Kalstein

Serie YR0101AS

Drying Oven

Instruction Manual

Thank you very much for purchasing our Drying Oven Series.

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.

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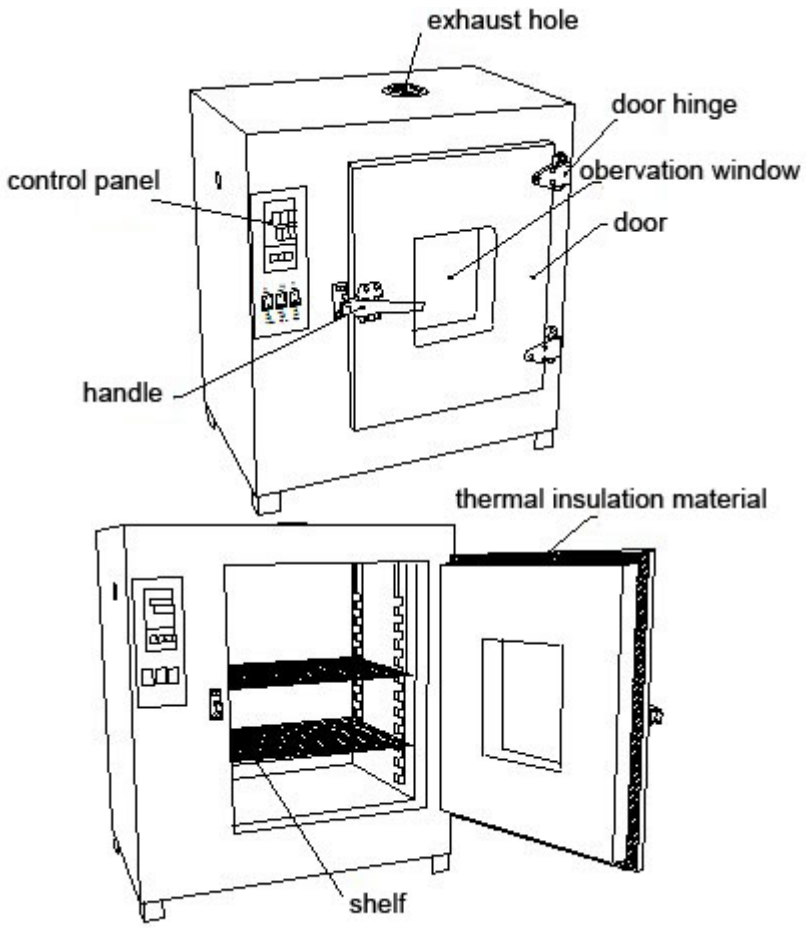
With more than 25 years growing with our customers, Kalstein's multiformat and modern content, is now present in more than 10 countries and increasing.

1. Description

This drying oven is used in medical treatment unit, industry and mining enterprise, universities and colleges and scientific research for drying, melting wax, sterilizing, and disinfecting.

2. Principle and structure

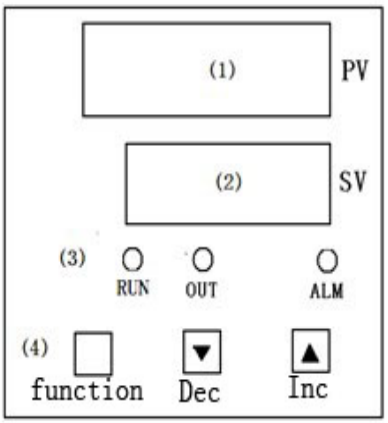


Heating wire is in the bottom of inner chamber, fan in the left of chamber. controller controls the constant and change of temperature, the air flow inflows inner chamber via heating wire, and the function of fan is to make inside temperature more uniform. arc-design, shelf space can be adjusted, built-in temp. probe. The inner chamber is made of zinc-plating or stainless steel. Observation window is tempered glass.

3. Model and parameter

Model	Interior size (mm)			Exterior size (mm)			Voltage （V）	Power （KW）	temp.℃	Fluctuation ℃
	H	W	D	H	W	D				
YR101-0(AS)	350	350	350	590	670	490	220	0.8~1.6	RT+5-300	±1%
YR101-1(AS)	450	450	350	690	760	490	220	0.8~1.6	RT+5-300	±1%
YR101-2(AS)	550	550	450	790	870	590	220	1.6~2.4	RT+5-300	±1%
YR101-3(AS)	750	600	500	1000	970	640	220	2~3	RT+5-300	±1%
YR101-4(AS)	1000	800	800	1300	1210	1000	380	3~4.8	RT+5-300	±1%
YR101-5(AS)	1000	1000	1000	1300	1400	1140	380	3~6	RT+5-300	±1%

Notice :1. RT is ambient temperature



(1) PV display: display test temperature, display all kinds of prompts according to controller status.

(2) SV display: display setting temperature, display all kinds of parameters according to controller status.

(3) indicator:

*RUN (running indicator): it is on when controller working, flashing when auto-setting

*OUT（heat output indicator）: it is on if there is heat output.

*ALM（alarm output indicator）: it is on if there is alarm output.

(4)Key

1) Function key: for parameters callout and updating confirmation.
2) Decrease key: adjust the size of value and restart auto-setting.
3) Increase key: adjust the size of value and restart auto-setting.

4. Use method

1. Make sure the switch is in the "off" position before power on, check whether it is broke circuit or leakage, connect power, turn on power switch.

5.Detailed instruction

1) If displays 000, it means sensor open circuit or input signal beyond measured range
2) Change way of Setting value

Press function key, the upper row displays SP, press ▲ or ▼ key, the lower row displays the required setting value. press function key again, the upper row displays ▲ or ▼ key, the lower row displays the required timing. press function key again, return to standard mode.

3) If there is timing function

When ST is 0, no timing function; when ST is not 0, with timing function, the unit of time is minute or hour.

After power on ① after test temperature reaches setting temperature ,timing function starts (-2 table);②timing function starts .reaches ST ,heating output would be disconnected , with beeper ;if start auto-setting when timing, then timing function is canceled, after auto-setting is over, restart timing function ; when instrument working, allow to modify ST, the previous running time will be “remembered ” and reaches to the new timing time, when the new timing time ST is less than previous running time, heating output is disconnected immediately, with beeper.

4) Press ▲ key, screen displays the already running time, long press ▲ key for more than 4 seconds, can run /stop.
5) With beeper, ①over-temperature /absolute value alarm, ② temperature is outside of scale range ③ running time is up, working is over. Press any key to mute
6) Change way of control parameter

Press function key for more than 4 seconds, press function key again, found the LK, press ▲ or ▼ key, the lower row displays 18, repress function key, look for the prompt of control parameter which need to be adjusted, press ▲ or ▼ key, the control parameter is the required value. several control parameters can be adjusted by one time, repress function key for more than 4 seconds, return to standard mode. (It will return to standard mode automatically within 1 minute without pressing any key)

6. Auto-tuning function

After pressing ▼ key for 5s, RUN light is flashing, instrument starts auto-setting, auto-setting is over, RUN light stops flashing, obtain new PID parameter which can overcome over-temperature, instrument proceeds with controlling according to new PID parameter. New PID parameter can be checked in instrument

When in the process of auto-setting, press ▼ key for 5s, RUN light stops flashing, auto-setting is over, instrument proceeds with controlling according to original PID parameter

7. Parameter table

Prompt	Name	Setting range	Instruction	Factory default
AL	Alarm setting	0～ full scale 0.0～full scale	Alarm setting, the dead zone is 0.2 fixed value; ALM is on， with beeper ， cut off power.	3.0
P	Proportion	0～Full scale 0.0～full scale	The larger P is, the smaller proportion action is, the lower system gain, just working in heating; p=0, stepping control	20.0
I	Integral time （readjust time ）	10～999 seconds	Integral action time constant, the larger I am, the smaller integral action is I=0， d=0 is half a proportion control	400
d	Differential time （pre-adjust time）	0～999 seconds	Differential action time constant, the larger d is, the smaller differential action is And can overcome and overshoot, I=0， d=0 is half a proportion control	400
Ar	Overshoot inhibition (Proportion reset ）	0～100%	When two PID working, Ar is: 1.5～2 times. when the half time proportion working, Ar is :(need to modify)/ (proportion range P)	75
T	Heating cycle	1～100 seconds	Controllable silicon output is 2～3 seconds, for the larger after-power equipment, turn up T to decrease offset which PID controls	30
Pb	Zero adjustment （intercept）	-100～100 -100.0～100.0	When the zero difference is larger and the full-scale difference is smaller, adjust this value, generally Pt100 rarely adjusts this value	0
PK	Full scale adjustment （slope）	-199～999 seconds	When the zero difference is smaller and the full scale is larger, adjust this value. PK=4000× (rated value -actual display value)/ actual display value, generally Pt100 adjusts this value fist	0
dP	Decimal point (setting)	0；1	If DP=0 display resolution is 1℃; if DP=1 display resolution is 0.1℃, when it is more than 99.9, display resolution will turn into 1℃ automatically	1
rH	Scale setting	0～400℃ 0.0～400.0	Adjust rH, make the measured range of instrument is 0～rH (℃)	According to user's requirement
LK	Password lock	0～255	When LK=18，above parameters could be changed	0

Every change of function parameter may change the control effect, it will return to standard mode automatically within 1 minute without pressing ↻ key, maybe some function parameters are not changed

8. Trouble shooting and Failure analysis and solutions

Trouble	Failure analysis and solutions
.The equipment fails to work after ower is connected	* There is something wrong with power, ask an electrician for help * Heating wire burned out, test the two-end resistance value of heat ware, if resistance value is 0, It means that the heating wire is short-circuit, it occurs switch trip; if the resistance value is hundred Kohm or infinity, it means that heat ware is open circuit power switch blade is off The power switch is on, check the control circuit board and cable
2.temperature stops rising	* Check timing whether it is timing settings. * Most users do not understand the function, when reaches timing value, the heating wire stops working, the fan fails to work, temperature stops increasing. * Check whether the fan is working, if fails (use multi-meter to test the voltage of fan pin whether it is 220V), then call us to send accessories to solve * Checking control panel with a multi-meter to see whether there is output, according to the drawing; (Drawings attached).
3.motor fails to run	Result: it is running, but the airflow is unable to circulate, lead to temperature rises slowly, then contact us
4.handle is broken	Replace and contact supplier
5.there are differences between the temperature which panel displays and mercury temp.	premise: Thermometers need to be tested whether it is qualified then to measure The installation position of mercury: hang the thermometer in the center of chamber, avoid putting on the shelf to measure Refer to the parameter adjustment table
6.temperature appears bounce or keep stationary, or abnormal "----"	* There is something wrong with temperature sensor, should be replaced. Note: sensor adopts Pt100 platinum resistance

9. Notice

1.The samples should not be placed too crowded, so as not to affect convection inside the chamber.

Please connect the oven with protective conductor terminal according to relevant regulations. to be safe, don't touch electrical circuit which is in the left oven with hand and wet cloth.

2. Don't splash water to observation door, or it may crack.

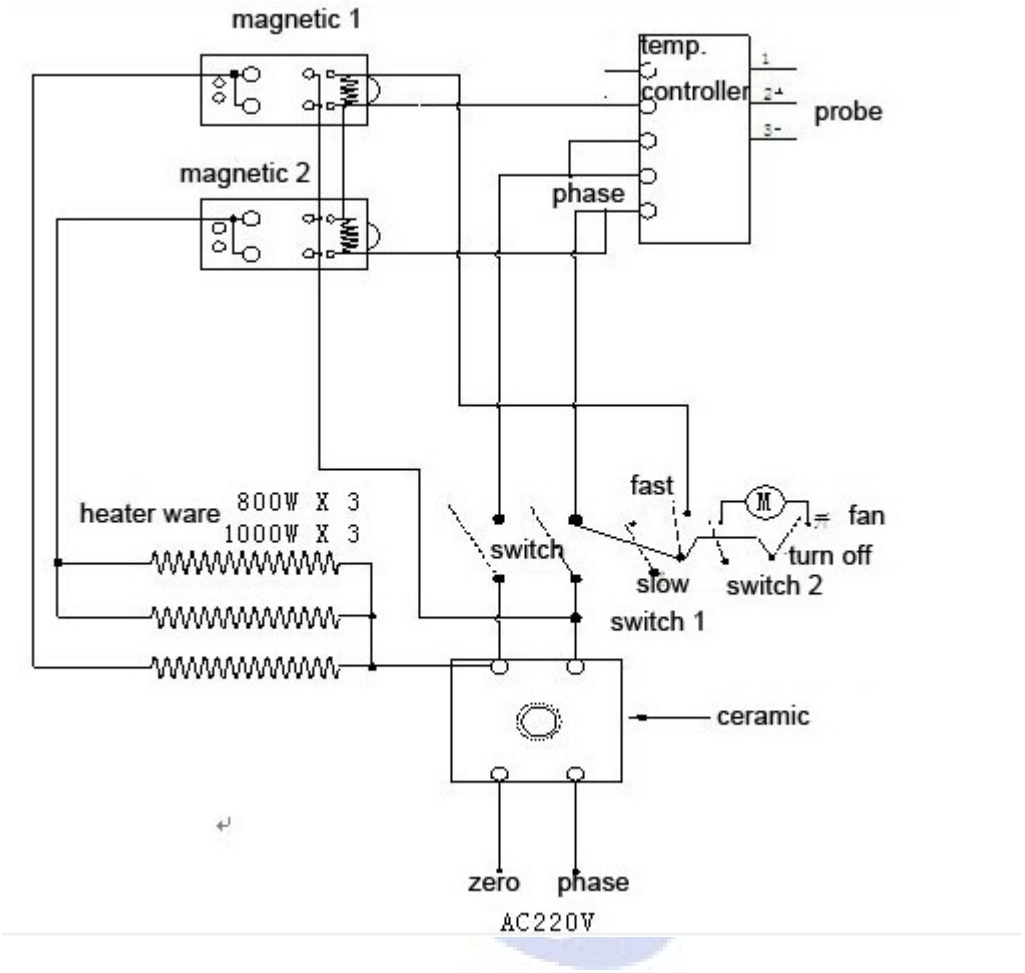
3. Don't use this kind of oven to dry inflammable, volatile and explosive substance,

or it may cause explosion

10. Maintenance

1. Drying oven should be kept clean, please use cotton cloth to clean glass door, to avoid chemical reaction, do not use corrosive chemical solution to sweep
2. If drying oven is not used for long period, to avoid corrosion, should be applied with neutral grease or Vaseline in the electroplating pieces. and placed in a dry indoors
3. Please operate this oven according to our manual, if there is something wrong with this oven, please refer to below solution

9. Wiring layout



Packing list

Name	Quantity	Remarks
Drying oven	1	
Shelf	2	
English manual	1	

All rights reserved ® KALSTEIN France S. A. S.,
Optimum Business Center 450 Rue Baden Powell,
• 34000 Montpellier, France.
Tlf: +33 467158849 / +33 680760710/ +33 663810023
https://kalstein.eu
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