Underfloor Heating

USER INSTRUCTIONS

Your ESWA floor heating system has been in use for over 55 years in the United Kingdom (74 years in Norway) and is used today in more than 20 countries world-wide.

Your system has been designed to take particular economic advantage of current UK electricity tariffs whilst providing an ideal combination of comfort, safety and sophistication.

It consists of heating cables embedded within the floor screed to provide gentle warmth evenly spread from wall to wall and floor to ceiling.

As the source of the heat is contained within the structure there are no radiators or grilles to interfere with your furnishings or decoration. All the floor and wall space you have paid for can be used.

The ESWA system will give a long, maintenance free life.

HOW IT WORKS:

Your floor heating is designed to provide gentle warmth using unrestricted electricity with the amount of heat being determined by individual room thermostats.

It is a low surface temperature system which makes it particularly efficient and safe.

Remember, so called 'hot' radiator conventional systems rely on cold air falling, forcing the heated air up and causing uneven temperatures and draughts.

During the summer months of course, there is no need for heating and so the floor systems may be switched off.

As the weather becomes colder, the floor heating should be switched on at the thermostat to provide warmth. Floor temperatures are only marginally above the room temperature as this is all that is necessary to achieve the designed warmth. You will notice that the floor is somewhat warmer under a floor rug or cushion on the floor. The room will need time to heat up before comfort is established – particularly from new. The system is designed to be left on continuously.

Although the system is available to take energy at all times, there is a certain amount of storage of the heat within the floor structure, and if careful use is made of the controls a substantial proportion of the energy used will be at the low rate.

As the thermostats are programmable, the heating is turned down automatically according to the programme. Remember floor heating responds only slowly so sufficient time must be allowed prior to occupancy. Careful use of the programme will allow maximisation of the low rate availability.

The thermostat is pre set to take advantage of the low rate of the two rate electricity tariff (Economy 10 - other tariffs will vary):

high (21°C): 00.00 low (15°C): 05.00
high (21°C): 13.00 low (15°C): 16.00
high (21°C): 18.00 low (15°C): 22.00

Should you wish to change the settings please see appendix 1.

This will allow heat to be stored within the floor slab from the lower priced electricity periods, but enable a 'boost' for additional comfort if required. These can be varied to suit personal requirements and tariff arrangements. If required, individual rooms can be programmed to operate at different times.

Note: the thermostats for the bathrooms are based on monitoring the floor temperature; in all other areas they are based on monitoring the air temperature.

Electricity Tariffs:
Your heating is designed to operate on 'time of day' tariffs (for example Economy 7 or 10). This will mean that all energy taken during the specified economy hours is at the low rate. All energy taken at other times will be at the standard rate.

Electric Water Heating:

In order to get the fullest benefit from time of day tariffs you are recommended to make maximum use of the lower rate periods to heat your water.

Payment of Accounts:

In all homes much more energy is used in the winter than in the summer. In fact, it is normal to incur as much as 75% of your annual heating cost over the worst winter quarter. More energy is of course also used for lighting, cooking and water heating in the winter. Most people wish to 'spread the load' of costs evenly over the year, and this can be arranged through your Electricity Company with a direct debit facility. Remember maintaining a higher temperature than required will increase running costs - a $1^{o}C$ increase in temperature could increase costs by 10%.

NOTES:
There have to be some "do's and don'ts" and these are:-
*(a) **DO NOT** pierce the floor. Clearly this must not be done as the heating cables in the floor could be damaged.*
*(b) **DO NOT** add additional floor coverings. The warmth is designed to pass up through the floor and additional layers will interfere with the heat transfer.*
*(c) **DO NOT** fit permanent fixtures or furniture on the floor heated areas that will seriously restrict heat output. (for example polystyrene 'bean bags', fitted wardrobes etc.)*
*(d) **DO NOT** maintain higher than necessary temperatures.*

WARNING: Access to the inside of all controls should only be undertaken by a competent person, after the supply has been disconnected.

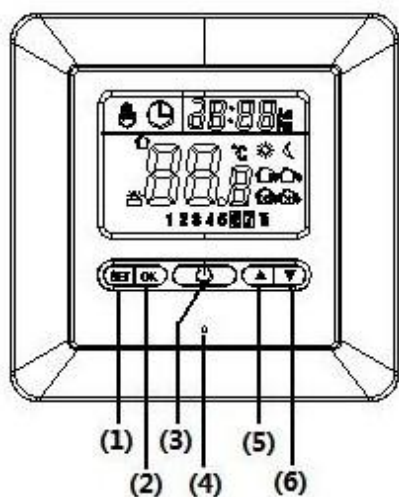# Appendix 1: Thermostat manual

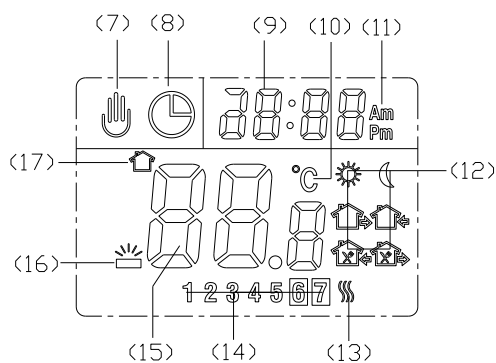## KEYBOARD, DISPLAY AND SWITCH DESCRIPTION

| 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 ℃ mode
(11)   Shows whether current time is AM or PM

   1ˢᵗ heating period   ☼

   End of 1st heating period

   Start of 2nd Heating period

   End of 2nd Heating period

   Start of 3rd Heating period

   End of 3rd heating period   ☾

(12)   Indicates demand for heating

(13)   Shows the day of the week

(14)   Shows actual temperature or set temperature

(15)   Shows when displayed temperature is floor temperature

(17)   Shows when displayed temperature is room temperature

Operation

1) Set current day and time

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

(2) Press and hold either ▲or ▼until you reach the correct hour

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

(4) Press and hold either ▲or ▼until you reach the correct minute

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

(6) Press ▲or ▼until you reach the correct day of the week

(7) 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) Manual temperature setting

This mode will keep the room permanently at a temperature set by the resident.
When the thermostat is in program operation, hold the OK button for 3 seconds to change to

permanent temperature setting. The hand icon ✋is displayed, 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. The

clock icon 🕐 is displayed when the thermostat is in program operation.

3) Temporary override

This mode will keep a temperature set by the resident until the next programmed time.
When the thermostat is in program operation, press ▲ or ▼ to check the current set temperature.
A flashing digit shows the set temperature. If this is your desired temperature, push the **OK** button
to revert to program operation. If the set point is not your desired temperature, press ▲or ▼to
temporarily change the set point. Once the desired temperature has been reached stop pressing
buttons and the thermostat will keep that temperature. The clock and hand icon will be shown

together ✋ 🕐indicating that the system is in temporary temperature override. The thermostat
will override the current programming setting and keep the room at the selected temperature until
the next program period begins. Then the thermostat will automatically revert to program
operation.

Reset function.

 This function can help the user to restart a display that is out of order. Using a pin, insert into
button ④ till you hear a click, and then withdraw it. Switch on thermostat and the display should
have returned to normal. If there is still a problem, please contact Eswa.

4) Setting your own program

Look at the factory pre-programmed 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 pre-programmed time and temperature, follow these steps.
Determine the times, periods and temperatures for your program. You can set programs for 7 separate days (default) 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 programming mode:

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

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 end of the 1st heating period setting. The start time currently programmed and the set temperature for this program period will be shown. Repeat steps 4 and 5 to select the start time and heating temperature for this program period.

7) Press **SET** button. Repeat steps 4 to 6 to set the 3rd, 4th, 5th and 6th program periods.

   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.

5) <u>Factory re-set:</u>

In the programming menu, push ▲& ▼buttons at the same time for 3 seconds. The display will show "dEF" blinking 3 times and return to step 1 all the settings will have reverted to factory default setting.

6) <u>Error Codes</u>

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.
If an error code is displayed and is not simply resolved, please contact Eswa.