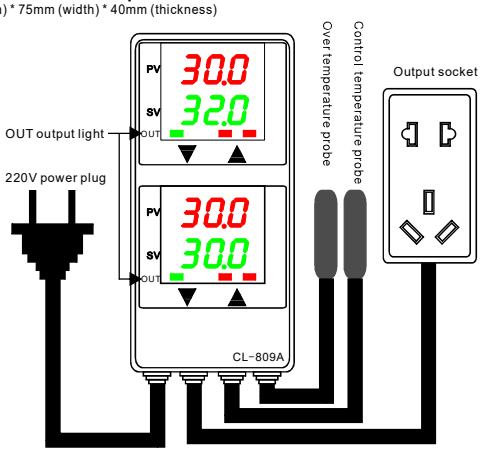
CL-809A Farming (turtle, fish, snake) intelligent temperature control thermostat

First of all, thank you for using this company's quality products,
Please read this manual carefully before use, so that you can fully understand and correctly use the instrument (software version V2.0)

1.Shape and panel description:

Appearance size: 137mm (high) * 75mm (width) * 40mm (thickness)



2.Features:

1, dual digital display / dual set / dual sensor / dual relay integrated intelligent temperature controller, used in aquaculture (turtle, fish, snakes) industry temperature control. Supporting water level switch can achieve water shortage heating protection.

2. The thermostat uses an integrated digital module LED display, using touch buttons, simple operation,

3, heating / cooling function mode free switch, with temperature probeself-diagnosis there are a variety of alarm mode selection.

4、Plug-type power supply and socket-type output mobile temperaturecontrol system, convenient for users to use in different occasions, eliminating complicated wiring, easy to use

5, power supply line all use BVR1.5 more than pure copper wire, supporting air-conditioning dedicated high-power socket to maintain the long-term safe operation of the heating system, product durable and reliable.

3.Technical Parameters:

1, Working power: 85 ~ 265VAC 50/60HZ.
2, temperature sensor: 50K NTC.
3, temperature display range: -40.0 °C ~ +120 °C, resolution: 0.1 °C (-9.9 ~ 99.9 °C)
4, temperature control range: -20.0 °C ~ +110 °C, resolution: ± 1 °C.
5, working environment: -10 °C ~ +60 °C, relative humidity: 20% ~ 85% (no condensation).
6, the main control relay contact capacity: normally open contact 10A (recommended load: cooling 0.5 horses, heating 800W)

4.Control parameter description:

Symbol	Parameter name	Predetermined area	Initial value	Description
Short press "▲" or "▼" key to enter the control temperature setting state (LCK=1).				
SV SU	Setting value	CL--CH	30.0℃	Set the required temperature control target value (18℃--35℃)
Press the "▲" and "▼" keys at the same time for about 10 seconds to enter the engineering parameter view and set (LCK=12)				
LCK LCK	Parameter lock	0-199	1	LCK=0, all parameters cannot be modified LCK=1, only the SV reference value can be modified. LCK=12, all parameters can be modified LCK=112, enter the engineering parameter group to modify
AL AL	Alarm value	-40~+120℃	3.0℃	Set alarm value
Fd Fd	control method	F/D	F	F: heating control, D: cooling control.
bd bd	Master control difference	0.0~10.0℃	0.5℃	Set master control relay operation backlash
SC SC	Sensor correction	-10.0~+10.0℃	0.0℃	Set the measurement error due to the sensor
AP AP	Alarm method	H/L/b/A/E/n	b	H: Upper limit alarm, L: Lower limit alarm. b: Upper deviation alarm, A: Lower deviation alarm. E: Out of range alarm. n: No alarm function.
CL CL	SV minimum setting	-40~+120℃	18℃	Limit the minimum set temperature of SV
CH CH	SV maximum setting	-40~+120℃	35℃	Limit the maximum set temperature of SV
Press the "▲" and "▼" keys simultaneously for about 10 seconds, set (LCK=112), enter the engineering parameter group				
A A	Abnormal heating protection	OFF/ON	OFF	OFF: Turn this feature off, ON: Turn this feature on.
t t	Continuous heating time	0~99M	20 MINS	Relay output synchronous timing time value

5.Instrument function description:

1. Description of operation interface: This instrument is composed of two parts:
"temperature control" and "over-temperature protection". The control parameters can be configured independently. Dual temperature probe temperature measurement ensures accurate temperature measurement. Dual high power relays ensure tempera-ture control and safe operation. The upper window is over-temperature protection, the lower window is temperature control, so the over-temperature SV value is more reasonable than the temperature-controlled SV value of about 2°C.

For example: When you want to control the water temperature inside thebox constant at 28 °C, you can set the following temperature control SV value is 28 °C, the above over-temperature SV value is set to 30 °C. Whenthe temperaturerises to 28°C, the temperature control relay will cut off the outlet voltage output. If the voltage cannot be cut off (the temperature control part fails), when the temperature rises to 30°C, the over-temperature relay will also cut off the power supply of the outlet to prevent dangerous heating. In order to play a dual temperature protection

2.Heating operation description: After power-on, when PV<SV, the OUT indicator flashes slowly and the controller warms up. When the temperaturerises to SV-PV ≤ 3°C, the OUT lamp starts flashing. When PV=SV, the controller turns off the output and the system stops heating. When the temperature drops to PV≤SV-bd, the OUT light flashes and the controller resumes heating operation. In order to achieve a constant temperature, work in this cycle.

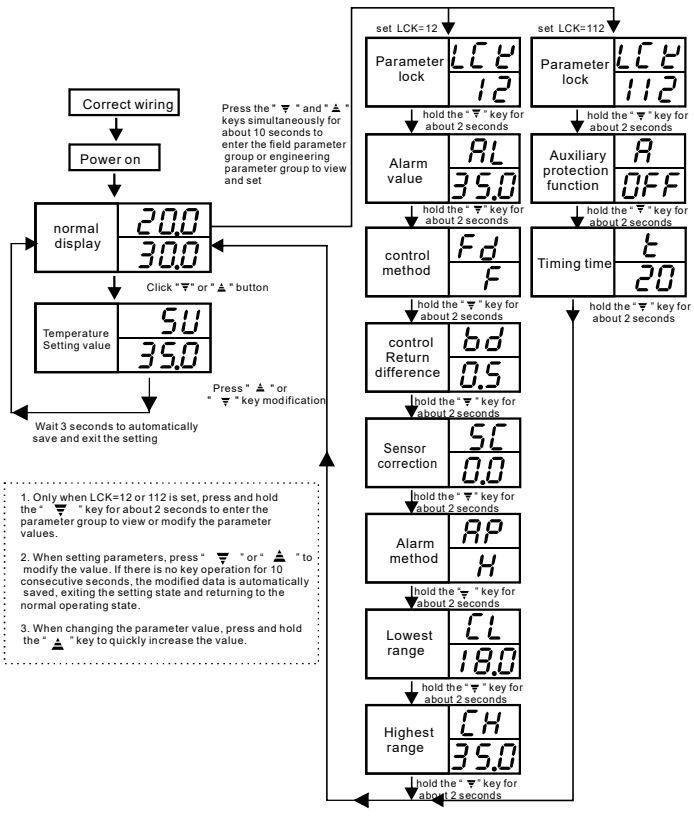
3. temperature probe self-test failure: When the PV window shows "LLL" or "HHH" that is the temperature probe failure, you need to replace the same type of temperature probe can be.

4, over-temperature alarm function: When the control temperature exceeds the AL value,the PV window displays "EH" and other characters at the same time the buzzer sounds,the controller automatically shuts down the heating operation. At this point, the user should check the cause of the alarm, eliminate the fault and then run the power.

5. Abnormal heating protection function: After starting this protection function, when the temperature controller is heating. If the PV rise temperature is ≤3°C after continuous heating for "t" time, the heating system is considered to be abnormal and the PV window flashes "EP" fault code and beeps, and the output is turned off. Only power off can release the fault locked state. The customer can start this function if he is familiar with the characteristics of his heating system, otherwise it may cause false alarms.

6. Water level protection function: When the water level switch is selected, it can realize the power-off function when there is water shortage or the water level is too low, so as to prevent dangerous heating. When the water level switch detects that the water level is too low or there is no water, the controller will turn off the heating output, at the same time the water level indicator will light up with the alarm beep, and the above PV window will display the "ES" fault code. When the water level returns to normal, the alarm is released and normal temperature control operation resumes.

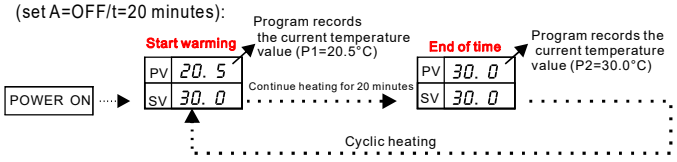
6.Parameter setting flow chart:



7.Abnormal heating protection function description:

″Abnormal warming protection function" is mainly to solve the customer's response to the turtle box in the constant temperature process temperature probe exposed to the water due to other factors or in the water change, maintenance process temperature probe forget to put into the water, the risk of development and protection of the development of protection Sex program features. It is mainly determined by comparing the measured temperature value and the continuous warming time at different periods of the heating process. When the instrument considers this abnormal heating, the output of the relay is first turned off and the instrument immediately stops heating. At the same time, the PV window displays the fault code “EP” and continues beeping. Remind users of abnormal heating. Users should promptly investigate the cause of the failure. After unplugging the power plug of the meter and plugging it in again, the meter may be released from the locked state and the normal heating control may be resumed.

Schematic diagram of the working principle of “abnormal heating protection function” (set A=OFF/t=20 minutes):



note:
In the timing process, if the heating reaches the set value (stop heating), the timing will be cleared; if the heating range is ⩾ 3°C, no alarm will be generated

When the timing is over and the temperature rise is less than 3°C (P2-P1 < 3°C), the program considers this heating to be an "abnormal heating" behavior.

8.Some examples of functional applications of the meter include:

1. When the temperature probe is not placed in the water or the probe accidentally leaves the water:

When the meter starts to warm, the program records the current temperature measurement and the timer program starts timing. Since the temperature probe is not in the water, the measuring temperature of the meter will hardly change or decrease.When the time reaches the preset t time, the temperature difference between the measured temperature and the starting temperature is ⩾ 3°C. When it is reached,it is a normal warming state. If it does not reach this condition, it is regarded as an abnormal warming behavior. Then, the program will stop heating information, lock the fault, and beep at the same time. The user is reminded that the temperature probe is out of the water and there is a danger of heating.

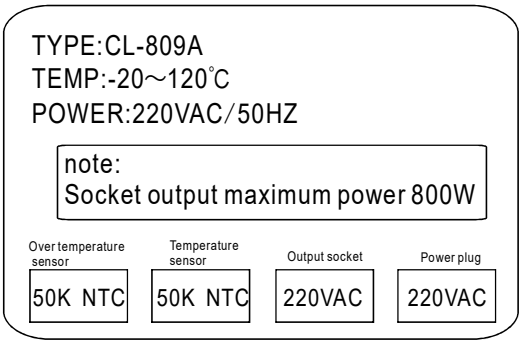
2. when the heater is not heated when the alarm:

When the instrument is operating in a constant temperature process, if a problem occurs in the heater and the heating cannot be normally performed, the timing program starts timing after the program performs a warming action. Because the heater malfunctions, the measured temperature of the instrument will hardly change or decrease. When the time reaches the preset T time, the difference between the temperature measured at this time and the temperature value at the beginning of warming is ⩾ 3°C. When it is reached, it is a normal warming state. If it does not reach this condition, it is regarded as an abnormal warming behavior. Then, the program will stop heating information, lock the fault, and beep at the same time. Remind users of problems with the heating system.

3, water shortage anti-dry protection:

Enabling this feature requires a "water level switch" to be implemented. When the water level in the water tank falls to the trigger point of the “water level switch” or the water in the tank is lost due to unknown reasons, the meter program will turn off the heating output. The PV digital pipe on the upper window displays the fault code “ES” and the “water level” indicator point. Light and beep alert. Remind the user of abnormal water levels in the tank.

9.Instrument wiring diagram description:



If the wiring diagram of the instruction manual is not consistent with the wiring diagram on the meter housing, the wiring diagram on the housing shall prevail. When the power of the external heater is too large, in order to ensure the safety and long-term stable operation of the heating system, externally switching high-power AC contactors may present potential safety hazards.

10.Water level switch accessories and installation notes:

1. The water level switch (liquid level switch) has a wide variety of shapes and can be equipped with water level switches suitable for installation according to the requirements of their own site.

2, the water level switch is best installed by a professional electrician, when installed, the water level switch should be vertical or horizontal with the water surface, can not have a large tilt angle; water level switch installation site must have a cofferdam, to touch the water inside the turtle and other animals caused by mistake Action; regular cleaning of debris in the cofferdam to prevent water level switch can not normally detect the water level.

11.Instrument alarm or fault display code meaning:

LLL	Maximum range	The “LLL”character appears when the temperature probe is damaged or has a large value, reminding the user to replace the new temperature probe.
HHH	Ultra minimum range	The “HHH” character appears when the temperature probe is damaged or has a large value, reminding the user to replace the new temperature probe.
EH	Upper limit over temperature alarm	Exceeding the upper limit alarm setting will result in the “EH” character, the simultaneous turning off of the output and a beep alarm.
EL	Lower limit over-temperature alarm	Exceeding the lower limit alarm setting will result in an “EL” character and a beep alarm.
Eb	Higher deviation over temperature alarm	Exceeding the upper deviation alarm setting will result in the “Eb “character, the simultaneous turning off of the output and the buzzing alarm
EA	Lower deviation over temperature alarm	Exceeding the lower deviation alarm setting value will cause “EA” characters and beep alarms at the same time.
EE	Out of range alarm	If the alarm setting value exceeds the range, the “EE” character and the buzzer alarm will appear.
EP	Abnormal warming alarm	When the “abnormal heating” condition is reached, the “EP” character will appear and the output will be turned off and beep alert
ES	Water level alarm	If the water level is too low or there is a lack of water, the “ES” character will appear and the output will be turned off and the beep alert will be turned off.

12.installation and use precautions Description:

1, in order to prevent high-frequency interference, the probe line can not be with the power line or output power line together amount away from the power or power line, there is space to separate wiring.

2. The instrument drives high power load (more than 800W), it is best to connect the relay or AC toucher. To extend the life of the instrument's internal relays.

3, if you want to extend the probe line due to installation reasons, the longest can not exceed 100 meters.

4, in order to ensure the normal use of the instrument, please avoid in a corrosive, flammable, explosive, damp used in harsh environments.

5. After the instrument software/hardware function is upgraded, please refer to the latest version specification. .

6, Factory equipped with accessories: integrated temperature controller, a manual. Instrument use such as abnormal, please first check the instructions or call the factory after-sales technical support phone for technical support 0086-15107613940/E-MAIL: sale@aposunmeter.com