

User's Manual

Incu-Shake FL series Shaking Incubator

This Manual applies to:

Modes: Incu-Shake FL18-750/FL18-750R/FL24-1/FL24-1R/FL36-1/FL36-1R



Thanks !

Thank you very much for purchasing one of our economic shaking incubators, specially designed for you-the lab professional. Your choice indicates that you have very high requirements on style and performance of this type of incubators.

SciQuip shaking incubators have achieved a good reputation and trust among various clients for its advanced temperature controlling technology, sound framework design, excellent molded exterior and outstanding professional workmanship. These products have been exported through most leading companies into European, American and East Asian markets.

Incu-Shake FL incubators have a number of advanced specifications like an intelligent precise control of temperature and shaking speed through the standard control panel and solid operating safety features. These units are very efficient and have an excellent floor space/performance factor. Two trays above each other, double the capacity for smaller flasks, while after removing of the top tray, big flasks can also be used.

This equipment is specially designed for the research experiment that involves microbiology, pharmacy and agriculture. It is widely used for cell culturing, hybridization, cell aeration, and solubility studies. Etc.

Reminder

Prior to operation, this manual should be read thoroughly and completely understood-as it might be helpful to master the operation techniques of this unit.

Safety instruction!
Please be sure to follow the instructions, which are really important for your safety.



Danger!

Warnings against injury and damage.

1. The electrical supply circuit to the incubator must confirm to all national and local electric codes. Check the serial-data plate for voltage, cycle, phase and amperage requirements before you connect the unit.
2. Only use grounded power source (outlet) to avoid an electric shock or fire, and it is recommended that the equipment has an unobstructed access to a dedicated power source.
3. In case of a problem, do not attempt to repair the product yourself. Do not open the power box to avoid electric shocks.
4. Do not pull out the plug when the unit is in use. Never drag on the wire to unplug the unit.
5. This equipment can sustain a maximum of $\pm 10\%$ nominal voltage fluctuation; Otherwise a power stabilizer is needed.
6. A surge protector is recommended to avoid power-related faults.
7. In case of malfunction or burning smell, the unit must be unplugged immediately. Use a circuit breaker to cut off the power supply. Continuance of abnormal state will result in fire caused by overheating.
8. The electric power supply must be cut off in following situations:
 - 8.1.-When opening the door of electrical power box without cutting off power supply might result in electric shock.
 - 8.2.-When replacing the fuse. Replacing the fuse without cutting off the power supply will probably result in electric shock.
 - 8.3.-When a malfunction occurs, mishandling will result in further damage of the equipment or accidental injury to the user(s).
 - 8.4.-If you do not use the unit for a long period of time.
9. Never touch the glass door and/or inner chamber when the incubator is hot.



Attention!
Instructions for optimal performance

1. Before starting your equipment, the unit must be placed horizontally on a solid, flat floor, and elevated and leveled with four foot blocks.
2. The incubator needs even heat lost on all surfaces in order to maintain small internal temperature variations .As a result, a minimum of 20 cm must be allowed between the rear and sides of the incubator to any obstructions.
3. Do not locate the unit exposed to direct sunlight or near heating /cooling ducts.
4. The unit must be kept away from electromagnetic interference sources.
5. Flasks placed inside the shaking incubator should be placed to avoid (as much as possible) imbalance on the shaking platform
6. Slam the door(s) will probably leads to damage of the equipment.
7. When in operation (the platform is still moving), do not open the lid (too much or too long) as this might affect the temperature inside.
8. The incubator must be kept away from volatile, flammable, explosive liquids or gases
9. Please keep the chamber clean. Regular cleaning is required.

Extra for refrigerated units:

10. After transport of this shaking incubator –DO NOT USE IT for at least 24 Hours, unless you are a 100% sure that the unit has been moved in an upright position only.
11. To extend the compressors life and to maintain an excellent performance of your refrigeration system, the condenser of the unit should be cleaned every month.

Clean the shaking incubator before you put it into use and on a regular base. The interior should be wiped down with an appropriate disinfectant, such as 70 % ISOPROPYL ALCOHOL or equivalent.



**DO NOT USE ANY CHLORINATED OR HALOGEN MATERIAL-
AS THIS IS HARMFUL TO THE POLISHED STAINLESS STEEL !!!**

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1. Performance Parameters

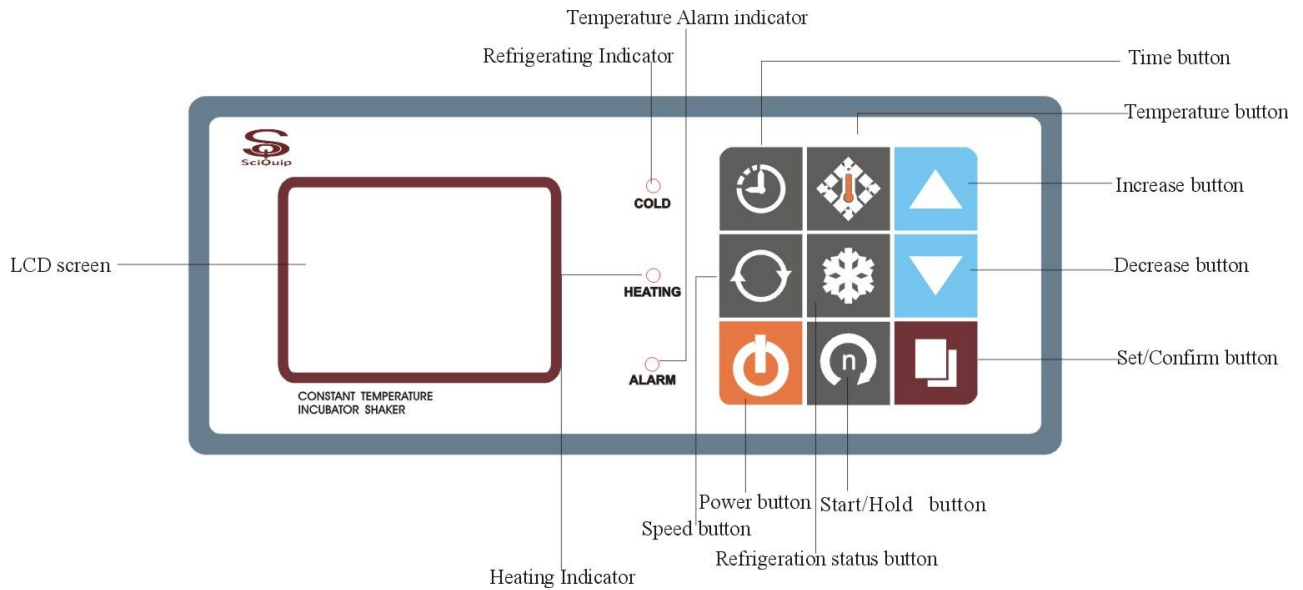
- ★ Both the interior and exterior are made of robust materials for lifetime operations. The inner chamber is made of high quality #304 stainless steel sheets, with 4 round coved corners. All exposed edges are de-burred to insure no sharp edges. The exterior is cold rolled steel finished with powder coated polyurethane finish, which is resistant to most chemicals and easily cleaned with mild household detergents.
- ★ The Incu-Shake FL incubator's microprocessor control system uses fast responding PT 100 sensors which commands and executes a special control algorithm that energizes a solid-state switch to supply power to the heaters.
- ★ The control electronics are protected through a circuit breaker that may trip at 110% of loading rate, but will trip within 1 second at 150% of load rating.
- ★ The compressor (in refrigerated units only) has an independent overload protection.
- ★ CFC-free refrigerant which causes no damage to ozone layer.(Applies on Incu-Shake FL18-750R/FL24-1R/FL36-1R models)
- ★ Large doublefold tempered glass window and fluorescent light, provide complete visibility of chamber interior.
- ★ LCD display presents all actual and (pre)set parameters.
- ★ Electronic timer, from 0 – 500 hours, automatic stop, audio/ visual alarm.
- ★ Password protection against unauthorized change of parameters.
- ★ Audible and visual alarms for motor temperature and set point deviations
- ★ Non-volatile memory for set point retention after a power interruption.
- ★ “Long-Life” brushless AC motor creates a smooth, quiet and uniformed shaking motion
- ★ Option: unit equipped with RS-485 interface communication can be connected to local network so that remote data logging and control can be achieved via laptop/ PCs.

2. Technical Specifications

| Model | Incu-Shake FL18-750 | Incu-Shake FL18-750R | Incu-Shake FL24-1 | Incu-Shake FL24-1R | Incu-Shake FL36-1 | Incu-Shake FL36-1R |
|--|--|-------------------------|----------------------|-----------------------|----------------------|-----------------------|
| Volume (L) | 170 | | 330 | | 580 | |
| Shaking Mode | Orbital | | Orbital | | Orbital | |
| Temperature Range(°C) | A +5 to 60 | 4 to 60 | A +5 to 60 | 4 to 60 | A +5 to 60 | 4 to 60 |
| Temperature Accuracy | ±0.1°C | | | | | |
| Temperature Uniformity | ≤±1°C @37°C | | | | | |
| Stroke (mm) | Ø26 | | Ø26 | | Ø35 | |
| Shaking Speed (rpm) | 30-300 | | 30-300 | | 30-300 | |
| Tray Dimension (mm) | 496x350 | | 734x458 | | 970x560 | |
| Flask Configuration | *Glass dimensions may reduce max. capacity | | | | | |
| 50 ml | 56 | | 104 | | 164 | |
| 100 ml | 56 | | 104 | | 164 | |
| 250 ml | 28 | | 56 | | 90 | |
| 500 ml | 22 | | 44 | | 74 | |
| 750 ml | 18 | | 30 | | 52 | |
| 1000 ml | 6* | | 24 | | 36 | |
| 2000ml | 3* | | 7* | | 13* | |
| 3000ml | 2* | | 6* | | 8* | |
| 5000ml | 2* | | 4* | | 6* | |
| Tube Rack S/S | 4 | | 8 | | 12 | |
| 96 Well Plate | 9 | | 19 | | 30 | |
| Inner Dimensions (mm) (WxDxH) | 615x450x640 | | 845x530x765 | | 1105x850x664 | |
| Exterior Dimensions (mm) (WxDxH) | 720x685x1310 | | 950x755x1445 | | 1430x880x1700 | |
| Packing Dimensions (mm) (WxDxH) | 800x720x1490 | | 1020x825x1605 | | 1500x950x1860 | |
| Net/Gross Weight (kg) | 180/223 | 195/238 | 225/265 | 235/272 | 425/505 | 456/536 |
| Power (W) | 1000 | 1250 | 1050 | 1300 | 1600 | 1950 |
| Electricity | 220-240Volt 50/60 HZ | | | | | |

* Applies only when single layer shaking frame is equipped.

3. Control Panel



Time button:

Button to display the preset time and the status of the power-off recovery function.

Press again to display the remaining time (if Timer is set).

Press it to stop the acoustic alarm when needed



Refrigeration status button (Refrigerated unit only)

Button to display the current refrigerating parameter, defrost timer and the defrost period in turns.



Power button:

Hold this button for 2 seconds to turn the unit on/off the standby mode



Temperature button:

Press this button to display the actual temperature value and the set temperature in turns



Speed button:

Press this button to display the actual speed value and the set speed in turns



Start/Stop button:

Button to start or stop current operation



Increase button:

Press this button and the parameter will increase by one digit, the parameter will keep increasing while this button is held.

**Decrease button:**

Press this button and the parameter will decrease by one digit, the parameter will keep decreasing while this button is held .

**Set/Confirm button:**

Press this button to enter the menu of setting, press it at the end of the setting to save and exit..



ALARM

Temperature alarm indicator:

When the temperature inside the chamber is deviated over the preset alarm limit , the indicator flashes and the alarm beeps



HEATING

Heating indicator:

When the heater is connected with power supply, this indicator will be light. This indicator will twinkle when the real temperature close to the preset value



COLD

Refrigeration indicator:

Lights when the cooling system is switched on to cool down the inner chamber.

4. Preparation and Start-up

- 4.1 Before starting your equipment, the unit must be placed horizontally on a solid, flat floor, and elevated and leveled with four foot blocks. The foot blocks are provided to level as well as “fix” the unit firmly on the floor. To allocate the blocks in position, please do strictly follow the procedures:



Safety instruction!
Please be sure to follow the instructions, which are really important for your safety.

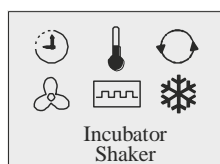


- 4.1.1 Lift the front below cover and take it off.
- 4.1.2 Unscrew up the adjusting bolt on the front-left corner.
- 4.1.3 There is one hole on each of the other three corners of base of the unit, locate each of them.
- 4.1.4 Tilt or push the unit from its front side, and at the same time, another person is needed to lay the foot block underneath the hole, whose hands must be off the unit before the unit is laid down! Do be careful of your hand!
- 4.1.5 Lay down the unit and see whether the tip of the block sits firmly in the hole. If not, please re-do the “Section 1.4” again. Then lay the other one on the same side.
- 4.1.6 Lay the rest two blocks on the back side of the unit.
- 4.1.7 Keep unscrewing / screwing the adjusting bolt on the front-left corner with the spanner until the unit is elevated leveled and sits firmly on the four blocks.

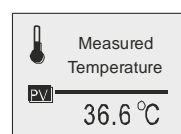
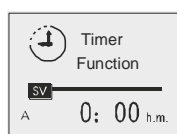
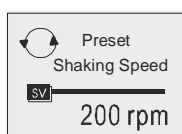
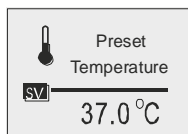
- 4.2 Turn the main switch which is located on the right side of the unit, power is applied to the

Unit and the LCD display shows:

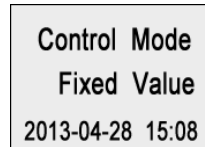
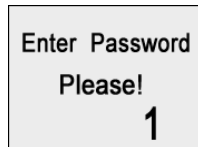
- Incubator Shaker
- Pre-set Temperature
- Pre-set Speed
- Pre-set Time



- 4.3 The screen in turns displays the operating parameter stored in the equipment:
Preset temperature; Preset speed; Preset time; Real temperature.
And now, the microprocessor system has started controlling the temperature according to the preset value.

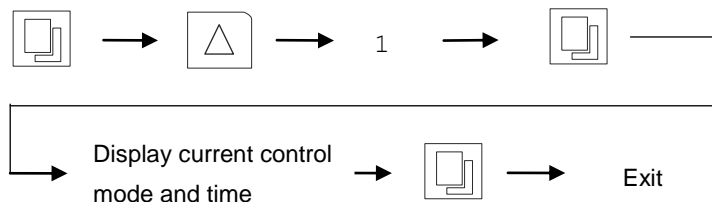


5. Control Mode & Clock Checking

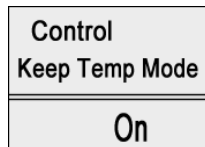
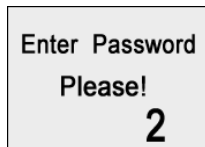


5.1. Press "Set/confirm", press the "Increase" button to "1", then press the "Set/confirm" again. The screen shows the current control mode and current date & time.

5.2. Press "Set/confirm" to exit to the home page

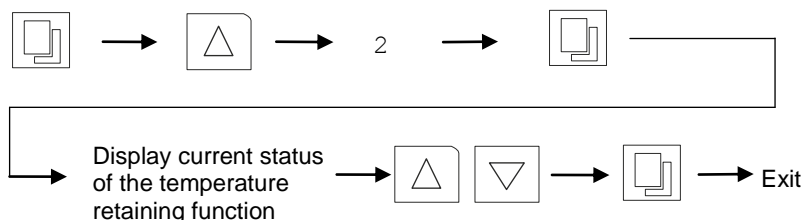


6. Temperature Retaining Switch Setting



6.1. Press "Set/confirm", press the "Increase" button to "2", then press the "Set/confirm" again. The screen shows the current status of temperature retaining (Keep Temp Mode) function, press "Increase" or "Decrease" to change the setting.

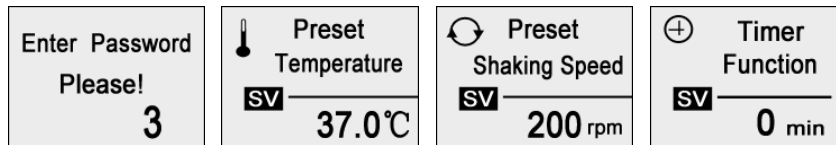
6.2. Press "Set/confirm" to exit to the home page



Special Attention!

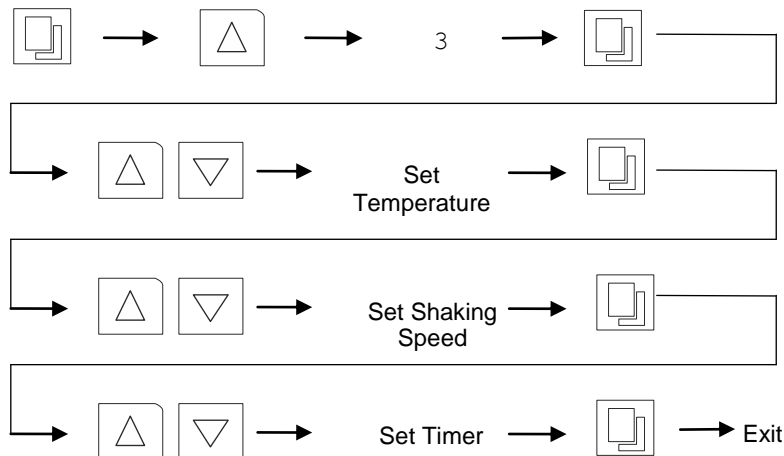
When the status is "on", the temperature will remain under control at its preset value even when shaking operation has been turned off manually or by timer. Otherwise, when the status is "off", the system will stop both shaking motion and temperature control when operation is stopped.

7. Temperature, Speed, Timer Settings



- 7.1. Press "Set/confirm", press the "Increase" button to "3", then press the "Set/confirm" again. The screen shows the current temperature preset value, press "Increase" or "Decrease" to change the value; press "Set/confirm" to save and switch to speed page, press "Increase" or "Decrease" to change the value, and press "Set/confirm" again to save and switch to the timer page, press "Increase" or "Decrease" to change the value if necessary. **If Timer is set as "0", the unit will keep running continuously.**

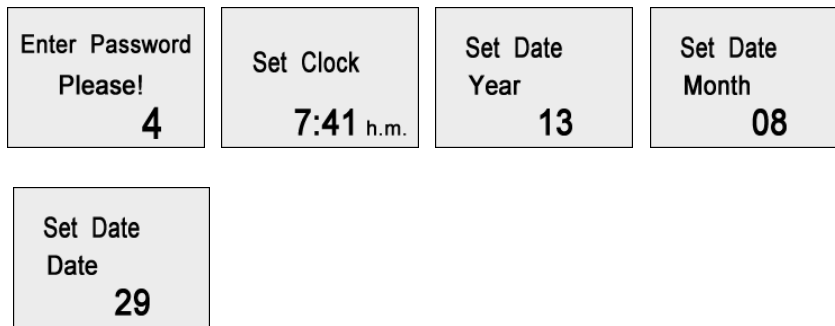
- 7.2. Press "Set/confirm" to exit to the home page



Special Attention!

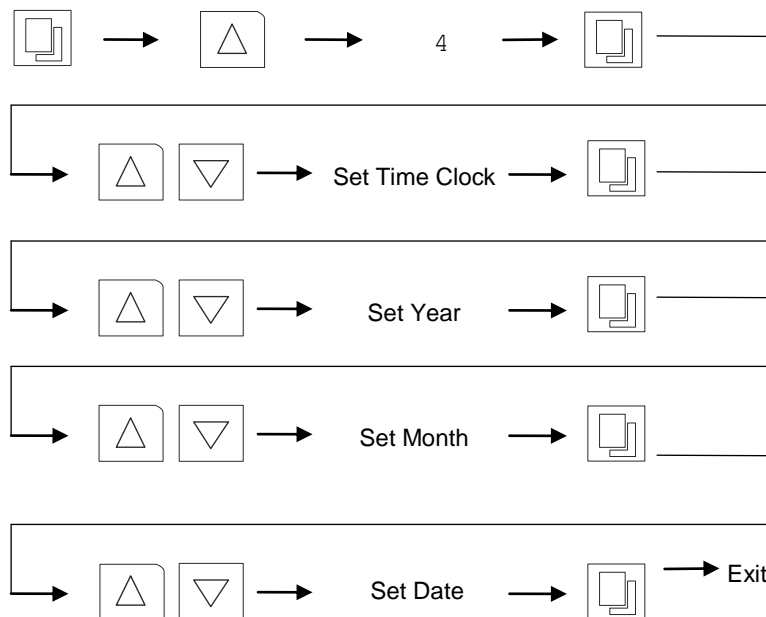
1. This unit is equipped with "door switch". The temperature control (main heater) will be temporarily disabled when lid is opened. Therefore, always close the lid in time to avoid exceeded heat loss.
2. The timer can be set within 0-9999mins, the unit stops running when timer is due. Acoustic alarm can be muted by pressing the "Time" button.

8. Date & Time Settings

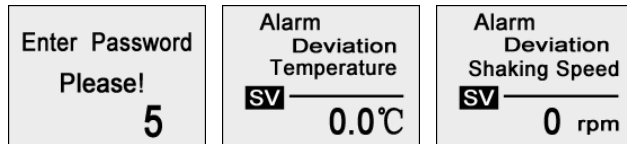


8.1. Press "Set/confirm", press the "Increase" button to "4", then press the "Set/confirm" again. The screen shows the current time clock, press "Increase" or "Decrease" to change the time; press "Set/confirm" to save and switch to "year" setting page, press "Increase" or "Decrease" to set the year, and press "Set/confirm" again to save and switch to the "month" page, repeat the above steps to set "month" and "date".

8.2. Press "Set/confirm" to exit to the home page



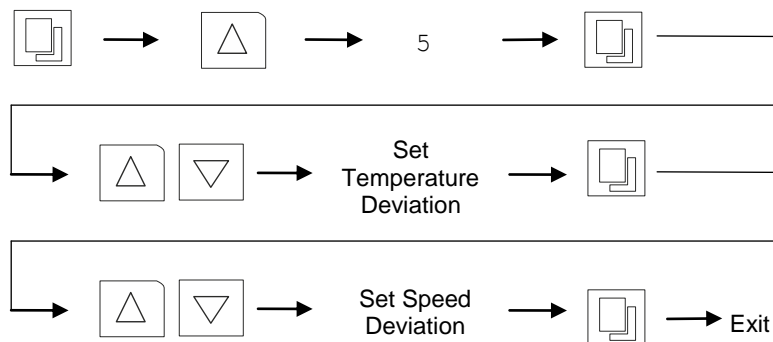
9. Temperature & Speed Alarm Settings



9.1. Temperature and speed alarm is activated when temperature or speed is deviated over limit. The deviation alarm limit can be preset as below,

9.2. Press "Set/confirm", press the "Increase" button to "5", then press the "Set/confirm" again. The screen shows the current "temperature deviation" value, press "Increase" or "Decrease" to change the value; press "Set/confirm" to save and switch to "speed deviation" setting page, press "Increase" or "Decrease" to change the value.

9.3. Press "Set/confirm" to exit to the home page



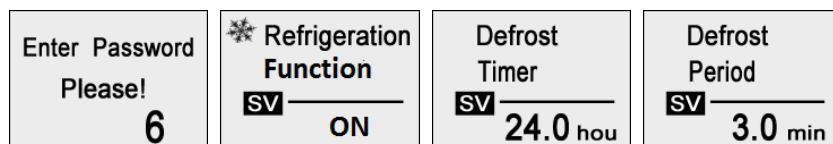
Special Attention!

1. Deviation alarms can only be activated when unit is running, and once actual temperature or speed has reached its preset value and stabilized for a certain period of time.
2. Deviation alarm is activated when the actual parameter value exceeds preset value \pm preset deviation alarm value. The "Alarm" indicator is lighted, but can be muted by pressing "Run/Stop" button.

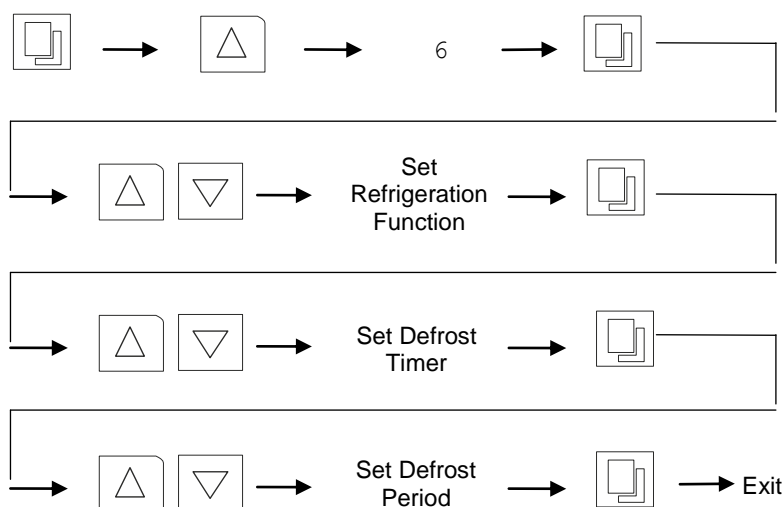
10. Refrigeration & Defrost Settings

(Only for refrigerated models)

This unit is equipped with automatic and manual defrosting functions. With proper settings of refrigeration function and auto-defrosting cycle, this unit can be used for continuous operation at low temperature settings. Please note defrosting function will only be activated when actual temperature at 10°C or below.



- 10.1 Press the "Set/Confirm" button, then press the Increase button to "6", next press the "Set/Confirm" button to display the preset refrigeration function on the screen, SV flashes. Press the "Increase" or "Decrease" button to switch the refrigeration function "On/Off".
- 10.2 Press "Set/Confirm" to confirm setting and enter the page of defrost timer setting, press "Increase" or "Decrease" to set the time interval between two defrosting cycles. Set range from 1-240 hours.
- 10.3 Press "Set/Confirm" to confirm setting and enter the page of defrost period setting. Press "Increase" or "Decrease" to set the time length of each defrost cycle. Set range from 1-24 minutes.
- 10.4 When setting is finished, press the Set/Confirm button to confirm and store the changed value.



10.5 Explanation for setting auto defrosting cycle:

- a) "Defrost Timer" is the time interval between two cycles. For example, if this is set as "6", the unit will defrost once every 6 hours.

To find out the suitable "defrost timer" setting, the frosting time duration should be counted from start of the low-temperature operation to the point that the actual temperature start bouncing up due to the frosting inside the evaporation chamber. Then set the "defrost timer" as somewhere between 1/10-1/5 of the frosting time duration. For example, if the frosting time duration is 20 hours, the "defrost timer" can be set from 2-4 hours. High relative humidity will require more frequent defrosting cycle.

- b) "Defrost Period" is the time duration of each defrosting cycle. For example, if this is set as "3", the unit will run a defrosting cycle for 3 minutes.



When the ambient temperature is higher than 25°C, like in summer, the recommended

setting is 30 seconds, otherwise, 1 min is considered as adequate. As ambient conditions may vary, therefore, always try to find the most appropriate settings for your own particular ambient condition.

Alternatively, if the set temperature is not so low as critical, in most cases, manual defrosting will be adequate.

- c) The proper of defrosting cycle can vary upon actual environmental conditions, preset temperature value and running time. We recommend defrost at least 1-2 times per day, with 3-5 minutes for each cycle.
- d) If after a defrosting cycle, there is still some ice inside the evaporator chamber (normally by long term, low temperature operation) the "defrosting timer" needs to be shortened and/or the "defrosting time" must be extended accordingly.
- e) During the defrosting process, the actual temperature inside can have a temporary deviation of 3°C to the set point. This is normal, so does not require any action.

10.6 Explanation for setting Manual Defrosting cycle:

Alternatively, during the operation, the unit can run a manual defrosting cycle when necessary. To activate the cycle, press  button and hold for 3 seconds, the unit will start manual defrost for set "defrosting period". To abort, press  button and hold for 3 seconds. Minimum time interval between two manual defrost cycles is 1 min.



Attention:

1. The defrosting cycle will only be activated when the following requirement is fulfilled; **Auto defrosting cycle**: when both set and actual temperature is at or below 10°C; **Manual defrosting cycle**: when actual temperature is at or below 10°C.
2. The cooling system keeps running during defrosting cycle, while the motor fan stops.
3. The temperature will silently overshoot during defrosting, and then be stabilized when defrosting terminates.
4. **For better temperature control during continuous low temperature operations, for example, below 10.0°C, the following operations are recommended: Set Defrost Timer: "3" hr, Defrost Period: "0.7" min; Weekly maintenance: Open the door and wipe off the condensation, set the temperature at top value "65°C" and let it run for at least 1 hour to further evaporate the condensations inside the chamber.**
5. During defrosting cycle or heating up process, the drip tray should be place at the unit's rear end and emptied on a regular basis.

11. Temperature Calibration



Special Attention!

Temperature of each unit has been carefully calibrated in factory before dispatch.

No further calibration is needed. But if it does, do follow the calibration process strictly or consult your supplier, as wrong operation can interfere the temperature accuracy significantly.

Enter Password

Please!

7

Temperature

Correct

0.0

0.0

Temperature

Correct

100.0

0.0

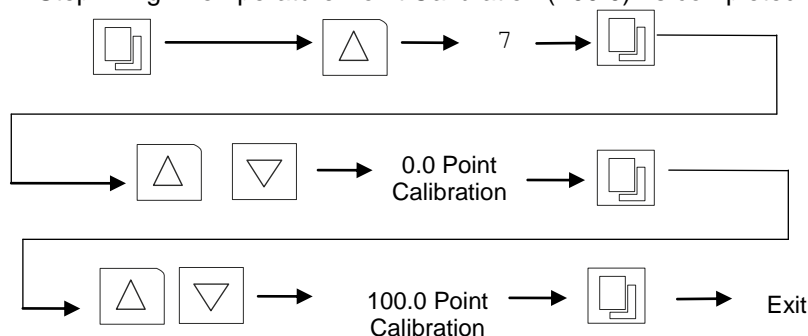
To calibrate the temperature, take a certified calibrated thermometer in a small bottle with glycerin and place that in the geometrical center of the incubator.

11.1 Low Temperature Point Calibration (0.0)

- Change the set point to lower temperature value, 37°C for HEATING ONLY UNITS (or 8°C for REFRIGERATED UNITS,) and let the incubator run for at least 1 hour– until the temperature is constant, and let the temperature inside of the chamber uniform.
- Read the temperature on the thermometer through the glass lid; calculate the difference with actual displayed temperature. for example, if reading is 35°C, difference would be $35-37 = -2^{\circ}\text{C}$, while if reading is 38°C, the difference would be $38-37 = 1^{\circ}\text{C}$
- Press the "Set/Confirm" button and go with the up arrow to code "7". Press the Set/Confirm again, to enter the Step 1. "Low Temperature Point Correction (0.0)", the display shows the "Temperature Calibration" with "0.0" and the "Current Calibration Value". Use the up and/or down key to make a further adjustment on the current correction value by the temperature difference calculated above, for "-2°C ", decrease by 2, for "1°C ", increase by 1.
- Keep pressing "Set/Confirm" button, skip the " High Temperature Point Correction (100.0)" setting, save and exit.
- The displayed temperature should have changed due to the calibration. Waiting for another one hour to let the temperature stabilize again at 37°C, and check the thermometer value again, and calculate the new difference.
- if necessary, perform the calibration again until the actual display value equals to the calibrated thermometer value. Thus the Step 1. "Low Temperature Point Correction (0.0)" is completed.

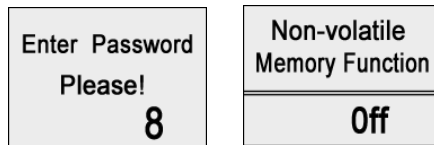
11.2 High Temperature Point Calibration (100.0)


- If the incubator is to be used for more than one temperature setting, and "High Temperature Point Calibration (100.0)" needs to be performed as well.
- Change the set point to a higher temperature point as required, for example 60.0°C and let the incubator run for at least 1 hour– until the temperature is constant, and let the temperature inside of the chamber is uniformed
- Change the enter the code "7" again and press "SET" skip the "0.0", and enter the "100.0" page.
- Repeat the same procedure, like the "Low Temperature Point Calibration", to correct the high temperature point, until the display value equals to the actual thermometer value. Then the "Step 2 High Temperature Point Calibration (100.0)" is completed.



12. Non-Volatile Memory Setting

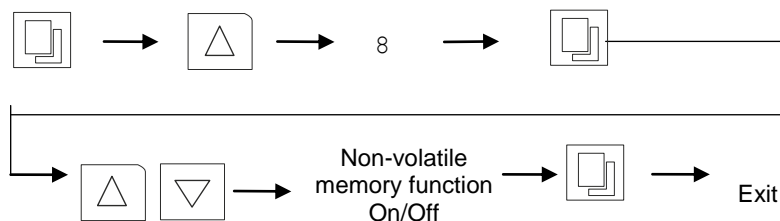
If the non-volatile memory function is active (ON), the unit will run to the originally temperature, speed and time program when the external power is recovered after a power failure.



12.1 To set the non-volatile memory function, first press the , then press the Increase button to "8", next press the "Set/Confirm" button and the screen will display the character ON or OFF.

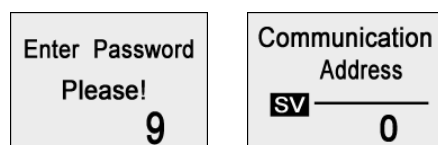
Press the "Increase" or "Decrease" button to change the parameter and press the "Set/Confirm" button to save the change and exit.

12.2 Press the Timer button, if the symbol "A" is displayed on the lower left corner of the screen, it means the non-volatile memory function has been active.



13. Setting of communication address for RS485 connection (Opt)

If the RS-485 communication kit is equipped on this product, please follow the instructions below for address setting.



13.1 Press the Change/Confirm button, then press the Increase button to "9", press the Change/Confirm button again to enter the "communication" address setting page.

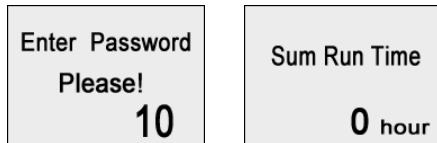
13.2 The screen displays the current communication address, and use Increase or Decrease button to change the address, within the range of 0 to 63

13.3 Press the Change/Confirm button to save and exit

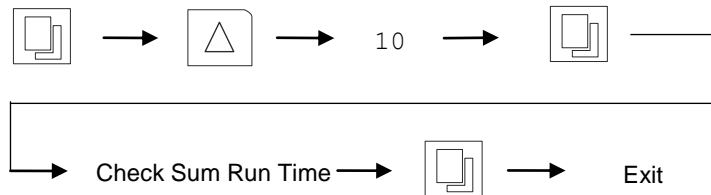


14. Sum Run Time Checking

The total run time of current operation can be checked via following steps. Run time starts counting once "Start/Stop" button is pressed, and stops when pressed again.



- 14.1 Press "Set/Confirm" button and press the "Increase" button to "10", then press "Set/Confirm" button again to see "Sum Run Time".
- 14.2 This is the accumulated time of current operation, which cannot be changed.



Special Attention!

The communication address is used as an identifying code for each unit to pair with the software of the PC terminal. Each communication code must be connected to only one unit. Different communication addresses must be used if multiple units are to be connected to the same PC terminal.

15. Operation and Switch off

- 15.1 When all the above settings are done, press the Start/Stop button and the equipment will run according to the stored settings.
- 15.2 When during operation, the Start/Stop button is pressed, the platform stops from shaking temporarily. The operation time remains on hold.
- 15.3 Press the Start/Hold button again to resume operation, the pre-set time starts to count down from the remaining time when the operation was stopped.
- 15.4 When during operation, if the Start/Stop button is held on, within 3 seconds the remaining operating time will be cleared to zero. Press the Start/Stop button once more, and the unit starts again to count down from the preset operation time.
- 15.5 While the unit is in use, the current remaining operating time cannot be changed. If however changed at this time, it is invalid with the current operation. Only when the current operation has passed or stopped according to the above method, only if the instrument is re- started the new changed value will be effective.
- 15.6 The equipment can be turned off by holding on the Power button on the control panel for 2 seconds. At this time, the control board is still connected to the power supply, so the main switch on the right side of the equipment must be shut off to end operation completely.

16. Trouble Shootings

| Error Indicator | Possible cause | Corrections |
|--|---|--|
| Power on , No display | Power supply is not connected | Check the power supply system to see if there is voltage on the line |
| | Plug has no access to socket | Plug in firmly |
| | The power switch has not been turned on. | Turn on the power switch on the right side of the unit |
| | The fuse is broken | Replace fuse with new one of same specification |
| | Circuit occurs small function of power box | Notify distributor for repair service |
| Actual temperature is higher than the set point, high temperature alarm is activated | Unit has not yet reached the required (constant) temperature. | Wait a moment and observe |
| | Temperature setting is at the blind area of temperature control | Open the ventilation hole |
| | Improper setting of refrigeration parameter | Set the refrigeration parameter to be "0.5" and close the ventilation opening. |
| | The ventilation fan is broken | Notify the distributor to replace the fan |
| | Malfunction occurs with refrigeration system | Notify the distributor to repair the refrigeration system |
| Actual temperature is lower than the set point. low temperature alarm is activated | Unit has not yet reached the required (constant) temperature | Wait a moment and observe |
| | The circulation of cold air is excessive | Close(a part of) the ventilation opening |
| | The ventilation fan is broken | Notify the distributor to replace the fan |
| | The heater does not work | Notify the distributor to repair the heater |
| Actual temperature is fluctuating and will not be stable | Improper setting of refrigeration parameter | Refer to Users Guide and reset the refrigeration parameter |
| | The door (lid) is not closed firmly | Close the door (lid) firmly |
| | Malfunction occurs with the control circuit | Notify distributor for repair service |
| Temperature is constant out of control | Malfunction occurs with the control circuit | Notify distributor for repair service |
| The oscillation of platform is unstable | The platform is in imbalance due to a spoiled object | Remove the object , clear and clean the chamber |
| | The equipment is not placed horizontally | Adjust the left-back foot leveler install the equipment in a proper way. |
| | Malfunction occurs with control circuit | Notify distributor for repair /service |
| The shaking platform does not work | The door switch has not yet made contact | Check the door to see if it is closed firmly |
| | The platform is blocked with an object at the bottom | Remove the platform and clear the object and clean the inside |
| | The belt is broken | Notify the distributor to replace the belt |
| | Malfunction occurs with control circuit | Notify distributor for repair service |

| | | |
|--|---|--|
| The oscillation of platform is out of control | Malfunction occurs with control circuit | Notify distributor for repair service |
| The platform keeps shaking after the door is opened | The door switch has short circuit ,could be caused by humidity | Use a blower drier to dry the chamber Press the Start/Stop button before opening the door |
| As the door is closed ,the platform starts shaking but the speed runs high suddenly | Improper operating method | Refer to Users Guide and press the Start/Stop button to operate again |
| Screen has no response when button on the control keyboard is pressed | Equipment is disturbed by high frequency. | Press the Change/Control button and try other operation mode. |
| | | Restart the equipment-if it does not work: |
| | | Notify the distributor. |
| The equipment causes a strange loud noise | The equipment is not placed horizontally | Adjust the left back foot to make the equipment stable |
| | The fixed screw of clamp is loose | Remove the platform and tighten the screw |
| | The platform is loose | Remove the platform and tighten the screws on the four corners |
| | There is strange object, like a piece of a bottle, under the platform | Remove the platform ,clear the object and clean the inside |
| | Mechanical malfunction occurs | Notify the distributor for repair service |
| The accumulation of frost is fast after refrigeration is started, resulting in the rise of temperature | The refrigerating time is too long and the evaporating chamber is too humid | Refer to Users Guide and conduct a drying maintenance on the evaporation chamber |

17. Electronic Control System

