sensible heat

Honeywell

Green and pleasant

Isn't it sensible to use energy wisely?

Did you know that nearly 50% of the CO2 emissions produced by the UK come from heating (and cooling) in buildings ?

Did you know that 66% of the energy we use in a typical UK home is used for space heating, and a further 16% is used for heating hot water?

Did you know that by 2020 we will be importing over 90% of our Natural Gas?

Wouldn't it be sensible to tackle some of these issues now?

We think so.

That's why Sensible Heat offers goods and services to address some of these problems. Our mission is to make UK residential buildings greener, but at the same time more comfortable, pleasant places to live, by using modern technology. No need to wear a hair shirt, or extra layers of clothing, in our green vision!

We can design, supply and commission Home Automation systems which can control not only your Heating and Hot Water systems, but also your lighting, blinds, awnings, security and other systems within your home. These systems will make life easier and more comfortable for you, whilst saving energy and CO2 emissions at the same time. You can even control your home when you are away using the telephone or the internet.

sensible heat

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Honeywell

Honeywell Hometronic

Sensible Heat are the sole UK/Ireland distributors of the Honeywell Hometronic system; we use this unique, wireless system together with our own products, to create complete systems. Because it's wireless, installation is easy and can be done by your own electrician – and of course, it is ideal for retrofitting to an existing house. Wiring is minimal; you only need to wire locally between a Hometronic module and the item being controlled. And yes, it does work! The patented technology has been installed in thousands of homes.

Hometronic can control the following:

> radiators, using the unique wireless Radiator Controller – no need for zone valves

> underfloor heating, from any manufacturer

> electric heating of any type

> ventilation systems, including natural/passive

> cooling systems (underfloor, aircon etc)

> light switching and dimming (with presence simulation when you're out)

> blinds and awnings, with wind and sun interlocks

> water and gas leak detection

> interface to security systems

> interface to touchscreen control systems

Controlling Radiators

Radiators are the most common form of heating found in UK homes today, although their popularity in new build properties has been overtaken by underfloor heating.

The Old Way

Many modern installations still rely on Thermostatic Radiator Valves (TRVs) for temperature control. These devices are mounted onto the radiator themselves, and usually have a dial with numbers or symbols for the user to set the temperature. Whilst they are cheap and widely available, they suffer from a number of disadvantages:

> crude mechanical temperature regulation

> you have to manually adjust the temperature

> no timed operation possible; to make a time zone, you have to re-pipe the heating and introduce a zone valve, timeclock, power supply and wiring

The Sensible Way

Using the unique Hometronic Radiator Controller, these problems disappear. Now, for every room in your house, you can choose exactly what temperature you would like in the room, at what time. Every room becomes a time and temperature zone; you can still adjust the temperature locally at the radiator, but normally you won't need to, because it is automatic.

> Patented wireless technology; no new wiring to install

> fits onto the valve body of your existing TRV (you unscrew the old head, and discard it – no plumbing changes)

> excellent electronic temperature control, using fuzzy logic.

> remote-mounting temperature sensor/adjuster for boxed-in radiators or concealed valves

> battery powered, min 2 year battery life

Boiler Control Module

Radiator controller

Manifold Controller for manifolded radiators

> local adjustment knob, and LCD display

> receives signals from the Hometronic Manager to tell the radiator what temperature is needed at a particular time and day

> you can have several temperature setpoints every day (for example, cooler during the day, warmer in the evening for your Lounge)

> you can shut down rooms to a lower temperature when not in use (e.g. Guest Rooms)

> the boiler is automatically controlled by the Boiler Control Module; this receives wireless demand signals from the radiators, so the boiler only runs when heat is needed, and you no longer need a "bypass radiator" (with no TRV fitted) to dump excess heat.

Manifolded Radiators

Some new radiator installations are using manifolds: this is where the radiators are plumbed individually back to the central manifold, where all of the control valves are mounted – much like underfloor heating. This has the advantage that the radiators themselves need no valves, useful where the radiators are making an architectural statement, and conventional valves would detract from the effect. In these cases, we utilise our underfloor heating controller and wall mounted sensors (see separate sheet for details).

Radiator controller

Controlling Underfloor Heating

Underfloor Heating systems are becoming the most popular form of heating for new build houses in the UK. They produce uncluttered, comfortable spaces with fewer draughts, and work well in combination with efficient condensing boilers.

The Old Way

Underfloor systems will produce a "zoned" house by default, because of the way that they are installed, but the benefits of this are rarely exploited by the simple controls that are usually fitted. Each room will have one or more "loops" of heat-emitting pipe buried in the floor, each loop being run in a serpentine pattern so as to cover the entire floor area. The two ends of each loop are connected to a Manifold, which may have an electric control valve (one for each loop) controlling the water flow.

In most systems, the electric control valve is connected to a wall-mounted thermostat, which controls the temperature in the room. Timed operation is usually provided by a timeclock, acting on the whole manifold, or perhaps centrally at the boiler, acting on the whole house. Thus it is not possible to set different rooms to different temperatures at different times of the day, or to put rooms into and out of use, other than by manual adjustment of the thermostat.

The Sensible Way

By adopting the Hometronic Underfloor Heating Controller, now each room can be individually controlled automatically. Times and temperatures can be set centrally, using the Hometronic Manager, and are sent automatically to the Underfloor Heating Controller (mounted next to the manifold, usually in a cupboard) via radio. Wall-mounting temperature sensors (with adjustment knobs if required) communicate temperature settings for each room without wires.

> patented wireless technology means less wiring than conventional controls

> excellent electronic temperature control, using fuzzy logic – much less temperature 'cycling' than with conventional thermostats.

> remote-mounting temperature sensor/adjuster, battery powered, min 2 year battery life

> discreet 'thimble' sensors may be used if desired

> receives signals from the Hometronic Manager to tell the underfloor controller what temperature is needed at a particular time and day

> you can have several temperature setpoints every day (for example, cooler during the day, warmer in the evening for your Lounge)

> you can shut down rooms to a lower temperature when not in use (e.g. Guest Rooms)

> shut down the whole house when you leave at the touch of a single button, but have it warm when you arrive home (important with underfloor heating, because it responds very slowly)

Optional 'thimble' sensing elements

Wall mounted wireless sensor

Underfloor Heating Controller

Controlling Boilers and Hot Water Systems

Boiler Systems

Most houses have a Boiler to heat the house (space heating) and often the Hot Water for washing, showers etc. Some larger houses have more than one boiler, perhaps one for each end of the house, or maybe they are plumbed in tandem next to each other. There are lots of different types and styles of boiler – but don't worry, we can control just about anything!

Hometronic is designed to control virtually any boiler typically found in UK houses. It works on a demand-driven basis, so that the boiler system only works when the space or the hot water needs heating, rather than on a timeclock.

Some modern boilers come with their own integral controls, providing features such as weather compensation (where the boiler alters its flow temperature according to the outside temperature) – this is usually no problem, let us know the make and model of the boiler you have chosen and we'll check for compatibility

For more complex applications, for instance multiple boilers in larger properties, or alternative heat sources such as Heat Pumps, we may use other complementary products alongside Hometronic to produce a complete solution.

Hot Water Systems

Hot Water Systems (sometimes called Domestic Hot Water, or DHW systems) are used to provide hot water at the taps for dish washing, showers and baths etc. It can be heated by electricity (usually via an Immersion Heater) or as part of the Gas or Oil fired wet heating system.

Normally, with a Gas/Oil fired system the simple domestic timeclock (or "programmer") allows selection of space heating only, or hot water only, or both, to operate to a single set of operating times. Some modern timeclocks allow separate times to be set for the hot water system, which is desirable because you may need hot water to be available at different times than the heating.

Using Hometronic, the operation of the Hot water system can be tied into the operation of the whole building, so that when you are away, the hot water is not running needlessly. When you have guests staying, you might need the hot water to run for longer; this is easy to achieve using the Lifestyles feature of Hometronic

Hometronic is easy to integrate with Solar Heating, which is normally supplied with its own integral controls.

Electric Water Heating is also no problem, using a Hometronic Switch Module to switch the heater on and off, with a wireless connection to the Hometronic Manager. Automatic changeover from Gas/Oil fired to Electric heating can also be achieved if required.

Hot Water zone valve

Hometronic switch module

Controlling Cooling Systems

These days, more and more people desire cooling in their houses. We have air conditioned offices, shops and cars, why not our house too ?

Green Options

Before considering full Air Conditioning, you should spare a thought for the environment, and consider some other options; automation using Hometronic can make these greener options just as effective as aircon under most circumstances, and much cheaper to run.

For instance, if you have South-facing glazing, or a conservatory, fitting some automatic awnings or blinds to avoid overheating, perhaps with the addition of automated opening vents, is a far better option than fitting aircon. Using Hometronic, you can take the benefit of solar heat gain during the winter, to reduce your heating load, whilst in the summer months, using solar shading and natural ventilation can keep your house cool, with zero CO_2 emissions.

If designing a new house, consider adopting Natural Ventilation techniques for the whole building. Natural Ventilation (sometimes called "passive", because it uses no active elements like fans) relies on the "stack" effect, where warm air is more buoyant than cool air, and hence rises - like hot air from a fire rising up a chimney. If you can arrange a vertical path for airflow through the house, so that it can enter at low level, rise through the house, and exit at high level, you can both ventilate the house and cool it in hot weather. Hometronic can control the opening of windows or vents at the entry and exit points, and can keep the house secure by automatically closing them when you're away, if required.

Ceiling fans are an effective cooling measure common in continental Europe but rarely seen in the UK. Although they consume electrical power, they use far less than aircon, and can be effectively controlled by Hometronic.

Air Conditioning

If you have considered all the alternatives, and must have Air Conditioning, then Hometronic can ensure two key things; firstly that the heating and cooling systems are not running simultaneously (a very common problem where the control systems for heating and cooling are not interlocked). Secondly, that the cooling is only running when you actually need it, and is not left running accidentally when you leave the house.

We can control most popular air conditioning systems; let us know which system you have in mind, and we can check compatibility.

Wireless Hometronic Light-level and Temperature Sensor

Controlling Lighting

Dimming Controls

The use of dimming within a lighting design is commonplace today. Often, modern designs use many more lights in a room than would have been common a few years ago, arranged on different circuits so that they can be controlled independently. For instance, uplighters might be on one circuit, a central feature light on another, spots on another, and so on.

In order to create the desired ambience, it is necessary to set the lights on each circuit to a different brightness level; this is done by using a dimmer. The simplest form of dimming is the wall-mounting manual rotary or slider type; a row of these can be installed on the wall, and manually adjusted.

The disadvantages of these simple dimmers are obvious;

> a row of dimmers on the wall can look ugly

> they are tedious to manually adjust

> if different "scenes" are desired for different activities (e.g. party, dining, cleaning, watching TV, reading) this is difficult to reproduce each time

Instead, Hometronic can be used to automatically control the lighting level of each circuit. Lights can be set to different levels on a timed basis, or made part of a Hometronic Lifestyle. The Wireless Remote Control handset can be used to dim individual circuits, or to set a "scene".

Switched Lighting

Switched electric lighting has remained largely unchanged for over 100 years, from when it was first introduced. Everyone understands how to use a simple light switch, and it appears difficult to think of a way of improving it. But in fact, relying on light switches alone does have some disadvantages;

> Once a light switch is switched on, the light stays on until you switch it off (obviously!) but this can be inconvenient if, say, a light at the top of the house is left on, and you want to leave the house

> You cannot easily incorporate a hardwired lighting circuit into a system for simulating occupancy to deter intruders – you end up with table lamps plugged into timers, which fools nobody.

Instead, Hometronic can be used to automatically control the switching of each circuit. Lights can be switched on or off on a timed basis, or made part of a Hometronic Lifestyle. The Wireless Remote Control handset can be used to switch individual circuits, or to set a "scene".

Security

Signals can be taken from your Intruder Alarm, so that different actions could happen in the event of, say, the alarm being triggered - all the lights could be brought on. Better still, when you set the alarm, or hit the "away" lifestyle button on the Hometronic Manager, you can make just some, or all of the lights work in the "Presence Simulation" mode; this "learns" your normal pattern of living, and "plays it back" by turning on and off lights at the right time. Couple this with control of the blinds or curtains, and the house really will look "lived in" when you are away.

Plug-in switch module

Wired switch module

Controlling Awnings, Blinds, Shutters and Windows

Many properties today are being fitted with awnings, blinds and roller shutters in addition to the usual UK staple, curtains.

All of these devices can benefit from automation. Whether used for sun shading, security, privacy or a combination of these things, being able to link these items to an intelligent control system enables all sorts of things to be done;

Awnings and sun blinds

For instance, you can use external awnings which can automatically extend and retract based on the temperature in a room, or the relative brightness level - Hometronic has a special Light Sensor which can measure the ambient light level. However, these awnings are sometimes quite delicate structures, which can be damaged by high winds. No problem; Hometronic has a Wind Sensor, which monitors wind speed and can automatically retract the awnings to avoid damage.

Security of your property can be enhanced by using Hometronic to control them. Blinds can also be linked to the Light Sensor, so as to automatically open them at sunrise, and lower them again at sunset, if desired. Don't worry, you can manually override this if you want to, and also make the blind settings part of a Lifestyle so as to enable, or inhibit, this function.

Blind and curtain control

Maybe you just want to indulge in the luxury of being able to open blinds or curtains from the comfort of your armchair, or maybe the size and location of the blinds, or your own mobility, make it difficult to operate them manually. No problem; with Hometronic's Hand-held Remote control, you can operate them from anywhere in the house, with the touch of a button.

Shutters

Many houses in continental Europe use external roller shutters, both to improve security, and to help keep the house cool in hot weather. Now some UK homes are using these devices. No problem for Hometronic; originally developed for the German market, Hometronic has special control modules for roller shutters, including special door contacts to ensure that you don't get locked out inadvertently

Windows

Automatic opening of windows is becoming increasingly popular. Sometimes high-level windows are impossible to reach manually. Maybe you want to control the temperature automatically using windows for cooling ? Of course, you may need to automatically close the windows for security purposes, or because its windy, or raining. All of these things can be controlled by Hometronic

Hometronic wind sensor

Wireless Hometronic light level and temperature sensor

User Controls

So, we've talked about all the elements of your house that we can control; heating, lighting, security, awnings, blinds etc - but how do you control the controls? Hometronic allows several different forms of user interface;

The Hometronic Manager

This is the heart of the system, using its simple display and buttons, you can control all aspects of your house, setting up times, temperatures. You can locate the Manager almost anywhere in your house, because it is a wireless device. You can only have one Hometronic Manager per system, but you could have several Hometronic Systems (each with a Manager) in a single building (for instance, a very large house, or multiple-occupancy building may need more than one system).

The Hand-held Remote Control

Using this lightweight wireless device (it uses radio technology, not Infra-Red, so you don't need to be in the same room as the device you are controlling) you can turn things on and off, dim lights, position blinds, set room temperatures, and set Lifestyles.

If you've got children, or other people in the house who you don't want to "fiddle" with the settings, you can "lock" the remote control. You can have as many Remote Controls on one Hometronic system as you like

Hand-held Remote Control

The Hometronic Manager

User Controls continued

Wall mounted wireless sensor/adjuster

This device is designed for wall-mounting; both wired and wireless versions are available for different applications, but they look the same externally. The scale on the adjuster is calibrated plus and minus, as an offset from a "normal" setpoint - this normal setpoint would be set automatically from the Manager, and can change at different times of day – but the offset would always be applied.

Special temperature sensors

For people that do not like the appearance of the standard wall-mounting sensors and adjusters we can offer 'thimble' temperature sensors in a variety of metal finishes. Contact us for further details.

Telephone Voice Interface*

You can interact with your house using a normal telephone or cellphone; the Voice Interface talks back to you!

Web and Data Interfaces*

For connection to other intelligent systems in your house, e.g. Touchscreen control system, and for control from a local PC, or the internet.

* See next section:
Controlling your house remotely

Wall mounted wireless sensor/adjuster

Optional 'thimble' sensing elements

Controlling your house remotely or from another system

Internet Access

Sensible Heat's Web Interface allows you to access your Hometronic System from any PC within your house, or if you have an appropriate broadband connection, from the internet. The Web Interface plugs into your home's ethernet LAN, and 'serves' fixed-format web pages which you can view with any web browser (e.g Internet Explorer). You can view and adjust room temperatures, switch on hot water and towel rails, and adjust 'Lifestyles'.

Web Interface

Screenshots from Web Interface

Telephone Access

What happens if you're away on business, or vacation, and you want to return home early? Maybe you have a second residence that you visit irregularly? Invariably, you'll turn up and the house will be cold, with no hot water available. If you've got underfloor heating, it may take a whole day for the house to warm up; frustrating, if you've just gone for the weekend!

Also, wouldn't you like to know if something serious occurred in your home while you're away? Supposing you were burgled, or the house flooded, or there was a fire?

Using Hometronic's Voice Interface, connected to a standard telephone line, you can dial up your Hometronic system from any telephone, either landline or mobile phone. The Voice Interface answers the call, and asks for your PIN number. If you enter this successfully, you are then able to choose different Lifestyles for your property. For instance, you could adjust from "away" to "arriving" lifestyles, which would make sure everything is ready for you when you arrive.

The Voice Interface can also be used to dial out alarm messages to two different telephone numbers (for instance, your mobile phone, your direct business line). The Voice Interface then delivers one of a set of standard voice messages (e.g. Intruder Alarm, Water Alarm etc) depending upon which event has occurred – if you're not available, it will be recorded on your voicemail.

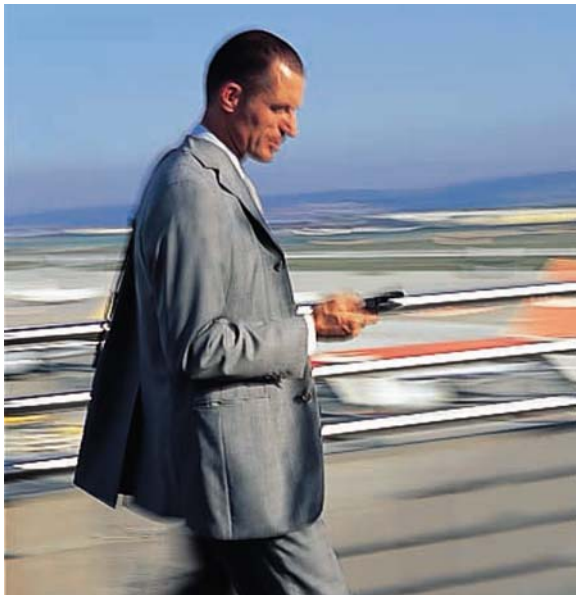
Telephone Voice Interface

Interface with other control systems

An important point when considering technology for your house is to make sure that all of the systems work well together, to make life easier - not more complicated! Sensible Heat regularly work with specialist partner companies from the Custom Installation world; together we can ensure that you have an integrated, easy to live with solution for your house.

You may have already installed, or decided to invest in, a sophisticated Lighting Control system from another manufacturer. There may be an opportunity to integrate the Hometronic system with the Lighting system so that you can, for instance, control your heating from some extra buttons on the lighting keypads. This will depend upon which system you have chosen – speak to us about compatibility.

Maybe you are considering a whole-house touchscreen control system (such as AMX, Netstreams Digilink, or Crestron) to bring together all of the disparate systems in your house? No problem; using the Web or Data Interface developed by Sensible Heat, or simpler volt-free contact interfacing, it is easy for your supplier to integrate the systems controlled by the Hometronic system with other systems so they can all be viewed and adjusted from the touchscreens.



Screenshots from Netstreams Digilink touchscreen system

How does it work ?

Hometronic works without wires.

That's why it can be installed so effortlessly in such a short time, and even taken with you when you move. With Hometronic, you can control everything by cell-phone or Internet when you're away. And when you're at home, everything works as ordered by remote control, or automatically via Hometronic Manager.

Hometronic works without system cabling (just some local wiring is needed), using new, patented radio technology. It can therefore be installed without special wiring diagrams (just the standard ones which come with each module), and can have any desired application added on later.

Will the radio transmission be reliable?

Neither normal partition walls and ceilings, nor other Hometronic systems, can impair your system. Hometronic is absolutely reliable, and has a negligible radiation of less than 1 milliwatt (a cordless telephone transmits at 200 milliwatts, a cellphone at 2000).

Because it works on a much lower frequency, and carries far less information than, say, a typical wireless Ethernet router working on the 802.11 standard, Hometronic modules are able to communicate through most building fabric types. Where you may experience communications difficulties with a wireless router for your computer network, you should find no similar problems with Hometronic. The range of the signal is 100m in free air, and around 25 to 30m through typical building fabric. If you have a particularly demanding application (a below-ground room, or very thick sandstone walls, for example), we're more than happy to come to your site to perform a radio test to put your mind at rest.

What about interference?

Hometronic operates on the unlicensed 433 and 868 MHz bands, which are also used by some other wireless devices (doorbells, wireless mouse, garage door opener etc) – so how do we avoid interference from these devices, or from a neighbour's Hometronic system? Hometronic uses a patented protocol which utilises a unique serial number embedded in every Hometronic device; this number forms part of the wireless message, so ensuring that only legitimate signals are responded to. The possibility of "jamming" by another device transmitting continuously is also catered for; Hometronic uses "frequency hopping" to make sure that the same frequency is not used for every message, thus making jamming almost impossible.

Hometronic is a modular system; each module is purpose-designed for its job. You only need to pay for the modules that you need for your specific application. If you want to expand your system later on, this is easy to achieve by simply adding more modules.

Hometronic offers you definite advantages – including the price – compared to traditional systems.

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