Kalstein

Drying Oven

Model Series YR05244

Instruction Manual

Thank you very much for purchasing our Kalstein´s Drying Oven Model Series YR05244.

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.

OUR SERVICES

Benefits and Support

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.

Online Inductions and Trainings

In any part of the world, receive your induction or training from our specialized team of engineers

Quick Response

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.

Technical Support

Enjoy of personalized advice for the correct preventive and corrective maintenance of your equipment, thanks to Kalstein's manuals and articles, special catalogues and video tutorials.

Delivery Logistics

We take care of all the necessary logistics for the dispatch of your goods, whether is by sea, land or.air.

Kalstein Worldwide

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.

1、Application Scope

YR series thermostatic drying oven is widely applied to biochemistry, biopharmaceutical, medical institutions, mining industrial, schools, research institutes, for drying, curing, wax-melting, sterilization.

2、Working Principle, Structure and Feature

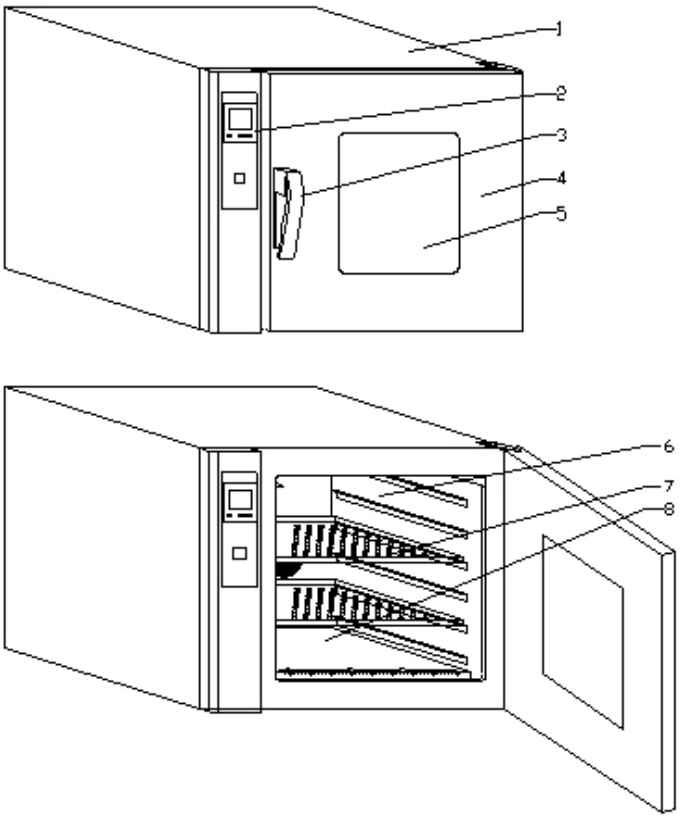
There is a temperature sensor inside the chamber, which detects the actual temperature and converts it into electrical signal. Microprocessor receives signal and control the heater accordingly to reach needed temperature.

There are heaters at the bottom of working chamber and ducted forced air convection device at the back. Temperature controller maintains and controls temperature. When oven is working, air goes through heater and be circulated by the fan, which ensures temperature uniformity. With features of arc corner design, adjustable shelf distance, built-in temperature sensor.

There is fiberglass serves as insulation between working chamber and external shell. The shell is made of steel plate with spraying-finished surface. Interior chamber is made of stainless steel plate, with built-in heating chamber and air duct. Double tempered-glass observation windows. There is heat-resistant silicone door seal between working chamber and external door, which enhances tightness and leak proofness meanwhile enhances the heat insulation. It adopts LCD display and temperature control system with PID microprocessor. It has features of timer and high temperature accuracy.

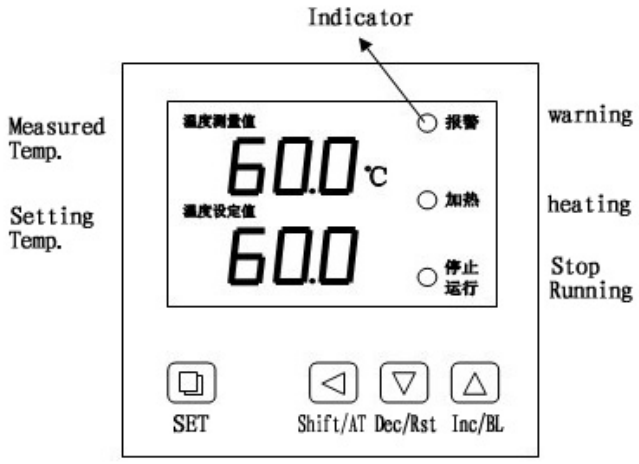
3、Operation Instruction

（a）、Product Drawing



1.Body 2. Controller 3. Handle 4.External door 5.Observation Window 6. Interior Chamber 7. Shelf 8. Airflow Board

(b)、Control Panel



1. set Set Key: To set or view temperature, time and relevant data

2. ◄ Shift/ Self-adjustment: Under non-setting status, long press this key for 6 seconds to enter or exit system self-adjustment. Under setting status, press this key to shift setting value to modify.

3. "▼"Reduce/Resume: Under non-setting status and after running finishes , long press this key for 3 seconds to resume running. Under setting status, press this key to reduce setting value progressively; long press to continuously reduce value.

4. "▲"Increase/Backlight: Under non-setting status, press this key to turn on/off backlight. Under setting status, press this key to increase setting value progressively; long press to continuously increase value.

(c)、Operation

1. Controller gets power on, showing "Graduation No." and "Version No." on upper display; showing "Max Temperature and Setting Value" on down display. After 3 seconds, it enters to regular display.

2. View and Set of Temperature and Temperature Timer

a) If no constant temperature timer function

Press set to enter temperature setting. It shows"' on upper display and shows "set temperature" on down

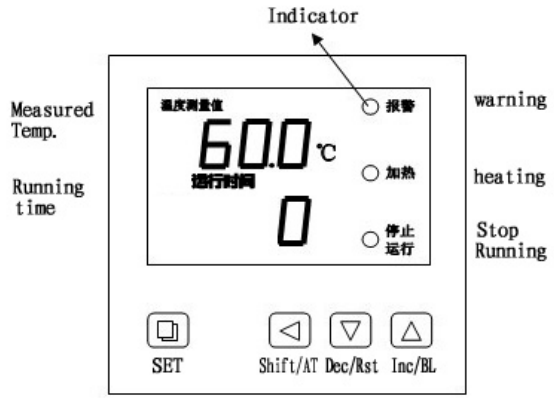
display(Unit digit flashes first). Press ◄▼▲to set needed value. Press set to exit. Set value will be automatically saved.

b） If with constant temperature timer function

Press set to enter temperature setting. It shows"' on upper display and shows "set temperature" on down display(Unit digit flashes first). Same way as above to adjust value. Press set to enter setting of temperature timer. It shows"ST"on upper display and shows temperature timer setting value on down display(Unit digit flashes first). Press set to exit. Set value will be automatically saved.

When constant temperature timer is set to be "0", which means no timer function. Controller continuously runs and it shows temperature set value on down display. When temperature timer is not set to be "0", it shows running time or temperature set value on down display (please refer to "Mode of Running Time Display (Parameter :ndt)" stated in inner parameter-2 which is included in Point.7). When it shows running time, words of "Running Time" light on. After set temperature is met, timer starts counting. When time is up, words of "Running Time" flashes and running stops. It shows "End" on down display meanwhile buzzer beeps for 1 minute and stops later. After running stops, long press ▼ for 3 seconds to resume.

Notice: Increasing temperature while timer is working, timer will restart to count from "0". It will not affect the timer if it is to reduce temperature.



3. Abnormity Alarm of Temperature Sensor

If it shows "---"on upper display, which means temperature sensor or controller fail, or temperature exceeds detection range. Controller automatically cuts off heat output. Buzzer beeps. Alarm lights on. Please check temperature sensor and its wire connection carefully.

4. For alarm of upper deviation, buzzer beeps and alarm lights on. For alarm of down deviation, buzzer beeps and alarm lights on. If over temperature alarm is triggered due to the change of temperature setting, alarm lights on but buzzer does not beep.

5. Press and key to stop beeping.

6. If there is no operation under setting status within minute, press any key to return to regular interface.

(D)、System Self-Adjustment

User can run self-adjustment function when the performance of temperature control is not satisfactory. Overshoot may happen during self-adjustment. User should carefully consider this fact before conducting self-adjustment.

Under non-setting status, long press ◄ for 6 seconds to enter setting of self-adjustment. Self-adjustment indicator flashes and stops after adjustment finishes. Controller will get better PID data, and these data will automatically save. When adjustment is proceeding, long press ◄ for 6 seconds it to discontinue.

During the proceeding of self-adjustment, if there is over temperature alarm of upper deviation , indicator light and buzzer will not react but heater relay will be automatically cut off. During the whole process of self-adjustment, set will be invalid. No matter whether there is constant temperature timer setting during the process of self-adjustment, it always shows set temperature value on down display.

(E)、View and Setting of Temperature Inner Parameter

Long press set for about 3 seconds, it shows indication code "Lc" on upper display and shows "Password" on down display, press ◄▼▲ to adjust to needed password. Press set , if password is incorrect then it will return to regular interface; if password is correct, it enters setting of temperature inner parameter. Press set to adjust all parameters. Long press set for 3 seconds to exit this setting. Set parameter will be automatically saved.

Inner Paramreter-1

Parameter Code	Parameter	Instruction of Parameter	(Range) Factory Default Value
Lc-	Password	View and modify parameter when it shows “Lc=3”	0
ALH-	Over Temperature Alarm of Upper Deviation	When “Detected Temperature >Set Temperature + HAL”, alarm lights on and buzzer beeps.	(0～100.0℃) 20.0
ALL-	Over Temperature Alarm of Down Deviation	When “Detected Temperature <Set Temperature-ALL”, alarm lights on and buzzer beeps	(0～100.0℃) 0
T-	Control Cycle	Heating control cycle	(1～60seconds)
P-	Proportion	Adjustment of time proportion	(1～400.0) 35.0
I-	Integral Time	Adjustment of integral	(1～2000seconds) 200
d-	Differential Time	Adjustment of differential	(0～1000seconds) 200
Pb-	Zero adjustment	Modify the deviation of sensor caused during (low temperature) detection. Pb=actual temperature-detected temperature	(-12.0～12.0℃) 0
PK-	Full-scale adjustment	Modify the deviation of sensor caused during (high temperature) detection. PK=1000*(actual temperature-detected temperature)/ detected temperature	(-999～999) 0

Notice 1: For (relay output) controller of model PCD-C3002, the default of heating control cycle is 20seconds; for other model, default is 5 seconds.

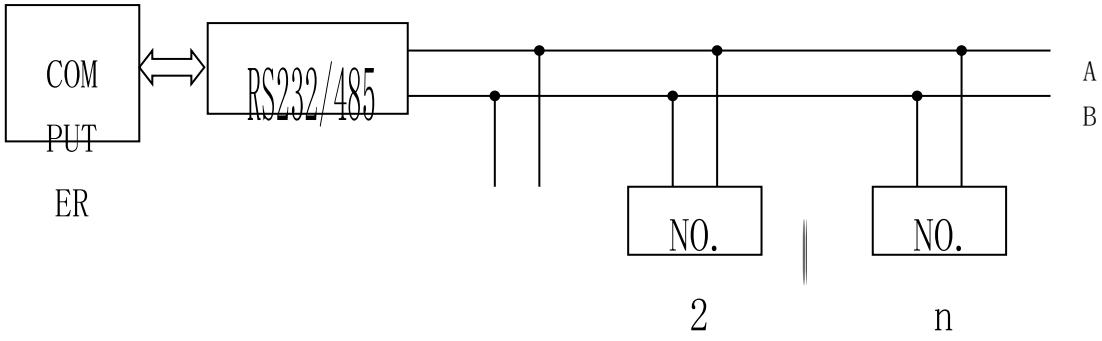
Inner Parameter-2

Parameter Code	Parameter	Instruction of Parameter	(Range) Factory Default Value

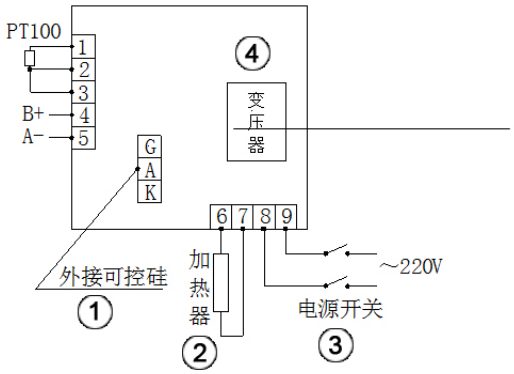
Lc-	Password	View and modify parameter when it shows “Lc=9”	0
ndA-	Temperature Alarm	0：Alarm triggered for upper deviation only 1：Alarm triggered for both upper&down deviation.	(0～1) 0
ndt-	Timer Setting	0： No timer function 1： With timer function. When it reaches set temperature (and begins to stay on constant temperature), it shows running time on down display. 2：With timer function, it shows running time on down display	(0～2) 1
Hn-	Constant Temperature Setting	0：Count by minute ； 1：Count by hour	(0～1) 0
EH-	Should constant temperature control continue after timing is over	0：Cut off heat output after timing finishes 1： Constant temperature control continues after timing finishes	(0～1) 0
oPn-	Door Control Function	0： Disable function of door open judgment 1： Enable function of door open judgment	(0～1) 0
nP-	Maximum Power Output	Percentage of maximum heating power output	(0～100%) 100
Co-	Cut off Deviation of Heating Output	Cut off heat output when “detected temperature≥set temperature + Co	(0～100.0) 50.0
SPL-	Minimum Temperature Setting	Minimum set temperature	
SPH-	Maximum Temperature Setting	。 Maximum set temperature	
Addr	Correspondence Address	Correspondence address of this equipment	(1～32) 1

(F)、Correspondence Connection (Available to connect 32 equipments of this series at the same time)

Notice: To ensure correspondence can go smoothly, please use shielded twisted pair for data wires and stay away from strong voltage lines (such as power lines and load lines)



(G)、Wire Layout



1. External silicon-controlled rectifier.
2. Heater
3. Power switch
4. Voltage transformer

4、Notice

1. Samples should not be kept too closed to each other in order to avoid affecting air convection inside the chamber. Please make sure the equipment is correctly grounded so as to ensure safety.
2. Do not get water onto the observation windows when temperature is rising in order to avoid glass crack.
3. This drying oven is not explosion-proof product.
4. Do not put volatile and inflammable objects into the oven to avoid explosion
5. Based on different needs, user can unblock the air outlet at the upper back of the oven to escalate drying.

6. When oven is working, samples should be kept away from air outlet with distance of 10cm in order not to be affected by airflow

5、Repair and Maintenance

Regular Maintenance:

1、 It should always keep the equipment clean. Window glass should be cleaned with soft cotton fabric but should not be cleaned with corrosive chemical solvent to avoid chemical reaction or glass scratch.

2、 If the equipment is not being used for a long time, it should smear neutral oil or Vaseline onto galvanized parts to prevent corrosion. Cover the equipment with plastic dust cover. Keep it under a dry indoor environment to avoid moist.

3、 Regular Repair

If you operate according to our manual and breakdown happens, please follow below steps for trouble shooting. If problem cannot be solved, please contact our after-sales department. We will offer you help.

4、 Breakdown, Analysis and Solution

Breakdown	Analysis and Solution

1、 No response after connecting to power and turn on power switch	＊Power supply failure. Please seek assistance from electrician ＊For case of heater burn out, please use multimeter with “Ohm” unit to test the resistance value of heater’s two ends. If resistance value is 0 which means short-circuit happens to heating wires. In this case, switch could trip often. If resistance value is hundreds KOhm or infinity which means open circuit happens ＊Power switch blade is off ＊Power switch lights on, check the control circuit board and cables
2、 Temperature fails to rise	＊Check if timing met set value. ★Many customers do not know about this function. When set timing is over then heater and fan will stop working so that temperature cannot rise. ＊Check if fan can work, if not(please use multimeter to test the voltage of fan pin and see whether it is with 220V), please contact us to mail you replacement. ＊Use a multimeter to check if there is output from the control panel. Please check it according to the drawing; (Drawings attached). ＊Check if working voltage is ～220V(voltage fluctuation is within 10%)
3、 Fan fail to work	＊The result will be that heating can function but no circulation inside the interior chamber so that temperature rises slowly. Please contact us to replace the fan.
4、 Broken Handle	＊Contact our company to replace the handle.
5、 Differential between the temperature showing on controller display and the one showing on mercurial thermometer which is put inside the chamber	Precondition of troubleshooting: ＊The thermometer should be qualified by testing department before being used. Where to put the thermometer: Please hang the thermometer in air inside the chamber’s center. Thermometer should not be put on the shelf to detect temperature. ＊Please refer to above attached parameter instruction.
6、 Temperature display fluctuates or stills. Or it shows abnormality like “□□□”	＊It identifies there is something wrong about the temperature sensor. Our company will have it replaced.

6、Accessories of This Oven

1、 Warranty card, manual, quality certificate

2、 2 shelves

7、Specifications

Model	Interior Chamber Dimension			Overall Dimension			Voltage AC（V）	Power （KW）	Temperature Range℃	Temperature Fluctuation℃
	H	W	D	H	W	D				
YR05244	320	350	350	530	640	610	110	1	+5～250	±1%
YR05245	420	450	350	630	740	610	110	1.2	+5～250	±1%
YR05246	520	550	450	730	840	720	110	1.6	+5～250	±1%
YR05247	750	600	500	980	910	770	110	2.5	+5～250	±1%