FastGene® FAS-V Imaging System

Genetics NIPPON Genetics EUROPE

Catalogue Number GP-FAS-V



Content

1. SA	AFETY INFORMATION	3
2. W	ARRANTY	3
3. CO	ONTACT DETAILS	3
4. RE	EGULATORY NOTICE	4
5. IM	IPORTANT NOTICE	4
6. SF	PECIFICATION	5
7. NC	DMENCLATURE	6
8. OF	PERATING THE FASTGENE [®] FAS-V IMAGING SYSTEM	7
7.1.	SELECTING THE LIGHT SOURCE	8
7.2.	SELECTING THE EXPOSURE TIME	8
7.3.	SELECTING THE GAIN AND GAMMA VALUE	8
7.4.	FREEZING THE IMAGE	9
7.5.	CAPTURING THE IMAGE	10
7.6.	LOADING AN IMAGE	11
7.7.	SETTING UP THE SYSTEM	11
7.8.	REVERSING IMAGES	11
9. TF	RANSFERRING TO AN EXTERNAL USB-STICK	13
10.	EDITING CAPTURED IMAGES	14
11.	HOW TO PRINT IMAGES USING P95D:	15



1. Safety Information

Please read carefully the following notes to be able to properly use the FastGene[®] FAS-V imaging system.

- A Please wear the appropriate personal protective equipment
- Using FastGene[®] Blue/Green LED Transilluminator 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 wearing the amber goggle included in the box, when handling the transilluminator while the FastGene[®] FAS-V box is open.

2. WARRANTY

The FastGene[®] Blue/Green LED Transilluminator and the FastGene[®] FAS-V 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 distributer. Please send a message containing information about the model and serial number of your instrument.

3. Contact Details

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

Please contact our support: support@nippongenetics.eu

NIPPON Genetics EUROPE GmbH

Binsfelder Strasse 77 52351 Dueren Germany Fon: +49 2421 55 496 0 Fax: +49 2421 55 496 11

4. 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.

5. IMPORTANT NOTICE

Please, read the installation instruction carefully before installing the FastGene[®] Blue/Green LED Transilluminator and the FastGene[®] FAS Digi 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. This instrument is meant for use only by specialized personnel that know the health risks associated with blue light radiation and with reagents that are normally used with this instrument. Please wear the amber goggle for your own protection!

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6. Specification

Camera							
Camera type	2.0MP CCD						
Image Sensor	Monochrome CCD camera						
Resolution/Image Size	1600 x 1200						
Video Output Format	12-bit						
Pixel size	4.40 x 4.40 um						
Max. frame rate	15 fps						
Digital interface	USB 2.0						
Aperture	F/1.2						
Lens	12.5 – 75 mm, 6 X Zoom Lens , manual, parfocal						
Exposure time	0.001 to 30 seconds						
Filter	Midori Green Amber Filter 580 nm						
Control & Display							
Control panel	10.4" color touch screen						
Saved Image Format	PNG/TIFF /BMP/JPEG for 8-bit						
Image storage	16 GB SSD (Built-in memory); USB stick (External memory)						
1	Ethernet Port - 10/100Mb Ethernet Port						
Interface	USB flash drive						
	Supports Mitsubishi thermal-printer P95D						
Darkroom							
Inner white light	1W x 6 lamps built-in white light LED						
Access	Front door, 180 $^{\circ}$ opened						
Illuminator							
Built-in Blue-Green light source	~490 nm with optical filter						
View Area	26 x 21 cm						
White Light Plate	26 x 21 cm						
Unit							
Material	Painted iron metal, ABS front door						
Unit Dimensions	Approx. 382 x 400 x 785 mm						
Rated Voltage	100-240 V~, 50/60 Hz, 2 A						
Weight	35 kg						
Certification	CE						



7. Nomenclature



8. Operating the FastGene[®] FAS-V imaging system

The FastGene® FAS-V is operated through the central window:

Main Menu



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

- 7.1. Selecting the size of the image
- 7.2. Selecting the light source
- 7.3. Selecting the exposure time
- 7.4. Selecting the Gain and Gamma value
- 7.5. Freezing the image
- 7.6. Capturing the image
- 7.7. Loading an image
- 7.8. Setting up the system
- 7.9. Reversing the image



7.1. Selecting the size of the image



The image size can vary between 50 - 100 % of the total possible image. The size of the file will vary as follows:

- 1. 50 %: Image Size 1.0 MPixel
- 2. 75 %: Image Size 1.5 MPixel
- 3. 100 %: Image Size 2.0 MPixel

You can select among 50-100% depending on your gel size or required image size.

7.2. Selecting the light source

The light sources (blue/green LED light, white LED light plate, white LED room light) can be selected by pressing the buttons on the left side of the main menu:



7.3. Selecting the exposure time

The exposure time can be selected by using the arrows or by pressing into the number area and entering the desired exposure times in seconds:



7.4. Selecting the Gain and Gamma value

The Gain increases the sensitivity of the sensor in live view mode while the Gamma setting is applied when the image is frozen.

Gain	2015/10/13 14:39:21	Print
▲ ● ► Gamma		System Setup
		Reverse



Please be aware that increasing the Gain can lead to a higher noise level in the image!

7.5. Freezing the image

The live view of the image can be frozen before capturing the image. Press the button *Freeze Image:*



The gamma value can be changed while the image is frozen.

7.6. Capturing the image

Capturing images with the FastGene® FAS-V is very easy. Press the Capture button after adjusting the exposure of the image to the desired level.



The FastGene® FAS-V will take 6 images with different exposure times:

	. Capture preview			tenenes
Room Lig	n na e o o o e e e e e e e nationalmentalmento relativente antenna e	10 10 0 10 10 10 10 10 10 10 10 10 10 10		Size
BGJ EI	General BAジェネティクス株式会社 http://www.n-genetics.com om 641 044 066 091 011 012 016 06 06 06 06 minimum destructures international and	Generation 日本ジェネティクス株式会社 http://www.n-genetics.com 000 541 044 090 091 011 090 049 080 08 0 http://www.n-genetics.com	Genetics: 日本ジェネティクス株式会社 http://www.n-genetics.com www.nat.com/www.nat.com/www.nat.com/www.nat.com/ www.nat.com/www.nat.com/www.nat.com/www.nat.com/ www.nat.com/www.nat.com/www.nat.com/www.nat.com/ www.nat.com/www.nat.com/www.nat.com/ www.nat.com/www.nat.com/www.nat.com/ www.nat.com/www.nat.com/ www.nat.com/www.nat.com/ wwww.nat.com/ www.n	Freeze Image
ON				apture
White Ligh Plate OFF	0.005s	0.004s	0.002s	Date
Exposur	a da mangang ma Tang mangang man	alianilanalianilanilanilanilanilanilanil		Load Image
0.005 Gain			CARLESSEE 日本ジェネティクス株式会社 http://www.n-ganetics.com	Print
				System Setup
Gamma	0.009s	0.008s	0.006s	overse

Select the best image by pressing on it. The following menu will be displayed:



Here, the type of image is selected as well as the file is named. On the top part, the selection of storage place can be chosen (please note that external USB is only possible to select if a USB-stick has been recognized by the system before).

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7.7. Loading an image

Recorded images can be loaded from the storage by using the *Load Image* button:



The menu with the recorded images will appear. Select the desired image:

Internal Disk O External US	8 Disk			Sizo
File Name	Size	Created Date	<u>^</u>	
ETBR_W_SG_0.001.tiff	5MB	2015/10/13 09:49:21		
ADV_0.08.tiff	5MB	2015/10/13 09:49:20		
20150707153604.png	988KB	2015/10/13 09:49:19		
ADV_W_SG_0.001.tiff	5MB	2015/10/13 09:49:19		
20150707140404.jpeg	32KB	2015/10/13 09:49:19		
20150625140158.png	1MB	2015/10/13 09:49:16	===:	
ETBR_0.5.tiff	5MB	2015/10/13 09:49:15		
20150913191445.jpeg	160KB	2015/10/13 09:49:15		
20150707153435.tiff	5MB	2015/10/13 09:49:15	=	
E 50P.png	76KB	2015/10/13 09:49:14		
20150707140354.tiff	5MB	2015/10/13 09:49:14	100 million 1000	
DIRECT_0.3.tiff	1MB	2015/10/13 09:49:14		
20150707153504.bmp	5MB	2015/10/13 09:49:14		
		Disk usa	ge: (0%) 73.34MB / 1	4336.00MB
9			Cance	Open
Gamma				b

7.1. Reversing Images

The images in live view or previously captured and loaded can be inverted by pressing the button *Invert:*



7.2. Setting up the system

Press the System Setup button to enter the setup menu:



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

- Calibration of the touchscreen (only by qualified staff)
- Network setup
- Defining system time
- Upgrading the software (only by qualified staff)

	US8 Screen Settings Time Set	fault tings Upgr	em About	coneties
	nal Disk External USB Disk File Name E10F-w_3S_0-001.011 ADV_0.08.00f 20150707153604.png ADV_W_SG_0.001.01ff 20150707140404.jneg 20150707140404.jneg 20150625140158.png ETBR_0.5.01ff 201509131914451.jneg	Size 0 5MB 2 988KB 2 5MB 2 32KB 2 1MB 2 5MB 2 160KB 2	Created Date 2015/10/13 09:49:20 2015/10/13 09:49:20 2015/10/13 09:49:19 2015/10/13 09:49:19 2015/10/13 09:49:16 2015/10/13 09:49:15 2015/10/13 09:49:15	
	20150707153435.tiff 50P.png 20150707140354.tiff DIRECT_0.3.tiff	5MB 2 76KB 2 5MB 2 1MB 2	2015/10/13 09:49:15 2015/10/13 09:49:14 2015/10/13 09:49:14 2015/10/13 09:49:14	
Create Folder	20150707153504.bmp Remove Folder Copy All Copy To USB	5MB 2 Delete Selected	2015/10/13 09:49:14 Delete All	n
			Disk usage	: (0%) 73.34MB / 14336.00MB

The default settings can be changed by pressing the *Default Settings* button:

Calibration Settings Settings Settings About	
Ro	
Internal Disk C External USB Disk	-
File Name Room light ON OFF	3
BROWN BG-LED light O ON OFF	2
20151013: Date: ON OFF	
20150625	-
20150323(Primary file type: ○ tiff	e
DIRECT_W bmp png	
20150707. Exposure time: C Last changed O Default: 0.010	
20130613	_
Gain: Last changed O Default: 0	
☐ 20150707: Gamma: ○ Last changed ● Default: 1.0	
ADV_W_SG	
20150707	
Create Remove Save	n
Disk usage: (0%) 73.34MB / 14336.00MB)
₩ <u>C</u> lose	
I I I I I I I I I I I I I I I I I I I	зе

In this menu you can select:

• If the light sources are turned on or off when the system is booting.

- The standard image file type can be chosen.
- The option of taken six images at the same time can be switched off by changing from multiple exposure mode to single exposure mode.
- Additionally the saturation limit detection threshold can be set.

9. Transferring to an external USB-stick

Images taken with the FastGene[®] FAS-V and stored in the internal SSD storage can be transferred easily to an external USB-stick:

- 1. Connect the USB-Stick with the USB-port on the top left side of the FastGene® FAS-V.
- 2. Make sure the USB-stick control sign is yellow:



3. Press the menu System Set-up:







4. Select the image you want to transfer and press copy to USB or press copy all to USB:

Touch Sc Calibra	tion Ne	ttings	System	De	tings	Sys	stem rade	Abou							
intern.		Externa	JUSED	a k											
	Ele Name				£ 194		Conto	d Date							
	EIDK_W_	50.00	2.001		3126	OMC	ZUISYI	WI3 0	9.49.21						
	ADV_0.08	tiff				5MB	2015/3	0/13 0	9:49:20						16
	20150707	153604	png		8	988KB	2015/3	.0/13 0	9:49:19						
	ADV_W_S	G_0.001	tiff			5MB	2015/1	.0/13 0	9:49:19						
	20150707	140404	ipeg			32KB	2015/3	0/13 0	9:49:19						
	20150625	140158	png			1MB	2015/3	0/13 0	9:49:16				-		
	ETBR_0.5	off				5MB	2015/1	0/13 0	9:49:15		=	22			
	20150913	8191445	ipeg			160KB	2015/1	0/13 0	9:49:15						
1	20150707	153435	tiff			5MB	2015/1	0/13 0	9:49:15	=					
	50P.png					76KB	2015/1	.0/13 0	9:49:14						
	20150707	140354	tiff			5MB	2015/1	.0/13 0	9.49.14						
											-				
	20150707	153504	bmp			5MB	2015/1	.0/13 0	9:49:14	5					
Create Folder	Remove Folder	Copy	All Co	py To JSB	De	lete	Deleti	-							
								D	isk usag	e: (01	6) 73.3	34MB	/ 143	36.00	48
														-	102

5. The images are now saved on the external USB-stick.

10. **Editing captured images**

The FastGene® FAS-V can edit images which are available in the internal storage or on an external storage place.

There for load the image using the Load Image button. There will be a selection of tools available:



After editing the image it is pivotal that the save button is pressed otherwise all changes will be lost. Please be also aware that saved edited images cannot be restored to their original state.

11. How to print images using P95D

The FastGene[®] FAS-V comes with the driver for the thermal printer Mitsubishi P95D preinstalled:

1. To print your images, connect the printer with the FastGene[®] FAS-V using one of the ports on the right hand side. Turn on the FastGene[®] FAS-V.



2. Verify that the control sign for the printer is yellow:



3. Print the live view or a selected saved image by pressing the button *Print*:



The image will be printed.

