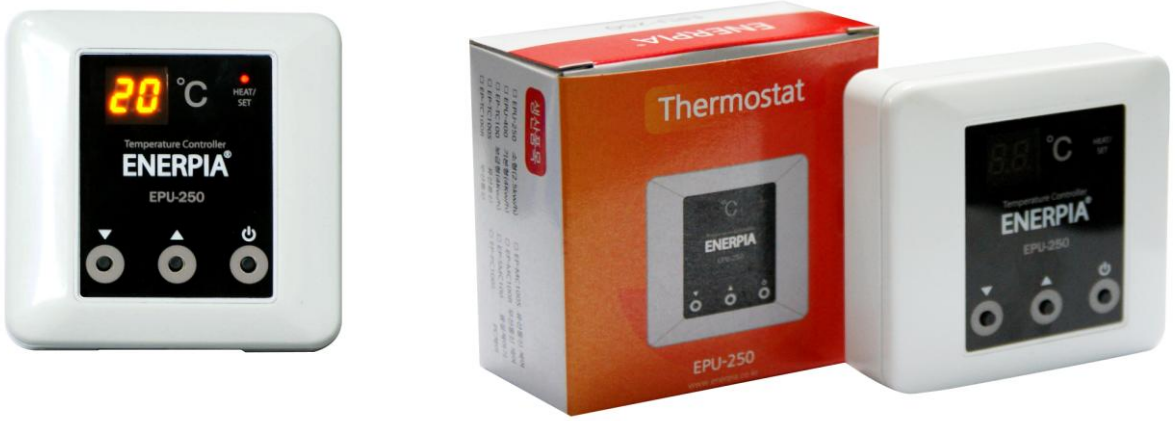
EPU-250

- THERMOSTAT MANUAL -



ENERPIA CO., LTD

OVERSEAS MKT'G TEAM

#2022, DALGUBEOL-DAERO, JUNG-GU, DAEGU, 700-831, KOREA
TEL : +82-53-474-8040 Fax : +82-53-473-8050
E-mail : poretuna@yahoo.co.kr (enerpiabest@gmail.com)
URL: www.floorwarm.net (www.enerpia.co.kr)

BASIC MOTION

DISPLAY MOTION

HEAT: DURING HEATING, THE HEAT LAMP IS ON, AND IN CASE OF SHUTTING OFF THE POWER SUPPLY OF HEATING, THE HEAT LAMP IS OFF

SET: IN CASE OF TEMP SET CHANGE OR SETUP MENU, SET LAMP FLICKERS AND WHEN SET IS COMPLETED OR THE PRESENT TEMP IS DISPLAYED, SET LAMP IS OFF (GREEN)

TEMP DISPLAY: IN CASE OF TURNING ON THE POWER OF CONTROLLER WITH POWER BUTTON, THE PRESENT TEMP IS DISPLAYED. THE TEMP MEANS THAT OF SENSOR. WITH TEMP SET UP/DOWN BUTTON, HEAT LAMP IS OFF AND THE PRESENT SET TEMP IS DISPLAYED. IN THE STATE OF SET TEMP DISPLAY, SET LAMP (GREEN) FLICKERS AND IF THERE IS NO CHANGE IN BUTTON FOR 3 SEC., THE PRESENT TEMP IS DISPLAYED AGAIN AND SET LAMP IS OFF.

KEY MOTIONS

TEMP SET KEY: THIS IS USED FOR SETTING THE INTENDED HEATING TEMP. THE SET TEMP IS DISPLAYED WITH THE INITIAL KEY MOTION. ADDITIONAL KEY MOTION IS USED FOR RAISING OR FALLING THE TEMP. IN CASE THE INTENDED TEMP IS DISPLAYED, STOP THE KEY MOTION AND STAY FOR 3 SEC FOR COMPLETING THE TEMP SET.

POWER KEY: THIS IS USED FOR CONTROLLER'S POWER ON-OFF. ON OR OFF IS DISPLAYED BY TURNS WHENEVER PUSHING THE KEY. IN CASE OF ON, THE PRESENT TEMP IS DISPLAYED ON THE DISPLAY WINDOW AND IN CASE OFF, THE DISPLAY IS OFF, TOO, AND ALL MOTIONS ARE OFF.

RESET FUNCTION

1. WHEN PUSHING ▼ AND ▲ KEYS SIMULTANEOUSLY FOR THREE SEC, 'tn' IS DISPLAYED. AT THIS TIME, BY PUSHING ▲ KEY, DISPLAY IS PROCESSED IN THE ORDER OF 'En-In-St.' When St IS DISPLAYED, BY PUSHING ▼ AND ▲ KEYS SIMULTANEOUSLY, 'AU' FLICKERS FOR 3TIMES AND RESET IS COMPLETED.
2. BY PUSHING POWER BUTTON FOR ABOUT TEN (10) SECONDS, 'AU' FLICKERS FOR THREE (3) TIMES AND RESET IS COMPLETED.

(RESENT MAKES THE SENSOR MODE SET VALUES AND STRENGTH MODE VALUES TO BASIC SET VALUES AND SAVES THE VALUE)

※ THIS IS FOR RESETTING TO THE FUNCTION SET IN THE PLANT IN CASE OF

ERROR DUE TO OUTSIDE NOISE OR ERROR DUE TO UNSKILLED OPERATION. AS ALL DATA ARE DELETED IN CASE OF RESET, PLEASE KEEP THE PRESENT SET VALUES SEPARATELY.

FUNCTION MOTION (SENSOR MODE)

BASIC MOTIONS

BASIC MOTIONS ARE DIVIDED INTO TWO MOTIONS: SENSOR MODE WORKING BY COMPARING THE TEMP SENSED AT TEMP SENSING SENSOR AND SET TEMP; AND THE STRENGTH MODE WORKING ON/OFF CYCLE AUTOMATICALLY WITHOUT USING SENSOR. IN THE STATE WITH SENSOR, IT WILL WORK IN THE TEMP MODE AND IF SENSOR IS SNAPPED OR THERE IS NO SENSOR, IT IS POSSIBLE TO USE THE STRENGTH MODE.

DETAILED SETUP #1

IT IS RECOMMENDED TO SET UP NOT BY CONSUMER BUT SERVICEMAN ONLY.

AFTER TURNING ON THE CONTROLLER, PUSH ▼ AND ▲ BUTTON SIMULTANEOUSLY FOR THREE SEC, AND 'Stn' IS DISPLAYED AS THE START OF FUNCTION.

PUSH △ ON THE STATE OF 'tn', DISPLAY IS PROCESSED IN THE ORDER OF 'SEn-tin.' PUSH ▼ AND ▲ BUTTON SIMULTANEOUSLY AT THE MENU INTENDED.

"Stn," MODE (SENSOR MODE) = SET UP THE INTENDED TEMP VALUE AS <TABLE 1> . FOR SETTING, PUSH ▼ AND ▲ BUTTON SIMULTANEOUSLY AFTER SETTING UP THE INTENDED TEMP VALUE. AT THE LAST STEP, 'SAU' FLICKERS FOR THREE TIME AND THE SET VALUE IS SAVED. FOR SETTING UP THE TEMP AFTER COMPLETING SET UP, USE ▼ AND ▲ KEYS. IF THERE IS NO KEY MOTION, THE PRESENT TEMP IS DISPLAYED AND IT WORKS AGAIN AFTER 3 SEC.

TABLE 1

FUNCTION	DISPLAY	BASIC SET	RANGE OF SET	MOTION DESCRIPTION
CLASS. OF FUNCTION	**tn**	En	SEN , TIMER, RESET	En(SENSOR MOTION MODE) , In(STRENGTH MODE), RESET (initialization)
COOL /HEAT	**-C**	HH	HH. CC	HH (Heating Mode Motion), CC (Cooling Mode Motion) –only for HH (Heating) model
MIN. TEMP SET	**-L**	O℃	0℃~ UNDER MAX TEMP	SET THE LOWEST TEMP WITHIN THE RANGE OF TEMP
MAX. TEMP SET	**-H**	60℃	OVER MIN TEMP ~55℃	SET THE HIGHEST TEMP WITHIN THE RANGE OF TEMP
TEMP DEVIATION SET	**lF**	2℃	0℃ ~5℃	ON/OFF MOTION IN THE DEVIATION BETWEEN SET AND PRESENT TEMP
OUTPUT DELAY TIME	**Ly**	20SEC	01 ~ 60SEC	WHEN POWER IS ON, WORK AS LATE AS THE DELAY TIME
OVERHEATING TEMP SET	**Ht**	60℃	OVER MAX. TEMP~ 80℃	IF SENSOR SENSING TEMP IS EXCEEDING THE SET TEMP, ERROR OCCURS
COMPENSATING TEMP SET	**ES**	00℃	-9℃ ~ 10℃	RANGE FOR COMPENSATING THE DEVIATION OF ACTUAL TEMP.

FUNCTION MOTION (STRENGTH MODE)

In MODE = AS STRENGTH MODE, THIS MEANS THE MODE SETTING THE CYCLE AND STEPS FOR WORKING (SEE TABLE 2)
(IN CASE OF USING STRENGTH MODE, THE SENSOR SHOULD BE SEPARATED. IN CASE THE SENSOR IS SNAPPED BEING AT WORK, IT SHIFTS TO TIMER MODE AUTOMATICALLY.

DETAILED SETUP #1

AFTER TURNING ON THE CONTROLLER, PUSH ▼ AND ▲ BUTTON SIMULTANEOUSLY FOR THREE SEC, AND 'tn' IS DISPLAYED AS THE START OF FUNCTION.

PUSH △ ON THE STATE OF 'tn', DISPLAY IS PROCESSED IN THE ORDER OF 'En-In-St. WITH ▼ AND ▲ BUTTON, SELECT 'In' MODE AND PUSH ▼ AND ▲ BUTTON SIMULTANEOUSLY. * THE PRESENT SETTING CYCLE TIME IS DISPLAYED. IN THIS STATE, SET UP THE CYCLE WITH ▼ AND ▲ BUTTON. (01MIN-60MIN.).

In MODE = AS <TABLE 2>, HEATING POWER IS ON/OFF AS ON/OFF TIME BY STEP (TIME BY STEP + CYCLE TIME).

- IT IS RECOMMENDED NOT TO SET UP BY CONSUMER. ========== CONSUMER ONLY SELECTS THE STRENGTH WITH ▼ AND ▲ BUTTON (BASIC STEP 1).

※ BASIC CYCLE IS SET TO 3 MIN.
(POSSIBLE TO SELECT CYCLE FROM 1 MIN TO 60 MIN)

※ AFTER SELECTING CYCLE, BY PUSHING ▼ AND ▲ BUTTON SIMULTANEOUSLY, 'AU' FLICKERS AND SET UP IS COMPLETED(SERVICEMAN).

※ THE CONSUMER SELECTS THE DEGREE OF STRENGTH AT THE INTENDED TEMP (CONSUMER).

※ STEP 1 IS SET UP BASICALLY.
(POSSIBLE TO CONTROL THE STRENGTH FROM STEP 1 TO STEP 10).

※ MUST SELECT STRENGTH IN THE STATE THERE IS NO SENSOR. IN CASE OF INSTALLING SENSOR, SENSOR MODE IS WORKING DIRECTLY.

TABLE 2

STEP	OUTPUT (0N)	OUTPUT (OFF)	REMARKS
1	15sec * S	45sec * S	※ S – selected cycle value (01-60MIN) In case of 1min, S=1 In case of 3min S=3 In case of 5min S=5 * * ※ (in case of 20min s = 20, value multiplying by 20) ※ in case of 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	50sec * S	10sec * S	
10	50sec * S	10sec * S	

ERROR DISPLAY AND CHECK

ERROR MESSAGE

CONVERTED TO STRENGTH MODE

SNAPPING OF TEMP SENSING SENSOR

IF TEMP SENSING SENOR IS SNAPPED, THE CONTROLLER IS CONVERTED TO STRENGTH MODE AUTOMATICALLY.
(IF THE PRESENT TEMP IS NOT DISPLAYED AND THE SEP TEM DOES NOT GO UP 10 OR MORE DEGREES, IT MEANS THAT IT IS CONVERTED TO STRENGTH MODE. SO CHECK IF THERE IS ANY SNAP ON TEMP SENSOR SENSING UNIT).

SNAP OF TEMP. SENSOR

SHORT OF TEMP SENSING SENSOR

IF SENSOR IS SHORT, THE OUTPUT OF CONTROLLER IS OFF AND “ES” DISPLAY FLICKERS ON THE TEMP DISPLAY WINDOW. THE HEATING POWER IS CUT DIRECTLY. .
(SHORT IS OCCURRED FOR THE REASONS OF BREAKDOWN OF SENSOR SENSING UNIT , SHORT BY SENSOR EXTENSION, ELECTRIC LEAKAGE IN THE SENSOR INSTALLATION UNIT, SO IT IS NECESSARY FOR CHECK. IF THE CAUSE IS REMOVED, IT WILL RETURN AUTOMATICALLY).

LOW TEMP. (BELOW ZERO)

EXTRAORDINARY LOW TEMP DISPLAY

IN CASE ‘Lo” IS DISPLAYED IF THE PRESENT TEMP WINDOW..
Lo: THIS IS DISPLAYED WHEN THE PRESENT SENSING TEMP IS UNDER 0℃ (IT IS WELL BELOW FREEZING). IN CASE OF NOT HEATING, THERE IS NO PROBLEM, BUT IF THE OUTSIDE TEMP IS HIGHER, CHECK IF SENSE IS WRONG (USE THE SENSORY TEMP).

OTHER HEATING

Ht: THIS IS DISPLAYED IF THE TEMP SENOR SENSING TEMP IS EXCEEDING THE OVERHEATED SET TEMP. HEATING POWER IS OFF DIRECTLY.
(CHECK DETAILED SEP VALUE, CHECK TEMP SENSOR CABLE, CHECK CABLE).
(OPTION: POSSIBLE TO APPLY WHEN INSTALLING A SEPARATE OVERHEATING SENSOR)

EPU-250 WIRING METHOD

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		2.5 kw
	Load	No. of circuit	1 circuit
		Max capacity	12 A (Resistance load)
precision	Temp precision		± 1℃ ; change condition of 1℃ per 30 sec (Delay Option 20 sec)
Motion	Power input display		Display ON, Temp Display
	Output display		Heat lamp ON display (RED)
	Range of temp		Possible to select within the range between -0 ℃ ~ 80 ℃
	Output delay(Option)		01 sec ~ 60 sec
Sensor	Kind		NTC : Negative Temperature Coefficient Epoxy molding
	Precision %		1 %
	25 ℃ rated resistance		25 ℃ /5K
	Quantity		SENSOR 1 : for sensing temp , SENSOR 2 : checking for overheating (Option)
Function (Capacity)	Safe device	Snapping/ Short of Sensor cable	Snapping of temp sensing sensor: auto change to timer mode; Short: “ES” (Error Short) displays, break the output
		Overheating Prevention	Ht: The temp sensed in the overheating sensor is higher than that of set overheating temp (break the output /error message)
		Resistance for fuse	10 ohm (protecting the inside circuit of controller)
Others	Outer case		Anti-flammable
	Weight		100 g
	Dimension (mm)		80(W) *80(H) * 26(D)
	Temp used.	Air temp	0 ℃ ~ 40 ℃
		Air moisture	Under 80 %