

Microcomputer Intelligent Temperature Controller User Manual

Please read the instructions carefully before using in order to use correctly.

★Main Features

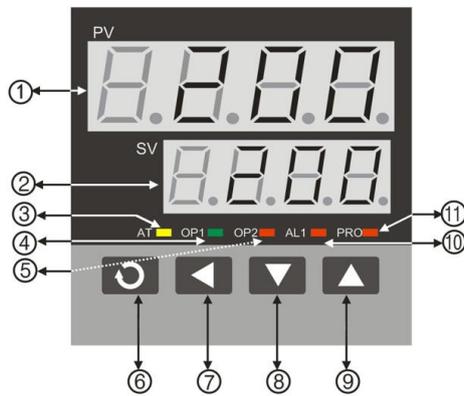
1. Thermal resistance input and range can be set freely.
2. Software zero-regulating full degree, cold end temperature measurement alone, amplifier self-stabilized zero, display accuracy can be better than 1.0%FS.
3. Fuzzy theory combined with the traditional PID method, the control is fast and steady.
4. Advanced PID parameter self-tuning method, the tuning time is more than 1/3 shorter than the general instrument time.
5. Main control output is 4-20mA.
6. Alarm output: up to two channels, customizable alarm contact output mode.

☒Technical Parameters

1. Input specifications(compatible with one instrument): thermal resistance:Pt100.
Analog(only support analog output type): 4-20mA
2. Measuring range: Pt100(-50° C~650° C)
3. Measuring accuracy: 1.0 class $\pm 1.0\%$ F ± 1
4. Sampling rate: 2 times/second.
5. Adjusting mode: intelligent PID adjustment, according to different P,I,D meters can be composed of P(P=0 is the bit type),PI,PD,PID adjustment.
6. Main control 4-20mA.
7. Alarm function: upper limit, lower limit, deviation value, absolute value.
8. Contact capacity(resistance load): AC250V/3A,DC28V/3A.
9. Power supply: 220VAC $\pm 10\%$ 50/60HZ; 100-240V.
10. Power consumption: ≤ 3 VA.
11. Working condition: temperature -10~50°C;humidity $\leq 85\%$ RH no corrosion occasion.

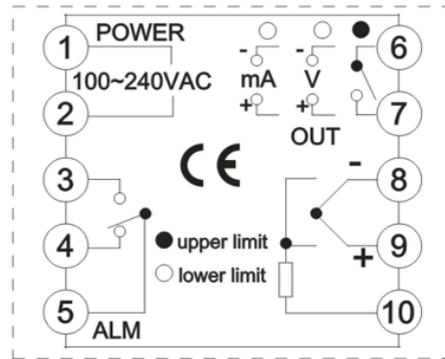


Panel Instruction



- ① PV - sampling value display window
- ② SV - setting value display window
- ③ AT - self-setting indicator light
- ④ OP1 - the first(main output) output status indicator light
- ⑤ OP2 - the second output status indicator light (OFF - main output off indicator light)
- ⑥ (SET) - set menu key/save and confirm key
- ⑦ - shift key/self-setting and start key
- ⑧ - set value minus key
- ⑨ - set value plus key
- ⑩ ALM1 - the first alarm output indicator key
- ⑪ ALM2 - the second alarm output indicator key (PRO: program output status indicator light)

Wiring Diagram



Operating Instructions

Make sure the wiring of the meter is correct and power on. At this time, the upper row of the meter will display the current setting index, and the lower row will display the current temperature setting value. About 3 seconds later, the meter will enter the normal display state, that is, the upper row will display the real-time temperature, and the lower row will display the setting temperature:

1. general user settings:

① temperature setting: press \odot , \blacktriangle or \blacktriangledown can enter a state of SV value setting, the SV window numbers there is always a flicking state, by \square shift key can change the flashing digits(that if, to change the digits),then you can press \blacktriangle and \blacktriangledown key respectively set to the required by adding and subtract, press \odot key to confirm after setting successfully, the meter will return to normal display state(if the \odot key is not pressed to confirm, the meter will be determined and saved by default after 5 seconds),in the SV value setting state, press and hold down the \blacktriangle or \blacktriangledown key, the meter will quickly increase or decrease the setting value, after setting, the way to save is the same as the above way.

② self-tuning function: this series of temperature control instrument adopts fuzzy control combined with traditional PID control method. Whether PID parameters are appropriate or not is related to the actual temperature control effect. The setting method is as follows: set SV to the desired temperature control value, and then hold down the shift key until the AT indicator flashes, indicating that the setting state has been entered. To exit the self-tuning halfway, simply press down the shift bit key in the self-tuning state will do. The self-tuning process is controlled by position, and the instrument various system, the temperature may fluctuate greatly during the setting process, the time is also long and short. After the setting is completed, the AT lamp stops flashing, the P,I and D parameters obtained are automatically saved and the instrument is automatically return to normal with the new P,I and D parameters. The procedure is shown in the diagram.(note: after the instrument is installed on the system for the first time, it is suggested to carry out self-tuning once, the self-tuning function can be started at any time when the meter is powered on. If the AT indicator light is not automatically turned off after the self-tuning function is started, the self-tuning is deemed to be unsuccessful. If the control effect is not good after setting, it can be reset again.)



③basic parameters class: hold down the © key greater than 5 seconds, the instrument will into the class, at this time the upper class shows the parameter name, and the lower class shows the present parameter value, press , ,  key can modify them at this time, if do not make any modification operations within 10 seconds, the instrument will automatically return to the normal display state, specific parameters are as follows(the range of three digit display as shown in brackets):

(Note: 1.the Pu,It and Dt parameters in the following table can be obtained from instrument self-tuning, general manual adjustment is not recommended;

2.the following parameters and the factory default values of parameters will be different according to the customized functions of the instrument(subject to change without prior notice).

Parameter code	Parameter meaning	Setting range	Default value
AL 1	Upper limit/upper deviation alarm: Set upper limit/upper deviation	-1999~1999℃ (-199~999)	10℃
AL 2	Lower limit/lower deviation alarm: Set lower limit/lower deviation	-1999~1999℃ (-199~999)	0(or 100)℃
P b	Measurement bias: Sensor correction setting	-1999~1999℃ (-199~999)	0℃
P u	Proportional band: If 0,it is position control	0~99.9 (0~999)	20
It	Integral time constant: if it is 0, cancel the integral control function	0~3600 (999s)	100
dt	Differential time constant: if the setting is 0,cancel the differential function	0~240s	20
R	Control period: main control output period	1~50s	Relay output:20 Other output:2
Lock	Parameter lock: 0:no lock; 1:lock parameters other than the set value; 2:lock all parameters	0~2	0(or 1)

2. Advanced parameter class:

Hold  and  shift key and the same time, until the upper of the meter display Pin(analog output type shoes “PASS”),input the corresponding code in the lower, and press  to confirm, then will into the corresponding parameter layer, and can press , and  to modify, each must press  to confirm and save, otherwise the modification will be invalid. The corresponding code of parameters are as follows:

(Note: general user or those who are not familiar with the instrument and the machine system, please do not modify at will, otherwise the instrument may be out of control).

Code	Menu code	Setting range	Parameter meaning	Default value
12	S n	K,E,(J),Pt1,0-5V,1-5V	Input signal specification selection(0-5V,1-5V only supports analog output type)	According to the customization
13	A L P	0-3	Alarm mode: 0:both upper and lower limits are absolute value alarm; 1:upper limit is deviation, lower limit is absolute value alarm; 2:upper limit is absolute value alarm, lower limit is deviation; 3: both upper and lower limits are deviation alarm	1
14	S E t L	0-100	Minimum setting value: the minimum value that users are allowed to set	0(degree)
15	S E t H	Corresponds to the allowable range of the signal	Maximum setting value: the maximum value that users are allowed to set	Corresponding maximum value
16	H y	0-50	Return: the action return for alarm and bit relay.	2(degree)
17	O U T L	0-50	The minimum output control of analog output type	0(%)
18	O U T H	50-100	The maximum output control of analog output type	100(%)

19	P S L	-1999-999	The display value corresponds to the minimum analog input value(only supports analog output products)	0
20	P S H	1-3200	The display value corresponds to the maximum analog input value(only supports analog output products)	2000 – voor een aflezing op 0.1 graad dit op 200 zetten
21	S T	0-9999	The output time of the power limit of the first power on(only supports analog output products, with SP)	30(S)
22	S P	0-60	The output power of the time limit of the first power on(only supports analog output products, with ST)	30(%)
<p>Note: 1. code "17-22" and its corresponding functions only support analog output products;</p>				



Other Instructions

Error display instructions for non-instrument quality problems:

Display symbols	Instructions	
H H H H	Input active signal exceed maximum range	Generally it's because the input signal(like thermocouple and thermal resistance, etc)is inconsistent with the actual setting of the instrument or the sensor reverse connection, open circuit, etc., please check the signal input end and sensor.
L L L L	Input negative signal exceed maximum range	
Other symbols	Instrument system error	System error, please return to Econo to maintain.