

UVIDOC[®] HD6

QUICK START USER GUIDE

UVITEC
CAMBRIDGE



UVIDOC[®] HD6

QUICK START USER GUIDE – V17

The FULL version of this USER GUIDE – V17 is available on your CD.

Thank you

Dear Customer,

On behalf of Uvitec Ltd, we would like to thank you for choosing the UVIDOC HD6 imaging system.

In order to learn the capabilities of your UVIDOC HD6 imaging system, we kindly ask you to read this manual. This manual details how to install and to operate the hardware and the software components.

Uvitec Ltd is dedicated to your satisfaction and we will be pleased to answer any question you may have. We are also very receptive to your suggestions. Many of the new features and enhancements in this system are a direct result of conversations with our customers. Please do not hesitate to contact us to let us know what you would like to see in the next version of this system.

You can contact us at the following addresses:

⇒ Email: info@uvitec.com

⇒ Contact address: Uvitec Limited
Unit 36, St John's Innovation Centre
Cowley Road
Cambridge
CB4 0WS
United Kingdom
T. +44 (0)1223 421270
F. +44 (0)1223 421271
Email: uvi@uvitec.co.uk

Do not hesitate to visit our website at www.uvitec.co.uk

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Introduction

Prerequisites

The User Guide provides you with the instructions needed to operate, and maintain the UVIDOC HD6 imaging system in a safe way.

In order to operate the UVIDOC HD6 imaging system in the appropriate way, the following prerequisites must be fulfilled:

- You have read and understood the safety instructions in this User Guide, particularly in regards of UV danger.
- You should be qualified to use general laboratory equipment and to handle biological materials.
- You should use the instrument only for the intended purpose of gel and blot image acquisition in research laboratories.
- You accept the terms and conditions of the end user license agreement
- The instrument is connected to a grounded power source and to a circuit breaker.
- The instrument is installed by a Uvitec Ltd representatives.
- This instrument is suitable for research use only and shall not be used in clinical procedures, or for diagnostic purposes.
- Some techniques or reagents for generating and / or detecting light in biological samples are patented and may require licenses from third parties. Users should independently determine for themselves whether their activities infringe any valid patent before operating the UVIDOC imaging system.
- Some UVIDOC HD6 configurations involve UV illumination. This instrument should be used only by trained personnel who know the health risks associated with the UV radiation normally associated with this instrument. Users should be trained on the appropriate personal protection gear for working with UV light to minimize UV exposure.

About the UVIDOC imaging system

The UVIDOC imaging system is a scientific instrument designed to capture fluorescence or colorimetric gel images. The UVIDOC system uses the UVITEC-1D software to control image capture and optimization for selected applications

A scientific camera is used to capture high resolution digital images of protein and DNA bands in gels obtained by electrophoresis separation methods. The instrument can capture images of fluorescent, and colorimetric samples, depending on the system configuration.

The instrument can be used for research purposes in the academia and life sciences industry. The instrument cannot be used for diagnostic purpose.

UVIDOC offers exquisite precision and resolution, which mean reliable results for both quantification and documentation. The advanced imaging electronics has been developed by our experts especially for your scientific applications. This association of our exclusive electronic, high-quality optics and advanced software delivers outstanding performance. With UVIDOC, you simply reach the lowest limits of detection on all of your samples.

The UVIDOC system is supply with the UVITEC-1D software for image quantification and FTP access to the UVIDOC system.

Warranty

The UVIDOC imaging system is warranted against faulty construction or defective material for a period of two years from the Uvitec Ltd invoicing date. If any defect occurs in the instrument during this warranty period, Uvitec Ltd will repair or replace the defective parts at its discretion without charge. The following defects, however, are specifically excluded:

- Defects caused by improper operation, incorrect use or bad maintenance
- Repair or modification done by anyone other than Uvitec Ltd or the company's authorized agent
- Use of spare parts supplied by anyone other than Uvitec Ltd.
- Damage caused by accident, misuse or disaster
- Corrosion caused by improper solvents or samples

This instrument should not be modified or altered in any way. Modification or alteration of this instrument will:

1. Void the manufacturer's warranty.
2. Void the conformity certifications.
3. Create a potential safety hazard.

The light sources (LED panel, UV tubes ...), the filters, the power supplies, the batteries, and the consumables are not covered by our warranty. The use of consumable products or non-original spare parts not recommended by our service department is at the user's own risk and therefore automatically invalidates the warranty.

We reserve the right to decide where the faulty goods will be repaired (in our workshop or elsewhere), and whether or not the faulty part is to be replaced; all other freight charges incurred being at the cost of the purchaser. Returned goods will not be accepted for repair unless previous written authorization is obtained from our service department. A request for authorization must be accompanied by an itemized list of products, model numbers and the corresponding invoice numbers under which they were originally shipped. All returned goods should have a certificate of decontamination. The Buyer must bear all costs and risks incurred during the transportation of the goods from their collection at Uvitec Ltd factory. In the case Uvitec Ltd incorporates some devices or equipment from another supplier in the manufacture of its products, the extent and the duration of the warranty will be those conceded by the suppliers or sellers.

Uvitec Ltd cannot be held responsible for any loss, bodily injury or material accident incurred by any failure of this supply, whatever the origin of this failure may be. Uvitec Ltd is not responsible for any injury or damage caused by use of this instrument for purposes other than those for which it is intended, or by modifications of the instrument not performed by Uvitec Ltd. The responsibility of Manufacturer is strictly limited to its staff and to its own supplies. In the case of dispute, only the commercial court of Cambridge (United Kingdom) shall be competent, even in third party claims proceedings or when there are several co-defendants.

Safety instruction

Introduction

The UVIDOC imaging system is powered by mains voltage, may be equipped with a UV light source, and is used to capture images of samples that may be hazardous. Before installing, operating or maintaining the instrument, you must be aware of the hazards described in the user documentation. Follow the instructions provided to avoid personal injury or damage to the instrument.

Safety notices

This user documentation contains safety notices (WARNING and UV WARNING) concerning the safe use of the product. See definitions below.



WARNING

Whenever you find this pictograph, be sure to refer to this Manual.

WARNING indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury. It is important not to proceed until all stated conditions are met and clearly understood.



UV WARNING

Whenever you find this pictograph, be sure to refer to this Manual.

UV WARNING indicates an imminently hazardous UV radiation situation which, if not avoided, could result in serious injury. It is important not to proceed until all stated conditions are met and clearly understood.



NOTICE

NOTICE indicates instructions that must be followed to avoid damage to the instrument or other equipment or to ensure the instrument is properly working.

General precaution



WARNING

Do not operate the UVIDOC imaging system in any other way than described in the User Manual.



WARNING

Use of this instrument in other ways than those specified in the user documentation may result in physical damage because of exposure to irradiated light or electric shock or injury from touching an operating part.



WARNING

Do not use the UVIDOC imaging system in dangerous atmosphere or with dangerous materials for which the UVIDOC imaging system has not been designed for.



WARNING

Do not use the instrument if smoke, atypical noises or odors can be perceived, or if the instrument becomes unusually hot as this may result in fire or electric shock. Stop using the instrument immediately, turn off the power switch, and unplug the instrument from the power outlet. Contact Uvitec Ltd representative to request repair.



WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

Do not pour liquids directly on or inside the instrument.

Switch off all the lights immediately after use.

Clean the transilluminator platen after use.



WARNING

Ensure that all the ventilation-opening systems are not obstructed. The obstruction of the air admission grids may affect the performance of the system and cause operational failure. To ensure adequate cooling ensure there is at least 40 cm of free space in front of the instrument and at least 10 cm on all other sides to walls or other equipment.



WARNING

The use of accessories not supplied by Uvitec Ltd can damage the system or create safety hazard.



WARNING

When using hazardous chemicals, take all suitable protective measures, such as wearing protective glasses and gloves resistant to the substances used. Follow local and/or national regulations for safe operation and maintenance of the system.



WARNING

Do not use the instrument within or near a sink, or in humid (above 70% RH) or dusty environments. This can result in fire or electric shock.



WARNING

As the equipment is heavy, it cannot be carried by one person. Two service person are necessary when moving or relocating safely the main body of the equipment. If the equipment drops, it may be broken, or you may get seriously injured if it drops on your foot.



WARNING

Do not touch the light source in the instrument. The light source may be hot.



WARNING

- Do not place objects on top of the instrument.
- Use the handle to open or close the instrument door.
- Handle sample trays with care to avoid dropping them.
- Do not leave samples in the instrument after exposure. If left, these may degrade and cause damage to the instrument.
- Do not disable the interlock of the equipment as UV light can be emitted if the door is opened.
- Do not open the instrument door during exposure. This will stop the exposure and image data will be corrupted.
- Do not use abrasive cleaning materials for cleaning. This may cause damage to the instrument.
- Do not use excessive amounts of liquids for cleaning

Important UV safety information



UV WARNING

In any UV WARNING situation, the operator should wear appropriate safety glasses or a protective mask and gloves. UV radiation can be dangerous for unprotected eyes and skin; therefore we recommend the user to wear UV protective goggles (LP-70) or face-shield (MP-80 or MP-800). Protect all skin surfaces (including the neck, ears, and hands).

Use of the UV transilluminator acrylic protective screen does not guarantee the user protection from UV radiation. The use of protective goggles, mask, and/or gloves is strongly recommended

This instrument should be used only by trained personnel who know the health risks associated with the UV radiation normally associated with this instrument. Users should be trained on the appropriate personal protection gear for working with UV light to minimize UV exposure.

In its lowered position, the UV-Pad or UV transilluminator's acrylic shield provides UV protection. However, it does not provide complete protection to the user. In its raised position, the acrylic shield does not protect others who are standing in the area around the imager.



UV WARNING

Do not touch the UV unit after UV exposure. There is a risk of skin burn.



UV WARNING

The instrument is equipped with a safety interlock. If the interlock is out of order or has been tampered with, UV and visible light may be emitted, which may cause skin burn and impair vision. Do not open the instrument door during imaging operation.



WARNING: The non-respect of these instructions can cause very serious burns to the user when the instrument is in use.

WARNING: Ultra Violet light is dangerous for unprotected eyes and skin, therefore the user must wear UV protective goggles (Ref. LP70) or a face-shield (Ref. MP-80 or MP-800)

SAVE THESE INSTRUCTIONS

AVISO: Durante el uso del instrumento, no seguir las instrucciones puede causar quemaduras graves al usuario.

PRECAUCION: La radiación ultravioleta puede ser peligrosa para los ojos y la piel expuestos sin protección. Para protegerse, es imperativo usar gafas o una máscara.

CONSERVAR CUIDADOSAMENTE ESTAS INSTRUCCIONES.

AVERTISSEMENT: Lors de l'utilisation de cet appareil, le non-respect des instructions peut provoquer de graves brûlures à l'utilisateur.

ATTENTION : Le rayonnement ultraviolet est dangereux pour les yeux et la peau exposée sans protection, il est impératif de porter des lunettes (Réf. LP70) ou un masque de protection (Réf. MP-80 ou MP-800).

CONSERVER SOIGNEUSEMENT CES INSTRUCTIONS

AVVERTIMENTO: Durante l'utilizzo di questo apparecchio, il non rispetto delle istruzioni può provocare bruciature gravi all'utilizzatore.

ATTENZIONE: I raggi Ultra Violetti essendo pericolosi per gli occhi e la pelle esposti senza protezione, è obbligatorio portare gli occhiali (Ref. LP 70) oppure una maschera di protezione (Ref. MP-80 o MP-800).

CONSERVARE CON CURA QUESTE ISTRUZIONI.

WARNUNG: während der Benutzung dieses Gerätes kann die Missachtung der Anleitung schwere Verbrennungen an Personen hervorrufen.

ACHTUNG: Ultraviolettes Licht ist gefährlich für ungeschützte Augen und die Haut. Der Benutzer ist daher angehalten, eine UV-Schutzbrille (Art. LP-70) oder ein Schutzschild (Art. MP-80 oder MP-800) zu tragen.

BEWAHREN SIE DIESE ANLEITUNG SORGFÄLTIG AUF

警告：使用此组件时，若不遵从使用指导将导致严重烧伤！

警告：紫外线对眼和皮肤有害，操作者必须佩戴紫外防护眼镜（货号：LP70）或面罩（货号 MP-80 或 MP-800）

请保存使用指导！

警告：機器の使用に際して、説明書の指示に従わない場合、使用者が重大な熱傷をこうむる場合があります。

警告：紫外線は裸眼や保護されていない皮膚にとって危険です。使用者はUV保護眼鏡（Ref. LP70）またはフェースシールド（Ref. MP-80またはMP-800）を装着する必要があります。

将来のためにこれらの説明書を保管しておいてください

Important electrical power safety information



WARNING

Connect the UVIDOC imaging system to an appropriate AC voltage outlet that is properly grounded and protected by a circuit breaker. Connecting to ground constitutes an obligatory protection.



WARNING

Power down the system and disconnect the AC main from the unit before performing any disassembly or repair the instrument.

The system must be unplugged from the AC voltage outlet if it is not intended to use it before a long time.



WARNING

Before plugging or unplugging the camera cables, ensure the system is off and disconnect the UVIDOC imaging system from the AC voltage outlet.



WARNING

Do not damage the power supply cord by bending, twisting, heating or allowing them to become pinned under the equipment. Using damaged power cords could result in fire or electric shock. If the power supply cords are damaged, contact us for replacements.

Never pull the cable itself. Disconnect the cable only by grasping the plug.



WARNING

Do not block access to the power switch and power cord. The power switch must always be easy to access. The power cord with plug must always be easy to disconnect.



WARNING

The UVIDOC imaging system has -serviceable fuses which are located on the rear panel and are a part of the power entry module. See the Maintenance chapter of this guide for information about replacing the fuses



WARNING

All the equipment connected to this instrument shall be certified according to IEC 60950 standard.



WARNING

In case of thunder, do not touch the power supply plug, as this can result in electric shock.



WARNING

Turn off the power switch before cleaning the inside of the instrument.



WARNING

Do not turn off power during image acquisition as this can cause loss of data and damage the instrument. Only turn off power in an emergency situation.



WARNING - Electrical shock hazard.

All instrument repairs or modifications should be performed by service personnel authorized by Uvitec Ltd. Do not open any covers or replace parts unless specifically stated in the user documentation.

UVIDOC HD6 system installation

Unpacking the system



WARNING

The UVIDOC imaging system is powered by mains voltage, may be equipped with a UV light source, and is used to capture images of samples that may be hazardous. Before installing, operating or maintaining the instrument, you must be aware of the hazards described in the user documentation. Follow the instructions provided to avoid personal injury or damage to the instrument.

Please, open the UVIDOC HD6 box carefully and verify the contents:

UVIDOC HD6	1
Power cable	1
Instruction manual	1
UVITEC-1D software CD-Rom inside the instruction manual	1

⇒ Remove carefully each component from the box.

⇒ To remove the UVIDOC HD6 from the box, please use the belts which surround the system and designed for this purpose

⇒ Do not handle the system by the camera or the camera support.

⇒ Remove their protective plastic cover.

⇒ Place the darkroom at its permanent location, the door facing forward. The cabinet has to be placed near the computer used for image acquisition.



WARNING

It is recommended that the UVIDOC HD6 darkroom be carried by at least two people – one on each side- holding the instrument from the bottom side. Be sure that the door is properly closed when carrying the instrument.



The imager weighs 30kg. Using two people, place the imager onto the benchtop given proper space, electrical and environmental requirements. Remove the outer packaging materials.



WARNING

Do not connect the power cable to a power source until all connections are made. The power source has to be grounded and protected by a circuit breaker.



WARNING

The UVIDOC HD6 system is designed to fit a specific voltage. Please, check the voltage to ensure it corresponds to the UVIDOC HD6 specifications.



WARNING

Please keep an open area of at least 20 cm at the rear of the cabinet to ensure a proper air circulation for the system. The system should be located in an area free of excessive dust or moisture, strong magnetic fields or ionising radiation. It is also recommended that the ambient temperature be stable and within the range of 15°C to 25°C (20°C recommended) and that the relative humidity not exceed 70%, non-condensing.



WARNING

Ensure that all of the systems ventilation openings are free of interference. Excessive heat build-up in the instrument may effect performance or cause operational failure.

The UVIDOC HD6 system should be located away from water, solvents, or a corrosive material, on a bench top that is dry and stable. The system should be placed away from interfering electrical signals and magnetic fields. A dedicated electrical outlet should be used to eliminate electrical interference from other instrumentation in your laboratory



WARNING

Do not defeat any instrument interlocks; they are designed to prevent user injury.

It is compulsory to power down the system and disconnect the AC mains from the unit before performing any disassembly or repair to the system.



UV WARNING

The use of the UVIDOC HD6 involves ultraviolet (UV) illumination. Proper precautions must be taken to avoid eye and skin exposure to the UV light. This instrument is meant for use only by specialised personnel that know the health risks associated with UV radiation and the chemicals that are normally used with this instrument.

Installing the hardware

Environmental conditions

Placement	Place the UVIDOC HD6 on a level-working surface. The imager requires a stable laboratory bench or table capable of supporting 100 kg. The UVIDOC HD6 is intended for indoor use only.
Free space	LCD panel operation free space required: 50 cm Right, left, rear and top minimum free space required: 10 cm
Other conditions	<p>Do not install the equipment near a window and avoid direct sunlight. We recommend attached blinds to nearby windows</p> <p>Do not install the instrument where it may get wet or flooded</p> <p>Do not install the instrument in a dusty environment</p> <p>Do not install the instrument in a place constantly or excessively exposed to vibration or impacts (next to a centrifuge or to a compressor for instance)</p> <p>Remove all hot or heat source near the UVIDOC HD6, specifically from the air intake.</p> <p>Do not place objects near the power outlet to ensure easy access to the power cord for disconnection in case of emergency.</p>
Environmental conditions	<p>Temperature: 18°C to 25°C</p> <p>Humidity: 20% to 70% RH (no dew condensation)</p>

Imager back side



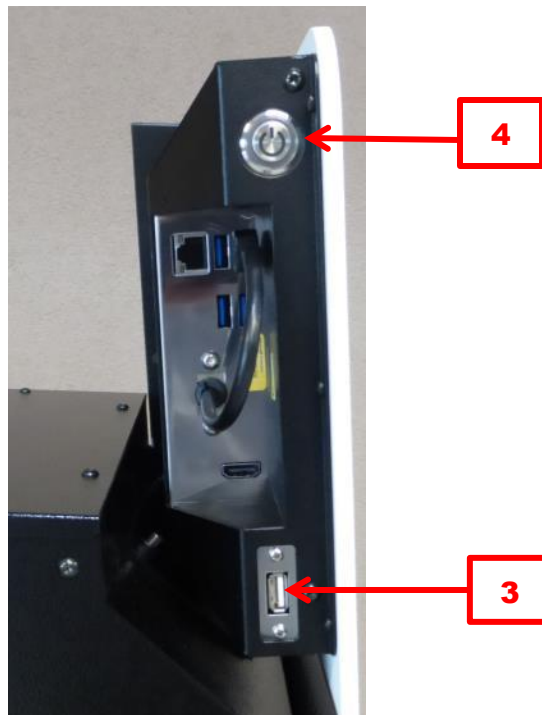
The system power supply and main switch are positioned at the back side of the instrument.

Connect the imager power cord to the power supply plug (1) and plug into a grounded power outlet. A grounded circuit capable of delivering the appropriate current and voltage is required for installation. Electrical requirements is located on the imager label on the rear panel of the imager

Switch on the main switch (2) to position 1 – on.

If required, switch off the main switch (2) to position 0 – off.

The main switch provides power to all of the imager components



The imager is operated by an integrated computer, which is accessed through the touchscreen. The integrated computer mother board connectors can be accessed from the back left side of the screen. When delivered to you, the Uvidoc HD6 camera and the darkroom control board USB connections are already plugged to the build-in computer mother board.

The camera USB cable is connected to the mother board USB3 port.
4 alternative USB ports could be used. A mouse and a Keyboard could also be connected to these ports.
For network connection, a LAN network port is also available

The USB port of the left side of the instrument (3) is designed to hold your USB key drive for image saving.
The imager on/off switch (4) starts or stops the Uvidoc HD6 and activates the internal computer, touch screen and thermoelectric camera.

Operating instruction

Warning while using the darkroom



UV WARNING

Switch off the transilluminator when gel is not present on the UV filter. If the filter is too hot, it will damage your electrophoresis gel.



UV WARNING

Wait for at least 20 second in the "High" position before reducing the intensity selector to "Low".



UV WARNING

If one or several tubes are off or used, and in order to keep a better homogeneity, we recommend to change the 6 tubes simultaneously.

Imager front side – Door open

The Uvidoc HD6 intelligent darkroom technology allows:

- Software control of the lighting
- Automatic white light intensity adjustment according to the sample position
- Precalibrated focus for all defined zoom preset

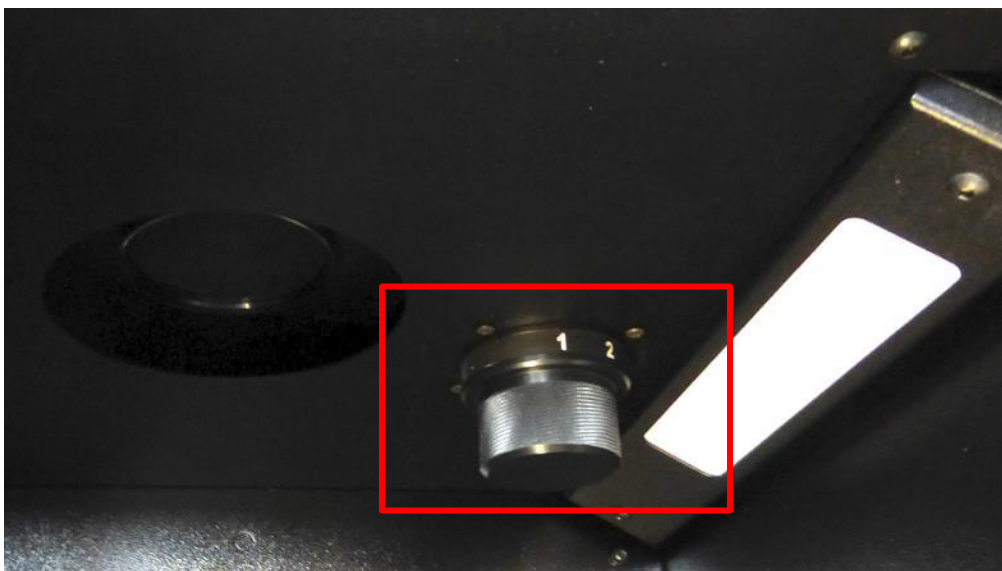
When the door is open, you can access the slide-out transilluminator, the door UV security switch (9) and the on/ off button (8) of the transilluminator.



Press twice the transilluminator on/off button (8) to switch on the transilluminator light while the door is opened. The white light switch on automatically when the door is opened.

Filter wheel

The Uvidoc HD6 main switch is located inside the darkroom.



The 3 positions filter wheel is equipped with the F590 M58 interferential filter supplied with the system for Ethidium bromide application. **The F590 Ethidium bromide filter is attached to the position 1.**

To select the filters, turn the black handle and select the position of your choice.

To install a filter, select the filter position using the handle and screw the filter in its dedicated holder.

System operation

Introduction

This chapter describes how to operate the UVIDOC HD6 imaging system.

Before to operate the UVIDOC HD6 system, it is important that you have read and understood the safety information. Make sure to read this User Guide relevant safety instructions before you start to operate the system.

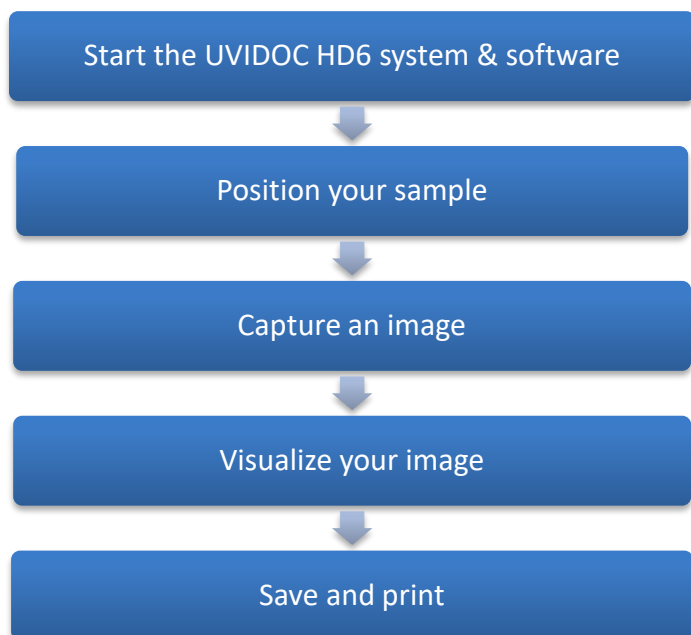


WARNING

Do not operate UVIDOC HD6 system in any other way than described in the User Manual.

The UVIDOC HD6 instrument is a high-end ultra-sensitive scientific camera platform, designed to extract the lowest level of detection from your protein or DNA sample. Our superior sensitivity, resolution and dynamics provide optimal performance across a large array of applications.

The standard imaging process is as follows:



Start the UVIDOC HD6 system & software

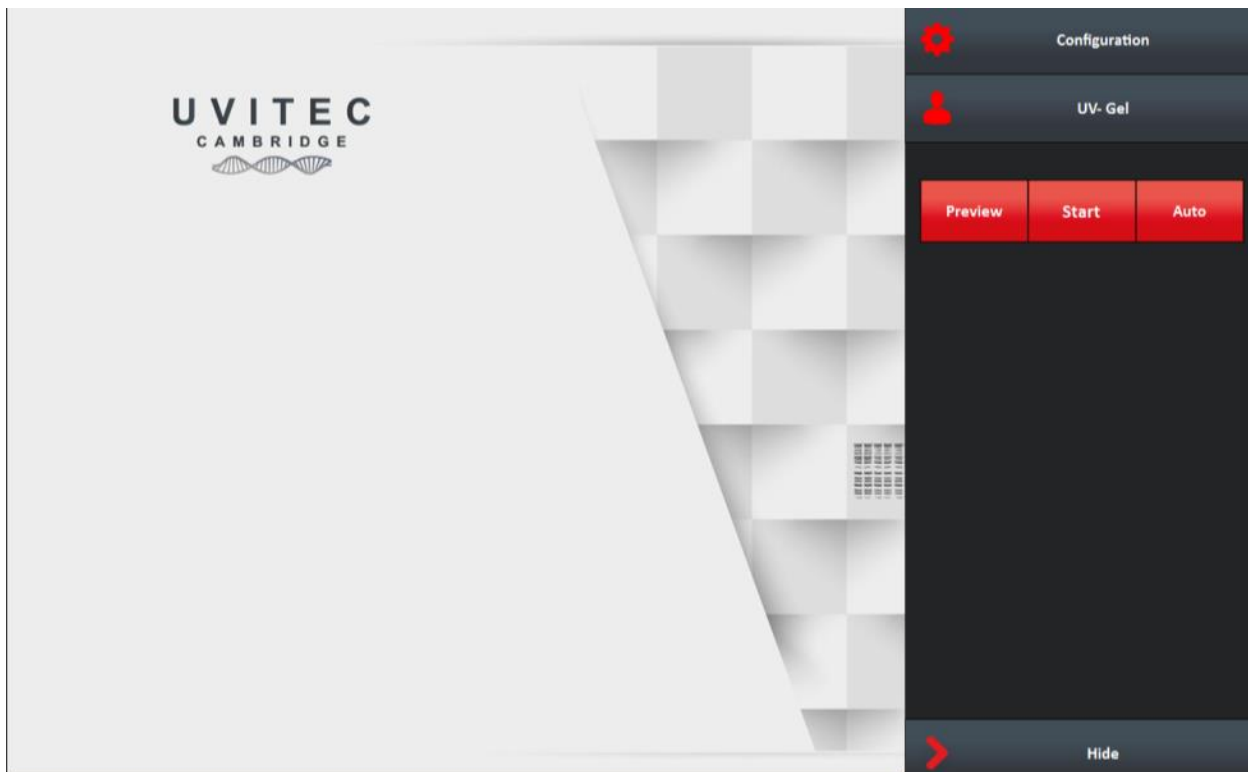
Switch on the UVIDOC HD6 system

On the left hand side of the imager, press the power button to the position I, to turn it on.

After the computer has booted up completely, the following messages are displayed until the Uvidoc HD6 system is ready for image acquisition:

Waiting for camera driver initialization. Please wait...

When system is ready, the start menu appears on the display:



Capture an image

This chapter describes the steps to acquire an image.

Fluorescence image acquisition

Fluorescence is the main method used for gene expression and protein detection. It results from a process that occurs in molecules known as fluorophores. The fluorophore absorbs the excitation light, reaching a higher energy state. By returning to its former state, it emits fluorescent light.

The Uvidoc HD6 system separates the emitted light from the excitation light in order to obtain an optimum sample image. According to the configuration, the Uvidoc HD6 can accommodate several excitation and emission channels in the visible, and UV area and is ideal for a large array of applications such as 1D DNA gel, 1D protein colorimetric samples, multiplexing, stain free gel and blot.

Image capture workflow

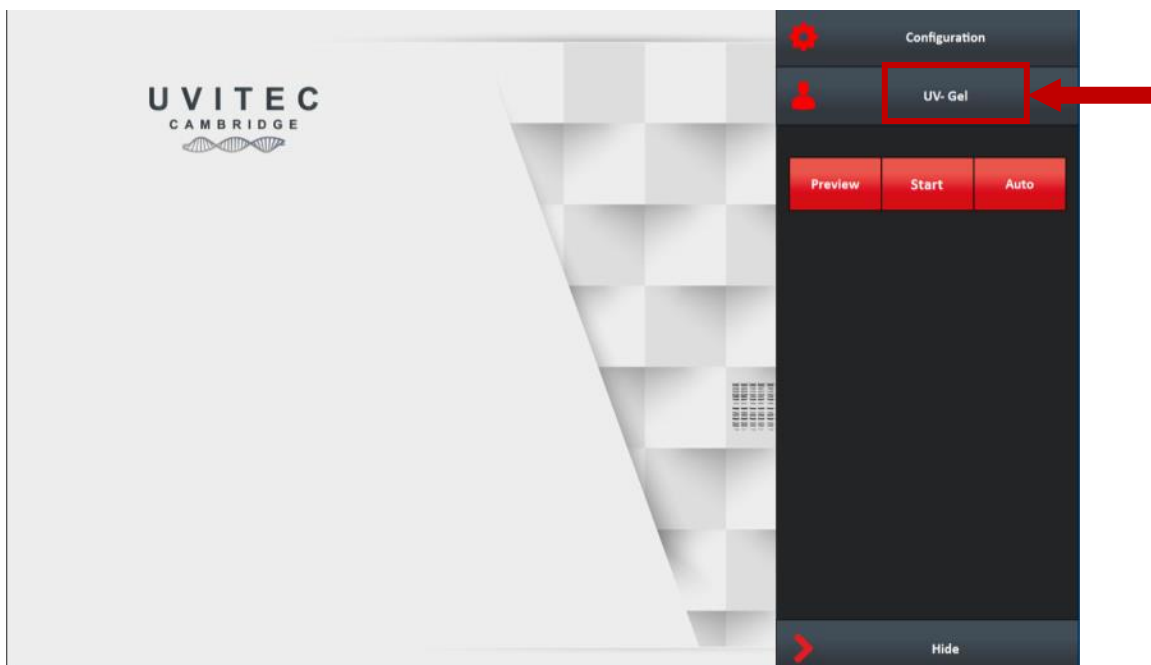
The basic steps to acquire an image are:

- CHOOSE THE APPLICATION TYPE
- ACQUIRE THE IMAGE
- SAVE OR PRINT THE IMAGE

Choose the application type

The Application selector

The Uvidoc HD6 runs with pre-defined image acquisition parameters to facilitate the use of the system for a specific application. These pre-defined parameters are gathered in the Uvidoc HD6 Application Protocol and can be selected from the Application Selector:



The Uvidoc HD6 Application protocol will ease the imaging workflow by automatizing the exposure parameters adjustment. The Application protocol automates a task or a set of tasks that you perform repeatedly or on a regular basis. It stores the following information:

- The image exposure pre-defined set-up;
- The live preview pre-defined parameters;
- The image display pre-defined set-up;
- The image printing pre-defined set-up;
- The image file pre-defined set-up.

The benefits of the Application protocol are as follows:

- Time saving
- Reproduction of image acquisition parameters
- Protocols are modifiable, allowing the user to maintain an original template while modifying it for a slightly different result, with minimal effort

The factory settings include several pre-defined Application protocols. You can also create your own Application protocol. Please refer to the Application protocol chapter of this User Guide to have more details on the way you can create your own Application.

- For a UV excited gel sample, select the **UV fluorescence** application from the Application Selector window.
- For a colorimetric sample using white light conversion screen, select the **Conversion screen** application from the Application Selector window.
- For a colorimetric sample using epi white light (light from the top), select the **White light** application from the Application Selector window.

Acquire the image

The Uvidoc HD6 system has three exposure mode:

- The live mode
- The auto mode
- The start mode

The exposure modes are gathered in the exposure mode menu:

The Live mode

Live mode allows direct visualization of the image. This mode enables you to adjust the aperture and the focus, and to position your sample.

Note: A live image means the image displayed is refreshed every 1/20th of a second. This short exposure time (or frame) is adequate for a variety of white light samples including protein gels and autoradiography. A live image, however, is not sufficient for most samples, which are visualized and photographed over a relatively dim UV light source. A feature called integration compensates the low light situation by allowing the camera to obtain a timed exposure.

Note: After 2 minutes, the software will automatically stop the live preview.

Note: The Preview mode is designed to help for sample positioning and focusing. To this extend, the Preview mode is always with white light EPI illumination.

The selection of the Live mode will open the following menu:



Enter the duration of the exposure.

Define your exposure time using the plus and minus buttons:

Modify the zoom and focus settings.

The Zoom in allows you to change the size of your sample, on the image. To proceed, click on the Plus or Minus button. The zoom automatically moves to the new value. The zoom control will modify the focus accordingly to keep a sharp image.

The Focus is needed to adjust the sharpness of the image by changing the focal point of the lens. To proceed, click on the Plus or Minus button.

You can reset the values to the one saved in the user profile. You can also save the new values in your user profile.

The Big size function allows you to shift from a portrait field of view (roughly 20x20cm at full zoom out) to a landscape field of view (roughly 26x21cm at full zoom out).

The 3D Scan images your sample in real time and reconstructs the data to create live three dimensional model.

The 3D reconstruction provides direct information regarding the image dynamic, background level and protein or DNA quantity. A little change of exposure time will refresh the 3D view automatically. The saturation effect can be controlled live before the image is frozen.

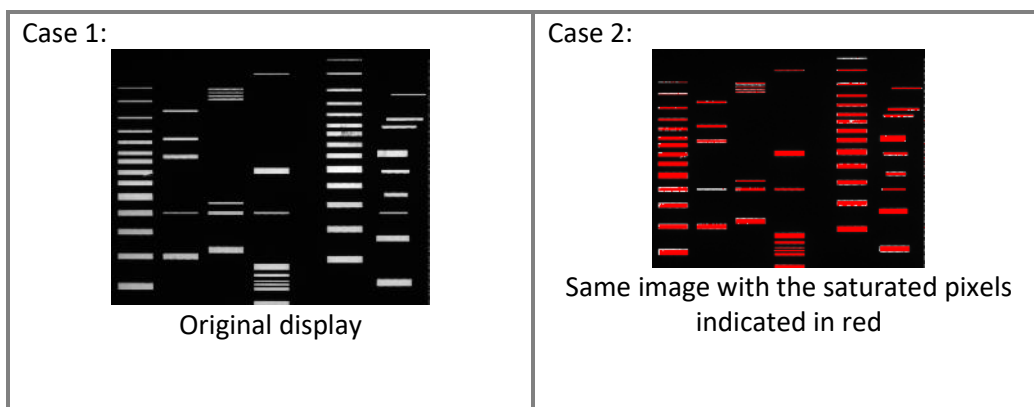
Click on "Saturation" to displays the saturated pixels in red.

A saturated image is inappropriate for image quantification with image analysis software. The saturation option allows you to visualize in red, pixels that have the maximum grey level in order to avoid flattened peaks.

A 16-bit image has a maximum grey level of 65535

Note: If an image is being acquired and the «Saturation» option is checked, the modification is applied to the current acquired image

Note: A saturated image creates quantification error when studied by an image analysis software. Decrease the exposure time or increase the f aperture value to avoid saturation.



Click on Stop to finalize the image acquisition process.

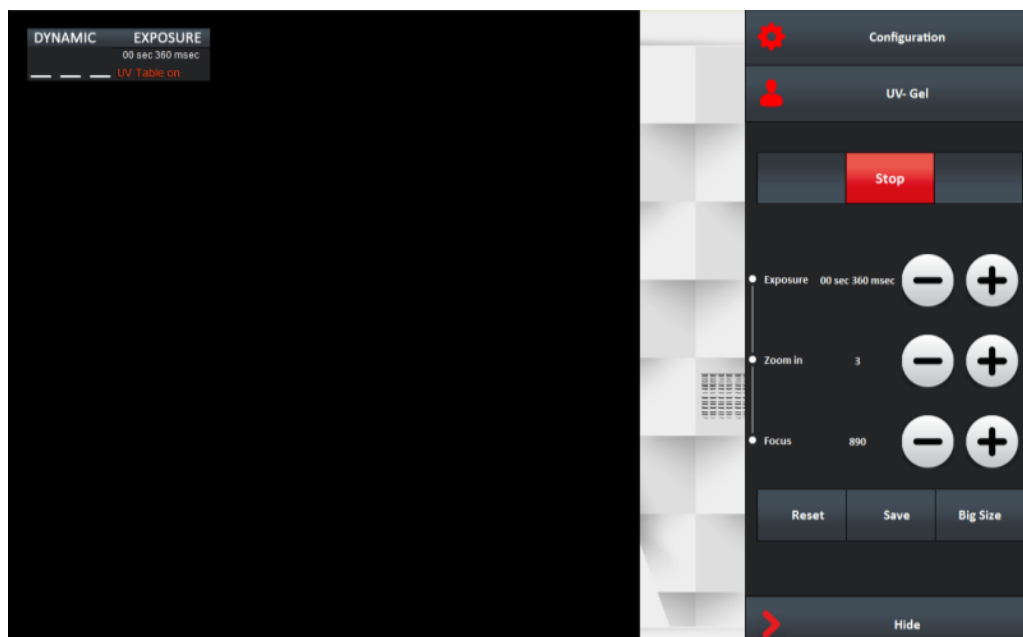
The Auto mode

The Uvidoc HD6 system calculates automatically the optimum exposure time (Auto-exposure). When you select the Auto-Exposure option, the system samples the light levels and uses the values to calculate the final exposure time. To set the auto-exposure mode, select Auto from the exposure mode menu:

The Start mode

The Uvidoc HD6 system requires the user to specify the exposure time. To set the exposure time, select Manual from the exposure mode menu:

The selection of the Start mode will open the following menu:



Enter the duration of the exposure.

Define your exposure time using the plus and minus buttons:

Note: The integration time increase or decrease by 40 milli-seconds, except for 10 and 20ms.

Note: With long integration time, a delay could be necessary before an image is displayed on the monitor (up to twice the selected Exposure time).

Note: When the specified exposure time is reached, the last captured image is displayed. The camera continues to integrate the image on the sensor, updating the display whenever the specified Exposure time is reached. The Stop exposure button stops the exposure process. The last full exposure is displayed.

You can also modify the zoom and focus settings, display the 3D image and the saturation. More details are provided in the Live mode chapter.

The image dynamic and the exposure time is displayed in the control bar on top of your sample image:

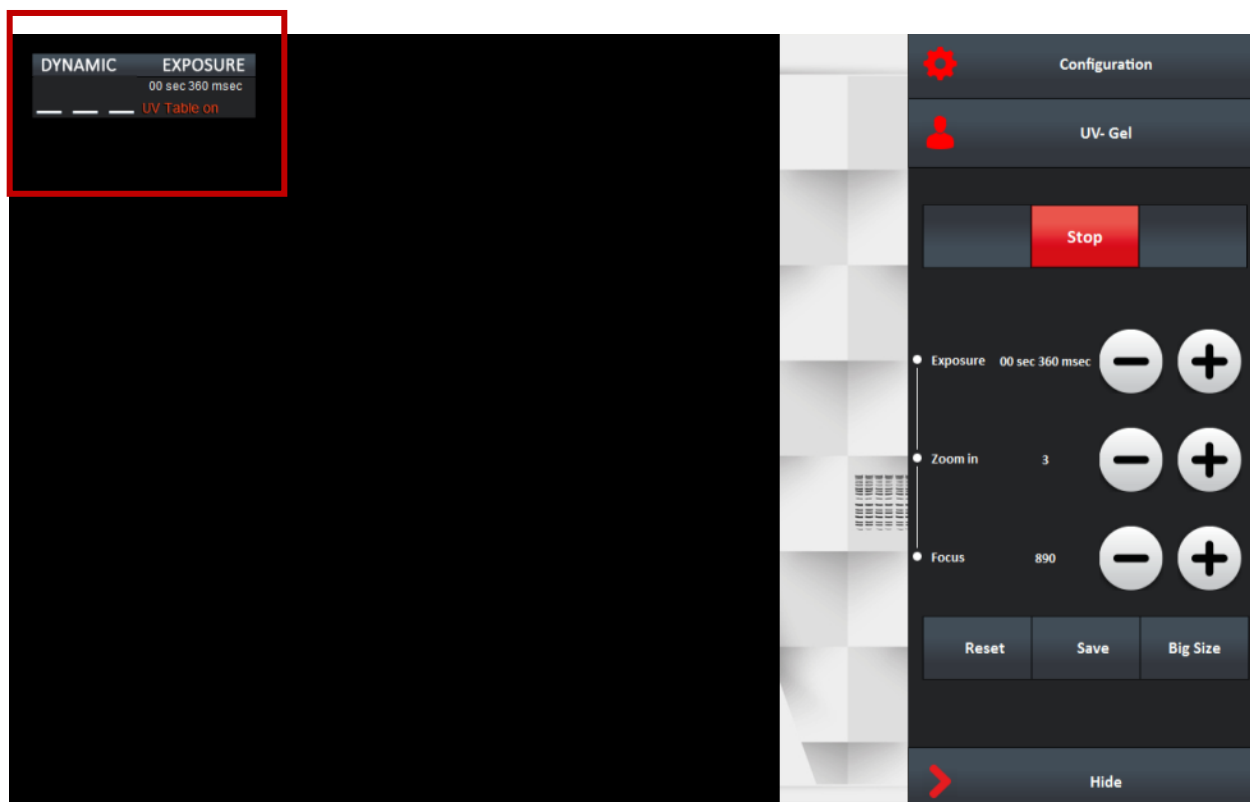


Image dynamic:

The image dynamic is crucial for quantitative accuracy. It should to be the largest possible within the gray scale of the system.

⇒ 65 535 gray levels for 16-bit imaging

The gray scale is the total number of levels between white and black. The image dynamic range within this scale. Adjustments are necessary to obtain an image with the broadest dynamic. With most of the gels, a real time image has a limited dynamic. In this case, the exposure time enhances the image dynamic.

In order to obtain an optimum image, you can control the image dynamic by adjusting the exposure time.

Click on Stop to finalize the image acquisition process.

Save or print the image

Clicking on Save will start the saving of the captured image. The image is saved on the USB® key drive, according to the default image format.

The Uvidoc has an internal memory, interrelated with the USB external saving drive. When pressing the “Save” key, the image is saved at the same time both on the internal memory and on the USB key drive.

You can access the internal memory through the Uvidoc FTP server.

Note: The image file is named by the system. The default image name has 8 characters. The first 2 are IM. The last 6 are a number ascending from 000001 to 999999.

Note: The default file name is incremented by one each time an image is saved.

Note: The file extension varies according to the image file format:

- ⇒ For TIFF, the extension is TIF
- ⇒ For BMP file, the extension is BMP;
- ⇒ For JPEG, the extension is JPG

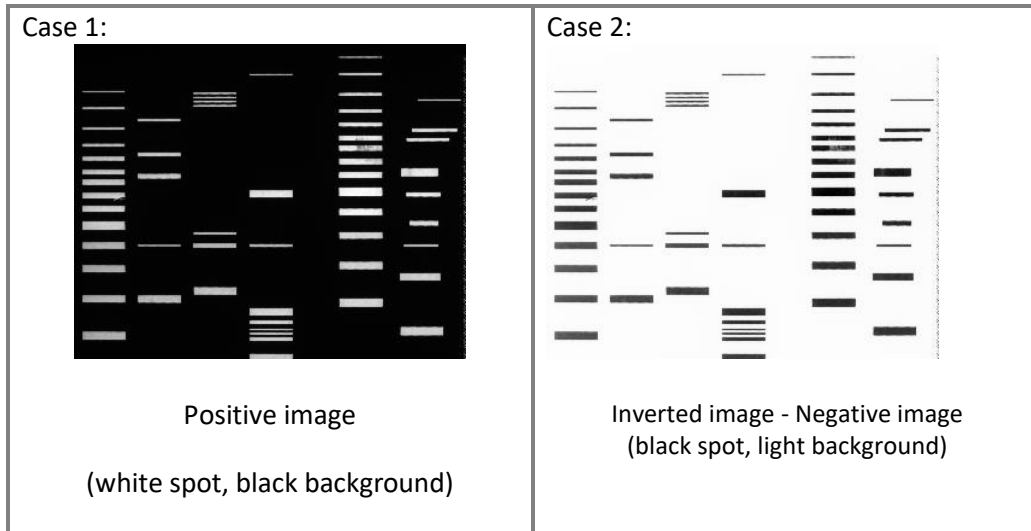
To print, press the “Print” key:

The image is printed on the default printer, if defined.

Note: a printer message can appear on the display in the case of lack of ink or paper. In such case the message should disappear after few seconds. If not, please press any touch from the panel and the message will disappear after few seconds.

Inverse the image

Click on “Inverse” to inverse the grey level of the image. This makes a negative image.



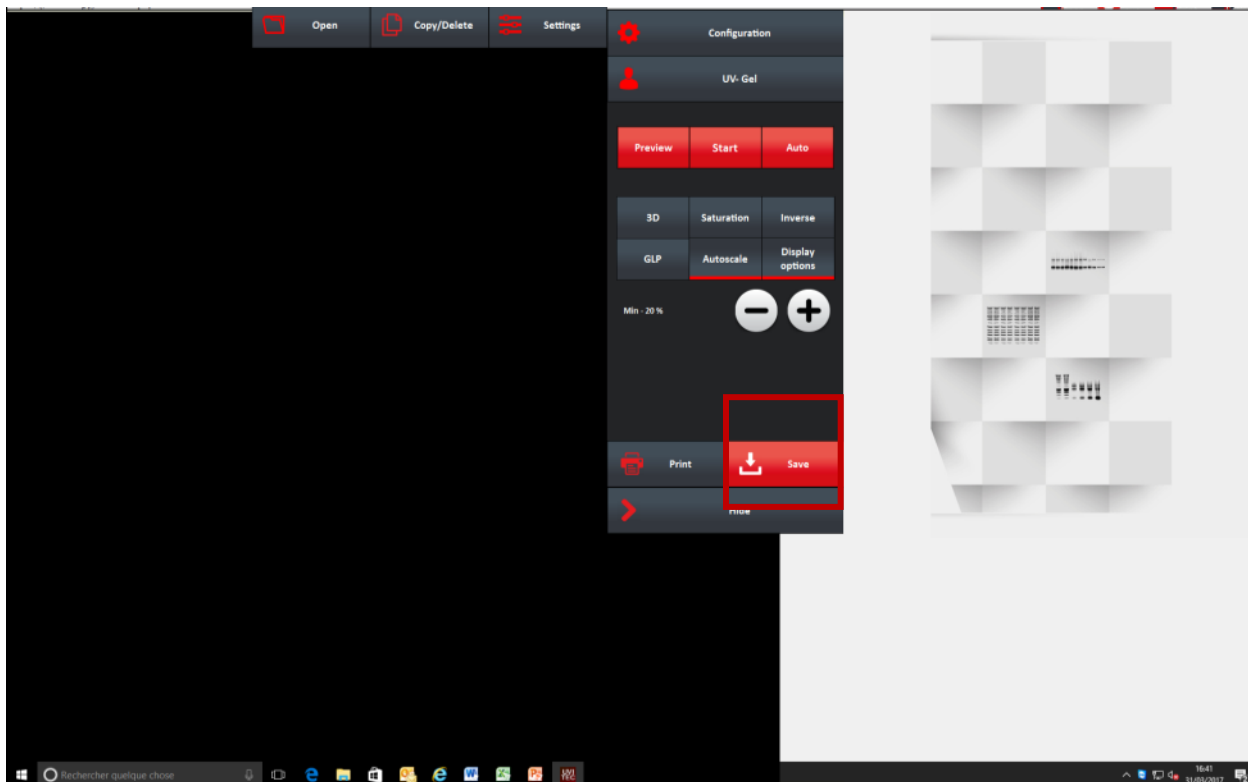
Adjust the image display

The Display option menu is helpful to enhance the image display by modifying the image greyscale selection to be displayed. In standard, the Uvidoc HD6 images have 16-bit format and Windows® can only display 8-bit images (256 grey levels). Due to this limitation, the software handles two images:

- A “memory” image corresponding to the 16-bit format (65 536 grey levels)
- A “displayed image” corresponding to the image displayed on the screen (256 grey levels)

The easiest way to calculate the “display image” would be to translate the full grey scale each time an image is acquired: the x grey levels values of the “memory” image corresponds to 256 values in the displayed image. In that case, it won’t be possible to visualize faint spots on a dark image.

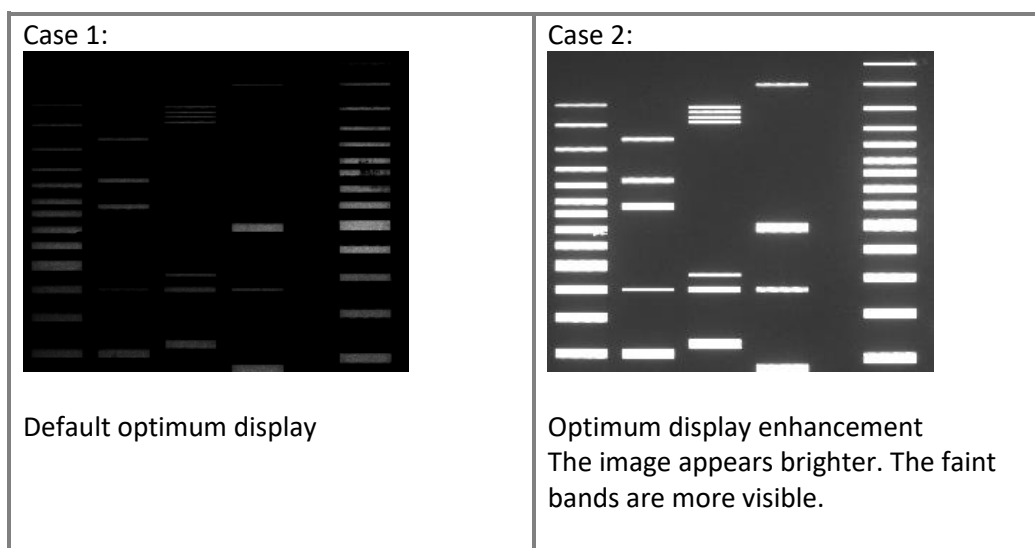
The software offers the possibility to select the grey level range to translate for the display image calculation. All the grey levels under the “Min value” defined will be converted to 0 (Black) in the displayed image. All the grey levels upper the “Max Value” defined will be set to 255 (White) in the displayed image. The grey levels between those two limits will be converted in an intermediate grey level value following a linear rule.



You can select one from the 5 image display presets by clicking on – or + sign :



The image displays presets goes from the minimum image grey levels to 20%, 40%, 60% or 100% of the image depth.



Note: The Display function inform you of the minimum and of the maximum grey level obtained on the image.

Note: The Display has no impact on the analysis. Only the display of the image is modified.

The Application protocol

What is an Application protocol?

The software runs with pre-defined image acquisition parameters to facilitate the use of the system for a specific application. These pre-defined parameters are gathered in the software Application protocol.

The Application protocol automates a task or a set of tasks that you perform repeatedly or on a regular basis. It stores the following information:

- The image exposure pre-defined set-up;
- The live preview pre-defined parameters;
- The image display pre-defined set-up;
- The image printing pre-defined set-up;
- The image file pre-defined set-up.

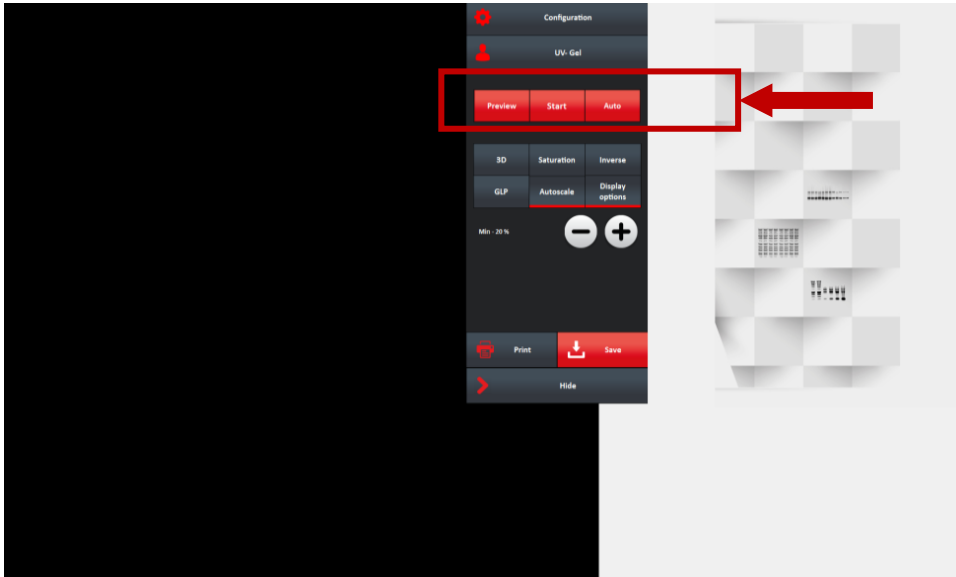
The factory settings include several pre-defined Application protocols

You can also create your own Application protocol.

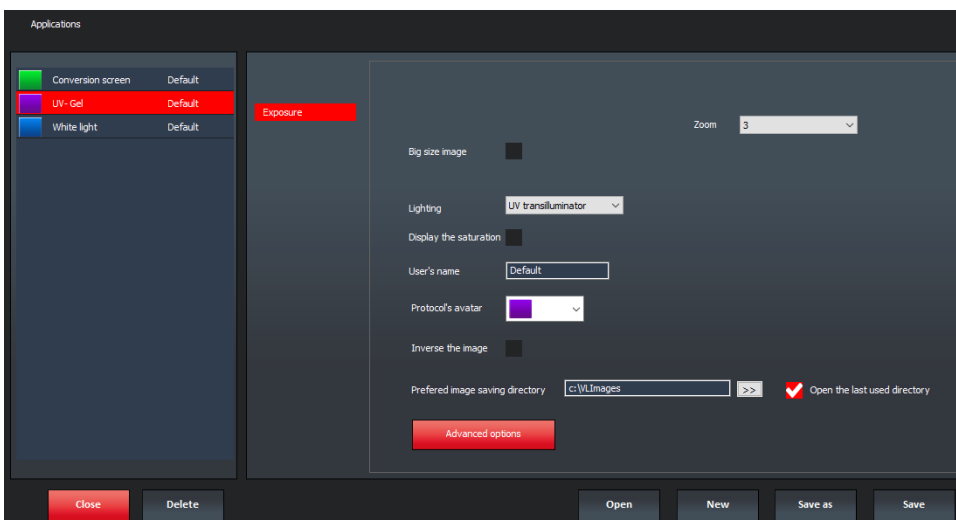
The benefits of the Application protocol are as follows:

- Time saving
- Reproduction of image acquisition parameters
- Protocols are modifiable, allowing the user to maintain an original template while modifying it for a slightly different result, with minimal effort

How to access the application protocol?



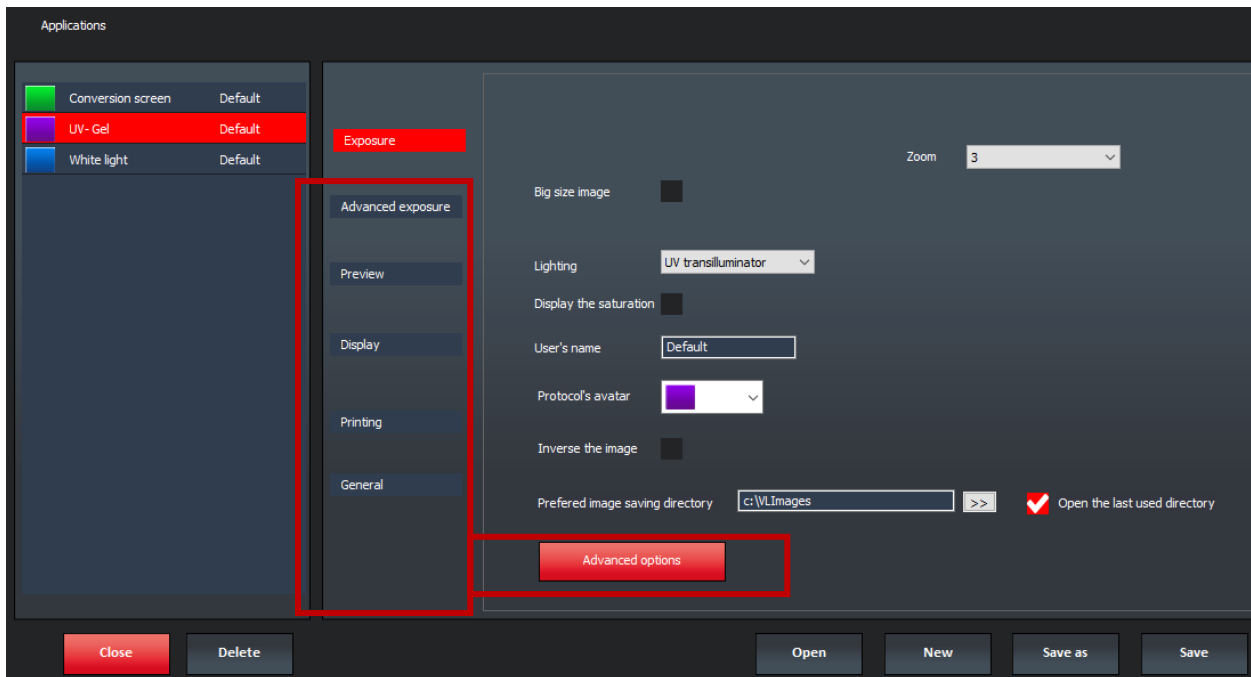
Select an application protocol from the application menu. Click on the application name to open the application protocol menu.



The Application protocol can either be displayed with a summary view or with a complete view. By default, the application protocol is displayed with the summary view. Click on Advanced options to have access to all the application protocol features.

Advanced exposure – Exposure predefined set-up

The Advanced Exposure folder contains the exposure pre-defined set-up:

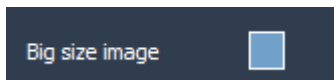


Typical Exposure set-up for a fluorescence application

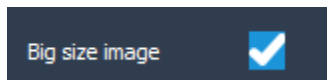
• Zoom and big size options

The Big size options allows you to use the Uvidoc in a landscape mode with a larger field of view. For the displays, the landscape is rotated by 90°.

The standard mode allows you to use the Uvidoc in a portrait mode.



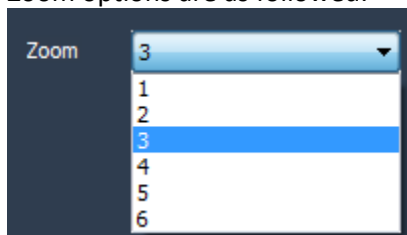
Big size not activated: standard mode



Big size activated: landscape mode

You can select till 6 zoom preset positions. Position 1 correspond to a field of view of roughly 27x20 combined with the Big size option and 20x20xm in the standard mode.

Zoom options are as followed:



Approximate field of view according to the zoom mode:

Zoom options	Standard	Big size
1	200x200mm	270x200mm
2	180x180mm	250x180mm
3	160x160mm	220x160mm
4	130x130mm	170x130mm
5	100x100mm	130x100mm
6	80x80mm	110x80mm

• Lighting (Fluorescence mode only)

This option defines the lighting used for the image exposure. All Uvidoc systems are equipped with LED Visible light. You can select between low and high intensity.

Note: The lighting options depend on your system configuration. UV or blue or white could be available. The selection of these lighting options will be done from this menu.

• Extended resolution

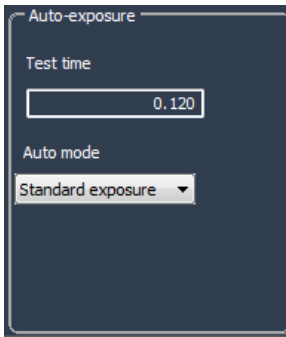
The effective pixels technology allows the extension of the camera native image resolution by software interpolation.

Note: This process requires important computer calculation and sometime could be necessary before the extended image is displayed.

- **Fast mode / Standard mode**

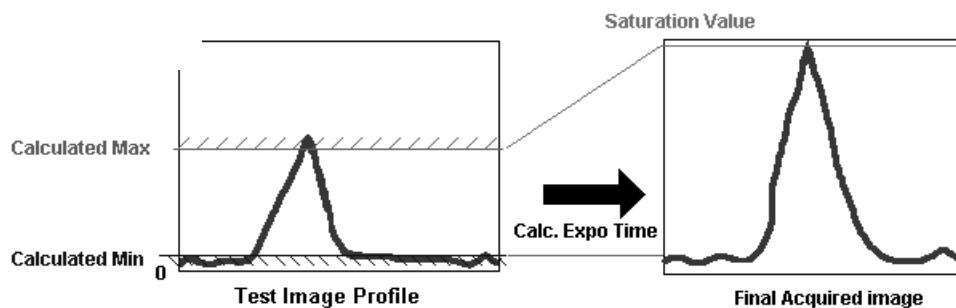
The fast mode provides lower image resolution to speed-up the imaging process.

- **Auto-exposure set-up**



Test time

In order to calculate an ideal exposure time, the software needs to analyze a test image, taken in binning mode with a test exposure time. Then it searches for the minimum and maximum acceptable grey levels and calculate the exposure time so the highest grey levels values of the final image reach a maximum defined (Saturation Value).



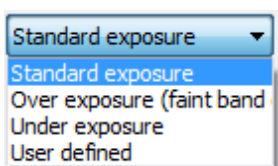
Calculated Min ("Lower Gray levels" parameter) : Nr of Lower Gray levels with at least 10 pixels in the image

Calculated Max ("Higher Gray levels" parameter) : Nr of Higher Gray levels with at least 1 pixel in the image

Note: in the case the au-exposure does not give you entire satisfaction for your specific application, we recommend increasing the test time.

Auto mode

The Auto mode options allow you to select between a standard auto exposure time, an extended auto exposure time or a reduced auto-exposure time.

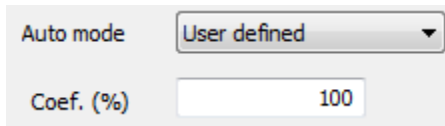


Standard exposure is optimized for all bands.

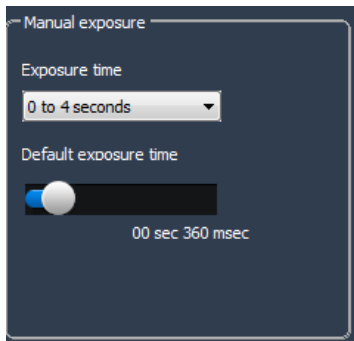
Over exposure (faint band) results in a longer exposure where faint bands are more visible, but more prominent bands may be over exposed.

Under exposure (bright band) results in a shorter exposure where bright bands are more visible, but more prominent bands may be under exposed.

User defined allows you to decide of the over exposure or under exposure settings. For instance, 150% will increase the standard exposure time by 1.5.



• Manual exposure set-up



Manual exposure set-up

This option defines the default imaging exposure time. The software has two exposure time scales:

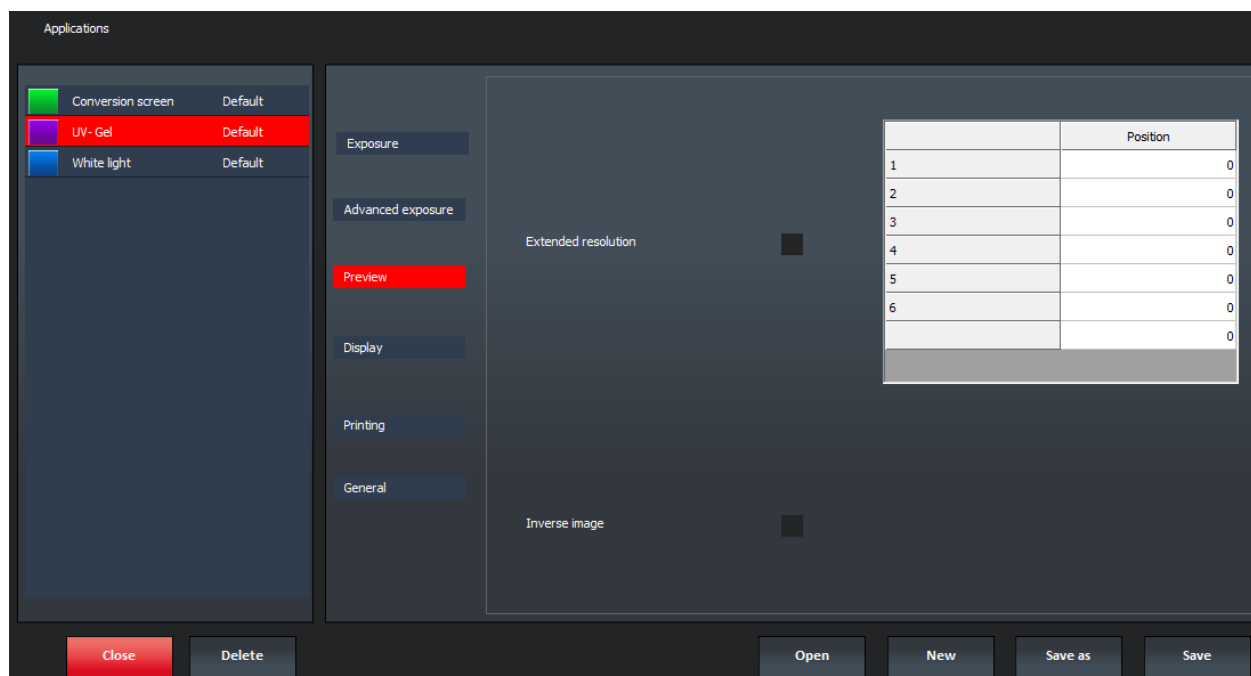
- One for short times: 40 milli-second to 4 seconds
- One for long times: 4 sec to 1 minute

Note: With the short integration time scale, the integration time increases or decreases by 40milli seconds.

Note: With long integration time, a delay could be necessary before an image is displayed on the monitor (up to twice the selected Exposure time).

Preview – Live preview pre-defined parameters

Preview folder contains the live review pre-defined set-up:



• Extended resolution

The effective pixels technology allows the extension of the camera native image resolution by software interpolation.

Note: This process requires important computer calculation and sometime could be necessary before the extended image is displayed.

• The lens prefixed zoom position table

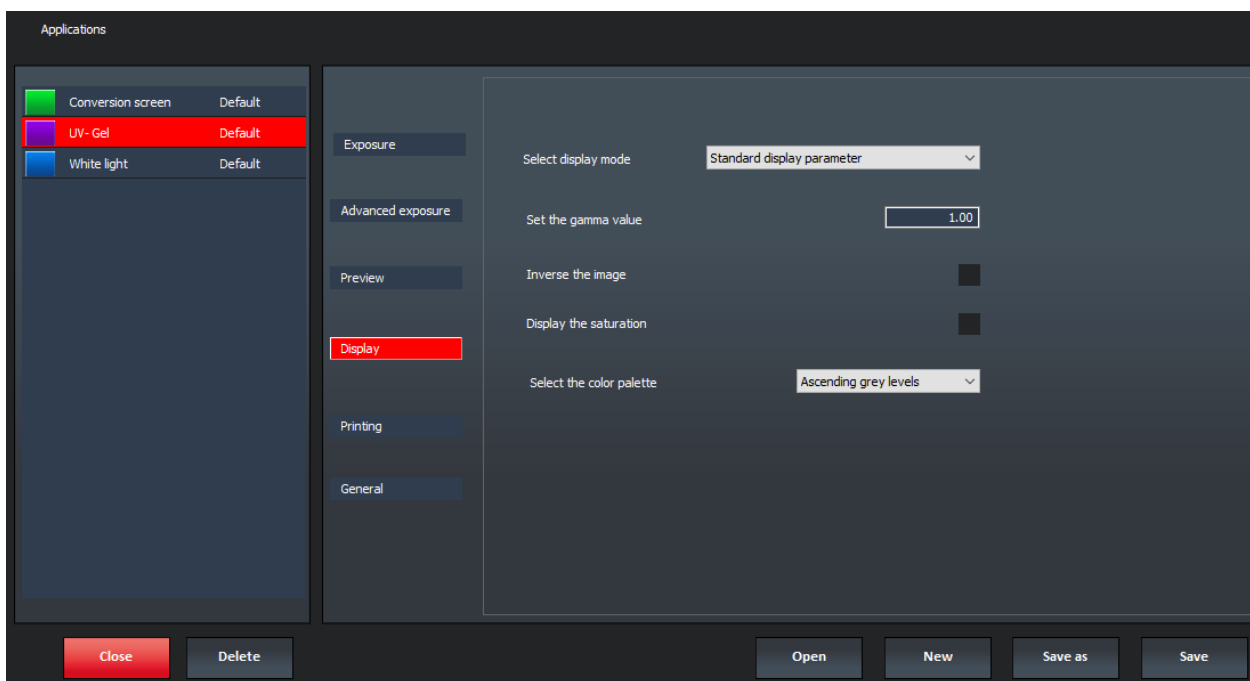
The default positions are part of the system factory settings. Nevertheless, you can save your owned position using the zoom menu you can access during image acquisition.

	Position
1	0
2	0
3	0
4	0
5	0
6	0

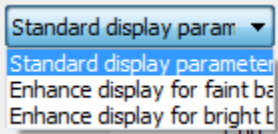
The lens prefixed position table summarizes the default focusing preset per zoom option for the concerned Application protocol, when modified by the user.

Display – Image display pre-defined parameters

The Display folder contains the image display pre-defined set-up:



• Select display mode



The Select display mode options allow you to select between a standard display, an enhance display for the faint band and an enhance display for the bright band.

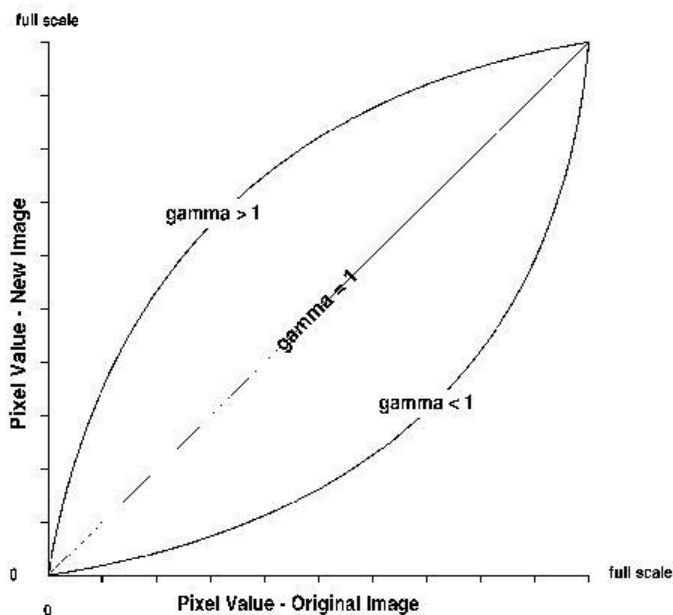
Standard display is optimized for all type of image.

Enhance display for faint band ensure the faint bands are more visible, but more prominent bands will look very strong.

Enhance display for bright band ensure the bright bands are more visible compared to their background. This is well adapted for fluorescence sample.

• Set the gamma value

Gamma adjustment corrects an image by creating a new version of the original. To create the new image, the Gamma Adjust function reassigns the grey values of each pixel in the image according to the curve in the following graph:



The above graph demonstrates the basic principles of gamma adjustment:

- Black (pixel value = 0) remains black at all gamma values.
- White (pixel value = full scale) remains white at all gamma values.
- Gamma values greater than one lift the darker areas of the original image into the brighter areas of the new image.

A gamma curve is smooth: there are no unexpected jumps or cut-offs. This means that when viewing a gamma adjusted image, you will be able to see the details (intensity differences) in both the black and white areas of the image.

When the bright areas of these types of images are correctly exposed, the darker areas can be so dark that they are in effect invisible. Gamma Adjust can remedy this problem. The gamma adjustment results in a better display of detail by lightening the darker areas without burning out bright areas or lightening black areas:

- **Inverse the image**

Select “Inverse the image” to inverse the grey level of the image. This makes a negative image.

- **Display the saturation**

A saturated image is inappropriate for image quantification with image analysis software. The saturation option allows you to visualize in red, pixels that have the maximum grey level in order to avoid flattened peaks.

The maximum grey level depends of the bit-depth. For instance:

A 16-bit image has a maximum grey level of 65535

Select the saturation option and the saturated pixels are displayed in red:

Note: If an image is being acquired and the «Saturation» option is checked, the modification is applied to the current acquired image

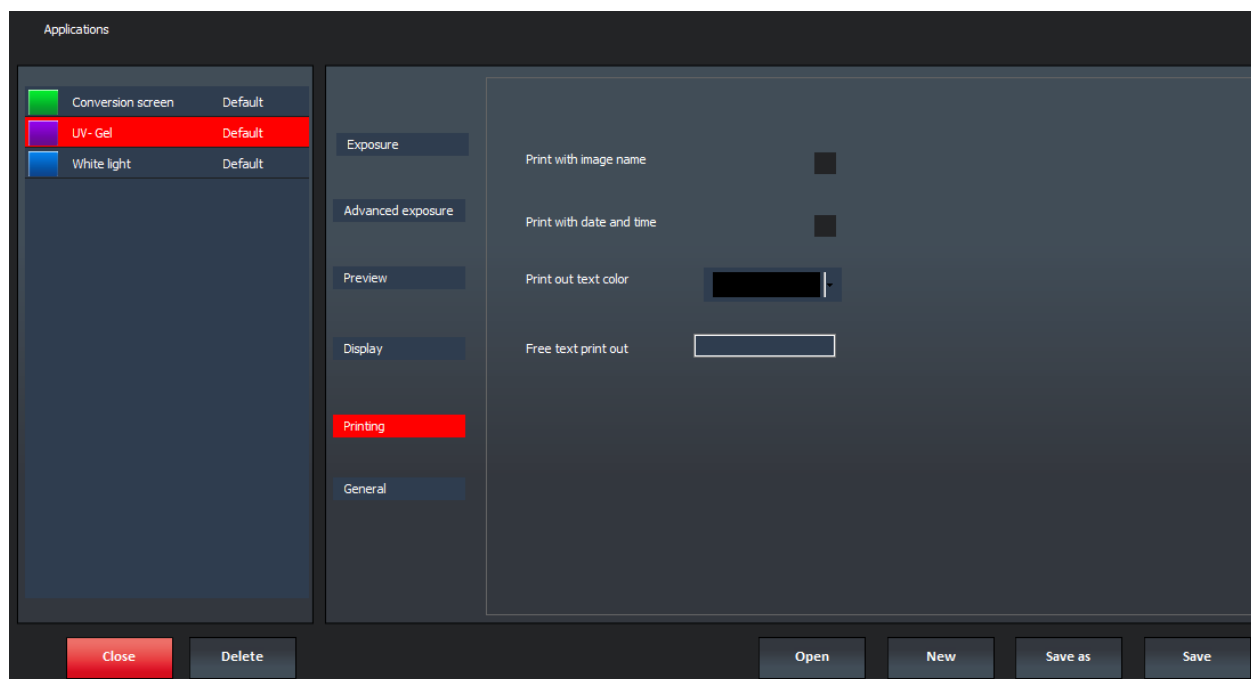
Note: A saturated image creates quantification error when studied by an image analysis software. Gel-doc systems have to indicate to the user if the image is saturated and if it is then necessary to modify the integration time.

- **Select the color palette**

The pseudo colors can display different types or levels of fluorescence in an image. It replaces the original grey levels of the image by another palette color. The software has several predefined palette designs. Select your palette design from the followings:

Printing – Image printing pre-defined parameters

The Printing folder contains the image printing pre-defined set-up:



- **Print with image name**

Print the image with its name.

- **Print with date and time**

Print the image with the computer time.

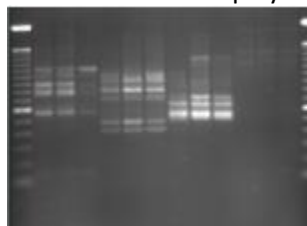
- **Print out text color**

Select the color of the text printing.

- **Free text print-out**

You can select a free text (for instance the name of your institute), the image name (if the image has been previously saved) and date and time.

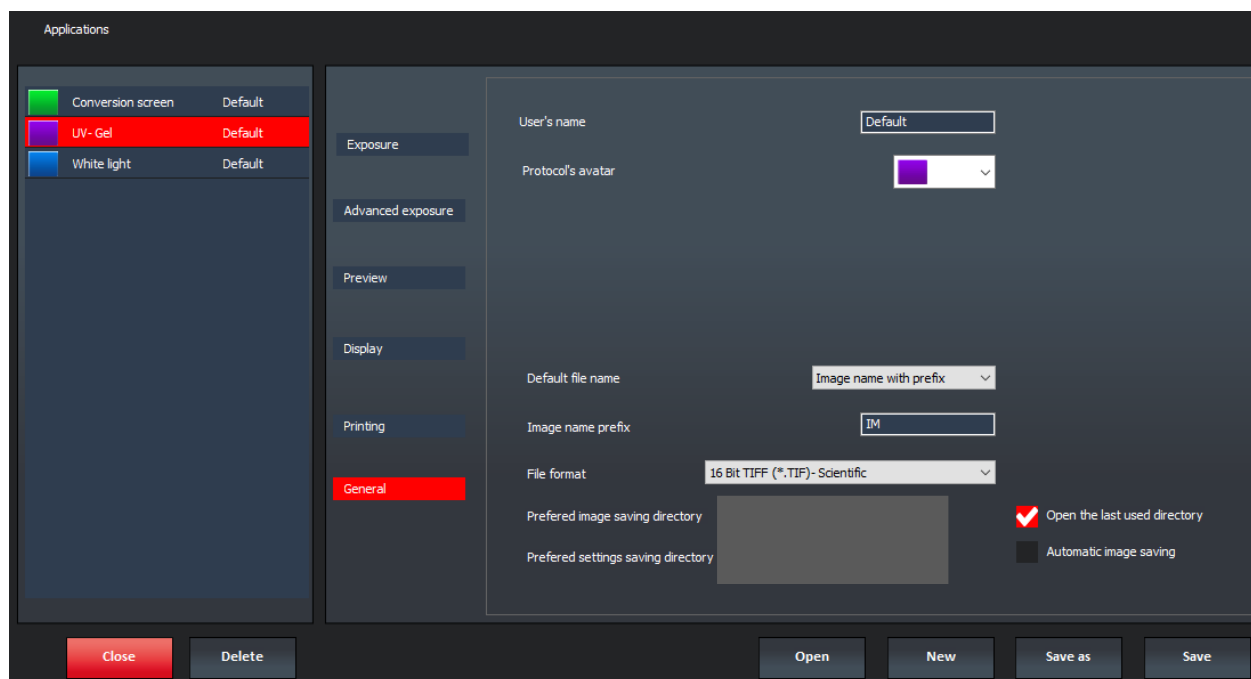
The text is then displayed below the image in the print out:



TUESDAY, APRIL 27, 2017 – 7.05AM

General – Image file pre-defined parameters

The General folder contains the image file pre-defined set-up



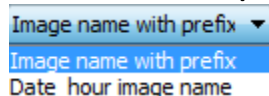
•User name

You can define the name of a user for an application protocol. The user could be the name of a working group, the name of a user or a subtitle to the name of the application.

•Protocol's avatar

To simplify the reconnaissance of the Application's protocol, an icon is provided to differentiate the application by a color.

•Default file name / Image name prefix



The default file name could either be based on the Date and Hour the image has been taken or by a prefix. You can decide of the default generic file name to simplify the file name generation. By default, the name is IM00000x. The image could also be named according to the time and hour it has been taken.

•File format

Images can be saved in CompatibilityPlus TIFF scientific image format (16-bit format recommended), TIFF scientific image format (16-bit format), BMP (8-bit format only), JPEG (compressed) or APX (proprietary file format – 16-bit format). This option allows you to select the default file format.

Compatibility Plus 16 Bit Tagged Image File
16 Bit Tagged Image File Format (*.TIF)- S
8 bit Bitmap Files (*.BMP)
Joint Photographic Experts Group Files (*.J
APX Files (*.APX)

•Preferred image saving directory

This option defines the directory where the image is saved by default

Alternatively, you can select to always open the last used directory by clicking on the following option:

☒ Open the last used directory

•Autosave

Use the Image Auto-Save feature to automatically save images as part of the capture process, in the defined image saving directory.

•Preferred settings saving directory

This option defines the directory where are saved the configuration files.

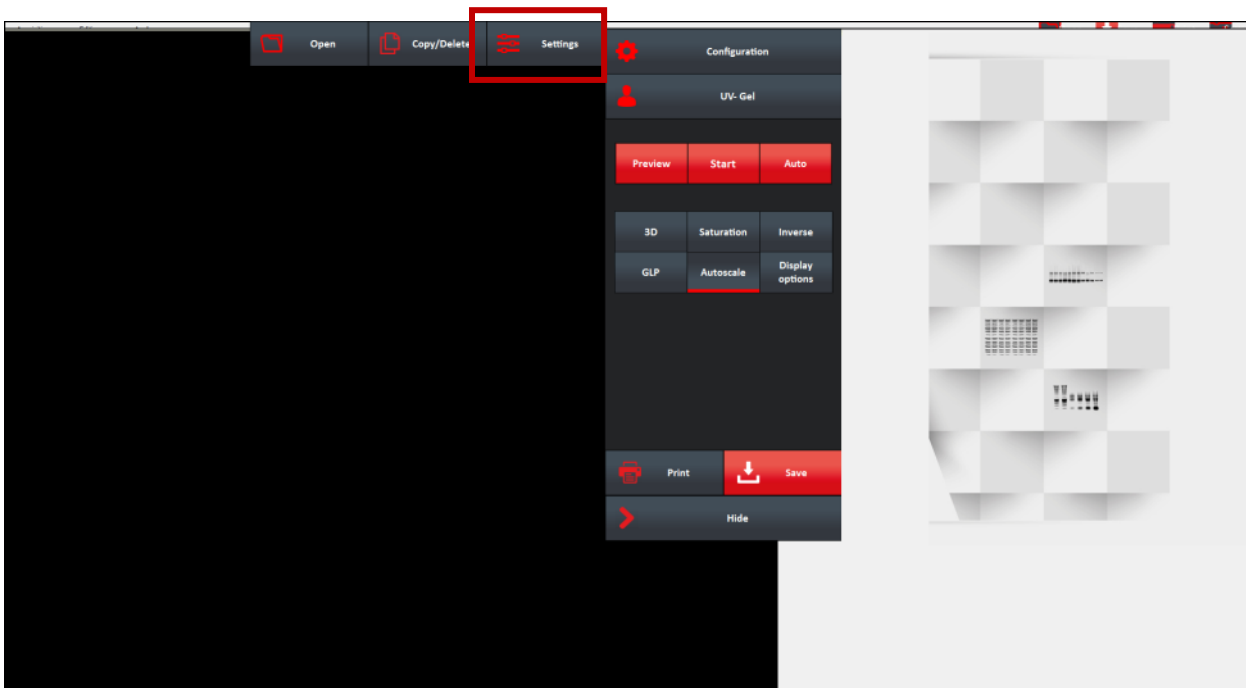
Select ☒ Apply after image acquisition

to automatically activate the post processing after the image acquisition.

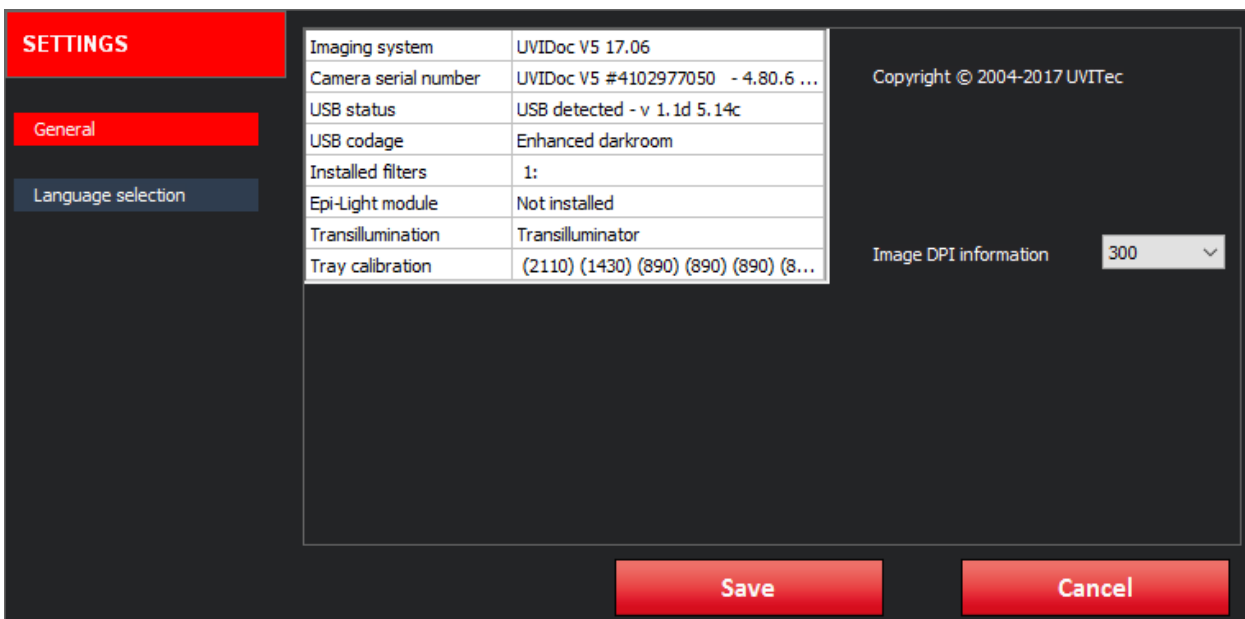
Note: Please refer to the Processing menu to have more details on the post process working principles.

The System settings

Settings feature allows the adjustment of the system settings such as the filter controls or the lens calibration. Click on “Settings” from the menu :



A window displays the following menu:



The Settings menu contains the following features, related to the Uvidoc system:

General	Displays the Uvidoc information such as the system option, the software version, the filters installed and the lens calibration state.
Language selection	Select the language you want the software to run
Mail to	Input the mail receiver address
Windows parameters	Set the Uvidoc hardware and software parameters such as the network address
Shutdown system	Shutdown the system

The general system settings

The General header from the Settings menu summarizes the information concerning your system and its set-up. It gives you access to the following information:

- ⇒ Systems name & version
- ⇒ Camera and darkroom state
- ⇒ Options installed
- ⇒ Calibration stat

To proceed, select the General header from the Settings menu.

Language selection

The software could run in English, in German and in Chinese. Select your language from the list. To proceed, select the Language selection header from the Settings menu.

You will be prompt to restart the software for the change to occur.

To close the Settings menu, click on  or 

Windows parameters

You can update or reset, lock or unlock the system and set its network address from the Windows Parameters screen

Lock / unlock the Uvidoc system



The Uvidoc HD6 system is write-protected to prevent the installation of any non-approved programs or files such as malware or virus. Thanks to the write-protected function, all files that are not write-protected are removed with a restart of the system. In other words, a simple reboot will remove any malware or virus that would have been able to infect the Uvidoc system.

The Lock/Unlock function is designed to unlock the system to allow the installation of additional drivers (such as printer drivers or wireless network device).

With the Unlock function, the write-protection is disabled after the system is restarted. At that time, you can install the needed drivers. Upon reboot, the system will have the new drivers installed, and will be write-protected again.

Before to add a device, it is compulsory to scan for virus the USB key drive which will contain the driver to be installed in the Uvidoc system.

Add a printer

Note: You need to unlock the system to add a printer

To proceed, select the Control Panel function:

Select control panel button, a password is required to access the function, please request it to the manufacturer

Select "Devices and printer" and then "Add a printer". Then follow instructions displayed on screen.

Once the installation done, restart the system to switch it back to "Locked" mode

Set the network parameters

Note: You need to unlock the system to set the network parameter

The Uvidoc can be connected to your computer through the local area network (LAN). A LAN is a communication network connecting a group of computers, printers, and other devices located within a relatively limited area (for example a laboratory). A LAN allows any connected device to interact with any other on the local network. For instance, any computer connected on the LAN could download an image.

Transmission Control Protocol/Internet Protocol (TCP/IP) is the most popular network protocol, and the basis for the Internet. In Windows operating system, TCP/IP is automatically installed.

On a TCP/IP network, you must provide IP addresses to clients. This means, you need to provide an address to make sure your Uvidoc is already properly connected to your LAN and that an IP address is assigned to the Uvidoc .

To proceed, select the Control Panel function

By default, we recommend to select Automatic TCP/IP parameters (automatic IP address assignment from your network):

Fill-in the Uvidoc IP address, subnet mask and gateway with the IP address defined in the Uvidoc system.

IP address 192 . 168 . 1 . 10

Then, validate by clicking on OK.

Connect to the Uvidoc from your computer

Connect using your internet browser

Retrieve an image directly from your internet browser (FireFox, Explorer, Safari, ...)

-The Uvidoc IP address parameter is set to the DNS mode:

If the Uvidoc is connected in the same IP domain as your computer, you can download your image directly from your internet browser by using the following address: `ftp://images`

-DNS is not selected and you use a defined IP address:

If the Uvidoc is connected in the same IP domain as your computer, you can download your image directly from your internet browser by using the following address: `ftp://YOUR DEFINED UVIDOC IP ADRESS` (for instance <ftp://10.0.0.27>).

Connect using the Uvitec1D software

The Uvitec 1D software helps you to download your image from the Uvidoc system.

First, you need to activate the Uvidoc function from the Uvitec 1D software.

To proceed, select the Settings window and activate the “Display connection to Uvidoc unit” option

You can connect your Uvidoc to the local area network of your laboratory and download your gel image from the comfort of your office.

The Uvidoc has a unique IP address which allows you to connect the system to your laboratory network for downloading. The image acquisition is performed in your laboratory and the image is saved in the internal memory of the Uvidoc. Then, from your office, you can easily download the image using your Uvitec 1D software.

You access the Connect to Uvidoc function thanks to the Exposure menu.

Then, click on the “Connect to Uvidoc” button to access the function options.

To do so, you need first to set an IP address and a subnet address for your Uvidoc HD6 system.

Connection parameters

Uvitec 1D provides connectivity between your computer and the Uvidoc through the local area network (LAN) on which is connected your Uvidoc system. A LAN is a communication network connecting a group of computers, printers, and other devices located within a relatively limited area (for example a laboratory). A LAN allows any connected device to interact with any other on the local network. For instance, any computer connected on the LAN could download an image.

Transmission Control Protocol/Internet Protocol (TCP/IP) is the most popular network protocol, and the basis for the Internet. In Windows XP TCP/IP is automatically installed.

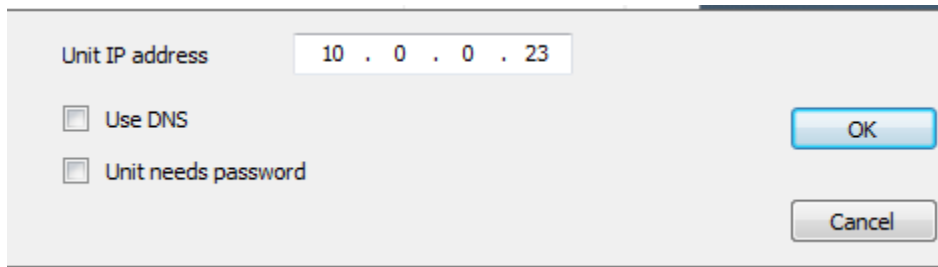
On a TCP/IP network, you must provide IP addresses to clients. This means, you need to provide an address to make sure your computer is already properly connected to your LAN and that an IP address is assigned to the Uvidoc .

The remote “connect to the Uvidoc ” from your computer must be configured to permit users to request the specific Uvidoc IP address. Connections are created and configured thanks to the Uvitec 1D IP address.

For remote access to the Uvidoc from your computer, you need to set the Uvidoc IP address in the setup Uvitec 1D software. To proceed, click on Define connection parameters:

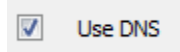


A pop-up window displays the following menu:

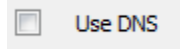


Uvidoc HD6 IP address

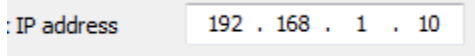
By default, we recommend to select DNS (automatic IP address assignment from your network):



If this option is not working properly, unselect the DNS option:



Fill-in the Uvidoc IP address with the IP address defined in the Uvidoc HD6 system.



Then, validate by clicking on OK.

Uvidoc need password

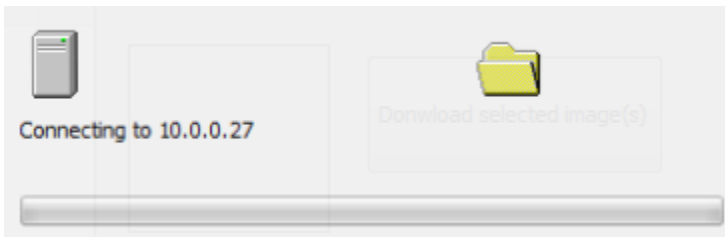
This option is not used with the Uvidoc HD6. The older Uvidoc system required a password for the ftp access. If you are using an old version of the Uvidoc system, please select Uvidoc need password for your ftp access. The password is then Uvidoc .

Connect to the Uvidoc :

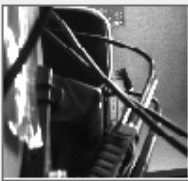
To download the image from the Uvidoc , click on Connect to the Uvidoc unit button:



A pop-up windows prompt you the system is connecting to the Uvidoc :



The list of the Uvidoc images appears in the table:

File name	Creation date	
IM000004.Jpg	13/03/2013	 <div>Download selected image(s)</div>
IM000005.Jpg	13/03/2013	
IM000001.Tif	13/03/2013	
IM000002.Tif	13/03/2013	
IM000003.Tif	13/03/2013	
IM000006.Tif	13/03/2013	

Select your image. An image thumbnail appears. Click on Download selected image(s) to download your image and open it in the Uvitec 1Dsoftware.

Update the UVIDOC HD6 firmware:

This procedure can only be done with the manufacturer approval. To proceed, you will need the firmware files from Uvitec.

To Install, please Unzip the Uvitec files in order to have, in the root directory of your USB stick, the following files:

- * Setup.exe

- * Setup.zip

Plug the USB stick on the UVIDOC HD6

Then, follow the Uvidoc system update procedure using the settings function:

Configuration/settings/ windows parameter/ Software update

Select the USB stick directory and the Setup.exe file, then click on OK.

Do not remove the USB stick or switch off the system till the process is finalized. The process could last roughly 5 minutes.

For Editing or Analysis:

Please go directly to page 70 of this manual : how to install UVITEC 1d software

Page 95 : and how to use Uvitec 1D software for Editing

Page 116 : how to use Uvitec 1D for Analysis

Technical information

Electrical specifications

Power supply

- Current (A) = 1A/0.5A
- Fuse FST (A) = 2A
- Voltage (V) = 100/230V~ (5%)
- Frequency (Hz) = 50/60Hz
- Power = 85 watts

Fuses

- Type FST.
- Time-lag T.
- Ø5 x 20
- 2A

Climatic conditions

- Altitude 2000 meters
- Operating humidity: 20% to 70% (no condensation allowed)
- Operating temperature: The maximum ambient temperature should be 25°C.

Spare Parts

General advices

- To clean the surface of the filter, use mild solvent or warm water. Dry with a soft cloth
- The filter is porous, so try to keep it dry

All our units are fitted with one or two safety fuses.
They are found in the plug at the rear of the unit

TYPE OF FUSE

Type FST
Time-lag T
Ø 5 x 20

Spare parts – UVIDOC-HD6

Réf. article	WL LED's panel	Tubes T-8.M	Tubes T-8.L	Fuse Ø 5x20		Filter with support	
				Qty	100V ~ 115V ~ 230V ~	Qty	Réf
UVIDoc-HD6.TOUCH	2	/	/	2	2A	/	/
UVIDoc- HD6/20M.TOUCH	2	5	/	2	2A	1	FS-TC20.CM
UVIDoc- HD6/26M.TOUCH	2	5	/	2	2A	1	FS-TC26.CM
UVIDoc- HD6/26MX.TOUCH	2	5	/	2	2A	1	FS-TC26.MX
UVIDoc- HD6/26LM.TOUCH	2	5	4	2	2A	1	FS-TC26.CM
UVIDoc- HD6/20Blue.TOUCH	2	/	/	2	2A	1	FS-B

Warranty

Our products (except Compact Flash®, light tubes and filters) are warranted against faulty construction or defective material for a period of TWO YEARS from the date of supply. Our products are not warranted for damage due to carelessness, incorrect use or bad maintenance.

The following defects are also specifically excluded:

- Defects caused by improper operation.
- Repair or modification done by anyone other than UVITEC LTD or an authorized agent.
- Corrosion caused by improper solvents or samples.
- Use of spare parts supplied by anyone other than UVITEC LTD.
- Damage caused by accident or misuse.
- Damage caused by disaster.

This instrument should not be modified or altered in any way. Modification or alteration of this instrument will:

1. Void the manufacturer's warranty.
2. Void the conformity certifications.
3. Create a potential safety hazard.

The Compact Flash®, the tubes and the filters are not cover by our warranty.

The use of consumable products or non-original spare parts not recommended by our service department is at the user's own risk and therefore automatically invalidates the warranty.

Tubes, filters, batteries and consumable products are not included in the warranty.

We reserve the right to decide where the faulty goods will be repaired (in our workshop or elsewhere), and whether or not the faulty part is to be replaced; all other freight charges incurred being at the cost of the purchaser.

Returned goods will not be accepted for repair unless previous written authorisation is obtained from our service department. A request for authorisation must be accompanied by an itemised list of products, model numbers and the corresponding invoice numbers under which they were originally shipped.

All returned goods should have a certificate of decontamination.

The Buyer must bear all costs and risks incurred during the transportation of the goods from their collection at UVITEC LTD warehouse.

In the case UVITEC LTD incorporates some devices or equipment from another supplier in the manufacture of its products, the extent and the duration of the warranty will be those conceded by the suppliers or sellers.

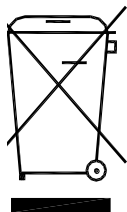
Manufacturer cannot be held responsible for any loss, bodily injury or material accident incurred by any failure of this supply, whatever the origin of this failure may be.

The responsibility of Manufacturer is strictly limited to its staff and to its own supplies.

In the case of dispute, only the commercial court of Cambridge (United Kingdom) shall be competent, even in third party claims proceedings or when there are several co-defendants.

NOTE: UVITEC LTD is not responsible for any injury or damage caused by use of this instrument for purposes other than those for which it is intended, or by modifications of the instrument not performed by UVITEC LTD.

France only: Decontamination, collection and elimination of waste



The buyer ensures and finances the decontamination, the collection and the disposal of waste electrical and electronic equipment (WEEE) under the conditions provided in the Articles 21 and 22 of the Decree No. 2005-829 dated of 20 July 2005.

In France, for tubes recycling, contact the Recylum, www.recylum.com

Improper disposal may be harmful to the environment and human health.

Conformity

This system complies with the requirements of the EC Directive 2004/108/CEE, 2006/95/EEC and EN 61010-1, relating to Electro-magnetic compatibility and low voltage.



The Electro-magnetic susceptibility has been chosen at a level that gains proper operation in residential areas, on business and light industrial premises and on small-scale enterprises, inside as well as outside of the buildings. All places of operation are characterised by their connection to the public low voltage power supply system.