

- Compatible Thermal Resistance Type (Pt100、Cu50)
- Compatible thermocouple type (T、R、J、B、S、K、WRe3-WRe25)
- The instrument has autotuning function to self adapt to different systems
- Instrument can be degrees Celsius, degrees Fahrenheit temperature



I. Specifications

- ◆ Power supply: AC/DC85 ~ 260V (50Hz/60Hz)
(DC12V or DC24V Customized)
- ◆ Contact capacity: AC 250V/3A
- ◆ Contact life: 1×10^5
- ◆ SSR-level: Open-circuit voltage: 12V and 8V (Power: DC12V or DC24V);
Short-circuit current: 30mA
- ◆ Built-in SSR Specifications: AC85 ~ 260V/5A
- ◆ Temperature precision: 0.2% FS
- ◆ Environment: 0 ~ +50°C; $\leq 85\%$ RH
- ◆ Outline Dimension: 48 × 24 × 75
- ◆ Panel Dimension: 45 × 22

II. Panel description



- ① Measured value (PV) display unit
- ② Out-Control output indicator
AT-Autotuning lamp: Flashes during autotuning execution
- ③ Indication Lamp
AL-Relay output lamp: Lights when output is turned on
- ④ Set key: Used for parameter registration/calling up
- ⑤ Shift key: Used to shift the digital when the setting is changed and used to perform autotuning function
- ⑥ Down key: Used for selecting previous parameter and used to increase numerals
- ⑦ Up key: Used for selecting next parameter or increase numerals

III. Parameter setting guide

(i) Initiation function parameter (Log in by inputting password 0089 after pressing set key)

1. Details of parameters

Symbol	Description	Range	Factory value
Inty	inty Input type	Table —	K
outy	outy Control output type	0、1、2、3、4	2
Hy	Hy Autotuning pV bias	0~9999	0.3
Psb	Psb pV bias	-1000~1000	0.0
rd	rd Control action type	0: heat; 1: cool	0
CorF	CorF Engineering unit selection	0: °C; 1: F	1
End	End End		

2. Parameters of the initial functional description

1) inty: Temperature sensor type list

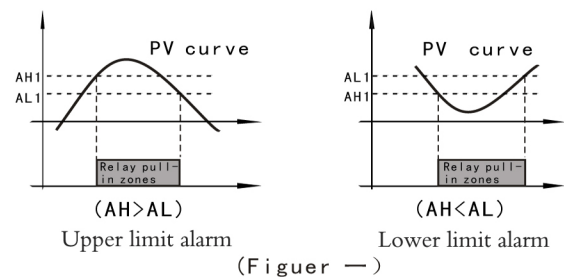
Table —

Symbol	Name	Sensor type	Temperature range °C	Mark
t	T	TTC	-200~400	Internal resistance 100KΩ
r	R	RTC	-50~1600	
J	J	JTC	-200~1200	
WRE	WRE	WRE TC	0~2300	
B	B	BTC	350~1800	
S	S	STC	-50~1600	
K	K	KTC	-200~1300	
E	E	ETC	-200~900	Constant current output 0.2mA
P100	P100	Pt100 RTD	-199.9~600.0	
P100	P100	Pt100 RTD	-199~600	
Cu50	Cu50	Cu50 RTD	-50.0~150.0	

2) outy: Control output type

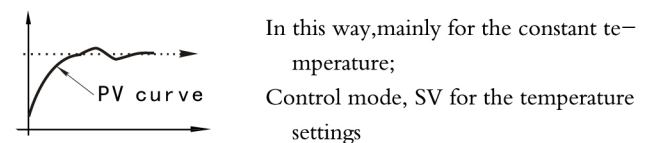
“0”: Relay alarm output (see Figure —)

SSR output is invalid, SV value is not valid



“1”: PID relay contact output all the way (see Figure —); SSR output is invalid, used for Constant temperature control, the target value for the SV

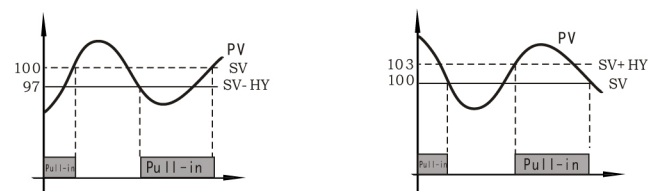
“2”: One relay alarm output; One SSR all the way non-contact level PID output (see Figure —), Used for temperature control, the target for the SV



(Figure —)

“3”: One relay alarm output; SSR-level all the way back to poor control output (Figure —), SV is control value

“4”: All the way back to poor control of relay output (Figure —), SV is control value



(Figure —)

Rd=0	Rd=1
$PV \leq (SV - HY)$	$PV \geq (SV + HY)$
Pull-in relay/SSR output	Pull-in relay/SSR output
$PV \geq SV$	$PV \leq SV$
Relay or SSR output to close	Relay or SSR output to close
to release	to release

3)Hy: Digital control Backlash

When OUTY=0、1、2, HY is invalid, Specific reference to the Figure 三

4)Psb: Zero error correction

Amendments End value = amended before the value + PSB

5)rd: Heat、Cool selection

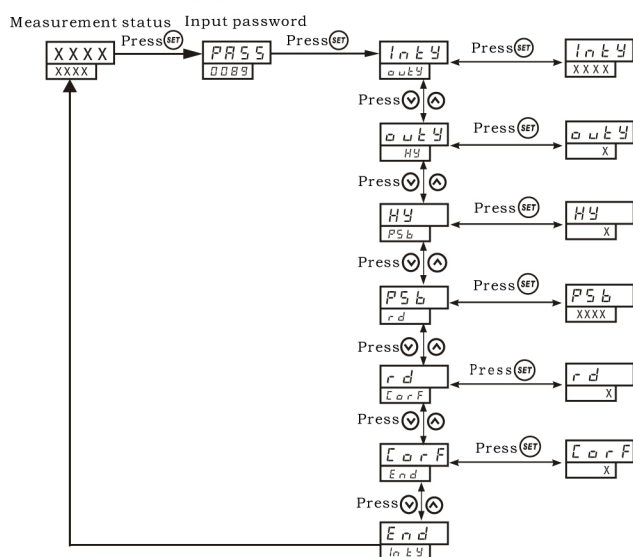
When inactive Outy= 0, the specific reference on the Figure 二、三

6)Corf: Choice of temperature actions

F and C for the conversion relations

$F = 9/5^{\circ}\text{C} + 32$ (°C: degree Celsius; F: degree Fahrenheit)

3. Parameters settings procedure



(ii) Initiation function parameter (Log in by inputting password 0036 after pressing set key)

1. Detail of PID parameters

Symbol		Description	Range	Factory value
P	p	Proportional band	0.1~99.9%	5.0
I	i	Integral time	2~1999(minute)	100
d	d	Derivative time	0~399(minute)	20
SouF	SouF	Overshoot suppression factor	0.0~1.0	0.2
ot	ot	Proportional cycle	2~199(minute)	2
Filt	Filt	Digital filter factor	0~3	0
End	End	End		

2. PID parameter setting guide

- 1) P: The temperature oscillation is inverse proportion of P value and proportion of the response speed.
- 2) I: Set the time of integral action which eliminate the offset occurring in proportional control.
- 3) d: Set the time of derivative action which prevents ripples by predicting output change and thus improves control stability.
- 4) Souf: Over shooting and under shooting are restricted by the Souf and increase of the parameter can suppress the over shooting.
- 5) ot: In general, control cycle is 2 when output type is voltage pulse output, and is 5-15 when output type is relay contact output.
- 6) Filt: 0 means the PV digital filter is turned off; 1, 2 and 3 are weak, medium and strong, respectively.

Start AT function: In the constant temperature control, constant or if they can not over temperature phenomena, can activate the self-tuning instrument functions, more appropriate instrument calculates the PID parameters. Long press > keys, flashing lights until the AT, instrument to enter a state of self-tuning; AT lamp goes out, the end of self-tuning, instrument set by self-tuning PID parameter adjustment.

Ending AT function: a long three seconds by the > key, AT light is off, the end of self-tuning, the parameters do not change.

- Self-tuning from time to time, there will be a significant over temperature, please lower SV values appropriate to prevent the accident.
- Must be properly connected to the corresponding sensor, heater, otherwise self-tuning unable to complete.
- Self-tuning system response time depends on speed, ranging from a few minutes to several hours.
- Self-tuning is a function of time on the start line, do not need to start every time.

(iii) SV and alarm parameters (Log in by inputting pass word "0001" after pressing set key)

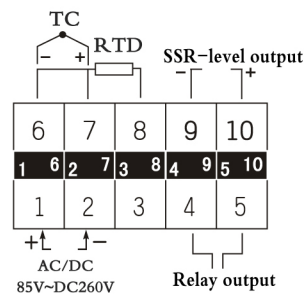
1. Detail of SV and alarm parameters

Symbol		Description	Range	Factory value
Sv	Sv	set value	Arbitrary set	710
AH1	AH1	Relay J1 pull-in set value		300
AL1	AL1	Relay J1 release set value		300
End	End	End		

Note: In normal display mode, the SV is increased by using the Up and Down key.

IV. Wiring diagram

1) Conventional type



* DC12V or DC24V Customized

2) Built in SSR

