



PID+Fuzzy Temperature Controller

PRODUCT INTRODUCTION

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The 76 series programmable temperature controller is FineTek's high-end controller. Equipped with a 14 bit analog/ digital converter core processor and with FUZZY and improved PID calculation microprocessor, the controller is capable of fast and accurate performance with reliable results. Double row of 4 digit displays indicates Present Value and Set Value (except PT7610), enables user friendly readings and coupled with 3 buttons operation, it makes operating the controller very convenient.

High Sampling Rate, High Accuracy

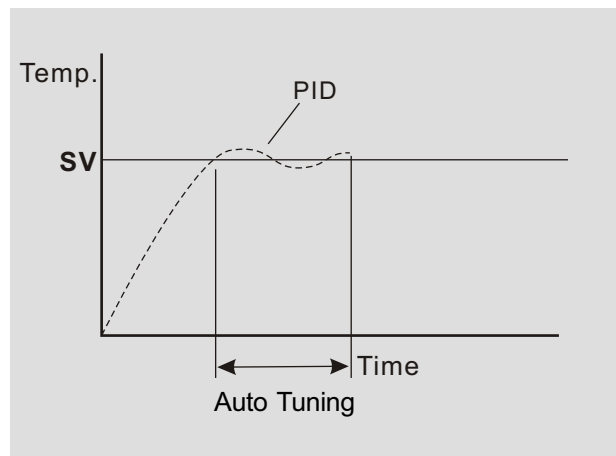
Sampling rate of 4 times per second (equivalent to 0.25sec per sampling) enables the controller to achieve high accuracy readings and accurate operations.

PID + FUZZY Control

Addition of FUZZY technology to PID control enables the controller to use the shortest time required as well as the smallest transients in order to achieve stability at the set value required by the user.

Auto-tuning

Artificial intelligence technology enables the controller to calculate the most efficient parameters to suit each and every application, thereby increasing the efficiency of the process to the maximum.



Sensor Break Alarm:

If the temperature sensor malfunctions / breaks, an alarm figure will be displayed on the panel to notify users.



Lock Protection for Control Parameters

Provides 3 levels of lock protection available should the user choose to lock the parameters in case of parameters change by accident.

Heating / Cooling Bi-directional Control

Enables the user to select between both heating and cooling processes, reduces inconveniences of single direction control methodology and reduces inventory.

Universal Input

Support the input signal of industry measurement, program setting through software, facility in installation and operation.

Switching Power Supply

Accepts 100 ~ 240VAC, 50/60Hz power supply, able to prevent controller from being affected by interferences due to ripples in power supply.

RS485 (Modbus) Communication:

Both RTU and ASCII communication modes for selection

PRODUCT SPECIFICATIONS

CONTROL FUNCTION

Control Method	ON/OFF, PID+Auto Tuning, PID+Auto Tuning+Fuzzy
Fraction Value	0~9999
Integral time	0~9999
Differential time	0~9999
Alarm / Output Hysteresis setting	0~9999
Sampling Interval	0.25s
Output Control Cycle	0.1~999.9s

ALARM FUNCTION

Alarm Types	Absolute Value Alarm, Discrepancy Alarm, Area Alarm
Set Value	0~99s
Alarm Output	SPST- ON, 3A-250VAC (Resistance Load)
Action Method	Alarm Activation / De-Activation delay
Signal Output	Relay Output

SIGNAL INPUT

	Signal Input	Range	Accuracy
Thermocouple	K Type	-200~1370°C	±0.3% ± 1digit
	K Type	-128.0~500.0°C	±0.3% ± 1digit
	J Type	-200~1200°C	±0.3% ± 1digit
	J Type	-128.0~500.0°C	±0.3% ± 1digit
	T Type	-200~400°C	±0.3% ± 1digit
	T Type	-128.0~400.0°C	±0.3% ± 1digit
	E Type	-200~800°C	±0.3% ± 1digit
	R Type	0~1760°C	±0.3% ± 1digit
	S Type	0~1760°C	±0.3% ± 1digit
	B Type	0~1820°C	±0.3% ± 1digit
RTD	N Type	-200~1300°C	±0.3% ± 1digit
	PT Type	-200~850°C	±0.2% ± 1digit
	PT Type	-199.9~850.0°C	±0.2% ± 1digit
	JPT Type	-200~500°C	±0.2% ± 1digit
Direct Voltage	JPT Type	-199.9~500.0°C	±0.2% ± 1digit
	0~50mV	-1999~9999	±0.3% ± 1digit
	0~1V	-1999~9999	±0.3% ± 1digit
	0~5V	-1999~9999	±0.3% ± 1digit
	1~5V	-1999~9999	±0.3% ± 1digit
	0~10V	-1999~9999	±0.3% ± 1digit
Direct Current	2~10V	-1999~9999	±0.3% ± 1digit
	0~20mA	-1999~9999	±0.3% ± 1digit
	4~20mA	-1999~9999	±0.3% ± 1digit

- Accuracy ±8°C for R and S in 0~500°C range
- For 0~600°C range, it does not guarantee accuracy on B type.

MAIN CONTROL OUTPUT

Specifications / Model	7610	7620	7630	7631	7640	7650
Relay	SPST-ON 3A/250Vac	SPST-ON 3A/250Vac	SPDT 5A/250Vac	SPDT 5A/250Vac	SPST-ON 5A/250Vac	SPDT 5A/250Vac
Pulse Output (SSR)	0/12Vdc (NPN), Max.20 mA					
Analog (Re-transmission)	4~20 mA					
	0~10Vdc Max.600Ω					

2nd CONTROL OUTPUT

Specifications / Model	7610	7620	7630	7631	7640	7650
Relay		SPST-ON 3A/250Vac	SPST-ON 5A/250Vac	SPST-ON 5A/250Vac	SPST-ON 5A/250Vac	SPST-ON 5A/250Vac
Pulse Output (SSR)	0/12Vdc (NPN), Max.20 mA					
Analog (Re-transmission)	4~20 mA					
	0~10Vdc Max.600Ω					

PRODUCT SPECIFICATIONS

STANDARD SPECIFICATIONS

Power Supply	100~240Vac, 50/60Hz
Power Consumption	7VA
Input Resistance	>1MΩ
Input Compensation	-1999~9999
Digit Filter	1~50 Times
International Standard	CE
Settings Range	-1999~9999

DISPLAY

4 digit of 7 segment display, Accuracy $\pm 0.3\% \pm 1$ digit

Digit Size \ Model	7610	7620	7630	7631	7640	7650
Display						
PV (red)	0.31"	0.36"	0.39"	0.36"	0.56"	0.56"
SV (green)		0.28"	0.28"	0.36"	0.36"	0.36"

LED Indicators

Digit Size \ Model	7610	7620	7630	7631	7640	7650
Display						
Control Output	X 1	X 2	X 2	X 2	X 2	X 2
Alarm Output	X 1	X 1	X 2	X 2	X 2	X 2
Celsius Display	X 1	X 1			X 1	X 1
Fahrenheit Display	X 1				X 1	X 1

BREAKOUT PROTECTION

Memory Retention	EEPROM
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OPERATING & STORAGE ENVIRONMENT

Operation Temperature	0~50°C
Operation Humidity	20~85%RH
Storage Temperature	-20°~60°C

STRUCTURE

Installation	Panel Mounted using 2 locking clips					
Casing Material	Plastic					
Dimensions	Refer to page 10 and 11					
Colour	Black					
Protection Rating	7610	7620	7630	7631	7640	7650
	IP-54	IP-65	IP-54	IP-54	IP-65	IP-65

COMMUNICATIONS

Communication Interface	RS-485
Communication Protocol	Modbus RTU or ASCII
Data Format	8 bits, Bit check: odd/even/none. Stop Bit: 1 or 2bits
Communication Speed	600, 1200, 2400, 4800, 9600, 19200 bps
Address	1~255

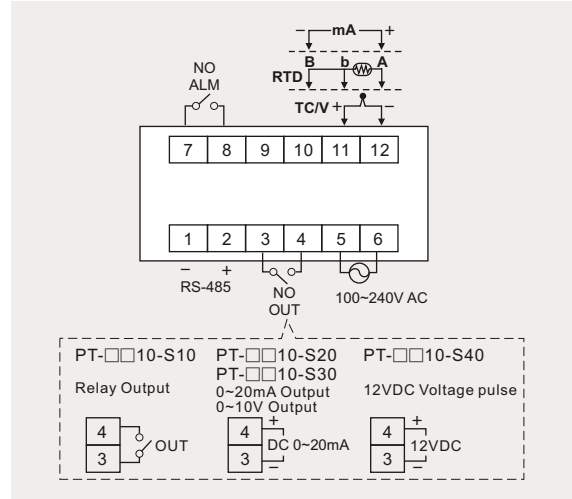
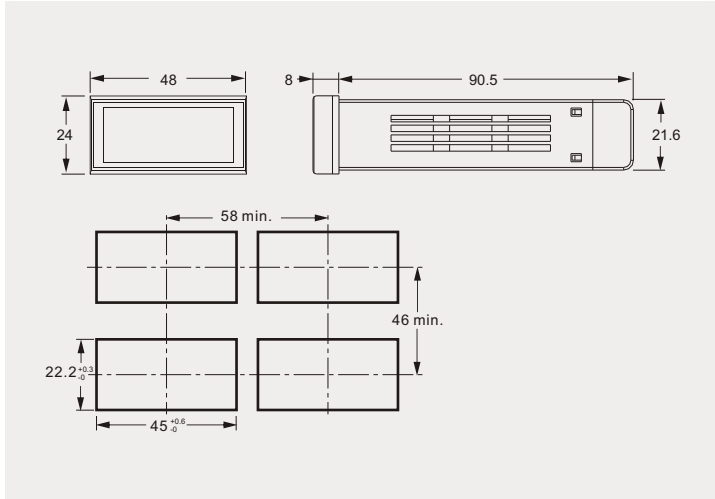
OTHER FUNCTIONS

Temperature Sensor Break Detection	Error display on panel
Parameters Lock	3 tier protection
1 st Tier	Adjustable: Input signal, alarm setpoint, set values, control type (All parameters)
2 nd Tier	Adjustable: alarm setpoint, set values, control type (Auto-tuning)
3 rd Tier	Fully lock

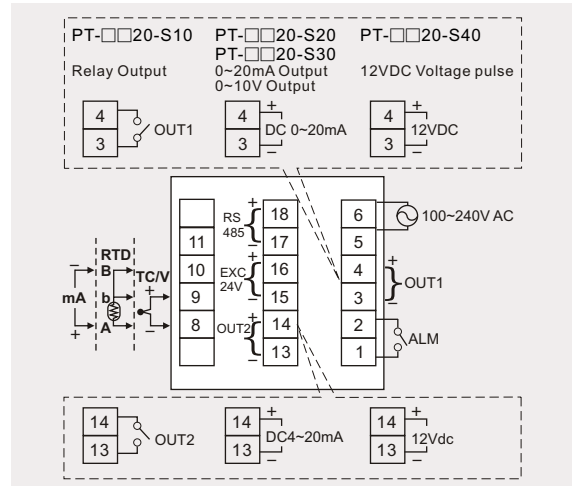
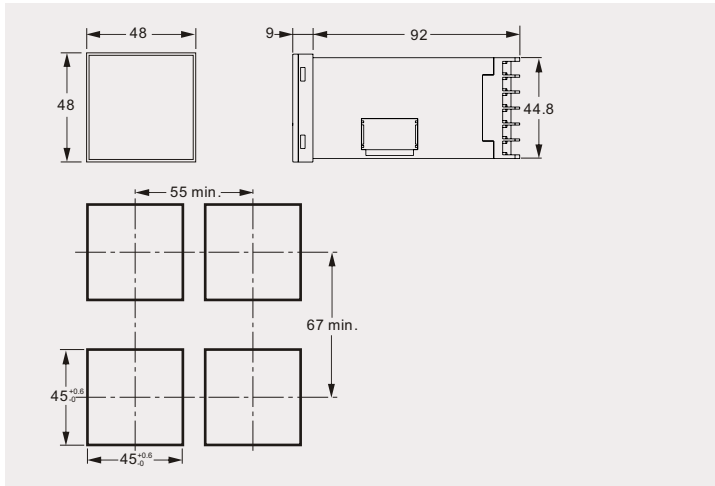
DIMENSION / PANEL CUTOUT & WIRING DIAGRAM

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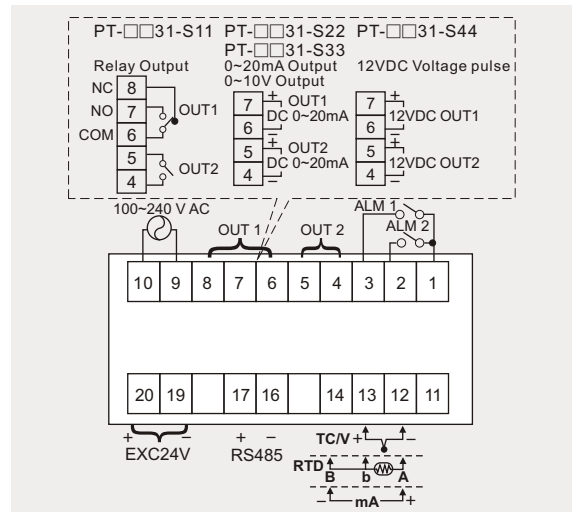
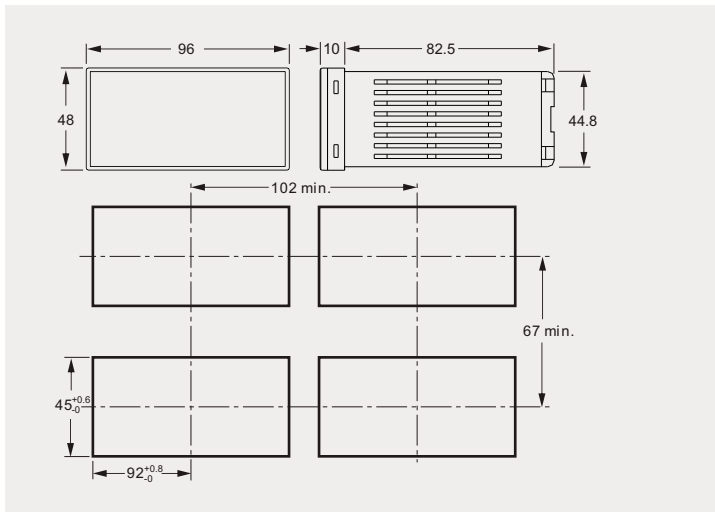
PT-7610 48mm(W) x 24mm(H) x 98.5mm(D)



PT-7620 48mm(W) x 48mm(H) x 101mm(D)



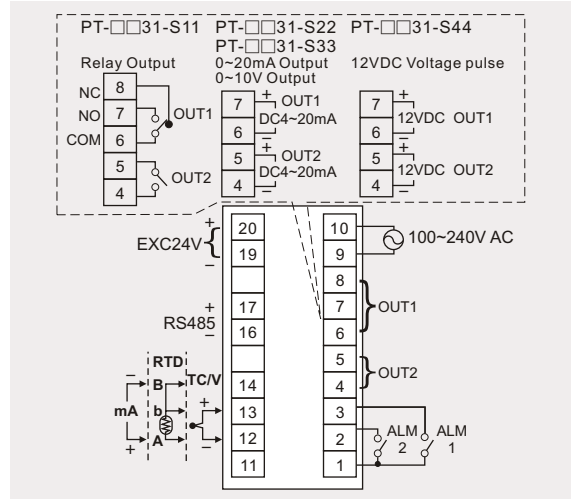
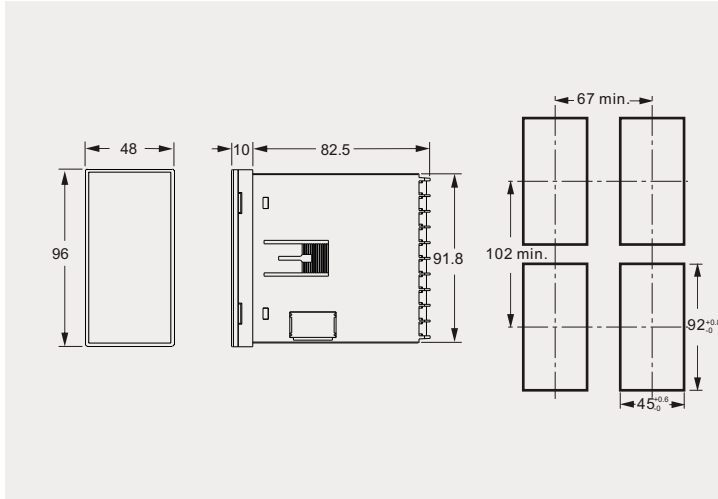
PT-7630 96mm(W) x 48mm(H) x 92.5mm(D)



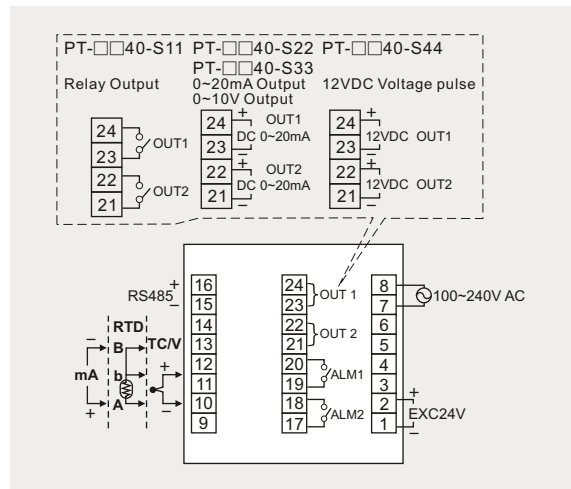
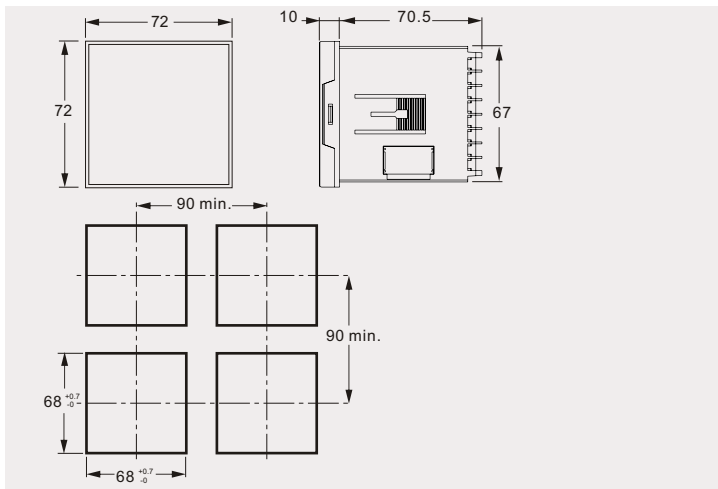
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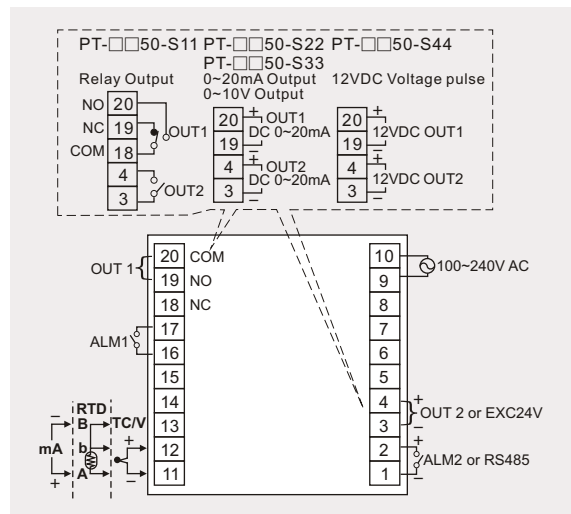
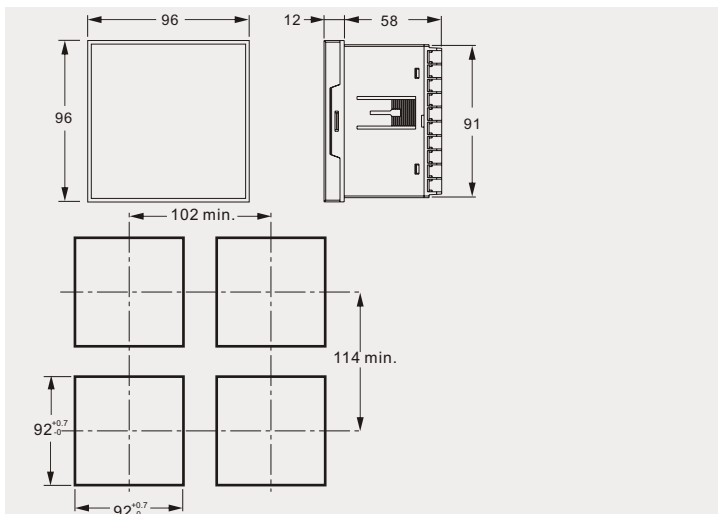
PT-7631 48mm(W) x 96mm(H) x 92.5mm(D)



PT-7640 72mm(W) x 72mm(H) x 80.5mm(D)



PT-7650 96mm(W) x 96mm(H) x 70mm(D)



ORDERING INFORMATION

P T - 7 6 - -

Dimension	10---48x24 31---48x96 20---48x48 40---72x72 30---96x48 50---96x96 *1																					
Power Supply	S---100~240Vac, 50/60Hz T---20~36Vdc (Except 7610)																					
Output	Control Output 0---None 1---Relay Output 2---4~20mA DC Output 3---0~10Vdc Output 4---Voltage pulse (12Vdc) for SSR drive		Analog Retransmit 5---4~20mA DC Output 6---0~10Vdc Output ※PT-7610 is available for output 1																			
Alarm Output	0---None 1---1 Set	2---2 Set ※PT-7610, 7620 is available for 1 relay																				
Communication	0---None 1---RS4 85																					
Auxiliary Power	0---None 1---24Vdc/50mA (Except 7610)																					

*1: For 50---96x96 dimension, it will be limited that the “output 2” and “auxiliary power” share the same terminals, user can only choose either function (output 2 or auxiliary power) at operation.
 Similarly, the “Alarm Output 2” and “communication” share the same terminals, user can only choose either function (alarm output 2 or communication) at operation.

For Example:
PT-7620-S101-00

48x48mm, one relay output and one alarm output

★ Please call for customized specifications