YHKJ

Digital Display PID Temperature Controller

TX6 Series

User Manual

For your safety, please read the following content before use.

Safety Precautions

"Safety precautions" are intended to ensure the safe and proper use of this product and to prevent dangerous accidents. Please observe the following precautions.

Safety precautions are divided into "Warning" and "Caution" sections, with the following meanings:

⚠ **Warning**: Failure to observe this may result in serious injury or death.

⚠ **Caution**: Failure to observe this may result in minor injury or product damage.

⚠ Warning

1. **When used in machines that significantly impact personal safety and property (e.g., nuclear control, medical equipment, ships, vehicles, railways, aviation, combustion equipment, safety devices, disaster prevention/theft prevention systems), ensure the installation of double safety protection devices before use.**
   Otherwise, it may result in fire, injury, or property damage.
2. **The panel must be installed during operation.**
   Otherwise, there is a risk of electric shock.
3. **Do not perform maintenance while the power is on.**
   Otherwise, there is a risk of electric shock.
4. **When wiring, please confirm the terminal numbers before connecting.**
   Otherwise, it may cause a fire.
5. **Only authorized service personnel from the company may modify this product.**
   Otherwise, it may result in electric shock or fire.

⚠ Caution

1. **Do not use this product outdoors.**
   Otherwise, it may shorten the product's service life or cause electric shock.
2. **When wiring the power input terminal and relay output terminal, use AWG 20 (0.50mm²) wires and maintain a screw torque of 0.74N·m to 0.90N·m.**
   Otherwise, it may cause a fire.
3. **Use this product within the rated specifications.**
   Otherwise, it may shorten the product's lifespan and pose a fire hazard.
4. **Use a load that is within the rated capacity of the relay contacts.**
   Otherwise, it may result in insulation failure, contact fusion, malfunction, relay damage, or fire.
5. **Do not use water or organic solvents for cleaning. Wipe with a dry cloth.**
   Otherwise, it may cause electric shock or fire.
6. **Avoid using this product in flammable, explosive, humid environments, or where there is direct sunlight, heat radiation, or vibration.**
   Otherwise, it may cause fire or explosion.
7. **Do not allow dust or wire debris to enter the product interior.**
   Otherwise, it may cause fire or product damage.
8. **Confirm the polarity of the terminals before connecting the thermocouple wiring.**
   Otherwise, it may result in fire or explosion.
9. **To achieve reinforced insulation, use a power supply device that guarantees reinforced insulation or higher.**

Model Description

TX 6 - □ - □ - □ - □ - □ - □

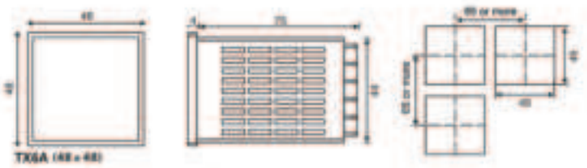
Communication Output	None	No Communication
		RS485 Communication (Modbus RTU Protocol)
Second Alarm Output / First Alarm Output	None	No Alarm
	1	Upper Limit Deviation
	2	Lower Limit Deviation
	3	In-Zone Alarm
	4	Out-of-Zone Alarm
	5	Absolute Upper Limit Alarm
	6	Absolute Lower Limit Alarm
Main Control Output	1	Relay
	2	Solid-State Relay
	3	PID 4-20mA
	4	PID 0-10V
	5	Linear Output 0-10V
	6	Linear Output 4-20mA
Input Specification	K	
	PT	Voltage Control Output
	A	Temperature Transmitter Voltage Output
	V	Current Control Output
External Dimensions	A	W48XH48mm
	B	W48XH96mm
	D	W72XH72mm
	E	W96xH96mm
Product Type	6	Model Version Number
Item Name	TX	Model Series Code

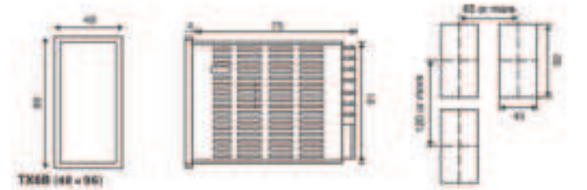
Specifications

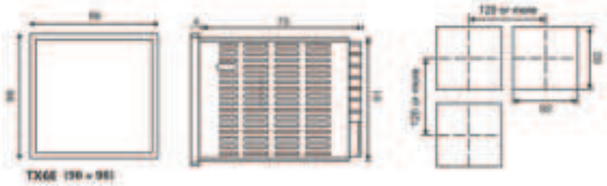
Power Supply Voltage		220VAC
Allowable Voltage Range		90～110% of Power Voltage
Power Consumption		≤4VA
Input Specification	Thermocouple	K E J N T S R B
	RTD	Pt100 Cu50
	Linear Current	0～20mA 4～20mA
	Linear Voltage	0～5V 1～5V
Display Accuracy		±0.5%
Output Specification		Relay 250VAC 3A
		SSR 12VDC ± 2V ≤ 20mA
		Voltage Output (Control Output / Transmitter Output)
		Current Output (Control Output / Transmitter Output)
		Contactor Output (Zero-Cross Trigger / Phase Trigger)
Optional Output	Alarm Output	Relay 250VAC 3A, up to 2 outputs
	Communication Output	RS485 Communication Output (Modbus RTU)
Control Mode		On/Off Control, PID Control
Sampling Period		100ms
Relay Life		Mechanical >2.0 million times / Electrical >100,000 times
Dielectric Strength		2000VAC 50/60Hz 1min (between terminal and case)
Vibration Resistance		5～55Hz (1-minute cycle), amplitude 0.75mm, 2 hours in X, Y, and Z directions
Insulation Resistance		≥100MΩ (500VDC), MEGA
Noise Immunity		Simulated square wave interference (pulse width 1μs) ±2KV between R-phase and S-phase
Power Failure Memory		Approx. 10 years (non-volatile semiconductor memory)
Ambient Environment	Operating Ambient Temperature	-5～40℃ Storage: -10～50℃
	Operating Ambient Humidity	35～85% Storage: 35～85%

External Dimension Diagram

Unit:mm







Names of Display Panel Components

1	PV	Process Value
2	SV	Set Value
3	MV	Output
4	C	Celsius
	F	Fahrenheit
	AT	Auto Tuning
5	TEN	Keypad Function Lockout (Some models do not support)
	COM	Communication Function Lockout (Some models do not support)
	MAN	Unattended
6	OUT1	Main Control Output Indication
	OUT2	H-C Mode - Cooling Output Indication
	STOP	Main Output Stop Indication
7	AL1	Alarm 1 Indication
	AL2	Alarm 2 Indication
	AL3	Alarm 3 Indication (currently unused)
8		Heating Indication
		Constant Temperature Indication
		Cooling Indication
9	(in mA)	Output Proportion Indicator
10	MODE	Press and hold to set parameters; return / save
11		Digit Shift Key (Used for digit position movement)
12		Decrease value key
13		Increase value key
	ST	Run/Set setting (used when timing function is enabled)

Parameter Group

1. User Parameters

In normal measurement/control mode, press the mode key once to enter user parameter settings.
Press again to proceed to the next parameter, until all parameters are set.

Code	Parameter Name	Parameter Description	Setting Range	Default Value	Display Condition
SU	Temperature Setting	Temperature setpoint	SUL～SUH	150℃	Manual function off: When manual function is on, this shows control power percentage.
St	Set Instrument Run Time	When the timer function is active: (When CPYT ≠ 0000, this parameter appears. For details, see CPYT in F-3 menu. Default unit is minutes)	0～9999S/M	60	CPYT ≠ 0000

2. Engineering Parameters

Engineering parameter menus are divided into P-1, P-2, P-3, and P-4. These four layers are open to users.
To modify SuST, press the mode key to display SuST on the top row or press any key to directly enter internal menus.
Press the mode key again to confirm and enter the next menu. To return to the previous menu, press the shift key first, then press the mode key to confirm.

Parameter Group [P- 2] Press and hold the mode key for 3 seconds → P- 1

Code	Parameter Name	Parameter Description	Setting Range	Default	Display Condition
AL 1	First Alarm Value	Refer to the alarm mode reference table	-1999～9999	30	AD1≠0
AL2	Second Alarm Value	Refer to the alarm mode reference table	-1999～9999	30	AD2≠0
oH	Over-H Output Hysteresis	Heating: PV > SV + DF → Turn off output PV ≤ SV- DH → Turn on output	-1999～9999	2	Pid≠onoF
oF	OFF Output Hysteresis	Cooling: PV < SV - DF → Turn off output PV ≥ SV +DH → Turn on output	-1999～9999	0	Pid≠onoF
doHt	Cooling Delay	Delay time for ON/OFF cooling output, usually used for compressor delay	0～250 SEC	0	Pid≠onoF or C=ONE
P	Proportional Band	Proportional action adjustment; larger P value means smaller offset, less fluctuation	1～9999	30	Pid≠pid
I	Integral Time	Integral action time constant, larger I means slower action; I=0 turns PID control "ADD" (derivative) offset	0～9999	240	I>0
rESt	Integral Offset	Set offset when I = 0	0.0～100.0%	50.0	Pid≠pid
d	Derivative Time	Derivative time constant, higher value increases derivative action to suppress overshoot, and causes PV instability	0～9999	60	Pid≠pid
t	Output Cycle Time	Relay output = 20s, SSR and 1P8T output = 2s, continuous output = 1s, applies only to the heating side	1～100	20	Pid≠pid
AtU	Auto-Tuning Enable/Disable	OFF → disable auto-tuning; ON → enable auto-tuning	OFF/ON	OFF	Pid≠pid
Ar	Integral Limit	HE: I-limit to limit integral overshoot	1～100	100	Pid≠pid
Pc	Cooling Proportional Band	Cooling proportional band, 1 = 100%	1～200	100	H-C≠HEAT
oHH	Cooling Hysteresis Upper	Dual-channel ON/OFF cooling: PV ≥ SV + DB + DHH → start cooling	-1000～1000	2	H-C≠HEAT
oHL	Cooling Hysteresis Lower	Dual-channel ON/OFF cooling: PV < SV + DB + DHL → stop cooling	-1000～1000	0	H-C≠HEAT
Ec	Zero Correction	Sensor value correction: PV = measured value + Ec	-1999～9999	0	
Et	Span Correction	Adjust this value for sensor linearity correction when there is a large deviation in the target temperature. Et = 1000 → maximum reading → instrument display reduced / increased display value	-1000～1000	0	
AdrS	Communication Address	Communication address of the instrument	1～100	1	Communication Enabled
bPS	Baud Rate	2.4E: 4.8E: 9.6E: 14.4E: 19.2E: 28.8E: 38.4E	2.4E～38.4E	19.2E	Communication Enabled
LcK	Password Lock	Restrict access to parameter menu layers: • 0 → Unlock all menus • 1 → Lock P-1 • 2 → Lock P-1, P-2 • 3 → Lock P-1, P-2, P-3 • 4 → Lock P-1, P-2, P-3, SU • Other → Lock all menus	0～9999	0	

2. Parameter Group [P- 2] Press and hold the mode key for 3 seconds → P- 1 → P- 2

Code	Parameter Name	Parameter Description	Setting Range	Default Value	Display Condition
inP	Input Sensor Type	Input sensor type, refer to input table	K～cu	K	
U int	Unit Selection	Temperature unit switching	℃ ℉	℃	
dP	Decimal Point	When SNT is thermocouple or RTD, this can be set	0～1	0	
SL-L	Range Lower Limit	Lower limit of input signal range	-1999～9999		
SL-H	Range Upper Limit	Upper limit of input signal range	-1999～9999		
SuL	Control Lower Limit	Lower limit of SU control range	SL-L～SL-H	SL-L	
SuH	Control Upper Limit	Upper limit of SU control range	SL-L～SL-H	SL-H	
P id	Control Mode	rapid: pid control rawsF: ON/OFF control	PID/ONOF	PID	
Rd 1	Alarm 1 Mode	Refer to alarm type table +8 means output after timer ends		1	
RH 1	Alarm 1 Hysteresis	Alarm release hysteresis value	-1999～9999	1	AD1≠0
Rd2	Alarm 2 Mode	Same as AD1		1	
RH2	Alarm 2 Hysteresis	Alarm release hysteresis value	-1999～9999	1	AD2≠0
H-c	Output Mode	=HEAT: Heating =COOL: Cooling =HEAT: Heating & cooling		HEAT	
F IL	Filter Coefficient	Display value filter cycle. Larger value means more stable but less responsive	0.1～100.0	0.5	
HEUd	Deviation Indication	PV > SV + HEAD → Upward arrow is illuminated PV < SV - HEAD → Downward arrow is illuminated SV + HEAD > PV > SV - HEAD → Constant temperature arrow is illuminated	0～100	2	

Parameter Group [P- 3] Press and hold the mode key for 3 seconds → P- 1 → P- 2 → P- 3

Code	Parameter Name	Parameter Description	Setting Range	Default Value	Display Condition
buF	Soft Start Power Rate	Soft-start percentage	0.0～100.0%	100.0	Current heating
but	Soft Start Time	Preheating duration based on demand before applying BUP percentage, then switch to normal control. 0 = No Soft Start	0～9999 SEC	0	Current heating
Udb	Shortcut Key Function Press both the increase and decrease keys simultaneously for 3 seconds to activate	OFF: Disabled OUT: Quickly toggle OUT parameter AT: Start/stop auto-tuning with key AL: Quickly turn or Turn off Alarm 1		OFF	
PL	Minimum Heating Output	Limit the minimum heating output percentage	0.0～30%	0	
PH	Maximum Heating Output	Limit the maximum heating output percentage	30～100%	100	
oUt	Output Type	0/1: Relay heating, relay terminal effective SSR: Solid-state heating, SSR terminal effective 4/5: 0～20mA current heating, current terminal effective		RLY	
tbAt	Monitoring Time	Heating fault detection time	0～9999 SEC	0	
tbAb	Monitoring Bandwidth	Heating fault detection bandwidth	0～9999	2	
tSL	Analog Output Low Limit	Analog output zero point	-1999～9999		
tSH	Analog Output High Limit	Analog output full scale	-1999～9999		
A ity	Alarm 1 Output Delay Time	Alarm 1 output delay control • 0 → No delay • Positive number → Delay interval in seconds (e.g., 0005 → minimum 05 sec between alarms) • Negative number → Output hold time (e.g., -005 → 5 sec output, locks other alarm events)	0		AD1≠0
A2ty	Alarm 2 Output Delay	Same as A1TY	-1999～9999	0	AD2≠0
tt	Temperature Tracking Offset	Display value will infinitely approach the set value ±1	0.0～10.0	0.5	
FAc	Overtemperature Display Limit	=0: Disabled =others: When temperature overshoots PV > SV + (PV - SV) > FAC	0～100	0	
PHoF	Power Shutdown Offset	=0: Disabled =others: When PV > SV + PHOF, heating is forcibly turned off	0～9999	0	
cPyA	Control Parameters Group A	Each digit from thousands, hundreds, tens, to units represents an independent control meaning: Units digit = 1: Alarm 1 in active alarm =others: non-active alarm Tens digit = 2: Alarm 2 is active alarm =others: non-active alarm Hundreds digit =2 Alarm output controlled by upper computer =others: normal measurement alarm Thousands digit =2: Alarm output controlled by upper computer =others: normal measurement alarm	0～9999	0000	
cPyb	Control Parameters Group B	Each digit from thousands, hundreds, tens, to units represents an independent control meaning: Units digit -2: SV (SNT value) can only be adjusted by pressing Mode first, then UP/DOWN =others: directly adjustable by UP/DOWN Tens digit =2: Enable manual output, press SHIFT to switch between OUT1/OUT2 Hundreds digit • 1: Enable manual ON/OFF heating • 0: default OFF =others: manual ON/OFF heating supported (Hold MODE + UP to turn ON heating, OFF will show "STOP" on lower display) Thousands digit: Reserved	0～9999	0000	

Code	Parameter Name	Parameter Description	Setting Range	Default Value	Display Condition
cPYt Timing Function	Control Parameter Group T During the waiting period before timing starts, the PRO indicator is off During timing, the PRO indicator flashes After timing ends, the PRO indicator stays on	Each digit from thousands, hundreds, tens, to units represents an independent control meaning. The units digit represents the timing mode: Units digit =0: Delayed heating output heating starts after power-on and ErrSt time delay. Units digit =1: Temperature-triggered timing, starts when PV = SV - AL1. Units digit =4: Heating starts after power-on. Units digit =5: Manual start via key, hold key to start and stop timing. Units digit =others: No timing function, after completion, lower screen displays "END". The tens digit represents the time unit for the timer. Tens digit=1: timing unit is minutes (1 - 9999 min). Tens digit=others: timing unit is seconds (1 - 9999 sec). The hundreds digit represents the heating process handling method after the timer ends. Hundreds digit=1: stop heating after timer ends. Hundreds digit=others: do not stop heating.	0000 - 9999 Sv = Set Value ST = Set Time Tap the shift key to flash the lower display and show the remaining time. "END" is displayed when timing is complete. Set alarm mode. AO1 = 8 to enable alarm output upon timer completion.			
ALt	Timing temperature trigger hysteresis	When the timing function is enabled. Timing starts when PV > SV − ALT.			CPYT enabled
U--	Software Version Number				

Quick Operation Method

Press ◆ + ▼ for 3 seconds to execute the quick operation mode.

- Specific function depends on quick function type[UoPb] under parameter group [P-3]
- Default output: RELAY/SSR switch
- This function is not affected by parameter group lock [LCK]

Quick Function Parameter	Application Display		Description
OFF	/		Do not use quick key function
AT	At on	At oFF	Used for executing/stopping auto-tuning, same as [AtU] under [P- 1] ON means execute, OFF means stop
AL	AL on	AL oFF	During alarm operation, user can forcibly clear the alarm. ON means alarm is cleared, OFF means alarm is retained. When alarm exceeds the set range, this function restores it.
OUT	oUt rLy	oUt SSr	Used for quickly switching output type, corresponds to [oUt] setting under [P-3] RLY means relay output, SSR means solid-state output.

Factory Reset Procedure

Hold the MODE key + ◆ shift key for 3 seconds. When the code P-4 appears, enter the output password 0911, press MODE to confirm. Then change NO to YES using shift key, finally press MODE to confirm to initialize.

P-4 0000 → (Input 0911) → P-4 0911 → (MODE) → rESt no → (◆) → rESt YES → (MODE) → Initialization Successful

※ Input Specification and Usage Range Table

Input Specification		Display	Decimal Point Position	Measurement Range (℃)	Measurement Range (℉)
Thermocouple	K	K	0	−30 ~ 1300	−22 ~ 2372
			1	−30.0 ~ 999.9	−22.0 ~ 999.9
	E	E	0	−30 ~ 700	−22 ~ 1292
			1	−30.0 ~ 700.0	−22.0 ~ 999.9
	J	J	0	−30 ~ 900	−22 ~ 1652
			1	−30.0 ~ 900.0	−22.0 ~ 999.9
	N	n	0	−30 ~ 1000	−22 ~ 1832
			1	−30.0 ~ 999.0	−22.0 ~ 999.9
	T	t	0	−30 ~ 400	−22 ~ 752
			1	−30.0 ~ 400.0	−22.0 ~ 752.0
	S	S	0	0 ~ 1760	32 ~ 3200
			1	0 ~ 999.0	32.0 ~ 999.9
	R	r	0	0 ~ 1750	32 ~ 3182
			1	0 ~ 999.0	32.0 ~ 999.9
	B	b	0	200 ~ 1800	392 ~ 3272
			1	200.0 ~ 999.0	392.0 ~ 999.9
RTD	Pt100	Pt	0	−200 ~ 650	−328 ~ 1202
			1	−99.0 ~ 650.0	−99.9 ~ 999.9
	Cu50	Cu	0	−50 ~ 150	−58 ~ 302
			1	−50.0 ~ 150.0	−58.0 ~ 302.0
Linear Analog Input	4-20mA	A4	0	-1999-9999	
			1	-199.9~999.9	
	0-20mA	A0	0	-1999-9999	
			1	-199.9~999.9	
	1-5V	U4	0	-1999-9999	
			1	-199.9~999.9	
	0-5V	U0	0	-1999-9999	
			1	-199.9~999.9	

Function Description

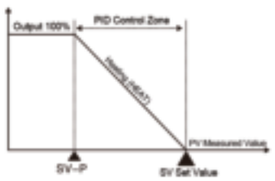
1. Auto-Tuning [At]

PID auto-tuning is a function of the temperature controller that calculates the PID control parameters by measuring the thermal characteristics and thermal response time of the control object, allowing automatic parameter setting for fast and stable control.

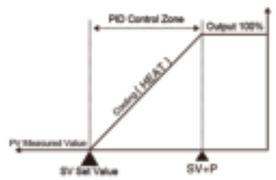
- During auto-tuning, the heating system should be in working condition, and the measured value (PV) should be lower than the set value (SV).
- The auto-tuning [At] function will only be displayed when the control mode parameter [P.cd] is set to " on ".
- Set the auto-tuning switch[At] to " on ",and the AT indicator will begin flashing, indicating the system has entered auto-tuning mode.
- During the auto-tuning process, all parameter groups and SV settings are locked. To manually stop the tuning process, set [At] to " oFF ".
- If an error code "HHHH "or"LLLL" occurs during tuning, it will stop automatically.
- Once tuning is complete, the AT indicator stops flashing, and the obtained P、I、d、Ar parameters are saved automatically and return to control mode. Continue operation with the newly obtained P、I、d、Ar parameters.
- If tuning is interrupted, the parameters P、I、d、Ar will remain unchanged.

2. Control Mode [P.cd]

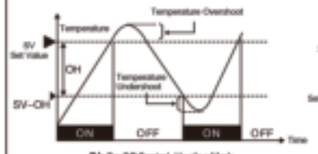
When the control mode[P.cd] parameter is set to " on " , it is in PID control mode. If set to " oFF " , it is in on/off control mode.



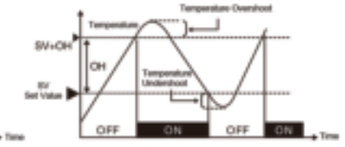
1) PID Control, Heating Mode
The larger the measured value, the smaller the output OUT.



2) PID Control, Cooling Mode
The larger the measured value, the greater the output OUT.



3) On-Off Control, Heating Mode



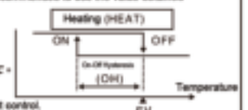
4) On-Off Control, Cooling Mode

3. Overshoot Suppression [Ar]

Used to suppress overshoot in PID control. A larger setting results in faster heating and more overshoot; a smaller setting results in slower heating and less overshoot. The default is 60; it is recommended to use the value obtained from PID auto-tuning.

4. On-Off Control Hysteresis [oH]

Used in on-off control to set the interval between ON and OFF output.

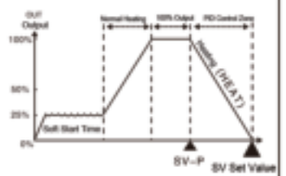


- The [oH] parameter is only visible when control type[P.cd] is set to " oFF "
- If the hysteresis is too small, external interference may cause unstable output control.

5. Soft Start Time [bUF]

When the heating system first starts, the measured value (PV) is much lower than the set value (SV), causing the output (OUT) to immediately reach 100%. In some industries, sudden full-power heating from a cold state can significantly reduce the heating system's lifespan.

During the soft start time, the output is limited to 25% to provide a buffering effect and extend the system' s service life.



- Time unit: seconds.
- Only effective for analog or phase-shifted output.

6. Error Correction [EC]

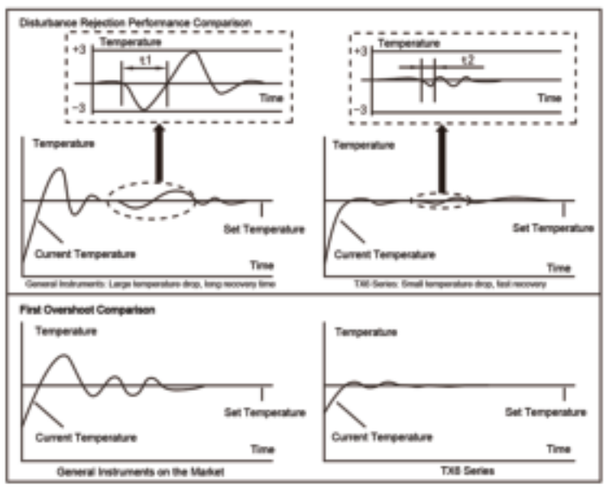
This function is used to correct temperature errors caused by external sensors; the controller itself has minimal inherent error. For example, if the actual temperature is 80°C but the controller displays 78°C, setting [EC] to " 002 " will correct the display to 80°C.

- After error correction, if the measured value (PV) exceeds the measurement range, " HHHH " or" LLLL " will be displayed.

7. Digital Filtering [F.L]

Unstable input signals or external interference may cause fluctuation in the measured value (PV), making precise control difficult. In such cases, digital filtering can help stabilize PV readings for more accurate control.

- When using this function, it's normal that the PV may slightly deviate from the actual input value.



Alarm Type Table [Rd1] [Rd2]

Setting Value	Alarm Type	Positive Alarm Value (AL1)	Negative Alarm Value (−AL1)	Deviation Alarm / Absolute Alarm
0	No Alarm Function	No Output		
1	High Deviation Alarm	AL1 ON, SV	−AL1 ON ON, SV	Deviation Alarm
2	Low Deviation Alarm	AL1 ON, SV	−AL1 ON ON, SV	Deviation Alarm
3	Inside Band Alarm	AL1 AL1 ON ON, SV	Always OFF	Deviation Alarm
4	Outside Band Alarm	AL1 AL1 ON ON, SV	Always ON	Deviation Alarm
5	Absolute High Limit	AL1 ON, 0	−AL1 ON ON, 0	Absolute Value Alarm
6	Absolute Low Limit	AL1 ON ON, 0	−AL1 ON, 0	Absolute Value Alarm
7	LBAT Alarm	When during a full output ON or full output OFF cycle, the PV temperature variation is smaller than LBAB, alarm will be triggered. If the variation is greater than LBAB, no alarm will be triggered.		Heating Output Failure Alarm
8	Timer End Alarm	Timer End 0010 —— 0000 AL ON		Timer End Alarm
11	Wait Mode High Deviation Alarm	AL1 ON, SV	−AL1 ON ON, SV	Deviation Alarm
12	Wait Mode Low Deviation Alarm	AL1 ON ON, SV	−AL1 ON ON, SV	Deviation Alarm
13	Wait Mode Inside Band Alarm	AL1 AL1 ON ON, SV	Always OFF	Deviation Alarm
14	Wait Mode Outside Band Alarm	AL1 AL1 ON ON, SV	Always ON	Deviation Alarm
15	Wait Mode Absolute High Limit	AL1 ON, 0	−AL1 ON ON, 0	Absolute Value Alarm
16	Wait Mode Absolute Low Limit	AL1 ON ON, 0	−AL1 ON, 0	Absolute Value Alarm

- **Deviation Alarm**

Used when the alarm needs to link with the set temperature.
The alarm trigger point changes along with changes in the set temperature.

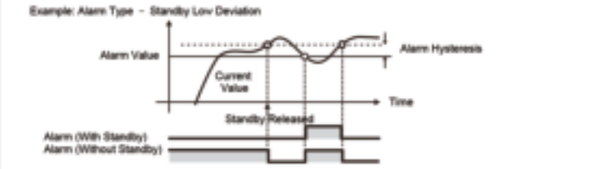
- **Absolute Value Alarm**

Used when there is no need to link with the set temperature.

- **Standby Function**

The standby function activates only after the current value exits the alarm range.
Before re-entering the alarm range, even if alarm ON conditions are met, the alarm will not turn ON.

Example: Alarm Type − Standby Low Deviation



- **Timer-End Alarm**

Timer-end alarm refers to the output of AL1/AL2 alarm when the control timer cPYt is activated and the countdown ends.

- **LBAT Alarm**

The LBAT alarm is a heating output fault alarm. When heating output is continuously ON or OFF for a full cycle and the duration reaches the LBAT time, if the measured temperature change (PV) is smaller than the LBAB threshold, an alarm will be triggered. If the change exceeds the LBAB threshold, no alarm will be output.

- **Alarm Hysteresis Value [AH1] [AH2]**

Used to define the difference required to return from alarm state to non-alarm state.
For example, if the alarm action point is set to 120°C and the hysteresis value is 20°C, then temperatures above 120°C trigger an alarm. When the temperature drops below 100°C, the alarm state ends.

When the alarm type is set to absolute value alarm, the alarm contact can control upper and lower hysteresis limits.

※ **Timer Function CYPT Details**

The timer function programming rule assigns independent control meanings to the unit, ten, hundred, and thousand digit positions.Digits from left to right represent thousands, hundreds, tens, and units positions.

cYPt 0000

Unit digit: Timer Mode
Tens digit: Time Unit
Hundreds digit: Action After Timer Ends
Thousands digit: Reserved

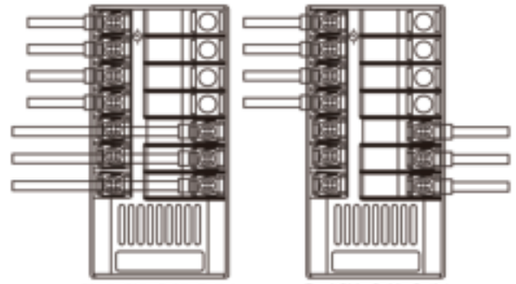
Setting Example

Set the temperature to heat up to 100°C.
Then, maintain the output for 60 minutes before turning it off.
Required settings: SV=0100 ST=0060 CYPT=0113 ALT=0

Unit digit: Timer Mode	2	Delay heating output. Heating starts only after the ST delay time following power-on.
	3	Temperature-triggered timing. Timer starts when PV = SV-ALT.
	4	Power-on-triggered timing. Timer starts upon power-on.
	5	Timer is started and stopped only by button input, long-pressing the button triggers start or stop.
	Others	If the unit digit is set to a number other than 2, 3, 4, or 5, the timer function will be disabled.
Tens digit: Time Unit	1	The timing unit is minutes
	Others	If the tens digit is set to a number other than 1, the timing unit is seconds.
Hundreds digit	1	Heating output turns off when the timer ends.
	Others	Heating output not turns off when the timer ends.
Thousands digit	None	No definition, no need to set, default is 0

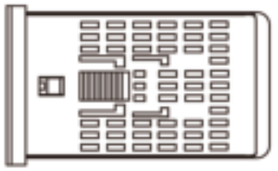
Wiring Instructions

1. Optional Single-Side / Dual-Side Cable Outlet



Single-Side Cable Outlet　　Dual-Side Cable Outlet

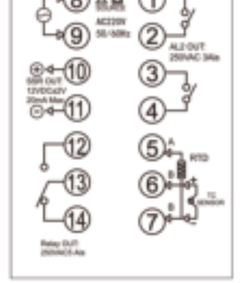
2. Convenient Buckle Guide Slot



The following wiring diagram is for wiring instructions only; actual wiring should be based on the diagram on the instrument housing.

TX6A−K1224

TX6B−K1224



Fault Message Indicators

Message	Description	Resolve Solution
HHHH	Input disconnected or exceeds input range	Please check if the input signal is incorrect
LLLL	Input disconnected or exceeds input range	Please check if the input signal is incorrect

Precautions

1. To eliminate induced interference, please route this product separately from high-voltage and power lines.
2. When powering the product on or off, please use a power switch or circuit breaker.
3. Keep away from high-frequency devices (e.g., high-frequency welders, high-frequency sewing machines, large-capacity SCR controllers) as much as possible.
4. This product is intended for use in the following environments:
   ① Indoors ② Pollution level 2 ③ Altitude below 2000 meters ④ Installation category II

- Failure to follow the above precautions may result in product malfunction. Please comply strictly.
- All responsibilities are limited to the product itself and do not extend to any other related liabilities.

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V25. 2. 1 Version