Operation Manual

Model: NB-T205L & T205LF

DOMINIQUE DUTSCHER SAS

N-BIOTEK
Leading Life science

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1. General Information and Precautions

Safety Symbols:

1.1. Precautions related to the power cable

Always allow at least 3cm between the power cable and the back wall to prevent the back wall from causing pressure on the power cable.

Always use the electrical plug that was supplied with this instrument.

Never touch the power cord with wet hands. (This can result in electric shock.)

Never use a damaged power cord or power outlet.

In the event of smoke or a burning smell, immediately remove the power cord from the outlet.

1.2. Precaution for use

Do not attempt to disassemble this instrument. If service is required, please contact your local representative.

Never operate a flammable spray near this instrument. (This can result in a fire hazard.)

Always use caution when using flammable substances such as benzene, alcohol and LP gas. (Failure to do so can result in a fire hazard.)

Prevent foreign substances from contacting the door seal. (The inflow of outside air can negatively impact the temperature in chamber.)

Permissible ambient temperature range for transport: -10℃ to 60℃.

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Compliance

ALWAYS ensure that the instrument is connected to an outlet with specifciations that match those of the serial number label.

(Over-voltage or under-voltage can damage the product and result in poor performance.)

Compliance

When installing the instrument, always allow a distance of at least 30cm from the back wall. Install the unit in the way that the power plug is easily accessible and can be easily pulled in case of danger.

Compliance

Install the instrument on a flat and stable surface, free from vibration and in a well-ventilated location. (If the surface is not level, it can cause an excessive vibration of the product.)

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2. Feature & Specification

2.1 Features

- Magnetic induction drive & Brush less DC motor provides less vibration and maintenance.
- No interference with uniformity for cell culture by BLDC motor
- User friendly, intuitive LCD touch panel
- Moisture resistant structure by Epoxy – coated
- Automatic stop function Once LID opens, shaker automatically stops for safety and convenience
- Once-piece construction with acrylic cover
  Transparent acrylic cover allows internal viewing without disturbance
- Stable and Low Noise Shaking
  Blushless DC motor and beltless drive system for shaker minimizes noise and vibration
- Non-volatile memory for operation.
- Easy - Platform Installation
  Very simple way to place holder or spring rack platform on the shaker.
  And Optional accessories available for most common laboratory vessels

2.2 Specification

Items	NB-T205L	NB-T205LF
Temp. Range	Ambient +5℃ to 60℃	Ambient -12℃ to 60℃
Temp. Accuracy	±0.2℃ between temperature reading and a temperature at center of platform at 37℃ setup / Room Temperature at 25℃	
Temp. Increment	0.1℃	
Controller	Microprocessor Digital PID	
Speed Range	30rpm ~ 300rpm (RPM up and down enabled during operation)	
Speed Accuracy	±1rpm	
Speed Increment	1rpm	
Time Range	Continuous or up to 99h 59min 59sec	
Motor	Plate type BLDC motor	
Drive system	Beltless direct drive	
Orbit diameter	22mm	
Operating panel	LCD Touch panel system	
Platform size	450(W) x 450(D)mm	
Overall dimension	510(W) x 665(D) x 470(H)mm	510(W) x 790(D) x 555(H)mm
Weight	59kg	84kg

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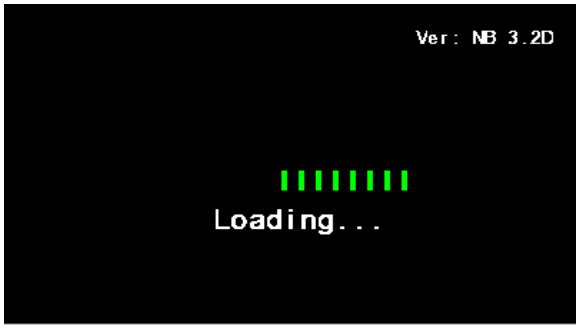
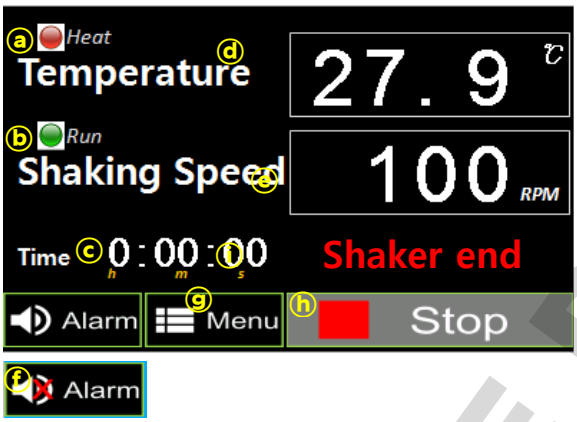
3. Operation



▶ Booting

Press the power switch into the ON position,
the display illuminates and the booting screen is displayed for 2 seconds before showing the "Basic View" screen.

NOTE: If the shaker has been powered off before the completion of a run, the unit will automatically power on to the previous settings.



▶ Basic View Screen

ⓐ HEAT LED: indicates if the heater is activated

ⓑ RUN LED: indicates if the shaker is running.

ⓒ Time setting: Indicates the set or remaining time.
(To adjust, TOUCH the time value.)

ⓓ Temp setting: Displays the current temperature.
To set the desired temperature, TOUCH the temperature value.

ⓔ RPM setting: Displays the set or current RPM
To set the desired shaking speed, TOUCH the RPM value.

ⓕ Alarm mute: Alarm activates according to the condition
TOUCH to toggle the alarm on or mute
→ Alarm Alarm ON → Alarm Alarm mute
It is automatically reactivated 10 minutes after it is muted
Alarm off: when Alarm is pressed for 3 seconds, the alarm is completed turned off. It reactivates only when you touch Alarm again

ⓖ Menu : TOUCH to activate the main menu

ⓗ Shaker Start/Stop Button
TOUCH to Start or to stop the shaker.

ⓘ Shaker end: Indicates that time has expired and the shaker has stopped

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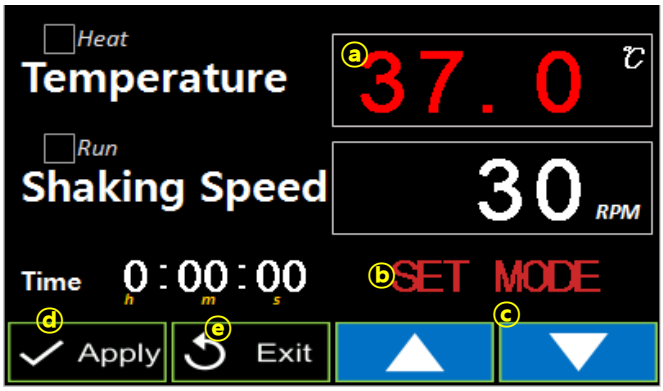


▷ Temperature setting change

ⓐ TOUCH the temperature value, The numbers become red

ⓑ "SET MODE" is displayed (flashes)

ⓒ Input the desired value by pressing UP(▲)/DOWN(▼) buttons

NOTE: Press and hold the buttons to increase or decrease the value quickly.

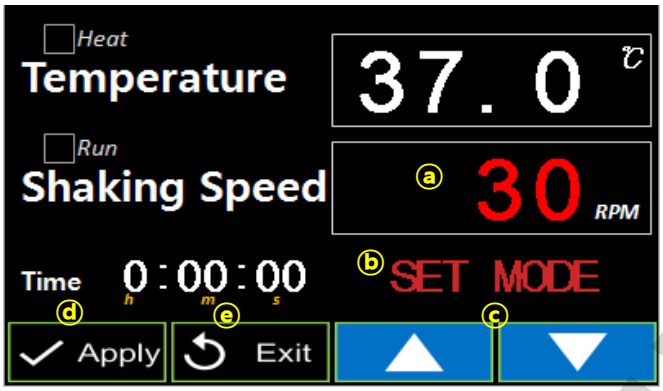
ⓓ Apply: To store the newly set value TOUCH Apply

(Or wait 5 seconds for the value to store automatically)

ⓔ Exit: If you press Exit after changing any values, the values are not saved and the screen returns to the previous screen

***If low temperature set-up in NB-205LF model is required, turn on "COOL Switch" which located at front left side in front control box**

*** Set-up temperature range of NB-205LF is ambient -12℃ to 60℃.**



▷RPM setting change

ⓐ TOUCH the RPM value, The numbers become red

ⓑ "SET MODE" is displayed (flashes)

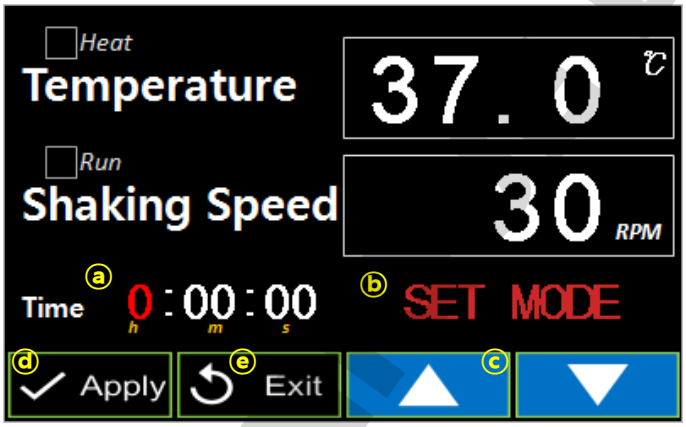
ⓒ Input the desired value by pressing UP (▲)/DOWN(▼) buttons

NOTE: Press and hold the buttons to increase or decrease the value quickly.

ⓓ Apply: To store the newly set value TOUCH Apply

(Or wait 5 seconds for the value to store automatically)

ⓔ Exit: If you press Exit after changing any values, the values are not saved and the screen returns to the previous screen



▷Time setting change

ⓐ TOUCH the time value, The numbers become red

ⓑ "SET MODE" is displayed (flashes)

ⓒ Input the desired value by pressing UP(▲)/DOWN(▼) buttons

NOTE: Press and hold the buttons to increase or decrease the value quickly.

ⓓ Apply: To store the newly set value TOUCH

(Or wait 5 seconds for the value to store automatically)

ⓔ Exit: If you press Exit after changing any values, the values are not saved and the screen returns to the previous screen

NOTE: The time cannot be adjusted during a run. To change the time during a run, you must TOUCH Stop. Change the time value and press Apply and Start

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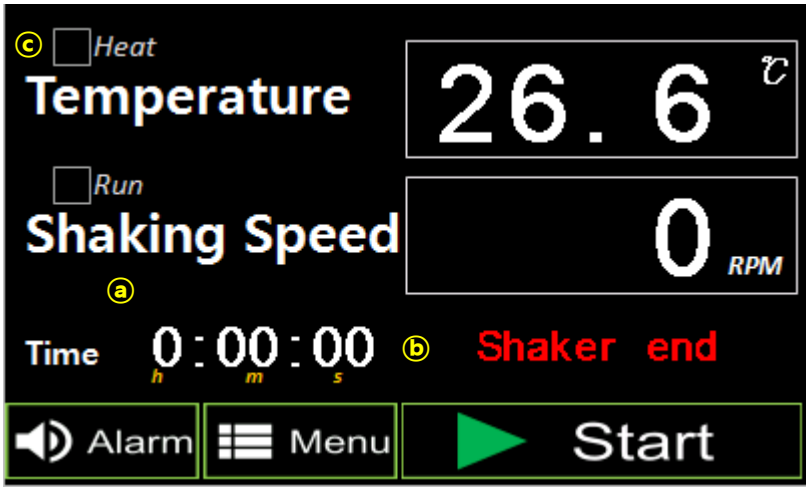
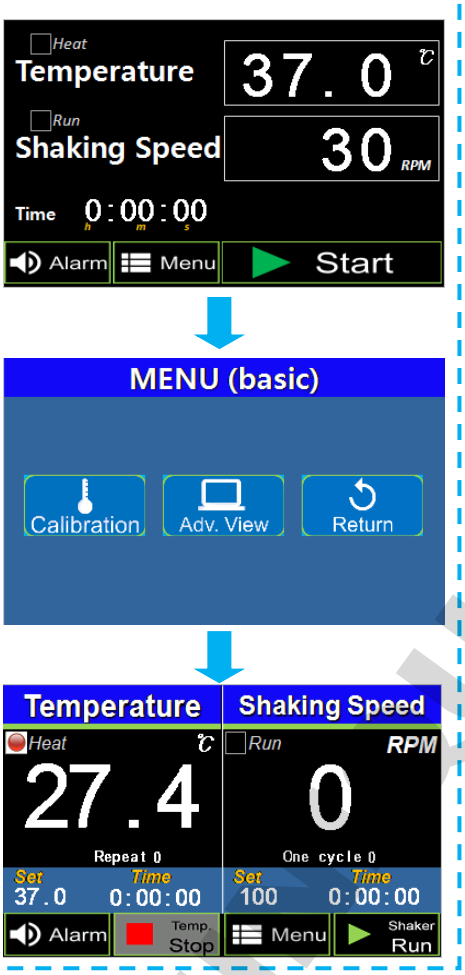


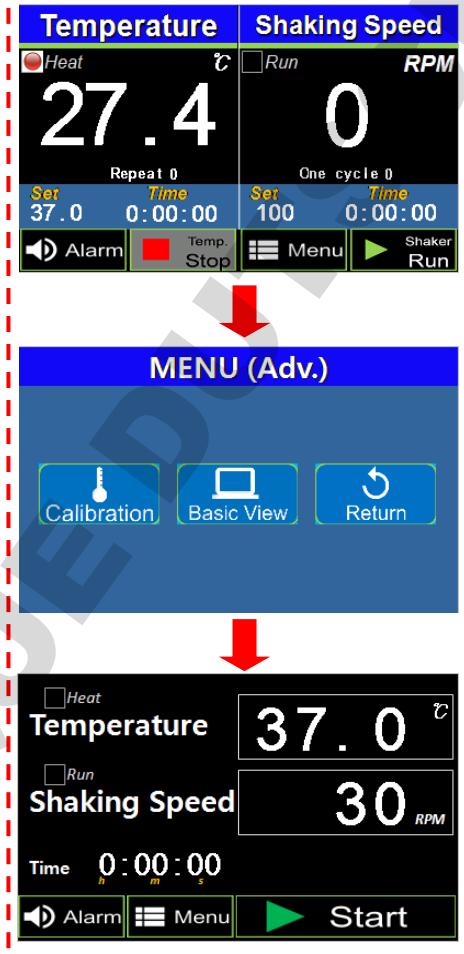
▷The end of setting time

ⓐ After the set time is over,
time is displayed as 0:00:00
ⓑ Shaker is stopped and the message "Shaker end" is displayed
ⓒ Heating LED continuously runs until the STOP button is pressed to keep the set temperature
NOTE: The Heating is maintained even after the set time has expired to keep protecting samples at the set temperature. If you would like to stop heating, TOUCH Stop

BASIC to ADVANCED



ADVANCED to BASIC



▶ Advanced Mode

To switch from the standard BASIC view to the ADVANCD view the shaker and heater must be off. TOUCH "MENU" and choose the ADVANCED View.
NOTE: TO return to BASIC View,
TOUCH "MENU" And choose BASIC View.

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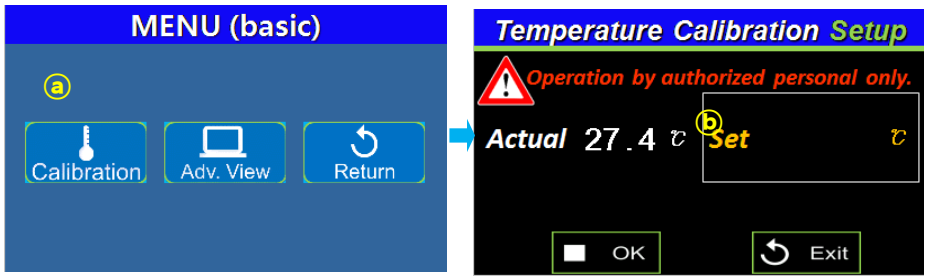
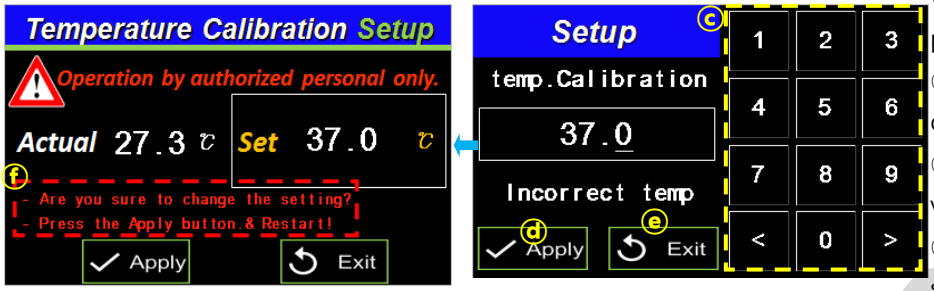
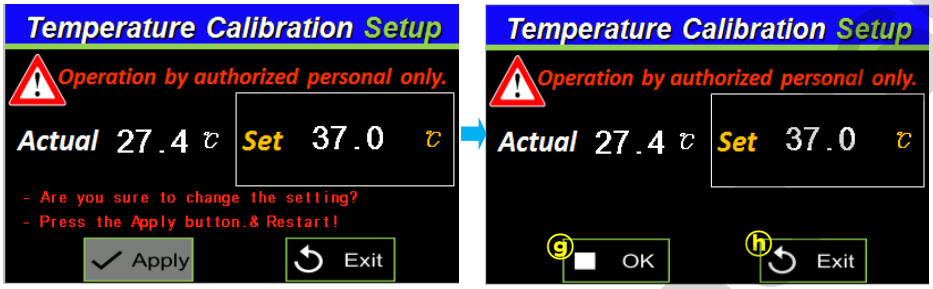
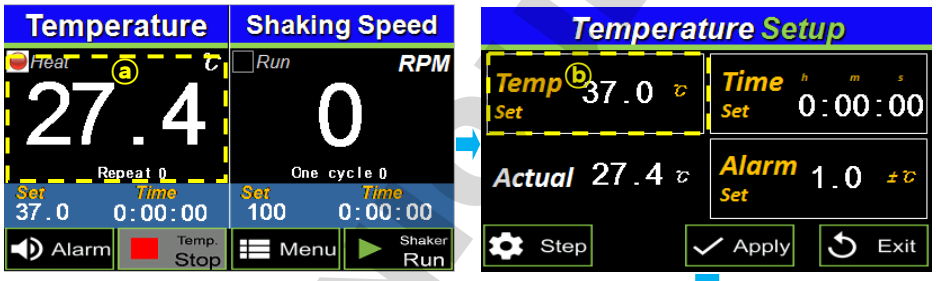
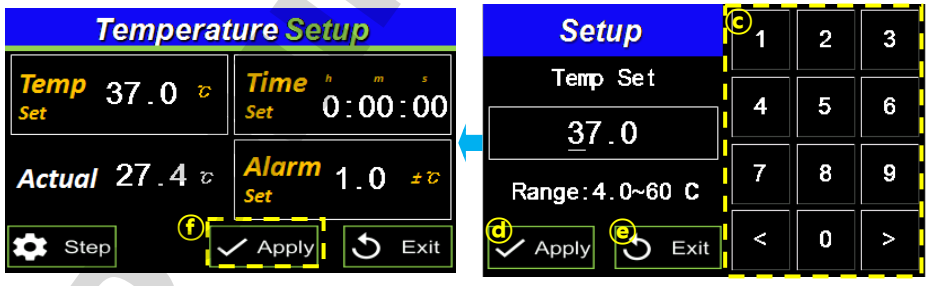






Advanced Mode





▶Temperature calibration

ⓐ To enter the calibration mode enter the menu and press Calibration

ⓑ Press the rectangular "Set ℃" box.

ⓒ Input the calibrated (measured) value by using key pads

ⓓ Apply: When you touch Apply the changed setting values are saved and the screen turns to the previous screen.

ⓔ If you press Exit button, the changed setting values are not saved and the screen turns to the previous screen.

ⓕ When you press OK button, the message is displayed as the red rectangular part

ⓖ When you press Apply button, the calibrated value is applied and the screen turns to the MENU

ⓗ If you press Exit the calibrated value is not saved and the screen turns to MENU

ⓘThe last calibrated value of set ℃ is continuously displayed until the power is turned off and on

※Please measure the temperature of the inside of equipment by using a deliberate temperature measuring instrument before starting temperature calibration. At this moment, the temperature of the inside of equipment should be stabilized. If you measure with a sensor over 1 point, we recommend putting the average value on the calibrated one

▶Temperature setting (Advanced Screen)

▷Temperature setting change

ⓐ TOUCH the temperature value, the screen turns to the temperature setting screen

ⓑ TOUCH the "Temp Set" Value to adjust the set temperature.

ⓒ Input the desired value by using the key pads in the setup screen

***If low temperature set-up in NB-205LF model is required, turn on "COOL Switch" which located at front left side in front control box**

ⓓ Apply: When you press Apply, the changed setting values are saved and the screen turns to the previous screen

ⓔ Exit: If you press Exit button, the changed setting values are not saved and the screen turns to the previous screen

ⓕ. Apply: You must press Apply to apply new setting

NOTE: The temperature setting range of NB-T205L is 4~60℃ and that of NB-T205LF is ambient-12℃ to 60℃. When putting a value out of this range and pressing Apply, the message "Incorrect range" is displayed.

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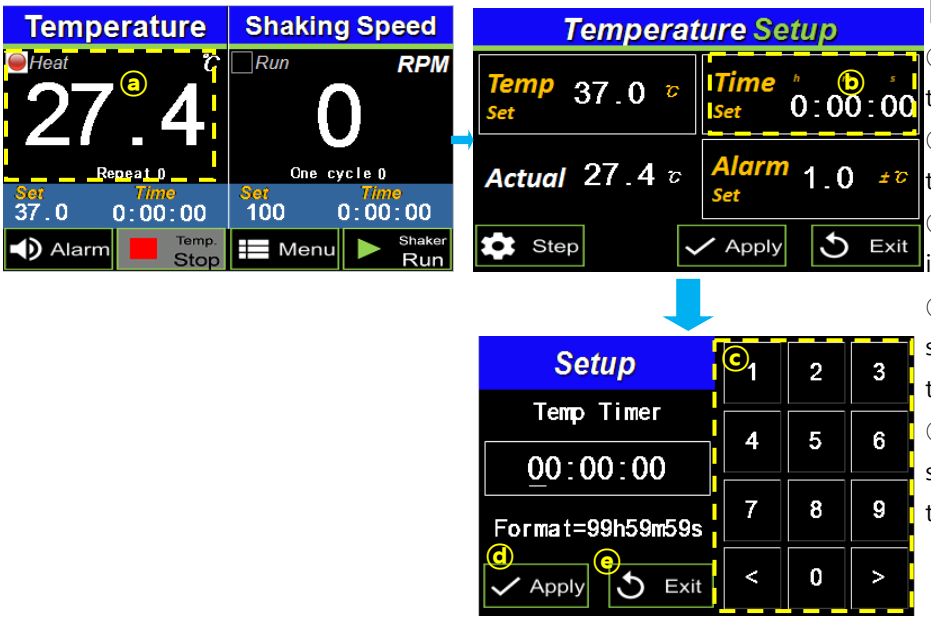


▷Adjusting Timer of Temperature

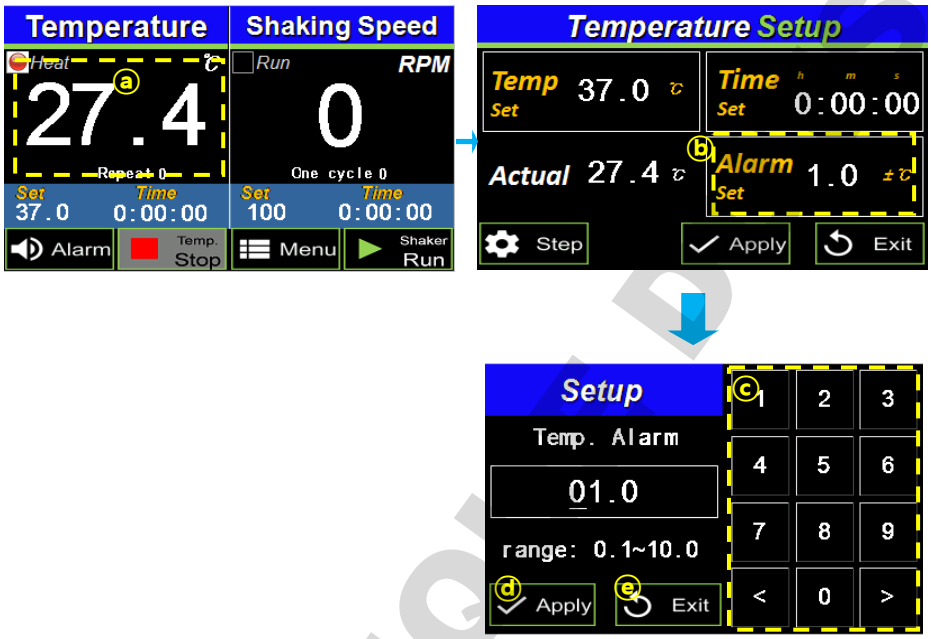
ⓐ TOUCH the temperature value, the screen turns to the temperature settings screen.

ⓑ TOUCH the "Time Set" value to adjust the set time of the heater.

ⓒ Input the desired value by using the key pads in the setup screen

ⓓ Apply: When you press Apply the changed setting values are saved and the screen turns to the previous screen.

ⓔ Exit: If you press Exit button, the changed setting values are not saved and the screen turns to the previous screen



▷Adjusting the Alarm setting

The alarm value is the difference between the set temperature and the measured (displayed) temperature. If the difference exceeds this value (once the temperature has been reached) the alarm will trigger.

ⓐ TOUCH the temperature value, the screen turns to the temperature settings screen.

ⓑ Touch the "Alarm Set" value to enter the alarm setup.

ⓒ Input the desired value by using the key pads in the setup screen

ⓓ Apply: When you press Apply the changed setting values are saved and the screen turns to the previous screen

ⓔ Exit: If you press Exit button, the changed setting values are not saved and the screen turns to the previous screen

※ The alarm setting range is 0.1~10.0

When putting the value out of the range and pressing, Apply the message "Incorrect range" is displayed.

NOTE: With a set temperature of over 50C, an alarm value of +2.0 is recommended

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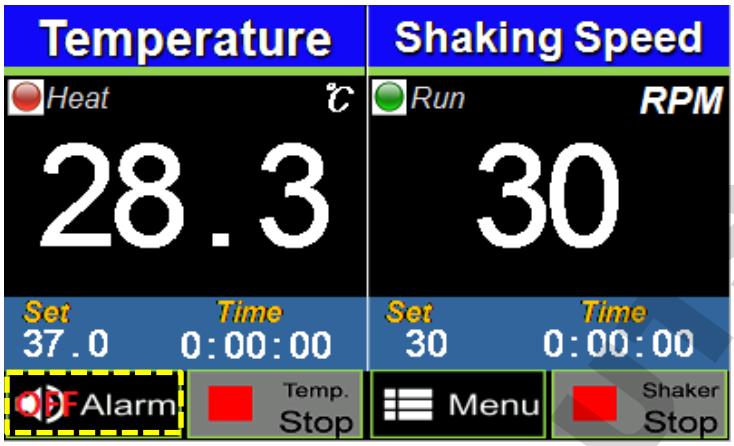
▷ Alarm Mute

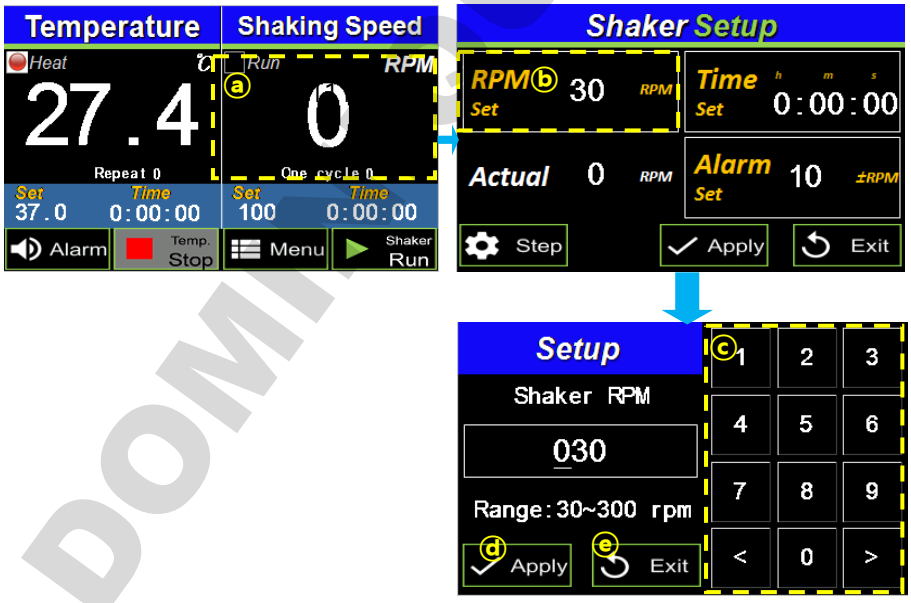
The alarm can be deactivating in both the BASIC View and the ADVANCED View by TOUCHING the key to toggle on/off.

When the alarm is muted, is displayed on the screen and the alarm stops activating until 10 minutes after the actual value is out of the setting range and it is automatically reactivated 10 minutes after it is muted



▷ Alarm OFF

When you press the Alarm button for about 3 seconds, is displayed on the screen and the alarm is completely turned off until you reactivate it by touching button again.



▶ Shaker setting (Advanced Screen)

▷RPM setting change

ⓐ TOUCH the RMP Shaker value, the screen turns to the Shaker setting screen

ⓑ TOUCH the "RPM Set" Value to adjust the set speed.

ⓒ Input the desired value by using the key pads in the setup screen

ⓓ Apply: When you press, Apply the changed setting values are saved and the screen turns to the previous screen

ⓔ Exit: If you press Exit button, the changed setting values are not saved and the screen turns to the previous screen

※ The RPM setting range is 30~300rpm

When entering a value out of this range and pressing Apply the message "Incorrect range" is displayed.

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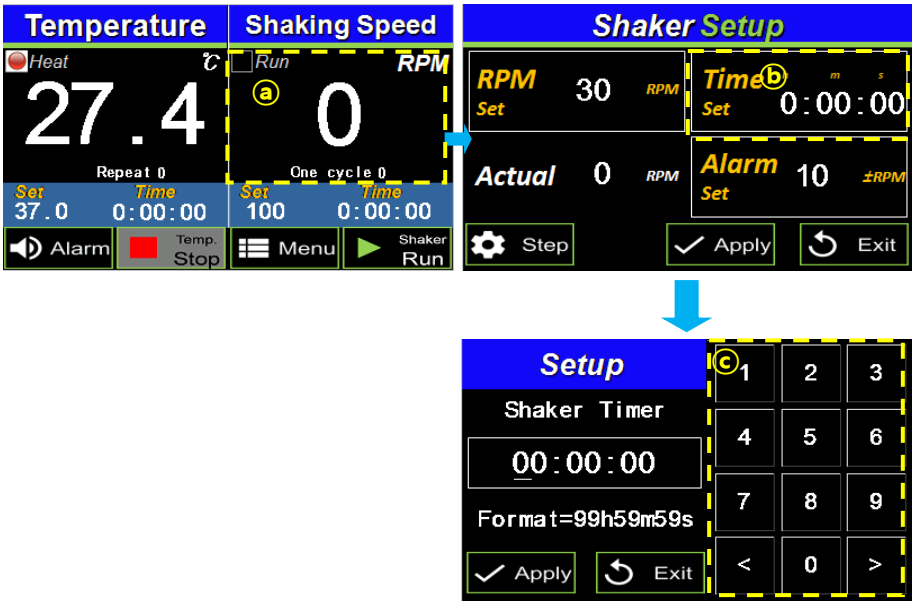


▷Adjusting the Shaking Time

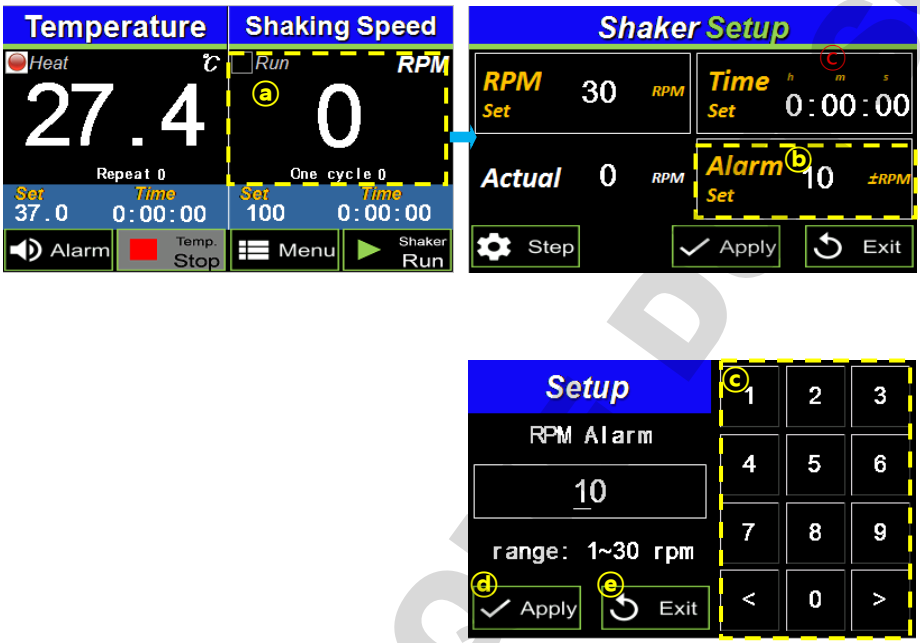
ⓐ TOUCH the RPM Shaker value, the screen turns to the Shaker setting screen

ⓑ TOUCH the "Time Set" Value to adjust the set shaking time.

ⓒ Input the desired value by using the key pads in the setup screen

ⓓ Apply: When you press, Apply the changed setting values are saved and the screen turns to the previous screen

ⓔ Exit: If you press Exit button, the changed setting values are not saved and the screen turns to the previous screen.



▷Alarm setting change

The alarm value is the difference between the set speed and the measured (displayed) speed. If the difference exceeds this value (once the temperature has been reached) the alarm will trigger.

ⓐ TOUCH the RPM Shaker value, the screen turns to the Shaker setting screen

ⓑ TOUCH the "Alarm Set" to adjust the timer.

ⓒ Input the desired value by using the key pads in the setup screen

ⓓ Apply: When you press Apply, the changed setting values are saved and the screen turns to the previous screen

ⓔ Exit: If you press Exit button, the changed setting values are not saved and the screen turns to the previous screen

※ The RPM setting range is 1~30rpm
When selecting the value out of this range and pressing Apply, the message "Incorrect range" is displayed.

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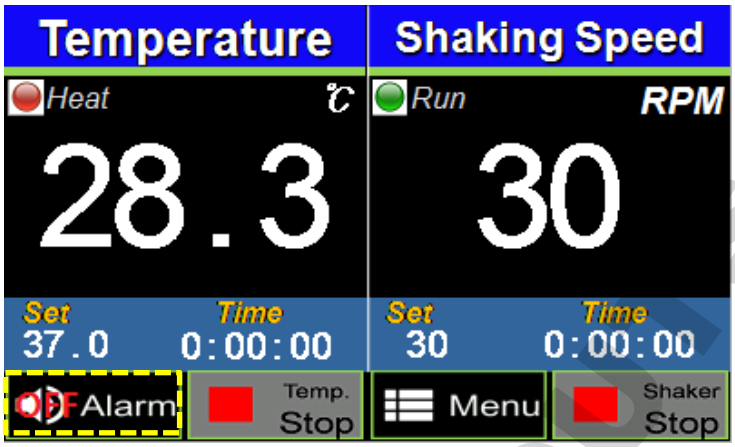
▷ Alarm Mute

The alarm can be deactivating in both the BASIC View and the ADVANCED View by TOUCHING the key to toggle on/off.

When the alarm is muted, is displayed on the screen and the alarm stops activating until 10 minutes after the actual value is out of the setting range and it is automatically reactivated 10 minutes after it is muted



▷ Alarm OFF

When you press the Alarm button for about 3 seconds, Alarm is displayed on the screen and the alarm is completely turned off until you reactivate it by touching Alarm button again.

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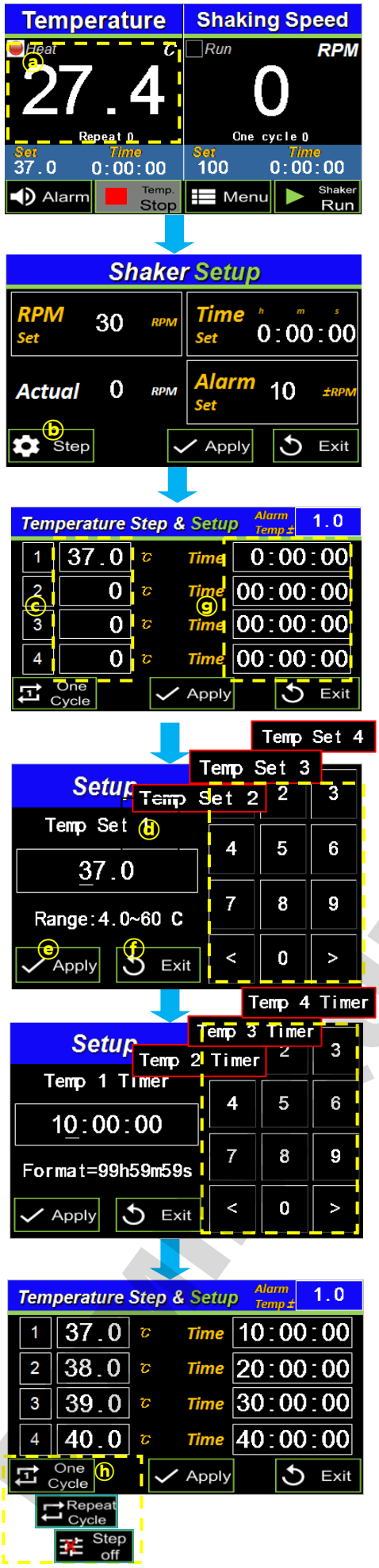

▶Temperature step setting

▷Temp, time setting

ⓐ TOUCH the temperature value to enter the temperature setup screen.

ⓑ Select Step, the screen moves to the temperature step & setup screen

ⓒ You can select link up to 4 desired temperatures.

Choose each of the 4 desired temperatures by pressing on the value.

(If less than 4 linked temperature is desire, leave the time

and temperature values as "0" to skip.)

ⓓ Once a temperature value is selected,

use the keypad in the setup screen to select the desired temperature.

ⓔ Apply: When you press Apply, the changed setting values are saved

and the screen turns to the previous screen

ⓕ Exit: If you press Exit button, the changed setting values are not saved

and the screen turns to the previous screen

ⓖ Once the desired temperatures have been chosen,

adjust the time values by following the same steps.

ⓗ There are 3 modes available for Step Operation :

"One cycle", "Repeat Cycle", "Step off"

NOTE: Repeat cycle will result in continuo repeating of all programmed steps until the stop button is pressed.

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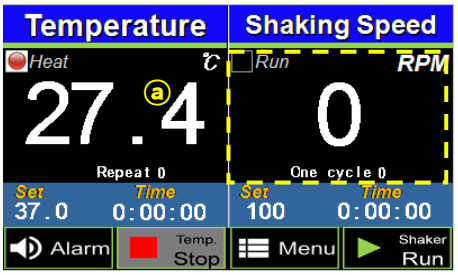
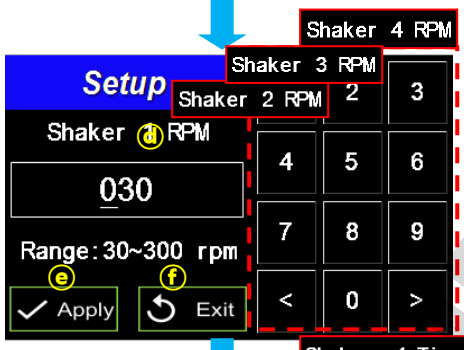
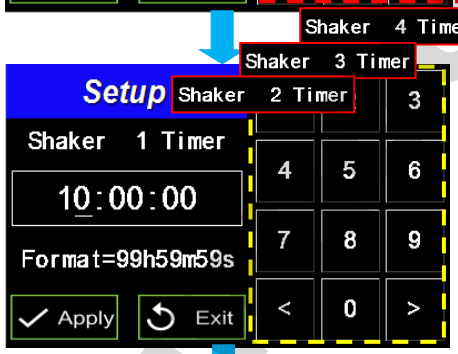
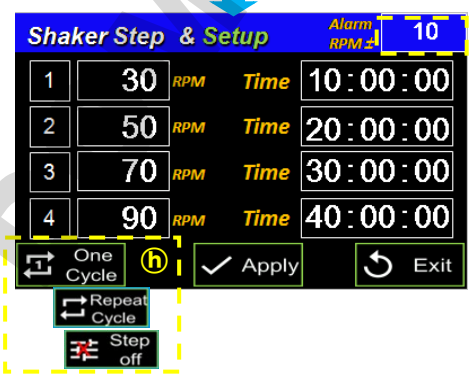








▶Shaker step setting

▷RPM, time setting

ⓐ TOUCH the RPM Shaker value to enter the shaker setup screen.

ⓑ When selecting Step , the screen moves to the shaker step & setup screen

ⓒ You can select/link up to 4 desired shaking speeds.

Choose each of the 4 desired speeds by pressing on the speed value.

(If less than 4 linked speeds are desire, leave the time and speed values as "0" to skip.)

ⓓ Once a RPM step is selected, use the keypad in the setup screen to select the desired RPM value

ⓔ Apply: When you press Apply , the changed setting values are saved and the screen turns to the previous screen

ⓕ Exit: If you press Exit button, the changed setting values are not saved and the screen turns to the previous screen

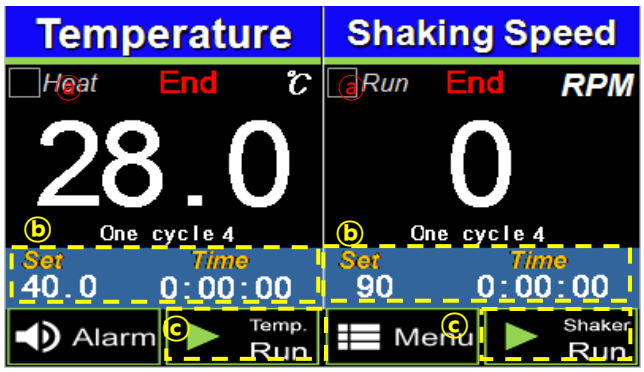
ⓖ Once the desired RPM speeds have been chosen, adjust the time values by following the same steps.

ⓗ There are 3 modes available for Step Operation :

"One cycle", "Repeat Cycle", "Step off"

NOTE: Repeat cycle will result in continue repeating of all programmed steps until the stop button is pressed.

PROPRIÉTÉ DUTSCHER SAS



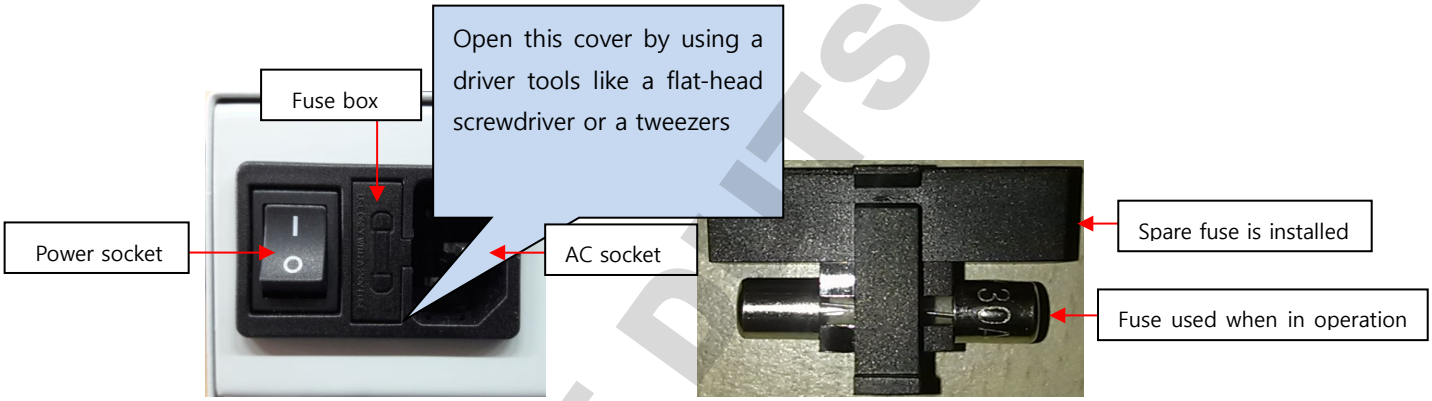
▶Step Cycle Ending Screen

ⓐ When the time for each step has expired, the "End" message is displayed

ⓑ "Set" displays the setting value of 1st step (Default value is displayed when Step Off) Time is displayed as 0

ⓒ Temp. Run or Shaker Run is displayed as the instrument can be restarted at any time.

4. Warning Messages & Fuse Replacement



< AC POWER in the rear of equipment > **<Fuse in the fuse box >**

▶The fuse is stored in the fuse box of the integral power inlet on the backside of the instrument.

▶ In the case you need to use the spare fuse, put a ㄱ-shaped tool, a flat-head screwdriver or a tweezers in the little U-shaped hole on the bottom of fuse box to open the cover, remove the installed fuse and replace it with the included spare.

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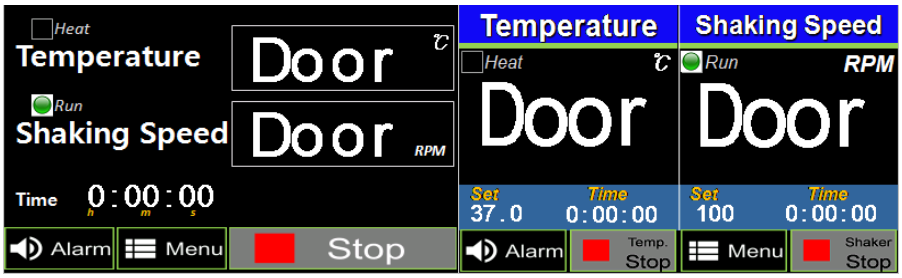
Basic screen

Advanced screen



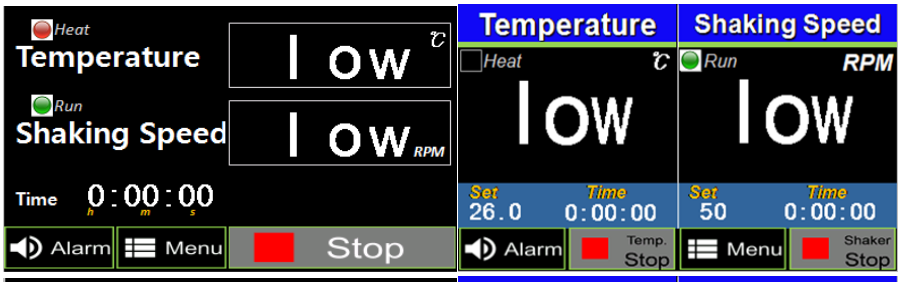
▶Event view

▷Door open message

When the door is opened, the "Door" message is shown on the display

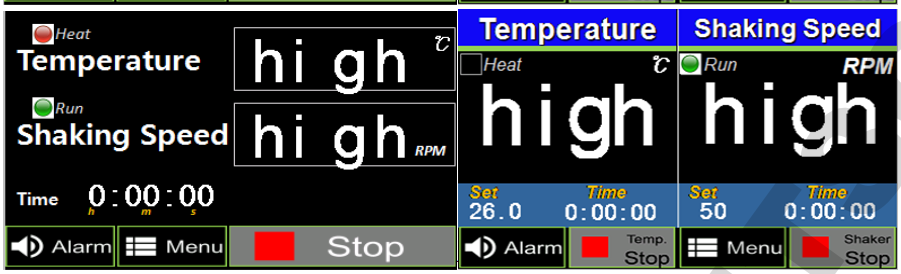
When the door has been left open for a minute, the alarm starts ringing.

NOTE: The heater and shaker are automatically stopped when the door is open.



▷Temperature/Shaker Alarm

The message "low' or "high" is displayed on the display when the measured value is deviating from the set value.

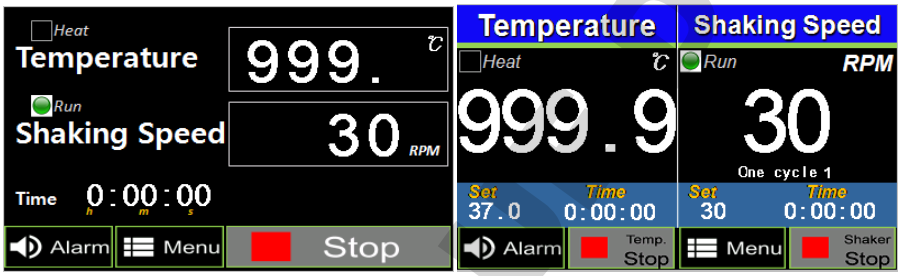


The message is only displayed when the difference exceeds the programed value for the alarm

NOTE: The message is cleared when the equipment maintains the values for 1 minute following the activation of the alarm.

Basic screen

Advanced screen

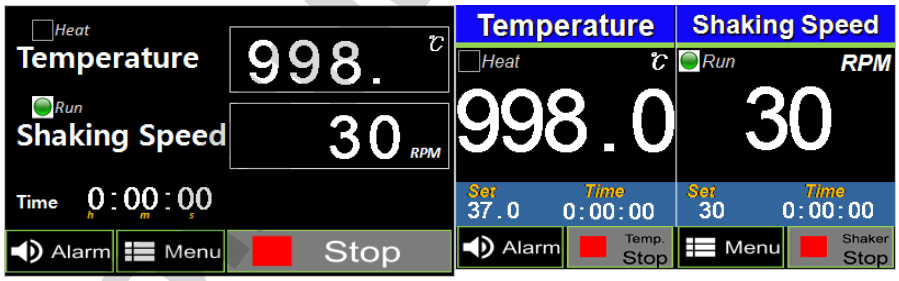


▷The disconnection of temperature sensor

The message 999 is displayed on the basic view and 999.9 is displayed on the advanced view when the temperature sensor is disconnected

Basic screen

Advanced screen



▷The malfunction of temperature sensor

The message 998 is displayed on the basic view and 998.0 is displayed on the advanced view when the temperature sensor is malfunctioning

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▶Maintenance:

The platform of the LARGE BENCHTOP SHAKING INCUBATOR WITH TOUCH PANEL<CE> should be cleaned regularly with a soft cloth dampened with water or alcohol.
(Always ensure that the machine has been powered down prior to cleaning.)
In the event of a spillage: Power down the unit, remove the platform and dry the internal chamber with a soft cloth. DO NOT attempt to operate the unit until the spillage had been properly dried.

▶Service and Contact

Service on the LARGE BENCHTOP SHAKING INCUBATOR WITH TOUCH PANEL<CE> should only be performed by qualified service personnel.
To request service or technical support, please contact your local N-BIOTEK representative.

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