Features:

- Dual display,4 digits,7 segments LED display
- Thermocouple input(K,E,J,T,S,R,B,N,Wu3_Re25,PT100)
- Temperature controller+timer with delayed start function
- Setup process is easy and straight forward
- Delay start range:0-9999 minutes configurable
- Timer triggering temperature configurable
  Timer will be triggered when PV reach to preset point(TEMP-tSP)
- Process value deviation alarm 1(AL1)
- Heating process will be terminated if alarm 1 triggered
- Alarm 2 will be triggered if the entire program finished
- You can quickly restart the program with a shortcut key
- Minimum and maximum output configurable
- ^{0}C/^{0}F display selectable
- 0.3%F.S measuring accuracy
- Bar graphic display indication
- Optional features
    -RS485 Modbus RTU Communication
    -24VDC source available

Technical Specifications

Ordering Information

FT100-B612(48mm*48mm)(Width*Height)
FT400-B612(48mm*96mm)(Width*Height)
FT700-B612(72mm*72mm)(Width*Height)
FT900-B612(96mm*96mm)(Width*Height)

| 1 | 2 | 3 | 4 | 5 |

1:Output for temperature control(OP1)

R	Relay output
V	SSR Drive output

2:Deviation alarm for temperature

1	1 alarm(relay output), alarm 1

3:Alarm 2 for program, when program ends, alarm 2 will be triggered

1	1 alarm(relay output), alarm 2

4:Power Source

96	85~265Vac 50/60HZ
24	24Vdc/ac

5:Communication

N	Without Communicaiton
K	With Modbus RTU RS-485 communication

eg:FT100-B612-R-1-1-96-N
48mm*48mm, Relay output, 2 alarms, 1 deviation alarm for temperature, 1 alarm for program status indication, 85~265Vac source.

Further elaboration on some of key features of this model

This item is extremely popular with customer who building machinery with both temperature and time involved, equipments such as dental sterilizer, water bath powder coating ovens, industrial ovens etc, the concept is to hold the target temperature at setting value for a specific period of time, for example, heat up the object to 200 degree and hold the temperature at 200 degree for 60 minutes what makes this item special is that the delayed start function has been incorporated, instead of heating up immediately after power on, the timer will count for a preset time range, after the time range elapsed, the heating up process then begin.

Another safety features works similar to a limit switch, deviation alarm with relay output is part of the features, during the heating up and holding process, the process value would fluctuate and shoots up, for instance, the setting value is 200 degree, if the system became vulnerable if the temperature deviates more than 15 degree, then you can set the deviation alarm value as 15 degree, once temperature reach to 215 degree, the deviation high alarm will be triggered and the output from the controller will be 0%, means the heating will be terminated.

Quick Start Guide

The initial setup process is quite simple and straight forward, only three parameters needs to be programmed, desired setting value, delay time range, holding time range, please follow below operation flow chart on the programming procedure. they are four phase during the operation, delay phase, heating up phase, holding phase, program end phase, tap on the SET key, you will be directed to programming pattern directly regardless which phase the controller at.

Delay phase	Heating up phase	Holding phase	Program end

Tap on the SET key

TEMP: Setting value

TEMP 200

Press "◀" key to move the flashing

Press "▲" key to change the SV from 0000 to 0200

Tap on the SET key

dELA 60

DELA: delay start range
Range: 0-9999
Unit: minutes

Remark: When DELA=0, the controller will skip the delay phase and goes to the heating up phase directly

Tap on the SET key

HOLd 120

HOLD: holding phase
Range: 0-9999
Unit: minutes

Remark: When HOLD=0, the controller will skip the holding phase and controller will act like a regular PID controller and control the object at preset setting value, controller won't enter into "END" phase neither
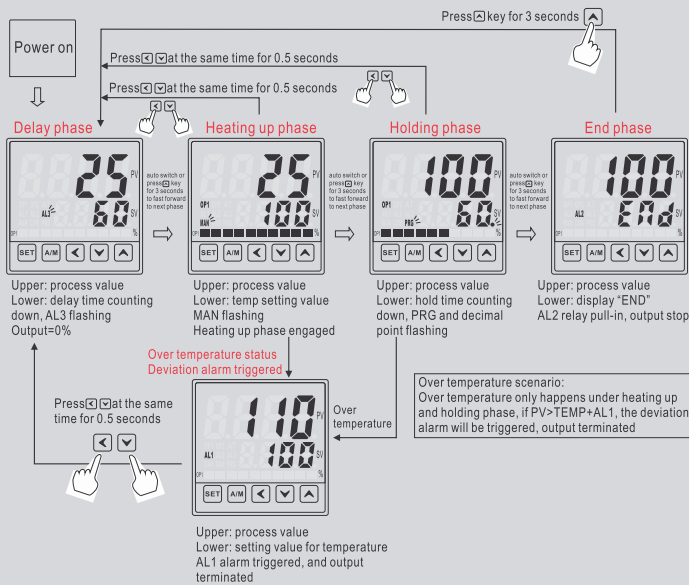
For an application with SV at 200 celcius, delay time at 60 minutes and holding for 120 minutes, just put the value 120 for TEMP, and 60 minutes for DELA, and 120 minutes for HOLD.
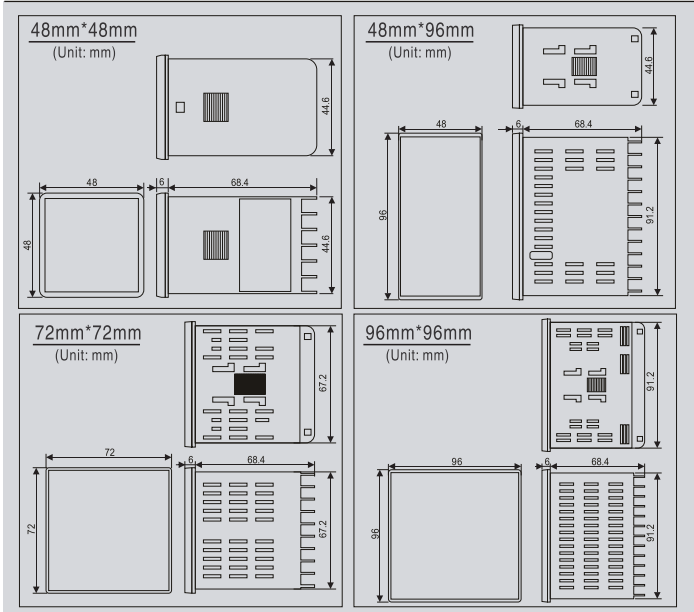
Panel layout and shortcut key
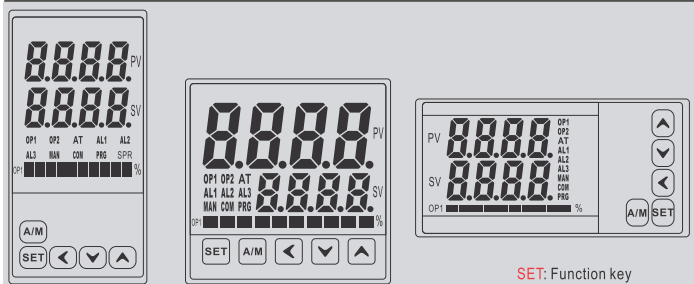
OP1: Output 1 indicator
AT: Auto-tuning output indicator
AL1: Deviation alarm indicator
AL2: Program ending indicator

AL3: Delay phase indicator
MAN: Heating up phase indicator
COM: Communication indicator
PRG: Holding phase indicator

SET: Function key
A/M: Confirm key
◀ Shift key
⌄ Number decrease key
⌃ Number increase key

PV window: Process value display and parameter notation display
SV window: Temperature setting value, time setting value, and value for various parameters
Bar graphic: output 0-100% indicator

They are various phases for the controller in the field application, you can switch between different status via the shortcut key, below are the details
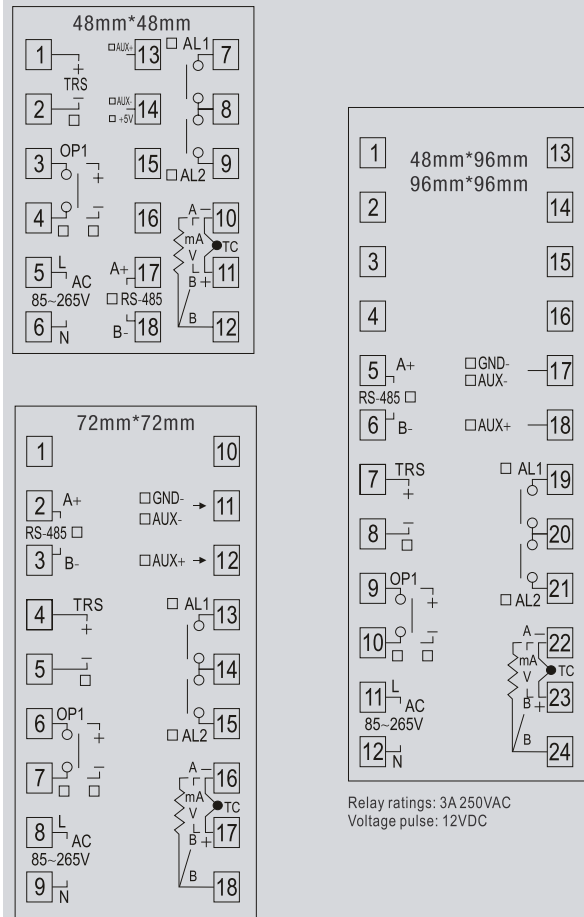

Power on

Press ◀ key for 3 seconds

Press ◀ ⌄ at the same time for 0.5 seconds
Press ◀ ⌄ at the same time for 0.5 seconds

Delay phase
Upper: process value
Lower: delay time counting down, AL3 flashing
Output=0%

Heating up phase
Upper: process value
Lower: temp setting value
MAN flashing
Heating up phase engaged

Holding phase
Upper: process value
Lower: hold time counting down, PRG and decimal point flashing

End phase
Upper: process value
Lower: display "END"
AL2 relay pull-in, output stop

auto switch or press ⌃ key for 3 seconds to fast forward to next phase

Over temperature status
Deviation alarm triggered

Press ◀ ⌄ at the same time for 0.5 seconds

Over temperature

Over temperature scenario:
Over temperature only happens under heating up and holding phase, if PV>TEMP+AL1, the deviation alarm will be triggered, output terminated

Upper: process value
Lower: setting value for temperature
AL1 alarm triggered, and output terminated

*Press ◀ ⌄ key together will force the controller go back to the delay phase and start the entire program all over again if the controller at heating up and holding phase.
*Press ⌃ key for 3 seconds, controller can fast forward to next phase and skip the current phase, for example, if you press the increase key for 3 seconds under delay phase, it will go straight to heating up phase and holding phase.
* At the END phase, you can also press ⌃ key for 3 seconds to exit the END phase and go back to delay phase.
*Press ◀ ⌄ key together will brought the controller back to delay phase as well if the deviation alarm triggered.
*if delay time is "0", then controller will go straight to heating up phase, if the hold time is "0", then the controller will work as a regular controller and maintain the temperature at setting value.

Size and dimension

48mm*48mm (Unit: mm)
48mm*96mm (Unit: mm)
72mm*72mm (Unit: mm)
96mm*96mm (Unit: mm)

Wiring diagram

48mm*48mm

72mm*72mm

48mm*96mm
96mm*96mm

Relay ratings: 3A 250VAC
Voltage pulse: 12VDC

Input sensor type and range

Input types		Code	
K1	0.0 to 100.0 ℃	2	D1
	0.0 to 200.0 ℃	2	D2
	0.0 to 300.0 ℃	2	D3
	0.0 to 400.0 ℃	2	D4
K2	0 to 200 ℃	K	A2
	0 to 400 ℃	K	A4
	0 to 600 ℃	K	A6
	0 to 1300 ℃	K	B3
E1	0.0 to 100.0 ℃	3	D1
	0.0 to 200.0 ℃	3	D2
	0.0 to 300.0 ℃	3	D3
E2	0 to 200 ℃	E	A2
	0 to 400 ℃	E	A4
	0 to 600 ℃	E	A6
J1	0.0 to 100.0 ℃	1	D1
	0.0 to 200.0 ℃	1	D2
	0.0 to 300.0 ℃	1	D3
	0.0 to 400.0 ℃	1	D4
J2	0 to 200 ℃	J	A2
	0 to 300 ℃	J	A3
	0 to 400 ℃	J	A4
	0 to 800 ℃	J	A8
T	0.0 to 100.0 ℃	T	D1
	0.0 to 200.0 ℃	T	D2
	0.0 to 300.0 ℃	T	D3
	0.0 to 400.0 ℃	T	D4
S **	100 to 1000 ℃	S	B0
	100 to 1600 ℃	S	B6
R **	100 to 1000 ℃	R	B0
	100 to 1700 ℃	R	B7
B	200 to 1000 ℃	B	B0
	200 to 1800 ℃	B	B8
N	0 to 1000 ℃	N	B0
	0 to 1300 ℃	N	B3
Wu3_Re25	600 to 2000 ℃	W	B0

Input types		Code	
Pt1 (Pt100)	0.0 to 50.0 ℃	P	06
	0.0 to 100.0 ℃	P	07
	0.0 to 150.0 ℃	P	11
	0.0 to 200.0 ℃	P	08
	−50.0 to 50.0 ℃	P	12
	−50.0 to 100.0 ℃	P	13
	−100.0 to +100.0 ℃	P	04
	−100.0 to +200.0 ℃	P	05
	−199.9 to +200.0 ℃	P	02
Pt2 (Pt100)	0 to 100 ℃	D	A1
	0 to 200 ℃	D	A2
	0 to 400 ℃	D	A4
	0 to 600 ℃	D	A6
	0 to 800 ℃	D	A8
	−50 to 100 ℃	D	C1
	−100 to 200 ℃	D	C2
	−100 to 300 ℃	D	C3
	−200 to 400 ℃	D	C4
	−200 to 500 ℃	D	C5
	−200 to 600 ℃	D	C6
	−200 to 700 ℃	D	C7
	−200 to 800 ℃	D	C8