

REX series Intelligent Controller

Operation Manual

I General Introduction:

REX series PID Temperature Controller is the new product developed by our company. It adopts special microcomputer adjusting meter that employs switching power and surface mount technology (SMT), therefore, the controller is quite smart and reliable. Its special functions like auto diagnosing, auto setting and intelligent control. It can be used widely in the display and control of the parameter of the temperature, pressure, flow, and liquid level.

II Main Technical Index:

1、Input:

Thermocouple(TC),Resistance Temperature Detect (RTD)
Standard Current and voltage signals.

2、Display:

Process Value (PV)、 Setting Value(SV):-1999~+1999
Output (OUT1、 OUT2) Alarm (ALM1、 ALM2) Auto setting(AT)
Display: LED

3、Control Way

(1).PID Control(including ON/OFF, position PID and continuous PID)
(2).Auto Setting Control

4.Accuracy

Measurement Accuracy:±0.5%FS
Compensation error of cold terminal: ±2℃(amend within 0~50℃ by soft)
Resolution:14bit. Samplingperiod:0.5Sec.

5.Setting Range:

Setting Value(SV): same range with PV
Proportional Band(P):0~full range(ON/OFF Control when set to 0)
Integration Time(I):0~3600Sec(no integral action when set to 0)
Derivative Time(D):0~3600Sec(no derivative action when set to 0)
Proportional Period:1~100Sec
On-off control output hysteretic loop width:1~100℃(or other PV units)

6.Control Output

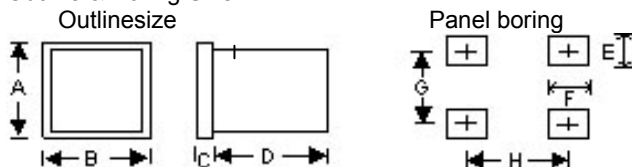
(1)Currency output: DC 0~10Ma,4~20mA(RL<500Ω)
(2)Voltage output: DC 0-5V,1-5V(RL>10K)
(3)Relay output: Contact capacity:250V AC 3A(resistive load)
(4)Voltage Impulse output:0-12V(applicable for solid state relay SSR)
(5)Silicon Controlled Rectifier(SCR) output: zero-cross triggering or phase-shift triggering(resistive load)
(6)Alarming function output: 2 groups output at most,12 modes
Output Contact Capacity:250V AC 3A

7.Other Parameters

(1)Insulation resistance:>50MΩ(500V DC)
(2)Insulation strength:1500V AC/min
(3)Power consumption:<10W
(4)Service environment:0~50℃,30~85RH,no corrosive gas
(5)Weight:abt.0.5Kg(C900 type)

III、 Outline, Mounting, Boring

Outline & Boring Size



Form 1

	A	B	C	D	E	F	G	H
C100	48	48	10	100	45	45	80	80
C410	96	48	10	100	92	45	116	80
C400	48	96	10	100	45	92	80	116
C700	72	72	10	100	68	68	96	96
C900	96	96	10	100	92	92	116	116

IV、 Model Description and Model Selection

REX - C 0 0 - □ □ □ - □ □ * □ □
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

1 Outline Size(see Form 1)

2 Control Type

F:PID operation and auto calculation(Reverse operation)
D:PID operation and auto calculation(Forward operation)

3.Input Type: refer to input range table

4.Range Code: refer to input range table

5.First Control Output(OUT1) (Heating side)

M: Relay contact output 8:Current output(DC 4~20mA)
V: Voltage impulse output T: Hydration driving output

6.Second Control Output(OUT2) (Cooling side)

Null: when control operation is F or D

M: Relay Contact output
8: Current output(DC 4~20mA)
V: Voltage impulse output
T: Hydration driving output

7.First Alarm(ALM1)

N: no alarm

A: Upper-Limit bias alarm

B: Lower-Limit bias alarm

D: Alarm in area

E: Standby upper-limit bias alarm attached

F: Standby lower-limit bias alarm attached

G: Standby upper/lower limit bias alarm attached

H: Upper-Limit input value alarm

J: Lower-limit input value alarm

K: Standby upper-limit input value alarm attached

L: Standby lower-limit input value alarm attached

8.Second Alarm(ALM2)

Note: Please show the model referring to the above indication when order

V. Panel Name and Function



PV: Measurement value /mode display value

SV: Setting value/mode display value

AT: PID auto calculation indicator lamp

OUT1: Output1 indicator lamp

OUT2: Output2 indicator lamp

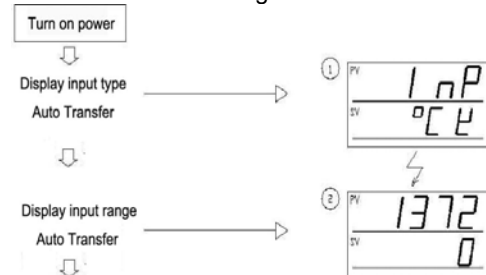
ALM1: Alarm 1 indicator lamp

ALM2: Alarm 2 indicator lamp

SET:Setting mode key R/S:Shift key V:Up key ^:Down key

VI、 Operation Procedures

1.Procedures of Starting



SV/PV Display Mode

Input Type Table

Display	E	J	r	S	b	E	r	n	P	u	U	L	J	P	r	u
Input type	Thermocouple (TC)												RTD		Voltage & Current	
	K	J	R	S	B	E	T	N	PL II	W5Re/ W26Re	U	L	J Pt 100	Pt 100		

2.SV Setting Mode

Under SV/PV normal display state, first, press "SET" key to make the SV display in the flashing state, second, press the "<" key to find the place number of required setting temperature, third, press "UP" or "DOWN" key to set the required temperature, after ending the setting, press "SET" key again to let the meter come back to SV/PV normal display state.

3.Parameter Setting Mode

This parameter is used to set the alarming parameter, PD constant, etc, under the normal displaying state, press the "SET" key for three seconds, the PV display will show the parameter setting state, and SV display will show the corresponding value, then, press "SET" key in turn to display the parameter symbol specified in the following table:

Display Symbol	Description	Setting Range	Factory Value
PV SV	Measured Value Setting value	Full range	
AL1	Alarm1 setting	Full range	50.0or50
AL2	Alarm2 setting	Full range	50.0or50
ATU	Self setting	0:Auto-setting for closing 1:Auto-setting for opening	0
P	Proportional band (Refer to*for heating side)	ON/OFF control when setting to 0	30 or 30.0
I	Integration time (s)	1-3600sec No derivativeaction when setting to 0	240
D	Derivative time(s)	1-3600sec No derivativeaction when setting to 0	60
Ar	Limit integration operation work range		100
T	Wording cycle(S) (heating side)	1-100sec NO display when current outputs	Refer to*1
Pc	Proportional band (cooling side)	1-1000%of proportional band(Heating band)	100
Db	Insensitive area	0000-01111	0&0.0
t	Working cycle (cooling side)	1-1000sec NO display when current outputs	Refer to*1
Pb	PV deviation amendment	PV amendment	0&0.0
LCK	Date lock	(refer to*2)	0000

Note: some parameter signals maybe not showed

*1.Relay contact output:20s,voltage impulse output or driving of gas control tube is made by trigger output or gas control tube output for 2s

*2.Data lock grade selects

*Monitored only after data locked

*Each alarm data(HBA.LBA.LBD) can be lock under the following grades 0001.0011.0111"

1.When LCK=0000 all data may be amended

2.When LCK=0001, all data may not be amended except SV,AL1,AL2

3.When LCK=0011, all data may not be amended except SV

4.When LCK=0111, all data may not be amended

4.Failure Message Indicate

Fault information indication: When meter can't work normally, the meter diagnosed automatically to display the message prompt.

A. **Err** Meter occurs fault

B. □ □ □ □ The wire is disconnected at inputting, the polarity is connected inversely or above input range

C. **UUUU** The wire is disconnected at inputting, the polarity is connected inversely or below input range

5.Function Setting

When the meter is energized normally, find the data lock parameter "LCK" according to the parameter setting mode, set the code to 1000",then press "SET" key to make the meter confirm, press both "SET" key and "□ R/S" key at the same time for 3s, the PV display will show "Cod"

When "Cod" =0000,press SET key in turn to get the following parameters in circular display:

Display Symbol	Setting Value	Description	
SL 1	0 0 0 0	K	
	0 0 0 1	J	
	0 0 1 0	R	
	0 0 1 1	S	
	0 1 0 0	B	
	0 1 0 1	E	
	0 1 1 0	N	
	0 1 1 1	T	
	1 0 0 0	PT100	
	1 0 0 1	Cu50	
	1 0 1 0	0-400Ω	
	1 0 1 1	0-50mV	
	1 1 0 0	0-20Ma	
	1 1 0 1	0-5V(0-10V)	
SL 2	0 0 0 0	Omit	
SL 3	0 0 0 0	omit	
SL 4	0 0 0	No set alarm 1 function	Selection fo Alarm 1(ALM)type
	0 0 1	Upper-limit bias alarm	
	0 1 0	Upper/lower-limit bias alarm	
	0 1 1	Process value upper-limit alarm	
	1 0 1	Lower-limit bias alarm	
	1 1 0	With alarm (Alarm in area)	
	1 1 1	Process value lower limit alarm	Selection of alarm 1 standby functoin
	0	No standby alarm function	
	1	With standby alarm function	
SL 5	0 0 0 0	Setting of Alarm 2 function	Ditto
SL 6		0 Forward-operation control(Refrigeration)	Main forward /reverse operation selection
		1 Reverse-operation control(Heating)	
	0	Main control time scalc output	Selection of main control output type
	1	Main control continuous output(4-20mA)	
SL 7		0 Excitation alarming	Excitation alarming/Non-excitation alarming Alarm 1 side)
		1 Non-excitation alarming	
		0 Non-excitation alarming	Excitation alarming/Non-excitation alarming(Alarm 2 side)
		1 Non-excitation alarming	
SL 8	0 0 0 0	omit	
SL 9	0 0 0 0	omit	
SL10	0 0 0 0	omit	
SL11	0 0 0 0	omit	

6.Constant Setting

When "Cod" =0001,press SET key in turn to get the following parameters in circular display:

SLH Upper limit of setting value measurement range

SLL Lower limit of setting value measurement range

PGdp Place number of decimal

OH Main output no-operation bandwidth

AH1 Alarm 1 output no-operation bandwidth

AH2 Alarm 2 output no-operation bandwidth

When "Cod"=0002,all data is the recorder of meter operation, can be only seen but not amended



About Safety Proceeding

*Before use the product, please read carefully this manual, then use it correctly on the base of understanding its content.

*The product can be used manufacture machinery, work machinery, calculation and measurement instrument (Don't use it for the medicine machine)

*If in the state of interruption or unusual may cause terrible system accident, please set proper protect electrical route outside, in case of the accident.