BAÑOS DE AGUA/ACEITE TERMOSTÁTICOS SERIE 601 SERIE 602
THERMOSTATIC WATER/OIL BATHS SERIES 601 SERIES 602
BAINS D'EAU/HUILLE THERMOSTATIQUES SÉRIE 601 SÉRIE 602

REF. - CODE - RÉF.
JDD001, JDD002, JDD003, JDD004, JDD005, JDD006

Este manual es parte inseparable del aparato por lo que debe estar disponible a todos los usuarios del equipo. Le recomendamos leer atentamente el presente manual y seguir rigurosamente los procedimientos de uso para obtener las máximas prestaciones y una mayor duración del mismo.

This manual should be available for all users of these equipments. To get the best results and a higher duration of this equipment it is advisable to read carefully this manual and follow the processes of use.

Ce manuel est une partie indissociable de l'appareil et doit être mis à la disposition de tous les utilisateurs de l'équipement. Nous vous recommandons de lire attentivement ce manuel et de suivre scrupuleusement les procédures d'utilisation afin d'obtenir des performances maximales et une plus longue durée de vie de l'appareil.

LANGUAGE INDEX

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1. PRODUCT APPLICATION

Water/Oil Bath is a device mainly used for distillation, concentration, drying and thermostatic heating of chemicals or biologics. It is widely used in health care institutions, universities and colleges, scientific research and industrial laboratories, like chemical or pharmaceutical companies.

2. PRODUCT STRUCTURE FEATURES

■ The enclosure of the product is formed and machined by using high-quality steel plate. Static electric spraying process is adopted on the surface, which provides a sturdy and durable coating. The inner container is finished by the stainless steel stretching.
■ The upper cover is made of high-quality stainless steel plate, featuring strong corrosion resistance.
■ U-shaped heating pipe is adopted for direct heating in water/oil. The temperature rise is quick and the thermal loss is small.
■ Digital display and intelligent temperature controller boasts simple operation and favorable application effect.
■ All baths, except models 601/3, 602/3 and 602/5, are equipped with a pump and drain for emptying.
■ All baths, except models 602/3 and 602/5, have a sensor inside the tank.

3. MAIN TECHNICAL PARAMETERS

Model	601/3	601/5	601/12	601/19	602/3	602/5
Type	Water				Oil	
Code	JDD001	JDD002	JDD003	JDD004	JDD005	JDD006
Capacity (L)	3	5	12	19	2.5	5
Holes	1	2	4	6	1	2
Temperature range (ºC)	RT+5-100				RT+5-200	
Accuracy of temp. control (ºC)	±1					
Display resolution (ºC)	0.1					
Timer (min)	1-9999					
Draining pump	No	Yes	Yes	Yes	No	
Tank size (mm)	150x135x150	300x150x150	320x300x150	500x300x150	150x135x150	300x150x150
Power supply	220-240V, 50/60Hz					
Power (W)	300	500	1000	1500	300	500
Approx. net weight (kg)	3	4	6	8	4	7

4. WORKING CONDITIONS

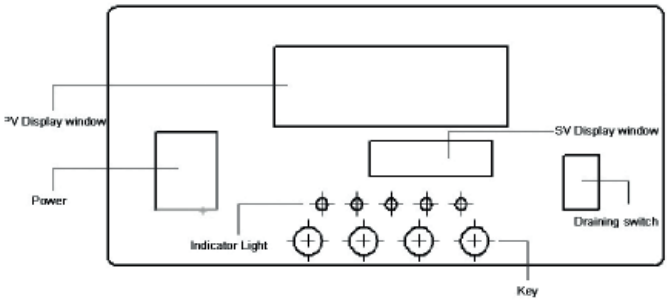
- Room temperature between 5-40 ºC.
- Relative humidity less than 65%.
- Power supply: voltage 220-240VAC, frequency 50/60Hz
- No violent vibrations and corrosive gas surround the equipment.
- Water conductivity: >2μS/cm
- Water quantity: The amount of water added should exceed over 6cm from the bottom of the tank.

5. CAUTIONS

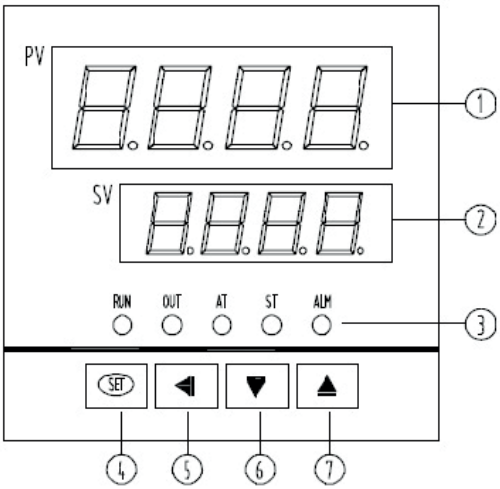
- Before use, add water/oil, then connect the power supply and heat. It is not allowed to heat with insufficient water.
- During use, do not touch the heating pipe with your hands to avoid being scalded.
- After use, timely discharge the water, dry it and keep it clean in order to extend the service life.

6. TEMPERATURE CONTROLLER OPERATION

6.1 Control panel



Display and keys:



1. Pv: measured value
2. Sv: set value
3. Led indicators:
   Run: function indicator
   Out: heating indicator
   At: automatic tuning indicator
   St: set time indicator
   Alm: alarm indicator
4. Set key: to set the parameter
5. Mov key: to move from one digit to the next
6. Down key: decreases the parameter value
7. Up key: increments the parameter value

6.2 Internal parameters

Press the “SET” button for a few seconds, controller will display the password prompt “Lc”. Adjust the password to the required value, then press the “SET” button again, it will run into the internal parameter setting state. If press the “SET” button for a few seconds, it will return to the running state, the set value will be saved automatically.

Parameter table 1

Prompt	Name	Description	(Setting range) Factory set value
Lc	Password key	When Lc=3, enter the following parameters.	0
ALH	Over-temp alarm	If “PV>(SV+ALH)”, the “ALM” light turns on. The buzzer sounds and the heating output turns off.	(0-100.0 ºC) 5.0
ALL	Under-temp alarm	If “PV<(SV-ALL)”, the “ALM” light flashes, the buzzer sounds.	(0-100.0 ºC) 0
P	Proportional band	Adjustment of proportional function.	(0.1-100.0 ºC) 6.0
I	Integration time	Adjustment of integration function.	(1-2000) 200
d	Differential time	Adjustment of differential function.	(0-1000) 200
T	Control cycle	The temperature control cycle.	(1-60) 5
Pb	Zero point adjust	When the zero error is comparatively larger, to update this value should be needed. Pb= actual value – measured value	(-50.0-50.0 ºC) 0
PL	Full point adjust	When the full point error is also comparatively larger, to update this value should be needed. PL=1000 × (actual value – measured value) / measured value.	(-999-999) 0
Addr		Null	
Loc	Setting Lock	0: Enable to set temperature and time. 1: Disable to set temperature and time.	(0-1) 0

Parameter table 2

Prompt	Name	Description	(Setting range) Factory set value
Lc	Password key	When Lc=9, enter the following parameters.	0
ndA	Temp alarm mode	0: With over-temp alarm only. 1: With over-temp alarm and under-temp alarm at the same time.	(0-1) 0
ndc	Control mode	0: PID control, 1: ON/OFF control.	(0-1) 0
dE1	Upper deviation	Valid only at ON/OFF control	(0-100.0 ºC) 0
dE2	Lower deviation		(0-100.0 1 ºC) 0
ndT	Timer mode	0: No timer function. 1: Constant temperature timing 2: Run Timing	(0-2) 1
Hn	Timer unit	0: Minute. 1: Hour.	(0-1) 0
SPd	Constant temp Deviation	When PV >= (SV - SPd), the Controller get into the Constant-temp State	(0.1-100.0 ºC) 0.5
SPT	Const-Temp buzzer time	If get into the Const-Temp State, the Buzzer will beep for SPT seconds Note: if SPT=9999 it meas the buzzer will beep continuously.	(0-9999S) 0
EST	Timing Over Buzzer time	If the timing work is over, the Buzzer will beep for EST seconds. Note: if EST=9999 it means the buzzer will beep continuously.	(0-9999S) 60
EH	Whether to continue to control after timing	0: cut off Heat-Out after timing 1: continue to control after timing	(0-1) 0
ndo		Null	
oPn		Null	
nP	Maximum power	Percentage of maximum power heating output.	(0-100%) 100
Co	Off point	If “SV>(PV+Co)”, stops the heating output.	(0-100.0%) 50.0
SPL	Minimum set point	The minimum temperature set point.	(0-50.0 ºC) 0
SPH	Maximum set point	The maximum temperature set point.	(SPL-100.0 ºC) 100.0

Parameter table 3

Prompt	Name	Description	(Setting range) Factory set value
Lc	Password key	When Lc=27, enter the following parameter.	0
Fc	Temperature unit	0: Centigrade; 1: Fahrenheit	(0-1) 0

Parameter table 4

Prompt	Name	Description	(Setting range) Factory set value
Lc	Password key	When Lc=567, enter the following parameter.	0
rST	Reset to default values	0: cancel to reset to default value; 1: confirm to reset to default value.	(0-1) 0

6.3 Operation:

1. Put the instrument horizontally.
2. Remove the cover and add purified water or distilled water to the tank; the water level and water conductivity must be as indicated above. Add oil if using oil models.
3. Connect the suitable power, open the switch and the electricity supply.
4. The upper row of the screen shows the measured temperature, and the set temperature is shown in the lower row.
5. By pressing the SET key you can enter the temperature setting state. The upper row displays SP (set point). With MOV, down and up keys you can adjust the required temperature.
6. Once the setpoint temperature has been set, press the SET button again. ST (set time) appears on the upper row. The lower row shows 0000 (time in minutes). If the value is left at 0000, the device will run continuously. Press the SET button again to save the temperature and time settings and exit. When a working time is programmed, the measured temperature is displayed on the upper row and the elapsed time on the lower row. When the programmed time has elapsed, the heating stops, the buzzer sounds and End appears in the lower row. The buzzer can be silenced by pressing any key. If a new operating cycle with the same temperature and time values is required, press and hold the down key. To set a new configuration, press the SET button
7. Automatic tuning function. If the measured temperature fluctuates, the self-tuning function can be used.
The water must be at room temperature. First set the setpoint temperature at which the autotuning is to be carried out. Then press and hold down the MOV button for a few seconds until AT appears in the upper row. OFF appears in the lower row. Press the up button to set to ON. To confirm and execute, press the SET button. From this point on, the AT indicator remains lit until the autotuning process is completed.
8. To empty the tank, turn off the main ON/OFF switch. Connect a hose to the outlet nozzle on the right side. Activate the draining switch.

7. TROUBLESHOOTING

Failure	Cause	Solution
No power supply	1. Bad contact between plug and socket. 2. The fuse is burnt.	1. Replace the plug or socket tube. 2. Replace the fuse with same specification.
No temp. rise	1. The temp. controller is broken. 2. The sensor is broken. 3. The set temperature is lower than the water temperature. 4. The heating pipe is burnt.	1. Replace the controller. 2. Replace the sensor. 3. Reset the temperature. 4. Replace the heating pipe.
Big difference between display temp. and actual temp.	1. The temp. controller. 2. The temp. sensor is broken.	1. Replace the temp. controller. 2. Replace the temp. sensor.
Alarm **Error E-1**	1. There is no water in the tank or the water level does not exceed 6cm. 2. Water too pure, water conductivity >2μS/cm required.	1. Add water. 2. Add some tap water to make conductivity higher.