PT-04,Version 1.0, 2006.05.22

FineTek
PT-7310 SERIES TEMPERATURE CONTROLLER

Content of the packaging

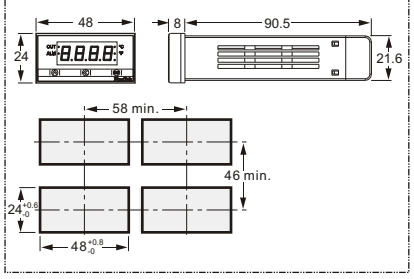
- Noumenon
- Washer
- Back cover
- User' s manual
- Bracket (2pcs)

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

http: //www.fine-tek.com

DIMENSION / PANEL CUTOUT

unit: (mm)

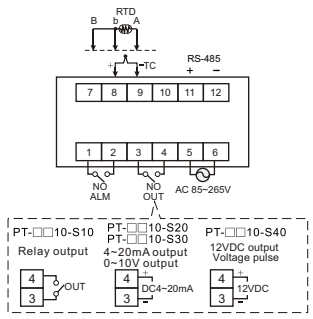


Warning!

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.

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.



Caution!

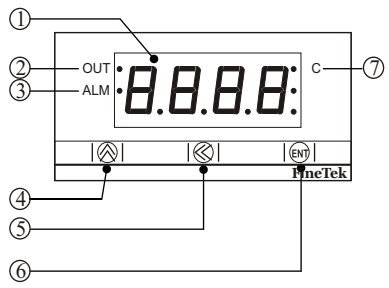
Please strictly observe the following instructions, it can guarantee this safe operation in anticipated cases of controller:

- 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.

SPECIFICATIONS

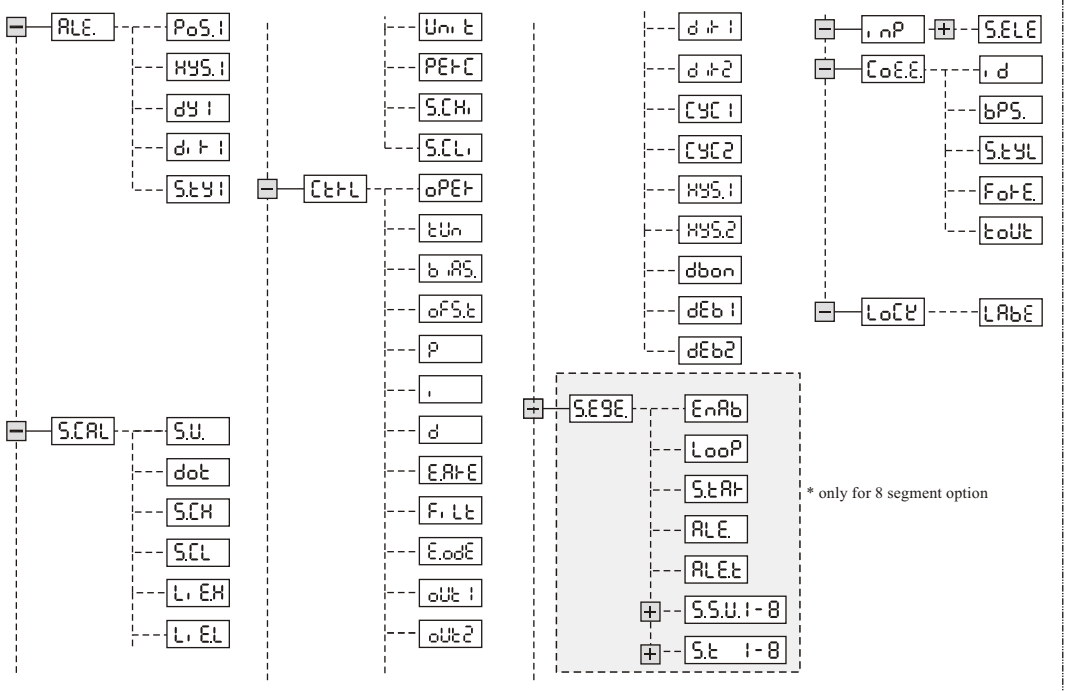
Power Supply:	85~265VAC 50/60Hz
Display:	4 digits 0.31"red 7 segment
Input Signal:	Thermocouple: J, K, B, N, R, S, T, E RTD: PT100, JPT100 DC Voltage: 0 ~ 350mV
Control Output:	Output Relay 1: (resistive load) SPST-NO, 5A/250VAC Voltage pulse output: (for SSR drive) NPN, 20mA at 12VDC Analog Output: 4~20mA, 0~10V DC (Allowable load resistive: Max. 600)
Alarm Relay:	SPST-NO, 3A/250VAC (resistive load)
Dwell Timer:	00~99s
Hysteresis:	0~999.9 °C (°F)
Communication Interface:	RS485 output
Operating Conditions:	0~50 °C (20~85%RH)
Control Output Cycle:	0~999.9s
Decimal Point:	0~3 digits
Digital Filter:	1~100
Control method:	ON / OFF or PID(Auto Tuning)
Input Offset:	-199.9~999.9
Fraction Value:	0000~9999
Settings Range:	-1999~9999
Accuracy:	±0.3% ±1 digit
Sampling Time:	200ms
Memory:	EEPROM

FRONT PANEL



① Display : 4 digits 0.31" red 7 segment
② Control output indicator
③ Alarm indicator.
④ "Up" key: addition and mode change.
⑤ "Shift" key: position shift.
⑥ "Enter" key: confirmation.
⑦ C indicator.

Program Setting Flowchart



* only for 8 segment option

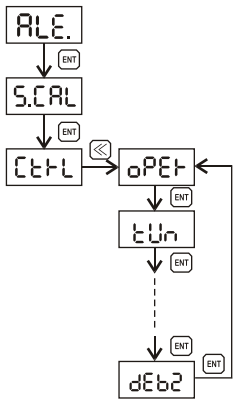
Input Buttons Explanation

The settings on the panel meter is controlled by the 3 buttons on the panel, (UP, SHIFT and ENTER). First choose the function, then input required value of 3 buttons while in "Selection" and "Setting" are:

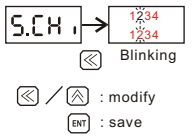
	Selection	Settings
UP	Escape	Addition
SHIFT	Enter	Position Shift
ENT ENTER	Switch	Confirmation

ENT ENTER Button

1) Main menu switch or sub-menu switch.

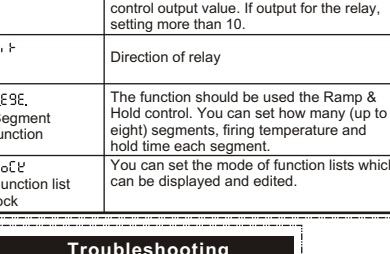


2) Confirmation to save settings
Example: Confirmation of change of SCHi value



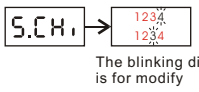
SHIFT Button

Entry into main menu or entry into sub-menu or position change.



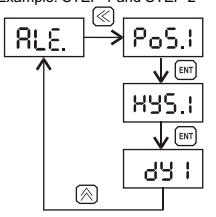
Position shift

After entering into value input, use this button to shift between digit position.
Example: Press shift button to shift SCHi digit position from right to left.

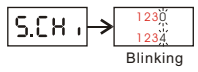


UP Button

To escape from main menu and to escape from sub-menu to main menu.
Example: STEP 1 and STEP 2



To change input value by addition.
Example: To change the value of SCHi from "1230" to "1234", press button four times.



FUNCTION LIST

Main Item	Sub Item	Data Range	Default Value	Describe
ALE.	PoS.1	-1999~9999	0	Alarm Relay Position 1
	HYS.1	0000~9999	0	Alarm Relay Hysteresis 1
	dY 1	00~99	00 SEC	Alarm Relay Delay Time 1
	di r 1	Hi / Lo	Hi	Alarm Relay Direction 1
	S.tY1	St 1~ St8	St 1	Alarm Relay Style 1
		St9		Alarm follow the action of out1
		St 10		Alarm follow the action of out2
S.CAL	S.U.	-1999~9999	0	Set Value SV
	dot	dot0~dot3	dot 1	Decimal point set
	S.CH	-1999~9999	9999	Scale upper limit value
	S.CL	-1999~9999	0	Scale lower limit value
	Li.EH	-1998~9999	9999	Limit Hi (Max. Value of SV range)
	Li.EL	-1999~9998	-1999	Limit Lo (Min. Value of SV range)
	Unit	oC/oF	C	Unit
	PEnt	on/oFF	OFF	Percentage
	S.CHi	000.0~100.0	100	Scale Input upper limit value
	S.CLi	000.0~100.0	0	Scale Input lower limit value
CtrL	oPEr	P, d/ onoF	ON/OFF	Operation
	tUn	tUn /oFF	OFF	Auto Tuning
	b.AS.	-1999~9999	0	PV input bias
	oFS.t	-1999~9999	0	SV offset value during auto tuing
	P	0000~9999	3	P Value
	I	0000~9999	200	I Value
	d	0000~9999	20	D Value
	Ed.rE	0000~9999	0	Manual Reset
	F.Lt	1~100	1	Input digital Filter

Main Item	Sub Item	Data Range	Default Value	Describe
CtrL	E.odE	H-C	H-C	Hold temperature over room tempereture
		Cool		Hold temperature below room tempereture
	oUt 1	HEAt	HEAt	Heater is controlled by out1
		Cool		Cooler is controlled by out1
	oUt2	HEAt	Cool	Heater is controlled by out2
		Cool		Cooler is controlled by out2
	di r 1	Hi / Lo	Hi	Control output direct/reverse operation 1
	di r2	Hi / Lo	Hi	Control output direct/reverse operation 2
	CYC 1	0000~9999	5 sec	Cycle Time 1 (Second)
	CYC2	0000~9999	5 sec	Cycle Time 2 (Second)
	HYS.1	0000~9999	0000	Control output Hysteresis 1
	HYS.2	0000~9999	0000	Control output Hysteresis 2
	dbon	on/oFF	OFF	Deadband control
	dEb 1	-1999~9999	0	Deadband parameter of Heater
	dEb2	-1999~9999	0	Deadband parameter of Cooler
S.E9E.	EnAb	on/oFF	oFF	Enable/Disable Segment Function
	LooP	on/oFF	oFF	Enable/Disable Segment Loop
	S.tAr	S.tr1~S.tr8	S.tr1	Setting Start Stage Number
	ALE.	ALE.1~ALE8	ALE.1	Setting Stage Number of Alarm
	ALEt	0000~9999	0000	Setting Alarm Hold Time (Second)
	S.S.U.1	-1999~9999	0	Set Value 1
	S.S.U.2	-1999~9999	0	Set Value 2

Main Item	Sub Item	Data Range	Default Value	Describe
S.E9E.	S.S.U.3	-1999~9999	0	Set Value 3
	S.S.U.4	-1999~9999	0	Set Value 4
	S.S.U.5	-1999~9999	0	Set Value 5
	S.S.U.6	-1999~9999	0	Set Value 6
	S.S.U.7	-1999~9999	0	Set Value 7
	S.S.U.8	-1999~9999	0	Set Value 8
	S.t 1	0000~9999	60	SV1 Hold Time (Minute)
	S.t 2	0000~9999	60	SV2 Hold Time (Minute)
	S.t 3	0000~9999	60	SV3 Hold Time (Minute)
	S.t 4	0000~9999	60	SV4 Hold Time (Minute)
	S.t 5	0000~9999	60	SV5 Hold Time (Minute)
	S.t 6	0000~9999	60	SV6 Hold Time (Minute)
	S.t 7	0000~9999	60	SV7 Hold Time (Minute)
	S.t 8	0000~9999	60	SV8 Hold Time (Minute)
inP	S.ELE	K tP		TC K Type
		J tP		TC J Type
		t tP		TC T Type
		E tP		TC E Type
		r tP		TC R Type
		S tP		TC S Type
		b tP		TC B Type
		n tP		TC N Type
		Pt tP		Pt100
		JPtP		JPT100
		dCtP		DC Type
CoE.E.	Id	0000~0255	0001	Device ID No.
	bPS.	600	9600	BaudRate：600
		1200		BaudRate：1200

Main Item	Sub Item	Data Range	Default Value	Describe
CoE.E.	bPS.	2400	9600	BaudRate：2400
		4800		BaudRate：4800
		9600		BaudRate：9600
		192-		BaudRate：19200
		384-		BaudRate：38400
	S.tYL	8n1	8n1	8 Byte Size ; No Parity ; 1 Stop Bits
		8n2		8 Byte Size ; No Parity ; 2 Stop Bits
		8o1		8 Byte Size ; Odd Parity ; 1 Stop Bits
		8E1		8 Byte Size ; Even Parity ; 1 Stop Bits
	ForE.	HEX	HEX	Hex
		ASCi		Ascii
	toUt	0100~9999	0100	Time Out / ms
LoCY	LAbE	Lb00	Lb00	Lock Label 0
		Lb01		Lock Label 1
		Lb02		Lock Label 2
		Lb03		Lock Label 3

A:A B:b C:C D:d E:E F:F G:9 H:H I:I J:J
K:K L:L M:E N:n O:o P:P Q:9 R:r S:S. T:t
U:U V:U W:3 X:H Y:y Z:2.

桓達科技股份有限公司
台北縣土城市自強街16號
FINETEK CO., LTD.
No.16, Tzuchiang Street, Tucheng Industrial Park,
Taipei Hsien,Taiwan
TEL：886-2-22696789
FAX：886-2-22686682
E-mail: info@fine-tek.com
http://www.fine-tek.com/

Made in Taiwan

Description of Parameters

HYS. Control output hysteresis	You can set a hysteresis around the set point to prevent chattering
Ed.rE Manual reset	In PID control, I=0, PV=SV, reset the control output to "Ed.rE " value
F.Lt PV input filter	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.
CYCL Control output cycle time	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 more than 10.
di r	Direction of relay
S.E9E. Segment function	The function should be used the Ramp & Hold control. You can set how many (up to eight) segments, firing temperature and hold time each segment.
LoCY Function list lock	You can set the mode of function lists which can be displayed and edited.

Troubleshooting

1	Display over scale
-1	Display under scale
0000	PV over scale
UUUU	PV under scale
- - - -	Sensor break

FUNCTION LOCK

LOCK	Lb03	Lb02	Lb01	Lb00	FACTORY
ALE.					
PoS.1			○	○	
HYS.1				○	
dY 1				○	
di r 1				○	
S.tY1				○	
S.CAL					
S.U.		○	○	○	
dot				○	
S.CH				○	
S.CL				○	
Li.EH				○	
Li.EL				○	
Unit				○	
PEnt				○	
S.CHi				○	
S.CLi				○	
CtrL					
oPEr			○	○	
tUn			○	○	
b.AS.			○	○	
oFS.t			○	○	
P			○	○	
I			○	○	
d			○	○	
Ed.rE			○	○	
F.Lt			○	○	
E.odE			○	○	
oUt 1			○	○	
oUt2			○	○	
di r 1			○	○	
di r2			○	○	
CYC 1			○	○	
CYC2			○	○	
HYS.1			○	○	
HYS.2			○	○	
dbon			○	○	

LOCK	Lb03	Lb02	Lb01	Lb00	FACTORY
dEb 1			○	○	
dEb2			○	○	
S.E9E.					
EnAb			○	○	
LooP			○	○	
S.tAr			○	○	
ALE.			○	○	
ALEt			○	○	
S.S.U.1			○	○	
S.S.U.2			○	○	
S.S.U.3			○	○	
S.S.U.4			○	○	
S.S.U.5			○	○	
S.S.U.6			○	○	
S.S.U.7			○	○	
S.S.U.8			○	○	
S.t 1			○	○	
S.t 2			○	○	
S.t 3			○	○	
S.t 4			○	○	
S.t 5			○	○	
S.t 6			○	○	
S.t 7			○	○	
S.t 8			○	○	
inP					
K tP				○	
J tP				○	
t tP				○	
E tP				○	
r tP				○	
S tP				○	
b tP				○	
n tP				○	
Pt tP				○	
JPtP				○	
dCtP				○	

LOCK	Lb03	Lb02	Lb01	Lb00	FACTORY
CoE.E.					
Id				○	
bPS.				○	
StYL				○	
ForE				○	
toUt				○	
LoCY					
LAbE	○	○	○	○	

Temperature Range

INPUT TYPE	RANGE	ACCURACY
K TYPE	-200~1370°C	0.3%±1digit
J TYPE	-210~1200°C	0.3%±1digit
R TYPE	-50~1760°C	0.3%±1digit
S TYPE	-50~1760°C	0.3%±1digit
B TYPE	250~1820°C	±8°C±1digit
E TYPE	-200~1000°C	0.3%±1digit
N TYPE	-200~1300°C	0.3%±1digit
T TYPE	-200~400°C	±2°C±1digit
PT100	-200~850°C	0.3%±1digit
JPT100	-200~850°C	0.3%±1digit
DC	0~350mV	0.3%±1digit

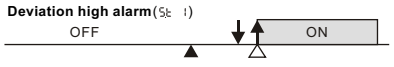
Type R and S ±9°C for 0 to 500°C
Type B accuracy is not guaranteed for 0 to 400°C

ALARM MODE SETTING:

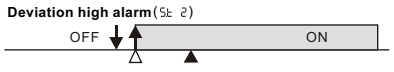
All can with Hysteresis and de-energized function for ON/OFF control

▲: SV △: Alarm Setting Value (PoS.) ▼: Hysteresis Setting Value (HYS.)

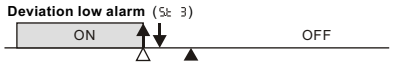
Deviation high alarm(St 1)



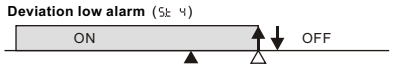
Deviation high alarm(St 2)



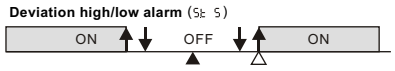
Deviation low alarm (St 3)



Deviation low alarm (St 4)

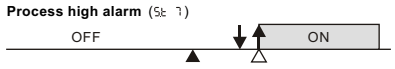


Deviation high/low alarm (St 5)

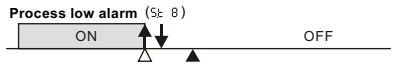


Band alarm (St 6)

Process high alarm (St 7)



Process low alarm (St 8)



PARAMETERS OF HYSTERESIS LIST

	Heater	Cooler
SV+dEb2	Disable	Enable
SV	Disable	Disable
SV+dEb1	Disable	Disable
	Enable	Disable

dEb1<0, dEb2>0

	Heater	Cooler
SV+dEb1	Disable	Enable
SV	Enable	Enable
SV+dEb2	Enable	Disable

dEb1>0, dEb2<0

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