General Features:

- Dual LCD three color display
- TC / RTD input, analog universal input
- Standard mode with PID, ON-OFF, Manual control mode
- 0.2%F.S measuring accuracy
- Auto/manual control bumpless transfer
- Alarm delay output
- Alarm output relay excitation configurable
- Alarm output interlock function
- Run/Stop mode switchable
- Output% real-time indication
- ^{o}C/^{0}F display selectable
- Alarm standby, heater break, heater shortcircuit alarm
- Soft-start and output restriction function
- Flexible on the parameters arrangement
- Optional features
  - RS485 Modbus RTU Communication
  - PV/SV Re-transmission
  - Heating+cooling dual output
  - Remote setting value
  - Output% remote setting under manual control mode
  - 2 alarms
  - Ramp and soak mode,1 step of ramp+1 step of soak
  - Temperature+timer mode
  - Event input SV setting mode(SV1,SV2,SV3,SV4)
  - Three wires motor valve direct/reverse act control via 2 relays

Technical Specifications

Ordering Information

FT200 (48mm*48mm)(width*height)
FT204 (48mm*96mm)(width*height)
FT205 (96mm*48mm)(width*height) `1` `2` `3` `4` `5` `6` `7` `8` `9` `10` `11` `12`
FT207 (72mm*72mm)(width*height)
FT209 (96mm*96mm)(width*height)

1:Controllver version

U	Standard PID type
P	Ramp and soak version, 1 ramp + 1 soak, total 2 segments
X	Motor valve direct/reverse control version(two relays)

2:Input

Blank	No code in this position means standard TC/RTD input
A	4-20mA,0-10Vdc

3:OUTPUT 1

R	Relay output
V	SSR Drive/Voltage pulse output
D	4-20mA output
E	0-10Vdc
A	Relay output, for motor valve direct act control

4:OUTPUT 2 (output 2 is only available for heating+cooling controller)

N	No output2(For single output controller, choose code N)
R	Relay output
V	SSR Drive/Voltage pulse output
D	4-20mA output
E	0-10Vdc
A	Relay output, for motor valve reverse act control

5:Number of Alarms

1	1 alarm
2	2 alarms
3	3 alarms

6:Power Source

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

7:PV/SV re-transmission

N	No re-transmission function		
A	4-20mA re-transmission via OP2	F	4-20mA re-transmission via AU3
B	0-20mA re-transmission via OP2	G	0-20mA re-transmission via AU3
E	0-10Vdc re-transmission via OP2	K	0-10Vdc re-transmission via AU3

8:RS-485 Communication

N	No communication feature
K	RS-485 modbus RTU communication

9:AUX power source

N	No aux power	B	24Vdc grounded
A	24Vdc isolated	C	12Vdc isolated
		D	12Vdc grounded

10:Position feedback(analong feedback input from INP2)

N	No position feedback	A	4-20mA	B	0-20mA
C	0-5Vdc/potentiomter	D	1-5Vdc	E	0-10Vdc

11:Remote SV setting

N	No remote SV feature	A	4-20mA via INP2	B	0-20mA via INP2
C	0-5Vdc via INP2	D	1-5Vdc via INP2	E	0-10Vdc via INP2
F	4-20mA via INP3	G	0-20mA via INP3	H	0-5Vdc via INP2
J	1-5Vdc via INP3	K	0-10Vdc via INP3	W	D1/D2 terminals event input

12:Manual output% remote setting

N	No remote SV feature	A	4-20mA via INP2	B	0-20mA via INP2
C	0-5Vdc via INP2	E	0-10Vdc via INP2	F	4-20mA via INP3
G	0-20mA via INP3	H	0-5Vdc via INP3	K	0-10Vdc via INP3

Display specifications

Display	Upper 4 digits, lower 4 digits, 11 segment LCD display
LED indicators	OP1,OP2,AU1,AU2,ATU,COM,MAN,PRG(48mm*48mm)
	OP1,OP2,ATU,AU1,AU2,AU3,COM,MAN,PRG,SV1,SV2
	SV3,SV4

Input specifications

Inputs	Thermocouple (K,E,J,T,S,R,B,N,Wu3_Re25)
	RTD (Pt100)
	Analog signals(0-50mV, 10-50mV,0-5Vdc,0-10Vdc,
	1-5Vdc,2-10Vdc,4-20mA,0-20mA,0-10mA)
Resolution	1/0.1^{0} for TC/RTD input
	1/0.1/0.01/0.001 for analog input
Indication accuracy	0.2% of F.S. ±1^{0}
Temperature unit	^{o}C / ^{o}F Selectable

FT200/FT204/FT205/FT207/FT209 — LCD Display Digital Temperature Controller

Output specification

Control Output	Relay Contact (SPST) 5A @ 230V AC/30V DC, resistive SSR Drive (Voltage Pulse) 12V DC, 20mA Current 4 to 20mA DC (loop impedance : 500 Ω max) alarm output relay(SPST) 3A@230Vac(resistive load)
Retransmission	4-20mA, 0-10Vdc(loop impedance : 500 Ω max)

Power source and auxiliary power source
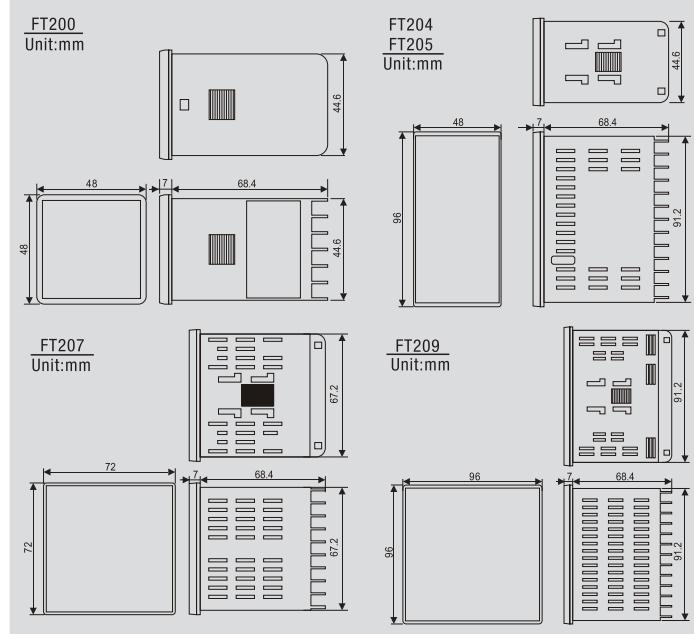
| Main source	85~265Vac 50/60HZ or 24VDC/AC(optional)
Sensor power	24Vdc,12VDC(optional)

Environmental Specifications

Temperature	Operating : 0 to 50oC (32 to 122oF) Storage : -20 to 75oC (-4 to 167oF)
Humidity	(non-condensing) 85% RH

Mechenical Specifications

| Mounting	Panel mount
Weight	0.17 kg(48mm*48mm) 0.27 kg(48mm*96mm) 0.27 kg(96mm*48mm) 0.35 kg(96mm*96mm)

Size and mounting

FT200 Unit:mm

FT204 FT205 Unit:mm

FT207 Unit:mm

FT209 Unit:mm
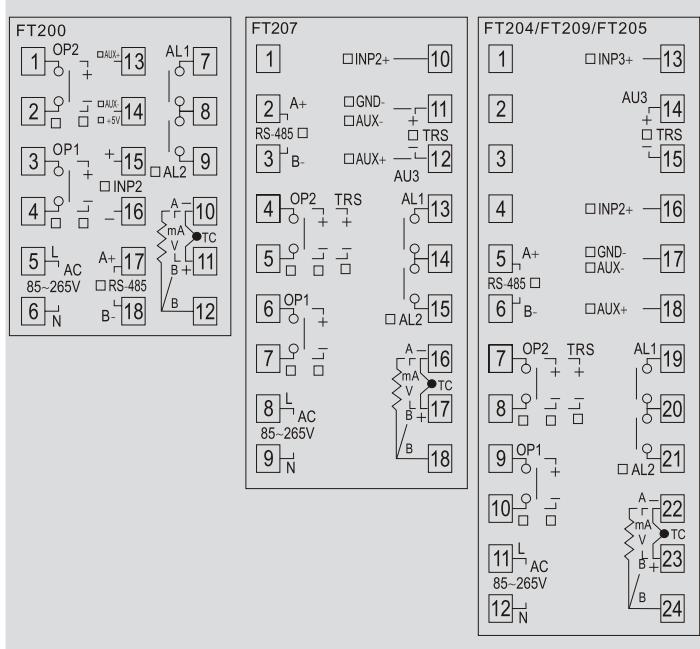
Input sensor and range

Input type			Code		Input type			Code	
K	0.0 to 200.0 ℃	K	D2		0.0 to 100.0 ℃	D	D1		
	0.0 to 400.0 ℃	K	D4		0.0 to 200.0 ℃	D	D2		
	0 to 400 ℃	K	A4		-50.0 to 200.0 ℃	D	G2		
	0 to 600 ℃	K	A6		-100.0 to +200.0℃	D	F2		
	0 to 1300 ℃	K	B3		-199.9 to +200.0℃	D	F3		
E	0.0 to 200.0 ℃	E	D2	Pt100	0 to 100 ℃	D	A1		
	0.0 to 300.0 ℃	E	D3		0 to 200 ℃	D	A2		
	0 to 200 ℃	E	A2		0 to 400 ℃	D	A4		
	0 to 400 ℃	E	A4		0 to 800 ℃	D	A8		
	0 to 800 ℃	E	A8		-100 to 200 ℃	D	C2		
J	0.0 to 300.0 ℃	J	D3		-200 to 400 ℃	D	C4		
	0.0 to 400.0 ℃	J	D4		-200 to 600 ℃	D	C6		
	0 to 300 ℃	J	A3		-200 to 800 ℃	D	C8		
	0 to 400 ℃	J	A4		Input type			Code	
	0 to 1000 ℃	J	A0	AN1	0 to 50mV		-1999 to 9999	V	02
T	0 to 300 ℃	T	D4	AN2	10 to 50mV			V	10
	0 to 400 ℃	T	A4	AN3	0 to 5VDC		-199.9 to 999.9	V	03
S **	0 to 1600 ℃	S	B6	AN3	0 to 10VDC			V	04
R	0 to 1769 ℃	R	B8	AN4	1 to 5VDC		-19.99 to 99.99	V	08
B	200 to 1800 ℃	B	B8	AN4	2 to 10VDC			V	09
N	0 to 1300 ℃	N	B3	AN4	4 to 20mA		-1.999 to 9.999	A	03
Wu3_Re25	600 to 2200 ℃	W	B0	AN3	0 to 20mA			A	02
				AN3	0 to 10mA			A	01
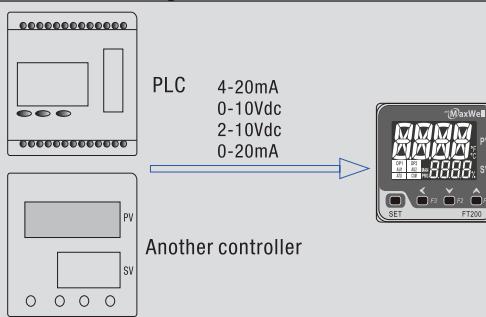
The accuracy is not guaranteed for type S thermocouple in the range of 0-100
Remark 1: user can switch input between thermocouple and RTDs via software
Remark 2: analog input except 0-50mA, 10-50mV needs to be specified when order
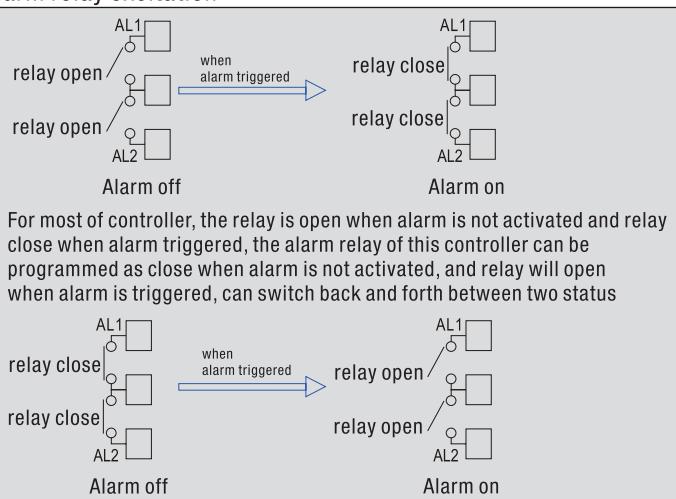
Terminal arrangement

FT200

FT207

FT204/FT209/FT205

Unique features

Auto/manual control bumpless transfer

A/M

Click A/M key on the front plate, you can switch from auto control mode to manual control mode, back and forth anytime you want,this is a very useful features for application where the power needs to be manually controlled

Remote SV setting

PLC   4-20mA
       0-10Vdc
       2-10Vdc
       0-20mA

Another controller
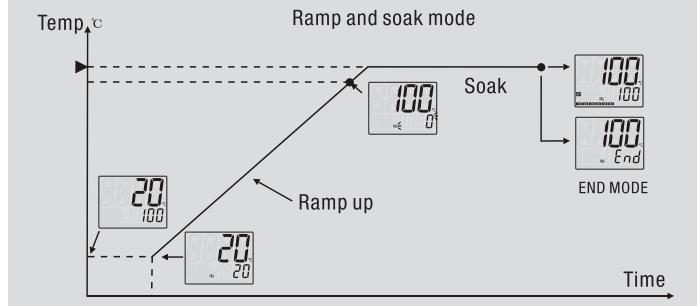
The setting value can be configured by an external analog signals such as 0-10V, 4-20mA etc, the external signal comes from different devices such as PLC, another controller

Alarm relay excitation

relay open / relay open — Alarm off → when alarm triggered → relay close / relay close — Alarm on

For most of controller, the relay is open when alarm is not activated and relay close when alarm triggered, the alarm relay of this controller can be programmed as close when alarm is not activated, and relay will open when alarm is triggered, can switch back and forth between two status

relay close / relay close — Alarm off → when alarm triggered → relay open / relay open — Alarm on

Technical Specifications

Event SV input setting

SV1=50   SV2=100   SV3=150   SV4=200

Maximum four different setting value can be programmed with the controller and you can switch between different SV via terminals at the back, 3 terminals at the back.
If D1 open, D2 open, SV=SV1. D1 close, D2 open, SV=SV2
D1 open, D2 close, SV=SV3. D1 close, D2 close, SV=SV4
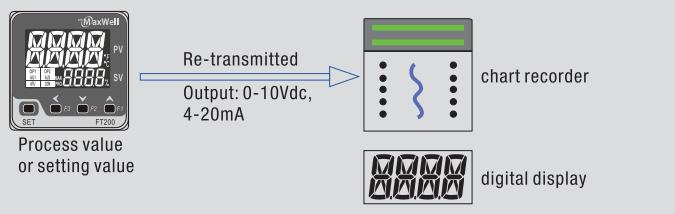
Ramp and soak mode optional
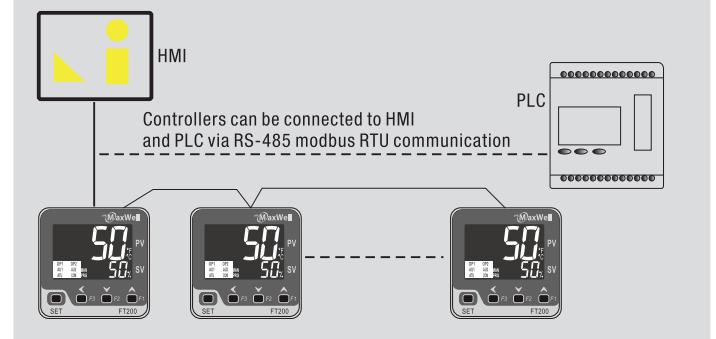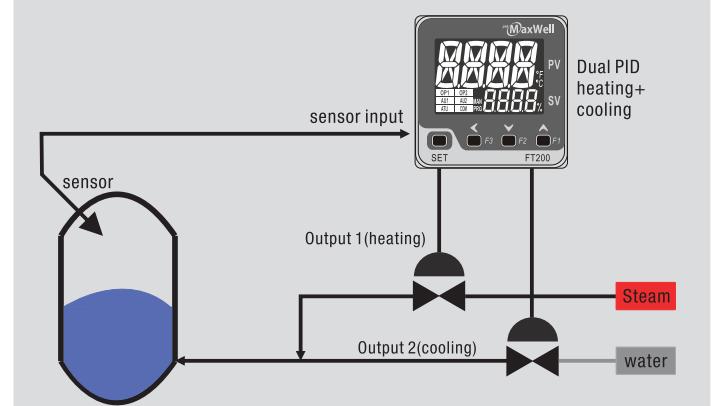
Ramp and soak mode is available on request, total 1 ramp and 1 soak only, temperature can ramp up to SV based on preset ramp up rate, and soak at the SV for as long as it takes, this control mode with timer involved.

Three wires motorized valve control option

This controller can also be made as a controller for three wires motorized valve, typically 2 realys output, 1 relay control the open of the valve,other relay control the close of the relay, some of the valve with feedback signals both feedback valve and non-feedback valve compatible

Process value and setting value re-transmission

Re-transmitted
Output: 0-10Vdc, 4-20mA

Process value or setting value

chart recorder

digital display

The process value or setting value can be re-transmitted as 4-20mA or 0-10 Vdc analog singal and feed to chart recorder or digital displays

RS-485 Modbus RTU communication

HMI

PLC

Controllers can be connected to HMI and PLC via RS-485 modbus RTU communication

Heating and cooling dual output control mode

Dual PID heating+ cooling

sensor input

sensor

Output 1(heating)

Output 2(cooling)

Steam

water

This controller can be made as dual PID heating+cooling, it is popular in application such plastic extrusion industry

*We have a strong R&D team and we are capable of custom made items based on customer's specific requirements. for more information you need, please contact our sales team