Kalstein

Biological incubator

Model YR02039-1

Instruction Manual

Thank you very much for purchasing our Kalsteins´s biological incubator Model YR02039-1

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.

 Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

Kalstein

OUR SERVICES

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In Kalstein France, we take care of the full satisfaction of our customers, that is why we provide value-added services of the highest level based on our experience.

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Our work team is always available to response all your consults or questions, in order to support you in any situation.

#Letsgivemore

Thanks to your purchase, a donation will be made to a non-profit foundation that fights against breast cancer and helps most vulnerable communities.

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With more than 25 years growing with our customers, Kalstein's multiformat and modern content, is now present in more than 10 countries and increasing.

Notices

- To ensure the safe using of this equipment, please read this manual carefully before using the equipment.
- Make sure this manual is kept in a convenient place for the user for his later use.
- Our company doesn't provide a safe guarantee to those applications and operations which do not been covered in this instruction manual.
- This manual is for user and authorized technician use only, please keep it properly.
- No further notice if there is any change due to product improvement. Thank you for understanding.
- It is not allowed to copy this manual in any form if it is without our company's written authorization.

Safety signs and warnings

This manual contains important information for usage, please do comply.

Make sure this manual is kept in a convenient place for the user for his later use.

The signs stated in this chapter will appear in both the equipment itself and this instruction manual, which aims to help the user to safely and correctly operate this equipment and avoid potential harm.

- "Warning" sign

> ⚠ **Warning**
>
> **It may cause serious harm or fatal accident if not complying with the content of warning sings.**

- "Caution" sign

> ⚠**Caution**
>
> **It may cause injury, equipment damage or relative property loss if not complying with the contents of caution sings.**

■ Meaning of signs：

Prohibition

Obedience

■ Meaning of the sings appear on equipment.

Communication

Protective conductor terminal

Power on

Power off

⚠ Warning, notice, caution and danger

Precautions

⚠ Warning

⃠ It is not allowed to place this equipment outdoors and use. It may cause electricity leakage and electric shock if the equipment got wet by rain.

❗ Only professional and qualified technician is allowed to install this equipment. If not, it may cause electric shock or fire that can damage the equipment.

❗ This equipment should be placed on a firm ground in case of tipping over. if not, it may cause injury to personnel due to equipment's tipping over.

⃠ It is not allowed to install the equipment in a moist environment or a place where the equipment may get wet. Otherwise, it will cause electricity leakage or electric shock due to decline of insulation.

⃠ It is not allowed to keep the equipment near to inflammable materials and volatile materials. Otherwise, it may cause explosion or fire.

⃠ It is not allowed to keep the equipment in an environment exposed to acid and corrosive gas. Otherwise, it may cause electricity leakage or electric shock due to corrosion.

⏚ Please use power supply socket with ground connection in case of electric shock. If power socket is without ground connection, it has to have a qualified technician to install the ground connection.

⃠ Don't connect ground connection through gas and water supply pipe, telephone line or lighting arrester, which will cause electric shock.

❗ Please use the specified power supply stated on the nameplate. It may cause electric shock or fire if using voltage or frequency which is different from those stated on the nameplate.

⃠ Don't put volatile and inflammable substances in the inner chamber if the container cannot be sealed, or it will cause explosion or fire.

⃠ Don't insert iron nail or iron wire and any metal objects into any inlet or outlet of the equipment, or it will cause electric shock or injury.

Please operate this equipment in an area with safe distance if it is used for toxic, harmful and radioactive substances, or it will harm the human's health and the environment.

Make sure power supply is off and disconnected before conducting maintenance in case of electric shock or injury.

Precautions

⚠ Warning

Don't touch any electric components or switch with wet hands, otherwise it may cause electric shock.

Make sure you do not breath in any drug or airborne particle around the equipment when conducting maintenance, otherwise it may cause harm to your health.

Don't let water splash the equipment. Otherwise, it may cause electric shock or electricity leakage.

Don't put container with water on top of the equipment. Otherwise, it may cause electricity leakage or electric shock when water spilt.

Don't drag, twine or bind the power supply wire. Don't damage power supply plug. It may cause electric shock or fire because of worn power wire or plug.

Don't use power wire with loose plug. This wire may cause fire or electric shock.

User is not allowed to disassemble, repair or refit the equipment without our company's authorization and guidance, or it will cause fire or injury or damage due to mishandling.

Please unplug the power if equipment runs abnormally, or it will cause fire or electric shock if keep running under abnormal status.

When unplugging, operator should hold the power plug instead of pulling the wire, or it will cause electric shock or fire.

Unplug before moving the equipment. Make sure power wire is not damaged, or it will cause electric shock or fire due to worn wire.

Unplug if the equipment not being used for a long time, or it will cause electric shock, electricity leakage or fire.

If the equipment is kept in a place without supervision and not been used for long time,

make sure to keep children away from the equipment and the door should not be closed completely.

❗ It should have qualified personnel to scrap the equipment. The door should be removed to prevent suffocation accident.

⦸ Keep the package plastic bag away from children's reach as plastic bags may cause suffocation.

Precautions

⚠ Cautions

❗ Please clean the dust on the power plug and then insert it into power socket tightly, or it will cause heating or strike sparks if the dusty plug cannot contact well.

❗ User should check the temperature, timer and other setting value when restarting the equipment after power cut.

❗ The equipment should be kept in a ventilated and dry place if not been used for a long time. Otherwise, the equipment may not be able to run normally when get restarted.

❗ Proper tools and qualified personnel are necessary when carrying or moving the equipment. Do not let the equipment turn over in case of damaging equipment itself or harm any personnel.

❗ Ensure there is enough space of width and height for letting the equipment pass through. If the equipment needs to be carried to upstairs, ensure the space in the elevator is enough. Also ensure the space for installation is enough.

⦸ Don't put acid, alkali and corrosive substance in the inner chamber if the container is not seal, or it will cause corrosion to components.

Instruction (application scope, working principle, technical parameters)

Application Scope

- The mold incubator is thermostatic equipment with high precision, which can function heating and cooling. It can be used for plant cultivation, breeding test, cultivation and preservation of bacteria, mold and microorganism. Water BOD determination and other thermostat experiments. Which is also an ideal equipment for biological genetic engineering, medical care, health and epidemic prevention, medical test, agriculture and animal husbandry, aquatic and other scientific research institutions.

Working principle

Sensor equipped inside the chamber detects temperature and convert the data into electrical signal. The electrical signal controls the heater and compressor via microcomputer to reach needed temperature.

Technical parameters

1、 Volume：100L、150L 、250L、400L;

2、 Temperature control range ： 0～60℃;

3、 Temperature fluctuation range ： ±0.5℃(within set range between 10℃～40℃);

4、 Temperature uniform range ： ±1℃(100L,150L); ±1.5℃(250L,400L)(within set range between 10℃～40℃);

5、 Power voltage ： AC220V/50Hz;

6、 Input power：850W(100L), 950W(150L) ,1050W(250L),1150W(400L);

7、 Working ambient ： ambient temperature 10~30℃ relative humidity below 70%

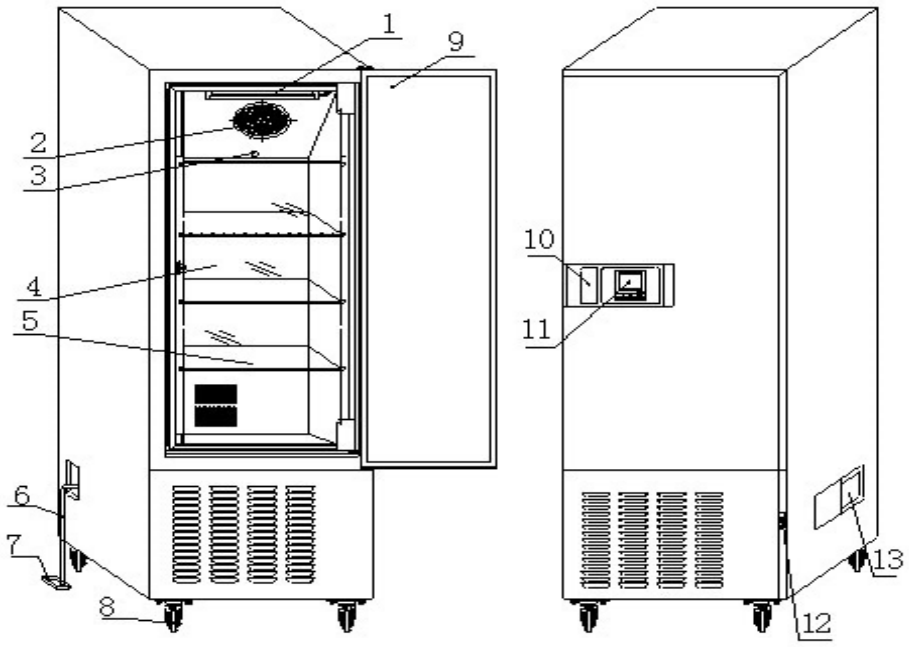
8、 refrigeration：R134;

9、 Equipment classification：Class I

Notice ： This equipment can function low temperature auto-defrosting. It is normal that there is certain fluctuation when this function undergoes.

Structure

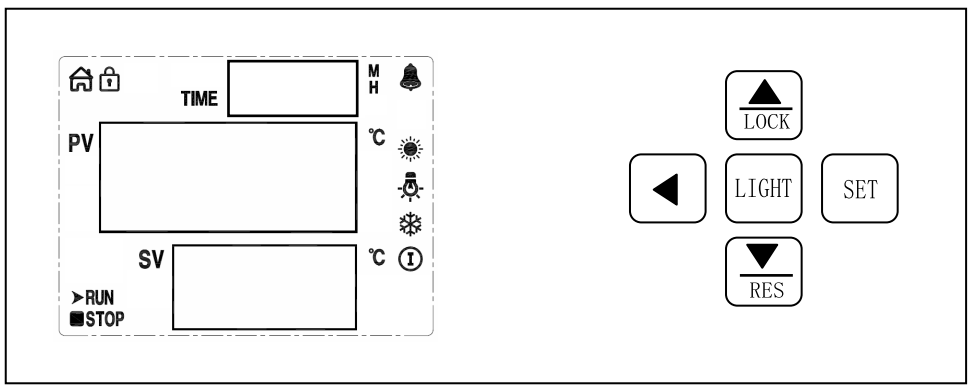
Components



1.headlamp 2. Fan 3. Temperature. sensor 4. Glass door
5. Mesh board 6. Outlet pipe 7. Water storage tank
8. Wheel 9. Outer door 10. Door handle
11 LCD control panel 12. Power switch 13 control panel

Structure

Control panel



Prompt definition:

1.【 】: The symbol lights in normal mode, and lights off in setting mode.

2.【RUN】: The symbol lights in running mode, and lights off while timing over.

3.【STOP】: The symbol lights after timing over, while lights off in running mode.

4.【 】: It's lighting means over-temperature alarm, and it's flicker means low-temperature warning.

5.【 】: The symbol lights when heater is working.

6.【 】: It's lighting means compressor is working , and it's flicker means refrigeration delay.

7.【 】: The symbol lights when lamp is turned on.

8.【 】: The symbol lights when defrosting solenoid valve is turned on.

Equipment Installation

Installation place

In order to the run the equipment properly for the best performance, please install the equipment at the place where meets below factors.

⚠ Notice: ambient temperature 10~30℃; relative humidity below 70%

■ A place without direct sunlight.

Don't install it in a place with direct sunlight as it may not be able to perform as expect at this place.

■ A place with sufficient validation.

If the equipment was used in a small and in-closed room, it may not be able to run properly as the heat cannot be released well. Distance between equipment and wall should be more than 10CM.

■ A place away from heat source

It should avoid installing the equipment closed to heat source like oven and heater. Too much external heat will have negative effect on equipment.

■A place with firm and flat floor

Make sure the equipment is placed on a flat and firm floor. If not doing so, it will damage the equipment or harm personnel when the equipment tips over. It also can avoid noise and shaking of inner components incur if the floor is uneven.

■A place without high level moist

Place the equipment with humidity less than 70%, or it may cause electricity leakage or electric shock.

> ⚠ Warning
>
> Don't use this equipment at outdoors. It may cause electricity leakage or electric shock if the equipment gets wet.
> Don't place the equipment in an environment with moist, or it may cause electricity leakage or electric shock because the decline of insulation functions.

■ A place where there are inflammable materials or corrosive gas.

Don't keep the equipment closed to inflammable materials and volatile materials, or it may cause explosion or fire. Don't put equipment in the place where has acid and corrosive gas, or it will cause electric shock or electricity leakage because of corrosion.

Installation

1.Take off packing materials

After taking off all packing materials, open the door for equipment ventilation. If the shell and panel are dirty, please clean with neutral detergent and then wipe off the detergent with clean water. Please use wet cloth to clean and use dry cloth to dry all water.

2. Fix the equipment

After the equipment is placed well, user can fix the equipment with two front braking wheels to prevent equipment from moving.

3. Ground Connection

> ⚠ **Warning**
>
> Please use power supply socket with ground connection in case of electric shock. If power socket is without ground connection, it has to have a qualified technician to install the ground connection. Don't connect ground connection through gas, water supply pipe, telephone line or lighting arrester, which will cause electric shock.

4. In Idle

Make sure the inner chamber is fully dry before closing the door and leave the equipment in idle.

5.Before moving the equipment

Before moving the equipment, empty the water from humidification pan. Overflow or splash may cause electricity leakage or electric shock.

Preparation before Operation

Before running the equipment for the first time, please operate below instructions.

1.Take away the shelves.

2.Sterilize inner chamber by cleaning the inner walls with alcoholized gauze. Later clean off alcohol with dry gauze.

3.Put the shelves into inner chamber according to the experiment needs.

4.Before using, please connect water pipe with water outlet that on equipment's left side (please refer to structure drawing), and put water pan under the water outlet in case of use.

> ⚠ **notice ： Don't use NaCl or other Halide solution to clean the equipment, or it will cause rust**

Operation

1). When the controller is power on, the second line of window displays type of controller and sensor, the third line displays version for 3 seconds, after that, the controller enters into normal mode.

2). Inquiry and setting of temperature and time.

Note: timing function and timing mode (positive / countdown) are optional. Please see the values of parameters **ndt** and **ndE** in internal parameter table-2 for details.

If there is no timing function. Click on the [set] button to enter the temperature setting mode, and the second line of the window will display the prompt "SP", and the third line will display the temperature setting value, which can be modified to the required value through the [increase], [decrease] and [shift] buttons; then click on the [set] button to exit the setting mode, and the modified setting value will be saved automatically

If there is a timing function.
Click on the “SET” button to enter temperature setting state, then the second line of window will display the prompt “SP” and the third line will display temperature setting value (the rightmost bit value flickering), which can be modified to the required value through the [increase], [decrease] and [shift] buttons; After that, click on [set] button one more time to

enter into the time setting mode, the second line of the window will display the prompt "ST", the first line will display the time setting value; then click the [set] key to exit the setting state, and the modified setting value will be saved automatically.

When the time is set to "0", it means that there is no timing function, and the instrument runs continuously; when the set time is not "0", and the timing starts, "time unit" prompt flashes, when the setting time is up, the operation ends, the first line of the window will display "End", the buzzer will intermittently sound for EST seconds (see in internal parameter table-2 for details), and then stops. After the scheduled operation, you can long press on the [decrease] button for 3 seconds to restart the operation.

3). Temperature abnormal alarm

If the second line of the window displays "----", It indicates that the temperature sensor is faulty, or the temperature exceeds the measurement range or the controller itself is faulty. The controller will automatically stop the heating output, and the buzzer will continuously sound, the alarm prompt will be lightened on. Please check the temperature sensor and wiring carefully.

4). Over temperature alarm

When the over temperature alarm occurs, the buzzer will beep, the prompt "【🔔】" will be lighten on, and the heating output will be cut off; when the lower deviation temperature alarm occurs, the buzzer will beep. and the prompt " 【🔔】 " will flicker. if the over temperature alarm is caused by the change of the temperature setting value, the alarm prompt will not be lightened on, and the buzzer does not sound.

5). In the normal mode, press on the [increase] button for 2 seconds to manually lock the screen, and in the locked mode, you can click on the [increase] button to release the lock screen; or in the main interface, the screen will be automatically locked after a certain period of time without any single button clicking (see internal parameter table-1 parameter Lct for details).

6). You can stop buzzer beeps by clicking on any single button.

Inquiry and setting of internal parameters.

In the normal mode, press on the [set] button for 3 seconds, the password prompt "Lc" will be displayed in the second line of the window, and the password value will be displayed in the third line. the required password value

can be modified through **[increase]**, **[decrease]** and **[shift]**. Click on the **[set]** key again. If the password value is incorrect, the controller will automatically return to the normal mode. If the password value is correct, you can enter the internal parameter setting mode, and then click on the **[set]** button to modify each parameter in turn. Press on the **[set]** key for 3 seconds to exit this state, and the parameter value will be saved automatically. See the table below for details:

Table-1

Prompt	Name	Instructions	(Setting range) factory value
Lc	Password	**Lc**=3, users can enter into internal parameters list	0
ALH	Over temperature alarm	When current temperature exceeds "**SP+ALH**", the **ALM** indicator turns on. The buzzer sounds and the heating power turn off.	(0～50.0℃) 5.0
ALL	Low temperature alarm	When current temperature below "**SP-ALL**", the ALM prompt turns on. The buzzer sounds. If **ALL**=0, low temperature alarm is invalid.	(-50.0～0℃) 0
Lct	Screen block time	Automatic screen locking time: when **Lct**=0, there is no automatic screen locking function; when **Lct**=-1, there is not any screen locking function.	（-1～999s） 0
Ct	Compressor delay	The time interval of compressor outputs must exceed cT.	(0～600s) 180
FIL	Filter coefficients	Filter coefficients of temperature measurement.	(1～200) 50
Lt	Lamp-off delay	The lighting lamp turns off automatically when the **"Lt"** time is up. If"**Lt**=0", you have to switch on/off the lamp manually	(0～30m) 2
Cnd	Compressor Running mode	Only in compressor continuously running mode. 0：controller turns on/off compressor automatically 1：controller turns on/off compressor with **uP** and **dn** parameters	(0～1) 0
uP	Starting threshold of compressor	It is only valid when the compressor is working in an intermittent mode and "**Cnd** = 1"! If "temperature measurement value ≥ temperature setting value + up" and the compressor start delay time is up, controller starts the compressor. If "temperature measurement value ＜ temperature setting value ＋ **dn**", controller shuts down the compressor.	(-10.0～10.0℃) 0.4
dn	Closing threshold of compressor		(-10.0℃～**uP**) 0.4
P	Proportional band	Adjustment of proportional function.	(0.1 ～ 80.0℃) 10.0
I	Integration time	Adjustment of integration function.	(1～2000s) 500
d	Differential time	Adjustment of differential function.	(0～1000s) 200
T	Control cycle	Control cycle of heating	(1～60s) 5

Pb	Deviation correction of measuring temperature	It is usually used to correct the error in low temperature measurement. Pb = actual temperature value - measured value of instrument	(-50.0～50.0℃) 0
PL	Slope correction of measuring temperature	It is usually used to correct the error in high temperature measurement. **PL** = 1000 * (actual temperature value - instrument measurement value) ÷ instrument measurement value	(-999～999) 0
Adr	485 addresses	The 485-communication address of this controller	(1～32) 1

Table-2

Prompt	**Name**	**Instructions**	**(Setting range) factory value**
Lc	Password	**Lc**=9, users can enter into internal parameters list	0
ndA	Temperature alarm mode	0: only over temperature alarm 1: there are temperature up and down deviation over temperature alarms at the same time	(0～1) 0
FCH	Fan type	0：Long axia fan 1：Short axia fan **Note 1**	(0～1) 0
ndc	Compressor working mode	0: the compressor only works in intermittent mode. 1: the compressor judges the continuous or intermittent operation of the compressor according to the value of **CP** (see below). 2: the compressor can shift between the continuous and intermittent mode of the compressor according to the value of **Htd** (see below).	(0～2) 0
CP	Fixed switching point of compressor working mode	When "**ndc** = 1", If "temperature setting value ≥ **CP**", the compressor works in intermittent mode, otherwise it works in continous mode.	(0～200.0℃) 30.0
Htd	Automatic switching point of compressor working mode	When "**ndc** = 2, If "temperature setting value ≥ ambient temperature + **Htd**", the compressor will work in intermittent mode, otherwise in continous mode.	(-50.0 ～ 50.0℃) 0.0
AnP	Temperature point at which the compressor is prohibited to work	When "temperature measurement value ≥ AnP", the compressor is absolutely forbidden to work	(0～200.0℃) 60.0
CnP	Temperature point at which the compressor is allowed to work for one time	When "temperature setting value ≥ **CnP**", only when the temperature measurement value is higher than the temperature setting value, the compressor starts for one time.	(0～200.0℃) 42.0
ndt	Timing function	0: no timing function. 1: timing after setting temperature is achieved. 2: startup timing;	(0～2) 1

ndE	Timing mode	0: positive timing, controller displays cumulative time. 1: countdown, controller displays the remaining time;	(0～1) 0
Hn	Timing unit	0：Minute；1：Hour	(0～1) 0
SPd	Deviation value of constant temperature judgement	When the difference between the temperature measurement value and the set value is within the **SPd** value, controller enters into the constant temperature stage and starts timing.	(0.1～50.0℃) 0.5
EST	Beep time for end of timing	When the timing is over, the buzzer beeps for EST seconds, if EST is set to 9999, the buzzer beeps continuously	(0～9999s) 60
EH	Whether or not continue to control temperature after timing	0：Turn off all outputs after timing; 1: Continue temperature control after timing	(0～1) 0
nP	Maximum output	Maximum output rate of heating.	(0～100%) 100
Lco	Deviation of heating off	When "temperature measurement value ≥ temperature setting value + **Lco**", controller turns off the heating output. **Note 2**	(-10.0 ～ 10.0℃) -0.5
SPL	Minimum temperature	Minimum value of temperature setting	(-90.0 ～ 50.0℃) 0.0
SPH	Maximum temperature	Maximum value of temperature setting	(**SPL** ～ 200.0℃) 80.0

Note 1: if the temperature of the controlled object will rise greatly due to the heating of the fan used by the equipment, please select the short shaft fan.

Note 2: it is only effective when the compressor is in intermittent mode and the "temperature setting value ＜ ambient temperature" .

Table-3

Prompt	Name	Instructions	(Setting range) factory value
Lc	Password	**Lc**=18, users can enter into internal parameters list	0
Ht	Ambient temperature	Display the current ambient temperature of the controller	
HPb	Correction of ambient temperature	HPb = Actual value - display value	(-50.0～50.0℃) 0

Table-4

Prompt	Name	Instructions	(Setting range) factory value
Lc	Password	**Lc**=27, users can enter into internal parameters list	0
ndH	Function selecting of relay	0：Temperature alarm output 1：End of timing output	(0～1) 0

ndu	Relay working mode	0: work according to the set value: when the "temperature set value ≥ **dP**", the normally open point of the relay is closed. When the "temperature setting value ＜ **dP**", and the "temperature measurement value ＜ **dP** + 3.0 ℃" relay normally open point is disconnected. 1: work according to the measured value: when "temperature measured value ≥ **dP**", the normally open point of the relay is closed. When the temperature measurement value is less than **dP**, the normally open point of the relay is disconnected. 2: the pressure relief function of the solenoid valve, and the **duL** and **duH** values are effective.	(0～2) 0
dP	Cut point	Temperature cut point, set according to **ndu** value	(-90.0～200.0℃) 15.0
duL	Starting threshold of pressure relief solenoid valve	When the compressor works in a continuous mode, if "temperature measurement value ≤ temperature setting value + **duL**", the pressure relief solenoid valve turns on. When the compressor works in the intermittent mode, if the compressor stops working, the pressure relief solenoid valve turns on.	(-5.0～0.0℃) 0.0
duH	Closing threshold of pressure relief solenoid valve	When the compressor works in a continuous mode, if "temperature measurement value ≥ temperature setting value + **duH**", the pressure relief solenoid valve turns off. When the compressor works in an intermittent mode, if the compressor starts to work, the pressure relief solenoid valve turns off. **Note**: when the compressor works in a continuous mode, if "**duL** = 0" and "**duH** = 0", the pressure relief solenoid valve is always closed.	(0.0～5.0℃) 0.0
ndF	Defrosting mode of evaporator	0: no defrosting function; 1: defrosting by solenoid valve; 2: defrosting by electric heating tube;	(0～2) 0
FSv1	Defrosting temperature section 1	When "temperature setting value ≤ **FSv1**", it is the first defrosting section.	(-90.0～200.0) 8.0℃
dT1	Defrosting interval 1	Defrosting interval time of the first defrosting interval. **Note:** 0 means there is no defrosting in this section.	(0～240H) 12
FT1	Defrosting time 1	How long will the defrosting last in this section	(0～600S) 30

FSv2	Defrosting temperature section 2	When " FSv1＜temperature setting value ≤ FSv2", it is the second defrosting section.	(-90.0～200.0) 16.0℃
dT2	Defrosting interval 2	Defrosting interval time of the second defrosting interval. **Note:** 0 means there is no defrosting in this section.	(0～240H) 24
FT2	Defrosting time 2	How long will the defrosting last in this section	(0～600S) 30
FSv3	Defrosting temperature section 3	When " FSv2＜temperature setting value ≤ FSv3", it is the third defrosting section.	(-90.0～200.0) 20.0℃
dT3	Defrosting interval 3	Defrosting interval time of the third defrosting interval. **Note:** 0 means there is no defrosting in this section.	(0～240H) 48
FT3	Defrosting time 3	How long will the defrosting last in this section	(0～600S) 30

Table-5

Prompt	Name	Instructions	(Setting range) factory value
Lc	Password	Lc=567, users can enter into internal parameter	0
rST	Factory reset	0： cancel 1： confirm	(0～1) 0

Alarm and safety functions

Temperature sensor malfunction

● **Temperature sensor failure alarm:** It shows

Meanwhile compressor and heater stop working. Alarm sounds for one second then stops for one second and repeat like this, press any button to mute the alarm.

●**Temperature limit alarm：** Detected temperature exceeds set temperature for 4 degrees. Heating stops. Alarm sounds for one second then stops for one second and repeat like this, press any button to mute the alarm.

Maintenance

⦸ During moving and transportation, it is prohibited to invert the equipment or place it with angle

more than 45 degree.

⦸ Do not frequently change the settings value when equipment is working. This is to avoid activating the compressor frequently, which could cause overload and shorten equipment's lifetime.

❗ The machine is equipped with power switch and circuit breaker. If failure happens during operation, please cut off the power and check the control circuit first, and then check other parts. (See wiring diagram)

❗ Make sure to close the inner door well first, and then close the chamber door. If the inner door is not fully closed, the device may not be able to perform its maximum ability even if the chamber door is closed, do not close the door with strong force in case of causing damage to the door seals.

❗ In order to maintain a good look of the equipment, do not use corrosive solution to wipe the exterior chamber. For inside chamber, please clean with a dry cloth or alcohol. Keep the inner chamber clean.

❗ When the device is not being used, please keep the chamber dry and cut off the power supply.

❗ In order to ensure temperature uniformity inside the chamber, please regularly check if the axial fan in the chamber is functioning properly. When undertake an experiment, do not keep the sample too closed to each other inside the chamber and do not block the fan output. Do not touch or hit the temperature probe inside the chamber otherwise it may cause temperature to be out of control.

❗ Make sure the shelf is fixed otherwise it may damage the samples.

⦸ Do not lean against the glass or get pressure on the glass. It might cause injury to personnel if doing so.

⦸ Do not lean against the doors to prevent hurting personnel or damaging the equipment if the equipment tips over.

❗When failures happen, please have a professional to repair or contact with our company. Users do not disassemble by themselves.

❗Counting from the date of selling this equipment, our company provides free repair for 2 years if there is any problem concerning quality (except man-made damage and consumable components). It will charge for repair accordingly out of the 2-year warranty coverage.

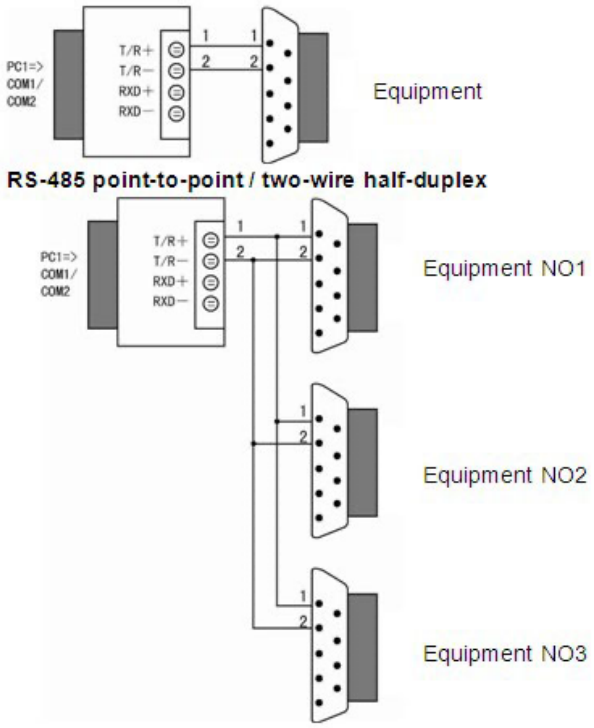
Using of optional components

Instructions of RS-232/RS-485 converter

- In order to facilitate remote data communication between the different standard serial interface to the computer, an external device or smart instrument with standard serial interface conversion. The converter is compatible with RS-232, RS-485 standard, capable of RS-232 single-ended

signal is converted to a balanced differential RS-485 signal.

RS-485 point-to-point / two-wire half-duplex



Trouble Shooting

1. Data communication failure
   (1) Check if RS-232 port inside connection is correct.
   (2) Check if RS-485 port inside connection is correct.
   (3) Check if port is connected.
2. Data missing or error.
   Please check if data communication equipment rate and format is accordance.

Trouble shooting

(1) Trouble shooting

Trouble	handling
Sensor failure warning	·Heating sensor abnormal, please check heating sensor (model:PT100)
Temp. can't reach of setting value	·Please check screen, if screen display heating, heating tube damage or control panel fault or line fault.

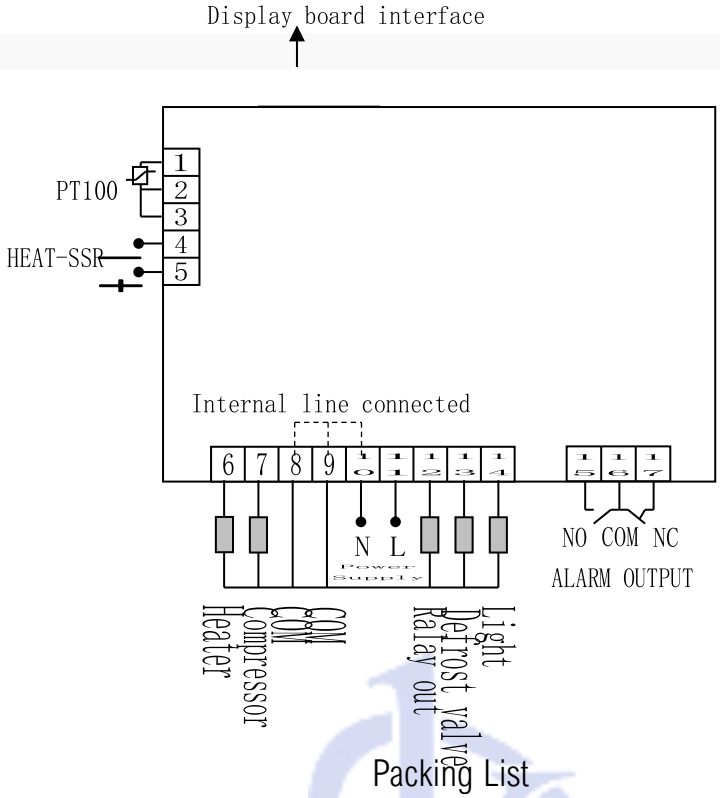
Humidity can't reach of setting value	·Please check water level, water level should cover middle of the heating tube. ·Please check humidity heating tube.
Screen cannot display	·Please check socket is 220V ·Please check power is open ·Please check power switch, if it is tripping operation, please check wring layout.

Specification

Name	YR series biochemical incubator			
Mode	YR02039-1	YR02039-2	YR02039-3	YR02039-4
Outer dimension	630×680×1250	650×680×1410	650×740×1730	745×930×1700
Internal dimension	488×389×608	508×389×757	508×449×1088	601×639×1052
volume	100L	138L	236L	392L
shell	Cold-roll steel sheets with spraying treatment			
Inner surface	mirror surface SUS304 stainless steel			
door	With heating preservation design			
Inner door	Tempered glass (5mm)			
shelf	Carbon steel with chromium plating, adjustment place.			
Heating preservation system	Polystyrene foam			
Cooling system	No refrigerant, high efficiency and energy saving, integrated refrigeration system, each layer of protection			
Heating system	Electrical heating tube			
Fan	Axial fan			
Temp. sensor	sum sung temp. sensor PT100			
displayer	LCD display			
Alarm system	Temp. upper limit warning; Temp. sensor failure warning with screen prompt			
weight	103kg	143kg	173kg	
Optional accessories	Switch port, Portable printer,			

⚠ Note: May change product design and specification without notice.

Wiring layout



Packing List

No.	Name	Quantity	Note
1	Finish product	1	
2	instruction manual	1	
3	shelf	3(100L) 3(150L) 4(250L) 4(400L)	