

# STALWART

## Dry Bath Incubator with Heated Lid SDB-100H

## OPERATION MANUAL



### Annex D SDB-100H Warranty card

Product Name	Dry Bath Incubator with Heated Lid
Type	SDB-100H
Factory Number	
Purchase Date	Sept. 2019
Buyer Company	
Buyer Name	
Address	
Telephone	
Fax	
Zip Code	
E-mail	

#### Warranty Description

Within one month of delivery, the company is responsible of exchange for breakdown caused by material or manufacture.

Within 12 months of delivery, the company is responsible of free repair for breakdown caused by material or manufacture. Proven with defect under warranty, the company will exchange the instrument or free repair it alternatively.

#### Warranty Coverage

Breakdown due to improper use, operation in inappropriate conditions, maintain or refitting without authorization are not in warranty coverage.

Repair after warranty will be charged reasonable cost.

	Repair Record	Repaired by

## **PREFACE**

Thanks for choosing SDB-100H Dry Bath Incubator with Heated Lid. This operation manual describes function of the instrument. To ensure that you could operate instrument in correct way, please read the manual carefully before first using it. Please keep this manual properly for later use if you meet any difficulty.

## **OUT OF BOX AUDIT**

At the first time of opening the packing, please check the instrument and appendix with the packing list. If anything does not match with the packing list, please contact with the vendor or the producer.

## Important note

### 1. Important safety operation information

The user needs a complete understanding of how the instrument will work before operating the instrument safely. Before operating the instrument, please read this manual carefully.



It is forbidden to operate the instrument before reading the manual. If you do not follow the instructions on the instructions, the instrument will cause accidental injury during operation and an electric shock may occur. Please read the following safety tips and instructions carefully and implement all precautions.

### 2. Safety tips

The following basic safety precautions must be observed during all handling, maintenance and repair of this instrument. Failure to follow these instructions or the warnings noted elsewhere in this manual may affect the protection provided by the instrument and the intended use of the instrument.



This instrument is class I type B common equipment conforming to GB9706.1 standard. This instrument is for indoor use.



The operator should not attempt to open or repair the instrument, which would void your warranty and may result in an electric shock. If you need to repair, the company is responsible for maintenance.



Before connecting the power supply, make sure that the voltage of the power supply matches the voltage required by the instrument. And make sure that the rated load of the power outlet is not less than the requirements of the instrument.



If the power cord is broken, it must be replaced. Replace with a power cord of the same type and specification. Do not press anything on the power cord when the instrument is in use. Do not place the power cord where people are walking.



Always hold the plug when plugging and unplugging the power cord. When inserting the plug, make sure that the plug is fully inserted into the socket. Do not pull the power cord when pulling out the plug.

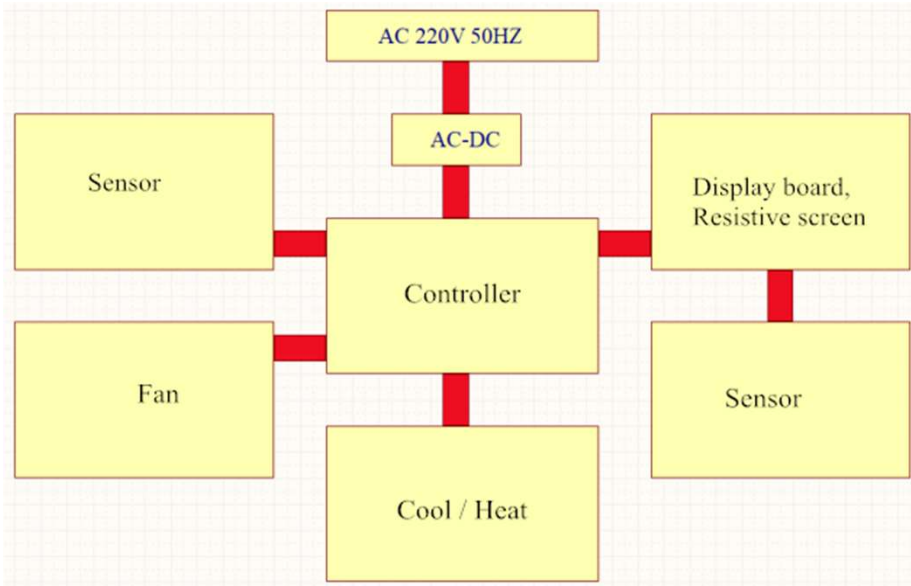
## Annex B SDB-100H Packing List

No.	Name	Type	Unit	Qty	Remarks
1	Dry Bath Incubator with Heated Lid(cooling type)	SDB-100H	set	1	
2	Power Line		piece	1	
3	Touch pen		EA	1	
4	Allen wrench		EA	1	
5	Performance Test Statement		EA	1	
6	Operation Manual		EA	1	
7	Warranty card		EA	1	
Charger: (Sign/Stamp)			Packing Date:		

## Annex C SDB-100H Performance Test Statement

Name	Dry Bath Incubator with Heated Lid(Cooling type)	Type	SDB-100H	
Test Date		Production No.		
No.	Test Content	Test Methods	Standard	Conclusion
1	Basic Function	Visual Inspection	Valid	<input type="checkbox"/> Qualified
2	Appearance	Visual Inspection	Valid	<input type="checkbox"/> Qualified
3	Outer Marks	Visual Inspection	Valid	<input type="checkbox"/> Qualified
4	Continuous Work Test	Experiment	72 Trouble Free	<input type="checkbox"/> Qualified
Test Results:				
Tester:		Confirmer:		

## Appendix A Wiring Diagram



The instrument should be placed in a place with low humidity, low dust and away from water and direct sunlight and strong light source. The room should be well ventilated, free of corrosive gases or strong magnetic fields, away from heating, stoves and all other heat sources. Do not place the instrument in a location that is wet or dusty.



The power should be turned off when the device stops working. When the device is not used for a long time, the power plug should be removed and the device should be covered with a soft cloth or plastic paper to prevent dust from entering.

Unplug the instrument from the electrical outlet immediately under the following conditions and contact the supplier or ask trained maintenance personnel to deal with:



- Fluid spills into the instrument;
- The instrument is exposed to rain or water;
- The instrument is not working properly, especially if there are any abnormal sounds or smells;
- The instrument is dropped or the casing is damaged;
- The instrument function has changed significantly.

### 3. Instrument maintenance

The instrument should regularly clean the taper hole on the module with a clean soft cloth and a small amount of anhydrous alcohol to ensure sufficient contact between the test tube and the cone wall, good heat conduction and avoid contamination.

If the surface of the instrument is smudged, it can be cleaned with a soft cloth dampened with a cleaning paste.

> **The power must be turned off while the instrument is being cleaned.**



> **It is strictly forbidden to drip the cleaning agent into the hole when cleaning the taper hole on the module.**

> **It is strictly forbidden to clean the surface of the instrument with a corrosive cleaning agent.**

## Chapter 5 Fault analysis and processing

### 4. After sales service

#### (1) Warranty Description

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Repair after warranty will be charged reasonable cost.

#### (2) Warranty Coverage

Breakdown due to improper use, operation in inappropriate conditions, maintain or refitting without authorization are not in warranty coverage.

### Fault analysis and processing

Serial No.	Error message	Possible causes and corresponding countermeasures
1	Display shows Error	Sensor open or short circuit, return to factory maintenance
2	The display is not lit, abnormal	Hardware failure, return to factory maintenance
3	Touch failure	Hardware failure, return to factory maintenance
4	Block is not heated	Hardware failure, return to factory maintenance
5	Block temp. is too high / too low	Hardware failure, return to factory maintenance
6	Hot cover is not heated	Hardware failure, return to factory maintenance
7	Hot cover temp. is too high	Hardware failure, return to factory maintenance
8	Fan does not work	Hardware failure, return to factory maintenance

### 3. Editing interface



#### a) Key operation:

1. Press the LidMode button to switch the hot cover temperature setting mode.
  - Mode 1 is the hot cover temperature = set value
  - Mode 2 is hot cover temperature = module temperature + set value
2. Press the Step key to increase the temperature step.
3. Press the Cycle button to increase the loop step.
4. Press the Delete key to delete the selected step.
5. Click on the step number above the temperature step/loop step to select the current step number and the step number turns red.
6. Click on the parameter above and below the red curve to pop up the input dialog to enter the temperature/time.
7. Click the parameter pop-up input dialog box above and below the white box to enter the jump/cycle number.

## CONTENTS

Chapter 1	Introductio.....	1
	1. Product description .....	1
	2. Features .....	1
Chapter 2	Product features.....	2
	1.Normal working conditions .....	2
	2.The main technical parameters.....	2
	3.Optional blocks.....	3
Chapter 3	Basic operating instructions.....	4
	1.Structure .....	4
Chapter 4	Operation guide.....	5
	1.Standby interface.....	5
	a) Indicator light.....	5
	b) Curve display.....	5
	c) Key button operation.....	5
	2.Running interface.....	6
	a) Key operation.....	6
	3.Editing interface.....	7
	a) Key button operation.....	7
Chapter 5	Fault analysis and processing.....	8
Appendix A	SDB-100H Wiring diagram	
Appendix B	SDB-100H Packing List	
Appendix C	SDB-100H Performance test	
Appendix D	SDB-100H Warranty certificate	

# Chapter 1 Introduction

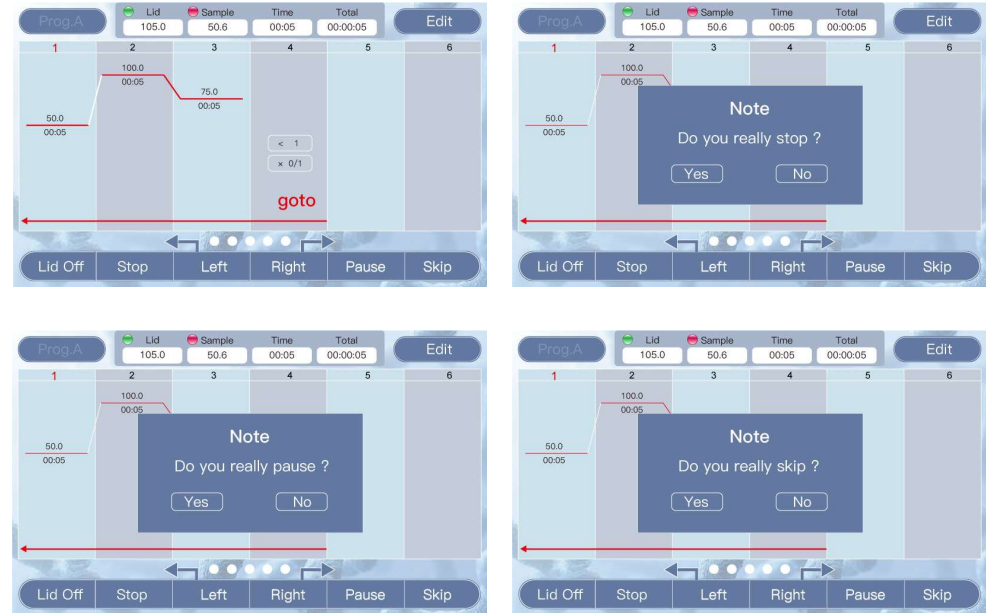
## 1. Product description

The Dry Bath Incubator with Heated Lid can be widely used in PCR, LAMP, NASBA, RPA, sample preservation and reaction, DNA amplification and electrophoresis pre-denaturation, serum coagulation, nucleic acid and protein denaturation treatment.

## 2. Features

1. Novel and unique appearance, simple interface operation, small size.
2. Using 5-inch TFT high-definition full-touch color screen, can quickly edit the required documents, temperature curve visual display, the setting is convenient and fast, real-time accurate display temperature curve and instrument operation process status.
3. Refrigeration type is based on semiconductor heating and cooling technology, and PID temperature control technology design, the rate of heating and cooling is excellent.
4. Ingenious elastic hot cover structure design, adaptive to different heights of the test tube, to ensure the consistency of the experiment, to achieve the best conditions of the experiment.
5. The hot cover temperature setting has two modes: independent setting mode, block temperature plus setting value.
6. Built-in 10 groups of programs, each group of programs can add or delete temperature steps or cycle steps.
7. Various types of blocks can be selected at need, easy to install and disassemble.
8. The dry bath can run the PCR reaction program.

## 2. Running Interface

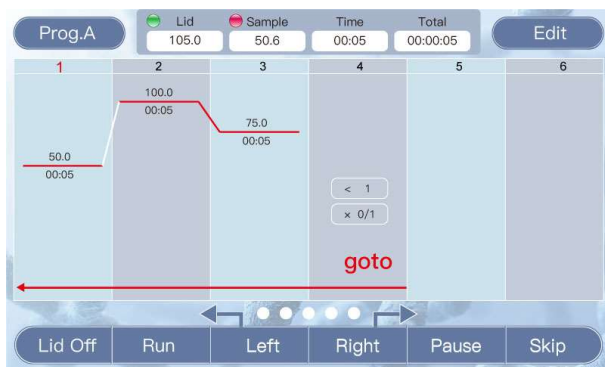


### a) Key button operation:

1. The "Prog.A" key and the "Edit" key are invalid at runtime.
2. Press the "Stop" button to pop up the OK stop dialog box, press "Yes" to stop, "No" to continue running.
3. Press "Pause" to pop up the Confirm Pause dialog box, press "Yes" to pause, "No" to continue running.
4. Press the "Continue" button to continue running.
5. Press the "Skip" key to pop up and confirm the skip dialog box. Press "Yes" to skip and "No" to continue running.

## Chapter 4 Operation guide

### 1. Standby interface



#### a) Indicator light:

Green light: Indicates the temperature control status of the hot cover. It is always on when the temperature is constant, and flashes when the temperature rises and falls.

Red light: Indicates the temperature control status of the block. It is always on when the temperature is constant, and flashes when the temperature rises and falls.

#### b) Curve display:

Temperature step, the temperature is displayed above the red line and the time is displayed below.

Cycle step, the jump is displayed above the red line, and the number of loops is displayed below.

#### c) Key button operation:

1. Press "Prog.A" to switch 10 groups of data, and the characters are displayed as Prog.A ~ Prog.J.
2. Press the "Edit" button to switch the editing interface.
3. Press the "LidOff" key to turn on/off the hot lid temperature status display, and the hot cover opens to display LidOff, otherwise it displays "LidOn".
4. Press "Run" button to run the program.
5. Press "Left" and "Right" to move the screen left and right.

## Chapter 2 Product features

### 1. Normal working conditions

Ambient temperature: 5°C~30°C

Relative humidity: ≤70%

Power supply:: 100~240VAC 2.3A 50/60Hz

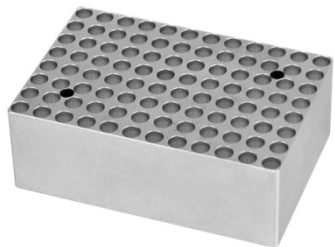
### 2. The main technical parameters

Model	DTH-100H(Heated type)	DTC-100H(Cooling type)
lock temp. setting range	0°C~100°C	- 10°C~100°C
Block temp. control range	R.T. +5°C~100°C	R.T. -25°C~100°C
Hot lid temp. setting range(≤105°C)	0~105°C / Block +0~105°C	0~105°C / Block +0~105°C
Hot lid temp. control range	R.T. +5°C~105°C	R.T.+5°C~105°C
Time range	1s ~99m59S / 0为∞	1s ~99m59S / 0为∞
Max. number of steps	10	10
Max. number of cycles	99	99
Block temp. control accuracy	±0.5°C	±0.5°C
Hot lid temp. accuracy	±1.0°C	±1.0°C
Block temp. uniformity	± 0.5°C	±0.5°C
Display accuracy	0.1°C	0.1°C
Heating time (R.T.25°C)	Heating rate (37°C-100°C)≥7°C/min	Heating reat (37°C-100°C)≥7°C/min
Cooling time	Fan cooling	Cooling rate (100°C-37°C)≥8°C/min
Dimension	W.185xD.280xH.160mm	W.185xD.280xH.160mm
Net weight	2.7Kgs	3.2Kgs

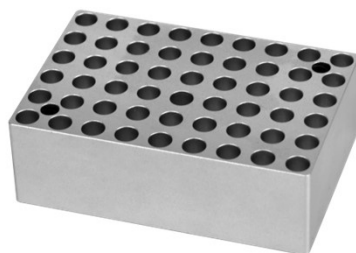


### 3.Optional blocks

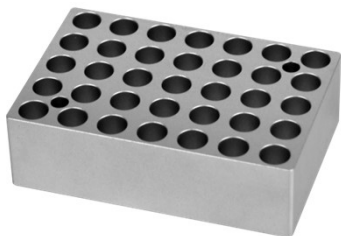
Type	specification	Hole diameter	Bottom shape	Block size
A	0.2ml×96	6.7mm	Cone bottom	107×71×38mm
B	0.5ml×54	8mm	Cone bottom	107×71×35mm
C	1.5ml×35	10.8mm	Cone bottom	107×71×27mm
D	2.0ml×35	10.8mm	Round bottom	107×71×27mm



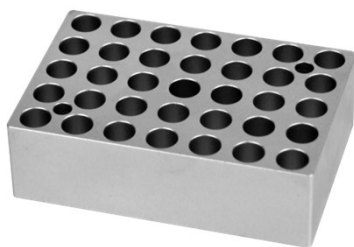
A



B



C



D

## Chapter 3 Basic operating instructions

This chapter mainly introduces the structure of the instrument and the basic operation of the instrument, as well as preparations before starting the machine. When using the instrument for the first time, you should be familiar with this chapter before starting up.

### 1. Structure

