Wisd LABORATORY INSTRUMENTS

witeg GERMANY

SWIR

Smart Incubator

Operating Manual

written for

SWIR-150/ -250/ -420/ -700

witeg Labortechnik GmbH

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1. General

1.1 Precautions Before Use

Thank you for purchasing the SWIR Smart Incubator. This manual describes the performance and usage instructions of the product, and the precautions in the handling. Please carefully read this manual, before using the product. The following warnings should be strictly adhered to: (The following warning sign is marked in the part that is required user attention, so please safely use the product after being well-acquainted with the meaning.)

	**Warning** Failure to follow the instructions may result in injury. **Caution** Failure to follow the instructions may result in product failure. **Proximity Caution** Keep clear of the product during use.
	**Notification** Do not disassemble or modify the product or use it for purpose other than its intended function.
	**Caution: High Temperature** High-temperature heating, pose a risk of burns.
	**Danger of Explosion** If volatile, explosive chemicals are used, there is a danger of explosion.
	This symbol indicates Protective earth (ground).
	This symbol indicates power "OFF" on the power on/off switch.
	This symbol indicates power "ON" on the power on/off switch.
N	This symbol indicates the connection point of the neutral conductor on the installed unit.
	This symbol indicates alternating current Voltage.

1. General

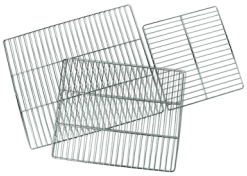
1.2 Product introduction

This product is equipped with the Forced convection air circulation system, and realize The Best Temp. Uniformity & Accuracy. In addition, it remotely controls the experimental equipment by building Smart-Lab™ System through WiRe™ App & web Service, and it is implemented so that anytime, anywhere can be monitored.
This product was developed and manufactured considering the best possible ease for use and safety, and has the following features.

1. This product is equipped with the high performance Heating Mechanism
2. It minimizes the heating time and the temperature recovery time after open/close of door through the optimization of the high-precision Fuzzy-PID controller.
3. The actions of various menus have been simplified through 4 inches Full-Touch Screen by applying Smart-Lab™ Controller.
4. It sends the unusual condition in real time by the self-testing system of the experimental equipment through WiRe™ App & Web Service support over the user and the service center, and the remote monitoring and control are possible.
5. The insulating and thermal efficiency are maximized by putting the Air-Flow Layer between the advanced insulator and the enclosure.
6. The Stainless steel Chamber and PE coated inner shelves are prevents corrosion
7. This product minimizes the heat loss by being strongly adhered the door by up and down dual latch structure.
8. The safety device for overheating prevention, and over current and short circuit prevention circuitry that preferentially consider the user's safety are mounted.
9. The pollution prevention and the simple and convenient washing operation are possible because the seamless rubber packing is finished in the curved surface on the inside corners.
10. The Heating is stopped in the case of the Door Open during operating, the error in use is minimized because the alarm rings if the certain time elapses.
11. CE Certified Products.
12. PL(Product Liability) Insurance

1. General

1.3 Product Configuration

Component Photo	Component Name	No. of Configuration
	SWIR-150/-250/-420/-700	1 unit
	PE Coated Steel Shelves	3 ea

- Including a copy of the Operation Manual

*** Models**

- SWIR-150 : Low Temperature Incubator, 150Liter
- SWIR-250: Low Temperature Incubator, 250Liter
- SWIR-420: Low Temperature Incubator, 420Liter
- SWIR-700: Low Temperature Incubator, 700Liter

2. Installation

2.1 Product Installation

2

* Caution of Installation

1. Please be careful when transporting the product because it is heavy.
2. Please do not lay the product on the floor or subject it to shock. It can cause damage inside the product.
3. Please install the product in a hard, flat, and stable place.
4. Please do not install the product in a place where it is exposed to direct sunlight, or in the dangerous places.
5. To minimize the risk of short circuits, do not install the product (in the) places where it will be subjected to the inflow of moisture or organic solvents on the regulator part or inside of the body.
6. This product was manufactured for normal operation at a rated voltage, so please check the voltage status before installing the product.
7. When installing and using the product, please certainly use the power cord provided with the products.

* Installation Process

1. After receiving the unit and locating it in the specified location, remove the packaging.
2. Check the unit for any transport damages. If any such damages are found, please contact the deliverer of the product.
3. The product should be positioned in a location where it has enough space for ventilation and prevention from fire. The recommended distance of each side is minimum 20cm from the back wall, 100cm from the side walls and ceiling respectively.
4. Place the device on a level, horizontal surface to support the capacity of the device without vibration.
5. Once the unit is placed in its installation location, let the unit stand for 15-30 minutes so that all the internal parts of the unit stabilize.
6. Connect the power cord to the wall socket.
7. When installing the device, insure the wall socket is easily accessible.
8. Do not earth to gas pipe, plastic tap water pipe or phone line. It may cause an electrical shock, a fire, breakdown or explosion of the unit.

* Safety Symbols on a product

- Safety symbols stickers Attached to side of product. For meaning of each symbol, please refer to Precautions Before Use, Safety Instructions.

Safety symbols on units, for further description of each symbol, please refer to 3.1 Precautions for Use

2. Installation

2.2 Installation of WiRe™ App & Web Service

- After installing this product in a static position, the user who uses WiRe™ App & Web Service, please use this product after installing WiRe Service before using the product installed.

- This installation is progressed on the regulator of Touch Screen of the product.

- Because the Wireless LAN for using the internet is not installed in the product when shipping it at the factory, please connect by finding the wireless LAN among the components of the product.

<Fig.2.2.1> Control Panel

- This description is for the installation method for users who want to use WiRe™ App & Web Service. Only matters that should be installed when use WiRe Service are written, and the detailed description on the product Operation is listed in detail on "Instruction Manual".

- The sequence of the setting of WiRe™ Service during installation is as described in the following instructions. Please proceed with following instructions.

- Find the "SETTING" located on top-left of the main display to make settings required for the connection of WiRe™ Service.

<Fig.2.2.2> Operation screen

<Fig.2.2.3> Stop operation screen

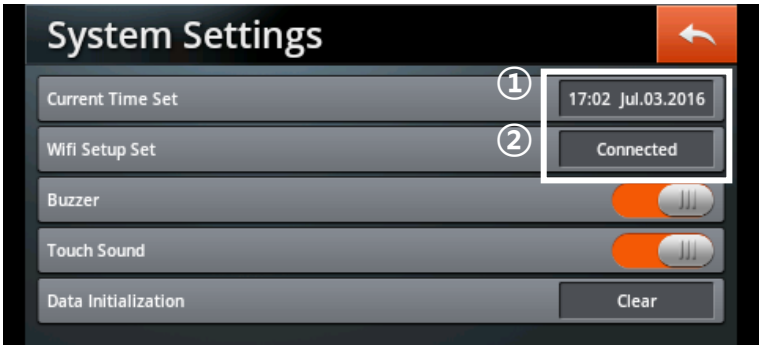
- The "SETTING" displayed in the menu will be deactivated during the operation of the product. Push the "STOP" button located on top-right of the main display to stop the operation, and then find the "SETTING" becoming activated.

- The "SETTING" has submenus of "System", "WiRe", and "WiRe Users" prepared for the connection to WiRe™ Service. Please follow following numbers of each instruction in order.

<Fig.2.2.4> Settings

- First, push the "System" menu to go on the system setting. Push the return button placed on top-right of all displays for each menu to go back to previous display.

① System Settings



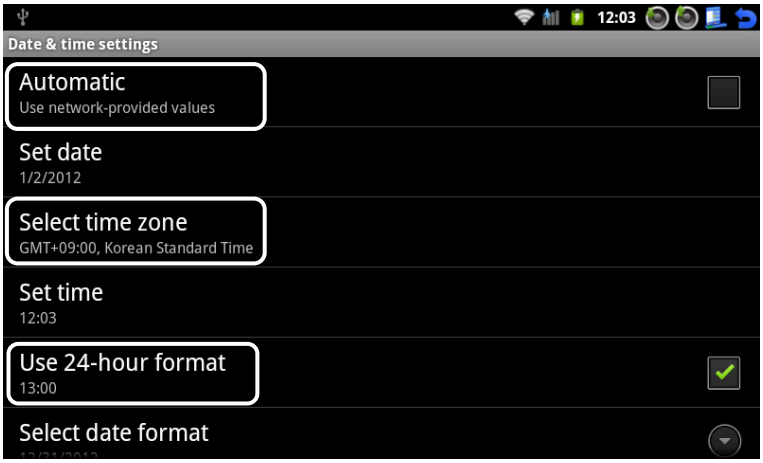
<Fig.2.2.5> System Settings

(1) Current Time Set

- The present time is set to input correct test time of user. Touch the box displaying time and date on the right side of the display.

- Please select the "Automatic" with the Check Box unchecked.

- The "Select time zone" will synchronize the product with the time of selected zone (countries) for users using the 'Mobile App' to control the WiRe™ Service. Please be sure to select the time zone wherein the product is being used.



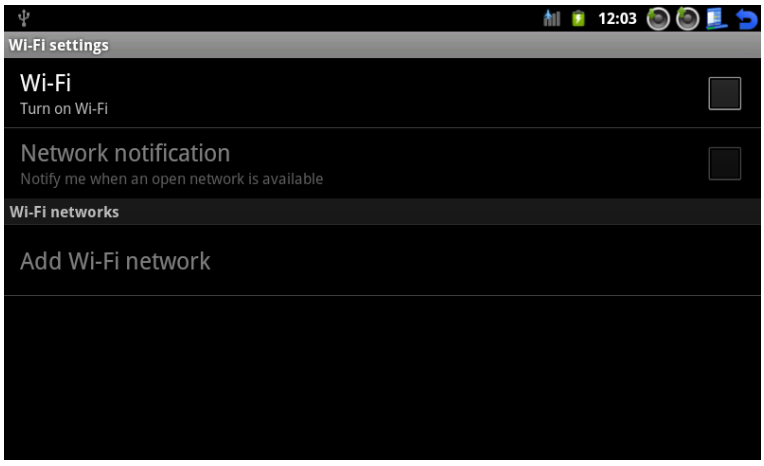
<Fig.2.2.6> Current Time Setup

- The Check Box on the right prepared for the "Use 24-hour format" must be checked for the correct operation of the product, and users should never change it.

- After completing the setting of the product, push the return button of blue icon to go back to previous page.

(2) WiFi Setup Set

- The 'WiRe™ Service' will only be available by the (wireless) internet connection. Users should make the product be connected to internet via wireless network.



<Fig.2.2.7> WIFI SET

- Click the 'Check Box' of Wi-Fi window to make the Wi-Fi connection (by typing set password if requested). In the case unable to detect Wi-Fi signals, please check the mounting of USB dongle prepared for the Wi-Fi connection (Check the blinking of the blue LED).

- After completing the Wi-Fi connection to the product, push the blue return button located on top-right of the display to go back to previous page.

② WiRe Settings

<Fig.2.2.8> WiRe Settings

- Slide the 'WiRe Mode' button to the right to connect to the 'WiRe™ Service'. This will only be enabled by the stabilized Wi-Fi connection.

- In cases of the unstable or disconnected Wi-Fi connection, the 'WiRe Mode' will not be switched normally. Be sure to secure stable Wi-Fi connection to the product.

- After completing the internet connection, users can find the 'Serial Number', 'Model', and 'Organization Name' as shown in the following display.

② WiRe Users

<Fig.2.2.9> WiRe Users

(1) Registration of Additional Users

The users registered through existing 'Smart-Lab' device can use existing IDs to be registered in this product. When the user is logged in with the registered ID from the 'Mobile App' then the list of devices already registered will be appearing.

<Fig.2.2.10> Registration of the ID of existing User

(2) Deletion of Users

- Registered users may be deleted from the list by pushing the selected button corresponding to users to be deleted therefrom.

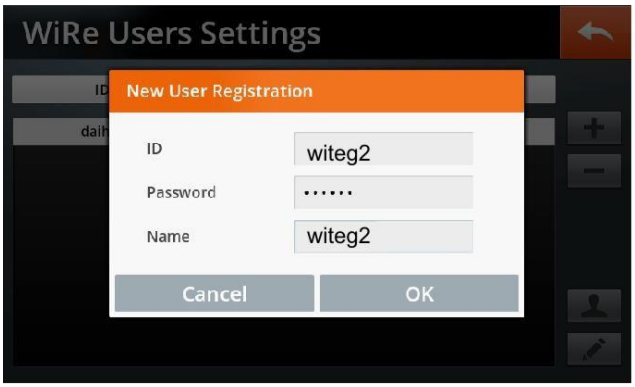
<Fig.2.2.11> Deletion of User from the List

(3) Registration of New User

- Users who are using the 'Smart-Lab' device and 'WiRe Service' for the first time shall register users' information. Input the 'ID', 'Password', and 'Name' of the user for the registration.

- The user ID can be composed of minimum 6 to maximum 20 lowercase alphanumeric characters. In cases of the input of duplicated ID or other characters beyond the lowercase alphanumeric characters, the message showing the disability of ID setting will be popped up.
  The Password can comprise minimum 6 to maximum 30 uppercase or lowercase alphanumeric or special characters. The input with less than 6 or beyond 30 characters thereof or the input of characters other than predefined characters will encounter the pop up message showing the disability of Password setting.

- Once the 'ID', 'Password', and 'Name' are set in the list then they cannot be modified thereafter.



<Fig.2.2.12> Registration of New User

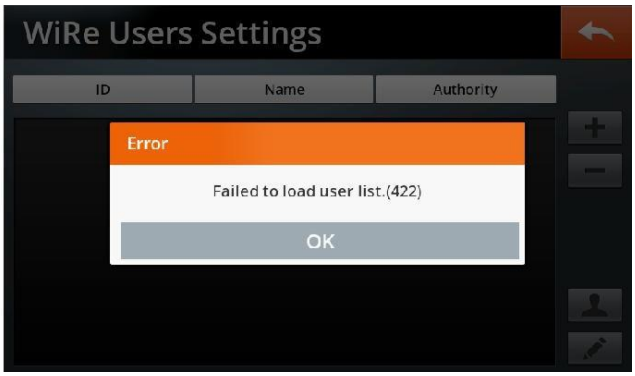
<Fig.2.2.13> ID/Password Input Error

(4) Setting of Authority of each User

- Users registered in the list can be set as an administrator or as a general user. The 'Admin' (the administrator) is the only one who can entirely administrate the 'Remote Control System'. Up to 100 users can be registered in the list as a 'User' allowed the monitoring of the status of device. (The remote control is not allowed for the 'User'.)

- The 'ID' among the list of registered users is selected to assign an authority set either as 'Admin' (the administrator) or as 'User' (general users).

- Since the authority of 'Admin' was prepared for the only one 'ID' of 'Admin', the existing 'ID' of 'Admin' will be turned into the 'ID' of 'User' with the appointment of new 'ID' of 'Admin'.



<Fig.2.2.14> Setting of Authotity of Admin **<Fig.2.2.15> Communication Error Message**

- The appearance of the message showing the disability to invoke the information of registered users may come from the unstable Wi-Fi connection. Check the status of Wi-Fi connection and then reenter into the menu of 'WiRe Users'.

- On completion of above procedure, the product will be connected to the 'Mobile App' enabling the service of 'WiRe™ Service'. To set the functions of the device, please refer to the instructions thereof.

2. Installation

2.3 Product Specifications

Capacity & Models		150Lit. SWIR-150	250Lit. SWIR-250	420Lit. SWIR-420	700Lit. SWIR-700
Circulation-type		Forced Air-type			
Temp. Range & Accuracy		0℃ ~ 60℃, ±0.2℃ at 37℃			
Temp. Uniformity & Sensor		±0.5℃ at 37℃, ±1.4℃ at 50℃ PT100 Sensor			
Heat-up Time		20 min. to 37 ℃ 20 min. to 50 ℃		35 min. to 37 ℃ 35 min. to 50 ℃	
Recovery Time (Door open 30sec)		10 min. to 37 ℃ 12 min. to 50 ℃		12 min. to 37 ℃ 15 min. to 50 ℃	
Heating Power/ Consumption		700 W	1 kW	1.2 kW	2 kW
Compressor		1/2HP	1/2HP	5/8HP	3/4HP
Compressor Control		Intelligent Control of Refrigerator for preventing Overload of Compressor			
Refrigerant		CFC-Free(134A) Refrigeration System			
Timer & Alarm		99hr 59min (with delay / Continuous run.), Error status & Timer-end			
Display		4"Full Touch Screen TFT LCD			
Controller		Smart-Lab™ Controller			
Inner Door		with 1ea of Inner Tempered Glass Door			
Shelves		Included 3ea of PE-coated Steel Shelves			
Permitted Total Load		Total Load : 48 kg (16kg X 3 Shelves)			
Safety Circuit		Over temp. and Over Current Protector, Sensor Error Detector			
Material		Internal : Stainless Steel (#304), External : Powder Coated Steel			
Dimension (w x d x h)	Interior (mm)	505x505x610	505x505x1,000	705x605x1,000	800x700x1,250
	Exterior (mm)	640x832x1,313	640x832x1,703	840x932x1,753	935x1,027x2,000
Net Weight		118 kg	157 kg	202 kg	234 kg
Packing Size (wxdxh) (mm) & Gross Weight		900x1,000x1,650 191 kg	900x1,000x2,040 217 kg	1,100x1,100x2,140 277 kg	1,220x1,220x2,260 313 kg
Power Consumption		1.6 kW	1.8 kW	2.3 kW	2.4 kW
Power Supply & Cord/Plug*		1 Phase, AC 120V, 60Hz or AC 230V, 50/60Hz, with Cord/Plug			

3. Product Usage

3.1 Precautions for Use

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	Please be familiar with the user manual before using this product, and operation should be performed only by qualified personnel
	This product should be connected to a appropriate power source that it is generally used. Please use a lower power source than the regulation load permitted (AC 120, 60Hz or AC 230V, 50/60Hz, Single-phase).
	Place the product on a level, horizontal surface to support the weight of the product without vibration. Install the product in a place where the floor is hard and flat. Failure to do so can cause accidents. by negligence.

- **Warnings**

- **Please observe the following precautions**.

	This product should be operated in a room with temperature maintain between 5℃ and 40℃. Long-term use in an environment that exceeds the allowable range may cause a malfunction.
	Please do not damage or distress the power cord. (Please do not hurt on the power cord, or process it, or force bend it, or pull it, and tie it.) Also, if heavy objects are placed over the power cord, or the power cord is inserted in between objects, the power cord can be damaged and may cause fire or electric shock.
	Please do not directly spray water on the product or wash it with water, to avoid short circuits or electric shock.
	Please do not touch or manipulate the electrical parts such as the power plug with wet hands electric shock.
	Please do not operate the product by manipulation of the plug to avoid electric shock or short circuits
	Do not install the product where it can get damp or in a dusty environment. It may cause overheating or short circuit. – Pollution Degree 2
	Do not install the product in a location at an altitude of over 2,000 meters (6,562 feet).
	Please do not use any kind of plastic container or the goods for dry purpose. The temperature around the heater mounted on the floor of the chamber is higher than the operating temperature, and if the internal temperature is rapidly risen due to the malfunction of user, there may present a fire risk.

	The internal temperature rises up to 60℃, so please be careful when opening or closing Air Duct or Door.

	The inner chamber is hot during an operation, do not touch the inner chamber without proper hand protection during operation as burns may occur.
	Do not operate this product near a heater or an air-conditioner.
	Clean the bottom of inner chamber and install the shelves properly before use.
	Do not close your face, hands or body into a chamber. It may cause an injury or burn by high temperature.
	Only operate unit after checking the safety of the unit.
	The temperature of the regulator SAFETY should be set up 20 ~ 30°C higher than the operating temperature. If the regulator SAFETY is set to 0, the heater does not operate.
	If unexpected sound, smell or smog is generated, pull the main plug out from the wall socket and contact the technical assets of DAIHAN Scientific
	If irradiated or contaminated samples are placed in the chamber, the warranty is voided. Do not use this product to sterilize or disinfect objects or samples.
	Do not use outdoors avoid overheating or electrical faults. The use in the place where the sun continuously shines and can get rained on it is prohibited. It may cause overheating or electrical fault of the product.
	Please do not use flammable or volatile products in the vicinity of the product to minimize the risk of firer. Please do not use the flammable spray such as lacquers and paint, or volatile, flammable chemicals and its similar product, in the proximity of the product. They may cause the ignition due to the spark of switch.
	Please avoid the disassembly or modification of this product by a non-authorized person to avoid serious electrical problems and to retain the warranty service of DAIHAN Scientific Co., Ltd.
	This product must be connected to a properly grounded power supply.
	Please regularly check whether dust or dirt are on the power plug and completely connect the plug. If the plug is covered with dust, or the connection is not complete, it will cause an electrical shock or fire.
	Please separate the power plug from the outlet for safety when the product is unused for long periods of time to avoid overheating or ignition due to dust.
	When disconnecting the power plug, it must be grasped by the hands and then pulled. Grasping only the cord and then disconnecting it may cause overheating or ignition because of internal lines being disconnected.
	Insert the plug securely into an appropriate wall socket. Loose connections result in excessive heat generation to the device and may cause arcing to occur at the connection.

	If unusual noise or signs of abnormal behavior are found during use of this product, please immediately contact the supplier or DAIHAN Scientific (Co., Ltd.) after turning off the power supply and disconnecting the power line.
	When moving the product, please move it so that the power cord and the product are not damaged after disconnecting the power plug from the electrical outlet, in order to avoid the electrical shock or the ignition due to the damage to the cord.
	Please maintain the clean condition of this product by removing the foreign matter while gently wiping with the neutral detergent and a dry cloth after checking whether the foreign matter present or not, before and after using this product.
	The fluctuation of main power voltage should be lower than +/-10% of the nominal voltage..
	The maximum relative humidity is 80% at 31°C and 50% at 40°C .
	If a product was transported or stored in high humidity condition, please check packaging condition before use. If the carton or wooden box is waterlogged, please contact the deliverer or our technical service engineer. Do not operate the unit before checking with an engineer, otherwise it may cause an electrical shock or a fire.
	The Sound Level of the buzzer is maximum 60dB in 1 meter distance when an error is detected.
	The device should be set at a well ventilated place. Be sure the holes on the side or rear surface of the body are blocked by a wall or an object. And do not operate the device at a poor ventilated place or use closed. It may cause a fire or damage of the device as not to release heat or insufficient ventilation may result.
	This Symbol indicates that this product is to be collected separately. The following apply only to users in European countries: ● This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste. This product is required to comply with the European Union's Waste Electrical & Electronic Equipment(WEEE) Directive 2002/96/EC

※ All of the circuits, electrical or mechanical parts and configurations used in this product are the technical assets of DAIHAN Scientific (Co., Ltd.). Only technicians of the technical support team at DAIHAN Scientific (Co., Ltd.) or technicians approved through the education from DAIHAN Scientific should be allowed to repair this product.

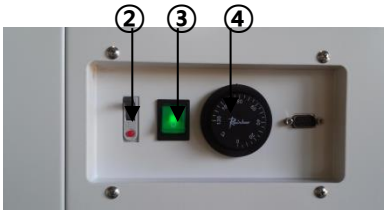
3. Product Usage

3.2 Names of Each Part

- **Outside**

<Fig.3.2.1> Smart Incubator "SWIR-700"

<Fig.3.2.2> Back of "SWIR"



<Fig.3.2.3> Side of "SWIR"

NO	Names	Description
①	Power Connection	Power Cord Apply
②	Leakage Breaker	Safety
③	Power Switch	Power ON/OFF
④	Safety Switch	Prevent overheat
⑤	Door Handle	Door open and close
⑥	Controller	Full Touch-Screen TFT LCD

<Table.3.2.1> Names of each part and description

• Controller

<Fig.3.2.5> Controller for SMART Laboratory Incubator

NO	Names	Description
①	SET TEMP	Adjust and check the setting temperature.
②	CURR TEMP	Display the current temperature.
③	START/ STOP	Adjust the start and the stop of operation.
④	Program Mode	Adjust the settings and operation of the Program
⑤	OFF SET	Set the value of the calibration temperature.
⑥	CHART	Monitor the operating status by chart.
⑦	SETTINGS	Set up and adjust various functions of the instrument.
⑧	Error	If the error of the instrument occurs, perform the alarm function.
⑨	WiFi status	It shows the status of the internet connection..
⑩	Data	Display the current date and time.
⑪	Operation Information	Show the state of the operation through LED Lamp.
⑫	ON/OFF ICON	Display operating part of device

	Heater ON		Heater OFF		Equipment ON		Equipment OFF		Comp 1 ON		Comp 1 OFF

<Table.3.2.3> Controller for "SWIR"

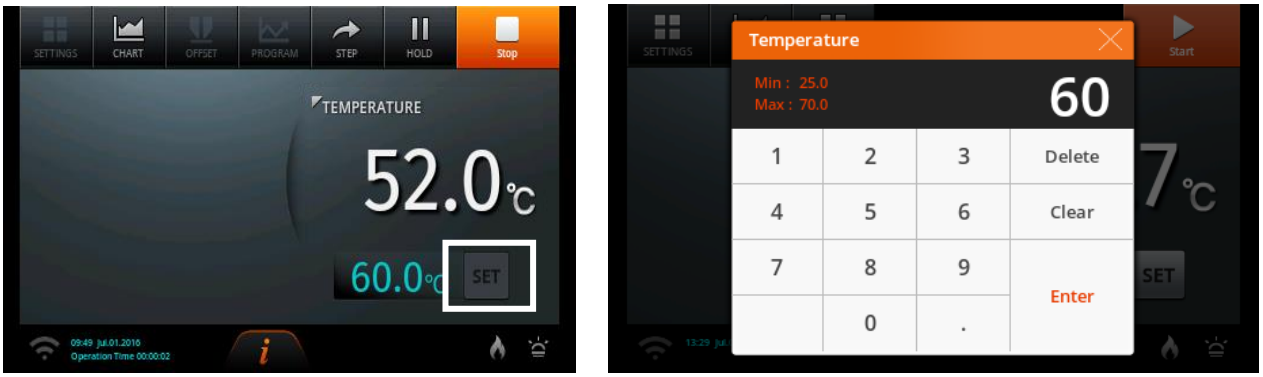
3. Product Usage

3.3 Usage Instructions

- Set the SAFETY knob to 20~30℃ higher than operating temperature before the starting.
- Connect the power cord to the proper power socket and Turn on the Main Switch.
- All actions of the product is operated through the Touch Screen.

3.3.1. TEMPERATURE Setting and Operation

- By pushing the "SET" button located on the right of the display of set temperature, the 'Temperature Setup' window will be popped up wherein users may set desired temperature with the value inputted directly through the numeric 'Button'.



<Fig.3.3.1> Set up of Operating Temperature

- Temperature setting is adjustable in units of 0.1 ℃ and can be set to 70℃. After the set temperature input by pressing the "ENTER" it is applied to the set temperature. And to return to the main screen.

3.3.2. Product SETTINGS

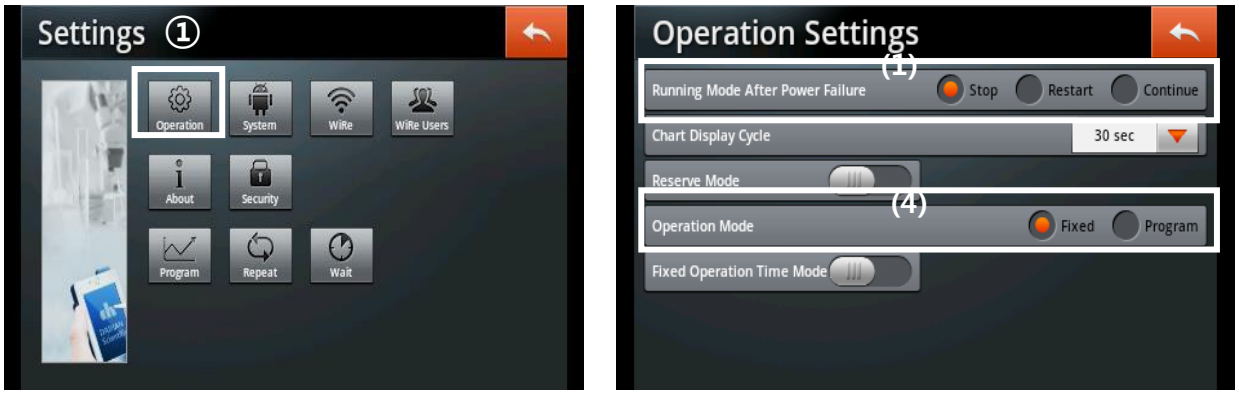
- All functions on this device can be set in "SETTING" menu. When you touch the return button on the top right of screen in all menu screen, it switches to the previous screen.
- Touch the "STOP" button on the top right to stop the device and check the SETTING menu being activated since SETTIGN menu is disabled during operation.

<Fig.3.3.2> SETUP Mode

- It is described in order for the operation of product. Proceed with the following steps in order.

- In order to use the product's WiRe™ Service, please refer to how to install "WiRe™ Service".

① Operation Settings



<Fig.3.3.3> Operation Settings

(1) Running Mode After Power Failure

- It sets a mode for power is abruptly cut off and turned back up due to power supply issues such as power outage.

- When setting a Stop mode: It stands ready at the value prior to the power outage and maintains the operation on hold.

- When setting a Restart mode: It operates depending on (4) Operation Mode.

  A) Fixed Mode: When reauthorizing the power, it automatically operates at a temperature set that it previously operated on and the operation time on main screen starts from 0 again.

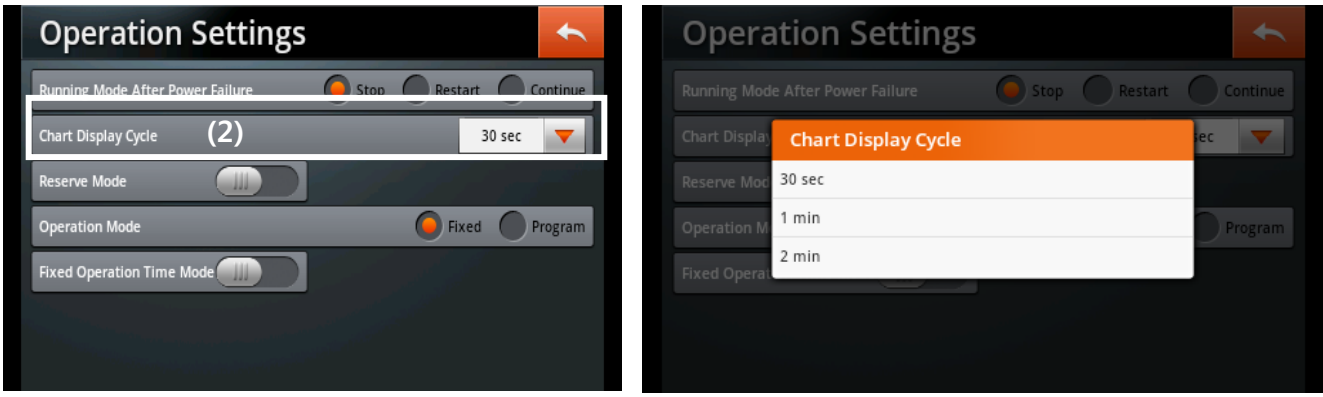
B) Program Mode: It restarts from the first segment of the previous pattern it operated on.

- Setting a Continue mode: It operates depending on (4) Operation Mode.

  A) Fixed Mode: When reauthorizing the power, it automatically operates at a temperature set that it previously operated on and the operation time on main screen continues its counting.
  B) Program Mode: It restarts the count from the remaining time of first segment that stopped and it restarts.

(2) Chart Display Cycle

- You can set the temperature cycle shown on Chart. User can select from 30 seconds, 1 minute and 2 minutes.

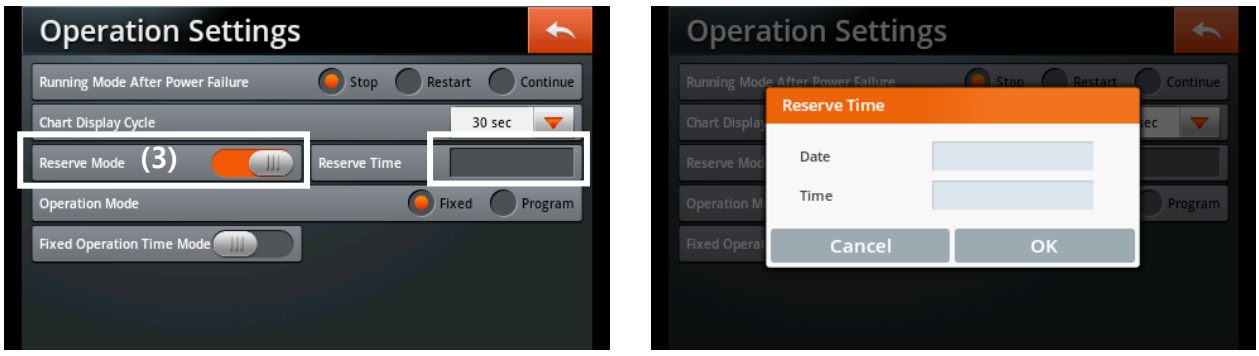


<Fig.3.3.4> set graph display cycle

(3) Reserve Mode

- Set date and time you want to operate the device and it will start at the reserved time. Minimum time required to use this mode is 5 minutes.

- It automatically turns off after being applied one time.



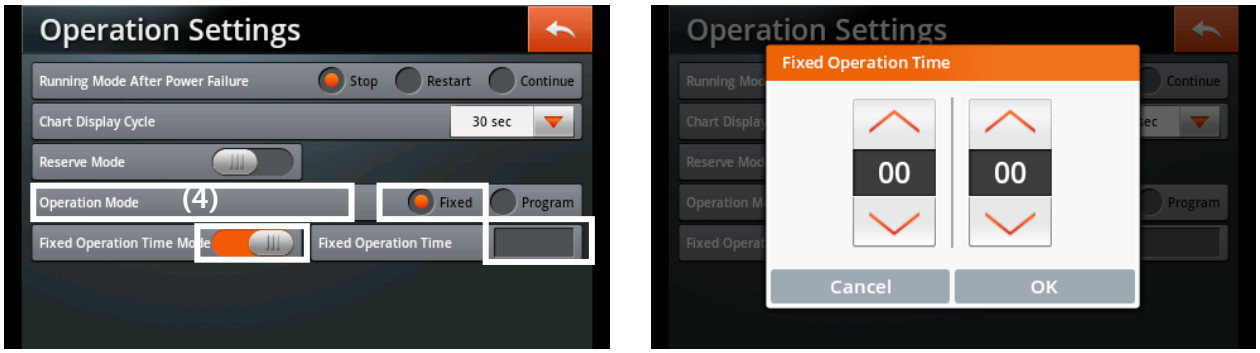
<Fig.3.3.5> reserve opeation setting

(4) Operation Mode

- There are two choices: the Fixed Mode that operates within the fixed temperature range and the Program Mode that operates in various temperature in sequence by patterns.

* Fixed Mode

If Fixed is selected, Fixed Operation time Mode window is activated.



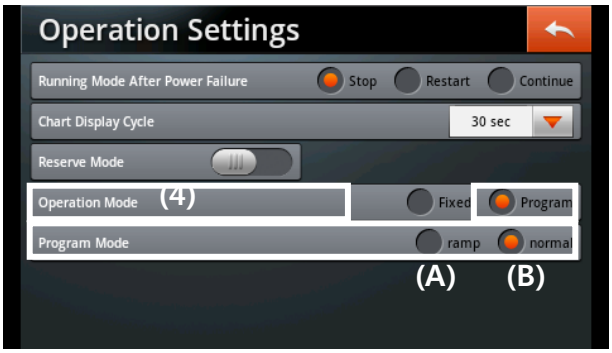
<Fig.3.3.6> Fixed Mode setting

- Set Fixed Operation Time Mode to ON and press Fixed Operation Time to set the value of timer. It operates for a time it set when you start the product from main screen.

- If Fixed Operation Time Mode is set to OFF, the set temperature keeps operating. Limit of Operation Time is 3 minutes ~ 23 hours and 59 minutes.

* Program Mode (in order)

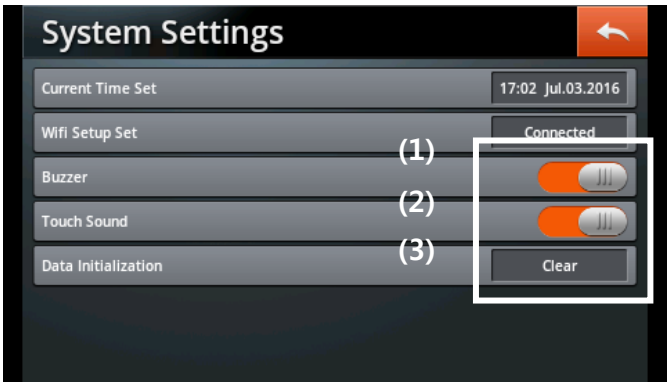
- If the program is selected, Program Mode window shown below is activated.
- Program Mode can select one of two different methods to reach a target temperature.
- The following describes how to set the product operation. Please refer to ④Program for how to set Program Mode in detail.



<Fig.3.3.7> Program Mode setting

A) Ramp: It can set time to reach a target temperature.
Per one target temperature, it needs a segment time setting to maintain a target temperature after setting the segment time to reach the target temperature. If the maintaining time for target temperature is not needed, do not make second segment for the target temperature.
B) Normal: It operates at the maximum performance to reach a target temperature.

② System Settings

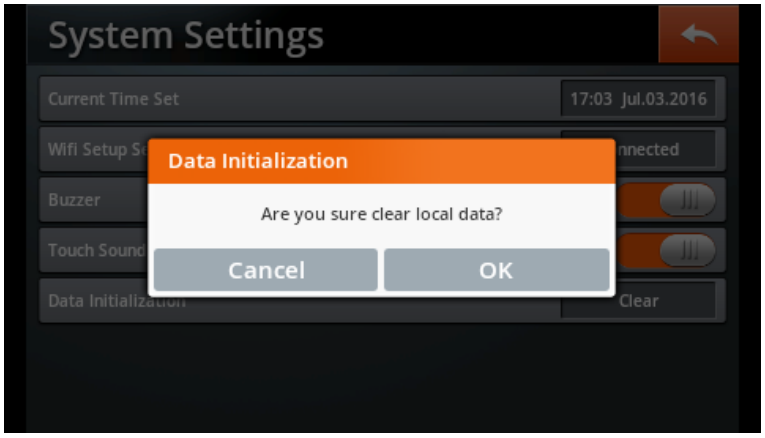


<Fig.3.3.8> System Settings

(1) Buzzer
- The alarm of error can be set as 'On' or as 'Off'.

(2) Touch Sound
- The sound of 'Touch Button' can be set as 'ON' or as 'OFF'.

(3) Data Initialization
- The stored data of 'Operation Settings' and 'Chart Data' can be initialized.



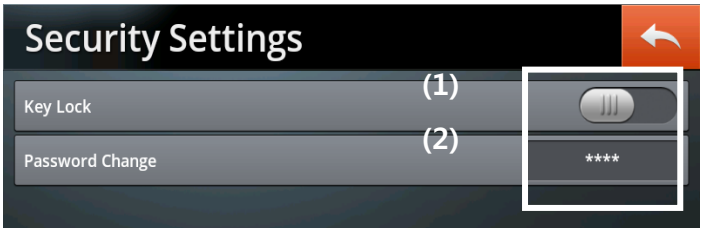
<Fig.3.3.6> Data Initialization

③ About

- Users can find the information of 'Serial Number', 'Model', and 'Temp Range' of the product with the version of the 'Touch App'.

<Fig.3.3.10> device information check

④ Security Settings



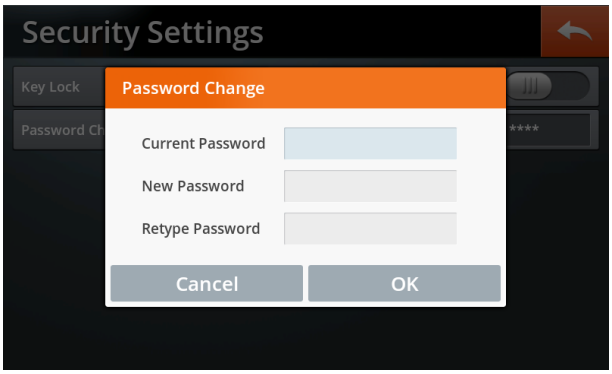
<Fig.3.3.11> Locking setting

(1) Key Lock

- The password enabled to operate the product can be locked to prevent unauthorized operation of the controller for particular settings of the product. Slide the button to the right to activate the lock.

(2) Password Change

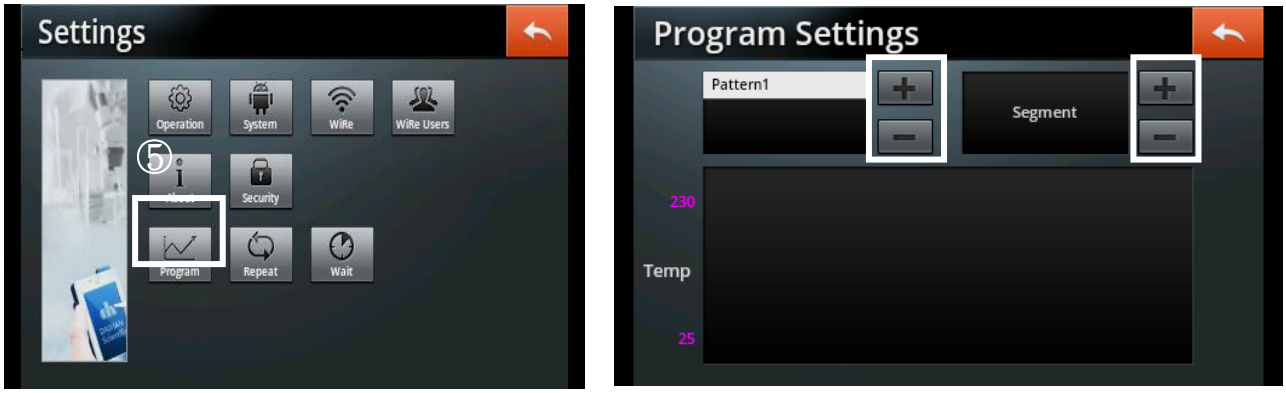
- The password set for the operation of the product can be changed. Input the 4-digit existing password to the "Current Password" (the value initialized by the factory is "0000") and then input the new password to the "New Password" and "Retype Password" and store them to change the password.



<Fig.3.3.9> Set up of New Password

① Program(In order mode)

- You can select and store operation program as pattern and segment.
- You can select and use one of several programs stored when using the product.
- Program is a collection of Pattern and pattern is a collection of Segment.



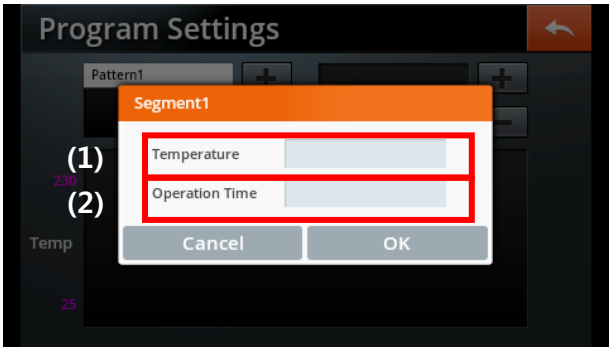
<Fig.3.3.13> Pattern

- Pattern can store up to 120 and a maximum of 100 segments can be stored in 1 Pattern.
- Pattern is created by using + button, and in case you want to delete, press the number of Pattern you want to delete and verify the Pattern number selected in white color and delete using – button. If Pattern is deleted, the Segment stored within the Pattern also is deleted.

If you want to set Segment within Pattern, select the Pattern number you want to select as Segment, create by using + button next to Segment. If you want to delete, press the corresponding Segment number and verify the selection in while color, delete using button.

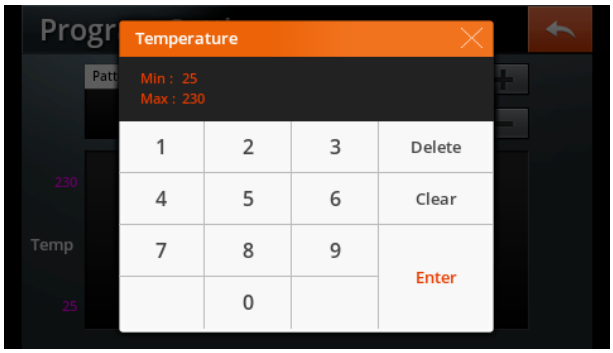
- Pattern and Segment created can be immediately verified on screen in graph, and can enter or change values by clicking the graph.

- Enter the value of Segment after creating Pattern and Segment. You can verify the temperature and time set for the Segment selected when you select Segment from the Segment window and touch.

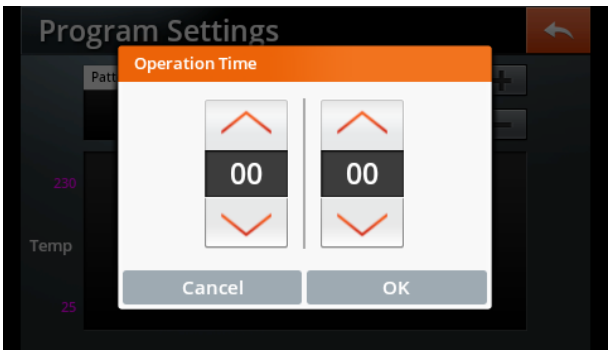


<Fig.3.3.14> verify values of Segment

- You can reset temperature by clicking (1) Temperature window of Segment and can reset the timer by clicking (2) Operation time window.



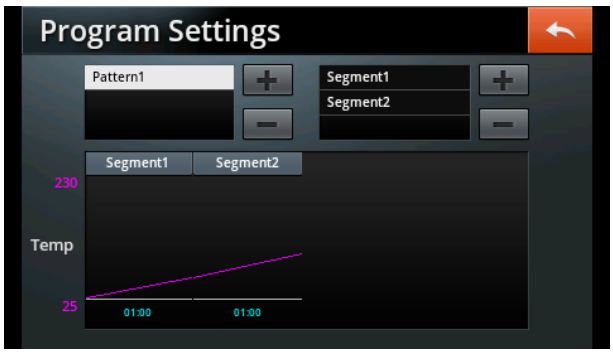
<Fig.3.3.15> enter temperatue of Segment set



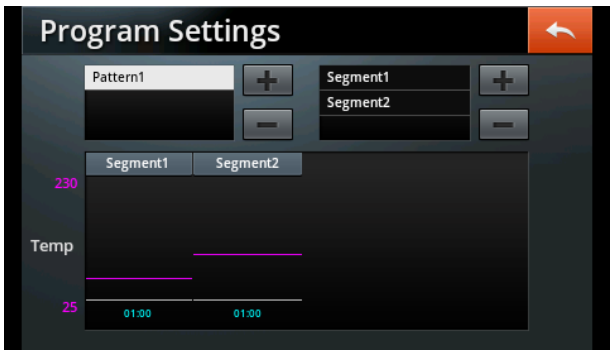
<Fig.3.3.16> enter opertion time of Segment

- If OK is pressed after entering the value set, you can immediately verify the changes from graph.

- Segment graph is displayed depending on the operation method selected from ramp or normal from Program Mode of Operation Mode.



<Fig.3.3.17> setting ramp



<Fig.3.3.18> setting normal

- When setting with Program Mode, it is activated when (1) Program menu is created and operation is stopped. (2) STEP and (3) buttons are created in the operation of Program Mode.

<Fig.3.3.19> Main screen when Program Mode is in operation

(1) Program button: it enters into the Program setting screen rapidly.

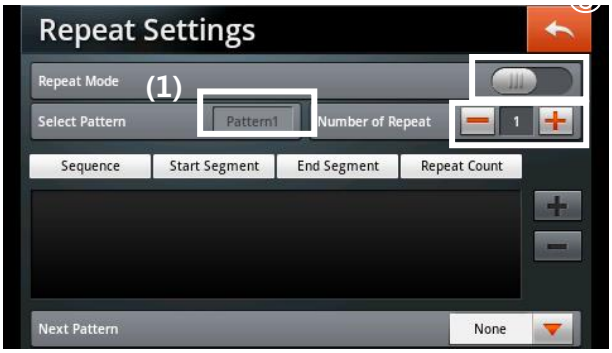
(2) Step button: It skips to next Segment while in operation.

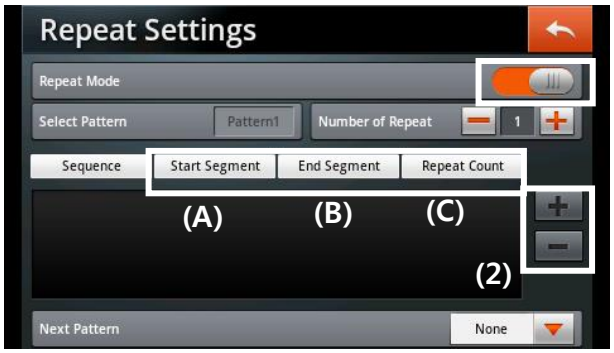
(3) Hold button: It temporarily stops while in operation.

② Repeat

You can set to repeat the operation within the selected Pattern by entering Repeat after selecting Pattern from Program Settings screen.

If Pattern is created from Program Settings, you can set and store Repeat Mode regardless of Operation Mode. However, when operating with Program Mode, you must set Repeat Mode to ON.

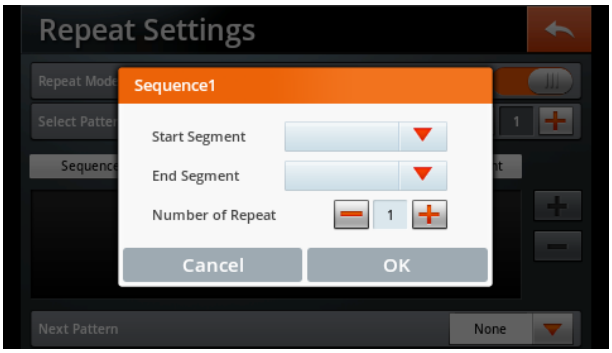




<Fig.3.3.20> Repeat Mode OFF

<Fig.3.3.21> Repeat Mode ON

- (1) You set the number of repetition after verifying the Pattern number of Select Pattern. You can set to repeat up to 100 times, and can be set to ∞infinity by pressing – button at 1.
- (2) You can edit the order of operation after setting the number of repeat. Select Start Segment and End Segment by pressing + button from Sequence list, and set the number of repetition between the Sequences selected.
  (A) Start Segment: Select first Segment for repeat operation
  (B) End Segment: Select final Segment for repeat operation
  (C) Segment Count: Set the number of repeats from Start Segment till End Segment

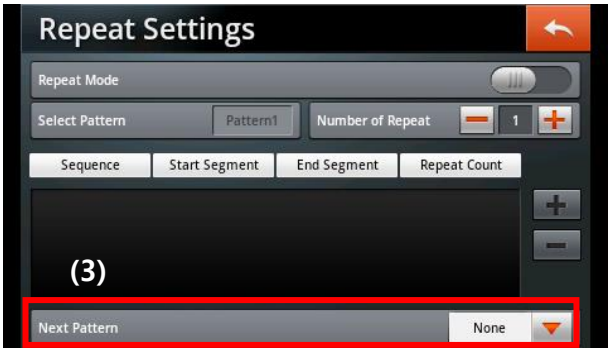


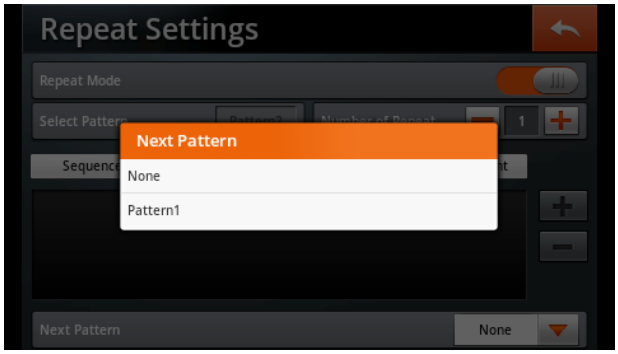
<Fig.3.3.22> Enter Sequence

- You can enter maximum Sequence of 10

- (3) Next Pattern enters Pattern that operates after the repeat operation of selected repeat Pattern is completed.

- Next Pattern can select from stored Pattern other than selected Pattern with Repeat operation, it does not allow to operation in continuation of other Pattern after the Repeat operation if set to None.

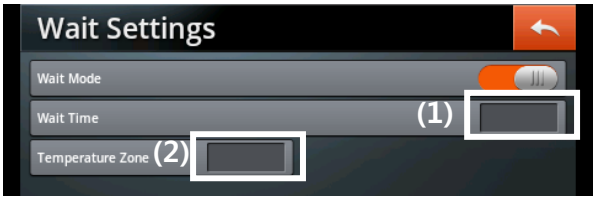




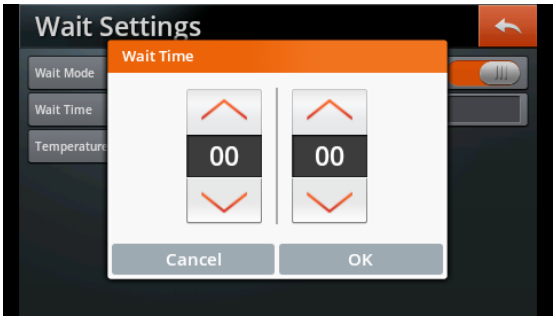
<Fig.3.3.23> Next Pattern selection

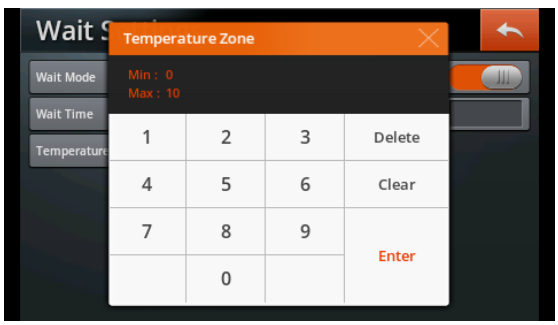
③ Wait

- In operation of Program Mode, if Segment of selected Pattern has not reached the temperature set within the time set, Wait Time allows to wait until the temperature reaches Temperature Zone (set error of the target temperature ± value) without moving into the next Segment.
- If not reached the temperature set within Remaining Time in Ramp Mode, Wait Time starts.



<Fig.3.3.24> Wait Settings



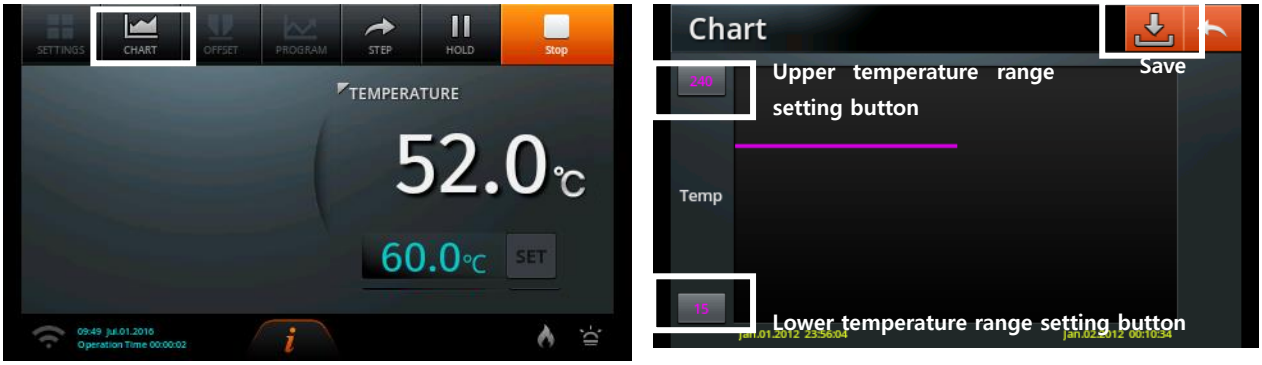


<Fig.3.3.24> Wait time Settings(1)

<Fig.3.3.24> Wait time Settings(2)

- Wait time can be set to 23 hours and 59 minutes and Temperature Zone can be set to ±10℃.
- If the target temperature does not reach Temperature Zone within Wait Time, it moves on to the next Segment.

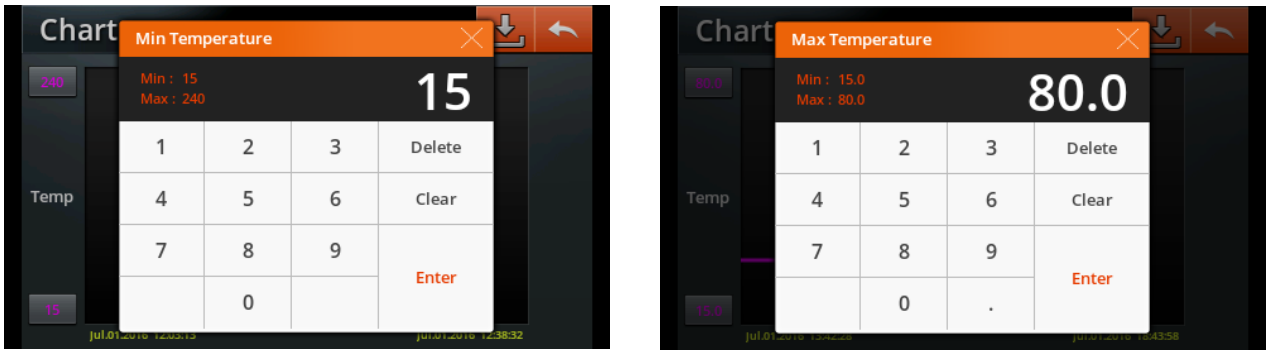
3.3.3. CHART



<Fig.3.3.27> check temperature graph

- Temperature data is stored at internal memories at every 10 seconds and maximum 6 months of data are stored. Please use Data Backup once every 6 months.

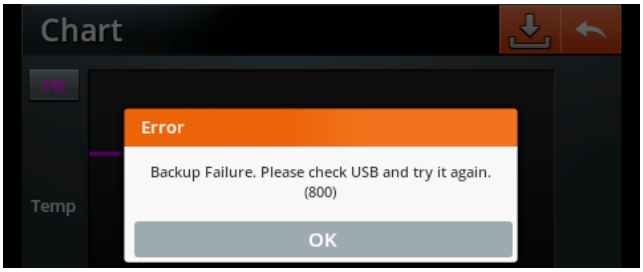
- Temperature scope shown on graph can be changed using the set button on the low left. Maximum and minimum values can be changed within limits shown on a pop up window.



<Fig.3.3.28> change display scope

- After inserting a USB into the port on top of controller, it stores in the USB if the store icon on top right is pressed.

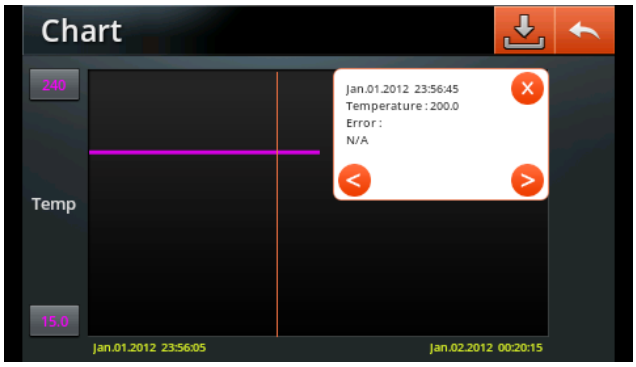
- Error message appears if USB is not recognized. Press "OK" button and remove USB and reinsert and press the store icon.



<Fig.3.3.29> USB recognitiion error message

- You can see the detailed information such as date, time, temperature, Error, etc. if you press a point on graph. If you drag right and left or press other points while pressing the point, detailed information of the location emerges on a detail display.

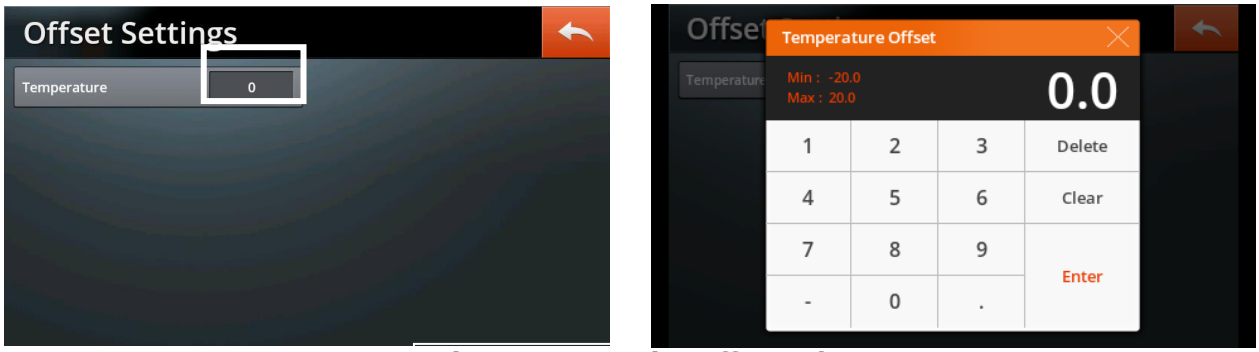
- You can check the information on graph by moving at a small increment of the point using arrows on the detail display. The area showing detail information is displayed in a straight line on the overall graph in yellow vertical lines.



<Fig.3.3.30> verifying detail graph information

3.3.4. OFFSET

In case a user must test by matching temperature gauge used as a standard for test with temperature gauge shown on the controller, you can set the value of offset and increase or decrease the temperature displayed on the screen.



<Fig.3.3.31> setting offset values

- Limit of offset values are -10.0℃ ~ +10.0℃, and current temperature after setting offset value displays the value that includes the offset.

- Once you set the offset value, the value is stored and the offset value is reflected in the current temperature even you press ON/OFF button.

3.3.5. Error Message

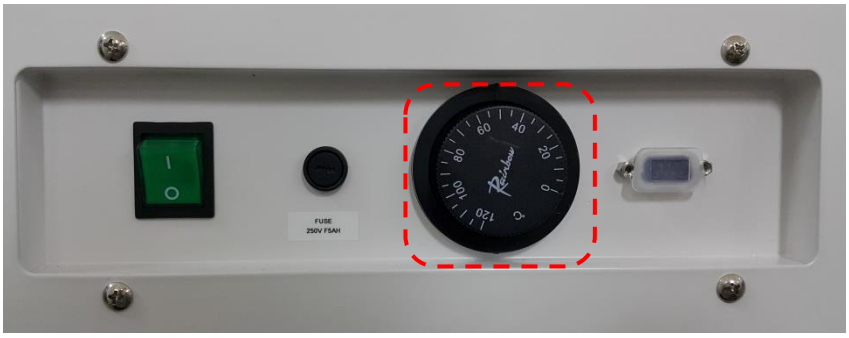
- If happen a error, Error notice will be showed in the display and if you click it, you can see what happened in detail.

ERROR Message	Causation	Solution
Temp Error	When display show unreasonable temp. value by out of order of temp. sensor	Call the A/S Center.
Door Open	Informs the Door open condition.	Check status of the Door and if still happen it even door closed, call the A/S center.
Revolution Error	When the Communication error problem of equipment and Touch Board.	Please check the connection of the Touch Board.

* Please try to restart of Touch Screen Controller and if still happen the error, please call the A/S center.

* When malfunctions in the Touch Screen occur, please press the Reset Button by inserting an appropriate tool (such as a paper clip) into the Reset hole, which is located in the right frame of the Touch Screen as shown in the figure below. The Touch Screen is rerun by pressing the Reset Button.

*** Check Safety Knob by Regulation.**



1. On the product Side, check the Safety Knob.
2. If the power of the product is OFF, check the 'Tak' sound in the vicinity of room temperature when slowly turning clockwise up to 120℃ after adjusting the Safety Knob to 0℃.
3. If the power of the product is ON, check the 'Tak' sound in the vicinity of current temperature of product when slowly turning clockwise up to 120℃ after adjusting the Safety Knob to 0℃.
4. 'Tak' sound is Normal, If 'Tak' sound is not occurred A/S is required.
5. Please check the progress on a regular basis. Proceed at least once to 6 months.

4. Products Management Method

4.1 Maintenance and Management

Smart Incubator with Smart-Lab™ System is manufactured considering various situations that may occur during operation. However, make sure to comply with the following in order to use the device at a reliable performance for a long period.

1. Make sure to use rated power source of AC 120V, 60Hz or AC 230V, 50/60Hz, Single phase
2. Operate in a dry indoor location if at all possible and maintain the indoor temperature at 5°C ~ 35°C
3. If not being used for a long period, unplug and dry before packaging for storage.
4. If replacement parts are required due to the failures while in use, it must use the original parts supplied by the company.
5. Failures occurred from using its outer limits cannot be repaired.
6. Power sources authorized must be used.
7. Do not touch power plug and electrical devices with wet hands.
8. Do not put conductive or flammable materials into the vents on the outside of product for it may cause fire or electric shocks.
9. Wipe with soft towels after unplugging power, and moisten a towel with lower-temperature freezing solvent to remove dirt.
10. Adjust air ducts as needed and close the entrance to store for contaminants may enter from outside when not in use.

4. Products Management

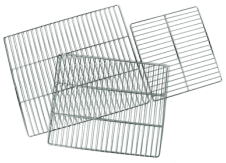
4.2 Troubleshooting

Situation	Confirmations and Solutions
If power does not turn ON.	Make sure that Power Cord is plugged well. Check that there are no problems in the power supplied. Make sure that the circuit breaker is in the ON position. Check the short circuit status of the fuse.
Power Failure	Check the power cord is plugged into wall socket. Check the supplied voltage is proper and regulated.
Heating, but temperature is fluctuated	Check the temperature that is currently set. Make sure that the power switch is in the ON position. Check that SAFETY Knob is not placed in the "0" position, and if SAFETY Knob is in the "0" position, sets up 20℃~30℃ higher than the service temperature.
Heating, but unit not reaching temperature	Check the Set Temperature is higher than ambient temperature (recommended min set temp: 10C higher than ambient temp). Problem in the sensor or main controller.
Fuse is blown OR circuit breaker is flickered.	Check power source of wall socket and see what other loads are on wall circuit.
If the freezer is not operating,	- If the freezer is not operating although the freezer was operated at the corresponding temperature, because the freezer or the condenser may be failing, please request A/S.
If the freezer is operated but temperature has not fallen,	- Please check the thermostat setting. - Please make sure that direct sunlight or the material of high temperature exists close to the freezer. - Confirm that the ventilation around the instrument is good. - The same abnormal status as above does not exist, but if the temperature does not fall well, please request A/S.
If noise occurs from the freezer,	- Make sure that the installation is not wrong or the product is tilted. - Check that the back of the instrument is attached to the wall or it is not too close to the wall. - Make sure that foreign substance has not entered into the machine room at the bottom of this product and caused the noise by hanging on the cooling fan. * The longer the period of use of the freezer is, the more the noise becomes gradually louder. If there is no abnormal operation in that state, it is a normal phenomenon. If the freezer is operating in an abnormal state, the freezer should be replaced.
※ If you have any problem other than the above, please call technical service of manufacturer or an official agent.	

4. Products Management

4.3 Accessories

*** Ordering Information**

Image	Ordering Number	Information
	DH.WIR21150	Wire Shelf, Stainless Steel, "IRU150", w470xd780mm, for "SWIR-150", "SWIR-250"
	DH.WIR21420	Wire Shelf, Stainless Steel, "IRU150", w675xd585mm, for "SWIR-420"
	DH.WIR21700	Wire Shelf, Stainless Steel, "IRU150", w770xd680mm, for "SWIR-700"
Validation(IQ, OQ) Service	DH.SWIR31150	Validation Service(IQ, OQ), "IRV150", for SWIR-150
	DH.SWIR31250	Validation Service(IQ, OQ), "IRV250", for SWIR-250
	DH.SWIR31420	Validation Service(IQ, OQ), "IRV-420", for SWIR-420
	DH.SWIR31700	Validation Service(IQ, OQ), "IRV-700", for SWIR-700

11 Certificate

Certificate

for

Wisd

LABORATORY INSTRUMENTS

The quality and all features were checked by the manufacturer before the shipment.

We grant from date of purchase

two years guaranty.

This certificate excludes damages by natural disasters or incorrect usages by the costumer.

Please look on your account and complete following table:

Article	**SWIR Smart Incubator**
Typ	
Serialno.	
Date	

witeg Labortechnik GmbH
Am Bildacker 16
D-97877 Wertheim
TEL: +49-9342-9301-0
FAX: +49-9342-9301-77
Email: info@witeg.de
www.witeg.de

witeg GERMANY

Wisd