

GEL JET IMAGER

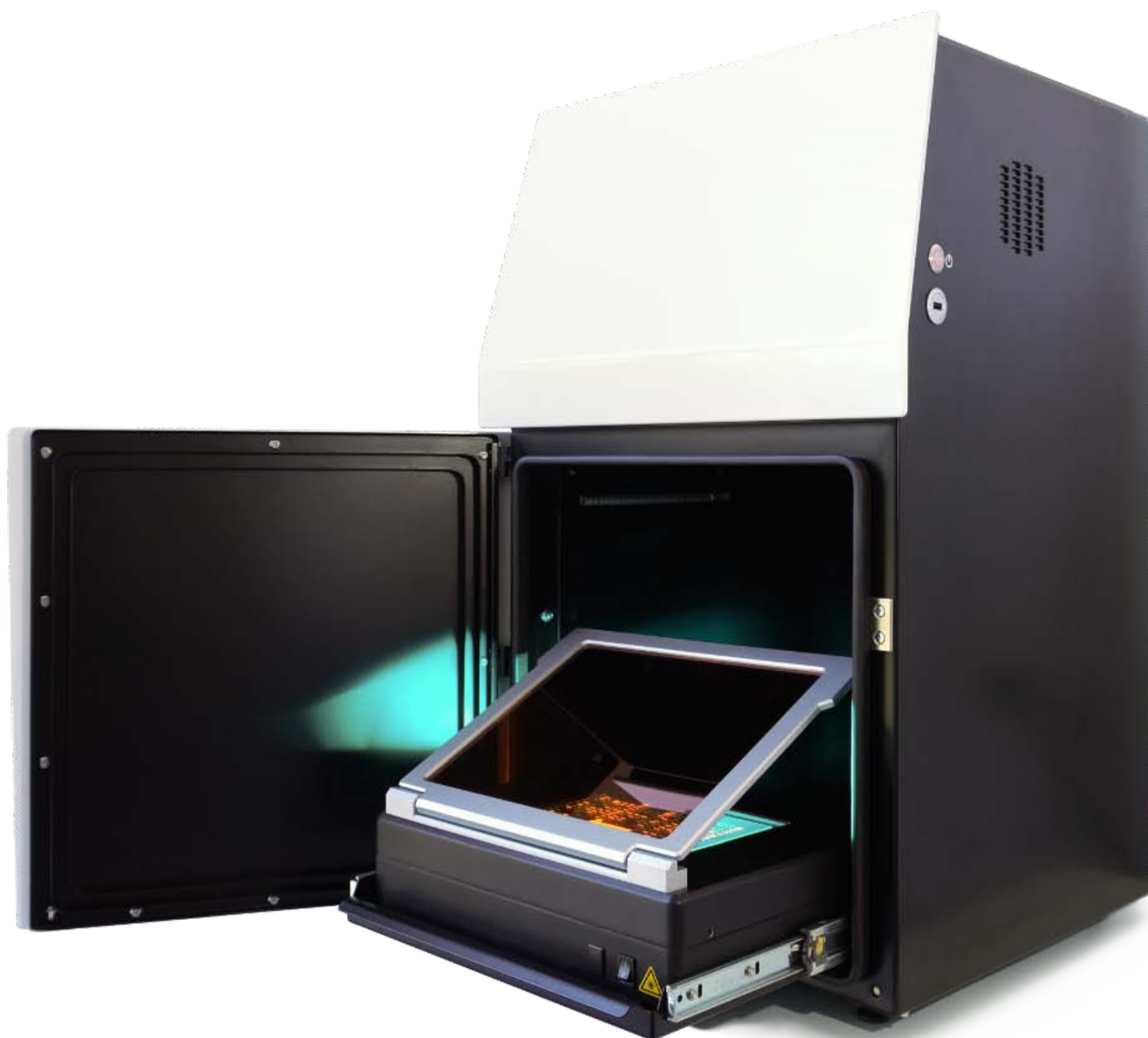
STATE OF THE ART GELDOCUMENTATION

INTAS
SCIENCE IMAGING INSTRUMENTS

USER MANUAL

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Before installing and using the Gel Jet Imager you must read all safety instructions and warnings, including all the warning labels attached to the equipment, carefully.



Warning!

Do not use the Gel Jet in any other way as described in this User Manual.

Do not pour liquids on or inside the Gel Jet Imaging System.

Do not use the Instrument in humidity above 70% RH or dusty environments.



Warning!

For safety, the power outlet used for powering the instrument must be accessible at all times. In case of emergency, you must be able to immediately disconnect the main power supply to the instrument. Allow adequate space between the wall and the equipment so the power cord can be disconnected in case of emergency.



Warning!

The instrument cannot be carried by one person.

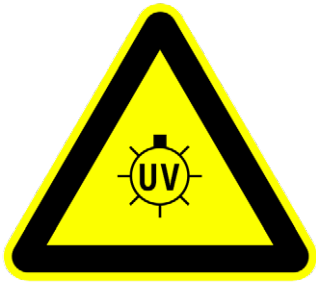
Do not place objects on top of the Gel Jet Imaging System



Warning!

Clean the UV-transilluminator after using.

Do not stare directly into the led light sources.



Warning!

This System contains a strong UV lightsource. Avoid looking into UV-transilluminator.

May be harmful to unprotected eyes and skin.



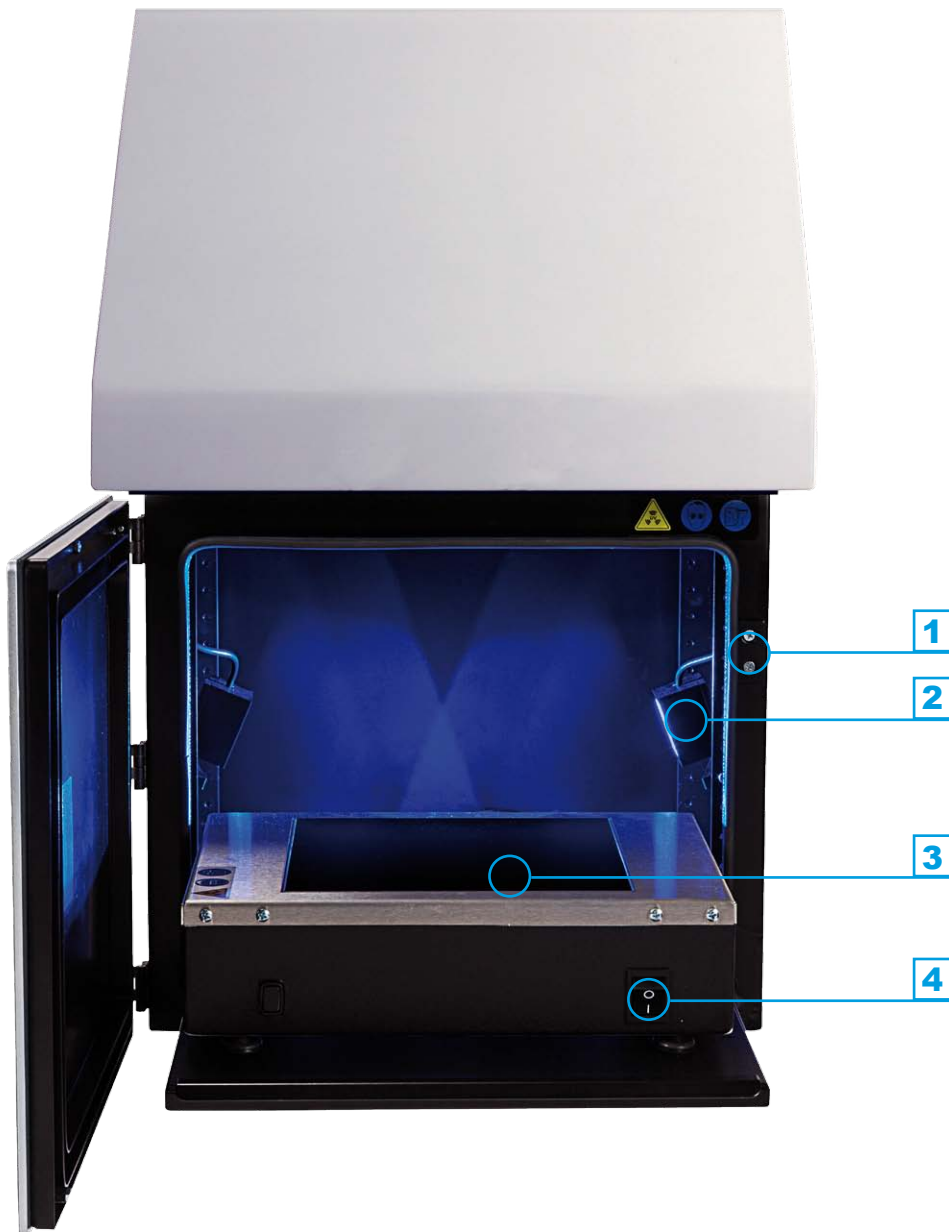
Caution!

System door is secured by strong magnetic field. Interaction may produce pinch hazards. Magnetic field may interact with certain pacemakers.

Table of Contents

Hazard Warnings.....	2
Table of Contents.....	4
Overview Gel Jet Imager.....	5
How to install the Gel Jet.....	6
• Wiring and Connections.....	6
Home Screen overview „Intas GDS Touch“.....	7
• Homescreen.....	7
• DNA / RNA image acquisition.....	7
• Protein image aquisition.....	7
• Settings.....	7
• Image Viewer.....	7
• Quick Order.....	7
Settings.....	8
• Camera Calibration.....	9
Image acquisition Window.....	10
• ONE Click.....	10
• Light Source.....	10
• Zoom.....	10
• Exposure time.....	10
• Lens Control.....	11
• Inversion.....	11
• Overexposure.....	11
• Printing an Image.....	11
• Saving an Image.....	11
• Image Dynamic Range.....	11
Image Viewer Overview.....	12
• Coomassie Blue.....	12
• Inversion.....	12
• Overexposure.....	12
• Zoom/Rotate Image.....	12
• Annotation.....	13
• Export Image.....	13
• Exif Data.....	13
3D View Module.....	14
Image Viewer - File Selection.....	15
Quick Order Menu.....	16
Instrument Specifications.....	17
Calibration Pattern.....	18

Overview Gel Jet Imager



- 1.) **Magnetic door lock**
Please refer to security warnings on pages 2 and 3 for more information.
- 2.) **BlueLED cube**
These are the lightsources for blue light illumination. Optional equipment: Will not be present in every unit.
- 3.) **Sample Tray**
Place your agarose gels onto this surface. Avoid cutting out bands directly on the glass surface. Warning, this is the source of UV hazards.
- 4.) **Power switch transilluminator**
The transillumination unit has its own power switch, which needs to be turned on in order to be used correctly.

How to install the Gel Jet



Attach the power cable to the connector on the backside of the system. Turn the button to position “I”, as seen on the image to the left.

The Gel Jet is now ready for usage.

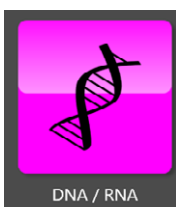
Wiring and Connections



There is one USB B connector on the backside of the system. You need to plug in a USB B cable and connect it to the computer you wish to use for controlling the Gel Jet.

You will also find a RJ45 network adapter port. This is the camera link and will need to be connected using a Cat 5 or higher network cable.

Home Screen Overview



Nucleic Acid Mode

Press this Button to start image acquisition in nucleic acid mode. You will then get to the corresponding image acquisition window. Refer to page 9 for more information.



Protein Mode

Press this Button to start image acquisition in protein mode. This mode is for imaging of stained PAGE gels, for example with Coomassie or silver stain. You will need a white conversion screen or electronic white light tray in order to work in this mode.



Settings

Push this Button to get to the software's settings window. You will be asked for a password to proceed. If you need to change the predefined settings of your Gel Jet, please refer to Intas customer service at info@intas.de and you will receive the password.

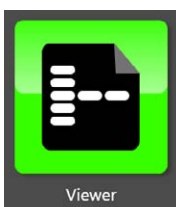
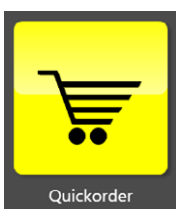


Image Viewer

Use this Button to get to the image viewer module. More information on the image viewer can be found on page 13.



Quick Order System

You can reach the quick order system by using this button. It can be used to quickly order consumables like paper for thermal printers or Intas HDGreen. The quick order system will only work when the Gel Jet has internet access.

Settings

Intas GDS Touch Settings

Save Path: For browse dialog: ☐ C:\IntasImages

Select Printer: Microsoft XPS Document Writer

Printer Image width in pixels: 400

Camera Calibration: SN: No Device

Darkbox: UV Transilluminator Normal

Protein: Delay: 500 ms Exposure time: 20 ms UV-Transilluminator: ☒

Quickorder: Billing Address: Delivery Address: EPI Blue is installed: ☒ Controller is installed: ☒ Skin and eye protection: ☐

Save Path

You can change the internal save path on your Gel Jet imager. Type in the correct drive and path here if you want to use a different standard saving folder.

Printer

Here you can select the printer you wish to print out your images on. You can also adjust the image width corresponding to your printer. If you use recommended Mitsubishi P93 DW this value should be 400.

Camera Calibration

Here you will find the camera's serial number as well as the option to calibrate your camera. See page 9 for more information.

Darkbox

You can change the settings for whether your Gel Jet is using a UV-Transilluminator or a LED-Transilluminator and if it is using the normal sized or the large darkroom.

Protein

The standard settings for protein mode can be changed if they need to be adapted to different experiment conditions. Are you using a white light conversion screen, the Button for UV-Transilluminator needs to be activated. Should you use a LED white light tray, it needs to be deactivated.

EPI Blue is installed

If this button is activated, you will be able to use blue light epi-illumination, if you have a blue light unit built into your Gel Jet.

Controller is installed

This setting is to activate the Intas Smart Control System, if there is one present in your imaging system. Do not activate this option if you are not completely sure your system is equipped with the corresponding electronics. Contact Intas customer service if you are uncertain.

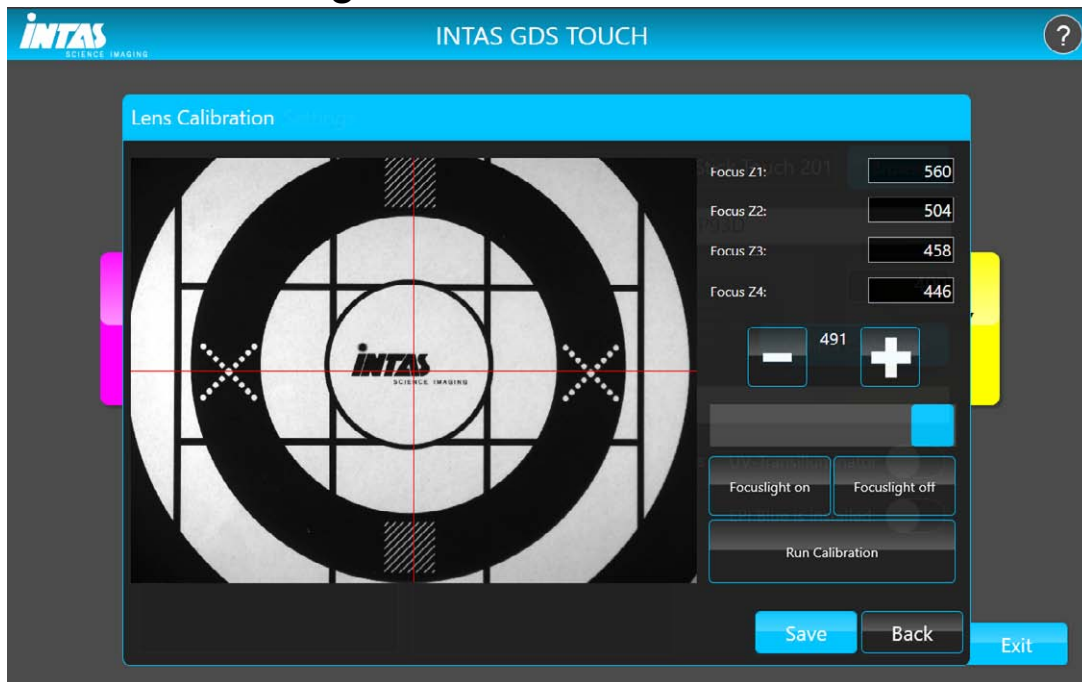
Skin and Eye Protection

When this feature is enabled, you will not be able to activate the UV-transilluminator while the door is open.

Quick Order

This setting enables or disables the quick order button. If you do not wish to use this software feature you need to leave both fields blank. Type in your billing and delivery address for the quick order menu to activate the feature. Please include email and phone number.

Settings - Camera Calibration



Camera Calibration

When you start the camera calibration mode, you will see a live image at the left side of the screen. Ensure that the focus light is turned on by clicking on "Focuslight on".

Place the calibration pattern that you can find on page 20 with its middle pattern in the center of the red crosshair in the live screen. After this close the darkroom door.

You can adjust the light intensity using the slider which is located above the focus light controls. Make sure the image is not overexposed, but you should be able to see the calibration pattern well.

You can now start the calibration process by using "Run Calibration". This might take a short moment of up to two minutes.

If you are not satisfied with the automatically generated results you will be able to readjust the focus values independently by executing the following steps:

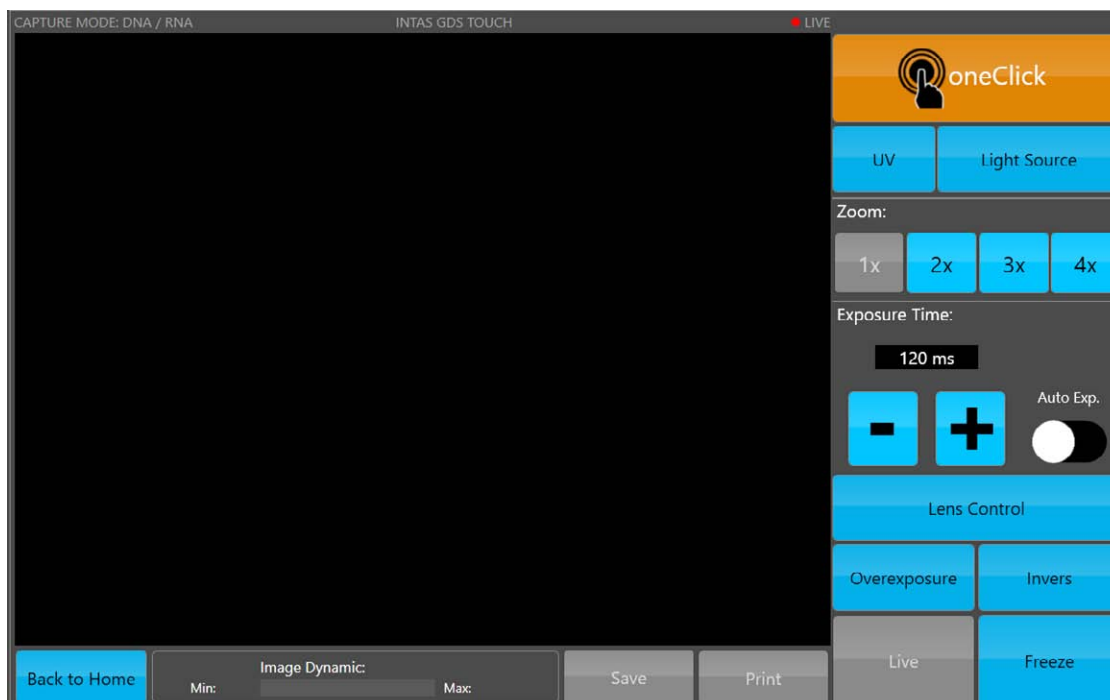
- Identify the level which is not calibrated correctly: Click on the focus number fields for every level (Z1 - Z4) and check if the image is in focus.
- Select the unsatisfactory level by clicking into its focus number field.
- Use the two focus buttons (- and +) to get the calibration pattern in the live window in focus.
- When in focus, write down the number that is shown between the two buttons (- and +).
- Replace the old number in the desired field with the new one noted in the step before.

If you have finished the calibration process don't forget to save the results by clicking on "Save".

Otherwise all changes will be lost.

You can end the camera calibration mode by clicking on "Back".

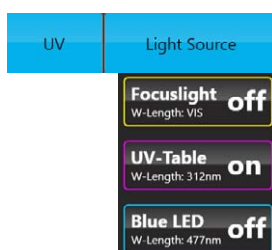
Image acquisition Overview



One Click

By clicking on “one click” you will start the one click automatic image acquisition. The computer will automatically set the exposure time, aperture, UV-light and focus and will freeze the resulting image for you.

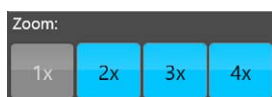
This mode is the easiest and fastest way to get your image results.



Light Source

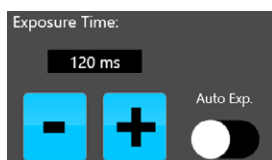
In this part of the software you can choose between the illumination light sources. Pressing UV will turn on the UV-transilluminator, pressing Light Source will give you a list of the installed light sources inside of your system to choose from.

Focus light will turn on automatically if you open the door of the darkroom. UV-light and blue illumination will automatically turn off if you open the door. You can use the UV-transilluminator with open door only if you click on UV while the door is open. A warning notice will appear before the UV-light turns on.



Zoom

You can adjust the zoom by pushing on one of the four zoom presets. This will also ensure that you automatically get a refocused image after zooming. Additional magnification options can be found under “Lens Control”.



Exposure Time

In this field you can change the exposure time and select auto exposure.

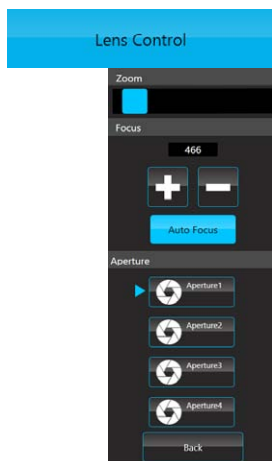
You can increase the exposure time by pressing “+” and decrease it by pressing “-”.

Elevating the exposure time will increase the brightness of the image while also lowering the refresh rate.

You can choose to use the auto-exposure function by pressing the corresponding button.



Image acquisition Overview



Lens Control

By pressing “Lens Control” you will get to the objective controls. You can use the zoom slider for a stageless zoom.

If you need to focus your image you can use the autofocus button. If you think the result is not precise enough you can adjust the focus by using “+” and “-” afterwards.

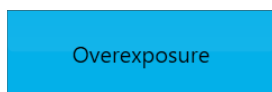
You will also be able to change the aperture settings. Changing the aperture will result in less light-yield while increasing the depth-of-field.

Close this tab by clicking on the “Back”.



Inversion

Using this button will result in an inversion of the colors of the image.



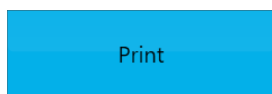
Overexposure

Usage of this function will show you overexposure in your live image. Saturated areas will be shown in red.



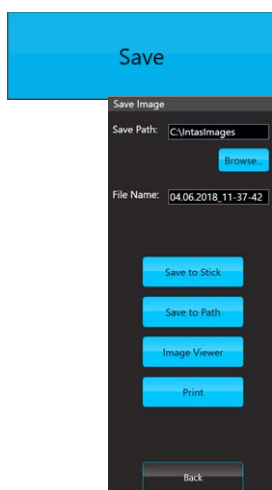
Live / Freeze

You can switch between live and freezed image using these buttons. Note that you only will be able to save your image in freeze mode, while only being able to change illumination and exposure parameters in live mode.



Print

If you have a printer attached to your Gel Jet and selected it in the settings menu you can print using this button.



Save

By pressing the “Save Image” button you will open the save tab. The automatic file name will be consisting of the current date and time, unless you change it yourself. If you click on “Save to Path” you will save the image to the folder displayed.

You can also save to a connected USB device by selecting “Save to Stick” or go to the image viewer module to further modify your image.

You can also print the image from this window.



Image Dynamic

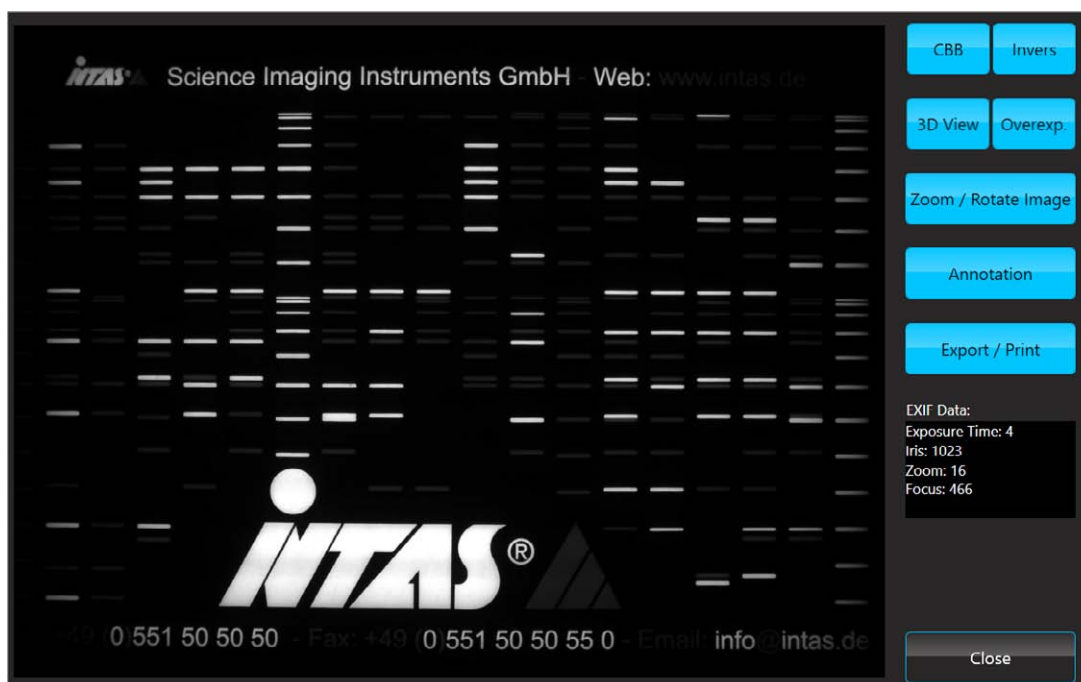
This dialogue will show the minimum and maximum signal intensities in your image. Values of 65535 (red) will indicate a present overexposure in the image. To achieve the optimum in image acquisition, the max value should be around 60,000.



Back to Home

Press this button to leave the image acquisition mode and get back to the home screen.

Image Viewer Overview



CBB

With this button you can stain the bands in your image blue. This will give you a realistic effect if you have been using protein mode and a dye like Coomassie Brilliant Blue.

Inversion

Using this button will result in an inversion of the colors of the image.

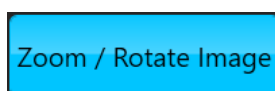


3D View

You can create a 3D image of your data using this button. For further details see 3D View on page 14.

Overexposure

Usage of this function will show you overexposure in your live image. Saturated areas will be shown in red.



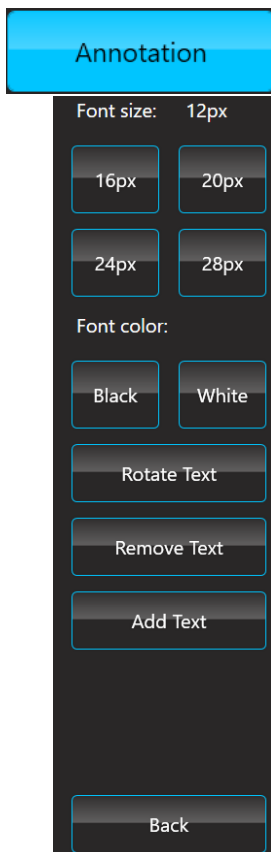
Zoom / Rotate Image

By pushing this button the zoom and rotation dialogue will appear. Put two fingers on the screen and draw them nearer to zoom out or farther away from each other to zoom in. Put two fingers in the screen and move one of them in a circle to rotate the image. Use one finger to move the image. You can end this mode by clicking on "Back".





Image Viewer Overview



Annotation

With this mode you will be able to annotate your image. You can choose between four different font sizes and two different font colors.

To add an annotation to the image use "Add Annotation". You can move the annotation by clicking into the image and continue pressing while moving.

Click on the generated text to change from "Lane 1" to your desired text.

You can also rotate your annotation by 90° when pressing "Rotate Text".

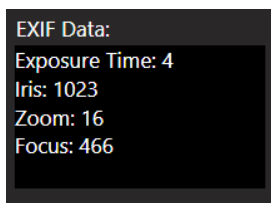
If you want to delete a certain annotation just select it and press "Remove Text".

You can end this mode by clicking on "Back".



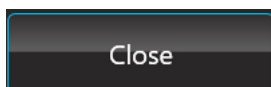
Export

By clicking on this button you will be able to export your image to different file types and you can print the image.



Exif Data

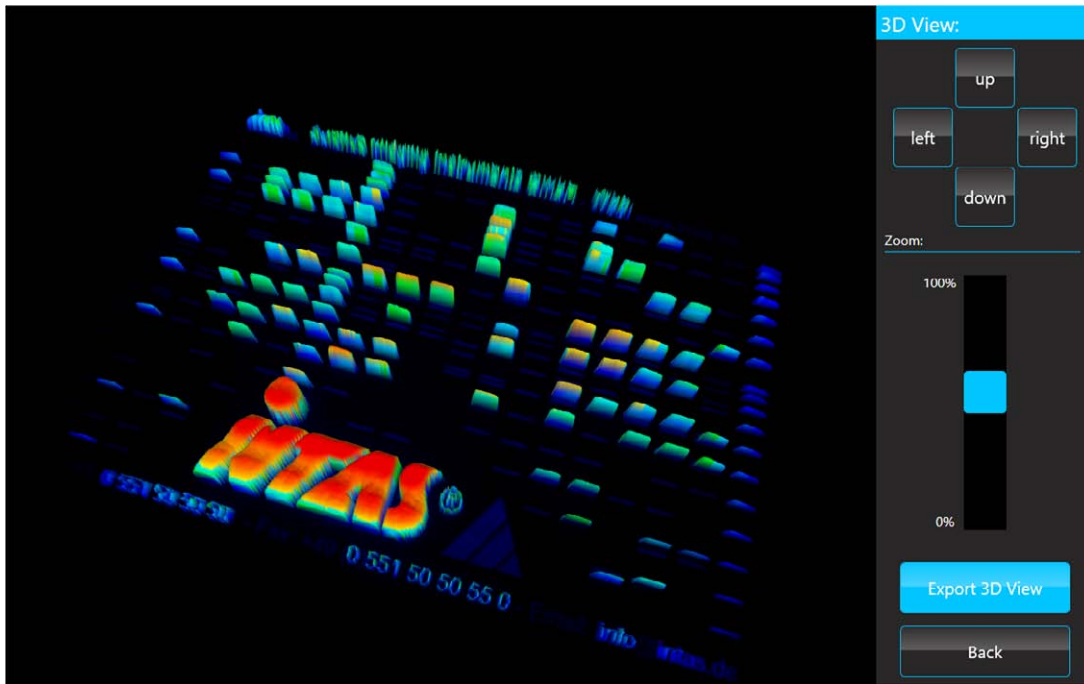
The exif data will show all the camera settings used when the image was generated. With this data you will always keep your data reproducible.



Close

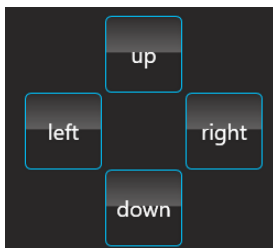
With this button you can close the image viewer dialogue.

3D View



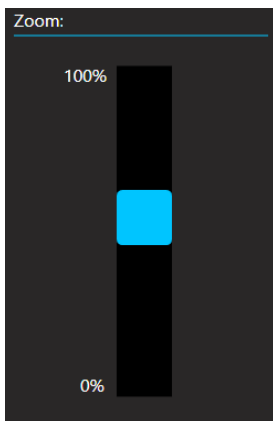
3D View

The 3D View module will show you your image with its pixel intensities as a third dimension. Also, brighter parts of the image will be seen in orange and red, faint signals will be blue.



Crosshair

You can tilt the 3D image using the buttons up and down and rotate it with left and right.



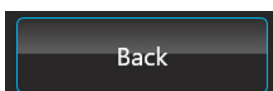
Zoom

Use the slider to zoom in and out of your image.



Export 3D View

If you want to save the 3D view of your image, you can do it using this button.

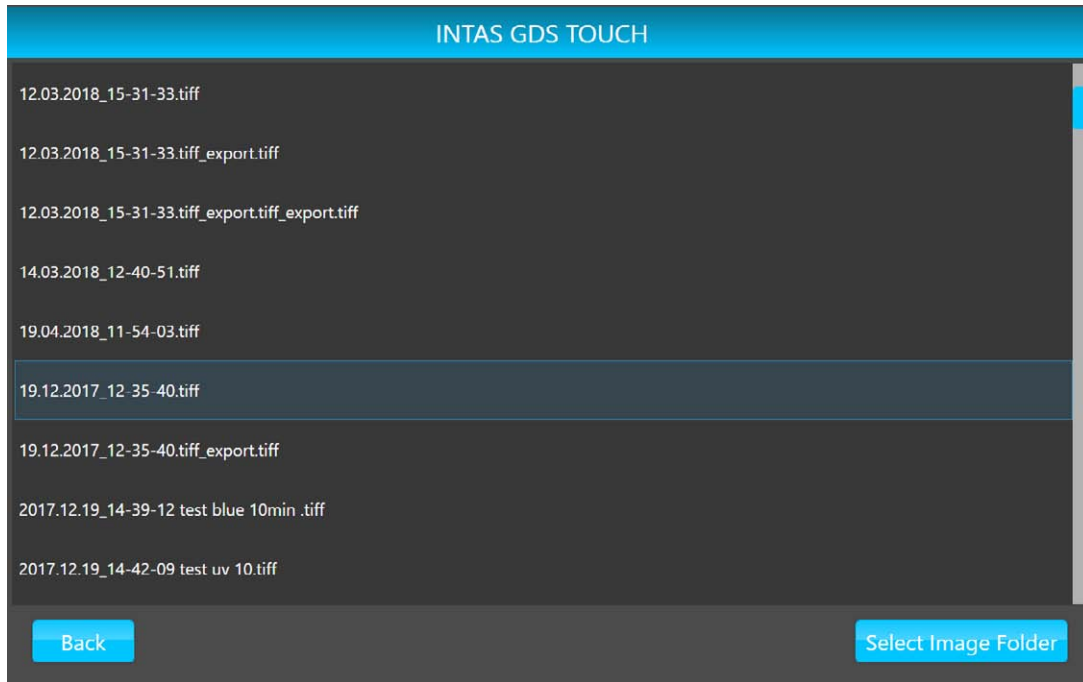


Back

This button brings you back to the image viewer.



Image Viewer - File Selection



File Selection

If you open the image viewer from the home screen by clicking “Viewer”, you will get to the file selection window.

You will now have a list of the images that were stored in the standard folder as specified in the settings. Doubleclick the image you want to open and it will be shown on the screen.

Select Image Folder

Select Image Folder

If you want to open a file from a different folder, use this button.

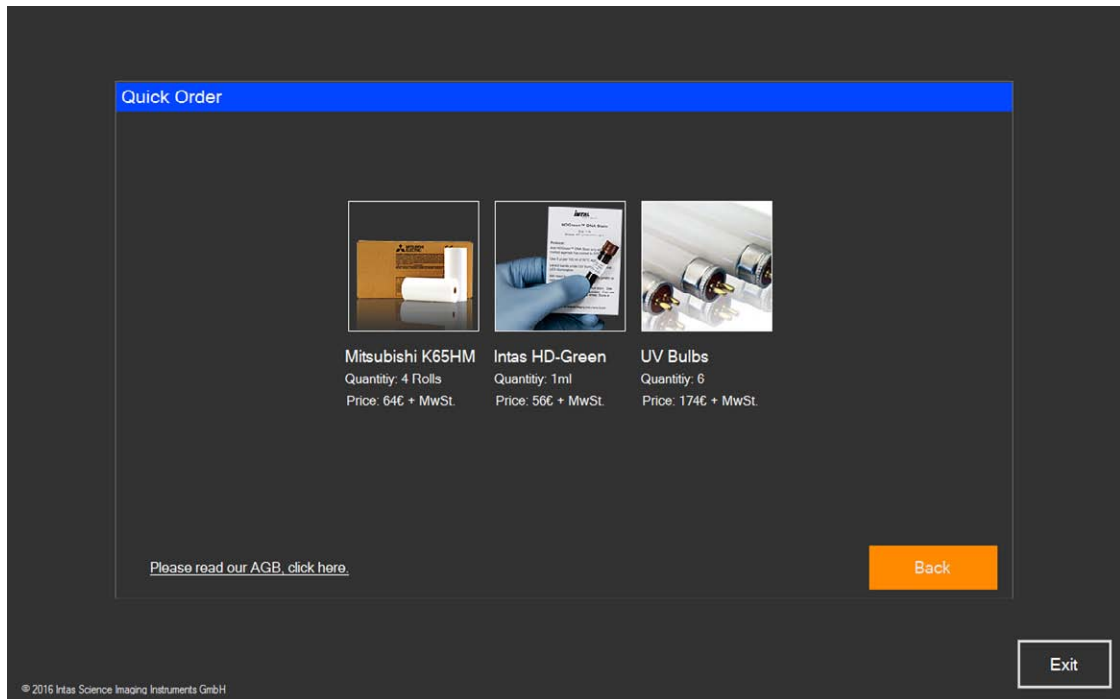


Folder Browsing

You can click on a folder and press select to show the files in it. Doubleclick a folder to get to the subfolders, use back to get back to the initial folder. Press close to get back to the file selection.

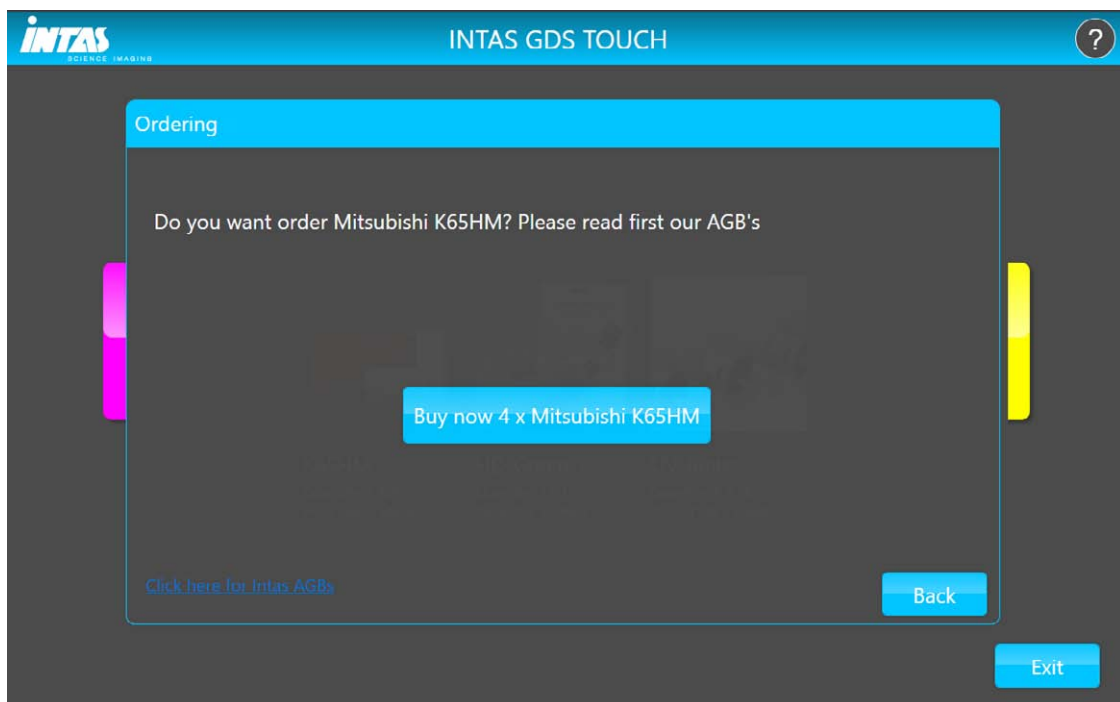


Quick Order Menu



In this menu you can directly order your consumables. The prices will be updated automatically, so you will always get the same offer as in Intas' online shop.

You can choose between Mitsubishi printing paper, Intas HDGreen and UV light bulbs.



Select the consumable you would like to order and click on "Buy Now" to generate the order. Please note that this is a real order which will result in Intas shipping the ordered goods to the address specified in the settings menu.

You can also show Intas' terms and conditions by pressing on "Click here for Intas AGB's".

Instrument specifications

Specification	Gel Jet
Dimensions (L × W × H)	470 mm x 470 mm x 675 mm
Instrument clearance (Back)	120 mm
Weight	42 Kg
Voltage	100 - 240 V
Fuse	2.5 A delay-action / 5 x 20 mm
Rated frequency	50/60 Hz
Rated power	250 Watts

Calibration Pattern

