

FineTek

TEMPERATURE CONTROLLER

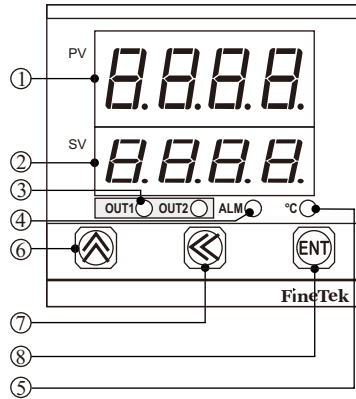


Content of the packaging

- Noumenon
- Back cover
- Bracket (2pcs)
- Washer
- User's manual

Thank you for please read the User's manual first before buying Fine-Tek products and using and is familiar with product performance and every function, please keep the user's manual so that consult in future. Modbus communication can be downloaded from <http://www.fine-tek.com>

FRONT PANEL



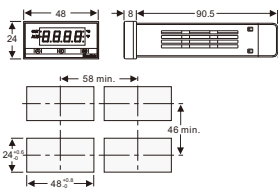
- ① Process value, and functions display. (Red 7-segment)
- ② Setting value, and parameters display. (Green 7-segment)
- ③ Control output indicator
- ④ Alarm indicator.
- ⑤ Unit indicator Lighted: °C Unlighted: °F.
- ⑥ "Up" key: addition and mode change.
- ⑦ "Shift" key: position shift.
- ⑧ "Enter" key: confirmation.

DIMENSION / PANEL CUTOUT unit: (mm)

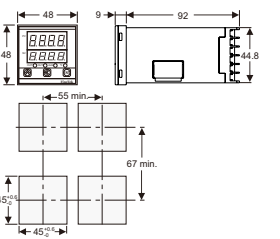
TERMINAL ARRANGEMENT

- ★ Please inspect the specification of the power.
- ★ Don't connect the end Terminals not used.
- ★ Propose that the signal line uses AWG 18~24 to enclose the isolate wire, the main power cable and relay export the contact and use AWG 25~30.

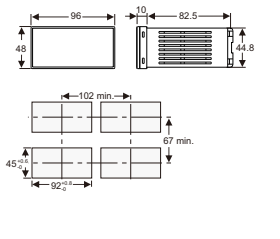
PT-7610 48mm(W)x24mm(H)x98.5mm(D)



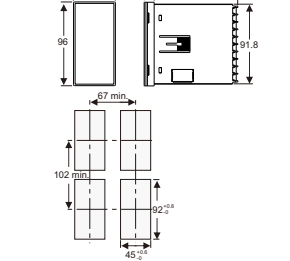
PT-7620 48mm(W)x48mm(H)x101mm(D)



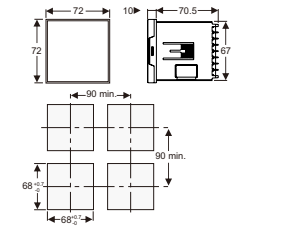
PT-7630 96mm(W)x48mm(H)x92.5mm(D)



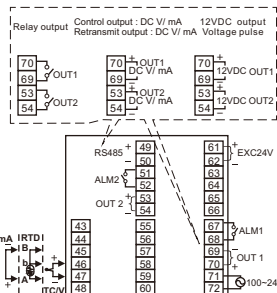
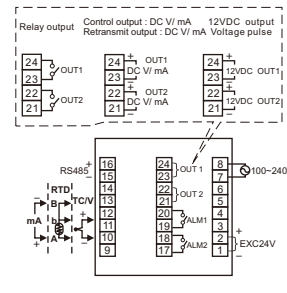
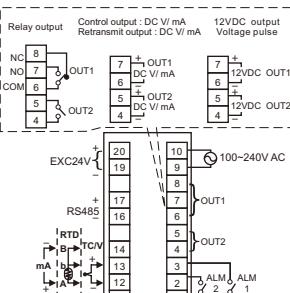
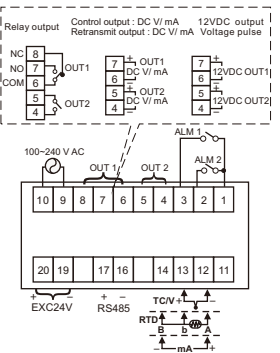
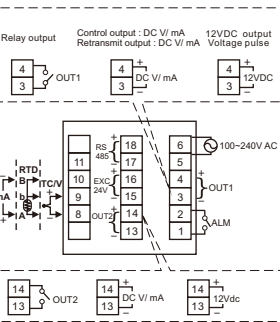
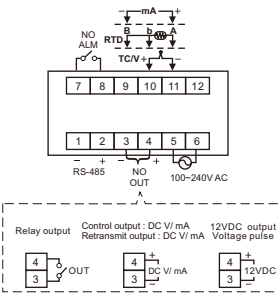
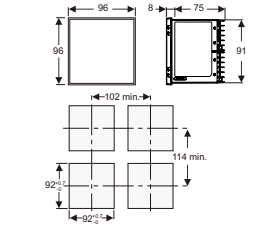
PT-7631 48mm(W)x96mm(H)x92.5mm(D)



PT-7640 72mm(W)x72mm(H)x80.5mm(D)



PT-7650 96mm(W)x96mm(H)x83mm(D)



SPECIFICATIONS

Power Supply	DC: 20~36Vdc ※Except PT-7610 AC: 100~240Vac 50/60Hz
Power Consumption	7A Max.
Relay	Output: SPST- 3A/250Vac (Life Time:100,000 times)
Pulse (Driven by SSR)	12Vdc (NPN), 20mA Max.
Analog	4~20mA, 0~10Vdc (600Ω Max.)
Alarm Output	SPST-NO, 3A/250Vac
Alarm Delay Time	0~99s
Alarm Output Hysteresis Adjustment	0~9999
Communication Interface	RS485 Output
Working Temperature	0~50°C (20~85% RH)
Cycle Time of Output Control	0.5~999.9s
Control Method	ON/OFF or PID + Fuzzy(Auto Tuning)
Input Compensation	-1999~9999
Sampling Time	250 ms
Accuracy	0.3% ± 1digit

ERROR MESSAGES

8888	Display over scale
8888	Display under scale
8888	Over measure range
8888	Under measure range
8888	Sensor break

Warning!

1. Really lock the end Terminals screw, if the screw has not been locked but lost by causing the fire or mechanical breakdown.
2. Please don't be using this product and having places where we can fire gas, cause the risk of exploding by the fact that it may.
3. The life-span of the relay must depend on the user's usage, the use of the relay must be in specified load and life-span of electric apparatus that it labels, if the use of the relay exceeds its life-span, the danger that may melt or cause the fire in the contact of the relay.
4. Don't disassemble, repair or revise the products without authorization, this measure may cause the short circuit of the electric apparatus, trouble or fire.
5. Don't drop inside products by chip or chip of wire metal, will cause the short circuit and account or fire.

Caution!

- Please strictly observe the following instructions, it can guarantee this safe operation in anticipated cases of controller:
- Use the product within the ratings specified for submerging in water and exposure to oil.
 - Do not use the product in locations subject to vibrations or shocks. Using the product in such locations over a long period may result in damage due to stress.
 - Do not use the product in locations subject to dust, corrosive gasses, or direct sunlight.
 - Separate the input signal devices, input signal cables, and the product from the source of noise or high-tension cables producing noise.
 - Separate the product from the source of static electricity when using the product in an environment where a large amount of static electricity is produced (e.g., Forming compounds, powders, of fluid materials being transported by pipe).
 - Organic solvents (such as pain thinner), as well as very acidic or basic solutions might damage the outer casing of the Temperature controller.
 - Store at the specified temperature. If the Temperature controller has been stored at a temperature of less than -10°C, allow the Counter to stand at room temperature for at least 3 hours before use.
 - Wait 30 minutes after power on before calibration.

FUNCTION LIST

Main Item	Sub Item	Data Range	Default Value	Describe
RL.E	S.o.F.t	OFF~2	0	Alarm soft activation
	P.o.S.i	-1999~9999	0	Alarm Relay Position 1
	H.Y.S.i	0000~9999	0	Alarm Relay Hysteresis 1
	d.Y.i	00~99	00 SEC	Alarm Relay Delay Time 1
	d.r.i	H, /L,Q	H	Alarm Relay Direction 1
	S.t.Y.i	S.t.1~S.t.8	S.t.1	Alarm Relay Style 1
		S.t.9		Alarm follow the action of out1
		S.t.10		Alarm follow the action of out2
	P.o.S.2	-1999~9999	0	Alarm Relay Position 2
	H.Y.S.2	0000~9999	0	Alarm Relay Hysteresis 2
d.Y.2	00~99	00 SEC	Alarm Relay Delay Time 2	
d.r.2	H, /L,Q	H	Alarm Relay Direction 2	
	S.t.1~S.t.8	S.t.1	Alarm Relay Style 2	
	S.t.9		Alarm follow the action of out1	
	S.t.10		Alarm follow the action of out2	
S.C.R.L	S.U.	-1999~9999	0	Set Value SV
	d.o.e	0~3	0	Decimal point set
	S.C.H	-1999~9999	9999	Scale upper limit value
	S.C.L	-1999~9999	0	Scale lower limit value
	L.i.E.H	-1999~9999	9999	Limit Hi (Max. Value of SV range)
	L.i.E.L	-1999~9999	-1999	Limit Lo (Min. Value of SV range)
	o.P.E.t	P, d/o,n,o,F	ON/OFF	Operation
	t.U.n	t.U,n/o,F,F	OFF	Auto Tuning
	b.i.R.S	-1999~9999	0	PV input bias
	o.F.S.t	-1999~9999	0	SV offset value during auto tuning

Main Item	Sub Item	Data Range	Default Value	Describe
C.t.b.L	P	0~9999	3	P Value
	I	0~9999	200	I Value
	D	0~9999	20	D Value
	E.R.t.E	0.0~100.0	0	Manual Reset
	F.i.L.t	1~50	1	Input digital Filter
	E.o.d.E	H~C	H~C	Hold temperature over room temperature
		C.o.o.L		Hold temperature below room temperature
	o.U.t.1	H.E.R.t	H.E.R.t	Heater is controlled by out1
		C.o.o.L		Cooler is controlled by out1
	o.U.t.2	H.E.R.t	H.E.R.t	Heater is controlled by out2
	C.o.o.L		Cooler is controlled by out2	
d.r.1	H, /L,o	H	Control output direct/reverse operation 1	
d.r.2	H, /L,o	H	Control output direct/reverse operation 2	
C.Y.C.1	0.5~999.9	15 sec	Cycle Time 1 (Second)	
C.Y.C.2	0.5~999.9	15 sec	Cycle Time 2 (Second)	
H.Y.S.1	0~9999	0000	Control output Hysteresis 1	
H.Y.S.2	0~9999	0000	Control output Hysteresis 2	
d.b.o.n	o,n/o,F,F	OFF	Deadband control	
d.E.b.i	-1999~9999	0	Deadband parameter of Heater	
d.E.b.2	-1999~9999	0	Deadband parameter of cooler	
L.b.R	0~9999	0	Loop break alarm	

A:R	B:b	C:c	D:d	E:E	F:F	G:G	H:H	I:i	J:j
K:k	L:l	M:M	N:n	O:o	P:P	Q:q	R:r	S:S	T:t
U:u	V:v	W:w	X:x	Y:y	Z:z				
※ d.o.t Except TC/RTD input									

Special mean entry method

Measurement	Input Type	Indication	Range
TC (°C)	K Type	°C (default)	-200~1370°C
	K Type	°C	-128.0~500.0°C
	J Type	°C	-200~1200°C
	J Type	°C	-128.0~500.0°C
	T Type	°C	-200~400°C
	T Type	°C	-128.0~400.0°C
	E Type	°C	-200~800°C
	R Type	°C	0~1760°C
	S Type	°C	0~1760°C
	B Type	°C	0~1820°C
RTD (°C)	N Type	°C	-200~1300°C
	PT Type	°C	-199.9~850.0°C
	JPT Type	°C	-200~500°C
TC (°F)	JPT Type	°F	-199.9~500.0°C
	K Type	°F	-328~2498°F
	K Type	°F	-199.9~932.0°F
	J Type	°F	-328~2192°F
	J Type	°F	-199.9~932.0°F
	T Type	°F	-328~752°F
	T Type	°F	-199.9~752.0°F
	E Type	°F	-328~1472°F
	R Type	°F	32~3200°F
	S Type	°F	32~3200°F
RTD (°F)	B Type	°F	32~3308°F
	N Type	°F	-328~2372°F
	PT Type	°F	-328~1562°F
V	PT Type	°F	-199.9~999.9°F
	JPT Type	°F	-328~932°F
	JPT Type	°F	-199.9~932.0°F
mA	0~50mV	°V	-1999~9999
	0~1V	°V	-1999~9999
	0~5V	°V	-1999~9999
	1~5V	°V	-1999~9999
	0~10V	°V	-1999~9999
	2~10V	°V	-1999~9999
	0~20mA	°A	-1999~9999
	4~20mA	°A	-1999~9999

Type R and S ± 8°C for 0 to 500°C
Type B accuracy is not guaranteed for 0 to 600°C

DESCRIPTION OF PARAMETERS

H.Y.S	You can set a hysteresis around the set point to prevent chattering
E.R.t.E	In PID control, I=0, PV=SV, reset the control output to "E.R.t.E" value
F.i.L.t	This function should be used the PV display value may fluctuate greatly, for example, when the measured input signal contains noise. If a larger time constant is set, the filter can remove more noise.
C.Y.C.L	The cycle time is the period of on/off repetitions of a relay or voltage pulse output in time proportional PID control. The ratio of the ON time to the cycle time is proportional to the control output value. If output for the relay, setting has to be more than 15.
d.r	Direction of relay
L.o.C.F	You can set the mode of function lists which can be displayed and edited.

FUNCTION LOCK

LOCK	L.b.03	L.b.02	L.b.01	L.b.00
RL.E				
S.o.F.t				
t.U.n				
b.i.R.S				
o.F.S.t				
P				
I				
D				
E.R.t.E				
F.i.L.t				
E.o.d.E				
o.U.t.1				
o.U.t.2				
d.r.1				
d.r.2				
C.Y.C.1				
C.Y.C.2				
H.Y.S.1				
H.Y.S.2				
d.b.o.n				
d.E.b.1				
d.E.b.2				
L.b.R				

LOCK	L.b.03	L.b.02	L.b.01	L.b.00
o.P.E.t				
t.U.n				
b.i.R.S				
o.F.S.t				
P				
I				
D				
E.R.t.E				
F.i.L.t				
E.o.d.E				
o.U.t.1				
o.U.t.2				
d.r.1				
d.r.2				
C.Y.C.1				
C.Y.C.2				
H.Y.S.1				
H.Y.S.2				
d.b.o.n				
d.E.b.1				
d.E.b.2				
L.b.R				

LOCK	L.b.03	L.b.02	L.b.01	L.b.00
C.o.E.E				
d				
b.P.S				
S.t.Y.L				
F.o.t.E				
t.o.U.t				
L.o.C.F				
L.R.b.E				
P.S.3.d				
P.3.S.U				
E.R.n.U				
P.E.E				
d.E.F				
t.E.t.n				

SAFETY SETUP

- LB00: Parameter Open
- LB01: Alarm, SV, and CTRL setup only
- LB02: SV setting only
- LB03: Lock setup only, other parameters are not available for setup

PARAMETERS OF HYSTERESIS LIST

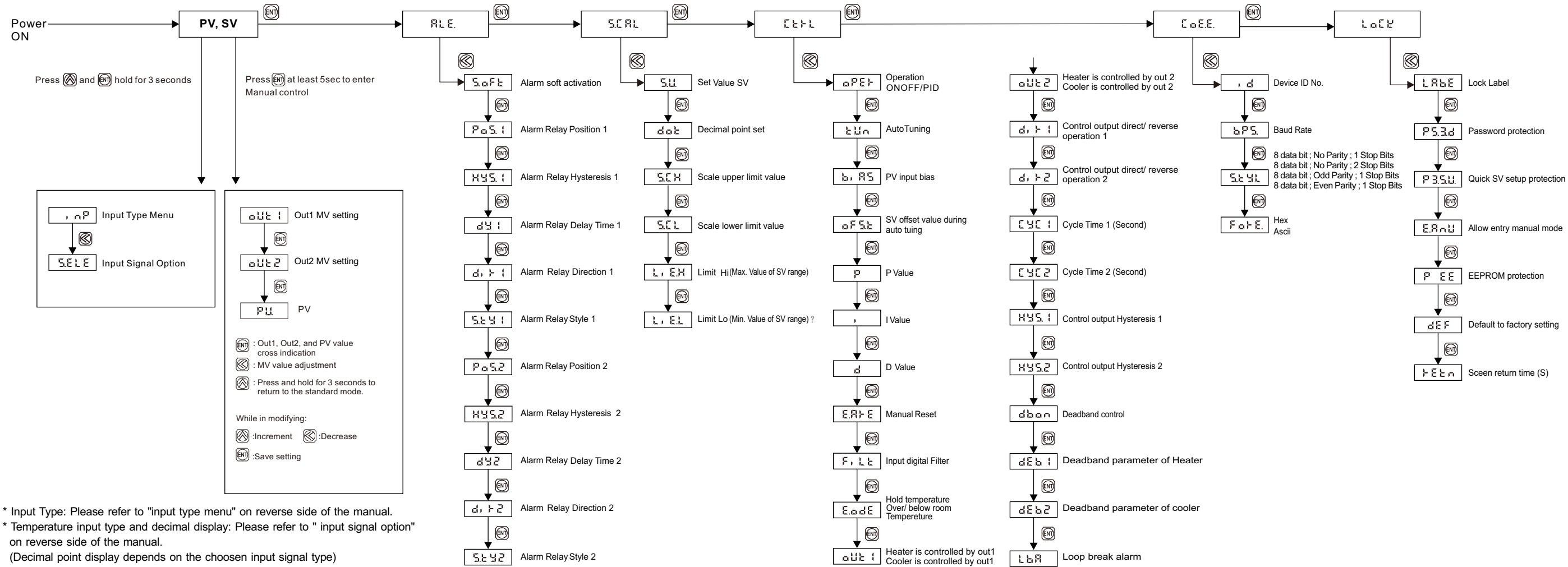
	Heater	Cooler
SV+ d.E.b.2	Disable	Enable
SV	Disable	Disable
SV+ d.E.b.1	Enable	Enable
SV+ d.E.b.2	Enable	Enable
	Enable	Disable

Disable : Inhibit output
Enable : Enable control output to follow PID/ON-OFF control algorithm

Special menu entry method

Main Item	Key Combinations	Describe	Notes
i.n.P	Press [F1] and [F2]	Input Signal Option	Reference list of input signal
E.R.n.U	Press [F3] 5 seconds	Manual control	Reference Program setting flowchart

PROGRAM SETTING FLOWCHART



* Input Type: Please refer to "input type menu" on reverse side of the manual.
 * Temperature input type and decimal display: Please refer to " input signal option" on reverse side of the manual.
 (Decimal point display depends on the choosen input signal type)

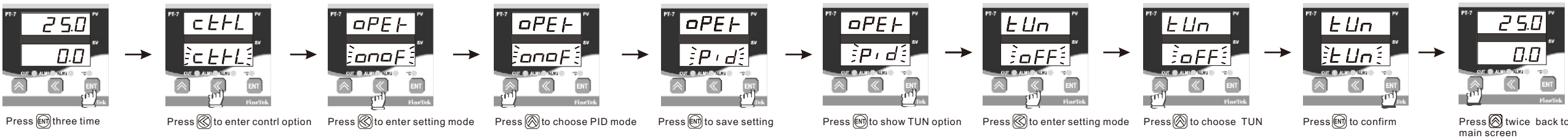
SETTING PRECEGURE DIAGRAM

1.Quick Setup

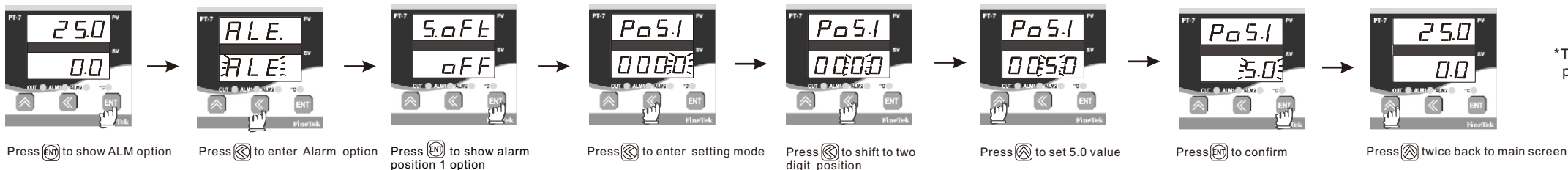
If SV=100, the setup procedure is as below:



2. Auto Tuning



3. Alarm Setting



*Flashing SV indicate that Auto Tune is executing.

*There are eight different Alarm modes, please refer Alarm mode setting table.

ALARM MODE SETTING

All can with Hysteresis and de-energized function for ON/OFF control

▲: SV △: Alarm Setting Value ▼: Hysteresis Setting Value (P○S.)

Deviation high alarm (S○Y 1) OFF ON

Deviation high alarm (S○Y 2) OFF ON

Deviation low alarm (S○Y 3) ON OFF

Deviation low alarm (S○Y 4) ON OFF

Deviation high/low alarm (S○Y 5) ON OFF ON

Band alarm (S○Y 6) OFF ON OFF

Process high alarm (S○Y 7) OFF ON

Process low alarm (S○Y 8) ON OFF

FineTek Co., Ltd.
 No.16, Tzu-chiang St., Tucheng Industrial Park, New Taipei City 236, Taiwan.
 Tel: 886-2-22696789 Fax: 886-2-22686682
 e-mail: info@fine-tek.com http://www.fine-tek.com

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