

# Installation of FHT 80TF Door & Window Sensor and Integration with HouseHeat FHT80B Room Thermostat

## 1. Introduction

The FHT 80TF Door & Window Sensor comprises of a transmitter and a separate magnetic contact. The FHT 80TF Door & Window Sensor may be used to monitor when a door or a window is opened or closed and transmit that information to a FHT 80B HouseHeat Wireless Room Thermostat.

When integrated with a HouseHeat FHT 80B Wireless Room Thermostat and HouseHeat Wireless Valve Motors, the FHT 80TF Door & Window Sensor enables the temperature in the room or zone in which it is installed to be automatically reduced when a window or door is opened in order to save energy - for example, while the room is aired. When the door or window is closed, the Room Thermostat automatically increases the temperature back to the original commanded value.

The integrated receiver in the FHT 80B Room Thermostat enables the Thermostat to receive status signals from up to four FHT 80TF Door & Window Sensors indicating when doors and/or windows in the room or zone have been opened or closed. The FHT 80TF Door & Window Sensors transmit status changes to the Thermostat in intervals of approximately one minute, and the Thermostat is thus able to react very quickly to the opening or closing of a door or window (on average within half a minute).

## 2. Security Code

To prevent interference between different FHT 80TF Door & Window Sensors in the same HouseHeat installation, each Sensor has been programmed in the factory with a random code that cannot be altered. The ability to change the code is not necessary, since over 16 million different codes are possible and the possibility of conflict between two Door & Window Sensors is thus vanishingly small.

When the FHT 80TF Door & Window Sensor is purchased as part of a set, the security code of the Sensor is pre-registered with the HouseHeat Wireless Room Thermostat supplied in the same set, so no user action is required to register the Sensor with the Thermostat. Only when additional Door & Window Sensors are integrated with the same Room Thermostat is it necessary to manually register the security codes of these additional Sensors with the Thermostat.

## 3. Installation of the FHT 80TF Door & Window Sensor

An integrated contact (a so-called 'reed contact') is built in to the left- and right sides of the FHT 80TF transmitter. If either of these integrated contacts is used (together with the supplied magnet), then the FHT 80TF transmitter must be mounted directly on the door or window to be monitored.

Additionally or as an alternative, external magnetic contacts (not supplied) may be connected to the FHT 80TF. These external contacts must be of type NC ("Normally Closed") as is usually the case with most magnetic contacts available on the market. "Normally Closed" means that the contact is broken when the window or door is opened. If the internal magnetic contact is not used, the supplied magnet is not required – only the FHT 80TF transmitter is required.

There are three different operating modes available for the FHT 80TF Door & Window Sensor:

- Only the internal contact is monitored
- Only external contacts are monitored
- Both the internal and external contacts are monitored

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## 4.a Mounting the FHT 80TF transmitter

The FHT80TF unit is opened on by pressing in the two retaining clips on the left side of the rear of the unit e.g. with a screwdriver and sliding the cover forwards.

If external magnetic contacts are going to be used, these should now be connected to the connection block (see Section 5 of this Guide and also Item 1, Figure 1, opposite).

The transmitter may then be mounted in the desired position using a screw (the screw holes are above the battery compartment – see Figure 1, Item 2) or double-sided tape (supplied). When mounting with double-sided tape, please ensure that the surfaces are dry and clean.

If the internal integrated contact is not used, the FHT 80TF transmitter can be mounted in any desired location near to the window or door to be monitored (for example, hidden behind curtains). Care should, however, be taken not to place the transmitter where the signal transmitted to the Room Thermostat might be significantly reduced, such as close to large metal objects such as radiators or electronic equipment such as a computer or TV.

If the internal contact is used, the magnet is usually placed on the movable part of the window or the door, and the transmitter is mounted on the frame. Please consult Figure 2 to ensure correct mounting of the magnet relative to the FHT 80TF transmitter. If there is any doubt, it is recommended that the sensor components (transmitter and magnet) are not permanently fixed in position until the integration of the FHT 80TF Door & Window Sensor with the FHT 80B HouseHeat Wireless Thermostat has been tested and found to be working correctly and reliably.

## 4.b Mounting the FHT 80TF magnet

The magnet may be mounted on the left or right of the transmitter. Figure 2 illustrates the correct orientation and position of the magnet relative to the transmitter. In order to achieve maximum transmitted signal strength, the bottom of the magnet should be displaced by 20mm relative to the lower edge of the transmitter. The distance of the magnet from the transmitter should not exceed 25mm. Please note that a magnet can only be mounted on the left or the right side of the transmitter. The reed contacts integrated into the left- and right sides of the transmitter may not be used simultaneously by placing a magnet on each side of the transmitter. The magnet may be fixed in position using the supplied double-sided tape. Alternatively it may be fixed in position using a screw.

Please note that if using only external magnetic contacts (not supplied by HouseTech), then the supplied magnet is not required.

FIGURE 1

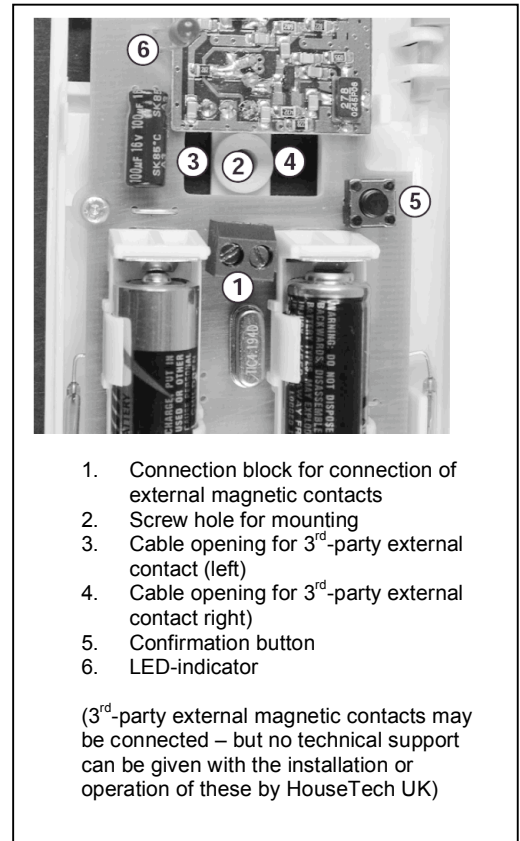
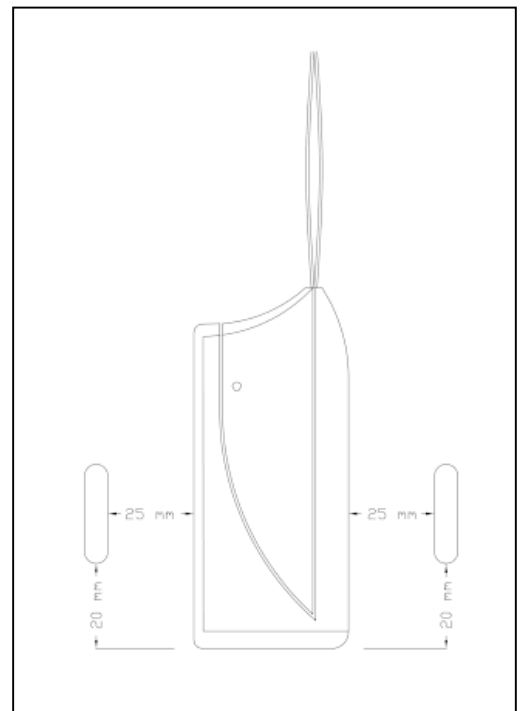


FIGURE 2



# Installation of FHT 80TF Door & Window Sensor and Integration with HouseHeat FHT80B Room Thermostat

## 5. Using External Magnetic Contacts (not supplied)

The external contact should be mounted on the window or door to be monitored according to the instructions supplied with it. The connection cable from the external magnetic contact should be routed through one of the cable openings from behind the FHT 80TF Door & Window transmitter into the body of the transmitter and connected to the connection block (see Figure 1 item 1). On the rear of the FHT 80TF is a channel along which the cable can be routed to the left or right as required under the body of the transmitter. If more than one external magnetic contact is connected to the FHT 80TF then these should be connected in series, not in parallel.

Note: No technical support will be given with the installation and operation of external contacts as HouseTech UK has no control over the quality or type of contact used.

## 6. Commissioning of the FHT 80TF Door & Window Sensor

Insert the supplied batteries, taking care to ensure that the polarity (+ or -) is correct. The LED indicator subsequently blinks indicating its current operating mode (see Section 7 below).

There then follows a synchronisation phase in which the LED indicator blinks once per second for approximately one minute.

N.B. If the FHT 80TF Door & Window sensor has been purchased as part of a set including a HouseHeat Wireless Room Thermostat, then the two are automatically paired together at the factory and no user action is necessary to pair them. If the FHT 80TF Door & Window Sensor has been purchased separately, it must now be registered with the FHT 80B HouseHeat Room Thermostat in the room or zone in which it is located. This is described in Section 11.

## 7. Setting the desired operating mode of the FHT 80TF Door & Window Sensor

As stated in Section 3 above, there are three different operating modes available for the FHT 80F Door & Window Sensor:

- Only the internal contact is monitored
- Only external contacts are monitored
- Both the internal and external contacts are monitored

The FHT 80TF is factory-programmed to use only the internal contact. If external contacts are to be used either in addition to the internal contact or as an alternative to the internal contact then the FHT 80TF must be re-programmed to do this.

The blink sequence when the batteries are first inserted shows the current operating mode as follows:

- 3 successive blinks: only the internal contact is monitored
- 4 successive blinks: only external contacts are monitored
- 5 successive blinks: both internal and external contacts are monitored

In order to change the operating mode, proceed as follows:

Press and hold the confirmation button (Figure 1, item 5). This causes the LED indicator to light up. Continue pressing the confirmation button until the LED indicator extinguishes. Now release the button and the FHT 80TF is now in programming mode. Open and close all the doors and windows which should be monitored by the FHT 80TF Door & Window Sensor several times so that the magnetic contacts are operated. Finally, press the confirmation button once more. The FHT 80TF will now indicate the new operating mode with a new blink sequence of 3, 4, or 5 blinks (see above). The unit will then enter a new synchronisation phase in which the LED indicator blinks once per second for approximately one minute. The FHT 80TF then returns to normal operating mode.

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
### 8. Changing the “Window-Open” Temperature

(Please consult the user guide for the FHT 80B HouseHeat Wireless Room Thermostat for detailed information on the thermostat.)


If the FHT 80B HouseHeat Wireless Room Thermostat is in the automatic mode, it automatically switches at the programmed times between the ‘comfort’ temperature and the ‘lowering’ (energy-saving) temperature according to the weekly programme created. A sun symbol in the display indicates that the comfort temperature is active; a moon symbol indicates that the Room Thermostat is reducing the room or zone temperature down to the lowering (energy-saving) temperature.


If a FHT 80TF Door & Window Sensor is installed and registered to the FHT 80B HouseHeat Wireless Room Thermostat, then - regardless of whether the Room Thermostat is in comfort or temperature-lowering mode - if a monitored door or window is opened, the Room Thermostat will begin lowering the room temperature down to the ‘window-open’ temperature.

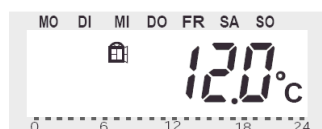
The FHT 80B HouseHeat Wireless Room Thermostat is factory-programmed to decrease the room temperature down to 12 °C (or ambient temperature, if this is higher), when a HouseHeat FHT 80TF transmitter indicates that a door or window has been opened. If a different ‘window-open’ (or ‘door-open’) temperature is required, carry out the following procedure:


1. On the HouseHeat Wireless Room Thermostat, press the  key for more than 3 seconds.

The normal room temperature (‘comfort temperature’) commanded by the HouseHeat Room Thermostat is now shown.

2. Press the  key again. The energy-saving temperature (‘lowering temperature’) is now displayed.

3. Press the  key a third time. The ‘window open’ temperature is now displayed:



4. Use the selection wheel to set the new desired window-open temperature.
5. Press the  key a fourth time. The Wireless Room Thermostat returns to normal operation.

### 9. Recognition of an Open Window (or Door) by the FHT 80TF Door & Window Sensor

If FHT 80TF Door & Window Sensors have been installed, they require no programming or intervention by the user. If correctly installed as described, they will automatically register that a monitored door or window has been opened and transmit this information wirelessly to the HouseHeat Room Thermostat, which will then reduce the commanded temperature down to the programmed ‘Window-Open’ temperature. Once all monitored windows and doors have been closed again, this information will similarly be transmitted wirelessly to the Room Thermostat, which will command the Room temperature to rise again to the original temperature. The temperature commanded by the HouseHeat Room Thermostat can at any time be manually overridden using the selection wheel on the Room Thermostat – also when a monitored window or door is open.

The LED on the FHT 80TF transmitter blinks to indicate the following:

- One long blink: the window or door has been opened
- Three short blinks: the window or door has been closed

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### 10. Viewing the status of all Door & Window Sensors on the Room Thermostat LCD Display

The current status of all FHT 80TF Door & Window Sensors which have been registered to a HouseHeat FHT 80B Wireless Room Thermostat can be viewed on the LCD display of the Room Thermostat.

This is achieved using the 'Special Functions' menu on the Room Thermostat.

FHT 80TF Door & Window Sensors may also be registered or de-registered using this menu.

To enter the 'Special Functions' menu on the Room Thermostat, do the following:

- Press the 'PROG' key on the Room Thermostat until 'Sond' appears in the display
- You are now in the 'Special Functions' menu
- Use the selection wheel to select the special function 'Fen'
- Confirm your selection with the 'PROG' key
- The display now shows the status of the FHT 80TF Door & Window Sensor in memory location 1. In the left side of the display '0001' is shown. In the right side of the display a code is shown indicating the status of the FHT 80TF Sensor as follows:
  - No status code shown: monitored window(s) or door(s) are closed, signal reception OK
  - 'nA' : not registered .i.e. no Door & Window Sensor is registered to this memory location
  - 'AUF' : the monitored window(s) or door(s) are open
  - 'EA' : Loss of signal : no signal has been received from the Door & Window Sensor for a long time
  - Battery symbol: the batteries for this Door & Window Sensor are empty and must be replaced

Rotating the selection wheel allows the user to select which of the four possible memory locations (i.e. which of the four possible registered FHT 80TF Door & Window Sensors) should be displayed.

Pressing the 'PROG' key again terminates the display of Door & Window Sensor status information and the Room Thermostat returns to the normal operating mode.

### 11. Registering a FHT 80TF Door & Window Sensor to a HouseHeat Room Thermostat

If the FHT 80TF Door & Window Sensor has been purchased as part of a set including a HouseHeat Wireless Room Thermostat, then the Sensor is pre-registered to the Room Thermostat at the factory and no user action is necessary to pair them.

If the FHT 80TF Door & Window Sensor has been purchased separately, it must now be registered with the FHT 80B HouseHeat Room Thermostat in the room or zone in which it is located. This is achieved as follows:

First ensure the FHT 80TF Door & Window Sensor has been installed as described in this document. Then enter the 'Special Functions' menu on the Room Thermostat as described in Section 10 above i.e.

- Press the 'PROG' key on the Room Thermostat until 'Sond' appears in the display
- You are now in the 'Special Functions' menu
- Use the selection wheel to select the special function 'FEn'
- Confirm your selection with the 'PROG' key
- Rotate the adjustment wheel to select the next unused code e.g. "0002" (up to 4 door & window sensors may be integrated with each room thermostat, "0001" to "0004")

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- Press and hold the 'FUNKTION' key until "CodE" is shown in the display:



- Now press and hold the confirmation button on the FHT 80TF Door & Window transmitter until the LED indicator on the transmitter lights red, then release the button
- The Door & Window Sensor now wirelessly transmits its security code to the Room Thermostat and this is confirmed by the Room Thermostat which displays:




- If no further Door & Window Sensors are to be registered to the Room Thermostat, press the 'PROG' key on the Room Thermostat to return to normal operating mode. After a few minutes the Room Thermostat is synchronised with the Door & Window Sensor and the Door & Window Sensor is operational.

### 12. De-registering a FHT 80TF Door & Window Sensor from a HouseHeat Room Thermostat

Door & Window Sensors which are no longer required must be de-registered from the Room Thermostat since otherwise the status shown for that Door & Window Sensor on the Room Thermostat is permanently 'Loss of signal' and the energy consumption of the Room Thermostat becomes unnecessarily high as it continually attempts to receive a signal from the Door & Window Sensor.

In order to de-register a Door & Window Sensor from a HouseHeat Room Thermostat, proceed as follows:

- Select the Special Function 'FEn' on the Room Thermostat as described in Section 10 and confirm with the 'PROG' key
- Use the selection wheel on the Room Thermostat to select the Door & Window Sensor to be de-registered
- Press and hold the  key until the status code is shown as 'nA' which means 'de-registered'
- Press the 'PROG' key on the Room Thermostat to return to normal operating mode.

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### **13. Changing the batteries in the FHT 80TF Door & Window Sensor**

If the batteries in the Door & Window Sensor are almost empty this information will be transmitted from the FHT 80TF Door & Window Sensor to the HouseHeat Room Thermostat. A corresponding warning in the form of a blinking window symbol will be shown on the LCD display of the Room Thermostat to indicate that the batteries in the Door & Window Sensor should be changed. If more than one Door & Window Sensor has been registered to the Room Thermostat, the status of each Door & Window Sensor can be checked in the 'Special Functions' menu of the Room Thermostat (see Section 10 above) to establish which Door & Window Sensor requires battery replacement.

The batteries may be changed as follows:

- The FHT80TF unit is opened on by pressing in the two retaining clips on the left side of the rear of the unit e.g. with a screwdriver and sliding the cover forwards.
- Remove the old batteries (N.B. used batteries should not be disposed of as normal household waste)
- Place two new size Micro ('AAA') alkaline batteries in the battery compartment, taking care to ensure that the polarity (+ or -) is correct.
- Close the FHT 80TF unit
- The LED indicator on the FHT 80TF Sensor subsequently blinks indicating its current operating mode (see Section 7 below).
- There may then follow a synchronisation phase in which the LED indicator blinks once per second for approximately one minute. The unit is then operational once more.

### **14. Interruption or failure of the wireless signal transmission between the FHT 80TF Door & Window Sensor and the FHT 80B HouseHeat Room Thermostat**

A reduction in the range of wireless signal transmission can have the following causes:

- High-frequency interference of any kind
- The proximity of the Room Thermostat or the Door & Window transmitter to conducting surfaces or objects (also to the human body or the ground) may influence wireless signal transmission and thus the range
- Broadband disturbances in urban areas may reduce the signal-to-noise ratio and hence reduce the range
- Other electronic equipment operating on adjacent frequencies may influence the signal reception
- Poorly-shielded computer equipment can transmit wireless signals which may be received by the Room Thermostat and reduce the range