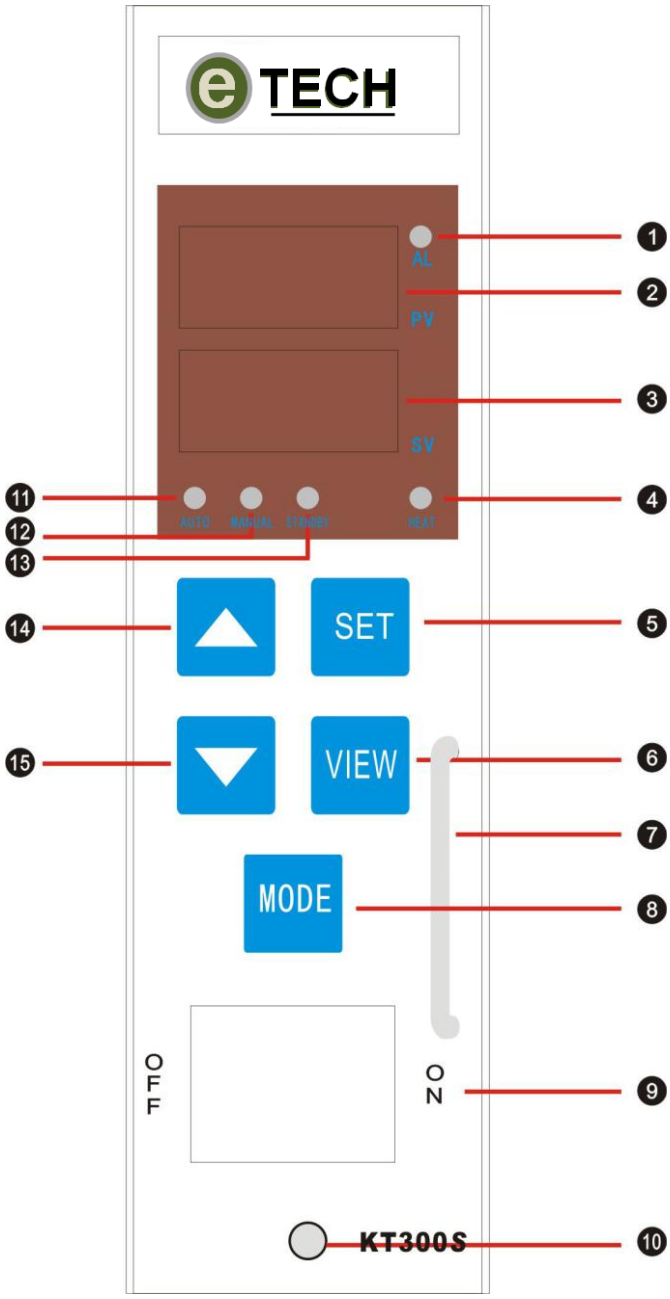
Instruction Manual

1) Panel Instruction:



1. Alarm led (red)

2. Process Value

3. Set Point, output %, or heater current

4. Heat on led (red)

5 Press and hold this key to access parameter setting.

6. Press this key to display output %, or heater current

7. Handle

8. Use this key to change the control mode,

9. Power on/off switch

10. Fixed screw

11. Auto mode led (red)

12.Manual mode led (red)

13. Standby mode led (red)

14. Press this keys to increase a value

15. Press this keys to decrease a value

2) Specifications

2.1 Operating Limits

Ambient Temperature 32°F to 131°F (0℃ to 55℃)

Relative Humidity Tolerance 10 to 95 % Non-Condensing

Shipping Temperature -40 °F to 158 °F (-40℃ to 70℃)

Power Requirement 115 to 240 Vac 50 or 60 Hz nominal

2.2 Performance

Accuracy ±0.3% of span

Setpoint Resolution 1 degree Fahrenheit

Repeatability ±0.1% of span

Temperature Stability ±0.5% of full scale over the ambient range of 32°F to 131°F (0℃ to 55℃)

Thermocouple Cold-End Tracking automatic, better than 0.02°F per °F (0.01℃ per ℃)

Noise Rejection Common Mode > 100 dB, Series Mode > 70 dB

Process Sampling Rate 10 Hz (100 ms)

2.3 Connection and Mounting

Kingtemp controllers are designed for installation in a Hot Runner mainframe (or other compatible mainframe)

Removal of Kingtemp controller from the mainframe requires removal of locking screw.

2.4 Inputs

Thermocouple J or K

Supported Sensor Range 50to 530 ℃

2.5 Output

TRIAC, 15 amps at 120/240 Vac (30 amp optional), driven by optically isolated interface circuit. Protected with a pair of 15 amp (or one 30 amp) field-replaceable fuses.

2) Operation

3.1 Operation Basics

3.1.1 See PV

To see the process value: Look at the top line of the display for the PV. The top line shows the PV, unless the controller detects an error,.

3.1.2 See if Output is On

To see if the output is on: Look at the Heat led. It is on when the output is on.

3.1.3 Monitor for Alarms

To watch for process alarms: Look at the red Alarm led. If the process value fall the low alarm value below the setpoint or increase the high alarm value above the setpoint, the Alarm Led lights.

3.1.4 Change Mode

To change the mode: Press MODE and hold 1s until the led lights for the mode you want. The modes are:
Auto(Closed loop control)-Controller uses the input value to calculate the output needed to maintain the setpoint shown on the lower line.
Manual(open loop control)-Controller output is the percent shown on the lower line. Input is ignored.

Standby-standby output OP(zero percent) is on the lower line.

3.1.5 View setpoint, output, and current

To cycle through the lower line displays: press the VIEW key repeatedly.

In normal mode you can cycle through the setpoint, output percent (with P), and heater current to the closest tenth of an amp (with A)

In manual mode you can switch between output percent (with P) and heater current to the closest tenth of an amp (with A)

3.1.6 change setpoint or output

To change the setpoint (auto mode) or output (manual mode): press VIEW until the setpoint or manual mode output is on display. Press the up or down arrow key until the displayed value has been changed to the new value you want.

The output current value and normal mode output percentage are read-only.

3.2 Operation Mode

3.2.1 Auto mode:

Press VIEW key repeatedly , lower line display as following

[Setpoint Value]=>[Output Percentage]=>[Current]=>[Setpoint Value]

Press SET key, top line display as following

[Process Value]=>[Environment Temperature]=>[Process Value]

Keypad Lock function : in Auto mode, press SET key first, then press VIEW key in 0.5 seconds, keypad will be locked, repeat above action, keypad will be unlocked.

Lock function on: top line display "LOCK", lower line display "on", MODE key will be no useful.

Lock function off: top line display "LOCK", lowe line display "off",MODE key will be useful

Auto tune function: in Auto mode, Press SET key until "AL-H" displayed in top line, the press SET key repeatedly six times, top line displays "Ar", lower line displays "2", press up key, top line displays "Ar", lower line displays "1", then start PID auto tune mode, top line displays "Tun", lights will flash, whole process will take 5~10 mins, after lights stop flash, press up key, top line displays "Ar", lower line displays "0", Auto tune finish, press MODE key, return to Auto Mode.

3.2.2 Manual Mode

Manual mode : In auto mode, press MODE key for 1 second, to Manual mode and manual led lights Press up or down key, change output percentage

When thermocouple line is open or shorten, automatically to manual mode.

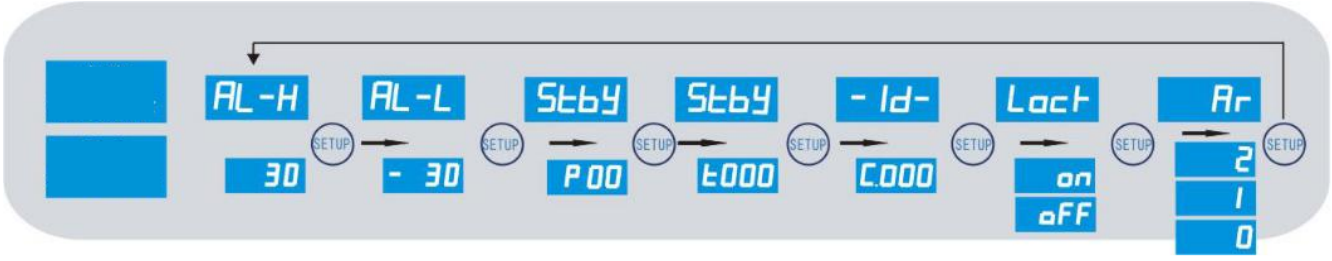
3.2.3 Standby mode: In auto mode，press mode repeatedly 2 times until standby mode indicator lights.

Process value can be set as 0 to 99% percent of Setpoint value.

After Standby time is off, return to auto mode automatically.

4.Menu Setting

4.1 Basic Menu



4.1.1 AL-H (high alarm)

The high alarm allow the user to give a positive tolerance to the setpoint value

Press SET key for 2 seconds, Top line displays "AL-H", lower line displays positive tolerance value.

Press up or down key to change tolerance value from 00~99 degree, the default value is 30.

4.1.2 AL-L(low alarm)

The low alarm allow the user to give a negative tolerance to the setpoint value

Press SET key for 2 seconds, Top line displays "AL-H", press SETUP key one more time, Top line displays "AL-L", lower line displays negative tolerance value.

Press up or down key to change tolerance value from -99~00 degree, the default value is -30.

4.1.3 Standby

<1> Standby temperature value (P)

Press SET key for 2 seconds, top line displays "AL-H"

Then Press SET for 2 times, top line displays "Stdy", lower line displays setpoint value percentage, press up and down key to change percentage from 00~99%.

<2> standby time

Press SETUP key for 2 seconds top line display "AL-H"

Then press SETUP for 3 times, top line displays "Stdy", lower line displays standby time, press up and down key to change time from 00min to 9 hours 59mins

If time is 0, keep standby mode until changing to other mode manually, the default value is 0

Example: SV is 300, standby time is 1 hour, standby value is 50%, then the standby temperature is 300*50%=150,

4.1.4 Keypad lock function

Press SET key for 2 seconds, top line displays "AL-H"

Then press SETUP key for 5 times, top line displays "LoCK", lower line displays "ON" or "OFF", press up or down key to change status. The default value is "oFF"

4.2 Function Setting

Function setting must be set up in Standby mode.

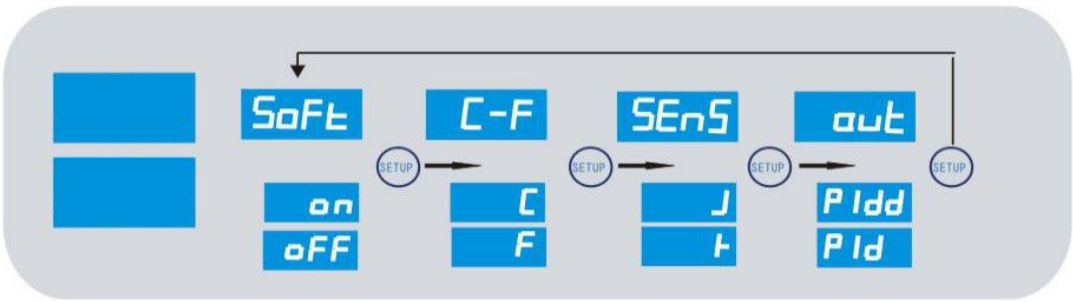
Change mode to Standby, standby indicator lights

Press SET and MODE key together for 2 seconds. top line displays "SoFt"

Press SET key to choose function type, press UP or DOWN key to change setting.

Press MODE key to return to STANDBY mode.

Be sure Lock function setting is OFF



4.2.1 SoFt

Press SET and MODE key together for 2 seconds, top line displays "SoFt", lower line displays "ON" or "oFF", press up or down key to change status.

When soft start status is on, the temperature is lower than 93 ℃ (199.4 F), soft start heating is activated. The power is limited to 10% of the nominal power for duration of 60 seconds, then add 5% each time.

4.2.2 Unit selection

Press SET and MODE key together for 2 seconds, top line displays "SoFt", press SETUP key one more time, top line displays "C-F", press "down" "up" key change value.

4.2.3 thermocouple type selection

Press SETUP key two more times, top line displays "SEnS", press "down" "up" key change value.

4.2.4 Out (output mode)

press setup up key three more times, top line display "PID" or "PIDD", press "down" "up" key change value.

5. Alarm Message

TABLE OF DEFECTS

Fault	Display	Solutions
Thermocouple breakage	tC oPEn display tC alternately with oPEn	Test the thermocouple with ohmmeter
Thermocouple “pinched”	tC SHrt display tC alternately with SHrt	Find where the thermocouple is pinched
Thermocpuple inverted	tC rEu display tC alternately with rEu	Check the thermocouple
Thermocouple and heater swapped	tC bAd display tC alternately with bAd	Check the thermocoule and heater
Scr breakage	Scr bAd display scr alternately with bAd	Test the Scr with ohmmeter
The voltage is error	HIGH voL display HIGH alternately with voL	Check the the input voltage in cabinet
Heater breakage	HEAt oPEn display HEAt alternately with oPEn	Test the heater with ohmmeter
Heater “pinched”	out SHrt display out alternately with SHrt	Find where the heater is pinched
Fuse breakage	F1-2 brk display F1or2 alternately with brk	Replace the fuse F1 or F2