



FastGene®

Mini Dry Bath Advance

NG020A

Manual



 **NIPPON Genetics EUROPE**
Innovation for you!







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1. GENERAL INFORMATION

1.1 Introduction

Thank you for purchasing the FastGene® Mini Dry Bath Advance, a micro-processor controlled block heater. Applications include sample and reaction tempering, sample heating, denaturation of electrophoresis samples, serum coagulation and many more. This manual includes the operation guide. In order to use the instrument properly, please read this manual carefully before using the FastGene® Mini Dry Bath Advance. This instrument is suitable for research use only.

1.2 First QC check

Please check the instrument and the packing list when you first open the packing case. If you find there is something wrong with the instrument or the packaging content, please contact Nippon Genetics Europe or your local distributor.

Packing List:

FastGene® Mini Dry Bath Advance - Packing list	Quantity
FastGene® Mini Dry Bath Advance	1
Transparent Cover	1
Power Cord	1
Power Adapter	1
Manual	1



2. SAFETY

2.1 Safety Measures

The FastGene® Mini Dry Bath Advance has been tested and found to comply with safety limits for the CE regulation. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended for the user to read the following points carefully before operating this equipment:

- Read and carefully follow the manual instructions.
- Do not alter the equipment, as it could result in personal and/or laboratory hazards, as well as invalidate equipment warranty.
- Use the device indoors only.
- The device should be placed in a room with low humidity, little dust and in secure distance from water or heat sources. Avoid exposure to direct sunlight or strong light sources.
- Use a properly grounded electrical outlet with correct voltage and current capacity.
- Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
- Do not use this instrument without having the safety cover correctly in position.
- Do not use the unit if there is any sign of damage to the external tank or cover. Replace damaged parts.
- Do not use the unit in the presence of flammable or combustible materials, as it may result in fire or explosion. This device contains components which may ignite such materials.



- Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to properly connect the device may lead to fire or shock hazard.
- Use appropriate materials to avoid possible hazards of explosion, implosion or release of toxic or flammable gases arising from overheated materials.
- Wear appropriate protection to avoid burning your hand.

2.2 Safety Information



Use high level of precaution when using any electrical device. Before connecting the electrical supply, check to see if the supply voltage is within the range stated at the rating label. Place the unit in a safe and dry location. It must not touch anything nearby. Follow the safety precautions for chemicals and dangerous materials. If needed, please contact a qualified service representative or info@nippongenetics.eu.

2.2.1 Environmental Conditions



Ensure the instrument is installed and operated strictly under the following conditions:

- Indoor use only
- $\leq 95\%$ RH
- 75 kPa – 106 kPa
- Altitude must not exceed 2,000 meters
- Ambient to 40°C operating temperature
- Mains supply voltage fluctuations up to $\pm 10\%$ of the normal voltage



2.2.2 Avoid Electrical Shock

Follow the guidelines below to ensure a safe operation of the unit. The FastGene® Mini Dry Bath Advance has been designed with shielded wires, thus minimizing any potential shock hazard to the user. Nippon Genetics EUROPE disadvises the use of unshielded wires.

To avoid electrical Shock:

- If a solution is accidentally spilled into the instrument, it must be dried out for at least 2 hours, and restored to a normal condition.
- Never connect or disconnect wire leads from the power jacks when the power is on.
- Wait at least 5 seconds after stopping a run before handling output leads or the connected device.
- Always make sure that hands, working area and instruments are clean and dry before making any connections or operating the device.
- Only connect the power cord to a properly grounded AC outlet.

2.2.3 Avoid Damage to the Instrument

To avoid damage to the instrument:

- Do not attempt to operate the device if it is damaged.
- Protect the unit from physical damage, corrosive agents and extreme temperatures.
- For proper ventilation, keep at least 10 cm of space behind the instrument and at least 5 cm of space on each side.



3. MANUAL

3.1 Specifications

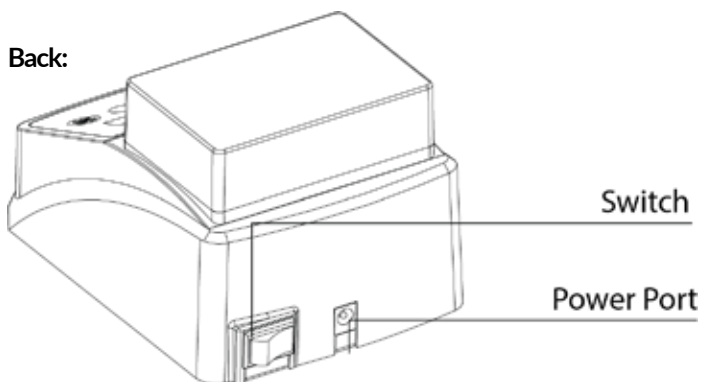
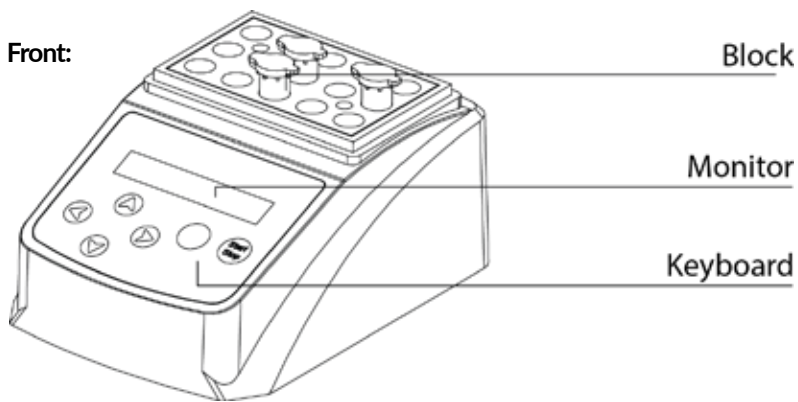
The FastGene® Mini Dry Bath Advance provides excellent temperature control for a wide variety of applications and delivers accurate and reliable experimental results.

Specifications NG020A	
Temperature Control Range	room temp. (+5 °C) - ~100 °C
Heating Time (20 °C to 100 °C)	≤ 18 min
Temperature Accuracy Discrepancy	± 0.3 °C
Temperature Control Discrepancy @ 40 °C	± 0.3 °C
Temperature Control Discrepancy @ 100 °C	± 0.3 °C
Temperature Accuracy Display	0.1 °C
Time Setting	0-99 h, 0-99 min, 0-99 sec
Max. temperature	100 °C
Max. Power	50 W
Cooling Time	Natural Cooling
Weight	≤ 1 kg
Dimensions (H x D x W)	13.6 x 16 x 11 cm
With Transparent Plastic Cover	Yes



3.2 Device Components

Please refer to the following page for the location of controls and features:

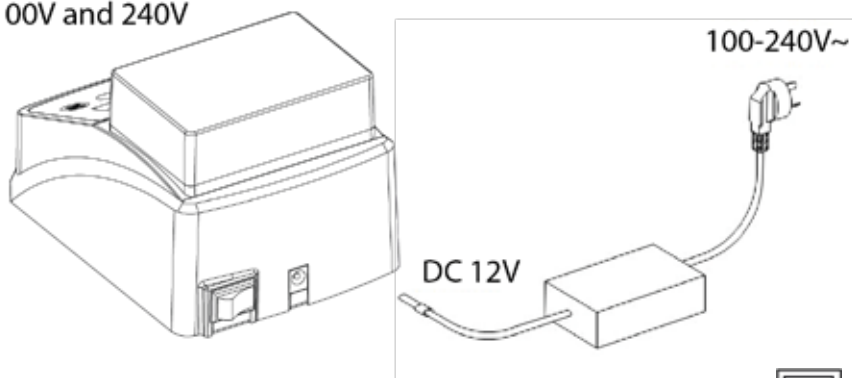





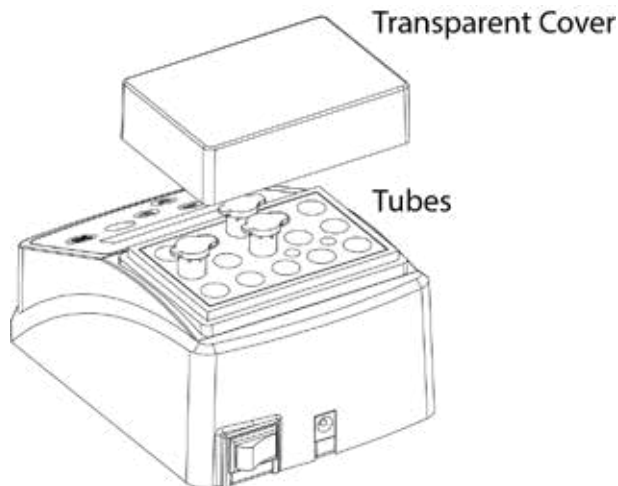
3.3 Installation Guide

1. Place the FastGene® Mini Dry Bath Advance on a stable workbench.
2. Ensure that the main power switch at the back of the instrument is turned off. Insert the power cord into the power port on the back of the instrument as shown in the figure below. Connect the other end of the external power cord to the power grid.

100V and 240V



3. Switch on the device by pressing the main switch to (I). 
4. After the device is turned on, it will automatically heat up to the set temperature for 5 min.
5. Put the tubes into the the wells of the heating block and cover it with the transparent heating block cover.



3.4 Operation Guide

3.4.1 Key Functions

- Start/Stop..... Operation and control of the device
- Prog..... Program button, set the device
- ▲ ▼ (up and down)..... Set program, temperature and time
- ◀ (left)..... Move left to choose parameter values
- ▶ (right)..... Move right to choose parameter values



3.4.2 Program Setting

Nine different programs can be set for the FastGene® Mini Dry Bath Advance (P1 - P9), including 3 steps for each program (e.g. P2A, P2B and P2C for program P2). After switching on the device, the monitor will display the following values:

P1A 23.5 NOTOK

Press the up or down buttons to navigate through the different programs (P1 - P9) and the left or right buttons to navigate and view the different program steps (A, B, C). All programs can be set manually. To change a program press the program button (Prog). The program number starts flashing:

P1A 028.0 12m

Press the up or down button to choose the program you would like to change (e.g. navigate to P3).

P3A 037.0 20m

Press the right button once to switch to the program steps (program step starts flashing) and use the up or down buttons to choose a specific program step (e.g. step B):

P3B 060.0 10m

To set the temperature of the specific program step, press the right button until the figures of the temperature start flashing and set the individual digits by pressing the up or down button (e.g. set to 85 °C).



P3B 080.0 10m
P3B 085.0 10m

To set the time of a specific program step, press the right button until the figures of the time start flashing and set it by pressing the up or down button (e.g. set to 30 min).

P3B 085.0 30m

To set the time unit of a specific program step, press the right button until the time unit starts flashing and set it by pressing the up or down button. The time unit can be set to seconds (s), minutes (m) or hours (h). For program steps B and C the time unit can also be set to "OFF", which leads to skipping the step.

P3C 085.0 30 OFF

In this example, the following step parameters have been set for program 3 (P3):

P3A 037.0 20m
P3B 085.0 30m
P3C 085.0 30 OFF



3.4.3 Program Execution

After setting the parameters of the individual program steps, the program (P3 shown as example) is started by pressing the Start/Stop button. The current temperature is displayed. Until the desired temperature of step A is reached, the monitor will display "WAIT".

P3A 23.5 ↑ WAIT

After the device has reached the desired temperature, the monitor will display "OK" and the time countdown will be started.

P3A 37.0 20m ↓ OK

When the time of the first program step (e.g. P3A) is completed, the next steps of the program will be executed automatically. The device will display "WAIT" until the desired temperature of step P3B is reached:

P3B 38.4 ↑ WAIT

P3B 85.0 30m ↓ OK

As the third step of the program (P3C) has been set to "OFF", this step is skipped and the program P3 has ended. The completion of the program is indicated by an alarm and displayed with "FINISHED" and the current heating block temperature:

FINISHED 85.0

Press the Start/Stop button to return to the program selection page.



Note: To pause the program, press the Start/Stop button. The paused program is displayed by a "P":

P3B 85.0 24m P

To abort the program, press the Start/Stop button for 2 seconds.

Note: If the FastGene® Mini Dry Bath Advance needs to be used at a very accurate temperature (± 0.3 °C), we recommend to preheat the thermo block for ~20 min.



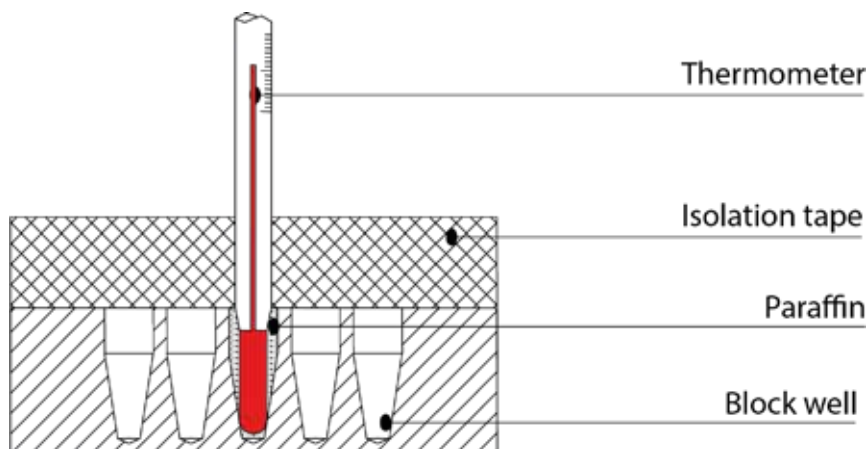
3.5 Temperature Calibration

The temperature calibration is carried out by the manufacturer but can be recalibrated by following the steps specified below.

Note: Please do not attempt to recalibrate the temperature unless necessary. If the instrument needs recalibration, please place it at room temperature below 35 °C.

3.5.1 Calibration Setup

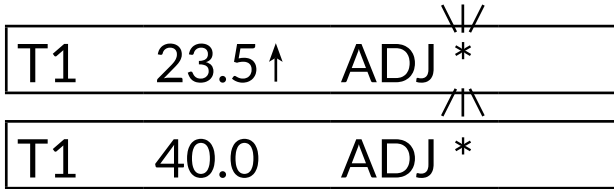
For calibration, inject olefin/paraffin oil into one of the cone-shaped wells and place a thermometer into this well. Make sure the precision of the thermometer is within 0.1 °C. The tip of the thermometer should be completely immersed in the oil. Use heat isolation material on the thermoblock to separate it from the surrounding (see figure below).





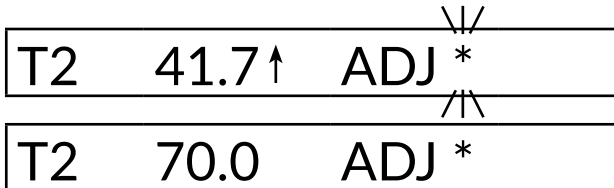
3.5.2 Calibration Procedure

Press the left and right button simultaneously to start the calibration procedure. The thermo block automatically heats up to 40 °C. During the heating procedure the "*" symbol is flashing. When the temperature reaches 40 °C the flashing of "*" stops. Five minutes later, the alarm begins to sound regularly.



Read the temperature on the thermometer after 20 min of incubation. If the thermometer reads e.g. 39.8 °C, use the up or down buttons to set it to 39.8 °C. Press the Start/Stop button to confirm the correction.

The thermoblock automatically heats up to 70 °C. During the heating procedure the "*" symbol is flashing. When the temperature reaches 70 °C the flashing of "*" stops. Five minutes later, the alarm begins to sound regularly.



Read the temperature on the thermometer after 20 min of incubation. If the thermometer reads e.g. 69.8 °C, use the up or down buttons to set it to 69.8 °C. Press the Start/Stop button to confirm the correction.

Repeat this procedure analogously for 100 °C.

Return to the program selection page and if needed correct the temperature settings.



Note: After the temperature is calibrated, the measured temperature of the module is consistent with the displayed temperature.

Note: Press the program button (Prog) to cancel the current temperature calibration. The system will default to the last calibration settings.

In order to ensure the accuracy, the instrument must keep a constant temperature for 20 min after reaching any calibration point.

3.6 Automatic Heating

Press the program button (Prog) for 2 sec to enter the automatic heating settings. Press the Start/Stop button and use the up or down button to choose "APF: ENABLE" or "APF: DISABLE".

APF: ENABLE

APF: DISABLE

With "APF: DISABLE", the device will not automatically heat up after turning it on. The device will heat up after pressing the Start/Stop button. Press the program button (Prog) to save the current settings and return to the program selection page.

Note: The default setting is "APF: ENABLE". With this setting, the system will automatically heat up after turning it on.



3.7 System Maintenance

The wells of the thermoblock should be cleaned regularly with a cloth soaked in alcohol, to remove dust and dirt and assure good heat transfer between the block and the tubes.

Turn the power off when cleaning the instrument. Do not pour cleaning liquid into the wells and do not use corrosive cleaning liquids to clean the instrument.

3.8 Troubleshooting

Problem	Cause	Solution
No signal on the monitor	No power Switch broken Control Unit broken	Check power connection Exchange switch Contact seller
Monitor displays "OPEN" with alarm sound	Open circuit of temperature sensor	Contact seller
Monitor displays "SHORT" with alarm sound	Short circuit of temperature sensor	Contact seller
Block not heating	Broken heater	Contact seller
Button not working	Broken button	Contact seller



4. ORDERING INFORMATION

The FastGene® Mini Dry Bath Advance can be equipped with different tube size thermoblocks:

Product	Catalogue Number
FastGene® Mini Dry Bath Advance	NG020A
Block for 32x 0.2 ml tubes	NG025A
Block for 24x 0.5 ml tubes	NG029A
Block for 15x 1.5 ml tubes	NG026A
Block for 15x 2.0 ml tubes	NG030A
Block for 12x 5 ml tubes	NG024A
Block for 6x 15 ml tubes	NG027A
Block for 2x 50 ml tubes	NG028A

Note: When using the thermoblocks **NG027A** for 6x 15 ml tubes and **NG028A** for 2x 50 ml tubes, the temperature needs to be set to a higher value.



5. WARRANTY

Nippon Genetics EUROPE provides a product warranty to the purchaser against defects and/or incorrect material processing **for one year after the shipping date**. This warranty excludes damages resulting from shipping, misuse, carelessness, or neglect. Nippon Genetics EUROPE's liability under the warranty is limited to the receipt of adequate evidence by the customer that the defect falls under the warranty conditions. All claims under this warranty must be submitted to Nippon Genetics EUROPE within one year of delivery of the product to the customer.

6. CONTACT INFORMATION

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