FT100/FT101/FT400/FT500/FT700/FT900 Standard PID Temperature Controller

Features:

- Dual display,4 digits,7 segments LED display
- TC / RTD input, analog universal input
- PID,PID Autotune, ON-OFF,time proportional
- Auto/manual control bumpless transfer
- 0.2%F.S measuring accuracy
- Bar graphic display indication
- °C/°F display selectable
- Alarm standby function
- Soft-start function for analog output
- Optional features
  - -Remote setpoint
  - -Motorized valve control
  - -RS485 Modbus RTU Communication
  - -Master/Slave communication
  - -PV/SV Re-transmission
  - -AUX power
  - -Preheating function
  - -Multi group of setting point

Ordering Information

FT100 without Auto/manual switch key
FT101 with auto/maual switch key

FT100 (48mm*48mm)(Width*Height)							
FT101 (48mm*48mm)(Width*Height)							
FT400 (48mm*96mm)(Width*Height)	1	2	3	*	4	5	6	7
FT500 (96mm*48mm)(Width*Height)							
FT700 (72mm*72mm)(Width*Height)							
FT900 (96mm*96mm)(Width*Height)							

1:Main output

R	Relay output
V	SSR Drive/Voltage pulse output
D	4-20mA output
T	Single phase TRIAC zero-crossing trigger
H	Single phase SCR zero-crossing trigger
K	Three phase TRIAC zero-crossing trigger
L	Three phase SCR zero-crossing trigger
C	Three phase SCR phase angled trigger

2:Number of Alarms

1	1 alarm
2	2 alarms
3	3 alarms

3:Power Source

96	85~265Vac 50/60HZ

4:Process Value or Setting value Re-transmission output

N	Without Re-transmission
P42	PV Re-transmitted as 4-20mA
P010	PV Re-transmitted as 0-10Vdc
S42	SV Re-transmitted as 4-20mA
P010	SV Re-transmitted as 0-10Vdc

5:Communication

N	Without Communicaiton
K	With Modbus RTU RS-485 communication

6:Remote SV or Position Feedback

N	Without Remote SV or Position Feedback
A	Remote SV(4-20mA)
B	Remote SV(0-20mA)
C	Remote SV(0-10mA)
D	Remote SV(0-5Vdc)
E	Remote SV(0-10Vdc)
F	Remote SV(1-5Vdc)
G	Remote SV(2-10Vdc)
R	3 wire potentiometer position feedback

7:Auxiliary Power Supply

N	Without auxiliary power
24	24VDC Auxiliary Power Supply

Example: FT100-R-1-96-NNNN(FT100, size 48mm*48mm, Relay output, 1 alarm ,85~265Vac source, no additional features)

Technical Specifications

Display

Digits	4 digits 7 segments LED,Dual display
LED Indicators	OP1,OP2,AT,AL1,AL2,AL3,MAN,COM,PRG

Input Specifications

Inputs	Thermocouple(K,J,R,S,B,T,E,N,Wu3_Re25) RTD(PT100) DC Analog Inputs(2-10Vdc,1-5Vdc,4-20mA) (0-10Vdc,0-5Vdc,0-20mA) (0-50mV,0-20mV)
Sampling time	500ms
Input Filter(FTC)	0 to 66(1-30 normal, 31-60 enhanced)
Resolution	1/0.1° for TC/RTD only Decimal point position selectable: 1/0.1/0.01/0.001 for analog input
Temperature Unit	°C/°F Selectable
Indication Accracy	For TC inputs: 0.2% of F.S. ± 1° For R & S type TC inputs: 0.5% of F.S. ± 2° (20 min of warm up time for TC inputs) For RTD inputs: 0.2% of F.S. ± 1° For Analog input: ± 0.5%. ± 1 digit (F.S.=Full Scale)

Output Specifications

Main Control Output	1 main output, heating or cooling selectable
Contact Rating(SPST)	5A @ 250Vac Resistive Load(Main Output) 3A @ 250Vac Resistive Load(Alarm output)
Current	0/4 to 20mA DC(loop impedence: 500Ω max.)
SSR Drive	12V DC(20mA)
Retransmission	
Current	4 to 20mA DC(loop impedence: 500Ω max.)
Voltage	0 to 10Vdc(Load resistance: 10KΩ Min)

Supply Voltage

Supply Voltage	85~265Vac 50/60HZ
Power Consumption	6VA max @230Vac

Environmental Specifications

Temperature	Operating: 0 to 50°C(32 to 122°F) Storage:-20 to 75°C(-4 to 167°F)
Humidity(non-condensing)	95%RH
Weight	0.17kg
Protection	Dust proof for front plate

Functional Specifications

Control Action	1)PID 2)ON-OFF, when P=0 3)Time proportional when P≠0 I=0 D=0
Proportional Band(P)	0.0 to 200.0
Integral Time(I)	0 to 3600 sec
Derivative Time(D)	0 to 3600 sec
Cycle Time	0 to 999 sec
Hysteresis Width	0.0 to 100.0
Manual Control Power	0 to 100%
Alarms modes	Deviation high / Deviation low Deviation high/low alarm Deviation band alarm Process high alarm/ Process low alarm
Input offset	-199 to 199
Auto-tune offset	0 to 199.0°
Output lower limit	0.0 to 100%
Output higher limit	0.0 to 100%

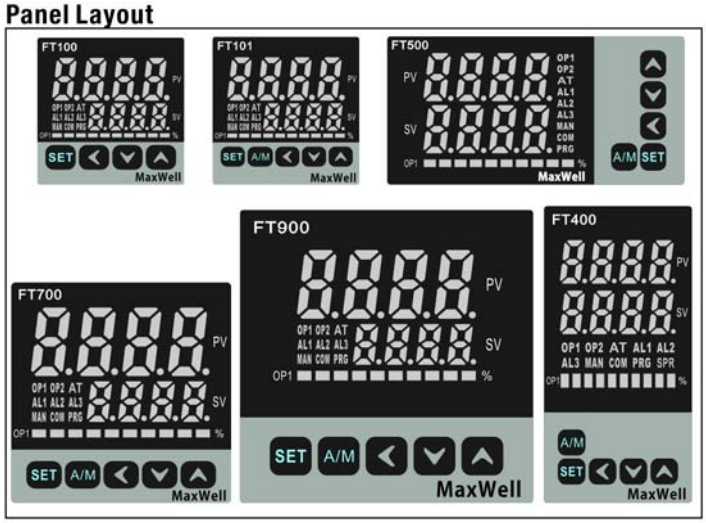
Optional features

Auto/manual control	48mm*48mm, 1/16DIN also available for this function(Model FT101)
Remote setpoint input	
Inputs	4-20mA,0-20mA,0-10mA,0-5Vdc,0-10Vdc 1-5Vdc, 2-10Vdc
Input resistance	100 ohm
Range	-5% to 105%
Scale range	-1999 to 9999 with fixed 10 for TC/RTD as per resolution selected for analog input
Serial communicaiton	
Interface standard	RS-485
Communication address	0 to 127, maximum 36 units per line
Transmission mode	Half duplex
Transmission protocol	Modbus RTU
Transmission format	Support 03 read command, 06 and 10 write command 1 start bit+8 digital bit+N+1 stop bit(8.N.1) 1 start bit+ 8 digital bit+N+2 stop bit(8.N.2)
Transmission speed	2400,4800,9600,19200(9600 default)

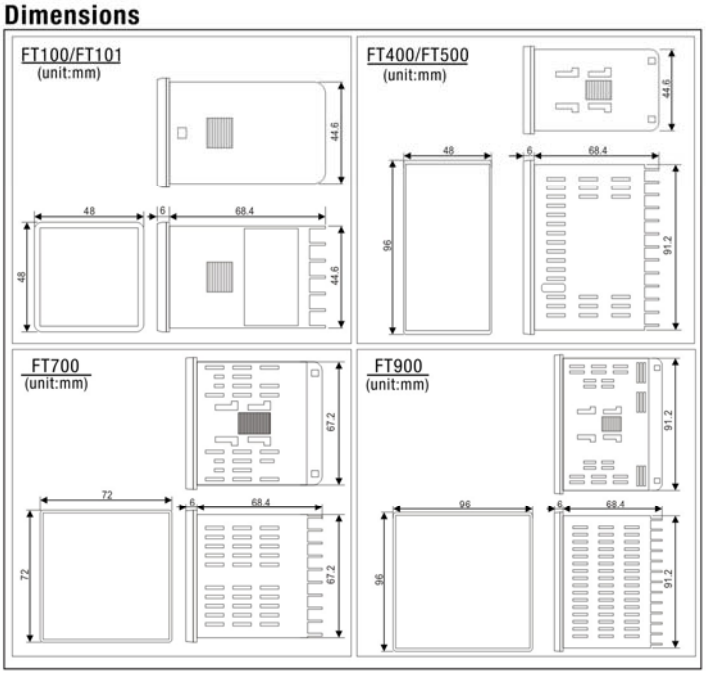
Compliance

IEC/EN 61326(EMI/EMC)
IEC/EN 61010 Revision 3 2010 Edition(Safety)

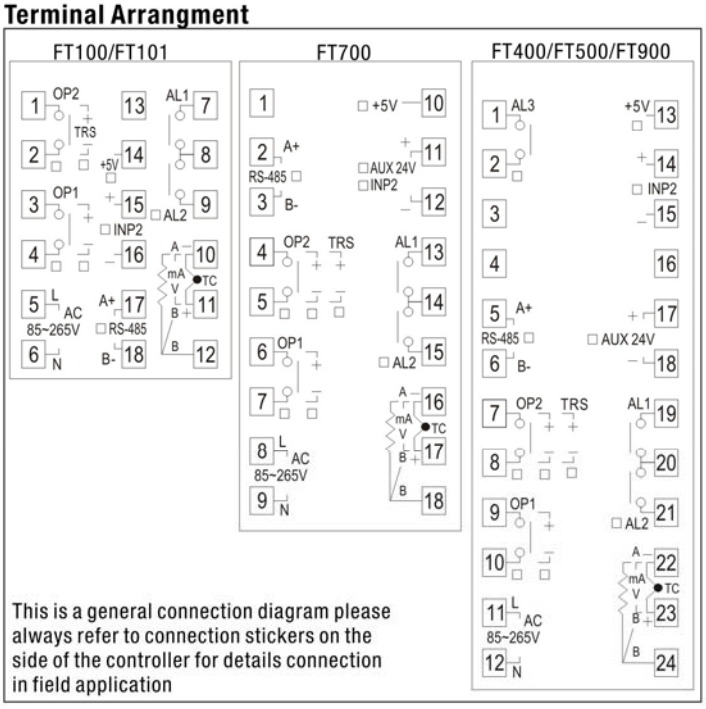
Panel Layout



Dimensions



Terminal Arrangment



This is a general connection diagram please always refer to connection stickers on the side of the controller for details connection in field application

PV window, display PV or parameter notation
SV window, display SV or parameter value
Bar graphic, shows the output % or position feedback value 0-100%

SET : Function key
A/M : Auto/Manual transfer key and enter key
< : Shift key
v : Decrement key
^ : Increment key

OP1 : Output 1 indicator
OP2 : Output 2 indicator
AT : Auto-tuning indicator
AL1 : Alarm 1 indicator
AL2 : Alarm 2 indicator
AL3 : Alarm 3 indicator
MAN : Manual control indicator
COM : Communication indicator
PRG : Reserved indicator
SPR : Reserved indicator