast of object image can be achieved by adjustment of the brightness of the light source and size of aperture iris diaphragm.

Adjust the aperture iris diaphragm to fill 70% - 80% of objectives with image. If you want to see the aperture iris diaphragm image, take off the ocular and the aperture iris diaphragm image can be observed from the empty ocular tubes.

5.3 Data Shown On The LCD Screen

Displayed in the upper left corner is the total number of images that can be stored, or the remaining video recording time (with 143 indicating 143 photos available to be taken in the currently setup mode; 50:24 indicating the remaining video recording time as 50min 24sec).



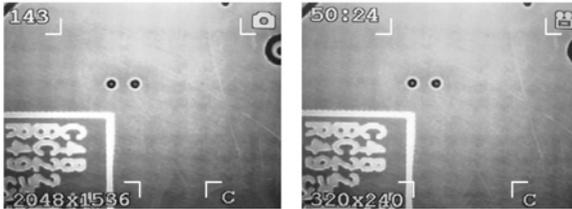
displayed in the upper right corner indicates photo mode.



displayed on the upper right corner indicates video capture mode.

The image resolution is indicated in the lower left corner.

C shown on the lower right corner means that an SD card is inserted.



5.4 User-defined reticules



Set reticule type (cross line, co-ordinates, lattice or none)



Set reticule colour.



5.5 Menu



Press the menu button to enter the menu and cycle through the options using the left and right keys. Use the up and down keys to choose items, press menu again to confirm.

1. Photo/video mode
2. Image Setting
3. Image Size
4. Date and time
5. TV Out
6. Frequency
7. Language selection

a. Photo mode / Video Mode

You can select single photo or video capture.

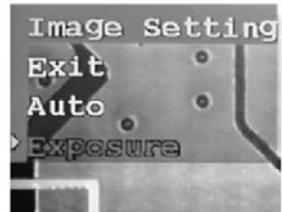
Select single photo at the photo mode menu and press the photo button. The microscope will take a photo.

At the photo mode menu and select the video 320x240, press the photo button to start AVI video recording. Press the photo button once more to stop the AVI video recording.



b. Image Setting

Choose auto or exposure. Exposure time can be between -1.5s and +1.5s



c. Image Size

Choose different resolutions



d. Date and time

Set the day, month, year, hour, minute and second. The up/down, right/left and centre 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

Choose NTSC or PAL



f. Frequency

Choose 50Hz or 60Hz



g. Language.

Set the user-interface language here



Digital Zoom function menu

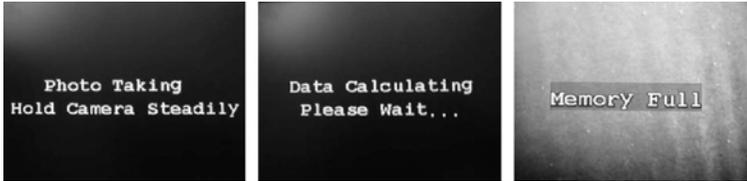
Press the Up/down keys

When the system is in real-time view mode, press the up/down keys to digitally zoom the image from 1.0X to 4.0X. The digital zoom function can help you get a clearer view.

5.6 Photo Capture and Photo Management

Select single photo in photo mode menu and press the take photo button, the system will save a photo. In photo mode menu select the video 320x240, press the take photo button to start AVI video capture. Press the take photo button again to stop the AVI video recording.

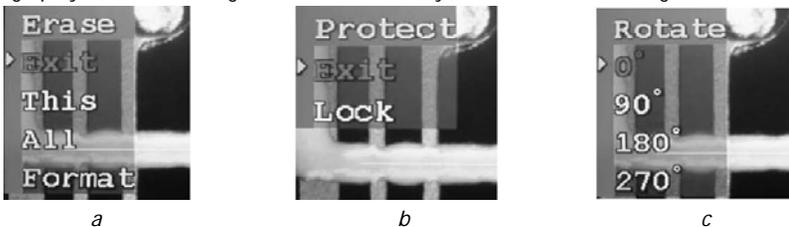
When the SD/MMC card memory is full, the system will show "Memory is full".



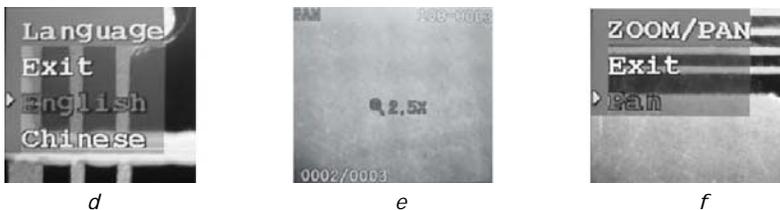
Press  for image playback

In image playback mode you can delete individual images or delete them all. You can transfer the images to a computer via USB.

In image playback mode using the function menu, you can do the following:



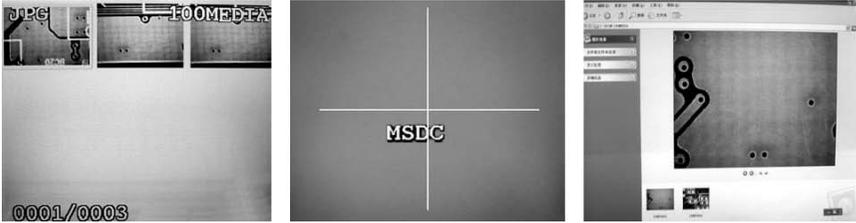
a.	Delete images
b.	Protect the images from deletion button.
c.	Rotate images by different angles



d.	Choose menu language
e.	Whilst digitally zooming the image from 1.0X to 4.0X, press the screen data display button.
f.	PAN will be displayed in the top left corner. You can pan the image using the up, down, left, right keys. Use menu to exit.

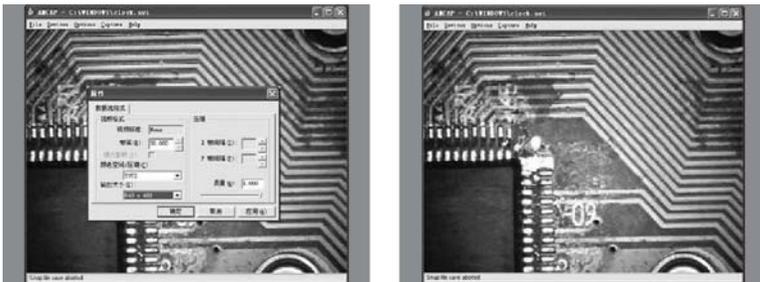
5.7 USB Data Communication

When the system is in image playback mode, use the USB connection to transfer data to the computer.

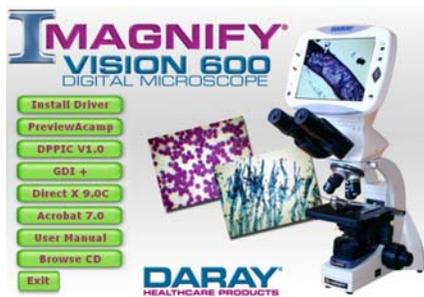


When the system is in real-time mode, use the USB connection the computer, to view the image in real-time on your computer.

5.8 Preview Acamp Software



Choose the camera; select the Use computer to view the image format of the image to view the image. Included is a CD-ROM containing software for image capture and drivers for the VISION 600. It is recommended to install the software & then the drivers.



5.9 Image Viewing

A better image may be achieved on a TV or monitor using the AV output of the Vision 600 as LCD screen is limited to 640x480 pixels. Similarly, the size of photo taken with the microscope may reach 2048x1536, and the image will be displayed much better on a PC.

6. TROUBLESHOOTING

Optical		
Problem	Possible cause	Solution
Dark edge on display screen or low brightness of field of view.	Converter isn't in the fixed position (objectives aren't centred)	Turn to the fixed position
	Aperture iris diaphragm is too small	Enlarge the aperture iris diaphragm
	Brightness control is incorrect	Adjust brightness control
	The position of condenser is too low	Adjust the condenser up/down control
	Dirt on surface of lens	Wipe with an absorbent cotton cloth with isopropanol
Different brightness in field of view	Converter isn't in the fixed position	Turn the converter to the fixed position
	Dirt on surface of lens or specimen	Wipe with an absorbent cotton cloth with isopropanol
Bad image quality. Poor definition, low contrast, not clear	Specimen without cover glass	Add cover glass
	Specimen cover glass is wrong size	Use standard cover glass (0.17mm)
	Specimen slice is inverted	Make the cover glass face upwards
	Immersion oil on dry objectives (especially 40X)	Wipe to clean
	Dirty surface of lenses (condenser, objectives ocular, collecting lens)	Wipe to clean
	No oil or old oil on high magnification objectives	Use random immersion oil
	Bubbles in immersion oil	Turn converter repeatedly or add new oil
	Aperture iris diaphragm is wrong	Adjust the size of aperture iris diaphragm
	Dirt on eyepiece	Wipe to clean
Collision with specimen at high magnification x focusing	The position of condenser is too low	Raise the condenser position
	Specimen slice is too thick	Use standard specimen slice
No overlap of image in binocular	Specimen slice is inverted	Make the cover glass face upwards
	Pupillary distance isn't adjusted correctly	Adjust again
Dirt in field of view or on screen	Specimen slice is too thick	Use standard specimen slice
	Dirt on lenses (condenser, objectives, ocular, collecting lens)	Wipe to clean
	Dirt on specimen	Wipe to clean
One side of the image is dark	The position of condenser is too low	Adjust the condenser position
	Condenser isn't in the centre of field of view or condenser inclines	Install the condenser again and adjust the central screw carefully
	Converter isn't in fixed position	Turn the converter to fixed position
	Specimen is floating	Secure specimen
Tired observation	Dioptré is different between eyes	Adjust dioptré rings again
Moving image	Specimen floats on surface of objectives	Should be placed stably
	Converter isn't in fixed position	Turn the converter to fixed position
Yellow image	No blue colour filter	Use blue colour filter
Low illumination brightness	Aperture iris diaphragm is too small	Adjust the aperture iris diaphragm
	The position of condenser is too low	Correct the condenser's position
	Dirt on lens (condenser, objectives, ocular, collecting lens)	Wipe to clean

Mechanical

Symptom	Cause	Solution
Cannot focus using high magnification objectives	Glass slide is inverse	Turn over the slide
	Cover glass is too thick	Use standard thickness cover glass (0.17mm)
Contact with the slide changing objectives from low magnification to high	Glass slide is inverse	Turn over the slide
	Cover glass is too thick	Use standard thickness cover glass (0.17mm)
Unsmooth move of specimen	Film clip isn't gripping the slide properly	Ensure proper placement in clip
No overlap of image in binocular	Pupillary distance is wrong	Adjust the pupillary distance
	Wrong dioptre adjustment	Adjust dioptre properly

Electrical

Symptom	Cause	Solution
Power LED isn't on	Power isn't connected properly	Check the plug and connections
Low illumination brightness	Voltage is too low	Adjust the brightness
LCD screen isn't lit	Power isn't connected properly	Check the plug and connections
Blurred image on LCD	Poor focusing of the microscope	Adjust the fine focus control, adjust the aperture of iris diaphragm and position of condenser on the microscope while keeping a clear binocular image

7. Maintenance

To prolong the service life of your Vision 600 microscope, please take notice of the points below.

- The optical system of the microscope has been professionally calibrated at the time of manufacture. Only professional optical engineers should attempt dismantle or adjust the microscope internally.
- The appliance should be used in a cool and dry environment and without dirt, corrosiveness or steam.
- Fill the space between specimen and objectives, between specimen and condenser with microscope oil when 100X oil objectives are used. There should be no impurities and bubbles which affect the observation in the oil. Light repeated turning of the objectives converter can dispel bubbles in oil. Wipe to clean the microscope with absorbent cotton cloth dipped with isopropanol immediately after use.
- Heavy objects should not be placed on the object stage to avoid damage.
- If the observing head, objectives, condenser, collecting lens are not used for long time, they should be placed in dry container to avoid mould and fog on the surfaces.
- Cover the appliance with a dust cover and disconnect from the mains when not in use. Objectives and ocular should be place in mirror case after use, cover the ocular eyepiece tube with eyepiece tube cover.
- Maintenance of LCD screen. Do not apply pressure to the surface of the screen while using and storing it. When the surface of the screen is dirty, lightly wipe the screen with clean and soft cloth. Do not use organic solvent to clean it.
- The mains power supply should have an earth connection.
- The Vision 600 is a precision instrument. Avoid shocks and rough-use as this may permanently damage the device.
- Unplug from the AC power socket before cleaning the appliance.

Cleaning the lenses

- Wipe away dirt with a soft brush or some gauze.
- More stubborn stains such as fingerprints, oil etc. can be wiped with clean and soft cotton, lens tissue or gauze dipped with anhydrous (pure) alcohol (ethanol or methyl alcohol) lightly.
- To wipe off the immersion oil from oil lens, use lens tissue, soft cotton or gauze dipped with isopropanol to wipe off lightly.
- Warning: many cleaning products are flammable; pay attention to fire hazards, especially when switching on or off power.

Cleaning the paint or plastic surface

- Avoid using any organic solvent (alcohol, ether etc) to clean the paint or plastic surface; instead use gauze. Stubborn stains can be clean by using isopropanol.
- Plastic surface can only be cleaned by using soft cloth dipped with isopropanol.

Storage

- Cover the appliance with plastic cover and store it in dry environment.
- The objectives and ocular should be stored in dry container with a drying agent (silica gel sachet). Regular periodic inspection for faultless performance is recommended.

8. ACCESSORIES

Polarized Light Device
Contrasting Device
Advanced Dark Field Device

Returns Policy

IMPORTANT!

Before returning your item, you must call us on 0844 375 9000

We want you to be completely satisfied with your purchase. If you need to return goods purchased from DARAY Ltd, please read the following information carefully.

The DARAY Ltd returns policy provides guidance on when you can return goods we have supplied, and what you can expect from us once you do. To see our detailed returns policy and procedure visit www.daray.co.uk/returns

TYPE OF RETURN	REMEDY
DAMAGED GOODS OR DOA* Goods which are physically damaged on delivery, or which do not function.	We must be notified within 24 hours of receipt.
GOODS DEVELOPING A FAULT Goods which have developed a fault within the warranty period.	Within 14 days of delivery we will replace the item as DOA*. If the fault develops after 14 days, but within the warranty period, we will initiate the returns procedure.
NON WARRANTY Goods which have developed a fault outside the warranty period.	If a fault develops outside the warranty period, we will initiate the returns procedure.
OTHER Any situation which is not covered by the above.	We will try to help, but we cannot normally offer a refund.

*DOA - dead on arrival

For additional clarification, please refer to our terms and conditions at www.daray.co.uk/terms.

In a small number of cases, we may determine that a replacement would not work any better than the original product we supplied. In such cases we will only offer a refund rather than a replacement for qualifying returns.

Replacement bulbs are not eligible for returns, unless they are faulty or damaged.

Spare parts ordered on our website or from supplied part codes are not be eligible for credit. We will accept returns and exchange for the correct item.

If you purchase an item incorrectly you can return it within 14 days and it can be exchanged for another product of equal or high value, excluding transportation charges incurred.

If you send us goods that do not qualify for return, you will invalidate your claim to any refund, and you will be obliged to compensate DARAY Ltd for the cost of return postage and any other reasonable costs incurred processing the goods.

Your statutory rights are not affected.

Warranty

TERMS AND CONDITIONS OF WARRANTY

1. To qualify for this warranty you must register on www.daray.co.uk or return to Daray Ltd (Daray) the duly completed warranty-registration form accompanying the product.
2. Daray warrants this product (excluding lamp) against faulty material and workmanship during the period of the warranty. The period of warranty is the period stated on your warranty card and commences on the date of purchase of the product. In the event that the product is not in good working order Daray will provide, during the warranty period, a free repair service within the United Kingdom. The warranty is subject to proof of purchase being provided; therefore, you should retain your original receipt.
 - 2.1 The repair service consists of the provision of spare parts and/or replacement products (at Daray's discretion) which will be provided on an exchange basis and will either be new, equivalent to new or reconditioned. All replaced spare parts and products shall become the property of Daray.
 - 2.2 Daray's only obligation under this warranty is the provision of the service as set out above.
 - 2.3 All products are returned to Daray at the customer's cost and risk. Products to be returned should be adequately packed. For the address to send returns to please visit www.daray.co.uk
3. Daray's arrangements for providing service provided under this warranty may include the use of sub-contractors.
4. This warranty does not cover damage or defects in the Product caused by or resulting from:
 - Wilful neglect or negligence by anyone other than Daray;
 - Improper use, storage or handling of the product;
 - Use of non-Daray approved parts (such as replacement lamps) not compatible with the Product;
 - Fire, accident or disaster;
 - Use of non-Daray modifications other than in accordance with Daray's instructions;Attachment of fittings and accessories not approved by Daray;
Repairs, modifications carried out by service personnel not approved by Daray;
 - Damage caused by chemical corrosion from cleaning agents not approved by Daray.
 - Failure to use or install the product in accordance with the manufacturer's instructions.
5. Nothing in this warranty shall have the effect of restricting or excluding the liability of Daray in respect of:
 - a) Death and personal injury caused by the negligence of Daray, or for fraud;
 - b) Under the *Consumer Protection Act 1987* to a person who has suffered damage caused by a defective product or to a dependant or relative of such a person;
 - c) Direct damage to your property caused by the proven negligence of Daray.
6. This agreement does not give any rights other than those expressly set out above and in particular, Daray will not be responsible for any loss of income, profits or contracts or any direct or indirect consequential loss, damage caused to or suffered by the purchaser as a direct result of this agreement.
7. This warranty is offered (subject to these terms and conditions) in addition to, and does not affect your statutory rights.
8. Daray may disclose your details and other personal information to companies within the Daray group including any subsidiary company or sub contractor of Daray for the purposes of performing our obligations hereunder.
9. You must not resell outside the UK any products supplied by Daray and covered by the *Export of Goods (Control) Order 1992* (or any law that replaces it) without obtaining all necessary licences. You also agree not to sell the product in the UK if you know or think that the person buying the product intends to export it without getting the necessary licences. You agree to impose similar conditions to these on anyone you sell the product to.
10. These conditions shall in all respect be governed and construed in accordance with English law and the exclusive jurisdiction of the English courts.

DARAY[®] HEALTHCARE PRODUCTS

WARRANTY REGISTRATION
TO VALIDATE YOUR WARRANTY
PLEASE COMPLETE IN BLOCK CAPITALS
AND RETURN IN A WINDOWED DL ENVELOPE
TO OUR FREEPOST ADDRESS

ALTERNATIVELY REGISTER ONLINE AT WWW.DARAY.COM



1 YEAR WARRANTY

NAME:	
COMPANY:	
EMAIL:	
PHONE:	
FAX:	

ADDRESS:

--

PURCHASED FROM:

--

DATE OF PURCHASE:

--

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Marquis Drive
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DE12 6EJ

Occasionally DARAY would like to send you information about our special offers and promotions. If you do not wish to receive such information, please tick here:

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SERIAL No:

DARAY[®]
HEALTHCARE PRODUCTS

ILLUMIN[™]The logo for ILLUMIN features the word "ILLUMIN" in blue, followed by a stylized "S" shape in purple and pink that loops around the end of the word. A small "TM" trademark symbol is positioned above the "S".

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IMAGNIFY[®]

VitalSignZ[™]

LifeSignZ[™]

BioSignZ[™]

NfuZe[™]

VetZ[™]



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