REX Series Temperature Controller User Manual

Before using this product, please carefully read the instructions for the proper use and proper preservation.
(Please read the operating manual for the proper use of this product before using.)

■ Wiring warning

To prevent instrument damage or failure, the choice of the appropriate fuse protected power cord and input / output lines to prevent the current impact.

To prevent electric shock or instrument failure, power only after the completion of all the wiring work. Do not use near flammable gases.

Fire, explosion or damage to the instrument, flammable, explosive gas, vapor emissions places is prohibited. Do not modify the instrument.

To prevent the accident or instrument failure, non-altered instrument.

■ SUMMARY

REX-C □□□ Series Intelligent industrial temperature controller is dedicated microprocessor multifunction regulating instruments. It uses a switching power supply and surface mount technology (SMT), and thus the instrument is compact, reliable performance, unique self-diagnostic function, the self-tuning function and intelligent control functions, so that the operator can get good results by a simple operation. Main features: Multiple thermocouple, RTD, analog signal free to enter, free to set the range, the software tune zero full-scale, cold end separate temperature measurement, auto-zeroing amplifier accuracy of better than 0.5% FS. Fuzzy theory combined with conventional PID control fast and smooth, state-of-the-art setting program. Output optional: relay contact, logic level, SCR single-phase, three-phase over zero or phase shift trigger pulse, analog, attach Road definable alarm contact output.

■ The main technical indicators

Measurement Precision: ±0.5%FS

Cold junction Compensation error: ± 2*C (0-50 t within the software correction)

Resolution: Mbit

Sampling Period: 0.5 Secretary

Power Supply: AC 85-265V 50Hz

Control Mode: industrial-grade expert self-tuning PID technology, compared with the traditional PID control with rapid temperature control, fast response, small overshoot, high precision control

Insulation Resistance: > 500m Q (500VDC)

Dielectric Strength: 1500VCA/min

Power Consumption: < 10VA

Occasions Environment :0-50 X) ,30-85% RH non-corrosive gases

■ Model defined selection

Model Identification

REX-C □□□ - □ □□□ - □ * □ □

① ② ③ ④ ⑤ ⑥

① Meter Size (see Table 1)

② Control Mode

F: PID control and automatic speech inverse action

D: PID control automatically play a positive action

③ Input Type and Range (see Table 2)

④ Main Output N: No output

M: Relay contact output

V: the voltage pulse output (SSR)

8: Current output

T: SCR zero output

G: SCR shift like pulse output

⑤The First Channel Alarm Type (ALM1)

N: not set alarm

A: upper limit deviation alarm B: lower limit deviation alarm C: up and down significant deviation alarm D: range alarm

E: with standby limit deviation alarm F: lower limit deviation alarm with standby G: lower limit deviation alarm with standby H: upper limit input value alarm J: lower limit input value alarm K: upper limit input alarm with standby L: lower limit input alarm with standby

⑥ Second Channel Alarm Type ALM2 (same as ALM1)

Table 1 Unit: mm

Model	Surface frame (W xH)	Shape (W x H x D)	Hole size (W x H)
REX-C100	48x48	44x44x100	(44+1) x (44+1)
REX-C400	48x96	44x92x100	(44+1) x (92+1)
REX-C700	72x72	68x68x100	(68+1) x (68+1)
REX-C900	96x96	92x92x100	(92+1) x (92+1)

Table 2 Input Scope Table

	Input	Measu reScope	Code	Measure Scope	Code	Measure Scope	Code
Thermocouple	K	0-200℃	K01	0-400℃	K02	0-600℃	K03
		0-800℃	K04	0-1000℃	K05	0-1200℃	K06
		0-1372℃	K07	0-100℃	K13	0-300℃	K14
	I	0-200℃	J01	0-400℃	J02	0-600℃	J03
	J	0-800℃	J04	0-100℃	J05	0-1200℃	J06
	R#1	0-1600℃	R01	0-1769℃	R02	0-1350℃	R03
	S#1	0-1600℃	S01	0-1769℃	S02		
	B#1	400-1800℃	B01	0-1769℃	B02		
	E	0-800℃	E01	0-1000℃	E02		
	N	1-1300℃	N01	0-1300℃	N02		
	T#2	-199.9-400.0℃	T01	-199.9-100.0℃	T02	-199.9-200.0℃	T03
		0-350.0℃	T04				
RTD	R100	-199.9-649.0℃	D01	-199.9-200.0℃	D02	-100-50℃	D03
		-100-100℃	D04	-100-200.0℃	D05	0.0-50.0℃	D06
		0.0-100℃	D07	0.0-200.0℃	D08	0.0-300.0℃	D09
		0.0-500℃	D10				
	Cu50	-50.0-150℃	P01	0.0-150.0℃	P02	0.0-100.0℃	P03
		0.0—50.0℃	P04	-50.0-100.0℃	P05	-50.0-50.0℃	P06
		-50-150℃	P07	0-150℃	P08	0-100℃	P09
		0-50℃	P10				
Standard signal	0-5VDC	0.0-100℃	401				
	1-5VDC	0.0-100℃	601				
	0-20Ma#3	0.0-100℃	701				
	4-20Ma#3	0.0-100℃	801				

#1 Cannot guarantee the accuracy scope of 0-399 t).

#2 To ensure accuracy in the scope of -199-100 ^C.

#3 A resistor of 250 Q is needed between the input terminals external

■ INSTALLATION

Installation Process

Precautions

1. Instrumentation installed in the following environments

● Atmospheric Pressure: 86-106kpa

● Ambient Humidity: 0-501

● Ambient temperature: 45-85% RH

2. Installation should pay attention to the following circumstances

● Drastic changes in the ambient humidity may cause condensation

● Corrosive, flammable gas

● Direct vibration or shock theme structure

● Water, oil, chemicals, smoke or steam pollution

● Excessive dust, salt, or metal powders

● Air conditioning blowing straight

● Direct sunlight

● The accumulation of heat radiation

Installation Process

1. Panel cutout disk played the rectangular square hole to install the meter.

2. Multiple instrument installation, the distance between the left and right holes should be greater than 25mm, up and down two holes' distance should be greater than 30 mm.

3. Embedded in the instrument panel cutout within.

4. Instrument mounting hole into the mounting bracket.

5. Pushed tight mounting bracket to the instrument with the disk is firmly bonded to tighten the screws.

■ Wire Connection

Wiring

Thermocouple input, you should use the corresponding compensation wire.

RTD input, you should use the same cross-sectional area of the low resistance, the same material, the same length of three wire.

Input signal line should be away from the instrument power cord, power supply and load lines to avoid noise

The instrument power cord is usually not the power supply line interference, such as interference, noise filter must be used, and using a noise filter should note the following:

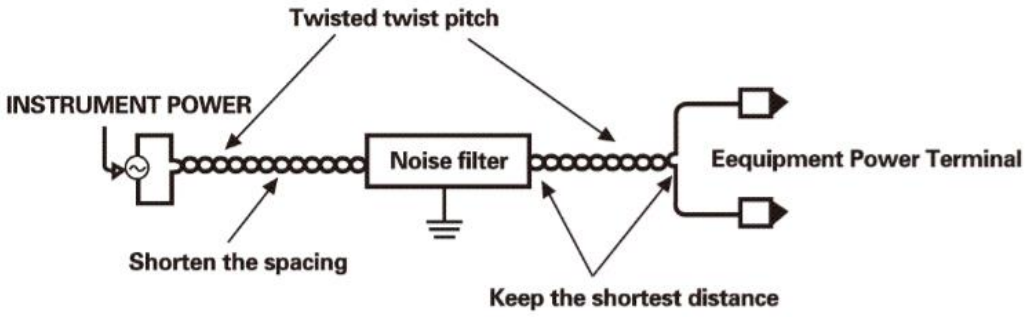
shorten the power cord plug full twist pitch, the shorter the distance, the better.

Install a noise filter on the dashboard and grounded to minimize the the short noise filter output erminals, the wiring distance

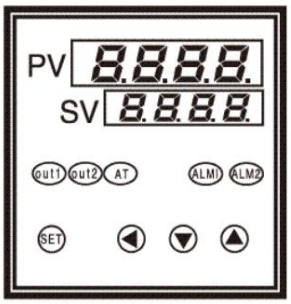
Do not install insurance, and switch the noise filter output, this will reduce the effect of the noise filter

(5) The power is turned on after 5-6 seconds preparation time meter relay output external connection loop signal use, and with a time delay relay.

(6) Do not over tighten the terminal screws, use the appropriate terminal screw lug.



■ Panel Name and Ministries Function



No	Panel Description	Content Description
1	PV	Measurement Value / Mode Display Value
2	SV	Settings / Mode Content Displayed Value
3	OUT1	Output 1 Indicator
4	OUT2	Output 2 Indicator
5	AT	PID Automatic Calculation Indicator
6	ALM1	Alarm 1 Indicator
7	ALM2	Alarm 2 Indicator
8	∧	Increase the Key
9	∨	Reduce the Key
10	<	Shift Key
11	SET	Set / Mode Key

■ Operational Processes

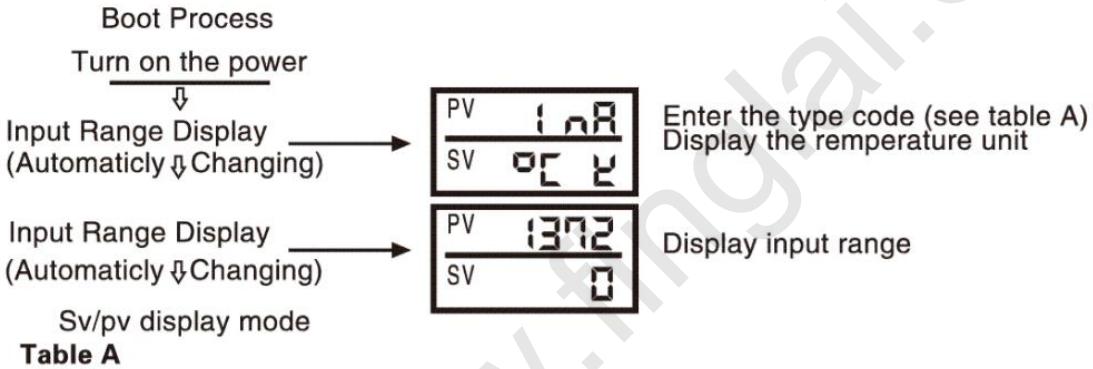


Table A

Display														
Input mode	Thermolcouple(TC)								ThermolcRedistance(RTD)		Voltage and Current			
	K	J	R	S	B	E	N	T	Pt100	Cu50	mV	mA	V	

Setting Mode:

SV / PV normal display state, click the "SET" button, the SV display is flashing by pressing the "<" button, find the desired set temperature digits, and then click the "SET" button, the meter turn to the SV / PV Normal display state

Parameter Setting Mode:

This parameter is used to set the alarm, PID constants and other parameters. Normal display mode, press and hold the "SET" button for three seconds, the PV display shows the parameter setting mode, display the corresponding values in the "SV" display parameters in the following table, press the "SET" button to display symbols:

Note: display the reply feature native When the operator parameter setting modify operation not to return to the main display mode, the instrument will return to the main display mode automatically after 30 seconds, the altered parameters are not saved. Meter read prior to use or modify the parameters. The following processes such as instrument no such function will not display this content.

Display Character	Name	Specification	Setting Range	Factory Default
	PV/SV	Measured values /settings	Full scale	
AL1	AL1	The first set of alarm settings	Full scale	
AL2	AL2	The second set of alarm settings	Full scale	
ATU	ATU	Self-tuning When the temperature effect is not ideal to use this!!!	0: off auto-tuning 1: self-tuning	0
P	P	Proportional band (see * 1)	0 - full scale When set to 0 for position control	30
I	I	Integration time (sec)	0-3600 seconds When set to 0,no integral action	240
d	D	Derivative time (seconds)	0-3600 seconds When set to 0, no derivative action	60
Ar	Ar	Reference values (see * 2)	AT automatically set	25
T	T	Working period (seconds)	In proportion to the time period of u-100 seconds	(see*3)
oH	OH	The main control does not work bandwidth	1-100 unit (PV)	2
SC	SC	Measurement error correction	-200-200 Unit (PV)	0
LCK	LCK	Data lock (see * 4)	0000-0111	0000

1 1: When ¥= 0, instrumentation for PID control, the need to rationalize the set values of the "I, D", the first to open the "AT" self-tuning function, so that the control to achieve the best, when P=0. ON / OFF control, must be set to control the value of the return difference "OH".

2: This is the PID internal reference values ??are not normally required to man-made, "AT" comes with the set will automatically set this value.

3: The relay contact output 20 seconds 2 seconds flip-flop output / gate flow control tube output voltage pulse output / Thyristor control tube drive.

4: Set data lock (LCK) function

Set data lock function is used to prevent some often set parameters Ukrainian operation, in the three forbidden lock state parameters for each level state ban lock parameter locked can not be set or changed but monitoring.

1、WhenLCK = 0000, all parameters can be modified

2、WhenLCK = 0001，the data cannot be modified, except SV, AL1, AL2

3、WhenLCK = 0011，all the data cannot be modified, except SV

4、WhenLCK = 0111, all of the data cannot be modified

■ ERROR message indicates

Message	Sprecification	Exclusion Method
Err	Equipment Error	Please send overhaul
0000	Input the disconnection polarity reversed or exceeds the input range	Please check whether the input signal error
uuuu	Input the disconnection polarity reversed or exceeds the input range	Please check whether the input signal error

■ The instrumentation technical parameters mode settings

After a normal power meter, according to the parameter setting mode to enter the ice to find data lock parameter "LCK" to code "1000", then press the "SET" button and the "two key while holding down for about 30 seconds PV display shows "GOD" = 0000 can be obtained, press the "SET" button and cycle through the following parameters:

Display Character	Settings	Specification	Scale Range
SL1	0 0 0 0	K	0-1372℃
	0 0 0 1	J	0-1200℃
	0 0 1 0	R	0-1769℃
	0 0 1 1	s	0-1769℃
	0 1 0 0	B	0-1820℃
	0 1 0 1	E	0-800℃
	0 1 1 0	N	0-1300℃
	0 1 1 1	T	-200-400℃-199.9-400.0℃
	1 0 0 0	Pt100	-200-650℃-199.9-650.0℃
	1 0 0 1	cu50	-50-150℃-50.0-150.0℃
	1 0 1 0	0-400Q	-1999℃-9999℃
	1 0 1 1	0-50mV	-1999℃-9999℃
	1 1 0 0	0-20mA	-1999℃-9999℃
	1 1 0 1	0-5V(0-10V	-1999℃-9999℃
SL2	0 0 0 0	Slightly	
SL3	0 0 0 0	Slightly	
SL4	0 0 0 0	First alarm function is not set	Type selection of the first alarm (AL1)
	0 0 0 1	Upper limit deviation alarm	
	0 0 1 0	Upper / lower limit deviation alarm	
	0 0 1 1	Process value alarm	
	0 1 0 1	Lower limit deviation alarm	
	0 1 1 0	With alarm (alarm) region	
	0 1 1 1	Process value lower limit alarm	
	0 0 0 0	Standby alarm function	First alarm standby type selection
	1 0 0 0	Standby alarm function	
SL5	0 0 0 0	The second set of alarm function is set	First alarm standby type selection
SL6	0 0 0 0	Positive action control (cooling)	The main control forward / reverse action selection
	0 0 0 1	The inverse operation control (heating)	
	0 0 0 0	Master time proportional output	The main control output type selection
	0 0 0 1	Master continuous output (4-20mA)	
SL7	0 0 0 0	Incentive alarm	Incentive alarm / non-incentive alarm /the first alarm
	0 0 0 1	Non-incentive alarm	
	0 0 0 0	Incentive alarm	Incentive alarm / non-incentive alarm / the second alarm
	0 0 1 0	Non-incentive alarm	
SL8	0 0 0 0	Slightly	
SL9	0 0 0 0	Slightly	
SL10	0 0 0 0	Slightly	
SL11	0 0 0 0	Slightly	

When "COD" = 0001, press the "SET" button and cycle through the following parameters:

Display Character	Factory Default	Specification	Setting Range
SLH	According to orders	Set the measuring range upper limit	See above table
SLL	According to orders	Set the measurement range limit	See above table
PGdA	0	Decimal places	0-3
oH	2 or 2.0	AT comes with no action given output bandwidth	0-100 or 0.0-100.0
AH1	2 or 2.0	The first alarm output is not active bandwidth	0-100 or 0.0-100.0
AH2	2 or 2.0	The second alarm output is not active bandwidth	0-100 or 0.0-100.0
dF	1	Digital filter constant	0-100

Instrument maintenance and preservation instrument

since the billing from the date eighteen months the internal factors manufacture quality failure by the company responsible for the comprehensive warranty. Damage due to improper use of the company charge a repair cost of the company meter lifelong maintenance. instrumentation in complete packaging stored in dry and ventilated place non-corrosive gases.