

# EPU-400

**-THERMOSTAT MANUAL-**



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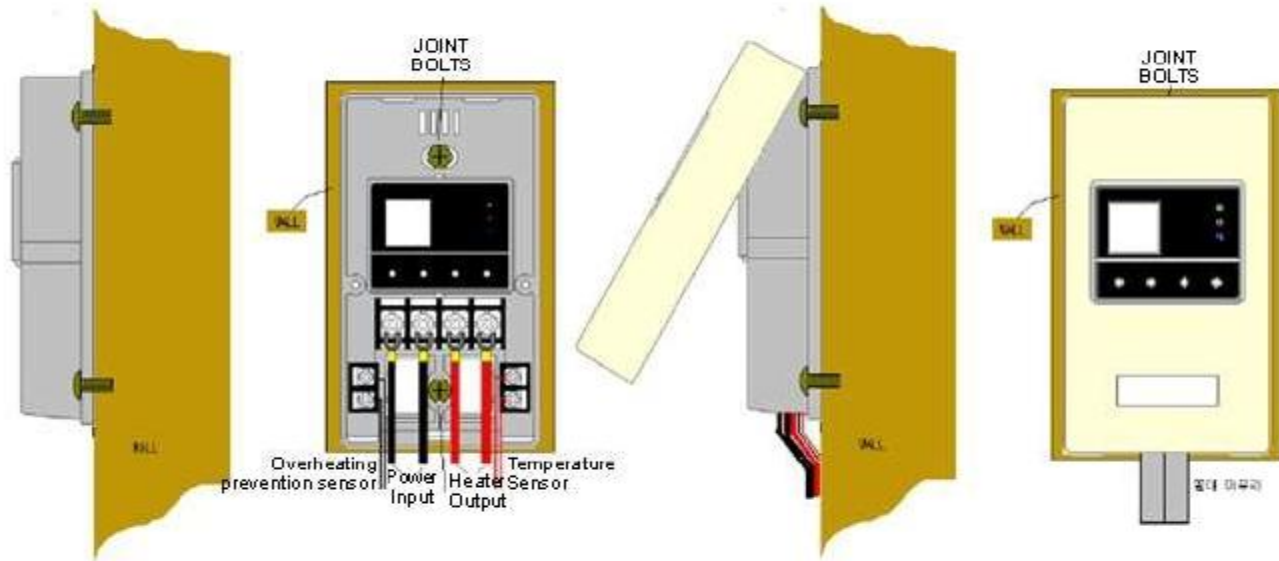
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# EPU-400 Installation and Manual



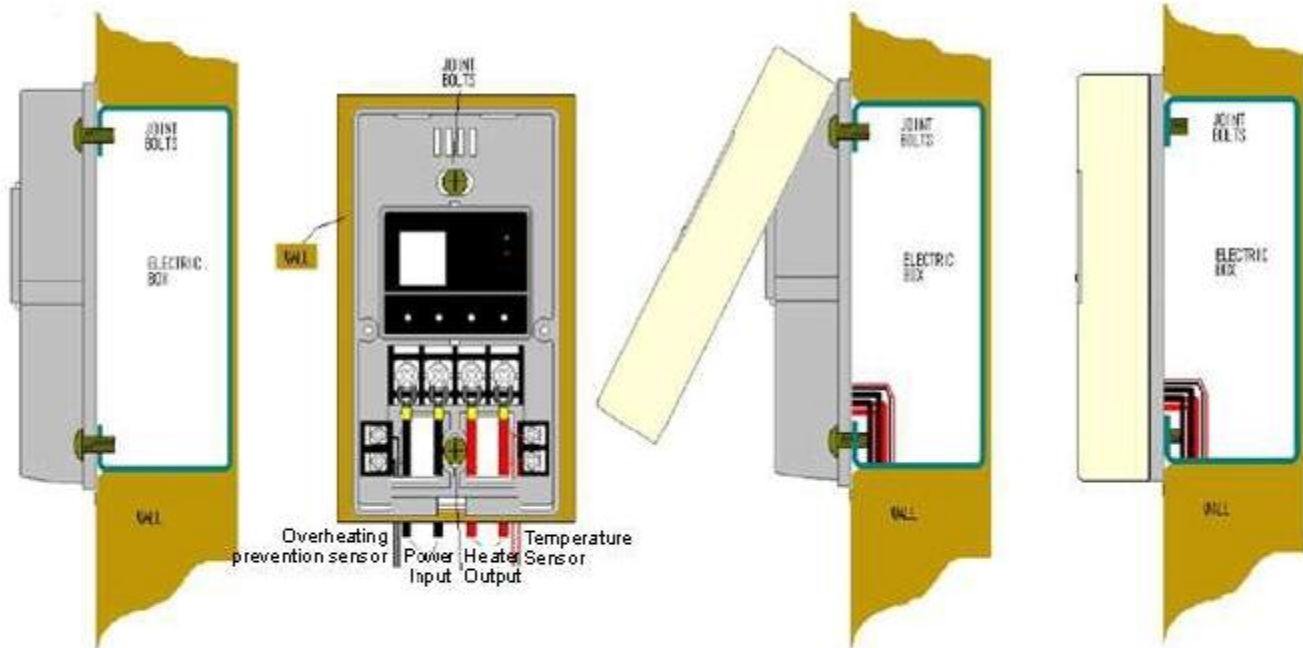
# Method of Wirong Adhesion

Wiring Method #1



# Method of Wirong Adhesion

Wiring Method #2



# Change of Function and Motions

## LAMP DISPLAY

**SET Lamp** : This flickers at the time of changing the setting value or changing the set temp with temp set button. (Green Lamp)

In case there is no motion in keys after the change of temp is over or the set is completed, the present temp is displayed again after 3sec and SET Lamp flickers.

**RUN Lamp** : At the time of output is progressing in the side of load, Lamp flickers. (Red Lamp)

This flickers when the output is progressing after SET is over, and this flickers directly after detecting error.

**TIMER Lamp** : This flickers at the time of changing time with timer set key or in the course of time set motion. (Green Lamp)

This flickers when timer motion is over or SET is terminated.

## BASIC MOTIONS

**TEMP SET** : The temp on the display window displays the present temp in all times. In case of pushing the SET button or changing the SET, the window displaying temp displays the set temp. If there is no change in set temp, the present temp is displayed again and moving after 3 sec.

**POWER MOTION**: This is used for ON/OFF of controller's power. In the state of OFF, all displays are OFF and key does not work.

**TIMER SET**: This is the function for OFF of controller's power automatically. In SET, time flickers at the time of pushing Timer Button for the 1<sup>st</sup> time.

By pushing the button once again while it flickers, it is possible to set up to 12 hrs. at max; if set "0" hour, Timer Lamp is OFF and its motion is terminated.

Timer motion is terminated automatically by OFF and ON of power with the power button; in case that main power is broken caused by power failure and others; The existing set time is maintained and running directly after reopening the power.

## METHOD OF SET

At the time of changing in detailed set temp range, it should be set. By pushing Temp Set Up and Down buttons for 3 sec simultaneously, "tn" is displayed on the temp display window. At this time, by pushing Up or Down key, the menu, such as In – St – En , is displayed. When an item on the menu what is wished is displayed, by pushing Temp Set Up and Down buttons simultaneously, move to the next step. After completing all SETs as above method, "AU" message flickers for three times and the changed value is saved.

※ **It is recommended that the detailed set should not be done by a general consumer. In case of making a mistake in set, error message is displayed and there may be malfunction.**

# Change of Function and Motions

**En** : This is the method by the most common sensor. In case of sensor mode, this works by comparing the set temp of controller and the sensed temp in the point where the sensor is installed. (See Table #1)

(ex : Set temp>Present temp: Output ON , Set temp<Present temp: Output OFF)

**Table # 1 (Sensor Mode)**

Role	Display	Basic Set	Scope of Set	Motion description
Class. of Function	<b>tn</b>	S	SEN , TIMER , RESET	SEN(Sensor Motion Type) , TIMER(Time Motion Type) , RESET(Initialization)
Air-Conditioning	<b>-C</b>	HH	HH , CC	HH(Heating Mode) CC(Cooling Mode)
Min. Temp Set	<b>-L</b>	0℃	-20℃ ~ under max temp	Set the lowest temp within the scope of temp
Max. Temp Set	<b>-H</b>	60℃	Over min temp ~80℃	Set the highest temp within the scope of temp
Temp Deviation Set	<b>IF</b>	2℃	0℃ ~5℃	ON/OFF motion in the deviation between set and present temp
Output Delay Time	<b>Ly</b>	20sec	01sec ~ 60sec	At the time of ON of output, move as late as the delay time
Overheating Temp Set	<b>Ht</b>	60℃	Over max temp ~ 80℃	Error occurrence in case the overheating sensor temp is exceeding the set temp. (OPTION)
Compensating Temp Set	<b>ES</b>	00℃	-10℃ ~ 10℃	Scope for compensating the deviation of real temp.

## TIMER FUNCTION

\* In case of using Timer Function, must disjoin the sensor. (See Table #2)

By pushing  $\downarrow$  ,  $\wedge$  keys for 3 sec simultaneously, "tn" is displayed. By pushing  $\wedge$  once, EN is displayed. EN using the method of SENSOR is same to the present method. By pushing  $\wedge$  key once again, In is displayed and at this time, by pushing  $\downarrow$  ,  $\wedge$  keys simultaneously, the present cycle value is displayed. By using  $\downarrow$  ,  $\wedge$  keys, set the cycle and by pushing  $\downarrow$  ,  $\wedge$  keys simultaneously, AU flickers; the cycle value is saved; and the present set strength is displayed.

Set method by serviceman = Push  $\downarrow$  ,  $\wedge$  keys simultaneously – tn is displayed on the display window – select tin - push  $\downarrow$  ,  $\wedge$  keys simultaneously – Cycle value is displayed (Cycle) – Select Cycle (Basic 3 min.) – Set Cycle value - Push  $\downarrow$  ,  $\wedge$  keys simultaneously - AU flickers - Save is completed

\* It is recommended not to be set by a consumer.

How to use by a consumer= select the strength by using  $\downarrow$  ,  $\wedge$  keys (basic 1st step)

# FUNCTION (TIMER MODE)

**In type** = As timer mode, work by setting the cycle and step . (See Table #2)

(if wishing to use the timer mode, must disjoin the sensor.)

If sensor is down in using the sensor mode, it switches to timer mode automatically.

## Timer function

\* If wishing to use timer function, must disjoin the temp sensor.

By pushing  $\nabla$  and  $\wedge$  key for 3 sec simultaneously, the **tn** is displayed initially. Push  $\wedge$  key for en display. **EN** works by Sensor as the same to the present method. By pushing  $\wedge$  key one more, **In** is displayed; at this time by pushing  $\nabla$  and  $\wedge$  key simultaneously , the present cycle value is displayed. With  $\nabla$  and  $\wedge$  keys, set the cycle. By pushing  $\nabla$  and  $\wedge$  key simultaneously once again, **AU** flickers and the cycle value is saved and the present set strength is displayed.

Set method by serviceman = push  $\nabla$  and  $\wedge$  key simultaneously – tn displays on the window – select tin- push  $\nabla$  and  $\wedge$  key simultaneously – display the cycle value (cycle) – select cycle (basic unit: 3min.) - Set cycle value - push  $\nabla$  and  $\wedge$  key simultaneously - AU flickers – Save is completed.

\* It is recommended not to be set by a consumer.

How to use by a consumer= select the strength by using  $\nabla$  ,  $\wedge$  keys (basic 1st step)

**Table #2**

Step	Output (ON)	Output (OFF)	Remarks
1	15sec * S	45sec * S	※ S – selected cycle value  If 1min S=1 If 3min S=3 If 5min S=5 * * ※ (If 20min s = 20 , value multiplying by 20)  ※ (If 60min s = 60 , value multiplying by 60) It is the length of ON and OFF.
2	20sec * S	40sec * S	
3	25sec * S	35sec * S	
4	30sec * S	30sec * S	
5	35sec * S	25sec * S	
6	40sec * S	20sec * S	
7	45sec * S	15sec * S	
8	50sec * S	10sec * S	
9	55sec * S	5sec * S	
10	60sec * S	0sec * S	

## SPEC.

Classi.	Item		SPECIFICATIONS
Power unit	Rated input voltage		85V AC ~ 265V AC (Universal voltage)
	Output voltage		85V AC ~ 265V AC (Universal voltage)
	Driving method		Electronic Type
	Max output		4kw
	Load	No. of circuit	1 circuit
Max capacity		18A (Resistance load)	
Precision	Temp precision		$\pm 1^{\circ}\text{C}$ ; change condition of $1^{\circ}\text{C}$ per 30 sec (Delay Option 20sec)
Motion	Power input display		Display ON , Temp display
	Output display		Heat lamp: ON display(Red Led)
	Range of temp		Possible to select within the range between $0^{\circ}\text{C}$ ~ $80^{\circ}\text{C}$
	Output delay(Optional)		01sec ~ 60sec
Sensor	Kind		NTC : Negative Temperature Coefficient Epoxy molding
	Precision %		1%
	25 $^{\circ}\text{C}$ rated resistance		5000 ohm , Beta Constant = 4000 $^{\circ}\text{k}$
	Quantity		SENSOR 1 : for sensing temp , SENSOR 2 : for checking overheat (Option)
Function (Capacity)	Safety Device	Snapping/ Short of Sensor Line	Snapping of temp sensing sensor: Timer auto switch motion, In case of short: "ES" (Error Short) displays and Buzzer for output break sounds.
		Overheating Prevention Sensor(OPTION)	The temp sensed in the overheating sensor is higher than that of set overheating temp: "Ht" (Over Heat) displays and Buzzer for output break sounds.
		resistance for fuse	10 ohm (protecting the inside circuit of controller)
Others	Outer case		Anti-flammable
	Weight		270g
	Dimension (mm)		70(W) * 120(H) * 27(D)
	Temp used.	Air temp	$0^{\circ}\text{C}$ ~ $40^{\circ}\text{C}$
		Air moisture	Under 80



