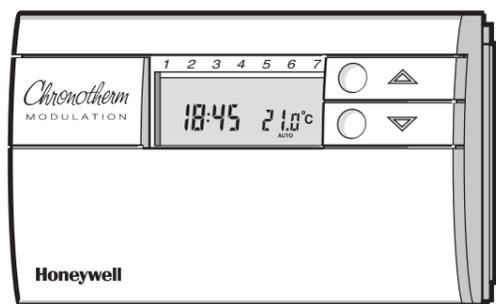


USER GUIDE

Chronotherm
MODULATION
(Made by Honeywell)



The Chronotherm Modulation is designed to provide automatic time and temperature control of heating systems. These instructions explain how to program and operate your Chronotherm Modulation.

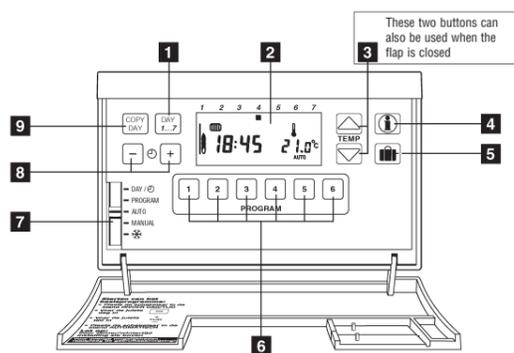
Chronotherm Modulation can be used with all **OpenTherm®** compatible boilers. The **OpenTherm®** compatible boilers are marked with OT logo shown below.



Chronotherm Modulation is a programmable thermostat that controls your heating system so that you can have comfortable temperatures when you are at home and energy savings when you are out. To ensure that your heating system is operating in most efficient way Chronotherm Modulation not only switches the boiler on and off but also modulates the flame to finely match the heating output of the heating appliance to the current heat demand.

To maximise energy efficiency Chronotherm Modulation has built -in Adaptive Intelligent Recovery function. Instead of switching the heating on at the set time every day, the controller will delay the start time to the latest possible moment, so that unnecessary heating is avoided. All you have to do is set the time by which you want to be warm and Chronotherm Modulation will then decide when to turn the heating on.

CONTROLS LAYOUT



- 1 Day button allows you to set correct day of the week.
- 2 The display continuously shows information about time, day of the week and temperature. The Energy meter allows you to see the current firing rate of the boiler. A radiator or tap symbol is shown when boiler is servicing central heating or domestic hot water.
- 3 These buttons are used to adjust the temperature level. You can operate these buttons also when the flap is closed.
- 4 [i] Enquiry button is used to display the set room temperature level and the outside temperature (only if the outside temperature sensor is connected to your boiler).
- 5 The holiday function allows setting of a setback temperature for a period of maximum 99 days. The same function can also be used as timed program override providing energy savings or extended comfort period.
- 6 These buttons are used to program up to six temperature changes per day.
- 7 Slider position defines the operating mode. When slider is set to AUTO the Chronotherm will operate according to the program.
- 8 Time adjustment buttons are used for clock and temperature change settings.
- 9 The copy button allows you to copy the time/temperature program to the next day.

SPECIAL FUNCTIONS

Modulating control

The Chronotherm Modulation continuously adapts the firing rate of the boiler to the required heat demand. This results in a very accurate control of the room temperature. The modulating control is only possible if the heating appliance is supporting OpenTherm® communications.

OpenTherm® communication

The Chronotherm Modulation exchanges information with the heating appliance using OpenTherm® two-way communication protocol.

NOTE: The amount and type of information that can be displayed as well as appliance specific information codes may vary.

Refer to the user manual of the appliance for this specific information.

Optimizing through the intelligent adaptive recovery (AIR) feature.

To achieve the required temperature in the house we typically set the on time for the heating system earlier than required. In this way we can be sure that we will have the comfortable temperature when we wake up. As we never can guess precisely when the heating should come on we tend to stay on the safe side setting the on time earlier than required. Consequently we have to pay for keeping the house at comfort temperature longer than necessary. The Chronotherm Modulation solves this problem completely. It checks every day how much time is required to heat up your home. Using this data the Chronotherm Modulation calculates the precise moment when to start the heating up the next day to achieve comfort temperature exactly when you want it. Consequently you do not have to take the warm up time into account when programming. The Chronotherm Modulation activates adaptive intelligent recovery function before every programmed temperature level increase.

NOTE: After installation Chronotherm will require a couple of days to learn how to calculate ON times for a particular house.

Program up to six time/temperature periods per day.

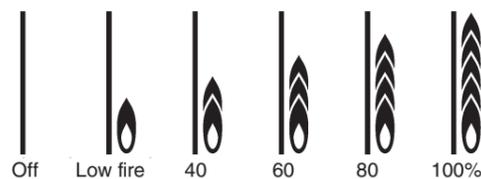
You have the possibility to set 6 different periods for each day of the week. The time/temperature periods are marked with numbers 1 to 6.

The start time and temperature level for each period is programmable within the temperature setting range of 5 to 30°C.

Backup during power supply failure

Your Chronotherm Modulation operates without batteries. The power is supplied through the communication connection. In case of the mains power loss a rechargeable backup power supply is sufficient to keep the program and the clock settings for at least 8 hours. If the backup supply is exhausted the display will be blank and the individual program will be deleted. After the mains supply has been reestablished the factory program will be activated and the display will flash at 12.00. It will take between 10 and 60 minutes (dependant on the operating conditions) to charge the backup supply.

The energy meter



If the burner of the boiler is energized, a bar of flames will be shown on the left side of the display. This allows you to check at all times at what firing rate your boiler is operating. (The percentages in the above graph are indicative only. Dependant on the modulation band of your boiler the in between values may vary)

The radiator or tap symbol indicates if energy is being used for central heating or the domestic hot water (if applicable).

Unique holiday/timer function

The holiday button allows you to override your normal temperature profile and set the fixed temperature level for a defined time. You can set the required temperature for as long as 99 days or as short as 1 hour.

Intelligent DHW control

If you own a boiler that also provides hot water (combi boiler) then the Chronotherm Modulation can provide additional savings.

In the FROST PROTECTION or HOLIDAY/TIMER function, the Chronotherm Modulation will switch off the DHW function or (dependant of the appliance) will switch to a savings mode. In this way the DHW storage will not be kept on a high comfort temperature if this is not necessary.

If desired it is possible to switch off the DHW during the night setback period. Your installer can set this for you.

NOTE: This function is only available if your boiler is suitable for this communication. Consult the user manual of the boiler or ask your installer.

PROGRAMMING YOUR THERMOSTAT

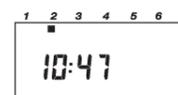
Before you start programming

You can program your Chronotherm Modulation only if the mains supply of the boiler is switched on, the electrical connection to the boiler is made and the thermostat has been mounted on the wall plate. When the power for the thermostat is present the display will be activated and the clock will start.

NOTE: Operate the keypad with your fingertips only. Sharp objects like pens or pencils can damage the keypad.

How do I set the time and the day?

1. Move the slider to **DAY** position. The time and the day marker will flash indicating that they can be changed.
2. Press the \ominus + or – button until the correct time is displayed. Each button press will change the time by one minute and stop the display from flashing. Holding the button down for a few seconds will change the time slowly at first, then quickly.
3. Press **DAY 1..7** button until the day marker is positioned under the correct day (**DAY1** is Monday). Each button press moves the day marker by one day.



How do I get started with the built-in temperature program?

Move the slider to the **AUTO**matic position

The Chronotherm Modulation will now control your heating system using the built-in temperature program.

Monday to Friday

Program 1	1	2	3	4	5	6
Time	07:00	09:00	-	-	19:00	23:00
Temperature	19°C	15°C	-	-	21°C	15°C

Saturday and Sunday

Période	1	2	3	4	5	6
Time	08:00	-	-	-	-	23:00
Temperature	19°C	-	-	-	-	15°C

How do I set my own temperature program for each day of the week?

1. Move the slider to **PROGRAM** position. You will see the first temperature change time and temperature level for Monday's program (the two small arrows are displayed only when the programmed temperature level is shown). The flashing display indicates that you can make changes.
2. Press the \ominus + or – button to adjust the first temperature change time. Holding the button down will change the time quickly. The change time can be set in 10 minutes steps from 03:00 in the morning. The change time can be adjusted to any time up to 02:50 on the next morning, so you can maintain evening temperature after midnight.



NOTE: If you attempt to move a change time past the next change time, both times will be moved.

3. Press the **TEMPERATURE** button to adjust the first temperature level. Holding the button down will change the temperature quickly. The temperature can be set in 0.5°C steps from 5°C to 30°C



4. Press the program 2 button to display the second temperature change time and temperature level for Monday. Set these by pressing the \ominus + or – button and the **TEMPERATURE** button.



5. The remaining temperature changes for Monday can be displayed by pressing program buttons 3, 4, 5 and 6 and adjusted by using \ominus + or – button and the **TEMPERATURE** button. (if you don't want to use all temperature change times 2, 3, 4, 5 and 6 refer to the next question "What if I don't want to use all 6 time temperature change times")

You now have a choice of two methods to set the program for the next day

- 6.a Press the **COPY DAY** button to copy Monday's program into Tuesday. To set several days of the week to the same program, press the copy day button repeatedly.
- 6.b Press the **DAY 1..7** button to step the day marker to Tuesday (Day 2). The program for Tuesday can be then set as described in steps 2 to 5.



Programs for Wednesday (Day 3) to Sunday (Day 7) can be set in the same day, using the **DAY 1..7** button.

7. Move the slider to **AUTO**matic position when you have completed steps 6a or 6b. The Chronotherm Modulation will now control the room temperature to match your program.

What do I do if I do not want to use all 6 temperature changes times?

The built-in program uses only 4 temperature change times as indicated in section "How do I get started with the built-in temperature program?"

The unwanted change times can be deleted by moving the slider to **PROGRAM** position and holding the appropriate button (1, 2, 3, 4, 5, 6) for a few seconds. The change time will be removed and the display will show dashes instead of time/temperature display.

Deleted temperature change times can be brought back by pressing the appropriate (1, 2, 3, 4, 5, 6) button and then **TEMPERATURE** button (with slider set to **PROGRAM** position).

OPERATING YOUR THERMOSTAT

With the operating mode slider in **AUTO**matic position Chronotherm Modulation will control the room temperature to match your heating program

Manual Override

When the slider is in **AUTO**matic position the temperature can be adjusted temporarily by pressing the **TEMPERATURE** button. The temperature will return to program at the next temperature change time.

How do I set the temperature for the whole day?

To operate as a simple thermostat with one temperature throughout the day, move the slider to the **MANUAL** position. Adjust the manual temperature by pressing the **TEMPERATURE** button. The manual temperature can be set anywhere from 5°C up to 30°C.

How can I switch the Chronotherm Modulation off?

Move the slider to the \times position. Thermostat has built-in frost protection feature, so that if temperature will drop below 7°C it will automatically switch back on to prevent pipes from freezing.

*NOTE: The frost protection activation level can be adjusted from 7°C to 10°C using **TEMPERATURE** button.*

How do I check the programmed temperature?

In normal operation the temperature displayed is the actual room temperature. To check the programmed temperature, press the **i** button once.

NOTE: During upward temperature level change the temperature on the display may not correspond with the programmed level of the current period. The reason is that during warm up the thermostat gradually increases the temperature level setting to the next temperature change level. During the warm up period the number of the next period is flashing

How can I check the outside temperature?

Press the **T3** button twice. The outside temperature code T3 will be displayed together with current outside temperature value.

NOTE: This option is available only if the heating appliance provides the outside temperature information to the thermostat.

I am going on holiday for a couple of weeks. How do I save energy when I am away?

1. Move the slider to the operating position you require on returning from your holiday (**AUTO**matic or **MANUAL**)
2. Press the **HOLIDAY** button to display the holiday days counter and the temperature
3. Press the \ominus + or – button to set the holiday time (1-99 days). An extra flashing day marker shows the day of the week representing the holiday return day. Today is counted as the first day of holiday. The holiday temperature is set using the **TEMPERATURE** button. At midnight of the last day of your holiday the thermostat will return to the normal control as set by the slider position.

OPERATING YOUR THERMOSTAT (CONTINUED)

I'm planning to go out for the weekend. I would like to save energy when I am away but I would like to be sure that my house would be at comfortable temperature on Sunday at 17:00.

1. Follow the same procedure as described above to select number of days you will be away.
2. Press the  (HOLIDAY) button a second time to display the holiday return time. (The time displayed is current time + 1 hour rounded off to 30 minutes) The return time can be adjusted using the  + or - button in 30 minutes steps.
3. At the programmed return time the thermostat will return to the normal control as set by the slider position.

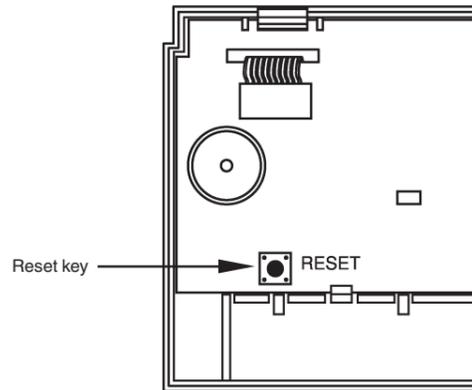
I'm having some friends round for party. How can I extend my heating program for a few hours?

1. Press the  (HOLIDAY) button twice to display the time when you would like to switch the heating off. (The time displayed is current time + 1 hour rounded off to 30 minutes) The return time can be adjusted using the  + or - button in 30 minutes steps.
2. Adjust your room temperature using **TEMPerature**  or  button
3. The thermostat will maintain the set temperature level until specified time. At the programmed time it will return to the normal control as set by the slider position.

How can I restore the factory program setting?

The factory program is restored when the **RESET** key located at the back of the thermostat is pressed.

NOTE: Before removing the thermostat from the wall review the section "MAINTAINING YOUR THERMOSTAT"



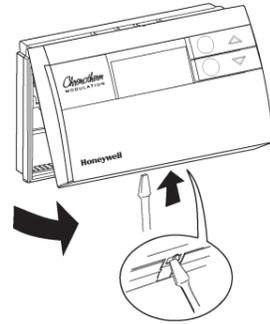
MAINTAINING YOUR THERMOSTAT

Chronotherm Modulation is made from high quality plastics and does not require special maintenance if used under normal operational conditions.

In case you have to remove your thermostat temporarily for purpose of wall decoration or alterations follow the guidelines below.

Remove the thermostat from the wall plate

1. Switch off the electrical supply of the thermostat by isolating the heating system.
2. Remove the thermostat by pressing the plastic lid with a screwdriver and gently pushing it up. This will loosen the thermostat from its wall plate
3. Always protect the contacts in the wall plate from paint or other substances

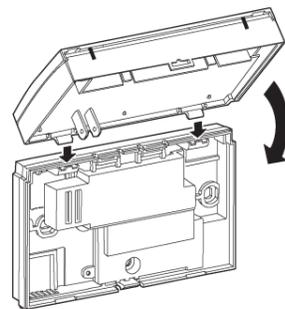


IMPORTANT!

- The wall plate terminals must not be connected to any other voltage sources. Applying voltage to wall plate terminals can seriously damage your heating boiler.
- Protect the electronic components from contact with any paint chemicals, dust etc, that could cause damage to the thermostat

Mounting the thermostat on the wall plate

1. Check the wall plate and make sure that the contacts are clean and dry.
2. Hang the thermostat in the holes on top of the plate
3. Move the thermostat downwards and push it gently towards the wall until thermostat locks into the wall plate



YOUR INDIVIDUAL TEMPERATURE PROGRAM

You can use the tables below to record your weekly temperature profile. Please note that period 1 must always be programmed.

MONDAY

Program	1	2	3	4	5	6
Time	__:--	__:--	__:--	__:--	__:--	__:--
Temperature	__°C	__°C	__°C	__°C	__°C	__°C

TUESDAY

Program	1	2	3	4	5	6
Time	__:--	__:--	__:--	__:--	__:--	__:--
Temperature	__°C	__°C	__°C	__°C	__°C	__°C

WEDNESDAY

Program	1	2	3	4	5	6
Time	__:--	__:--	__:--	__:--	__:--	__:--
Temperature	__°C	__°C	__°C	__°C	__°C	__°C

THURSDAY

Program	1	2	3	4	5	6
Time	__:--	__:--	__:--	__:--	__:--	__:--
Temperature	__°C	__°C	__°C	__°C	__°C	__°C

FRIDAY

Program	1	2	3	4	5	6
Time	__:--	__:--	__:--	__:--	__:--	__:--
Temperature	__°C	__°C	__°C	__°C	__°C	__°C

SATURDAY

Program	1	2	3	4	5	6
Time	__:--	__:--	__:--	__:--	__:--	__:--
Temperature	__°C	__°C	__°C	__°C	__°C	__°C

SUNDAY

Program	1	2	3	4	5	6
Time	__:--	__:--	__:--	__:--	__:--	__:--
Temperature	__°C	__°C	__°C	__°C	__°C	__°C

TROUBLE - SHOOTING GUIDE

Chronotherm Modulation is able to provide you with fault diagnostic information. Please note that the type of data sent from the boiler determines the way the boiler faults are displayed. Review the boiler user manual for more information.

Symptom	Possible Cause	Remedy
Blank display	No power from the boiler Mains power loss lasting more then 8 hours Wired connection between the boiler and the thermostat broken	Switch the boiler on Restore power supply Call installer to check the wiring
The energy meter and radiator symbol are on, but radiators are still cold	Boiler not operating Inertia of the heating system	Refer to the boiler User Manual Allow more time for the system to heat up
At the programmed time the temperature is too high or too low comparing with programmed values	Adaptive Intelligent Recovery action	This is normal behavior of your thermostat after installation. It takes a few days before AIR function will adjust itself to your house
Change of temperature level at the wrong time	Adaptive Intelligent Recovery action	When the temperature level changes upward the thermostat will automatically adjust the temperature level to reach the new required level on time
Temperature too high or too low	Temperature level set incorrectly	Press the I button to check the programmed temperature level. Re-program the unit if necessary.
Display shows day, time and  symbol	Thermostat is powered but receives no information from the boiler	Call installer
Display shows only  symbol and spanner  every 5 sec.	There is a short or open circuit between the boiler and thermostat.	Call installer to check the wiring
Currently displayed segments and spanner symbol are flashing	Boiler is in lockout condition (NOTE: Pressing the I you can read the fault code transmitted by the boiler. The fault code depends on the boiler type – refer to the boiler User Manual for more information)	Press the reset button to restart the boiler. If the symptom appears again call installer immediately.