Intelligent Temperature Controller Operation Manual

Intelligent temperature controller using single-chip chip as the main control unit, it owns multiple digital filtering, anti-interference automatic recovery, fuzzy PID control algorithm and many other advanced technologies, the instrument has high measurement accuracy, high temperature control accuracy and stability, strong anti-interference ability, simple operation and other characteristics. Widely used in machinery, chemical, ceramics, light industry, metallurgy, petrochemical, plastic and other industries, it is and upgrading product for the general analog instrument, but also the ideal replacement of imported instrument.

All the products sold by our company are guaranteed for one year. This manual may be changed without prior notice.

Technical data

Voltage range: switching power supply 100V~240V　transformer (220V) AC, 50/60HZ
Measurement accuracy: ±1%FS±2℃ ； ±0.5%FS±2℃
Work condition: temperature 0℃~50℃, relative humidity 35%~85% (no condensation)
Resolution ratio: 1℃, 0.1℃
Power loss: ⩽5W
Wiring mode: terminal

Warning

① Do not touch the AC power terminal after the controller is powered to avoid electric shock
② Please confirm that the supply voltage is consistent with the controller specification before powered, otherwise the controller may be damaged after powered
③ Never disassemble, modify or repair the product or touch any internal component
④ If the output relay exceeds the expected service life, sometimes contact melting and combustion will occur
⑤ The terminal screw should be tightened with 0.74 to 0.90N.m torque as loose screw may cause fire
⑥ In order to prevent instrument damage or failure, appropriate fuse should be chosen to ensure that the power line and input/output line to prevent current impact
⑦ For fire prevention, explosion prevention, or instrument damage prevention, it's prohibited to use in flammable, explosive gas and steam emission places

Cautions

① The heat should be allowed to dissipate, do not block the surrounding space of the product, do not block the product ventilation hole
② Do not install the controller in a place that is vulnerable to interference by waves, corrosive gases, high temperature and humidity, freezing and condensation, liquid or oil and gas splash
③ Keep a sufficient distance between the controller and the equipment that can produce high frequency and surge
④ Please make sure that the wiring is connected to the terminals correctly
⑤ Please use the product at rated load and power distribution
⑥ Do not use paint thinner or similar chemical cleaning products, please use a standard grade of alcohol
⑦ If the front mask has peeled off or ruptured, the controller shall not be used
⑧ Please carefully read the information provided in the catalog and manual and make sure you understand it before connecting the controller output unit

Model description

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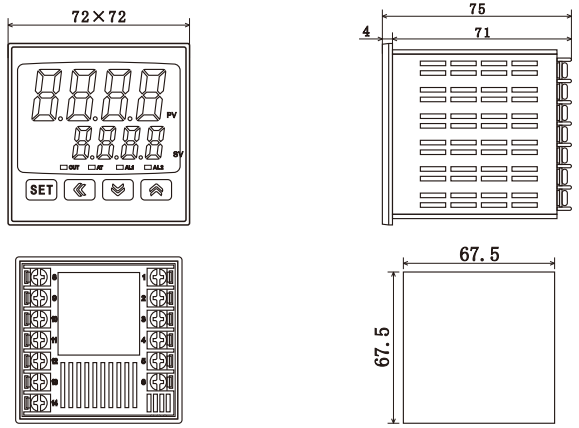
(1) (2) (3) (4) (5)

No.	Name	Description
(1)	Outline（ram）	S: 48mm×48mm×75mm　H: 48mm×96mm×75mm M: 72mm×72mm×75mm　L: 96mm×96mm×75mm
(2)	Output type	R: Relay contact switching output　Q: Logic level output (for controlling SSR) T : Single-phase controlled silicon zero-crossing trigger output (for thyristor control) C : 4 ~ 20mA current output　G：Phase shift trigger controlled silicon
(3)	Alarm mode	0 : No alarm　1 : upper limit upward alarm　2 : Lower limit downward alarm 3 : upper and lower limit alarm　4 : lower limit upward alarm　5 : upper and lower limit respective alarm 6 : upper and lower limit upward alarm　7 : Lower limit downward holding　8 : Absolute value holding 9 : upper and lower limit respective alarm (lower limit holding)
(4)	Input type	TC: thermocouple (KEJ)　P: thermal resistance (Pt100Cu50)
(5)	Reinforced function	No reinforced function

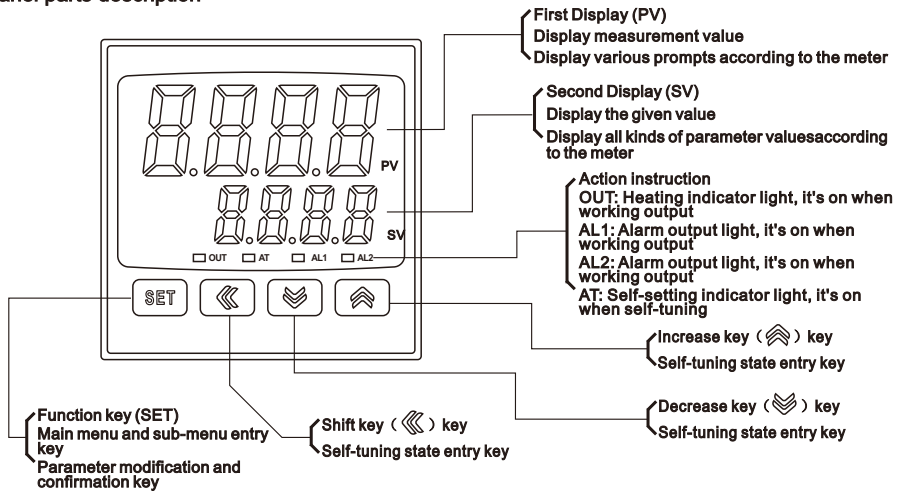
Outline and installation size



Unit : mm

Model	Panel size		Housing size L×W×H			Cut-out size	
	48	48	44.5	44.5	75	45.5	45.5
	48	96	44.5	91	75	45.5	92
	72	72	66.5	66.5	75	67.5	67.5
	96	96	90	90	75	91	91

Panel parts description

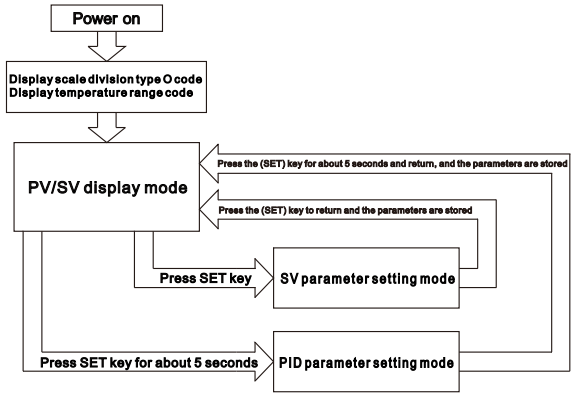


Operation cautions

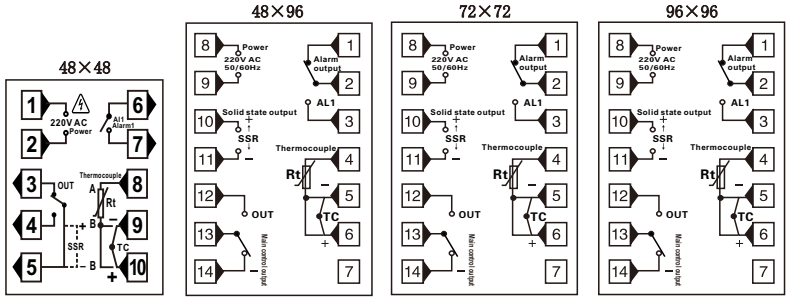
1、 Change of the set value (SV parameter). After the setting value is changed, the setting value is stored only after the (SET) key is pressed again.
2、The parameter value is set through the shift key（ ）, decrease key（ ）and increase key（ ）, by long pressing the decrease key（ ）and increase key（ ）.
3、 When changing the PID parameters, hold down (SET) key for about 5 seconds, only change the LCK parameter to "1", then it can modify the PID internal parameters. After modification, hold down (SET) key for about 5 seconds, the controller will return to the PV/SV display state, and parameter values can be stored.

Operation

The operating procedure to enter each state



Wiring description



Measuring range of various types of sensors

B	500~999（Incorrect ≤500）
S	-50~999
R	-50~999
T	-50.0~999
K	-50~999
N	-50~999
J	-50~999
E	-50~999
PT100	-50~850
PT100.	-50.0~850.0
Cu50.	-50.0~150.0

Parameter type

In the PID parameter setting mode, each time the SET key is pressed, the following table parameters will be displayed in order. However, according to the order specifications, some parameters may not appear and the initial value may be different.

Parameter	Default	Adjustable range	Description
AL1	10	DIL-DIH	Alarm value (no display when AC1==0)
AL2	10	DIL-DIH	Alarm value (no display when AC1==0)
ATU	0	0-1	Self-tuning
P	30	0-999	Proportional
OH	2	1-100	Main control return difference (display when P == 0)
I	120	0-999	Integral (no display when P == 0)
D	30	0-999	Differential (no display when P == 0)
Ar	80	0-100	Integral overshoot suppression (no display when P == 0)
T	20	1-100	Cycle (no display when P == 0)
SC	0	-199-199	Corrected value
LCK	0	0-111(BIN)	Coded lock: OOO (Bin) All parameters are modifiable 001 (Bin) SV AL1 AL2 are modifiable 011 (BIR) SV is modifiable 111 (Bin) all are not modifiable All others are not modifiable
Password menu (long press SET+ shift key to enter in non-menu state)			
COD	0	999	Submenu password: 001- enter submenu 1 911- restore factory values menu
Submenu 1			
SN	K	B,S,R,T,K,N,J,E,PT,PT.Cu.	Scale division No.
SLL	-50	Sensor corresponding measurable range	Display lower limit
SLH	999	Sensor corresponding measurable range	Display upper limit.
Oud	0	0-1	Control mode: O-heat-up 1-refrigerating
Ouk	0	0-1	Output mode: O-switch 1-continuous (1-5V or 4-20mA requires corresponding module support)
OHN	1	0-1	Return difference control mode set when stepping control 0-underside return difference Closed when PV >= SV Open when PV<= SV-OH 1-bilateral return difference Closed when PV>=SV+OH Open when PV < = SV - OH
AC1	1	0-6	AI1 alarm mode: O- no alarm Upper deviation alarm Lower deviation alarm Alarm beyond upper and lower deviation Alarm within upper and lower deviation Process value upper limit alarm Process value lower limit alarm
AC2	0	0-6	AI2 alarm mode: O- no alarm Upper deviation alarm Lower deviation alarm Alarm beyond upper and lower deviation Alarm within upper and lower deviation Process value upper limit alarm Process value lower limit alarm
AH1	2	1-100	Alarm 1 return difference
AH2	2	1-100	Alarm 2 return difference
Unt	0	0-1	Unit:0- ℃ 1-℉
DF	65	0-100	Filter coefficient
Cot	005	0.00-10.0	Display suppression
Fun	0	0-50	Over-temperature display suppression 0- Turn-off function For other values, if the value exceeds the set value, the excess part will be displayed proportionally
Fac	0		Display value =SV + (measured value -SV)/FAC