

Standard Control Operating Instructions



The plant and wiring layouts supplied show how all systems (UFH, DHW and radiators) are interconnected. If any of the systems are irrelevant, please ignore the plumbing and electrical connections for these systems.

For the underfloor heating, the Combimix unit is utilised for controlling the water temperature flowing into the floor heating system. The RT 500 clockstat provides setback timing and the IVAR digital room thermostats offer the ability to accurately control the temperature of each individual area.

Please complete the following steps to check the functionality and operation of the system. These checks will enable you to establish if the system(s) are installed correctly, more importantly if the system(s) are able to operate independently of each other. Before commencing with the following checks, please ensure that all electrical components are powered on. In addition, certify that all the IVAR digital room thermostats, DHW cylinder and radiator circuits are NOT calling for heat.

1. Where a solid concrete floor (screed or structural slab construction) is installed, please allow sufficient time for the concrete to cure naturally before applying any heat into the floor. The final stages of drying can be aided by the underfloor heating, but the floor heating system must be initially operated at a low flow temperature. In order to aid the drying out process for the concrete, ensure that the thermostatic head on the top of the Combimix unit is initially set to 25°C. This can be raised once the concrete floor has dried completely.
2. Firstly, we want to check the independent functionality of any radiator circuits. So create a demand for heat on the radiator circuit. This should be done while there is still no demand on the UFH or DHW circuits. The boiler/boiler pump should start up and the motorised valve on the flow pipe work to the radiators should open. Once satisfied, break the demand for heat and the motorised valve should close and the boiler/boiler pump should cease.
3. Now we want to check the independent functionality of the DHW circuit. So create a demand for heat on the DHW circuit. This should be done while there is still no demand on the UFH or radiator circuits. The boiler/boiler pump should start up and the motorised valve on the flow pipe work to the DHW cylinder should open. Once satisfied, break the demand for heat and the motorised valve should close and the boiler/boiler pump should cease.
4. To check the independent functionality of the underfloor heating circuit, first of all ensure that the DHW and radiator circuits are not calling for heat and the boiler/boiler pump are inactive. Then to create a demand for heat, the RT 500 clockstat has to be set to an artificially high temperature (i.e. calling for heat). A small demand symbol will appear on the LCD screen of the clockstat.
5. Choose one of the digital room thermostats and create a demand for that room (i.e. set the desired temperature on the thermostat higher than the actual room temperature). A small heat demand symbol will appear on the LCD screen of the thermostat. This should fire up the boiler and boiler pump (this may take up to 2 minutes to happen).
6. Check that the correct actuator(s) open in relation to which room is calling for heat. The manifold should be labelled up to show which circuits of pipe are serving each room. Please bear in mind that the actuators will take 3-4 minutes to open or close fully. Once satisfied, break the demand for that room thermostat; let the actuator close and let the boiler/boiler pump cease operation.
7. Repeat steps 5 & 6 for all room thermostats in the system. Every room thermostat should open the corresponding actuators for that room. If this is not the case, please contact our office.
8. As long as the preceding steps are completed and you are fully satisfied with the independent operation of all the systems, you can now set the time and temperature settings for the RT 500 clockstat (please refer to the manufacturers instructions). Optimum recommends setting the clockstat to 25°C+ when the heating period is in practice (i.e. during the daytime). This artificially high temperature setting ensures that all the individual room thermostats have complete control over each area. The room temperatures will only get as hot as the individual room thermostat settings. As for the non-heating period (i.e. night-time), we would recommend setting the clockstat temperature to 16°C. This setting is also referred to as the night setback temperature. This will keep all the rooms in the house at a steady temperature during the setback period.
9. The times for the clockstat should be set with a 2-hour lead-in time and a 2-hour lead-out time. For example, if the first heating period of the day is desired at 7.00AM the clockstat should be set to come out of setback at 5.00AM. In addition, if at 11.00PM the occupants will be retiring for the night then the clockstat should be set to enter its setback at 9.00PM.
10. Once the system has been set-up and any concrete floors have been dried out thoroughly, then the correct temperature can be set on the thermostatic head on top of the Combimix unit. These are as follows:
 - Timber joist floor construction - 60°C
 - Concrete floor construction - 55°C
11. During the warmer months (May – September) the operating temperature can be lowered by up to 20°C on the thermostatic head. This will increase the comfort level in the property as well increasing the efficiency of the system.

PLEASE NOTE THAT UNDERFLOOR HEATING SYSTEMS ARE MOST ECONOMICAL WHEN YOUR FLOOR IS AT A CONSTANT TEMPERATURE, SWITCHING THE SYSTEM IN AND OUT OF SETBACK SEVERAL TIMES A DAY IS FALSE ECONOMY AS IT TAKES MORE ENERGY TO CHANGE THE TEMPERATURE FROM ONE SETTING TO THE OTHER.



Standard Control Commissioning

The Optimum Underfloor Heating Standard Control System provides individual room temperature control via the individual room thermostats. Overall time and temperature settings are governed by the programmable clock thermostat, with the floor water temperature being controlled by the Combimix manifold control set.

A full explanation of each part of the control system is given below.

Individual Digital Room Thermostats: The Ivar Digital Thermostat provides an easy way of setting your desired room air temperature. Your maximum desired comfort setting should be set at each thermostat by simply using the up or down button. The flashing temperature is your chosen temperature setting. Once you are happy with the setting do not press any further buttons and the screen will then revert to showing the current room temperature. If the desired room temperature setting is higher than the current room temperature, the thermostat will call for heat and open the associated circuit(s) on the manifold. You can tell if any thermostat is calling for heat, as it will display a heat demand symbol on its screen.



The IVAR digital room thermostats are small, stylish and easy to use. The digital display makes it simple to read and even simpler to set. When combined with a remote air sensor these thermostats can also be utilised for controlling the temperatures in wet areas.



The standard control system also incorporates a programmable clock thermostat (RT500).

As the individual room thermostats do not have a time function you need to have the ability to “set-back” the room temperatures to a lower setting during times when the rooms are either unoccupied or during the night (night set-back).

Programmable Clock Thermostat: The RT500 provides this function but must be set in the following way (please also refer to manufacturers instructions).

When you want your individual rooms to be operating at the room thermostat settings you must set the clockstat to call for a high temperature (Typically 26°C). This ensures all room thermostats receive power and control their areas. When you want to drop the overall temperature of the house to the setback temperature, set the clockstat to call for approximately 4°C lower than your average room thermostat setting. (If average room thermostat setting is 20°C then your setback temperature should be 20°C minus 4°C equals 16°C).



The RT500 is a stylish 5/2 or 7 day programmable room thermostat, which has been designed to provide automatic time and temperature control of all underfloor heating heating applications.

The RT500 can switch circulating pumps, boilers and motorised valves. Intended where the householder has a variety of heating needs from day to day, the RT500 thermostat gives you a feature packed unit but still maintains simplicity for the user.

The last main influence on the control of your system is the Combimix control set attached to the manifold.

Combimix Control Set: This controls the water temperature entering the floor heating circuits and is set by using the thermostatic control head, which is marked up in degrees centigrade. As the floor heating circuits have to operate at a lower temperature than the output of your heat source, the temperature must be set to a suitable level.

Concrete floors (screed or structural slab) have maximum operating flow temperature of 55°C.

Timber Joist floors have maximum operating flow temperature of 60°C.

The settings above will provide the maximum floor outputs permissible but for the majority of the heating season you can set the flow temperature lower. Typical settings are shown below.

<u>Average Outside Air Temp.</u>	<u>Flow Temp. Setting</u>
Less than zero	Max (as above)
0°C to 5°C	Max less 10°C
5°C to 10°C	Max less 15°C
10°C to 15°C	Max less 20°C

It is important to note that it is more economical to minimize the amount of times you switch your heating from full temperature settings to setback temperature settings.