REX-P48
REX-P96

General Description

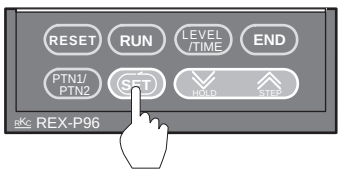
The REX-P48 (1/8DIN) and REX-P96 (1/4DIN) are user-friendly ramp/soak controllers that can store two sets of patterns with accuracy of 0.3%. Each pattern can have up to eight segments. Two patterns can be linked so that a program with up to 16 segments can be stored.
Optional digital input as well as key operation enables you to run, stop and hold the program, and skip the segment.
Time signal output or pattern end output is also available. With these functions accompanied by external instruments, REX-P48/96 provides easy operation for complicated temperature control.

Features

☆ Easy-to-use ramp/soak controller
☆ Two sizes of 1/4DIN and 1/8DIN
☆ 2 patterns, maximum 16 segments/program
☆ Time signal output, pattern end signal output
☆ Digital input for operation mode selection
☆ Retransmission output

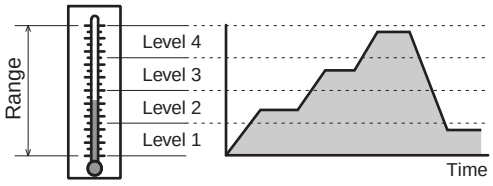
Easy-to-use

Simple key operation enables you to use the REX-P48/96 for various applications where easy-to-use is critical.
Each key has a specific role for operation so that the REX-P48/96 can eliminate operator's mistake.



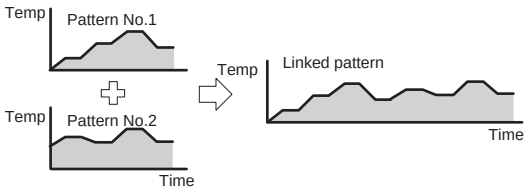
Four groups of PID

Up to four groups of PIDs can be stored so that you can use appropriate PIDs for different temperature ranges.



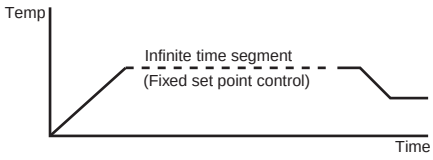
Pattern link function

Up to 16 ramp/soak segments per program are available simply by linking the second pattern (program) to the first.



Fixed set point control

The unlimited time can be set for soak segments so that fixed setpoint control can be obtained easily.



Options

- Time signal output/Pattern end output: Two time signal outputs per pattern can be set.
- Digital input for operation mode selection among RUN, STOP, STEP and HOLD
- Retransmission output
- Two alarms

Specifications

Input

Input
a) Thermocouple : K, J, R, S, B, E, T, N (JIS/IEC), PLII (NBS)
W5Re/W26Re (ASTM), U, L (DIN)
Influence of external resistance : Approx. 0.35μV/Ω
Input break action : Up-scale
b) RTD : Pt100 (JIS/IEC), JPt100 (JIS)
Influence of input lead resistance : Approx. 0.0075%/Ω of reading
•Maximum 10Ω per wire
Input break action : Up-scale

Sampling time
0.5 sec

PV bias
-1999 (-199.9) to 9999 (999.9)℃ [℉]

PV ratio
0.001 to 9.999

Performance

Measuring accuracy
± (0.3% of span + 1 digit)
Cold junction temperature error
Within ±1.5℃ (between 0 and 50℃ [32 and 122℉])
•Accuracy is not guaranteed between 0 and 400℃ (0 and 752℉) for type B input.
•Accuracy is not guaranteed between 0 and 32℉ for Type N, PLII and W5Re/W26Re.

Segment time accuracy
Within ±0.02% of reading

Other setting
Within ±0.5% of span

Insulation resistance
More than 20MΩ (500V DC) between measured terminals and ground
More than 20MΩ (500V DC) between power terminals and ground

Dielectric strength
1000V AC for one minute between measured terminals and ground
1500V AC for one minute between power terminals and ground

Program

Storage program pattern :	Max. 2 patterns (8 segments per pattern)
Storage segments :	Max. 16 segments (Possible to link, 8 segments x 2 patterns)
Program repeat :	1 - 999 times or continuous
Level setting :	See input range
Time setting :	00 hr 00 min to 99 hrs 59 min
PID constant section :	4 levels (For level PID control)
Start mode :	Zero start or PV start (selectable)
Wait zone :	Up, down 0 to 99℃ (℉) or 0.0 to 9.9℃ (℉) at going up or down

Control

Control method
a) PID control with autotuning
b) Heat/cool PID control with autotuning

Major setting range

Setting range :	Same as input range.
Heat side proportional band :	1(0.1) to setting range (ON/OFF action when P=0)
Cool side proportional band	1 to 1000% of heat side proportional band
Integral time :	1 to 3600sec.(P + D action when I=0)
Derivative time :	1 to 3600sec.(P + I action when D=0)
Differential gap :	0 to 100℃ (℉) or 0.0 to100.0℃ (℉) (When used with ON/OFF action)
Output limiter high :	-5.0 to +105.0%
Output limiter low :	-5.0 to +105.0%

Control output

Relay output :	Form C contact, 250V AC 3A (resistive load)
Voltage pulse output :	0/12V DC (Load resistance : More than 600Ω)
Current output :	0 to 20mA or 4 to 20mA DC (Load resistance : Less than 600Ω)

Alarm

Temperature alarm (Optional)
a) Number of alarm : 2 points
b) Alarm action
Deviation high, low, high/low, band, and process high, low alarms
Set value high, low (In contrast to the process high or low alarm, the set value high or low alarm is activated when the programmed set value goes over or under a preset value.)
c) Alarm differential gap : 0 to 10℃ (℉) or 0.0 to 10.0℃ (℉)
•Hold function and re-hold function can be added to deviation high low and high/low.
•Energized/de-energized alarm (selectable)

Alarm output
Relay output, Form A contact 250V AC 1A (resistive load)

Options

External contact input

Type :	RESET, RUN, HOLD, STEP
Input method :	Non voltage contact input
	OPEN : 500kΩ or more
	CLOSE : 10Ω or less

Time signal output

Setting range :	00 hr 00 min to 99 hr. 59 min
Storage pattern :	2 times/pattern
Output :	1 point
	Relay contact output, 250V AC 1A (resistive load)

• When "Pattern end output" is selected, "Time signal output " is not available.

Pattern end output

Setting range :	00 hr 00 min to 99 hr. 59 min
Output :	1 point
	Relay contact output, 250V AC 1A (resistive load)

• When "Time signal output" is selected, "Pattern end output " is not available.

Retransmission output

Number of outputs :	1 point
Output signal :	0 to 10mV, 0 to 100mV DC (Load resistance : More than 20kΩ) 0 to 1V, 0 to 5V, 0 to 10V, 1 to 5V DC (Load resistance : More than 1kΩ) 0 to 20mA, 4 to 20mA DC (Load resistance : Less than 600Ω)
Output type :	Measured value (PV), Set value (SV), Manipulated output value (MV)

General specifications

External Dimensions (W x H x D)
P48 : 48 x 96 x 100mm
P96 : 96 x 96 x 100mm

Supply voltage
90 to 264V AC (Including power supply voltage variation)
[Rating : 100 to 240V AC] (50/60Hz common)

Power consumption
Less than 9VA (100 to 240V AC)

Effect by power failure
A power failure of 20ms or less will not affected the control action.
If the power failure is shorter than 2 seconds, the autotuning function (if used) will be canceled but the program continues. If the power failure is longer than 4 seconds, the controller returns to its initial status (start mode).

Operating environments : 0 to 50℃ [32 to 122℉] , 45 to 85% RH

Memory backup : RAM back-up by lithium battery

Net weight
P48 : Approx. 300g
P96 : Approx. 400g

Model and Suffix Code

Specifications	Model and Suffix Code
Model	REX-P48 REX-P96 □ □ □—□ □✳□ □—□ □—□
Control method	PID reverse control with AT F PID direct control with AT D Level PID reverse control with AT L Level PID direct control with AT M Heat/cool PID control W Heat/cool level PID control V
Input type	See input range code table □
Scale range	See input range code table □
Control output (OUT1)	Relay output M Voltage pulse V DC current : 0 to 20mA 7 DC current : 4 to 20mA 8
Control output (OUT2)	Control action : F, D, L, M No symbol Relay output M Voltage pulse V DC current : 0 to 20mA 7 DC current : 4 to 20mA 8
Alarm 1	No alarm N See alarm code table □
Alarm 2	No alarm N See alarm code table □
Contact input	Not supplied N Supplied Y
Output function	Not supplied N Pattern end output 1 Time signal output 2
Analog output	Not supplied N See analog output code table □

■ For REX-P48/96 with CE mark, UL and CSA approval, please add the suffix of "/CE" at the end of the model code.

Input range code

Thermocouple

Input	Code	Range
K	K 22	-199.9 — 999.9℃
	K 16	-200 — 1372℃
	K B2	-199.9 — 999.9℉
	K B3	-330 — 2500℉
J	J 14	-199.9 — 999.9℃
	J 15	-200 — 1200℃
	J A9	-199.9 — 999.9℉
	J B1	-330 — 2192℉
T	T 01	-199.9 — 400.0℃
	T A1	-199.9 — 752.0℉

Input	Code	Range
R	R 02	0 — 1769℃
	R A2	0 — 3216℉
S	S 02	0 — 1769℃
	S A2	0 — 3216℉
B	B 02	0 — 1820℃
	B A2	0 — 3308℉
E	E 06	-200 — 1000℃
	E A5	-330 — 1832℉
N	N 02	0 — 1200℃
	N A2	0 — 2372℉

Input	Code	Range
PLII	A 02	0 — 1390℃
	A A2	0 — 2534℉
W5Re /W26Re	W 02	0 — 2320℃
	W A4	0 — 4208℉
U	U 08	0 — 600℃
	U A4	0 — 1100℉
L	L 05	0 — 900℃
	L A2	0 — 1600℉

RTD

Input	Code	Range
JPt100	P 20	-199.9 — 510.0℃
	P B6	-199.9 — 950.0℉
Pt100	D 20	-199.9 — 660.0℃
	D A1	-199.9 — 999.9℉

Alarm code

Code	Type
A	Deviation High
B	Deviation Low
C	Deviation High/Low
D	Band Alarm
E	Deviation High with Alarm Hold
F	Deviation Low with Alarm Hold
G	Deviation High/Low with Alarm Hold
H	Process High

Code	Type
J	Process Low
K	Process High with Alarm Hold
L	Process Low with Alarm Hold
Q	Deviation High with Alarm Re-hold
S	Deviation Low with Alarm Re-hold
T	Deviation High/Low with Alarm Re-hold
V	Set value High
W	Set value Low

* *On alarm re-hold function*: The alarm will become effective after it has first entered non-alarm range, when alarm set values are changed.

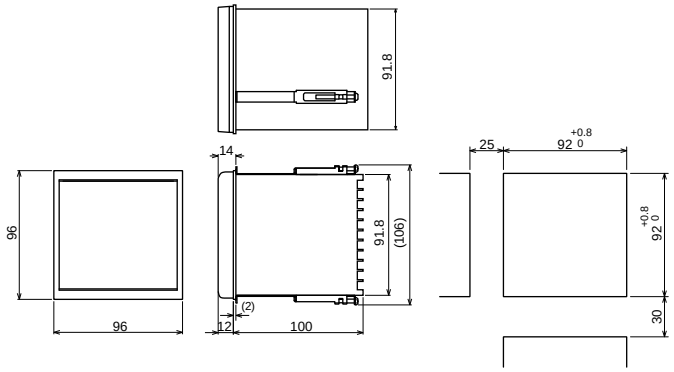
Analog output code

Code	Type
1	0 — 10mV DC
2	0 — 100mV DC
3	0 — 1V DC
4	0 — 5V DC
5	0 — 10V DC
6	1 — 5V DC
7	0 — 20mA DC
8	4 — 20mA DC

External Dimensions and Rear Terminals

Unit : mm

REX-P96



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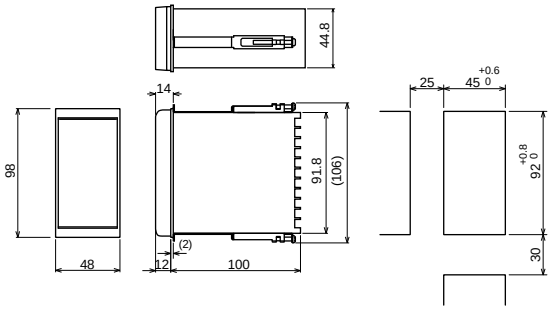

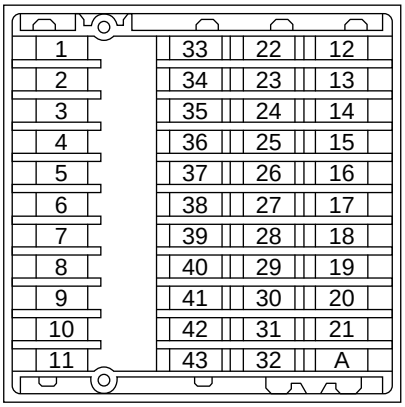

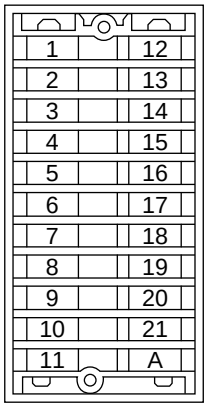

No.	Description	
1 2	AC 100 to 240V	Power supply
3 4 5 6	Alarm 1 Alarm 2 TS or END NO	Alarm output Time signal, Pattern end signal output Relay contact output
7 8	(1) C NO (2)	Control output : OUT2 (1) Relay contact output (2) Voltage DC/Current DC
9 10 11	(1) C NO NC (2)	Control output : OUT1 (1) Relay contact output (2) Voltage DC/Current DC

No.	Description	
12 13	+ –	Analog output
14 15 16 17 18	DI COM RESET RUN STEP HOLD	Contact input RESET RUN STEP HOLD
19 20 21	A B B (1) (2)	Measured input (1) Thermocouple (2) RTD
A		