



Product

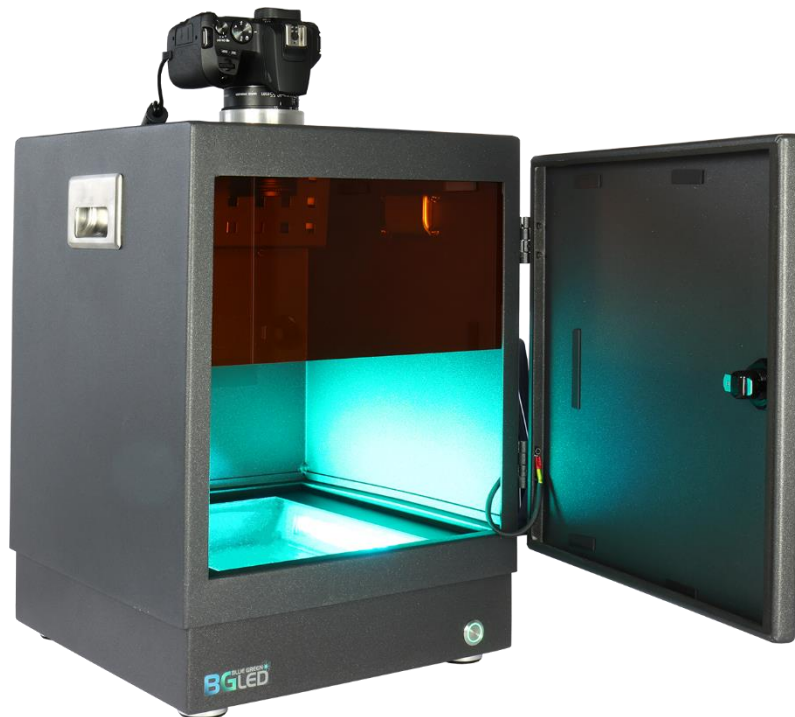
FastGene® FAS-DIGI PRO

Cat. No.

GP-07LED

Category

Gel Documentation System



Version 2.0

May/2022



Content

General Information	5
SAFETY INFORMATION	5
REGULATORY NOTICE	5
WARRANTY	5
IMPORTANT NOTICE	5
Specification	6
CAMERA	6
CONTROL	6
DARKBOX	6
ILLUMINATOR	6
WHITE LIGHT TRANSILLUMINATOR	6
UNIT	6
Nomenclature	7
Installation guide – Setting up the FAS-DIGI PRO	10
ASSEMBLING THE CAMERA HOLDER	10
CONNECTING THE CABLES	12
CONNECTING THE CAMERA TO A PC	13
Operating the System	18
LOG IN	18
MAIN MENU	18
SELECTING THE APERTURE	19
SELECTING THE EXPOSURE TIME	19
SELECTING THE SENSITIVITY OF THE SENSOR	19
TAKING IMAGES WITH DIFFERENT EXPOSURE TIMES	19
FOCUSING THE IMAGE	19
BULB TIME (SEC)	19
CHANGE THE IMAGE SETTINGS	20
PRINTING THE LIVE VIEW	20
DISPLAYING THE RECORDING INFORMATION	20
CAPTURING THE IMAGE	20
Excising DNA bands	21
REMOVING THE FILTER SHIELD FROM THE DOOR	21
ADDING THE FILTER SHIELD TO THE CUTTING POSITION	21
EXCISE THE DNA BAND	21
Taking images using a white light source	22
TAKING IMAGES OF PROTEIN GELS	22
EXPOSING THE FILTER	22
REMOVING THE FILTER	22
WHITE LIGHT TRANSILLUMINATOR	22
Heat Protection of Blue/Green Transilluminator DE	23
Contact Details	23



General Information

SAFETY INFORMATION

Please read carefully the following notes to be able to properly use the FastGene® FAS-DIGI PRO imaging system.

- ▲ Please wear the appropriate personal protective equipment.
- ▲ Please read the safety precautions stated in the Canon operating manual.
- ▲ Using FastGene® Blue/Green LED Transilluminator DE instrument will normally not injure eyes, skins, and samples. However, prolonged exposure of human naked eyes with light irradiation in the blue spectrum may increase the probability of suffering from retina diseases. Therefore, we recommend using the amber filter included in the box, when handling the transilluminator while the FastGene® FAS-DIGI PRO box is open.
- ▲ The transilluminator and the switch will get warm due to the operation. The temperature is not harmful and will not cause any defects.
- ▲ Operate the FAS-DIGI PRO only if it is connected to a safety socket.
- ▲ Place the unit on a level surface with minimal chance of dropping.

WARRANTY

The FastGene® Blue/Green LED Transilluminator DE and the FastGene® FAS-DIGI PRO is warranted against defects in materials and workmanship for 1 year. In case of any defects occurring in the instrument or accessories during this warranty period, Nippon Genetics Europe will repair or replace the defective parts at its discretion without charge.

The following defects, however, are specifically excluded:

- Defects caused by improper operation.
- Repair or modification done by anyone other than Nippon Genetics Europe or an authorized agent.
- Damage caused by substituting alternative parts.
- Use of fittings or spare parts supplied by anyone other than Nippon Genetics Europe.
- Damage caused by accident or misuse.
- Damage caused by disaster.
- Corrosion caused by improper solvent or sample.

For any inquiry or request for repair service, contact Nippon Genetics Europe or your local distributor. Please send a message containing information about the model and serial number of your instrument.

REGULATORY NOTICE

IMPORTANT: This Nippon Genetics Europe instrument is designed and certified to meet safety standards and EMC regulations. Certified products are safe to use when operated in accordance with the instruction manual. This instrument must not be modified or altered in any way. Alteration of this instrument will:

- Void the manufacturer's warranty
- Void the safety and EMC certification
- Create a potential safety hazard

Nippon Genetics Europe is not responsible for any injury or damage caused by the use of this instrument for purposes other than those for which it is intended, or by modifications of the instrument not performed by Nippon Genetics Europe or an authorized agent.

IMPORTANT NOTICE

Please, read the installation instruction carefully before installing the FastGene® Blue/Green LED Transilluminator DE and the FastGene® FAS-DIGI PRO Imaging System. This instrument is intended for clinical and research laboratory use with DNA gel activation and it must be operated only by specialized personnel aware of the potential risks associated with the chemical and biological agents normally used with this unit and the health risks associated with blue light radiation. Please wear the amber goggle or use the amber shield for your own protection!

Please make sure to connect the instrument only to a protective current!



Specification

Camera

Camera type	Scientific grade Canon Camera. For camera details visit: https://www.nippongenetics.eu/en/product/fastgene-fas-digi-pro/
Filter	FastGene® amber filter attached by magnets

Control

Control Software	NIPPON Genetics Camera Studio, Windows OS 10 or higher
Saved Image Format	TIFF, JPEG
Image storage	Host computer dependent
Interface	Host computer dependent
	Host computer dependent
	Supports Mitsubishi thermal-printer P95D

Darkbox

Access	Front door, 180° opened
Power unit	Power supply for transilluminator and camera
Filter	FastGene® amber filter shield

Illuminator

Built-in Blue-Green light source	470-520 nm
View Area	26 x 21 cm

White light transilluminator

External white light plate	Build-in battery or power supply via USB port
Dimension	29 x 20 x 0.8 cm
View area	22 x 16 cm
LEDs	Daylight LEDs, color temp.: 5000 K, CRI = 95
Weight	570 g

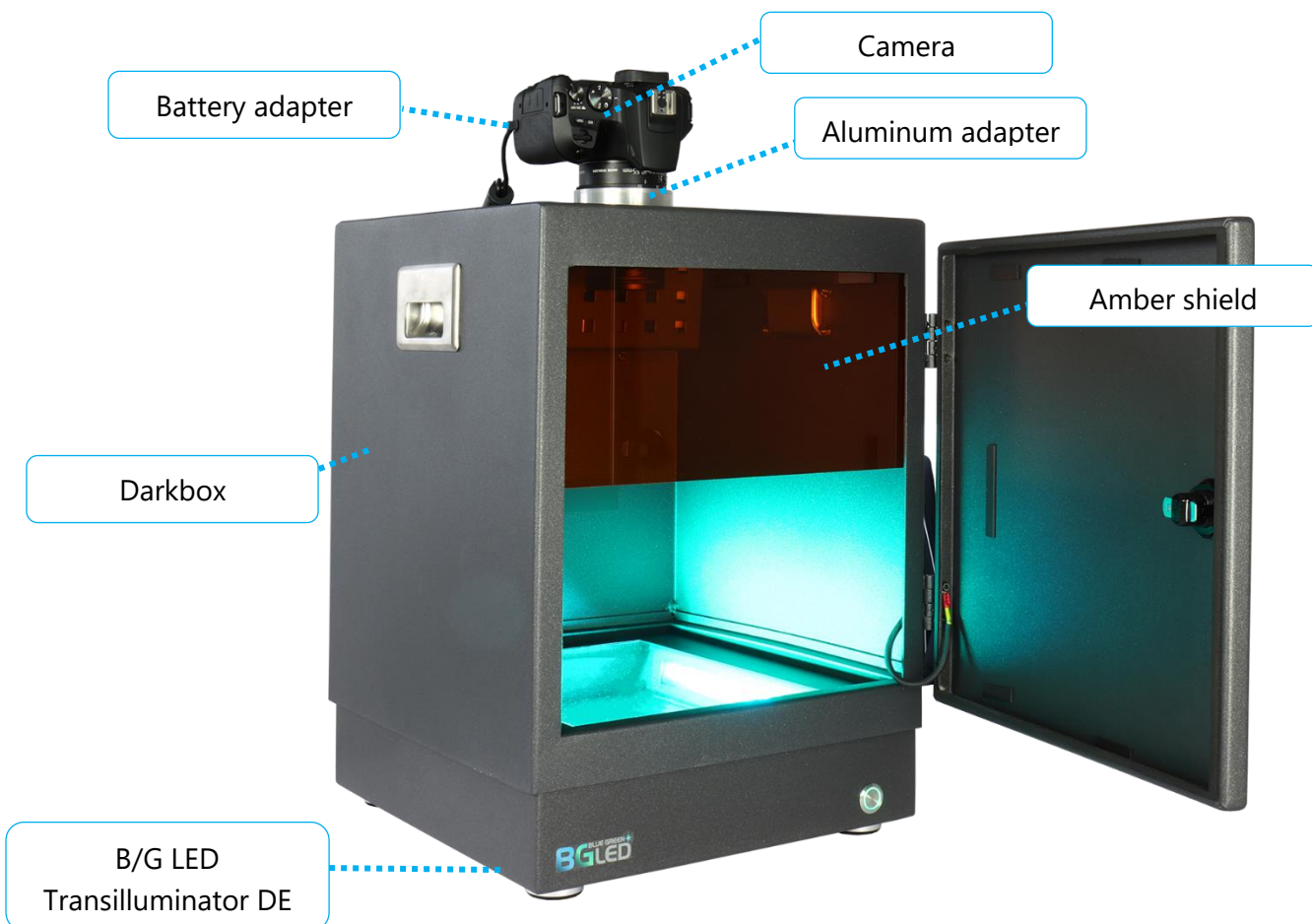
Unit

Material	Painted aluminum metal
Rated Voltage	100-240 V~, 50/60 Hz
Dimension (H x L x W)	57 x 35 x 32.5 cm
Weight	14 kg



Nomenclature

- Blue/Green LED Transilluminator DE
- Darkbox
- Amber goggles
- FastGene[®] amber filter shield attached with magnets (stored in the door)
- Camera holder
- USB-Stick with Software
- White light transilluminator
- Cables:
 - a. Battery adapter for the camera
 - b. USB-Cable to connect the camera to the PC
 - c. Power cable 1: From a power socket to the darkbox
 - d. Power cable 2: From the darkbox to the adaptor of the Blue/Green LED Transilluminator DE
 - e. Power adapter of the Blue/Green LED Transilluminator DE
- Camera:
 - a. Attached to the aluminum adapter (Please do not remove the aluminum adapter)
 - b. FastGene[®] amber filter attached by magnets to the lens



Part I

Installation



Installation guide – Setting up the FAS-DIGI PRO

Place the unit on a level surface with minimal chance of dropping.

Assembling the camera holder

The camera holder prevents the camera from turning when rotating the zoom ring using the aluminum adapter and is fixed by two screws to the darkbox and one tripod screw to the camera. The position of the camera holder must be adjusted according to the camera:

1. Place the camera with its aluminum adapter in its final position, by adding it to the hole in the top part of the darkbox.
2. Add the Battery adapter to the camera. Please note that only one direction is possible.



3. Close the battery compartment completely and put the cable in the cable channel. Please note: The camera will not turn on if the battery compartment is not completely closed.

Cable channel





- Align the camera, so that the image of the position is straight. The control buttons should be facing toward the door of the darkbox.
- Loose the tripod screw from the camera. Please be careful not to lose the spacer. The spacer is added between the camera and the camera holder.

Tripod screw



Spacer



- Fix the camera holder on the camera using the tripod screw in the following order: Screw→Spacer→Camera holder→Spacer→Camera. Afterwards, Align the camera holder holes with the 2 small holes in the darkbox.



- Use the screws fixed on the box. You will need a 6 mm head for the nut and a hexagon socket screw (a.k.a. Allen) key.



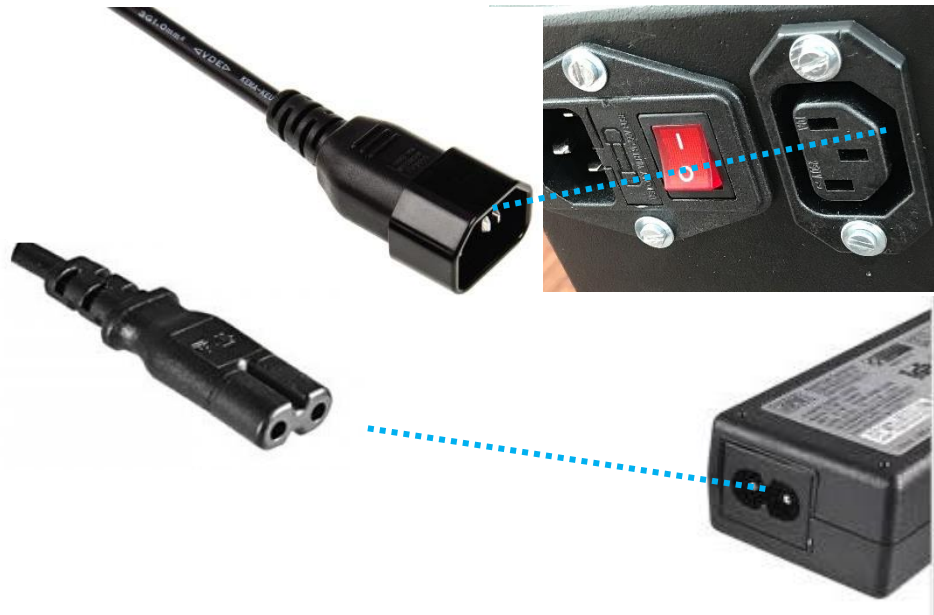
The darkbox connected with the camera is now ready and can be placed on top of the transilluminator. The next step will explain how to connect the cables.



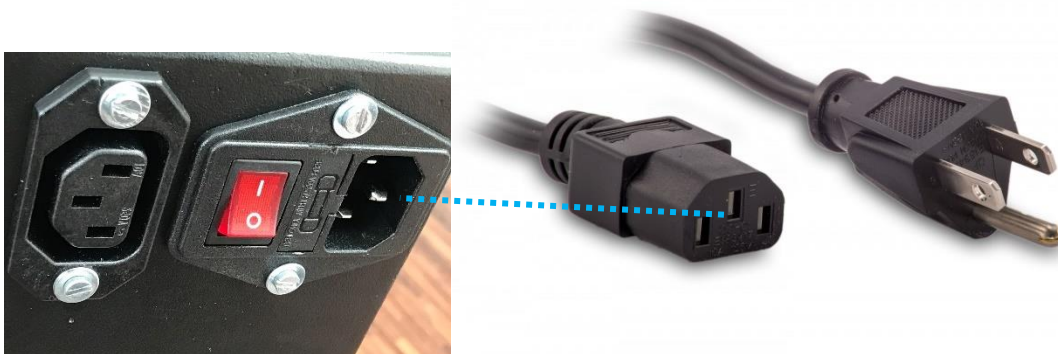
Connecting the cables

The FAS-DIGI PRO was designed to have only one power supply. The transilluminator and the camera receive their electrical power from the darkbox. Please connect the cables using the following order:

8. Connect the B/G LED Transilluminator DE to the darkbox using the male to female power plug:



9. Add the power lead to the power socket and to the darkbox.



10. Switch on the red switch on the back part of the darkbox.

The FAS-Digi PRO is now powered up. The transilluminator should switch on, as soon as the switch in the front is used. The next step explains how the camera is connected to a PC.



Connecting the camera to a PC

The FAS-DIGI PRO is powered up and can be used without a software. Here, we will explain how to connect the FAS-DIGI PRO gel documentation system to a Windows 10 PC and to use the NIPPON Genetics Camera Studio software.

Preparation:

- Check that the autofocus and the image stabilization are turned off.
- Copy the FAS-DIGI PRO folder to the desktop of a Microsoft Windows 10 PC.
- Connect the camera to the PC using the USB cable found in the camera box. The USB port is on the left side of the camera.
- Set the camera to manual mode by turning the mode dial to M.
- Switch the camera on.





Starting the software

1. Start the *Fas DIGI PRO Installer.exe* software:



Please note if a blue SmartScreen appears: select More info and chose the option run anyway.



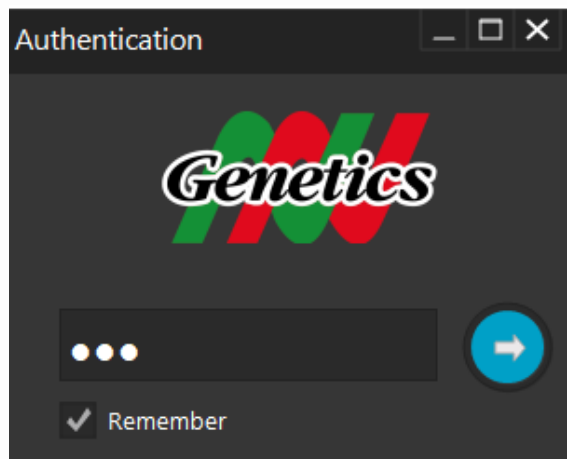
This blue SmartScreen will only appear when the NIPPON Genetics Camera Studio is launched for the first time.



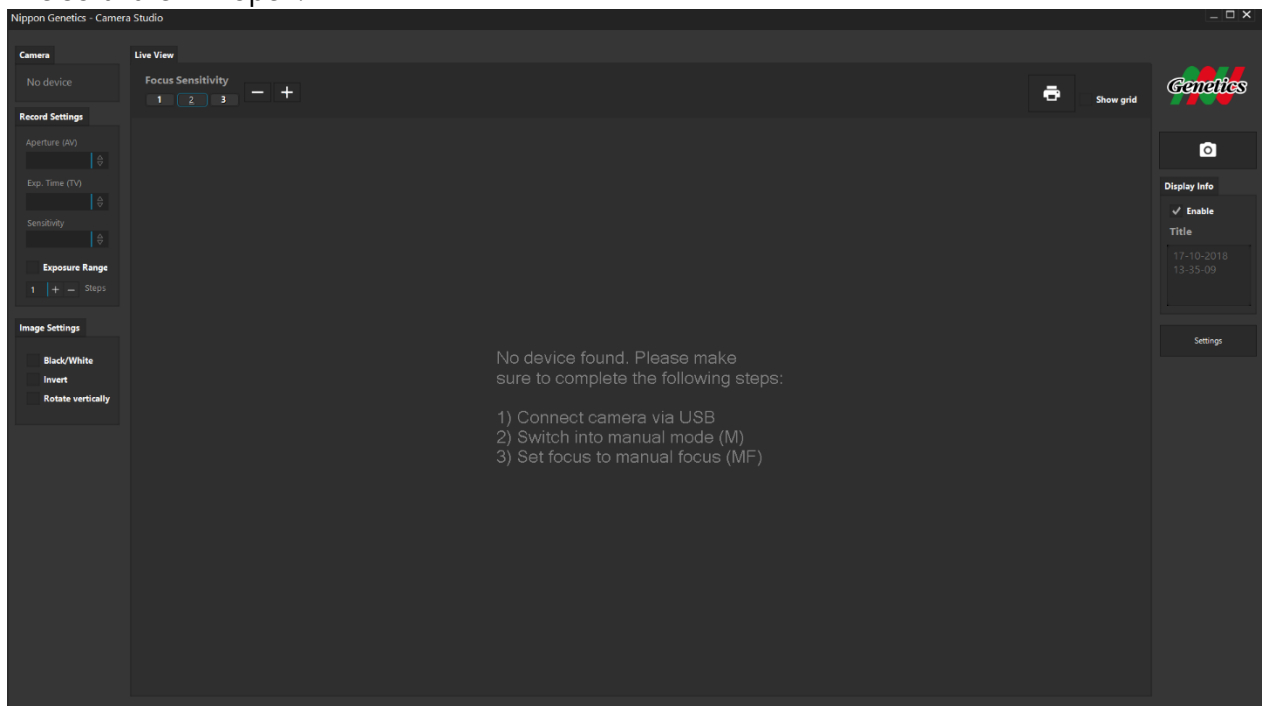
2. Log in

The NIPPON Genetics Camera Studio Software is password protected to avoid unauthorized people to have access to the gel documentation system. The password to enter the software is:

NgE



3. The software will open.



You completed the installation of the FAS-DIGI PRO. Please continue with the IQ/OQ/PQ protocol.

WELL DONE!

Part III

Manual



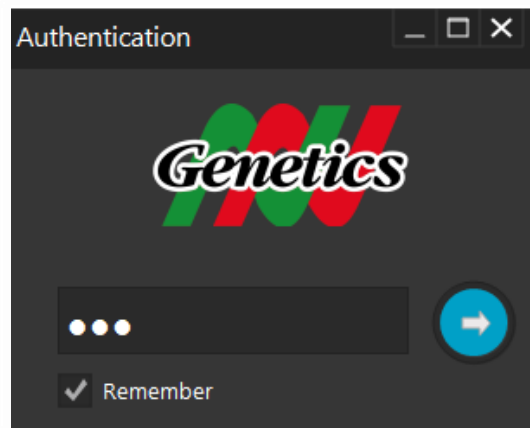
Operating the System

The FAS-DIGI PRO is operated through the NIPPON Genetics Camera Studio Software:

Log in

The NIPPON Genetics Camera Studio Software is password protected to avoid unauthorized people to have access to the gel documentation system. The password to enter the software is:

NgE



Main Menu

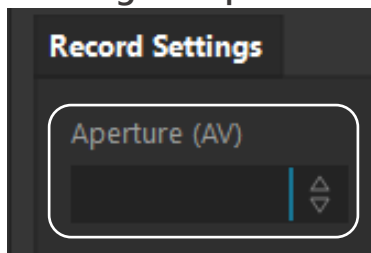
The NIPPON Genetics Camera Studio Software can control all necessary parameters to take an image with the FAS-DIGI PRO.



All the following operations can be performed or accessed via the main menu:

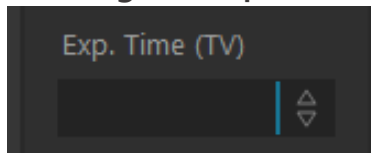


Selecting the aperture



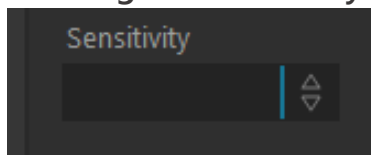
Opening of the iris: controls the amount of light to the sensor and regulates the depth of field. The value can be changed by using the dropdown menu or the mouse wheel.

Selecting the exposure time



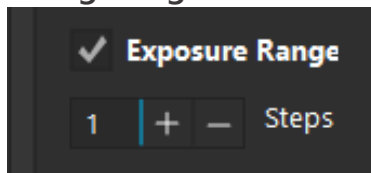
The exposure of the sensor to light in seconds. Minimal exposure time is 1/4000 up to 30 seconds.

Selecting the sensitivity of the sensor



Regulates the sensitivity of the sensor (ISO value). Maximal value is ISO 25625. The lower the sensitivity, the longer the exposure time will be. The higher the sensitivity, the higher the background noise will be.

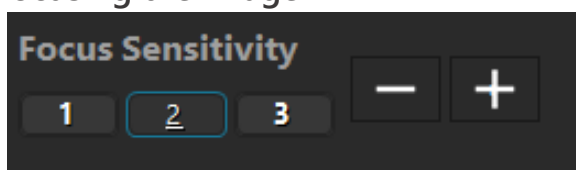
Taking images with different exposure times



Activate the Exposure Range function!

Three images will be captured. Adjusting the difference in exposure value between the single shots using the +- . Three images will be displayed. Select the image with the best light exposure and click on "Choose". The file can be saved as JPEG or TIFF.

Focusing the image

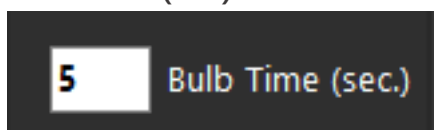


FOCUS SENSITIVITY

Adjusting the intensity by which the focus is changed. 1 is for very sensitive, fine adjustments. 3 is for large steps.

Click on +- or use the mouse wheel on the screen to change the focal plane.

Bulb Time (sec)

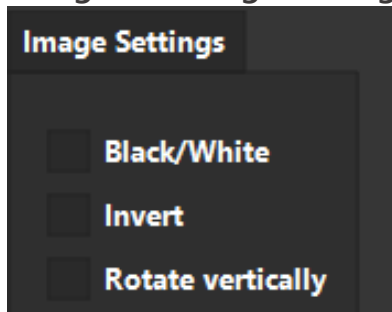


Bulb Time

For longer exposure time, set the exp. Time to Bulb and set your desired time in this area.



Change the image settings



BLACK/WHITE

Changes the image from a coloured one to grey values.

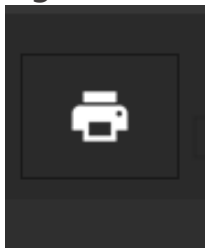
INVERT

Reverses the grey values turning white into black, and black into white.

ROTATE VERTICALLY

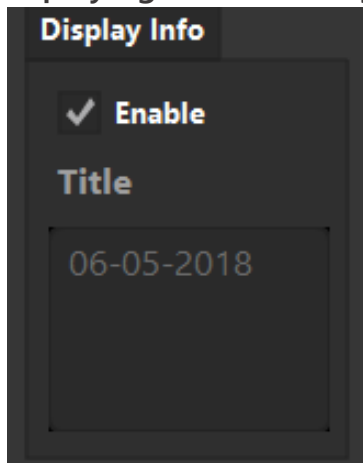
Mirrors the image vertically. Used if the gel is not in the right position.

Printing the live view



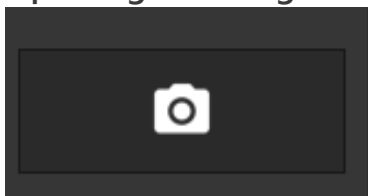
If you want to print the live view image without having to save data to the storage. The printer menu from windows 10 will appear. Please select your desired printer.

Displaying the recording information



Shows the aperture, exposure and ISO values on the image. Additionally, a title is shown. The standard title is the date. To change the title write your text in the box below.

Capturing the image



The image is recorded in the camera RAW mode and converted into a TIFF image. The image is formed by 3 x 8 bit values, resulting in a 24 bit image with a resolution of 24 MPixel and is saved on the harddrive of the computer or on a network location chosen by the user.



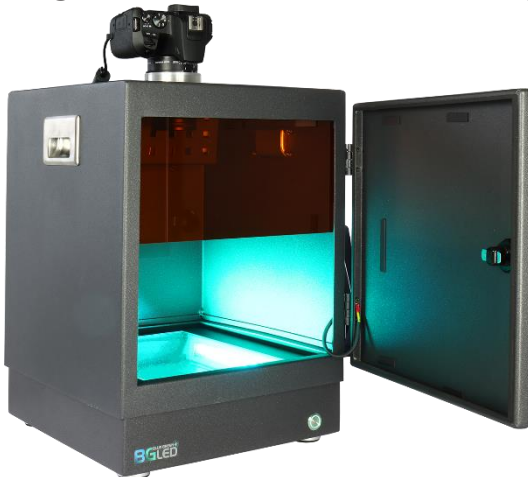
Excising DNA bands

Removing the filter shield from the door



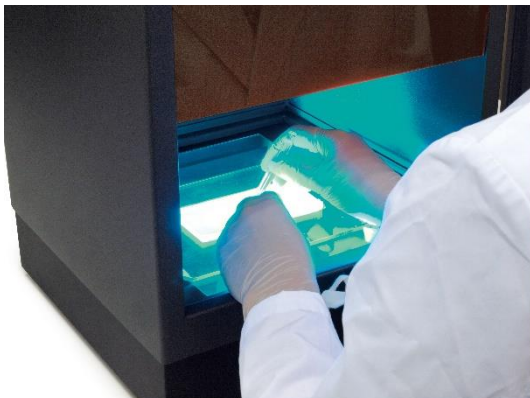
Remove the filter shield from the door and turn it around. The magnets should be facing you.

Adding the filter shield to the cutting position



Attach the filter shield to the magnets inside the box.

Excise the DNA band



Turn on the transilluminator. Now look through the filter shield and excise the DNA band. Do not use sharp instruments. We recommend to use our FastGene® Agarose Gel Band Cutter (FG-830)



Taking images using a white light source

Taking images of protein gels



Recording images of protein gels or petri dishes are possible by adding a white light source and removing the FastGene® amber filter from the lens. The procedure is shown in the next steps

Exposing the filter



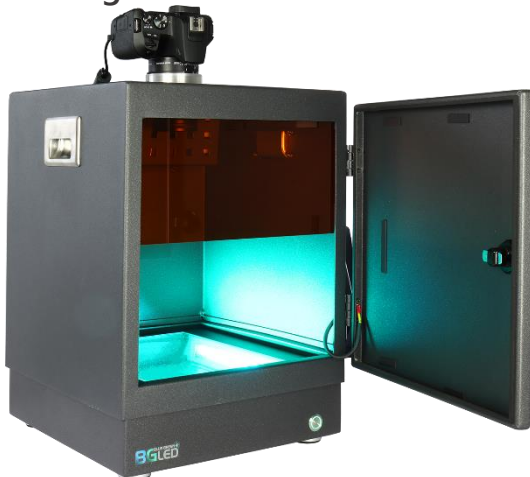
Extend the lens barrel by zooming out. The lens is now exposed and the filter is ready to be removed. The filter is held in place using a magnetic filter holder. After removing the filter, add the white light source (e.g. our white light transilluminator FG-07)

Removing the filter



After zooming out, you can remove the amber filter from the lens, by using 2 fingers, as shown in the left image. The amber filter should now be stored in a safe, clean storage space and be added as soon as the image is taken. To add the filter to the lens, just hold the amber filter close to the lens and the magnet will pull the amber filter to the correct position.

White Light Transilluminator



Add the white LED transilluminator to the central area of the Blue/Green LED Transilluminator as shown in the picture. Turn the switch to battery. Make sure that the transilluminator is charged, otherwise connect the transilluminator to a power source using the USB charger cable. Select the required brightness by pressing the switch button. Record your image.



Heat Protection of Blue/Green Transilluminator DE

The FastGene® Blue/Green Transilluminator DE is equipped with a heat protection. The LEDs will shut off for 5 minutes if a specific temperature is detected. During the “cooling phase” the switch is blinking. After cooling down the LEDs will not switch on automatically and the switch is not blinking anymore. You can now switch on the transilluminator again.

Status	Possible causes and/or corrective action
B/G LEDs and switch are not blinking	The power cable is not plugged into a power socket or is not connected to the Power Supply.
B/G LEDs are not shining. Switch is blinking	The Transilluminator is in the “heat protection” mode. Please wait 5 minutes.

Contact Details

Please contact us for additional information: info@nippongenetics.eu

Please contact our support: support@nippongenetics.eu

NIPPON Genetics EUROPE GmbH

Mariaweilerstraße 28-30
52349 Dueren
Germany
Fon: +49 2421 55 496 0
Fax: +49 2421 55 496 11

