

AllInOneCycler™

Thermal Block

USER GUIDE

REF

A-2041-R

CE



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Read the entire contents of this User Guide before operating the instrument.

INTENDED PURPOSE

AllInOneCycler™ can amplify specific DNA or RNA in a sample by PCR and be used for qualitative and quantitative analysis.

Principle

The main body consists of a thermal block and a control system. Thermal block is controlled by protocol settings, and the protocol is set at 90–96 °C for the DNA denature section, 50–65 °C for the annealing section, and 70–74 °C for the extension section. When a sample mixed with DNA and reagents is inserted into the thermal block of the instrument and operated, the temperature section is repeated according to the protocol and new DNA is synthesized. By replacing the thermal block, various types of thermal blocks such as 384 well, Fast 96 well, and slide block can be used.

PRODUCT INFORMATION

Product Description



AllInOneCycler™ is a thermal block with a temperature control mechanism that is based on a peltier element. *AllInOneCycler™* has various functions such as temperature increment, time increment, ramp rate control, thermal gradient PCR, etc. In addition, with its compact size and light weight it offers high space efficiency and high portability. It is convenient for a user to use the instrument through a 7-inch touch screen LCD user interface, and it can also be remotely controlled with a separate PC software. The protocol, which is used for the communication between PC and *AllInOneCycler™*, is TCP/IP and all functions, including modification of PCR protocol from the control software in the PC can be used remotely. All the protocols the user edits are stored in the PC and they can be easily revised or copied later.

Product Specifications

Physical Specifications	
Dimension (W x D x H)	24.6 cm x 36.9 cm x 23.2 cm (9.69 in x 14.53 in x 9.14 in)
Weight	8.4 kg (18.52 lbs)
Display	7-inch touch screen LCD
Power consumption	100–240V~, Max 8.5A, 50/60Hz, 630VA MAX
Port*	2 USB ports for storage (front and lower rear) 1 USB port for engineering (upper rear)
Fuses	Two fuses (250V, F10AL, 5×20 m)
Operating temperature	15–35 °C (59–95 °F)
Operating humidity	20–80 %, non-condensing
Interchangeable block format†	96-well (0.2 mL), 384-well (0.02 mL) and Slide PCR type
PCR volume range	5 µL–80 µL
Operating Specifications	
Method of heating / cooling	Peltier
Temperature range	4.0–99.9 °C (39.2–211.82 °F)
Maximum ramp rate‡	Heating: 6.5 °C/sec (11.7 °F /sec) Cooling: 4.5 °C/sec (8.1 °F /sec)
Temperature accuracy	± 0.3 °C (0.54 °F)
Temperature uniformity	± 0.3 °C (0.54 °F)
Lid temperature	90–110 °C (194–230 °F)
Gradient range	1–20 °C (1.8–36 °F)
Temperature increment range	0.1–2.0 °C (0.18–3.6 °F)
Time increment range	1–59 sec
Ramp rate control	1–100 %

* USB port at the rear of the instrument is the port that is used by an engineer for inspecting the instrument and it cannot be used for storing data.

† The block that is supplied by default is *AllInOneCycler*™ 96-well block (Cat. No. A-2041-1-1) and the blocks in any other format is optional. Blocks can be classified into three types according to the sample type (96-well, 384-well, Slide PCR) and there are standard blocks and special alloy blocks according to the material; 6 blocks in total can be selected and used.

‡ It is the maximum ramp rate when the default *AllInOneCycler*™ 96-well block (Cat. No. A-2041-1-1) is used; If *AllInOneCycler*™ 96-well Fast block (Cat. No. A-2041-1-2) is used, the maximum ramp rate would be 9.5 °C/sec for heating and 7.7 °C/sec for cooling.

Environmental Symbols on the *AllInOneCycler*™

The following symbol (WEEE) applies to *AllInOneCycler*™ placed on the European market.



Do not dispose of *AllInOneCycler*™ as unsorted municipal waste.

Follow local municipal waste ordinances for proper disposal provisions to reduce environmental impact of waste from electrical and electronic instrument.

European Union customers:

Call your local European office for Bioneer instruments pick-up and recycling.

Product Components

The components of the *AllInOneCycler™* package are shown below.

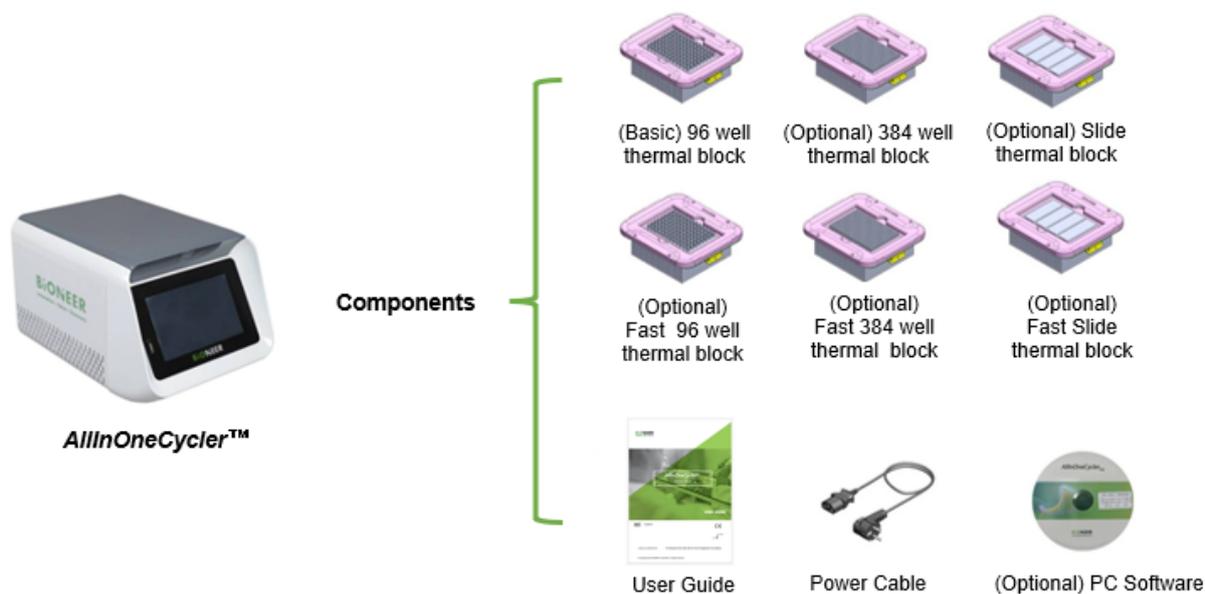


Figure 1. Product Components

Table 1. Product Components

Product	Cat. No.	Q'ty
<i>AllInOneCycler™</i> PCR system	A-2041-R	
(Standard item) <i>AllInOneCycler™</i> 96 well PCR system*	A-2041-1NR	1
(Optional item) <i>AllInOneCycler™</i> 384 well PCR system	A-2041-2NR	
(Optional item) <i>AllInOneCycler™</i> Slide PCR system	A-2041-3NR	
(Optional item) <i>AllInOneCycler™</i> Fast 96 well PCR system	A-2041-1FR	
(Optional item) <i>AllInOneCycler™</i> Fast 384 well PCR system	A-2041-2FR	
(Optional item) <i>AllInOneCycler™</i> Fast Slide PCR system	A-2041-3FR	
<i>AllInOneCycler™</i> thermal block		
(Basic) <i>AllInOneCycler™</i> 96 well thermal block only*	A-2041-1-1	1
(Optional item) <i>AllInOneCycler™</i> 384 well thermal block only	A-2041-2-1	
(Optional item) <i>AllInOneCycler™</i> Slide thermal block only	A-2041-3-1	
(Optional item) <i>AllInOneCycler™</i> Fast 96 well thermal block only	A-2041-1-2	
(Optional item) <i>AllInOneCycler™</i> Fast 384 well thermal block only	A-2041-2-2	
(Optional item) <i>AllInOneCycler™</i> Fast Slide thermal block only	A-2041-3-2	
User Guide	-	1
Power Cable	-	1
(Optional item) <i>AllInOneCycler™</i> PC control software	A-2041-9	

* *AllInOneCycler™* 96 well PCR system (A-2041-1NR), which is provided as default, includes *AllInOneCycler™* 96 well thermal block (A-2041-1-1).

Functional Description - Hardware

Do not modify the components mentioned in this user guide or use those that are not mentioned. We are not responsible for any problems arising therefrom.



Figure 2. Front View

Table 2. Description of product features

No.	Part	Description
1	Hot-top Cover	The cover open/close push button and heater are installed.
2	Cover Open Button	Push button to open cover.
3	Touch TFT LCD	Information display window for instrument control and information confirmation.
4	Front USB Port	Front USB port for data transfer.
5	Main Power Switch	Switch to turn on/off input power.
6	Fuse box	The part where the fuse for instrument protection by overcurrent is inserted.
7	AC Inlet	Power cable insertion part to input AC power to the instrument.
8	Rear Engineering USB Port	USB port for instrument maintenance.
9	Rear USB Port	Rear USB port for data transfer.
10	LAN	LAN port for data transfer.

WARNINGS AND PRECAUTIONS

Before use, please read the warnings and precautions for safety to ensure proper use. The precautions indicated here contain important information regarding safety and must be observed as they are intended to prevent accidents or danger by using the product safely and correctly. In this user guide, the degree of danger in the event of mishandling is classified into the following three grades. “Warnings and Precautions for Safety” are classified into six categories: “Danger”, “Warning”, “Caution”, “Electrical Hazard”, and “High Temperature Warning”, “Biological Hazard,” and their meanings are as follows.



Ignoring this sign and mishandling the instrument may cause death or serious injury.



Ignoring this sign and mishandling the instrument may cause death or serious injury due to an electric shock.



Ignoring this sign and mishandling the instrument may cause the possibility of death or serious injury.



Ignoring this sign and mishandling can result in death or serious injury due to high temperatures.



Ignoring this sign and mishandling the instrument may cause personal injury or property damage.



Ignoring this sign and mishandling can result in biohazard exposure and lead to infection.

Usage environment and installation

Warnings, precautions, and dangers related to the usage environment



- 1) Do not place anything at the front of the instrument that may interfere with the use of the instrument.
- 2) Install the instrument at least 15 cm away from the wall. Installing it close to the wall may cause product failure.
- 3) Install the instrument away from dusty places. If not, it may cause an instrument malfunction or failure.
- 4) Install it away from fire hazards, such as electric heaters. If not, it may cause fire.
- 5) Do not install the device in areas exposed to direct sunlight. Exposure may cause damage to the exterior or excessive external temperatures, which can affect the operation of the product and prevent accurate inspection results
- 6) Install it away from splashing water or high humidity areas. If not, it may cause an electric shock, fire, or malfunction.
- 7) Do not install it in a place where inflammable or corrosive gas is generated. In case of a gas leak, open the windows to ventilate. Do not touch the power cable of the instrument. Sparks can cause an explosion or fire.
- 8) Do not disassemble or modify the instrument without permission. It may cause a fire, electric shock, and breakdown, and you cannot receive after-sales services.
- 9) This instrument should be used within the ambient temperature range of 15–35 °C. If the temperature is too high or too low, it may affect the operation of the instrument, and accurate test results cannot be guaranteed.
- 10) When operating, the recommended humidity (20–80 %, non-condensing) should be maintained. If the humidity is too high or too low, it may cause corrosion or malfunction of the instrument.
- 11) When the device will not be used for an extended period, turn off the power switch and unplug it from the outlet. Failure to do so may cause overheating or fire, posing a risk of fire hazards.

Electrical safety warnings, precautions, and dangers



- 1) Before turning on the power, check if the adapter (100–240VAC, 50/60Hz) is properly connected to the instrument body, and if the power cable of the adapter is properly plugged into the outlet. If the adapter and power cable are not properly connected, the power may not turn on or a malfunction of the instrument may occur.
- 2) Make sure to use grounded power outlets. If it is not grounded, a lightning strike may cause personal injury, and the instrument cannot be used stably.
- 3) Do not use it when the power cable is loose. Overheating may damage the power cable and cause a fire or electric shock.
- 4) Do not connect more power than the rated capacity to a single outlet. It may cause a fire due to abnormal heating of the outlet due to the load.
- 5) If you find a damaged power cable, do not use it and contact us to purchase or obtain a power cable with safe specifications (250V, 10A, 1.0 mm², VDE, KC).
- 6) The power connection should be installed at least 1.5 m away from a sink or faucet.
- 7) Do not use a damaged or peeled power cable by repairing it with insulating tape, etc. There is still potential for short circuit hazards.
- 8) The power of the instrument must be supplied at 100–240VAC, 50/60Hz, 800VA. Otherwise, there may be a risk of fire or damage to the instrument due to overcurrent.
- 9) The fuse of the instrument must be with the specified capacity (250V, F10AL, 5x20 mm). Otherwise, there is a risk of damage to the instrument or fire due to overcurrent of the instrument.
- 10) We recommend that you evaluate the electromagnetic environment before operating the instrument.

Notes on communications and network settings



- 1) Users and IT personnel should place this instrument inside a firewall to prevent it from being connected to an inappropriate network.
- 2) Users and IT personnel must explain how to apply and set the security policy of this instrument to help safely maintain it.
- 3) Network equipment (hub, LAN cable, public network, etc.) must be maintained at all times to ensure that the instrument is not disrupted.
- 4) During operation of the instrument, avoid using any other interrupting devices such as secure USB flash drives that may disturb the operation.
- 5) Before configuring the LIS interface, security, etc. ensure to obtain consent from the manufacturer and customer.
- 6) Be sure to build a security system against cyber-attacks such as DDoS, ransomware, and intrusion into the internal network.
- 7) When distributing a computer security policy, check beforehand if it affects the instrument or its operation.
- 8) Use a USB flash drive to transmit/receive, and store data. Using an inappropriate USB flash drive or excessive network may affect the performance of the instrument.

Use and care

Warnings, cautions and danger for the product use and management



- 1) Do not use the instrument for any purpose other than gene amplification.
- 2) Be careful not to turn off the power outlet or the instrument during operation.
- 3) Do not modify or delete the instrument-related information saved in this instrument without permission.
- 4) Touch the touch screen LCD with your finger or a tool that is not sharp. Using a sharp objects or nail may damage the screen.
- 5) Be careful as solvent-type chemical solvents or strong disinfectants can discolor the surface of the instrument. If solvents are spilled, wipe them off gently with a paper towel immediately.
- 6) When storing the instrument, be sure to observe the storage temperature and humidity conditions. If condensation occurs due to humidity, wait until the instrument is completely dry before use. Failure to do so may cause damage to the instrument, a short circuit, or fire.
- 7) Do not store the instrument in a place with high humidity for an extended period. Failures caused by this are classified as flooding, and free after-sales service is not available. In the case of severe instrument failure, even paid repairs may not be possible, and the instrument may not be usable.
- 8) If a burning smell or excessive heat is generated while using the instrument, stop using it immediately and contact our technical support center.
- 9) Do not place paper or plastic pallets on the bottom of the instrument. It may cause a fire.
- 10) Do not cover the instrument with paper or plastic during operation. It may cause a fire or breakdown of the instrument.
- 11) If the instrument is disassembled or modified without permission, you cannot receive free after sale services and may be excluded from the scope of our services.
- 12) Do not forcibly separate the power cable from the main body while using the instrument. It may cause malfunction.
- 13) Do not drop the instrument or subject it to impact. It is a direct cause of failure, and in this case, free after-sales service may be excluded regardless of the warranty period.
- 14) This instrument cannot be used in connection with other instruments, and can only be connected to a designated PC or LIS interface.
- 15) This product does not include PCR kits, pipettes, tips, or other consumables. As the product cannot be used without these items, please ensure all required materials are prepared prior to use.
- 16) Dispose of all single-use laboratory items used in the experiment (such as tips, tubes, plates that have come into contact with specimens) according to the user guide of this product and kit, and in accordance with legally specified procedures.
- 17) All experimental procedures must be carried out in accordance with the safety rules of each laboratory.
- 18) Treat all specimens and reference materials as infectious materials. Comply with each laboratory's safety regulations and handle and dispose of these materials in accordance with national and local procedures.
- 19) Inappropriate handling of pathogen reference materials, positive controls provided in the kit, and specimens may cause contamination of the environment, instrument, or reagents, resulting in inaccurate results.
- 20) Gloves, masks, and safety goggles must be worn when handling biologically hazardous reagents and specimens.
- 21) Do not consume food or beverages in the workspace.
- 22) Do not omit any experimental step or arbitrarily modify procedures to achieve desired results.
- 23) Use only sterile filter pipette tips for experiments.
- 24) It is recommended that the PC provided with the specimens and reagents be stored separately in a freezer, apart from the product storage freezer, to prevent cross-contamination.
- 25) Use caution when handling sharp objects such as scissors or knives.
- 26) After use, seal tubes and plates in disposable zipper bags and dispose of them in the designated area or according to the specified procedure.
- 27) Manage waste in accordance with safety regulations or internal laboratory procedures.

NOTE

Contaminants such as dust may cause instrument malfunction, shorten instrument life, and increase uncertainty in results. Be careful not to allow dust to enter the instrument. Dust removal through periodic inspection can extend the life of the instrument.

Precautions when using the LIS (Laboratory Information System) interface

⚠ CAUTION

- 1) To transmit sample order information, build a Laboratory Information System (LIS) interface that connects with the hospital computer network.
- 2) Documents and programs required to build the LIS interface should be ordered separately. For how to receive sample order information through the LIS and how to set it, see the provided documentation.
- 3) If a network problem occurs while transmitting the results of a completed operation, the transmission may fail.
- 4) If the transmission of the operation results is delayed due to a network problem, it will be retransmitted when the network is restored.
- 5) If the power is turned off while transmitting the results of a completed action, the transmission may fail. Be careful not to turn off the power while using the instrument and related devices.

Warnings on Biological and Chemical Safety

⚠ WARNING

- 1) Biological specimens such as tissues, bodily fluids, and blood from humans and animals may potentially carry infectious diseases. Always comply with local and national regulations. Safety goggles, protective clothing, and gloves must be worn during laboratory procedures.
- 2) Before handling any chemicals, always familiarize yourself with the Material Safety Data Sheet (MSDS) provided by the manufacturer and carefully review all related safety precautions.
- 3) Always verify which chemicals have been used before altering any instrument components or reagents. Wear suitable safety goggles, protective clothing, and gloves when operating instrument.
- 4) Prior to storing, handling, or working with any chemicals or hazardous materials, make sure to review the MSDS provided by the chemical manufacturer.
- 5) Minimize contact with chemicals whenever possible. Always use appropriate personal protective equipment (PPE), such as protective gloves, safety goggles, and protective clothing, when handling chemicals.

INSTALLATION

This instrument is designed for indoor use and must meet the following standards with adequate installation space. Unpacking and installation are all available only by our engineers or engineers trained in this company.

Necessary items

A box cutter, scissors, gloves, etc.

Checklist upon delivery

Upon receiving the instrument, please check the following.

- Product label: The labels must be intact and allow identification of the product (product name, cat. No., etc.).
- Packing condition: The packaging must not be damaged to such an extent that it affects the product inside the packaging.
- Components: Components are included by checking the list in the user guide.

If there are any abnormalities with the items mentioned above, contact BIONEER Customer Service with a detailed description of the issue.

Checking the installation requirements

Before installing the instrument, ensure that the following conditions are met:

- Instrument must be installed at room temperature. In the case of overseas delivery, it is installed after 24 hours after opening the packaging box.
- Keep the instrument out of direct sunlight.
- Install the instrument in a location with a temperature between 15 °C and 35 °C, and a humidity between 20 % and 80 % (non-condensing).
- Do not install the instrument in a dusty area or close to fire hazards such as electric heaters.
- Keep the instrument away from splashing water or high humidity areas.
- Do not install the instrument in locations where inflammable or corrosive gases are generated.
- Place the instrument on a flat, stable surface that can support its weight (8.4 kg).
- Leave at least 15 cm of clearance between the instrument and the wall.

CAUTION

If the instrument is damaged, take pictures of the damaged part and state, the damaged part, and contact this company or our distributor to get proper action.

Unpacking

CAUTION

Since there may be need for sending it back to Bioneer Corp. for A/S, keep the packaging materials and box.

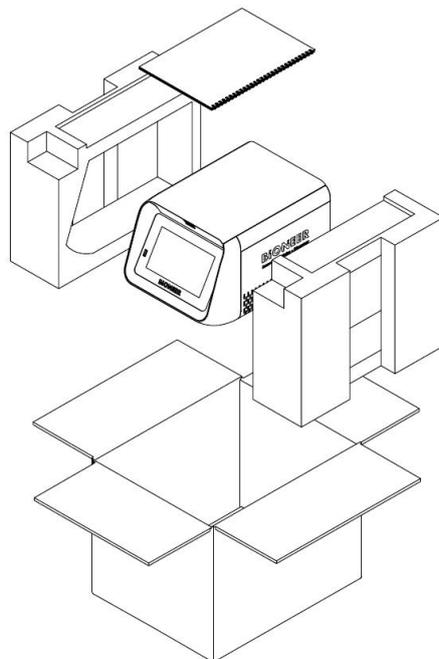


Figure 3. Exploded view of the packing box

1. Remove the strings that wrap the box.
2. Remove the tape that holds the upper covers and open the covers.
3. Initially, take out the components box of instrument.
4. Pull up the instrument, wrapped with Styrofoam covers from the box and remove the covers.
5. Remove the packaging material of instrument completely and Refer to **Table 1. Product Components** to ensure you have all required components.

CAUTION

- Find an area where you can comfortably hold the instrument.
- Get into a comfortable position to avoid undue back strain.
- Bend your knees and use your legs to lift the instrument.
- While holding the instrument, do not twist your body or perform other tasks.
- Wear protective equipment as needed.

Installation of instrument

1. Remove the packaging materials
 - 1) Open the Hot-top cover of *AllInOneCycler*™.
 - 2) Fully remove any fine dust that may have got into the bath block during the delivery using compressed air or compressed air can.
 - 3) Close the Hot-top cover again.
2. Connect a power cable to the lower left side in the rear of the instrument.
3. (Optional) Put on the recommended protective gear.
4. Connect the power cable to the power outlet with the power rating of 700VA or above.

Supplying the Power

1. Check and ensure that the Hot-top cover of *AllInOneCycler*™ is closed.
2. Press the power button located on the lower left side on the rear of *AllInOneCycler*™.
3. When the initialization process is completed, Home menu appears on the screen in front.

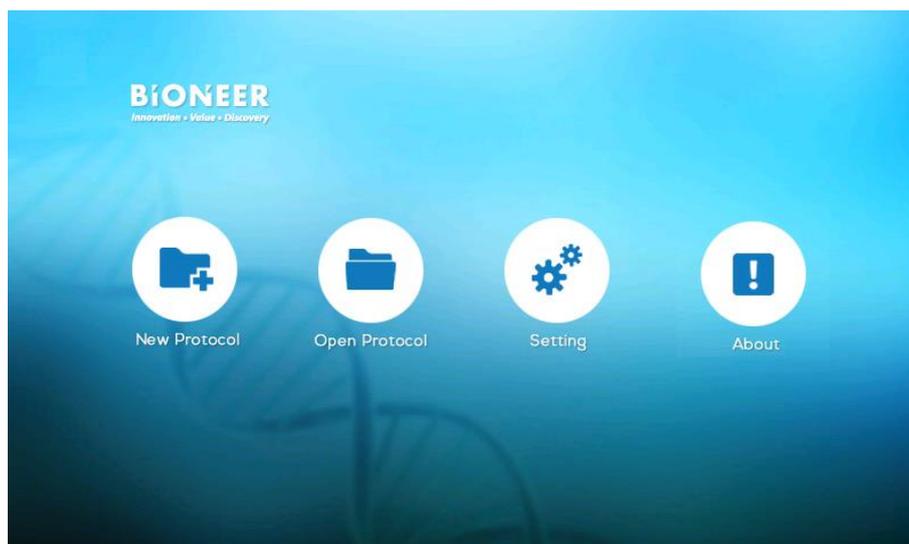


Figure 4. Home screen

OPERATION

Inserting a Sample

Use the instrument by referring to the related explanation according to the relevant block.

1. Inserting a sample when the 96-well Thermal block is being used.

A. When a PCR tube is used

- 1) Prepare a PCR tube with a volume of 0.2 mL.
- 2) Insert the reaction solution into the PCR tube using a pipette.
- 3) Close the lid of the tube.
- 4) Insert the tube into the Bath block.
- 5) Close the Hot-top cover.

B. When a 96-well plate is used

- 1) Prepare a 96-well plate with a volume of 0.2 mL.
- 2) Insert the reaction solution into each well using a pipette.
- 3) Seal the plate using the transparent film to adhere it.
- 4) Insert the plate into the bath block.
- 5) Close the Hot-top cover.

CAUTION

AllInOneCycler™ can only use standard type 0.2 mL PCR tube & plate (tube height 20 mm or more) and cannot use low-profile type tube & plate. If you use a tube (or plate) with a low-profile type, please note that evaporation may appear or instrument may be damaged. We also recommend using the tubes provided in the ordering information.

2. Inserting a sample when the 384-well Thermal block is being used.

- 1) Prepare a 384-well plate with a volume of 0.02 mL.
- 2) Insert the reaction solution into each well using a pipette.
- 3) Seal the plate using the transparent film to adhere it.
- 4) Insert the plate into the bath block.
- 5) Close the Hot-top cover.

CAUTION

When using a 384-well plate, evaporation may occur if the edge of the plate is not well sealed. Therefore, please check the sealing condition before the experiment.

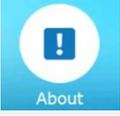
3. Inserting a sample when the Slide Thermal block is being used.

- 1) Put a block guide adapter on the slide block.
- 2) Insert the reaction solution into the well of a gel coated slide glass using a pipette.
- 3) Seal the slide glass using the transparent silicon.
- 4) Put the slide glass on the bath block.
- 5) Close the Hot-top cover.

Home menu

The user can create a new protocol, select & modify previous protocols, change configured values of the instrument and check the basic information of the instrument from the Home menu.

Table 3. Description of Home menu

No.	Icon	Description
1	 New Protocol	Creates a new protocol
2	 Open Protocol	Opens or edits an existing protocol
3	 Setting	Changes network setting, Checks and manages protocol files, and calibrates the temperature adjustment function
4	 About	Version and contact information of installed software

Edit Protocol

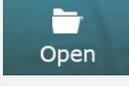
1. Creating a new protocol

- 1) If you touch the **New Protocol** icon in the Home menu, the screen displays the **Edit Protocol** screen.
- 2) In this screen, the user can select a template protocol before creating a new protocol.
- 3) The user can create a new protocol by changing temperature, time, the number of repetitions, and number of steps from the template protocol according to the purpose of the use. In addition, the user can save it with the name that is designated by him/her in the designated folder.



Figure 5. Edit Protocol

Table 4. Description of Edit Protocol screen

No.	Item	Description
1	Protocol name	The template protocol name is displayed and the user can select the protocol according to the purpose of the use. After saving the protocol, the name of the saved protocol is displayed.
2	Lid temperature	If the check box next to the lid temperature is checked, hot top can be used. The default value of hot top temperature is configured as 105 °C.
3	Step order	The order of each step is displayed. The protocol runs in the order of the steps.
4	Temperature	The temperature of each step is displayed. If you touch the displayed temperature, you can change the value.
5	Repeat sections	Section that is repeated among all steps is displayed.
6	Time and additional information	The time and number of repetitions of each step are displayed. If your touch the displayed number, you can change the value.
7	Side scroll bar	In case of a protocol that includes many steps, you can view the protocol by touching arrows  and  which are located at the both ends of the scroll bar.
8	Function icons	 Returns to Home menu.  Insert new step on the right side of selected step.  Deletes selected step.  Opens previously stored protocol.  Saves currently edited protocol.  Executes current protocol.

2. Selecting a protocol from template protocols

AllInOneCycler™ offers eight types of template protocols presented in the table below and you can select one of them according to the purpose of the use.

Table 5. Template Protocol

No.	Protocol name
1	Standard 3 step
2	Fast 3 step
3	Fast 2 step
4	Gradient 3 step
5	Gradient 2 step
6	One step RT-PCR
7	Reverse transcription
8	Incubation

- 1) If you touch the **Protocol** in the **Edit Protocol** screen, the list of protocols appears under the name area.

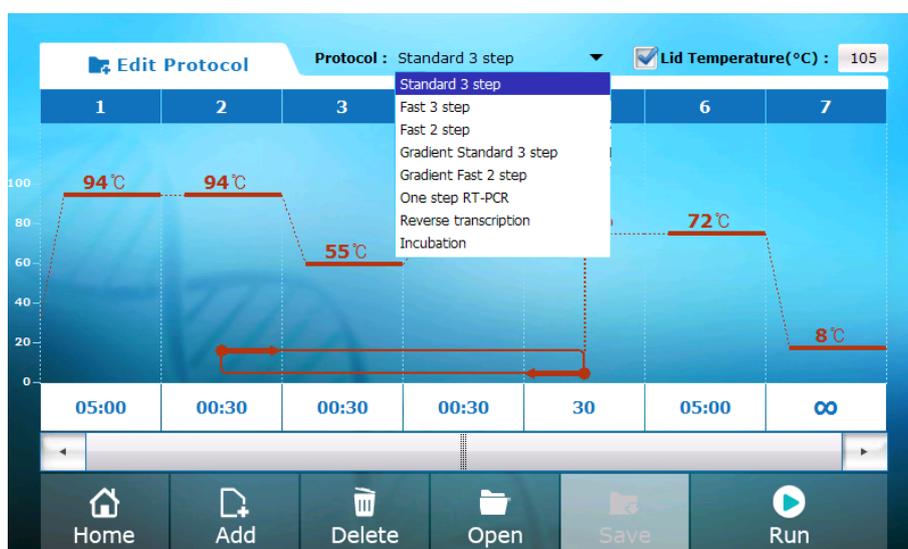


Figure 6. Select a template protocol

- 2) 8 Template protocols are displayed in the list and you can select any one of them by touching it.
- 3) The protocol that is selected on the graph is displayed.
- 4) Edit the protocol according to the purpose of the use. (**Pages. 18–25, Changing Protocol Settings**)

3. Changing Protocol Settings

A. Changing temperature, time and the number of repetitions

- 1) Touch numbers for temperature, time and the number of repetitions on the graph.
- 2) The **Step Options** window is newly created. **Step Options** includes **Incubate**, **Goto**, **Gradient** and **Store** as explained in the table below.
- 3) Touch the value that needs to be changed.
- 4) Change the value by touching the number pad on the right side of the window.
- 5) Touch the **OK** button.
- 6) The Step Options window disappears and the changed value is applied to the current protocol.

Table 6. Step Options

No.	Item	Description
1	Incubate	Keeps the temperature within a certain range for a certain period.
2	Goto	Configures the number of repetitions and the section of repetition.
3	Gradient	Configures the temperature gradient PCR mode.
4	Store	Keeps the temperature constant until the user stops the protocol.

① Incubate Step

- Temperature variation range: 4–99.9 °C
- Time variation range: 1 sec–5 hr 59 min 59 sec

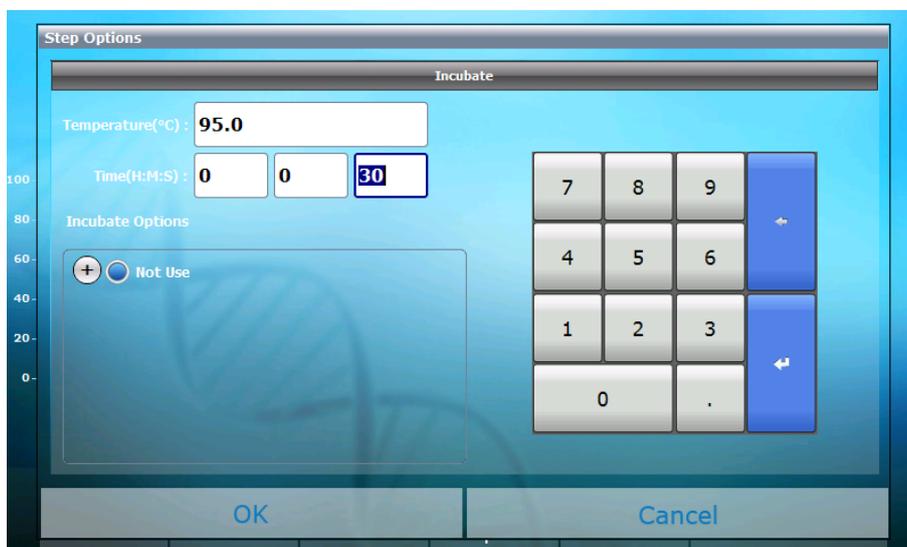


Figure 7. Incubate Step

※ Setting Incubate Options

- 1) Press the  button on the lower side of temperature and time setting window.
- 2) Three setting screens, namely **Extended time per cycle**, **Increment temperature per cycle** and **Ramping Rate** are created.
- 3) Activate the desired menu by selecting it and change the value. (Menu cannot be selected as duplicate.)

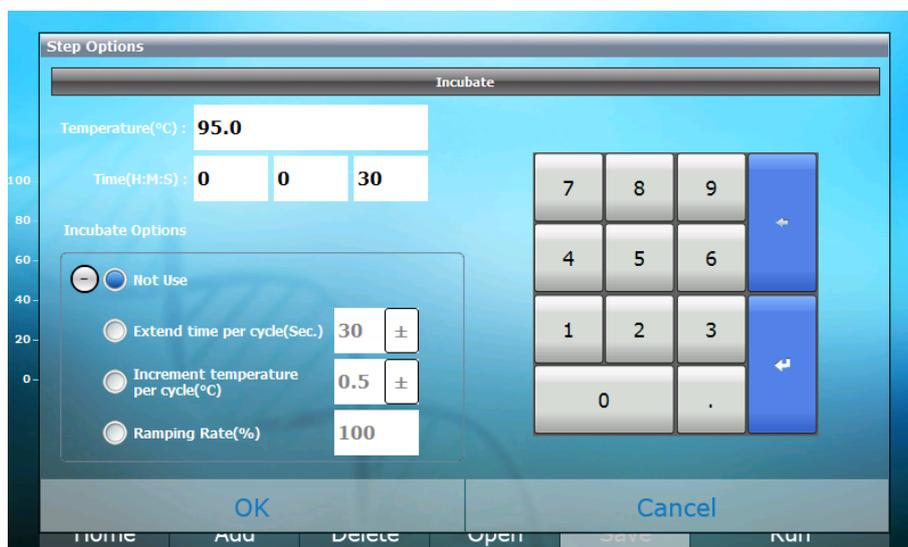
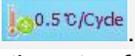


Figure 8. Incubate Options setting screen

Table 7. Method to set Incubate Options

Option	Description
Extended time per cycle	<p>It is a menu to increase or decrease in stages the time of a certain step for each repetition.</p> <ol style="list-style-type: none"> 1) Touch the number keypad and enter the desired value between 0 and 59. 2) Decide whether to increase or decrease the time by pressing the  button on the right side of the key pad. 3) When this option is applied, the configured value is shown in the step on the protocol graph like .
Increment temperature per cycle	<p>It is a menu to increase or decrease in stages the temperature of a certain step for each repetition.</p> <ol style="list-style-type: none"> 1) Touch the number keypad and enter the desired value between 0 and 2.0. 2) Decide whether to increase or decrease the temperature by pressing the  button on the right side of the key pad. 3) When this option is applied, the configured value is shown in the step on the protocol graph like .
Ramping Rate	<p>It is a menu to decrease the rate of change of temperature.</p> <ol style="list-style-type: none"> 1) It is applied to the speed between the selected step and the next step. 2) Touch the number keypad and enter any desired value between 1 and 100 %. 3) When this option is applied, the configured value is shown in the step on the protocol graph like .

① **Goto Step**

- If you touch the **Goto** or repeat section, the Goto window is created.
- You can change the step number that the repeat section starts. The value for step number must always be smaller than that of Goto step.
- Cycles variation range: 1–100

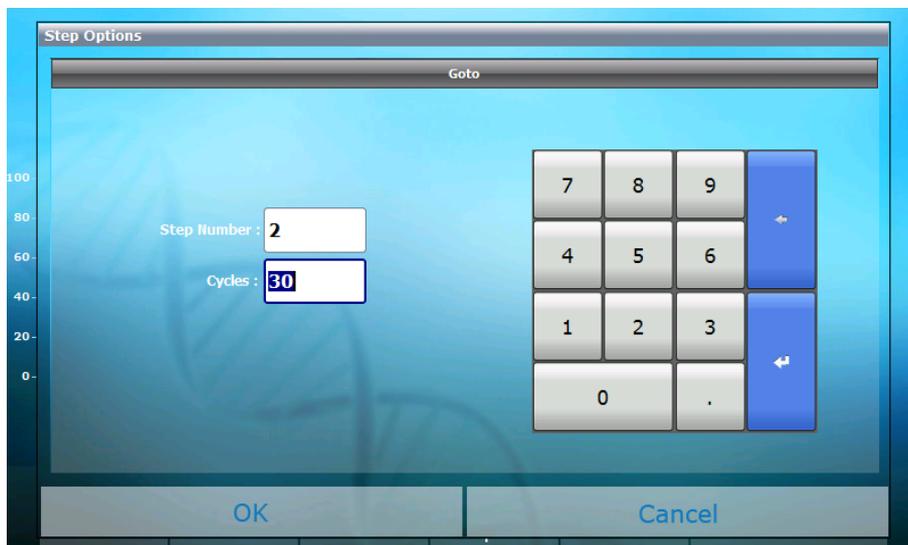


Figure 9. Goto Step

② **Gradient Step**

- Temperature variation range: 20–95 °C, the maximum difference between two values is 20 °C and the gradient function is activated only when the value on the right is configured to be greater than that of the left side.
- Time variation range: 1 sec–5 hr 59 min 59 sec
- If you touch the **Gradient Calculator** button under the time setting window, the Gradient Calculator window appears and the estimated temperature of each well is shown.



Figure 10. Gradient Step



Figure 11. Gradient Calculator

③ Store Step

- Temperature variation range: 4–12 °C
- Store step can only be added to the right end of the protocol (last step).

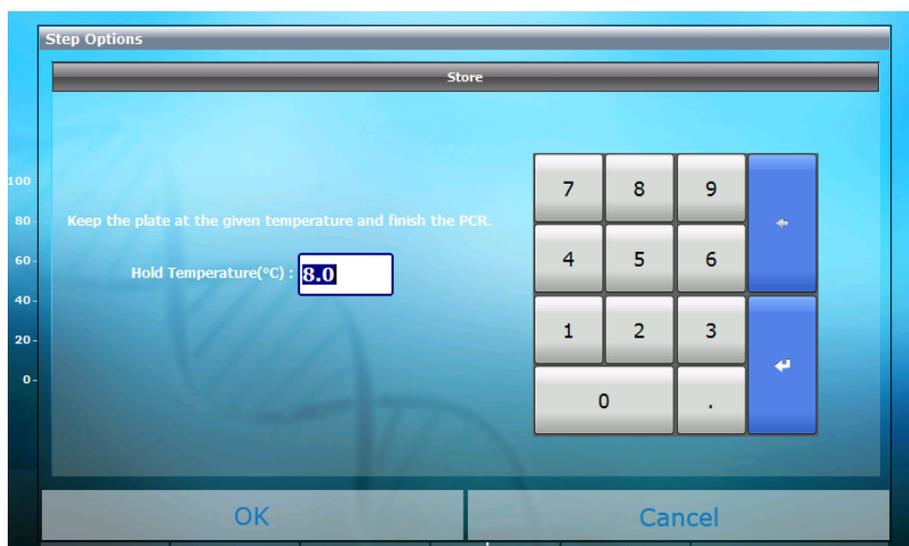


Figure 12. Store Step

CAUTION

If you use the store function in a highly humid environment for a long time (in default temperature of 8 °C), water might be condensed inside the instrument. In such highly humid environment, try not to use the store function and if you have to use it, it is recommended to set the temperature to 12 °C.

B. Adding a Step

- 1) Select the location of a new step to be inserted by touching the step on the left of where a new step is to be inserted. A new step is inserted to the right side of the step that is selected. If no step was selected, the new step is added at the first left of the protocol (the first step).
- 2) Press the **Add** icon on the menu in the lower part of the screen.
- 3) The **Step Options** window is created.
- 4) You can select one of four steps from the column on the upper side of newly created Step Options window, namely **Incubate**, **Goto**, **Gradient**, and **Store**. Select one of them.
- 5) For each protocol step, the values are set with the same method that was followed for changing values. (**Pages. 17–20, Changing temperature, time and the number of repetitions**)

C. Deleting a Step

- 1) Select the step to be deleted.
- 2) Press the **Delete** icon on the lower part of the screen to delete the selected step.



Figure 13. Deleting a Step

D. Setting Lid Temperature

- Under normal PCR conditions, evaporation of the sample may occur if Lid Temperature is turned off.
 - Change the Lid Temperature setting only for purposes other than PCR.
- 1) You can decide whether to use the Hot-top by checking or unchecking the check box next to the Lid Temperature.
 - 2) To change the temperature of the Hot-top, click on the lid temperature input field on the upper right side of the Edit Protocol screen.
 - 3) The key pad that can enter the temperature of the Hot-top appears and the desired temperature in the range of 90 and 110 °C can be entered.
 - 4) If the proper temperature for the Lid Temperature is entered, and the value entered is within the normal temperature range, the **Save** button on the lower part of the screen becomes activated.

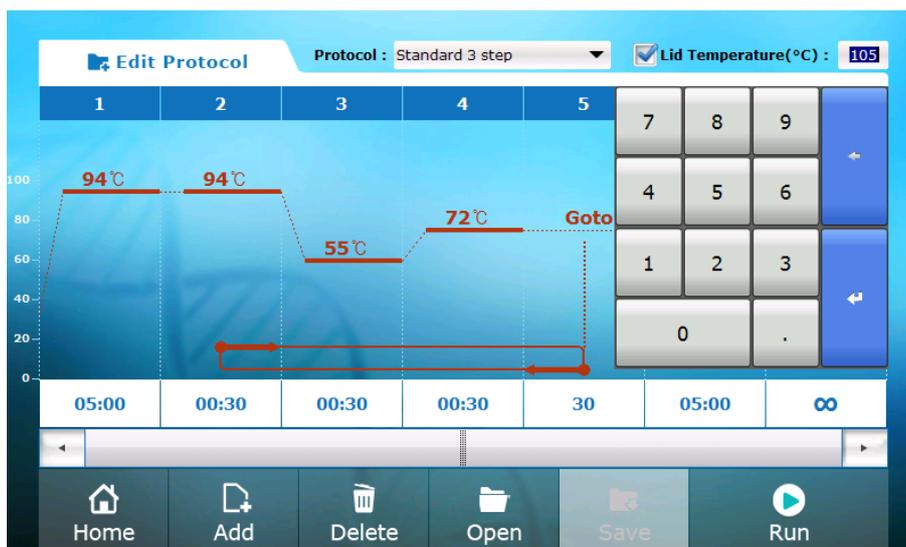


Figure 14. Lid Temperature

- 5) If the entered temperature is outside the normal temperature range for the lid temperature, an error message pops up and the value will be changed to “105” which is the default value.

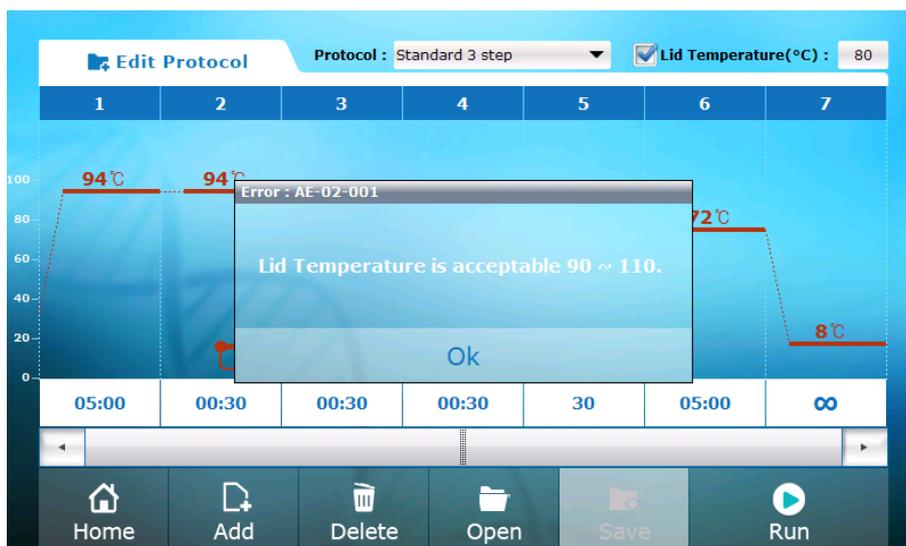


Figure 15. Error message of Lid temperature

E. Opening the stored protocol

- 1) Press the **Open** icon.
- 2) The screen turns into the **Open protocol** screen.
- 3) For more detail, refer to the part (**Pages. 25–26, Opening the saved Protocol**).

F. Saving a protocol

- 1) After editing the protocol in the Edit Protocol screen, touch the **Save** icon on the menu on the lower side of the screen.
- 2) The **Save Protocol** window appears.

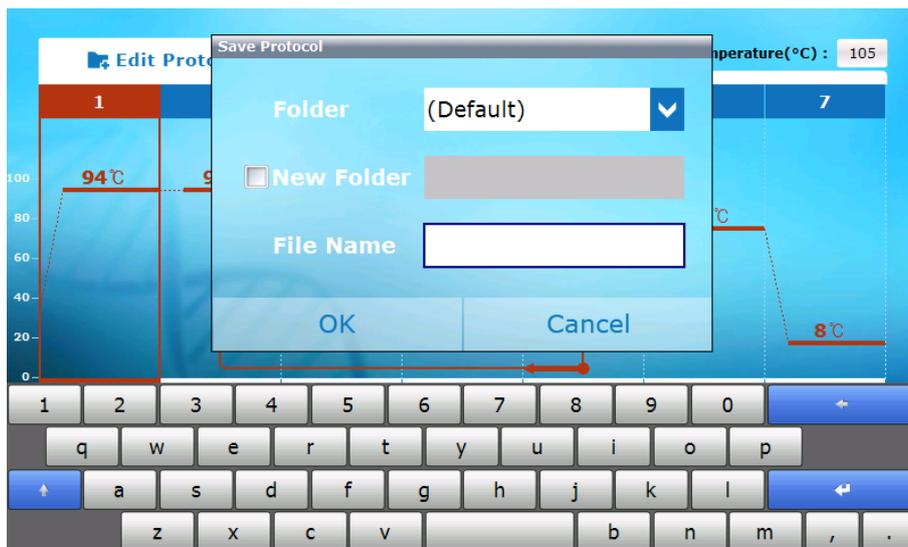
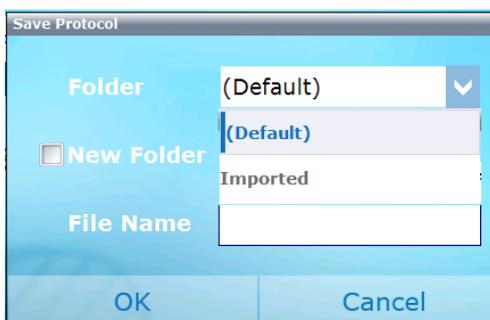
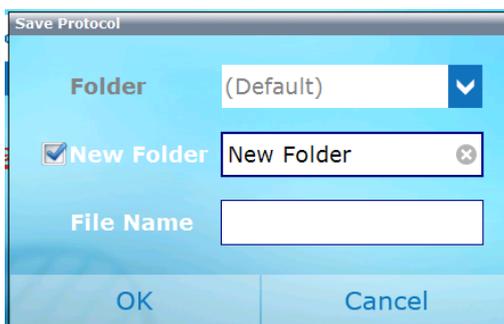


Figure 16. Save Protocol

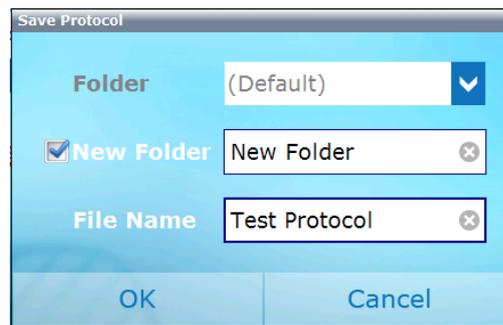
- 3) Select one of the existing folders to save the protocol from the folder selection window.



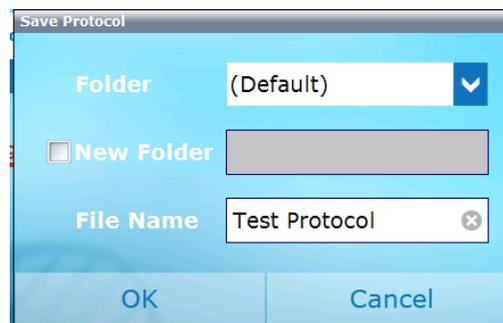
- 4) To create a new folder, check the checkbox on the left side of **New Folder** to select and enter the name of a new folder in the input field of the window on the right side. If the **New Folder** is selected, the previous folder selection window on the upper side becomes inactive.



- 5) Configure the name of the protocol to save.



- 6) If the location of the folder is not specified, the protocol is stored in the **Default** folder.



- 7) In case the protocol is stored in an USB flash drive, the USB is shown on the folder selection window when you insert an USB flash drive.
- The default storage folder for USB is USB – (Default), and the protocol is stored in the path USB:\AllInOneCycler\Protocols.
 - When the protocol is saved in the USB, new folder cannot be created.
 - If the user creates a sub folder under USB:\AllInOneCycler\Protocols in a PC or copied the protocol file to the USB on the Data Menu of Setting (**Pages. 31–32, Copying a file to an USB flash drive**), USB – folder name is displayed on the screen and it can be selected on saving.



- 8) Press **OK** to save.

4. Opening the Saved Protocol

A. Menu of Open Protocol

- 1) If you touch the **Open Protocol** icon of Home menu, the screen displays the **Open Protocol** screen.
- 2) Select the folder by touching the folder name from the Folders selection window on the upper left side of the screen. Then, select a protocol in the **Protocol Files** window which is located below the Folders window. The user can search folders and file list by pressing the  and  scroll arrows.
- 3) The graph of selected protocol is displayed in the Preview window in the right side of the screen.
- 4) The **Home**, **Edit**, **Delete**, and **Run** icons are displayed in the menu below.

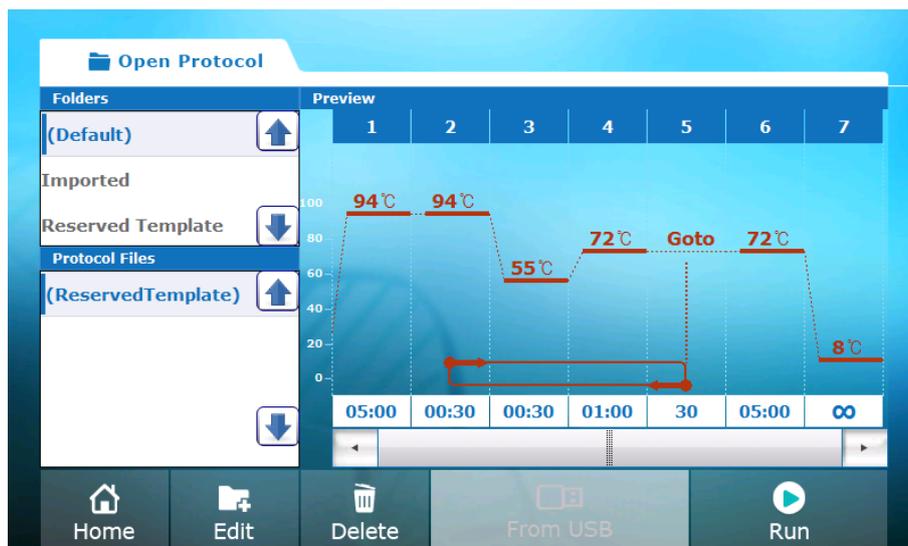


Figure 17. Open Protocol screen

Table 8. Description of the Open Protocol screen

No.	Icon	Description
1		Returns to Home menu.
2		Edits the selected protocol. If you touch this icon, the screen displays the Edit Protocol screen and the user can edit the previously saved protocol in the same way as he/she did in the New Protocol Menu.
3		Deletes the selected protocol. Although the user can delete the selected protocol, the protocol in the Reserved Template folder cannot be deleted.
4		Opens the protocol that is saved in the USB. The protocol that is saved in the USB can be edited or executed.
5		Starts the operation of selected protocol

B. Opening the protocol that is saved in the USB

The protocol that is stored in the USB flash drive can be opened to edit or execute the protocol.

- 1) A few seconds after inserting the USB flash drive, the color of From USB icon in the middle of the screen changes and the icon becomes activated.
- 2) If you touch the From USB button, the list of protocols stored in the USB flash drive is displayed on the left side of the screen.
- 3) You can track the detailed experiment progress from the right screen by selecting the protocol in the Protocol Files window.

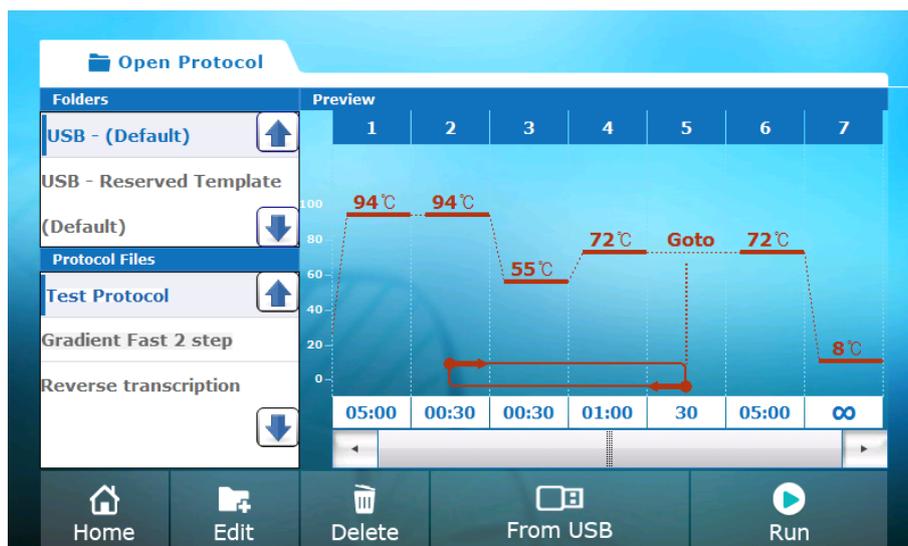


Figure 18. Opening the protocol that is saved in the USB

C. Editing the saved protocol

- 1) If you touch the Edit icon from the Open protocol Menu, the screen displays the Edit Protocol screen and previously saved protocols are shown in the screen.
- 2) The user selects a protocol from the list according to the purpose and edits it to suit the purpose.



Figure 19. Selecting a protocol from the Edit Protocol screen

Setting menu

- The settings of the instrument can be changed or checked in the Setting Menu. In addition, the user can check or manage the protocol files and folders.
- If you touch the Setting icon of Home menu, the screen displays the Setting screen.
- There are 4 sub menus (General, Network, Data, Option) in the left side of Setting screen.

1. General

The user can set the name of the instrument or update the software in the General Menu.

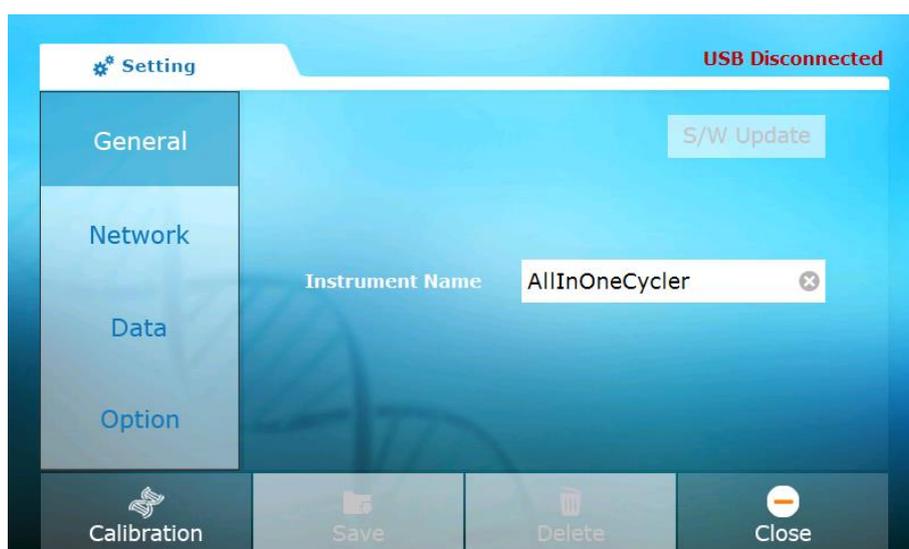


Figure 20. Setting screen

Table 9. Description of Setting screen

No.	Icon	Description
1		A function to calibrate the temperature control setting of the instrument. (A function dedicated for engineers)
2		A function to save the current setup value or data file in the USB flash drive.
3		A function to delete a file or folder.
4		A function to return from Setting Menu to Home menu. (If you do not touch the Save button, the configured value is not applied.)

A. Software update

- 1) Before updating the software, contact the Bioneer Customer Center to check for the latest version.
- 2) Copy the latest version of installation files after creating the USB: \AllInOneCycler_Update\folder in the USB.
- 3) When inserted into a USB device, the USB Disconnected message changes to USB Connected and the S/W update button becomes activated.
- 4) If you touch the S/W Update button, the software is installed automatically and the instrument is restarted.



Figure 21. Software update

B. Changing the name of the instrument

- 1) If you touch the instrument name window, the keyboard pops up on the lower part of the screen. Enter the name using the keyboard and apply the new name by touching the Enter() button.

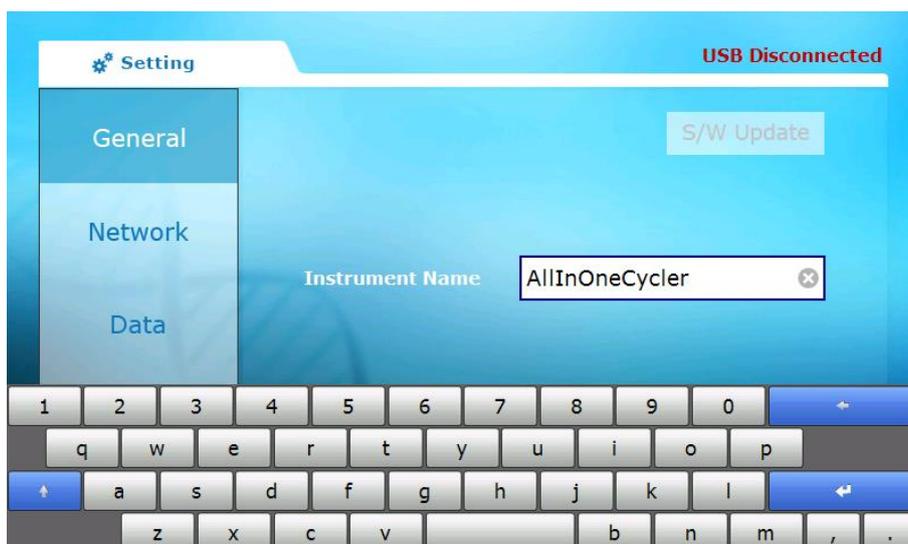


Figure 22. Instrument name input window

2. Network

- 1) Setting the network values such as IP address for the remote access.

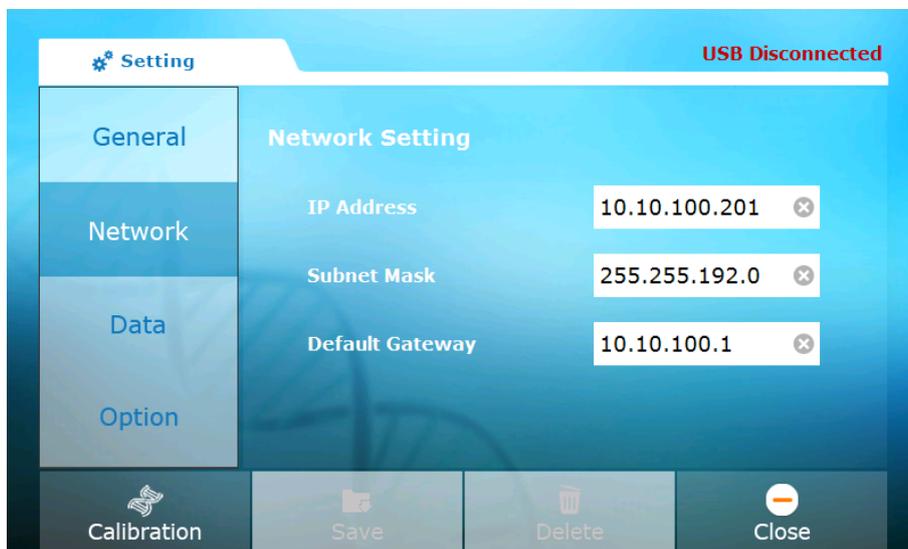


Figure 23. Network Setting menu

- 2) If you touch the value you want to change, a number pad appears in the middle of the screen. Enter the value using the number pad.

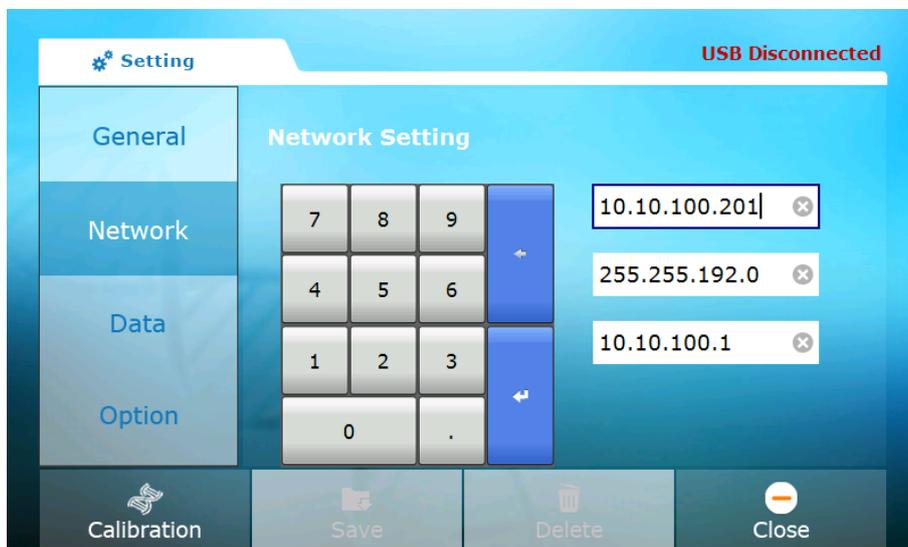


Figure 24. Changing the Network Setting value

3. Data

The user can view and delete the protocol file from the Data Admin screen and can save it in the external USB flash drive.

A. Viewing the protocol

- 1) If you touch the Data button, a file manager is displayed on the right side of the screen.

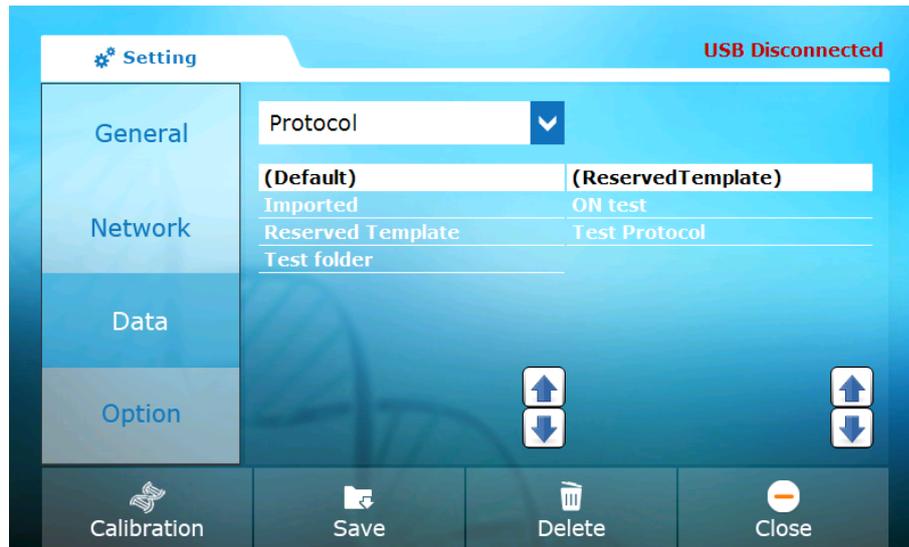


Figure 25. Data admin screen

- 2) The list of folder names is displayed in the middle of the screen and if you touch any folder, the protocols in the selected folder are displayed on the left side of the screen.
- 3) If you touch the file name twice to check the protocol, the detailed information of the file is displayed as shown in the screen below.

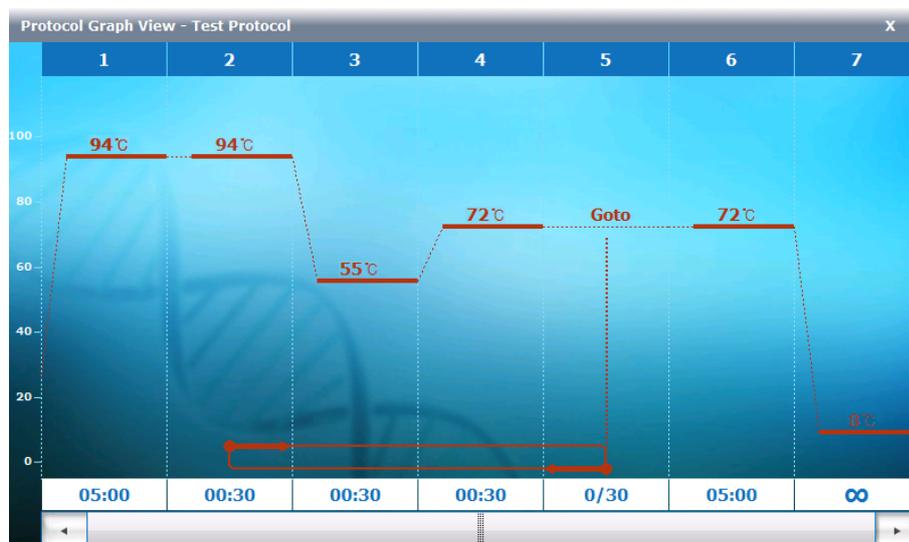


Figure 26. Protocol Graph View screen of Data menu

B. Copying a file to an USB flash drive

- 1) Insert an USB flash drive into the USB port on the left side of the front touch screen of the instrument or in the rear lower part of the instrument.
- 2) After a few seconds after inserting the USB flash drive, the message USB Disconnected in red color on the upper right side changes to USB Connected in green color.

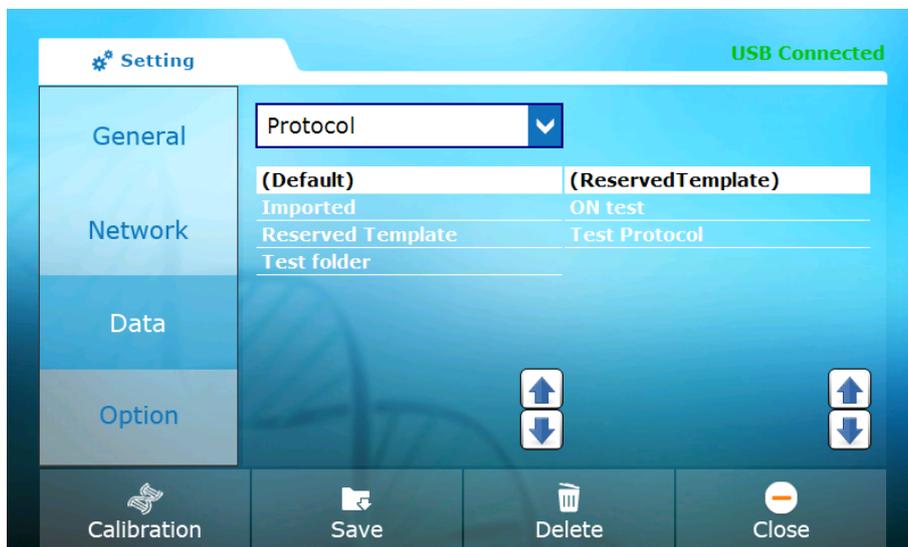


Figure 27. Setting screen after inserting an USB flash drive

- 3) After touching and selecting the folder and file you want to save, touch the Save icon in the menu on the lower part of the screen. If you just select the folder without selecting the file, the whole folder is saved.

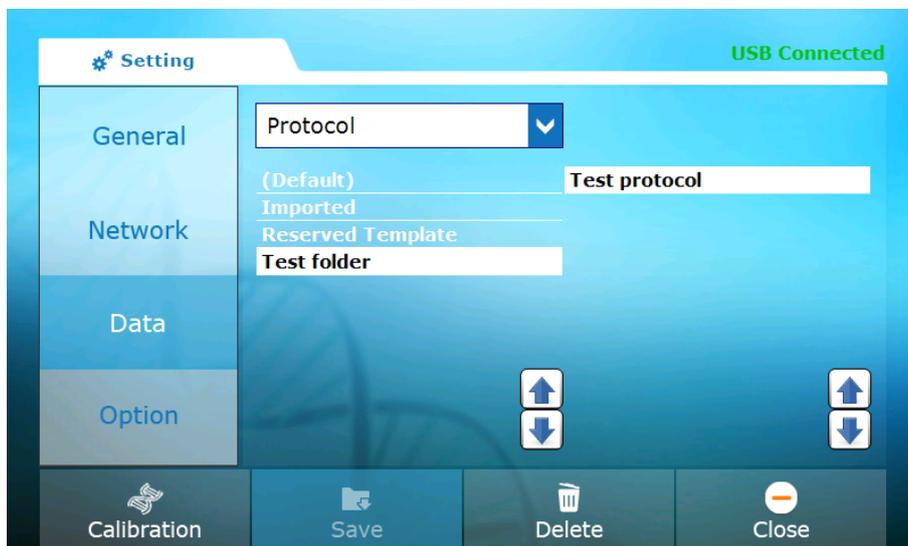
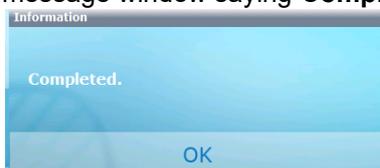


Figure 28. Selecting the protocol folder and file to save

- 4) If saving is successful, the message window saying **Completed** pops up.



- 5) A new folder named AllInOneCycler is created in the USB flash drive. The protocol file is stored in the Protocols folder under AllInOneCycler and if you select the folder, the selected folder is created under Protocols folder.



C. Deleting a protocol

When you delete a file, select the file and folder and touch the Delete on the menu on the lower part of the screen. Then, the confirmation window asking the deletion of the file appears and the deletion is completed if you touch the **Yes** button.

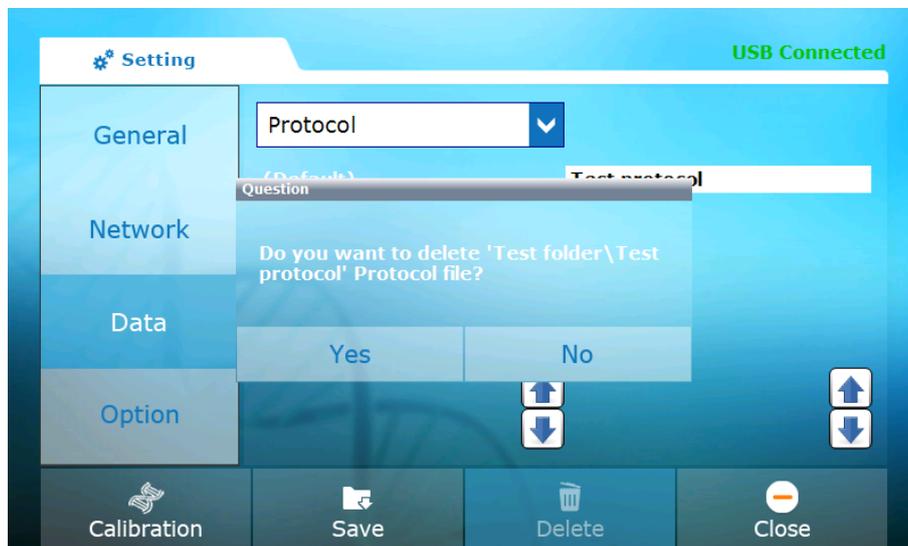


Figure 29. File deletion confirmation window

4. Option

- This menu is a configuration menu for engineers and not for users.
- Use of the mouse and date & time can be set from the menu.

A. Mouse connection setup

- 1) Connect an USB mouse onto the USB port on the left side of the front touch screen of instrument or on the rear lower side of the instrument.
- 2) After making the selection by checking in the Show Mouse checkbox, touch the Save icon in the lower part of the screen.
- 3) A mouse cursor appears on the screen and after that, the instrument can be controlled by the mouse.

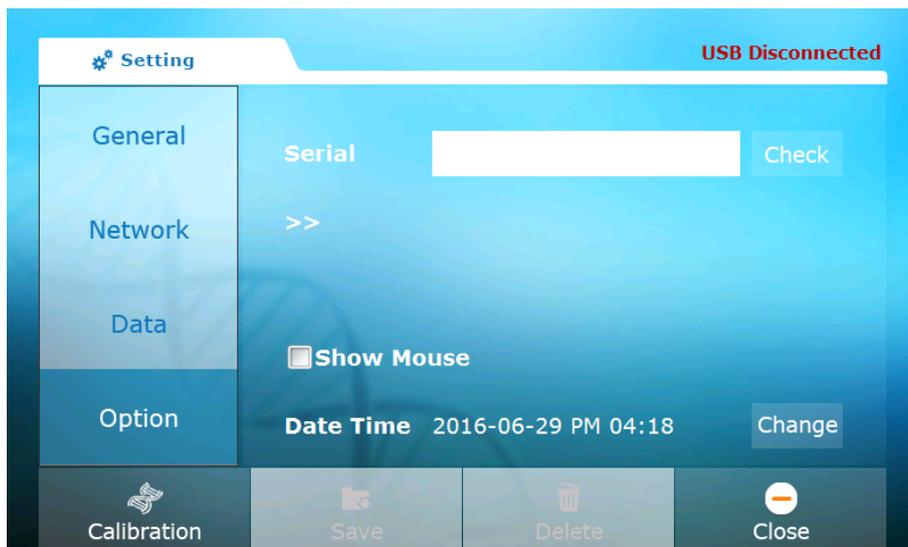


Figure 30. Option menu

B. Date and time setup

- 1) You can view the date and time that is setup in the Option menu and it can be changed.
- 2) To change the date and time, touch the **Change** button.
- 3) Enter the date & time by using the number pad.
- 4) If you touch the **OK** button, the change is applied.

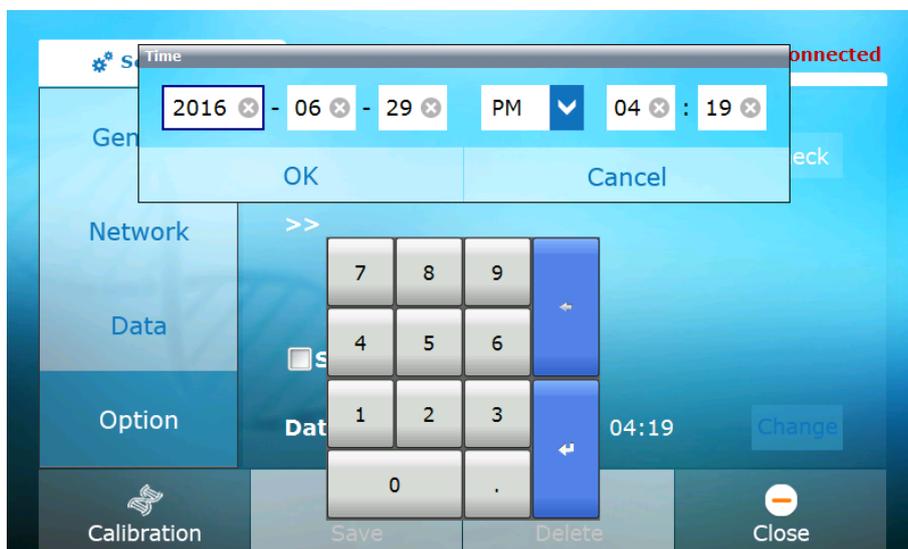


Figure 31. Date and time setting screen

About menu

Current *AllInOneCycler*™ software version and contact information are displayed.

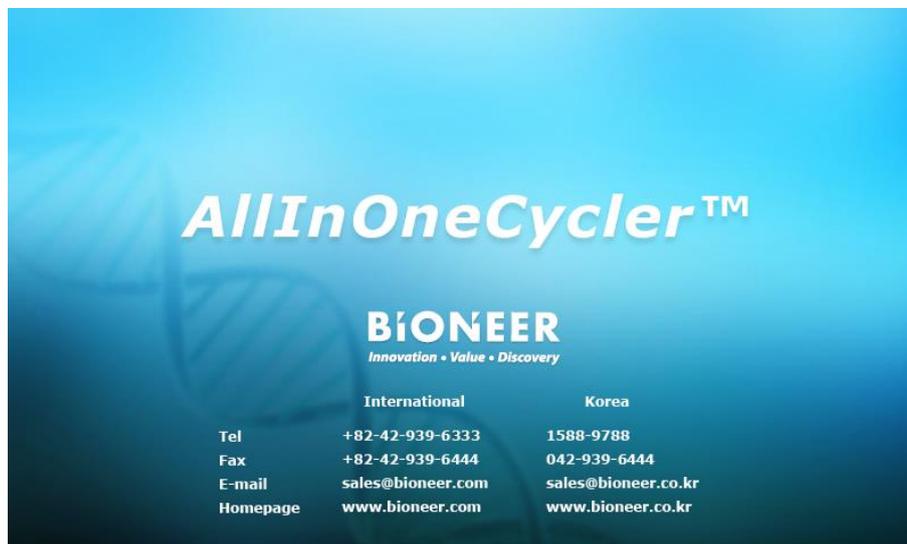


Figure 32. About screen

Instrument operation through Network

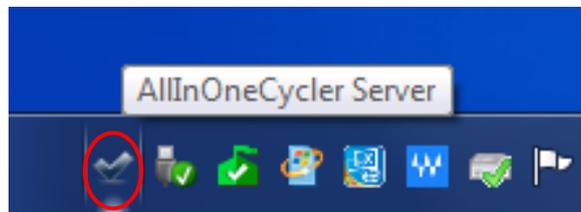
- More than one *AllInOneCycler™* instrument can be operated simultaneously using a network program.
- To operate through a network, separate PC is required.
- “AllInOneCyclerServer.exe” and “AllInOneCyclerManager.exe” which are mandatory programs for operating the network must be installed in the PC.

1. The Order of Program Operation

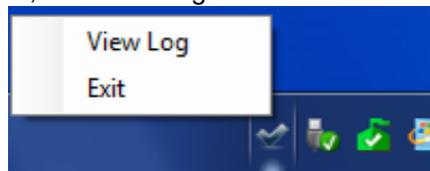
⚠ CAUTION

For normal operation of the program, it is important to follow the procedure that is described below.

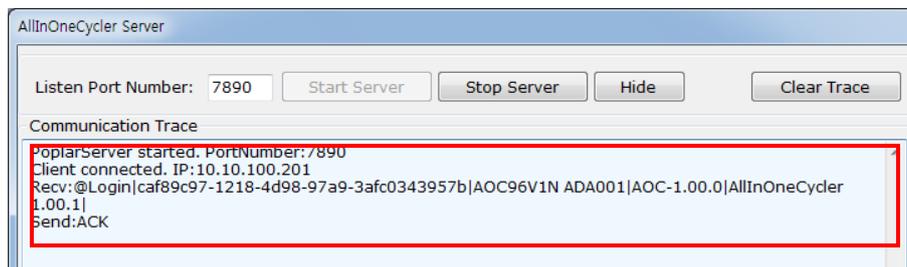
- 1) Execute the “AllInOneCyclerServer.exe” program in the PC.
- 2) If the program is executed, the AllInOneCycler Server tray icon appears on the lower right side of the task bar.



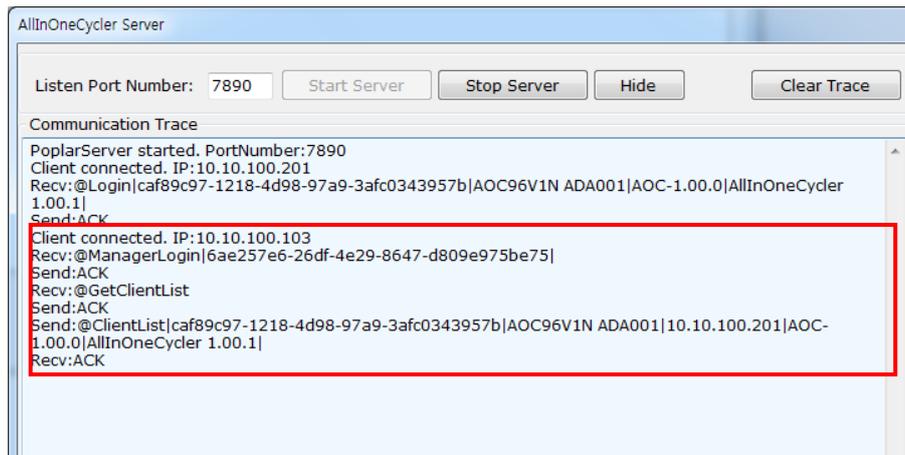
- 3) If you right click on the tray icon, the server log can be viewed.



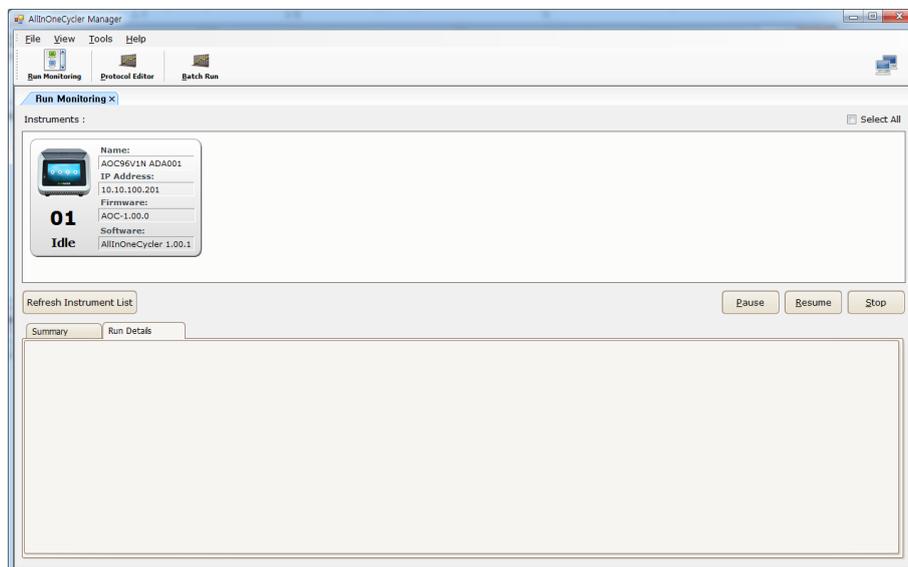
- 4) When the power of the instrument is turned on, the “Poplar.exe” program that controls *AllInOneCycler™* is executed automatically. After that, the network connection between the instrument and PC is configured.



- 5) If you execute the “AllInOneCyclerManager.exe” program in the PC, the communication connection status is displayed as shown in the screen below.



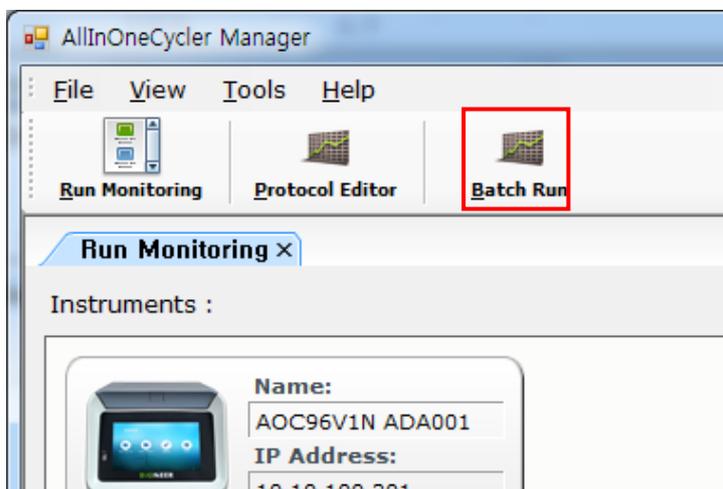
- 6) When the "AllInOneCyclerManager.exe" program executes, connected instruments are displayed as shown in the screen below.



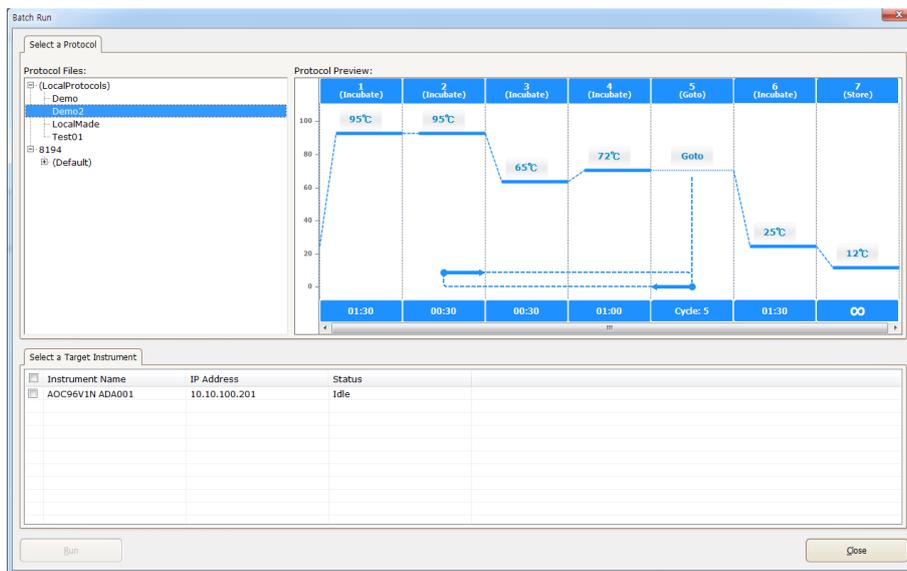
2. Executing Remote PCR through Network

1) Selecting a protocol

- a) Click on the Batch Run icon on the ribbon menu in the upper part of the screen.



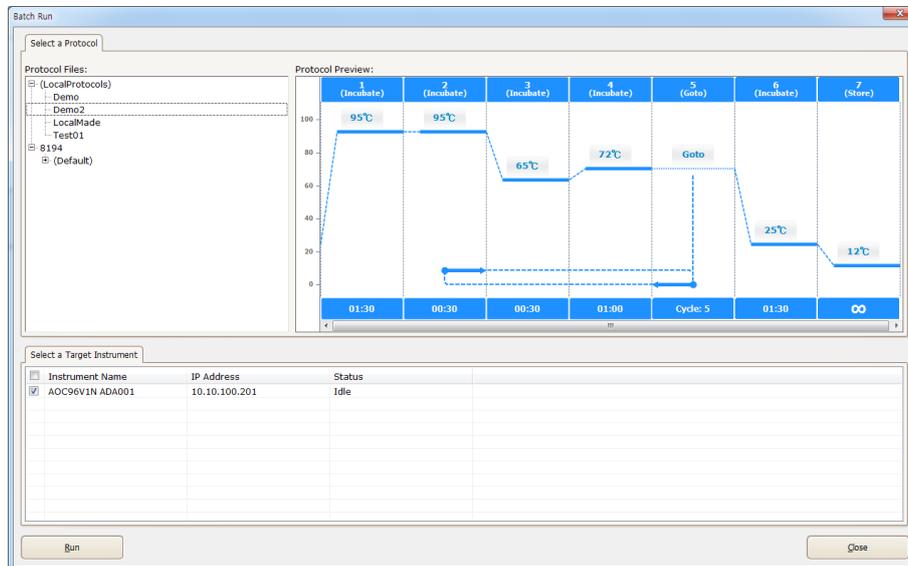
- b) The Batch Run window appears and the user can select a protocol that is stored in a PC or the instrument.



- c) Select a protocol from the protocol file tree on the upper left side of the screen. For example, the protocol file named Demo2 is selected in the figure above.
- d) The graph of the selected protocol is displayed on the upper right side of the screen.

2) Selecting the instrument to operate

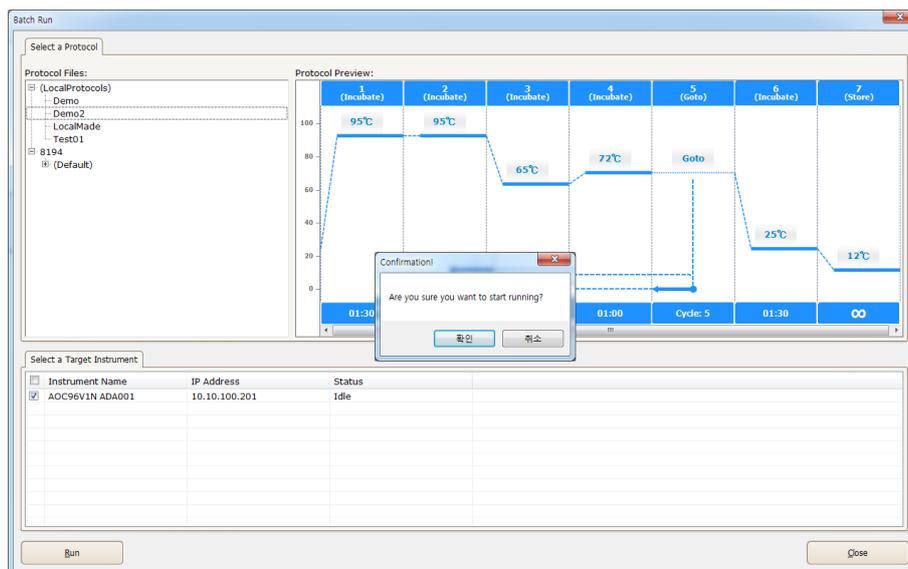
- a) Select the instrument that can be operated from the lower area of the screen.



- b) If you click the checkbox next to the instrument name, the **Run** button in the lower part of the screen gets activated.

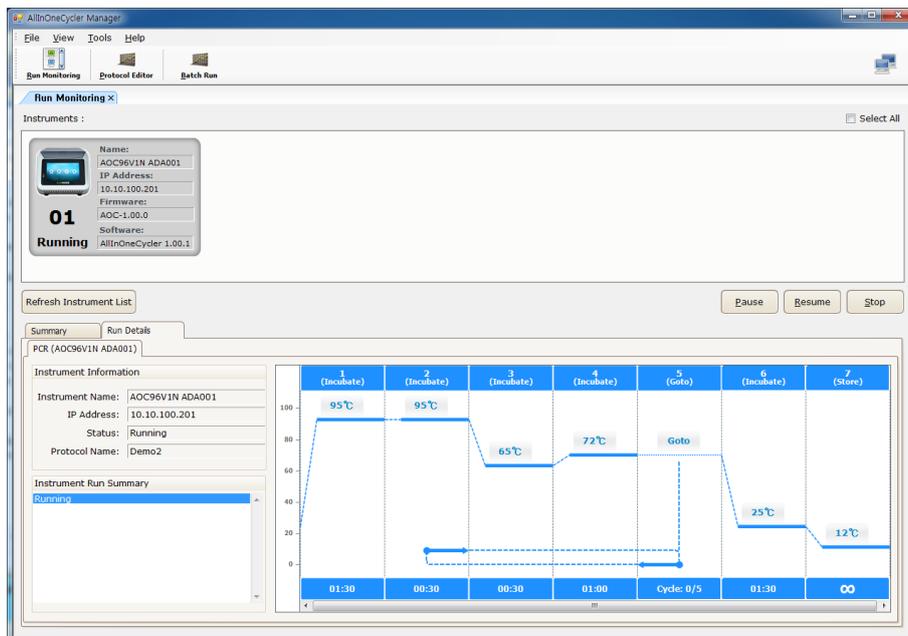
3) PCR operation

- a) If you click the Run button, the operation confirmation message appears as shown in the following figure.
- b) If you click the **OK**, the protocol is downloaded to the selected instrument, and the protocol gets started.

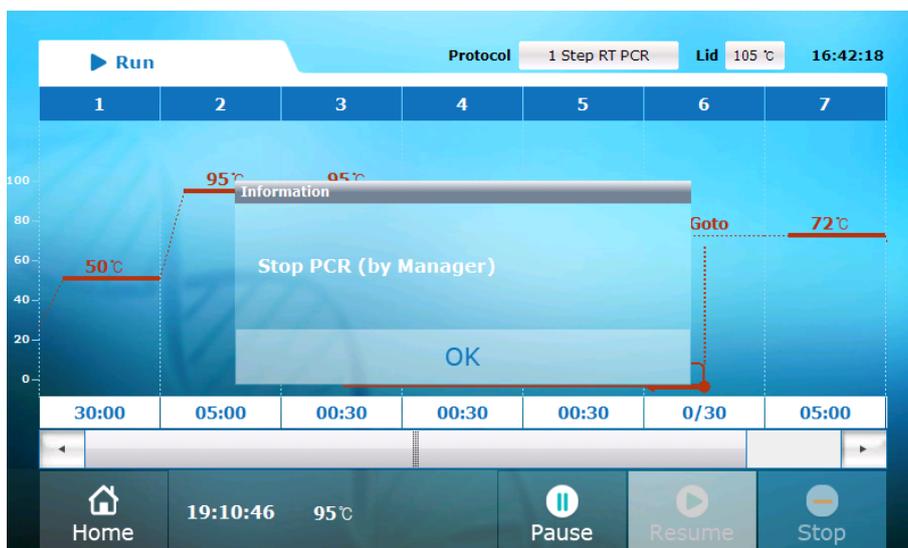


4) Stop

- a) When multiple instruments are operating, select the instrument to be stopped from the Instruments screen in the upper part of the screen.
- b) The **Stop** button in the lower part of the screen becomes active. In addition, the user can pause or resume the protocol that is currently running by touching the **Pause** or **Resume** button next to the Stop button.



- c) The instrument that is selected in the Instruments screen in the upper part of the screen gets stopped when the **Stop** button is touched as the stop signal is sent to the running instrument.



- d) After stopping, touch the **OK** button to close the confirmation window. The screen displays the **Home** menu if you touch the **Home** icon.

Running the PCR

1. If you click on the Run icon in the Edit Protocol screen and the Open Protocol screen the screen displays the Run screen.



Figure 33. Run screen

Table 10. Description of Run screen

No.	Item	Description
1	Protocol Name	The name of the protocol that is currently running.
2	Lid Temperature	Displays current temperature of the Hot-top.
3	Step	The currently running step is displayed by blinking appropriately and the remaining time is displayed.
4	Repeats	The number of repetitions in the Goto step is displayed as the number of repetitions until now / total number of repetitions.
5	Status messages	12:01:25 Displays estimated end time (H:M:S).
		36.6 °C Displays current temperature of the block.
		00:02:15 Displays the operation time (H:M:S). If an error occurs, an error message is displayed instead of the time.
6	Function icon	Home Returns to Home menu.
		Pause Pause the operation.
		Resume Resumes after the operation is paused.
		Stop Displays estimated end time (H:M:S).

- If you touch the Home icon, the screen displays the Home menu screen. At this point, PCR Running is displayed in the upper part of the screen by blinking in red and green colors. If you touch this, it returns to the Run screen.



Figure 34. Home menu screen while PCR is running.

- Even when it is running, the user can create a new protocol in the New Protocol option or open/edit the previous protocol in the Open Protocol option. However, it is not possible to run some other protocols or edit the currently running protocol.

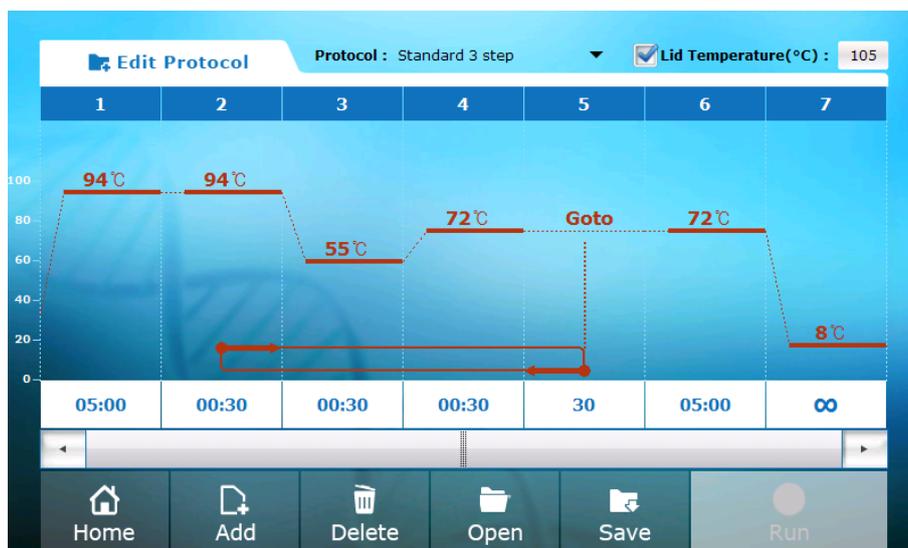


Figure 35. Edit Protocol screen while PCR is running

CAUTION **WARNING** **DANGER**

If you open the Hot-top cover when it is running, the protocol that was running stops. Be careful, since the Hot-top is extremely hot.

Remove the tube/plate after Run

- Hold the upper part of the instrument tightly until the tube (or plate) is completely separated from the sample block.
 - Be careful, since the lid of the PCR tube may suddenly open when the Hot-top cover is opened if the temperature of the bath block is higher than the room temperature.
1. Press the cover button to open the door.
 2. Remove the tube/plate and close the door by pressing the cover button.
 3. The removed tube/plate is either stored separately according to further purpose or discarded according to the internal test procedure.
 4. Turn off the power switch of the rear.



Since the temperature of the PCR reaction rises to around 100 °C , the thermal block and tube/plate may be hot after run. Therefore, wait until the temperature cools down to room temperature before touching the tube/plate.

MAINTENANCE

Instrument Cleaning



- Turn off the power of the instrument.
- When you repair the instrument, always wear safety goggles and protective gloves.
- Make sure that the temperature of the thermal block is cooled down to room temperature.

1. Cleaning LCD screen

- 1) Clean the LCD monitor using a commercially available cleaner.
- 2) Clean the door carefully not to leave scratches or debris.

2. Thermal bath cleaning

- Clean with a cotton swab and 70 % ethanol.
 - There should be no foreign substances in the thermal bath, and remove foreign substances from every corner using a cotton swab.
- 1) Open the Hot-top cover.
 - 2) If any tube or plate with a sample is mounted, remove it from the block.
 - 3) Clean the well using a cotton swab soaked in pure isopropanol or commercial PCR DNA degradation solution. Close the Hot-top cover after making sure that the cleaning solution has completely evaporated.

3. Cleaning the Hot-top Cover

- Clean the Hot-top cover well once a month or as is necessary.
- 1) Open the Hot-top cover.
 - 2) Softly rub the heating part of the Hot-top by using a cotton swab soaked in pure isopropanol or commercial PCR DNA degradation.
 - 3) If the Hot-top cover is contaminated by the amplified DNA, open up the Hot-top cover and clean the cover with the cotton swab or cloth with isopropanol or commercial PCR DNA degradation solution. Then clean it again with a wet cloth.



Hazard warnings for chemicals

- Isopropanol is a volatile liquid and it may cause the irritation of eyes, skin, or upper respiratory system if it is exposed to a human body. Repeated contact or long-term contact may become the cause of xeroderma or irritation. In addition, it may affect the central nervous system and cause symptoms like drowsiness, dizziness and headache. Be aware of MSDS and follow the precautions in handling the material.
- Remove all the isopropanol that remains in the Hot-top cover.
- If the interior of the Hot-top is contaminated by the amplified DNA, open up the Hot-top cover and clean it with the cotton swab or cloth with bleach (concentration of about 5 % is recommended). Then clean it again with a wet cloth.

Replacing Fuses

DANGER

Severe electrical shock, which could cause physical injury or death, can result from working on an instrument with a high voltage power supply. To avoid electrical shock, disconnect the power supply from the instrument, unplug the power cable, and wait at least 1 minute before working on the instrument.

Tools required for the replacement

- 2 fuses with the specification of 250V, F10AL, 5×20 mm, 1 flat-head screwdriver (small)
- 1) Turn off the power at the rear of *AllInOneCycler*™ and disconnect the power cable.
 - 2) If you insert a flat-head screwdriver into the upper part of power inlet, the fuse cover can be opened.



- 3) Pull out the fuse slot and check the condition of fuses.



- 4) Take out the disconnected fuse from the fuse slot, and replace it with a new fuse with the specification of 250V, F10AL, 5×20 mm.



- 5) Return the fuse slot to its original position under the power cable inlet and close the fuse cover.
- 6) Push the fuse cover firmly until it gets to the original position.
- 7) Connect the power cable of the instrument.

Moving of the instrument

When moving the instrument to another location, do not move it arbitrarily, contact our technical support center or your distributor.

Storage Condition

1. Temperature: 0–40 °C (32–104 °F)
2. Humidity: 20–80 % (non-condensing)

Storing the instrument

1. When the instrument is not in use, store it according to the precautions specified in the User Guide.
2. It must be stored following all of the storage conditions specified above.

TROUBLESHOOTING

If the following operation problem occurred, please proceed the measurements referring to the below table or contact this company or our distributor.

Problems	Measures
The power does not turn on.	<ol style="list-style-type: none"> 1. Check whether the power cable is connected to the external power. 2. Check whether the power cable is connected to the instrument. 3. Check whether the power switch is turned on. 4. If the power is not turned on normally even through everything above is checked, Contact technical support center or local distributor for service.
The power turns on, but the system does not get initialized.	<ol style="list-style-type: none"> 1. Check whether the power was shut abnormally. 2. Check whether there is any object interfering with the operation of the system, and if so, remove it. 3. Turn on the power and check whether the system gets initialized. 4. If it is not initialized normally even through everything above is checked, contact technical support center or local distributor for service.
The touch screen LCD does not get turned on.	<ol style="list-style-type: none"> 1. Contact technical support center or local distributor for service.
Even though you click the Run button, it does not work.	<ol style="list-style-type: none"> 1. Check whether the system is normally initialized when the power is turned on. 2. Remove any object that interferes with the closing of the Hot-top cover, since the system would not be operated if any such interference is present. 3. Check whether any other button in the touch screen LCD works normally. 4. If the system does not operate normally even through everything above is checked, contact technical support center or local distributor for service.
Although the system operates, it does not operate according to the protocol.	<ol style="list-style-type: none"> 1. Check whether any object interferes with the operation of the system and if so, remove it. 2. Check whether all the parts are in correct places. 3. If it does not operate normally even through everything above is checked, request for inspection.
The Hot-top cover cannot be closed.	<ol style="list-style-type: none"> 1. Open the Hot-top cover, and see whether it is closed automatically with its spring. 2. If it does not operate normally even through everything above is checked, request for inspection.
Although the Hot-top cover is closed, the instrument does not operate.	<ol style="list-style-type: none"> 1. Check whether the magnet on the Hot-top cover is properly assembled. 2. If it does not operate normally even through everything above is checked, request for inspection.

Problems	Measures
The Hot-top cover cannot be moved.	1. Since there is a problem in Hot-top cover assembly, request for inspection.
The instrument suddenly stops during operation.	<ol style="list-style-type: none"> 1. Check whether the power is connected properly. 2. Check whether the power switch has been pressed by mistake. 3. Check whether the Pause button has been touched by mistake. 4. If it does not operate normally even through everything above is checked, contact technical support center or local distributor for service.
Although the system operates, an error message pops up.	<ol style="list-style-type: none"> 1. Check whether the wrong protocol has been used 2. Run the same protocol once again, and check whether it operates normally. 3. If it does not operate normally even through everything above is checked, contact technical support center or local distributor for service.
Actual temperature does not match the configured temperature.	1. Contact technical support center or local distributor for service.
Cooling or heating speed is very slow.	1. Contact technical support center or local distributor for service.
The instrument emits a burning smell.	<ol style="list-style-type: none"> 1. Disconnect the power cable, and block the external power. 2. Contact technical support center or local distributor for service.
The Hot-top cover does not heat up.	1. Contact technical support center or local distributor for service.

TECHNICAL SUPPORT

Technical Support

Telephone +82-42-939-6333
Fax +82-42-939-6444
E-mail instrument-support@bioneer.com
Website www.bioneer.com

Requesting a repair

1. Before requesting a repair, please see “Troubleshooting” in this User Guide.
2. If the problem is not resolved, record any irregularities with the instrument and fill out the Service Request Form (Appendix B).
3. Please email the completed Service Request Form to our technical support center.

Sending the instrument for service

1. First, please inform your local dealer or us about the service you need.
2. Remove the source of contamination from the instrument.

CAUTION

If the interior or exterior of the instrument is contaminated by biohazardous materials, clean it with a commercially available decontaminant. Service may not be possible if contaminants in the instrument are not removed.

3. Ensure that the instrument is completely decontaminated.
4. Pack the instrument using the packaging box provided when purchasing the instrument. Please do not send the power cables and other components.
5. Send the instrument to your local dealer or us, or hand it over to a sales representative.
6. Repair of the instrument will take approximately 1 to 3 weeks depending on the condition.
※ Repair time may be delayed due to parts or repair conditions.

NOTE

If you do not submit the completed Service Request Form, the instrument repair may be delayed as it will be responded to in the order received.

Notice

Report all serious incidents involving the instrument to the manufacturer.

ORDERING INFORMATION

Instrument

Cat No.	Product
A-2041-1NR	<i>AllInOneCycler</i> [™] 96 well PCR system
A-2041-2NR	<i>AllInOneCycler</i> [™] 384 well PCR system
A-2041-3NR	<i>AllInOneCycler</i> [™] Slide PCR system
A-2041-1FR	<i>AllInOneCycler</i> [™] Fast 96 well PCR system
A-2041-2FR	<i>AllInOneCycler</i> [™] Fast 384 well PCR system
A-2041-3FR	<i>AllInOneCycler</i> [™] Fast Slide PCR system

Components

Cat No.	Product
A-2041-1-1	<i>AllInOneCycler</i> [™] 96 well thermal block only
A-2041-2-1	<i>AllInOneCycler</i> [™] 384 well thermal block only
A-2041-3-1	<i>AllInOneCycler</i> [™] Slide thermal block only
A-2041-1-2	<i>AllInOneCycler</i> [™] Fast 96 well thermal block only
A-2041-2-2	<i>AllInOneCycler</i> [™] Fast 384 well thermal block only
A-2041-3-2	<i>AllInOneCycler</i> [™] Fast Slide thermal block only
A-2041-9	<i>AllInOneCycler</i> [™] PC control software

Consumables

Cat No.	Product
T1C-028-N	0.2 mL PCR 8-Tube Strips with attached Individual Caps, Natural (120 ea)
T-028-CN	0.2 mL 8-Strip PCR Tube with 8-strip Caps
3420-00	96-Well PCR Cycle Plate, Semi skirted, Natural (10 ea)
3111-4110	Adhesive Optical Sealing Film
3510-00	96 well sealing mat, 5 ea
3430-00	Full skirt 384-Well PCR Cycle Plate, Natural, 10 ea

NOTE

For more information, please visit our website (www.bioneer.com).

LEGAL INFORMATION

Usage and Compatibility

AllInOneCycler™ can amplify specific DNA or RNA in a sample by PCR and be used for qualitative and quantitative analysis. In addition, it is compatible with kits manufactured/sold by BIONEER, and it is possible to use other products.

Warranty and liability

Bioneer Corp. (hereinafter Bioneer) guarantees the quality of the product during the warranty period. Products found to be defective within the warranty period will be repaired or exchanged free of charge. However, the user must check whether the product is defective without delay when the product is delivered, and if a defect or lack of quantity is found, it must be notified immediately.

The following cases are not attributable to Bioneer, and therefore not covered under warranty, and the costs required for repair or exchange must be borne by the user: Malfunction caused by the users carelessness and by not following the instructions in this User Guide, failure or damage caused by repairs performed by an entity other than Bioneer or a repair shop designated by Bioneer, normal wear and tear, or any defect caused by a natural disaster.

Trademark

AllInOneCycler™ is a trademark of Bioneer. The registered names, trademarks, etc. used in this User Guide are protected by law even if not indicated separately.

Change

Bioneer holds all copyrights to this User Guide. Information on product specifications and services in this User Guide may be changed at any time without notice due to changes in government laws and guidelines, Bioneers internal policies, or technical product improvements.

Inquiries

For solutions to technical problems related to the quality and use of this product, please contact Bioneer Technical Support Center with the relevant analysis information or related test data.

WARRANTY

Although this instrument is for Research Use Only (RUO), it is manufactured under a quality system compliant with ISO 13485.

1. Warranty periods
 - Product: 1 year
 - Components (consumables): 3 months
 - Retention period of repair parts: 5 years from the discontinuation date of the model
 - Period of maintenance service: 5 years from the discontinuation date of the model
2. Warranty details
 - In the case of repair due to defects in our products within the warranty period, we provide free A/S in accordance with our quality guarantee terms and conditions and consumer damage compensation regulations.
 - All components are consumables (based on the condition of the packaged official product).
 - Actual expenses may be charged even within the warranty period in the following cases, and in unavoidable cases, A/S may not be possible even for a fee.
 - In case of malfunction due to negligence in use, impact, carelessness, or submersion
 - If the product is disassembled or modified for other purposes
 - In case of breakdown due to natural disasters such as fire, earthquake, flood, etc.
 - If the product was repaired by an entity other than our company
 - In the event that a product is not covered by the warranty or a service request falls outside the scope of the warranty.
 - Matters not specifically stated in this clause shall be governed by Bioneer's A/S and customer support principles and internal regulations, and other matters shall be reviewed and processed with consideration for the user's convenience.
 - The cost incurred during after-sales service is determined according to the standards of after-sales service for each item in our internal regulations. For further information on repair costs, please contact us.
3. Product exchange details
 - Product exchange is carried out only when there is a valid reason to exchange the product based on the Fair Trade Act, consumer damage compensation regulations, and the authoritative interpretation of the consumer protection rights for the same or similar cases, and only 1:1 exchange with the same model is possible (No refund is available).
 - Product to be exchanged: Product with the same symptoms within the warranty period and has a history of checking A/S more than three times
4. One moment! Before place a request service:
 - When the product does not operate normally, please refer the "Troubleshooting" page in the User Guide.
 - If the problem is not resolved, please contact Technical Support Center as indicated.

KEY TO SYMBOLS

	Conformité Européenne Mark
	Serial number
	Unique device identifier
	Consult instructions for use
	Temperature limits
	Humidity limits
	Do not discard as unclassified waste. To minimize the effect of electric or electronic instruments on the environment, follow the regulations on proper disposal of such items. European Union customers Call your local Europe office for Bioneer instruments pick-up and recycling.
	Manufacturer
	Date of Manufacture
	Authorized representative in the European Union
	Catalog number
	Ignoring this sign and mishandling will result in death or serious injury
	Ignoring this sign and mishandling, will result in death or serious injury due to electric shock.
	Ignoring this sign and mishandling may result in death or serious injury.
	Ignoring this sign and mishandling may result in death or serious injury due to heat.
	Ignoring this sign and mishandling may result in minor injury or property damage.
	Indicates relevant or helpful information about an instrument, however does not affect instrument operation.

	Do not turn off the application during operation. It will affect the result.
	Do not run any other applications during operation. It will cause malfunction or affect the result.
	Keep a safe distance from the moving parts of the instrument. Moving parts may cause injuries.
	Biohazard Exposure may cause infection.
	Keep away from sunlight
	Indicates the On position of the main power switch.
	Indicates the Off position of the main power switch.
	Indicates the on/off position of the main power switch.
	Indicates ground terminal for the main protective ground of the instrument.
	Indicates a terminal that receives or supplies alternating current or voltage.
	Indicates a terminal that receives or supplies direct current or voltage.

REVISION CONTENTS

Version	Date (yyyy-mm-dd)	Description
6.0	2025-11-27	New Establishment for RUO Sales Purpose.

APPENDIX A: Certificate of Decontamination

Certificate of Decontamination	
The instrument must be decontaminated or disinfected before returning for service or disposal. This must be performed for the safety of the customer and the manufacturer.	
Product	<i>AllInOneCycler™</i>
Cat. No.	A-2041-R
Serial No.	
Customer	Institution / Department
	Address
	Contact Person
	Phone
	E-mail
<p>Method of decontamination Dampen a lint-free cloth with 70% ethanol or nucleic acid degrading solution and clean all parts of the instrument that can be contaminated, including the components, the surface, etc. Then, wipe again with a cloth dampened with deionized water immediately. Repeat as many times as needed depending on the degree of contamination.</p> <p>Additional fees may be charged for the decontamination procedure before service if it has not been performed or this certificate is not provided. Check the following contents.</p> <ul style="list-style-type: none"> <input type="checkbox"/> The product for service or return is not contaminated by toxic, carcinogenic, radioactive, or any other harmful material. <input type="checkbox"/> The decontamination procedure was performed for service or return and it will not be harmful to the handler of the instrument. <p>Have you used any materials listed below? (Check all that apply)</p> <p><input type="checkbox"/> Chemical materials <input type="checkbox"/> Biological materials <input type="checkbox"/> Radioactive materials</p> <p>Additional Information (if any)</p> <p>Procedure taken for decontamination</p> <p>Date _____ Name/signature _____</p> <p>If any radioactive material was used, a signature of the radiation safety manager is needed to certify the removal of radioactive contamination.</p> <p>Date _____ Name/signature _____</p>	

APPENDIX B: Service Request Form

Service Request Form		
Product	<i>AllInOneCycler™</i>	
Cat. No.	A-2041-R	
Serial No.		
Date of Purchase		
Date of Request		
Customer	Institution / Department	
	Address	
	Contact Person	
	Phone	
	E-mail	
Problem	Date	
	Part	
	Description	
	Additional Information (if needed)	

APPENDIX C: AllInOneCycler™ Maintenance Log

Month/Year	AOC -																Operator														
Serial No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Description																															
Before Operation_User																															
Check power																															
Clean work area																															
After Operation_User																															
Check LCD panel																															
Decontaminate thermal bath																															
Monthly_User																															
Clean LCD screen																															
Clean Thermal block																															
Clean Hot-top																															
Annually or as needed - Engineer																															
Perform thermal calibration																															

* Required Materials: Distilled Water, 70 % Ethanol, Isopropanol, 5 % Bleach, Nucleic Acid Degradation Solution, Swab, Lint-Free Cloth/Paper Towel, Powder-Free Disposable Gloves

BIONEER

BIONEER Corporation

Address Bioneer Global Center, 71, Techno 2-ro,
Yuseong-gu, Daejeon, 34013, Republic of Korea

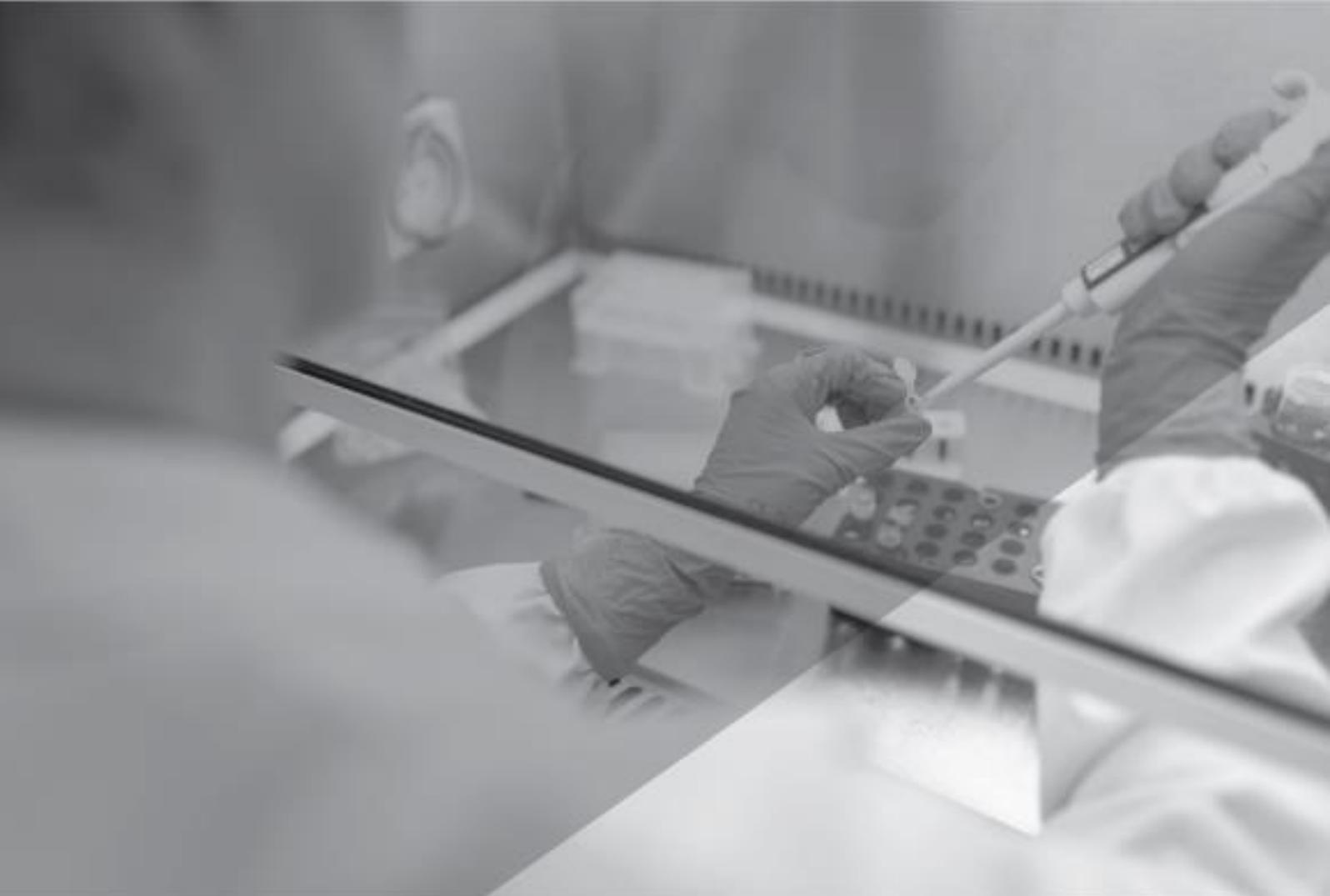
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*Headquarters and branch office information is available
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REF

A-2041-R

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