

Eswa DC-1

Thermostat for Floor Heating

The Eswa DC-1 is a thermostat which can be used for 7-day programming of floor heating systems or for limiting floor temperatures. This thermostat conforms to the new European safety standards with regard to its two pole isolation switch.

SPECIFICATIONS:

Power source.....	100V~240V 50/60HZ
Relay contact.....	100V~240V 16A
Ambient temperature-operation.....	0°C – 50°C
Ambient temperature-transport.....	-10°C – 60 °C
Room temperature setting range.....	5 °C – 35°C
Floor temperature control range.....	5°C ~ 60°C (factory default 40°C)
Accuracy.....	±0.5°C
Dimensions.....	.86mm×86mm×25mm
Colour.....	White

FEATURES:

- Large LCD display
 - Two pole isolation power switch that can cut off the live and neutral wire connections between "Power" and "Load"
 - Permanent storage of user settings in event of power loss
 - Optional economy or comfort operation
 - Optional control types for different heating applications including room thermostat; floor thermostat or room thermostat with floor temperature limitation
 - Optional programming periods: 7 individual days or 5-day (weekdays) plus 1-day/1-day (Saturday/Sunday) programming with 6 or 4 separate time/temperature periods per day.
 - Display temperature recalibration
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IMPORTANT SAFETY INFORMATION:

- Always turn off power at the main power source by unscrewing the fuse or switching the circuit breaker to the off position before installing, removing, cleaning, or servicing this thermostat.
- Read all of the information in this manual before installing the thermostat.
- Only a professional contractor should install this thermostat.
- All wiring must conform to local and national building and electrical codes and ordinances.
- If the system is not operating properly, check the wiring and replace the fuse if necessary.
- Use the thermostat only as described in this manual.

KEYBOARD, DISPLAY AND SWITCH DESCRIPTION

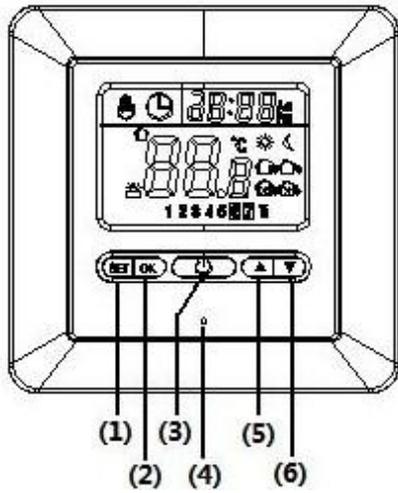


Figure 1

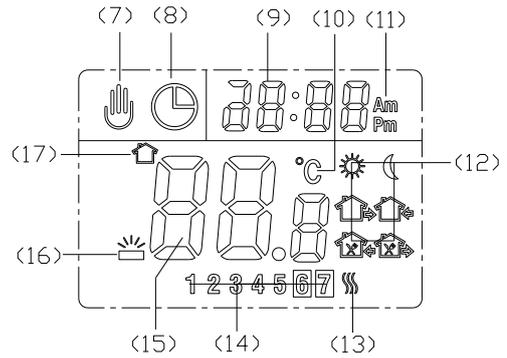
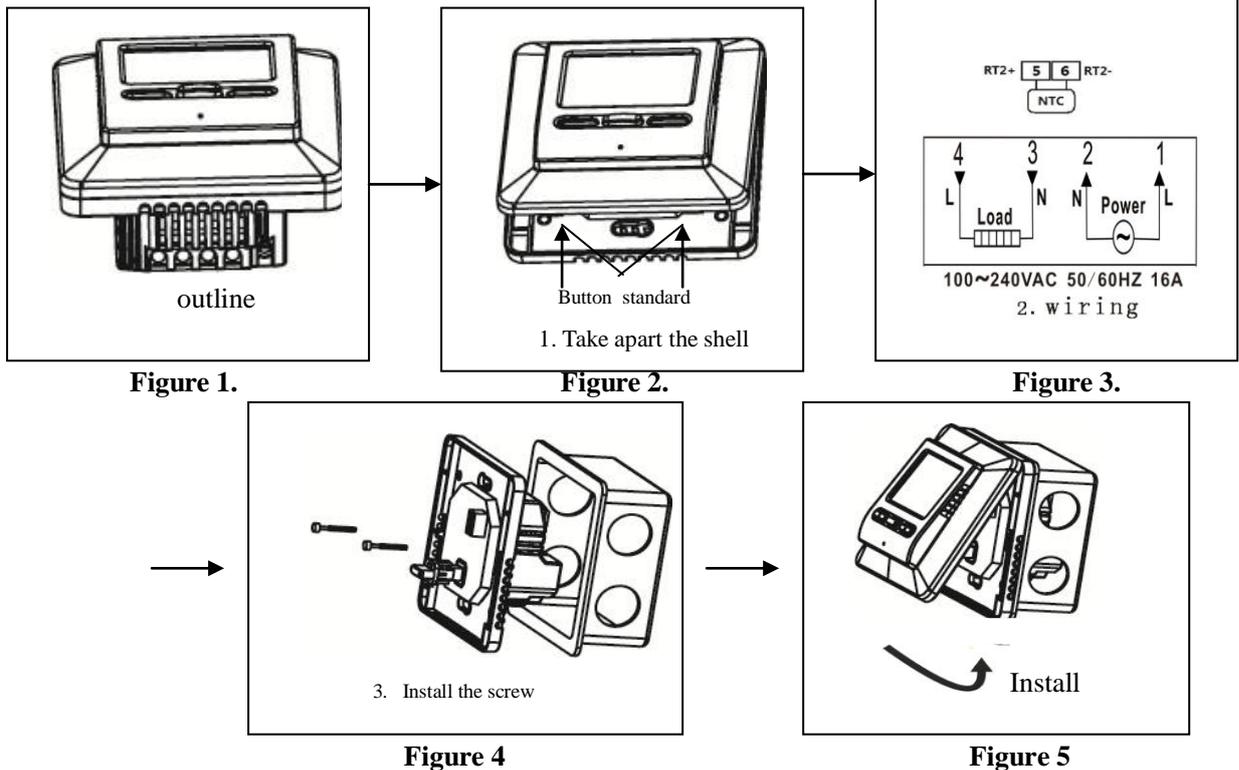


Figure 2

- (1) Set button
- (2) OK button
- (3) Power button
- (4) Reset button
- (5) Raise temperature setting
- (6) Lower temperature setting
- (7) Shows when thermostat is in temporary override mode
- (8) Shows when thermostat is in program operation
- (9) Shows current time clock
- (10) Shows current displayed temperature is in °C mode
- (11) Shows whether current time is AM or PM
- (12) ☀ Time of getting up ; 🏠 Time of leaving in the morning ; 🏠✖ Time of return for lunch ;
 🏠✖ Time of leaving in the afternoon ; 🏠 Time of return in the afternoon ; 🌙 Time of going to bed
- (13) Indicates demand for heating
- (14) Shows the day of the week
- (15) Shows actual temperature or set temperature
- (16) Shows when displayed temperature is floor temperature
- (17) Shows when displayed temperature is room temperature

INSTALLING THE THERMOSTAT

ATTACH THERMOSTAT BASE TO WALL



1. Remove the thermostat from the packing material. Gently pull the control panel straight off the base. Forcing or prying the thermostat will cause damage to the unit.
2. Connect wires beneath terminal screws on power base using appropriate wiring diagram. See figure 2.
 - (The floor sensor cable must be attached to the terminal block in heating type F or RF (see figure 3), otherwise the thermostat will shut down the heating output and the display will show **E2** to indicate a floor sensor problem.)
3. Using two mounting screws to mount the power base to the wall. Place a spirit level against the bottom of the base, adjust until level, and then tighten the screws.
 - (Leveling is for appearance only and will not affect thermostat operation.)
4. Put the control panel back onto the power base by snapping it in place.

OPERATION

1. Configuration Switch

Remove the control panel from the base. There is a configuration switch at the back of the PCB of the control panel. See figure 5. Set the configuration switch as follows.

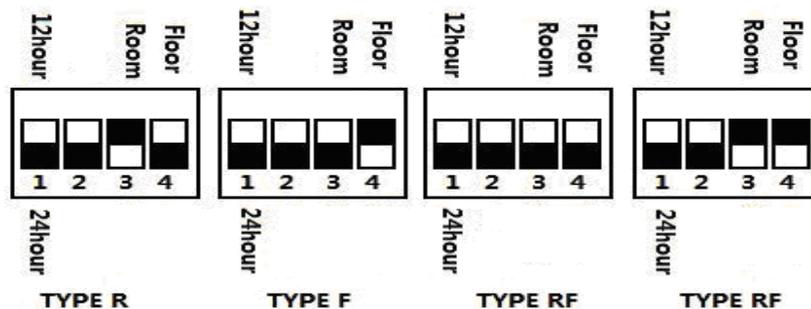


Figure 5

1) Select displayed clock format

Set the switch to 24-hour. Display will show 24-hour clock time

Set the switch to 12-hour. Display will show 12-hour clock time

2) Select type of heating

When installing the thermostat you need to choose the type of heating and thus which sensors should be used. See Figure 5. You have three options:

- **Type R: Room Thermostat**

Application: No floor sensor is present, and cannot be installed.

The unit will be controlled via the room sensor in the thermostat and the thermostat will activate/deactivate the heating system by comparing set temperature with room temperature. Press ▲ to adjust the thermostat setting to 1°C above room temperature. The heating should begin to operate after the backlight is out .

- **Type F: Floor Thermostat:**

Application: To provide a constant temperature on the floor in Bathrooms and other rooms where a comfortable warm surface is required.

The unit will be controlled via an external floor sensor. It will activate/deactivate the heating system . by comparing the set temperature with the actual floor temperature. Press ▲ to adjust the thermostat setting to 1°C above floor temperature. The heating should begin to operate after the backlight is out .

- **Type RF: Room thermostat with floor limitation**

Application: To control room temperature in living rooms etc.

The thermostat will activate or deactivate the heating system by comparing the set temperature with the actual room temperature and comparing the preset floor temperature limit with the actual floor temperature. The factory default maximum floor limit is 40°C. You can change it in configuration menu item 5. Assuming that the floor temperature is below the maximum floor temperature limit, the heating should begin to operate after the backlight is out if the set temperature is 1°C higher than the actual room temperature. If the floor temperature is above the upper floor limit, the heating should stop working. **E3** will be displayed, indicating that the floor temperature is above the upper limit. If the floor temperature is below the lower floor limit, the heating should start working after the backlight is out. **E4** will be displayed, indicating that the floor temperature is below the lower limit.

2. Configuration Menu

The configuration menu allows you to enter certain thermostat system operating characteristics or to input your personal requirements. Hold button ▲ & ▼ for 5 seconds to enter the configuration menu. The display will show the first item in the configuration menu. Press the **SET** button to shift to the next menu item. Use ▲ or ▼ to select. To exit the menu, press **OK**. If no button is pressed within 20 seconds, the thermostat will exit the configuration menu.

In the configuration menu, push ▲ & ▼ button in a same time for 3 seconds. Display will show “dEF” blinking 3 times and return to Menu item 1 indicates all the configuration setting has reverted to factory default setting.

The configuration menu chart summarizes the configuration options. An explanation of each option is given below:

Item	Press buttons	Displayed (factory default)	Press▲or▼to select	Descriptions
1	▲&▼ 5 seconds	CL (0)	-4 --- +4	Select temperature display adjustment higher or lower
2	SET	BL (1)	1, 2	Select display backlight mode 1. turn on 2. turn down
3	SET	AH (35°C)	20°C—35°C(R/RF) 20°C—60°C(F)	Setting temperature: Type R or RF: Select maximum room setting temperature Type F: Select maximum Floor setting temperature
4	SET	FL (5°C)	5°C-20°C	Type RF or F: Select minimum floor temperature limitation
5	SET	FH (40°C)	20°C-60°C	Type RF or F: Select maximum floor temperature limitation
6	SET	HE (FA)	FA/SL	Select fast heating or slow heating
7	SET	PS (7)	0/3/7	Programming day in one week option
8	SET	CS (6)	4/6	Programming period in one day option
9	SET	Ld (H)	HH, H,L	Select output load.
10.	Press OK to exit the menu.			

1) Calibrated temperature adjustment: 4 LO to 4 HI –

You can adjust the displayed room temperature up or down by up to 4 degrees. Your thermostat was accurately calibrated at the factory but you can change the display temperature to match your previous thermostat. The current or adjusted room temperature will be displayed on the right side of the display.

2) Select display backlight mode

The display backlight improves display contrast in low lighting conditions. Factory default is 1.
Select 1 to activate the light when any button on the thermostat is touched.
Select 2 to keep the display light off.

3) Select maximum set point

For function R or Function RF, This feature provides a maximum set point temperature for room setting. The default setting is 35°C, It can be changed between 20°C to 35°C.

For function F, This feature provides a maximum set point temperature for floor setting. The default setting is 35°C, It can be changed between 20°C to 60°C.

4) Select lower floor temperature limit

Press ▲or▼ to select you desire minimum floor temperature limitation. It can be changed between 5°C-20°C, factory default setting is 5°C.

5) Select upper floor temperature limit

Press ▲or▼ to select you desired upper floor temperature limit. It can be set between 20°C-60°C, the factory default setting is 40°C. If floor temperature over the limitation, then stop output work..

6) Select fast heating or slow heating

Select FA to start heating immediately when the set point is 1°C above the room temperature.
Select SL to start heating only when the set point is 3 °C above the room temperature.

7) Programming day of week option

There are 2 options for how to program the days in the week.

7: You can program each of the 7 days separately

3: You can program 5 weekdays as a block plus 1 Saturday and 1 Sunday.

0: You cancel the programme function.

8) 4 or 6 periods per day program option

There are 2 options for programming the periods in one day

4: You can program 4 periods per day ;

6: You can program 6 periods per day

9) Select output maximum load.

According to the actually output heating load, to select the corresponding load current.

The factory default setting is H. The options are HH, H, L

-HH load current are 12-16 (A).

-H load current is 8-12 (A).

-L load current is 0-8 (A).

3. Manual Operation

1) Set current day and time

a) Press **SET** button. The hour will flash in the display.

b) Press and hold either **▲** or **▼** until you reach the correct hour

c) Press **SET** button once again. The minutes will flash in the display

d) Press and hold either **▲** or **▼** until you reach the correct minute

e) Press **SET** button once again. The day of the week will flash in the display.

● Press **▲** or **▼** until you reach the correct day of the week

● Press the **OK** button once. The display will show the correct day of the week and time.

If no keys are pressed within 10 seconds, the thermostat will revert to program operation.

2) Permanent temperature setting

When the thermostat is in program operation, hold the OK button for 3 seconds to change to permanent temperature setting.  are displayed simultaneously, indicating permanent operation. Press **▲** or **▼** to change the set temperature. The thermostat will permanently hold the room temperature at the selected setting until you press **OK** button to restart the program operation.  is displayed when the thermostat is in program operation.

3) Temporary temperature

When the thermostat is in program operation, press **▲** or **▼** to check the current set temperature. A flashing digit signifies a set temperature. If the set point is your desired temperature, push **OK** button to revert to program operation. If the set point is not your desired temperature, press **▲** or **▼** to temporarily change the set point.   shows that the system is in temporary temperature override. The thermostat will override the current programming setting and keep the room temperature at the selected temperature until the next program period begins. Then the thermostat will automatically revert to program operation.

4) Floor temperature inquiry

This feature is only available in RF mode. Hold **▲** button for 3 seconds, the thermostat will display the floor temperature.  is displayed when the temperature displayed is the floor temperature. Press **OK** to revert to program operation at the room temperature shown in the display.  shows when the temperature displayed is the room temperature. If no key is pressed for 20 seconds after a floor temperature inquiry, the display will change from showing the floor temperature to showing the room temperature.

5) Rest function.

This function can help operator to recovery display that is out of order. Please use a pin to insert in button **④** hole till sounded click, then loosen it. Switch on thermostat and the display is normal. If there still have troubles, please don't hesitate to contact with local agency for warranty.

6) Setting your own program

Look at the factory preprogrammed times and temperatures shown in the sample schedule. If this program suits your needs, simply press the **OK** button to begin running the factory preset program.

If you want to change the preprogrammed time and temperature, follow these steps.

Determine the times, periods and temperatures for your program. You can set programs for 7 separate days or 5 workdays and 1 Saturday and 1 Sunday. (See configuration menu item 7)

Use the table to plan your program time periods and the temperatures you want during each period.

Fill in the complete table to have a record of your program.

Sample Heating Schedule Plan for 7 individual days; 6 periods per day

(Factory default program setting)

												
	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp
All 7 days	0:00	21°C	5:00	15°C	13:00	21°C	16:00	15°C	18:00	21°C	22:00	15°C

Heating Schedule Plan

												
	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp	Time	Temp
1												
2												
3												
4												
5												
6												
7												

Entering 7 day heating program

1) Hold **SET** for 5 seconds. **1** flashes (indicating you are now planning the Monday program). The other days **2 3 4 5 6 7** are marked in the display. If **1 2 3 4 5** are flashing in the display, this indicates that you are in the 5-day program. This means you previously selected the 5+1+1 day program mode. (See configuration menu item 7).

- 2) Press ▲ or ▼ to change the day you wish to program.
- 3) Press **SET** again, and the selected day for programming will be shown. Also displayed are the start times currently programmed (flashing) for the 1st heating period and the temperature currently programmed. The ☀ symbol indicates the 1st program period (Get up) setting.
- 4) Press ▲ or ▼ until your selected time appears. The time will change in 15-minute increments.
- 5) Press **SET**, the programmed temperature will flash, press ▲ or ▼ until your selected temperature appears.
- 6) Press **SET**, the 🏠 symbol indicates the 2nd program period (leave house) setting. The start time currently programmed and the set temperature for the 2nd heating program period will be shown. Repeat steps 4 and 5 to select the start time and heating temperature for the 2nd heating program period.
- 7) Press **SET** button. Repeat steps 4 to 6 to set the 3rd, 4th, 5th and 6th heating programs. If only 4 periods can be programmed per day, this means the 4-period per day option has previously been configured. (See configuration menu item 8)
- 8). After finishing programming the periods for the whole day, press the **SET** button. The day next to be programmed will flash, with the other 6 days marked in the display. If the display shows 6 7 flashing with 1 2 3 4 5 marked in the display, this mean 5+1+1 day program mode was selected before. (See configuration menu item 7).
- 9). Repeat 2)~8) to complete the programming for all other days of the week.
- 10). When you have completed your programming, press **OK** to revert to program operation.
- 11) In the programming periods, push ▲&▼ button in a same time for 3 seconds. Display will show “dEF” blinking 3 times and return to step 1 all the setting has reverted to factory default setting.

4. Error Codes

E1 flashing in the display: Floor sensor short circuit in type F or RF. Thermostat shuts down all heating output.

E2 flashing in the display: Floor sensor not installed or broken in type F or RF. Thermostat shuts down all heating output.

E3 flashing in the display: Room sensor has short circuited. Thermostat shuts down all heating output.

E4 flashing in the display: Room sensor is broken. Thermostat shuts down all heating output.

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