DRON-O-SOL 16A thermostat for floor heating

DRON-O-SOL 16 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 ……230 VAC
Relay contact:…… 230 VAC 16A
Room temperature setting range……5℃ to 35℃
Floor temperature control range……5℃ to 40℃
Accuracy…….. ±1℉ or ±0.5℃
Dimensions…… 80mm X 80mm X16mm
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 temperature display in Celsius or Fahrenheit
- 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

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

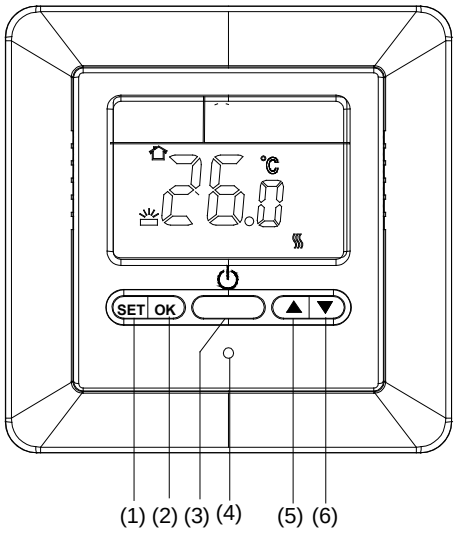


Figure 1

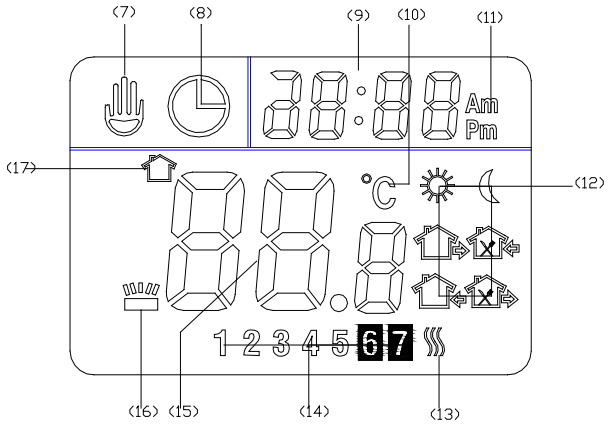


Figure 2

(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 ℃ 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

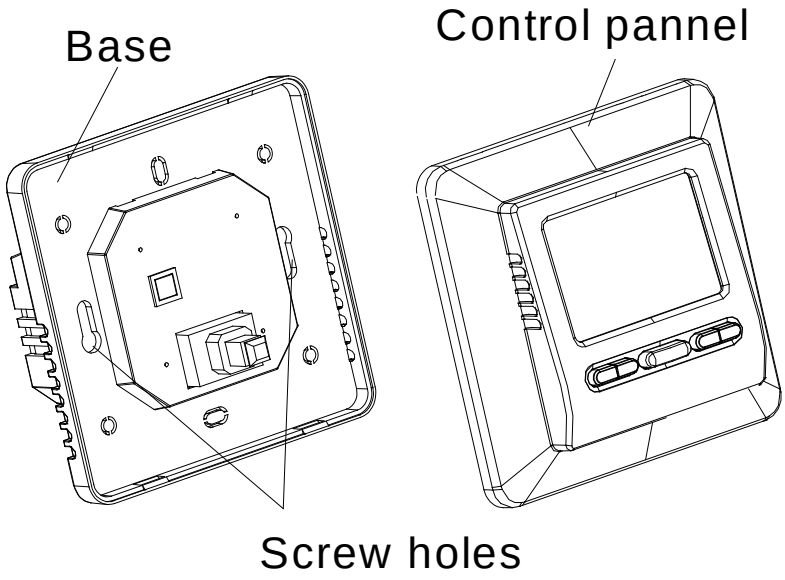


Figure 3

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 4
3. The floor sensor cable must be attached to the terminal block in heating type F or RF (see figure 4), otherwise the thermostat will shut down the heating output and the display will show **E2 to** indicate a floor sensor problem.
4. Push power base into conduit box.
5. 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.)
6. Put the control panel back onto the power base by snapping it in place.

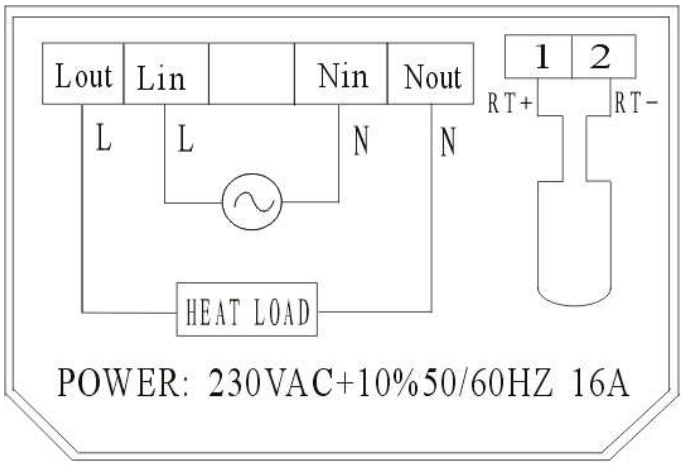


Figure 4

WIRING DIAGRAM

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.

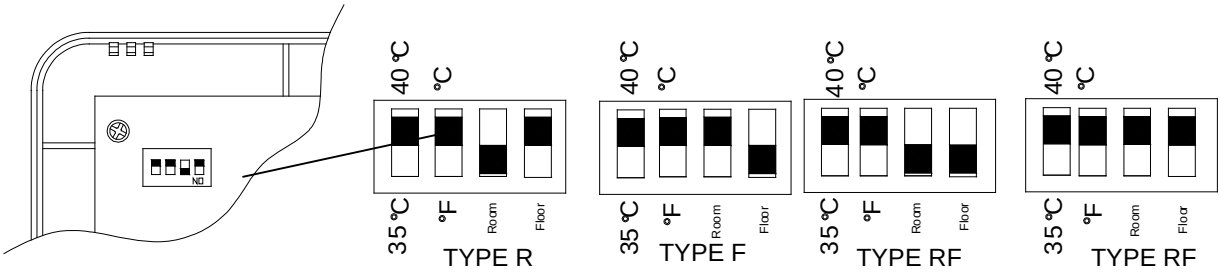


FIGURE 5

1) Select floor temperature limitation

Set the switch to 40℃. 40℃ will be the upper limit for the floor

Set the switch to 35℃. 35℃ will be the upper limit for the floor

In TYPE F and TYPE AF, if the floor temperature is above the upper limit, the thermostat will shut down all heating output and display error code: E5

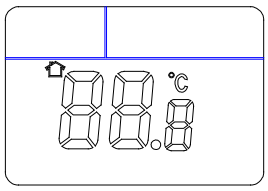
2) Select ℃ and ℉ readout

Set the switch to ℃, the temperature in the display will be shown in ℃.

Set the switch to ℉, the temperature in the display will be shown in ℉.

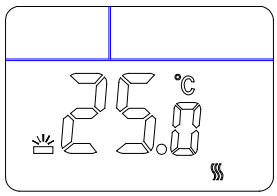
3) Select type of heating

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**

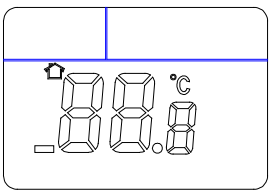
Application: No floor sensor is present, and cannot be installed.
The unit will be controlled via the room sensor in the thermostat and the thermostat will activate/deactivate the heating system by comparing set temperature with room temperature. Press ▲ to adjust the thermostat setting to 1℃ above room temperature. The heating should begin to operate immediately.



- **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℃ above floor temperature. The heating should begin to operate immediately. If the floor sensor is not installed in Type F, the thermostat will shut down the heating output. The display will show **E2**



- **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℃. To set the maximum upper limit to 35℃ refer to **Select floor temperature limit.** Assuming that the floor temperature is below the maximum floor temperature limit, the heating should begin to operate if the set temperature is 1℃ 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 sensor is not installed in Type RF, the thermostat will shut down all heating output. The display will show **E2**

2. Configuration Menu

The configuration menu allows you to enter certain thermostat system operating characteristics or to input your personal requirements. Hold button ▲ or ▼ for 3 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.

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	Description
1	▲ or ▼ 3 seconds	CL (0)	-4 --- +4	Raise or lower calibrated temperature display
2	**SET**	bL （1）	1，2，3	Select display backlight mode
3	**SET**	AH （35℃）	18℃(64℉)—35℃(95℉) 18℃(64℉)—40℃(104℉)	Type R or RF: Select maximum room setting temperature Type F: Select maximum floor setting temperature
4	**SET**	FL(5℃)	5℃(41℉)-20 (68℉)	Type RF or F: Select lower floor temperature limit
5	**SET**	I (40℃)	20℃(68℉)-40℃(104℉)	Type RF or F: Select upper floor temperature limit
6	**SET**	HC (FA）	FA/SL	Select fast heating or slow heating
7	**SET**	PS (7)	3/7	Select day of week programming options
8	**SET**	7S (P6)	P4/P6	Select heating phase programming options
9	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 maximum set point

For Function R or Function RF, this feature provides a maximum set point temperature for the room setting. The default setting is 35℃ (95℉), It can be set between 18℃ (64℉) and 35℃ (95℉)

For Function F, this feature provides a maximum set point temperature for the floor. The default setting is 40℃(104℉). It can be set between 18℃ (64℉) and 40℃ (104℉).

3) Select lower floor temperature limit

Press ▲ or ▼ to select you desired lower floor temperature limit. It can be set between 5℃(41℉) and 20℃(68℉), the factory default setting is 5℃

4) Select upper floor temperature limit

Press ▲ or ▼ to select you desired upper floor temperature limit. It can be set between 10℃(50℉) and 40℃(104℉), the factory default setting is 40℃

5) Select fast heating or slow heating

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

6) Select display backlight mode

The display backlight improves the display contrast in low lighting conditions. Select 1 to activate the light when any button on the thermostat is touched. Select 2 to keep the display light off. Select 3 to turn the display light on continuously. Factory default is 1.

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.

8) 4 or 6 periods per day program option

There are 2 options for programming the periods in one day

P4: You can program 4 periods per day

P6: You can program 6 periods per day

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

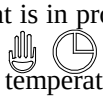
d) Press and hold either ▲or ▼ until you reach the correct minute

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 20 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 5 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) Reset

If the display is abnormal, press the Reset button gently using a pointed object, such as a straightened paper clip. This will reset the thermostat to the factory default settings.

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	**6:00**	**21℃**	**8:00**	**17℃**	**12:00**	**21℃**	**14:00**	**17℃**	**17:00**	**21℃**	**23:30**	**17℃**

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.

REVERT TO FACTORY DEFAULT PROGRAM SETTING

Press the **RESET** button to reset the thermostat 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: Floor sensor over upper limit in type F or RF. Thermostat shuts down all heating output

E4 flashing in the display: Floor sensor below lower limit in type F or RF. Thermostat turns on heating system until the floor temperature is above lower limit.

E5 flashing in the display: Room sensor has short circuited. Thermostat shuts down all heating output

E6 flashing in the display: Room sensor is broken. Thermostat shuts down all heating output.

CUSTOMER ASSISTANCE

After reading this guide, if you have any questions about the operation of your thermostat, please contact your installer, energy utility company or service provider.