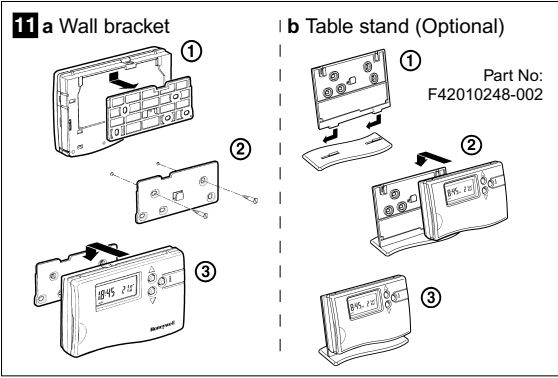
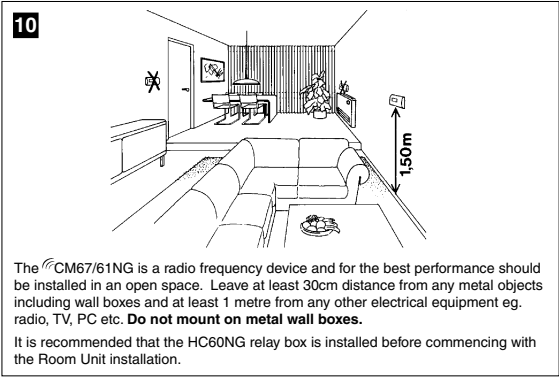
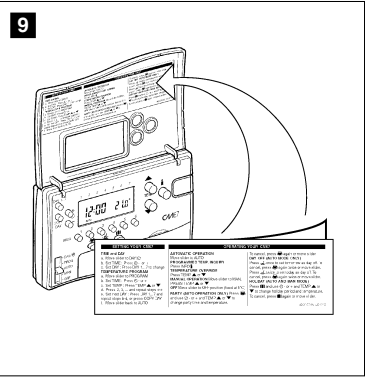
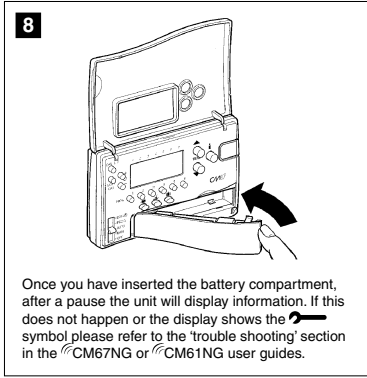
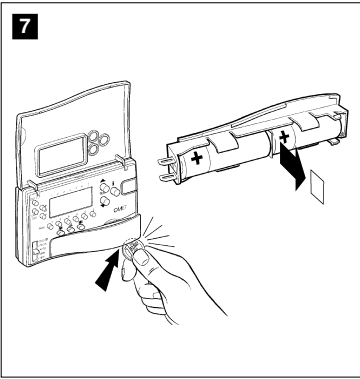
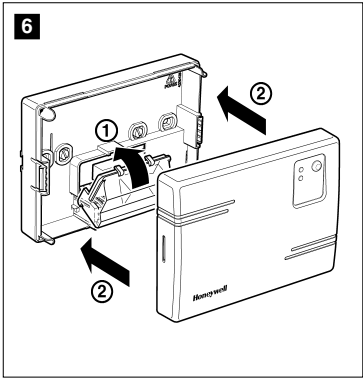
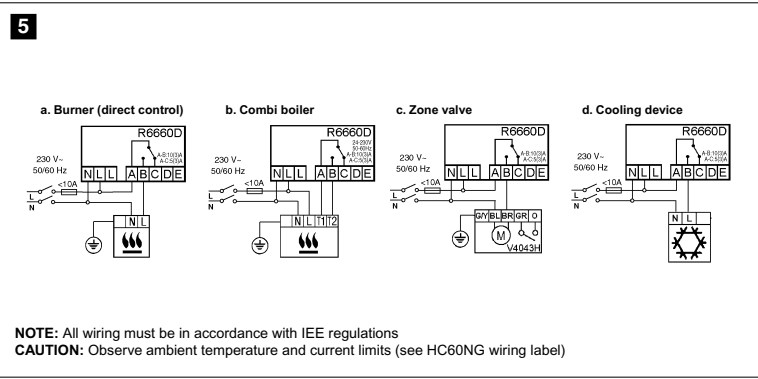
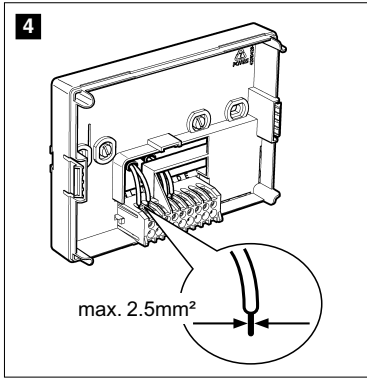
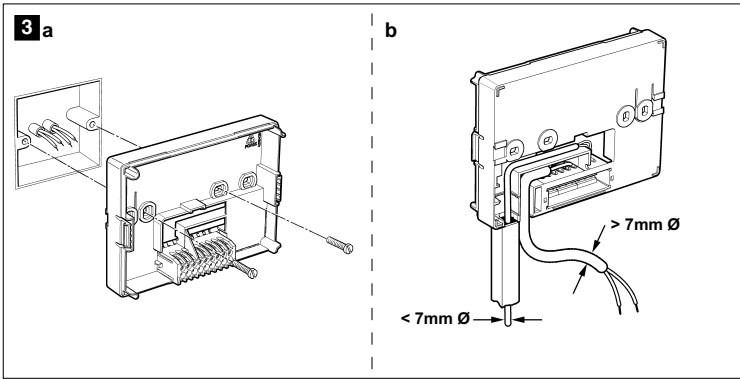
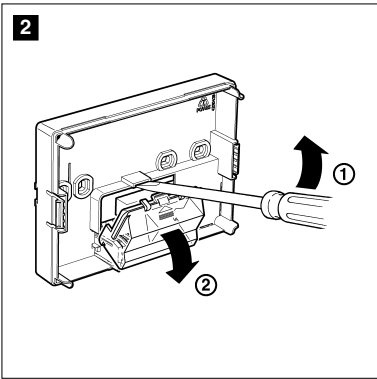
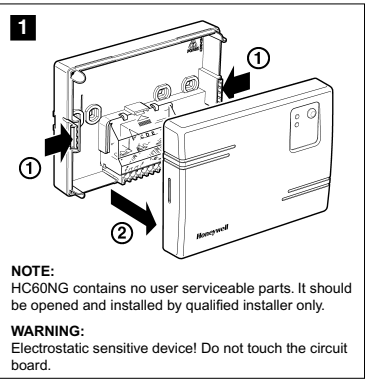
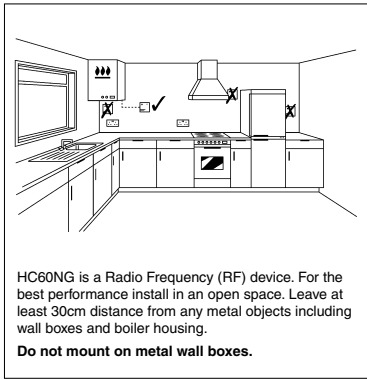


CM67/61NG
CM67/61NG Room Unit
& HC60NG Relay Box

INSTALLATION GUIDE

IMPORTANT NOTE 1:
CM60RFNG room unit and HC60NG receiver operate on 868MHz frequency. They will not communicate with other RF products using different frequency or communication protocol

IMPORTANT NOTE 2:
CM67/61NG can be used for two different applications
1. to control a single zone system
or
2. to control a multi-zone system.
If you intend to use it as defined in point 1 - read part **A. SINGLE ZONE RF SYSTEM** first
If you intend to use it as defined in point 2 - read part **D. MULTI-ZONE RF SYSTEM** first



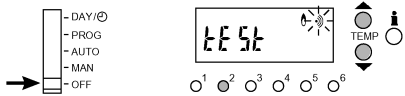
A. SINGLE ZONE RF SYSTEM

CM67/61NG Programmable Thermostat controls a single heating system component such as a boiler, a pump or zone valve. The factory configured RF link between the room unit and receiver makes the installation process fast and easy.

1. START UP

The CM67/61NG room unit is factory bound with the HC60NG relay box. Therefore no initial binding between the room unit (CM67/61NG) and receiver (HC60NG) is required.

- Follow the installation diagrams to install and connect the power supply to HC60NG relay box. The RF system will commence normal operation immediately.
NOTE: If the red LED is flashing or if you install a replacement relay box or room unit, please follow the procedure described in section 8. BINDING before system START UP.
- To check the RF communication move the CM67NG slider into OFF position (for CM61NG press the OFF button) then press the TEMP ▲, ▼ and PROG 2 buttons for 3 seconds. The unit will display tEST and it will send test signals to the receiver switching the green LED on and off every 5 seconds (relay output will remain off) for a maximum of 10 minutes. When the green LED flashes on/off every 5 seconds proceed to the next step.



2. LOCATING THE CM67/61RF ROOM UNIT

- Locate the room unit using the same test mode as described in 1. START UP. Review the CM67/61NG location guidelines (see installation diagram 10) and find a suitable location where the signal transmission is reliable. Reliable transmission is indicated when the HC60NG relay box is switching the green LED every 5 seconds. (if the accessory module is applied the room unit must be located with the Automatic Time Setting module attached).
- Install the CM67/61NG on the wall using the wall bracket or fit it on the optional table stand as shown in installation diagram 11.
- NOTE: The HC60NG relay will be off.
- Exit the TEST mode by moving the CM67NG slider to the MAN or AUTO position (for CM61NG press MAN or AUTO button).

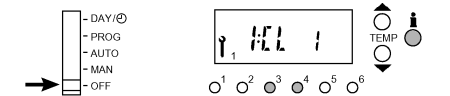
3. SYSTEM CHECK

- Switch the boiler on
- Move the CM67/61NG slider to AUTO or MAN position (for CM61NG press the AUTO or MAN button)
- Adjust the CM67/61NG setpoint up to the maximum (30°C) by pressing the TEMP ▲ button. The boiler should come on a few seconds after the on 'flame' symbol appears. Check the system operation changing the setpoint several times, bearing in mind the switching delay already referred to.

4. FAIL-SAFE MODE SETUP

The failsafe mode selected defines the HC60NG output relay status if the RF communication is lost (e.g. when room unit stops to communicate due to discharged batteries). The factory setting keeps the relay permanently off when communications is lost. If the factory setting needs to be changed follow the instructions below:

- Move the CM67NG slider into OFF position (for CM61NG press the OFF button). Press and hold the ▲ and PROG 3 & 4 buttons together.



- Press PROG 2 button to enter category 2 parameters. Select the parameter 16:LC by pressing ⊕ or - button.
- Select the fail-safe mode by pressing TEMP ▲ or ▼ buttons.
0 - when RF communication is lost the relay will be held in OFF position.
1 - when RF communication is lost the relay output will cycle at 20% on 80% off.
- IMPORTANT:
- To enable the frost protection when RF communication is lost select the fail-safe mode 1.
- For systems with separate frost protection thermostat or where frost protection is not required select fail-safe mode 0.
- Confirm the selected value by pressing the ▲ button.
- Attach appropriate label to the HC60NG relay box to indicate the selected fail-safe mode.

5. AUTOMATIC OPERATION

HC60NG receives the heat (or cool) demand (0-100%) signal from CM61/67NG. The room unit will display the ◐ symbol whenever more heat is required. Depending on the demand the HC60NG will switch the heating (or cooling) device on to match the current requirements of the system.

The green LED indicates status of the relay output.
Green LED on - relay on
Green LED off - relay off

6. TEMPORARY MANUAL OVERRIDE

Pressing the HC60NG button will override the current relay position. As soon as next signal is received from the room unit the HC60NG will return back to automatic operation as the automatic control has higher priority than manual operation.

7. COMMUNICATION LOSS

When the RF communication is lost for a period of 1 hour the red LED will be switched on to indicate that no RF messages have been received during the last hour.

The HC60NG will also enter the failsafe mode as selected in Installer's Mode (see 4. FAIL-SAFE MODE SET UP).

To allow manual control of the HC60NG output manual override is available in fail-safe mode. When RF communication is restored the HC60NG will automatically return to normal operation.

8. BINDING

The binding operation described below is required if:
- any of the system components (room unit or relay box) are replaced
- HC60NG has incorrect or no binding data stored (e.g. when pre-bound system pack components have been mismatched)

During the binding procedure keep approximately 1m distance between the room unit and the HC60NG.

- Press and hold the HC60NG push button for 15 sec to reset previously stored data. The red LED will start to flash at 0.1 s on/0.9 s off. Release the push button.
- Press and hold the HC60NG push button for 5 sec to enter the binding mode. Red LED flashing at 0.5s on/0.5 s off confirms the binding mode has been entered.
- Move the CM67NG slider to the OFF position (for CM61NG push the OFF button) and press the TEMP ▲, ▼ and PROG 1 buttons together. The CM67/61NG will display InSt
- Press the ▲ button to send the binding signal. The red LED is switched off to confirm successful binding operation. If red LED still flashes push the ▲ button again until binding is successful.
- Follow the START UP and other procedures to commission the single zone RF system.

B. INSTALLER SET-UP MODE

Installer Set-Up Mode allows changing the controller parameters so it can meet specific application requirements or customer's needs. See 4. INSTALLER SET-UP MODE TABLE for detailed list of configurable parameters.

1. PARAMETERS SETTING

1 Move the CM67NG slider into the OFF position (for CM61NG press the OFF button). Press and hold the ▲ and PROG 3 & 4 buttons together.	2 Installer Set-Up Number (Press ⊕ or - to change) e.g. 1 = 12h clock format Installer Set-Up Mode Selected Category 1 Installer Set-Ups Abbreviated Set-Up Description e.g. CL = Clock format Factory Setting or New Choice (Press TEMP ▲ or ▼ to change) e.g. 0 = 24h clock format e.g. 1 = 12h clock format
3 Press TEMP ▲ or ▼ to change factory setting. The display will flash indicating that a change has been made.	4 Press INFO button to confirm the change is ok. The display will stop flashing indicating that the new value has been stored.
5 Press ⊕ or - to go to the next parameter and follow steps 3 & 4 to make changes.	6 Adjust other settings using the Installer Set-Up Mode - Settings Table on the next page.
	7 To exit the Installer Set-Up Mode move the CM67NG slider to the AUTO or MAN position (for CM61NG press the AUTO or MAN button).

B. INSTALLER SET-UP MODE (CONTINUED)

2. INSTALLER SET-UP MODE TABLE

Parameter	Identifier	Range	Default	Category
AM-PM/24h select	1:CL	0 (24h) / 1(12h)	1 (12h clock display)	1
Reset time/temp program	2:rP	0 (user prog) / 1 (factory prog)	1 (factory prog)	1
You must now press the PROG 2 key to enter the next section				
Minimum ON time 4)	3:Ot	1, 2, 3, 4, 5	1 min	2
Accessory Module type	4:At	0 (no module) / 1 (ATS module)	0 (no module)	2
Heat/Cool operation	5:HC	0 (cool) / 1 (heat)	1 (heat)	2
Pump exercise feature enable	7:PE	0 (disable) / 1 (enable)	0 (disabled)	2
Cycle Rate 4)	8:Cr	3, 6, 9, 12	6 cph	2
System Synchroniser	9:Sn	0 (standard operation of the room unit) 1 (room unit configured as Synchroniser)	0 (Standard operation of the room unit)	2
Upper setpoint limit adjust	10:UL	21... 30°C (in increments of 1°C)	30°C	2
Lower setpoint limit adjust	11:LL	5... 16°C (in increments of 1°C)	5°C	2
Measurement offset adjust (temp)	12:tO	-3.0... 3.0K (in increments of 0.1K)	0 K	2
Prop band width	14:Pb	1.5... 3.0K (in increments of 0.1K)	1.5K	2
Optimisation enable*	15:Op	0 (disable) / 1 (enable)	1 (enable)	2
Loss of Communications Instruction	16:LC	0 (Relay Off) 1 (Relay 20% on 80% off)	0 (Relay Off)	2
Reset Installer Mode Parameters to Defaults	17:FS	0 (modified) / 1 (factory)	1 (factory)	2

Notes

- When the Installer Set-Up Mode is initiated, only **Category 1** (🔑 1) Set-Up Features are accessible.
Category 2 (🔑 2) Set-Up Features are accessed by pressing the **PROG 2** key.
- Remember to always press the **INFO** button to confirm that you want to store your new Installer Set-Up setting.
- To exit the Installer Set-Up Mode move the CM67NG slider to the **AUTO** or **MAN** position (for CM61NG press the **AUTO** or **MAN** button).
- These parameters are set centrally for the zoning system at the room unit configured as the system synchroniser
- Minimum on-time setting applies only to the boiler controller. All HC60NG zone controllers will work with the minimum on-time of 30 secs.

D. MULTI-ZONE RF SYSTEM (READ THIS SECTION ONLY IF YOU USE CM67/61NG TO CONTROL A MULTI-ZONE SYSTEM)

NOTE: Before commencing installation make sure that the hydronic layout of the heating system is suitable for zoning.

CM67/61NG is designed to be able to control multi-zone systems where heat transfer to the individual zones is controlled by means of zone valves or pumps (see Fig. 1).

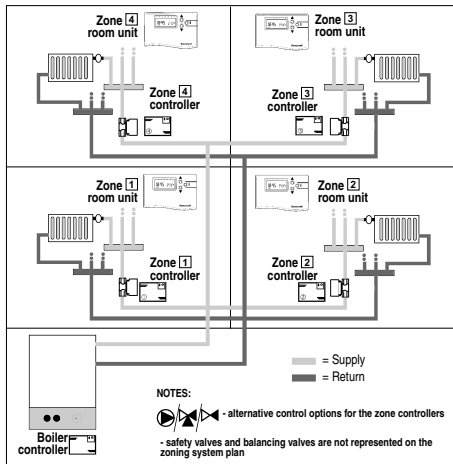


Fig.1 Multi-zone System Plan

The HC60NG zone controllers operate zone valves or pumps. The CM67/61NG room units located in every zone provide heat demand signal for each zone controller. The HC60NG boiler controller operates the boiler. It is collecting the demand signals from all room units to make sure that the boiler delivers enough heat to satisfy every zone.

To set up a multi zone system you will need:

- one CM67NG or CM61NG system pack per zone in the installation. The system pack contains one room unit (transmitter) and one zone controller (receiver)
- one HC60NG boiler controller

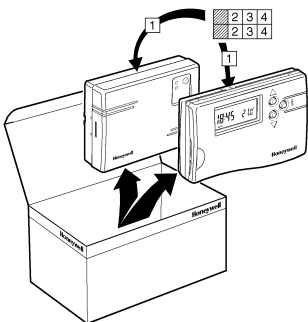


Fig.2 Marking the room unit and the zone controller as a pair.

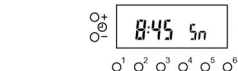
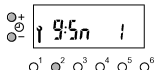
1. START-UP (max. 4 zones)

- Mark the room units and relay boxes (zone controllers) from system packs using [1], [2], [3], [4] labels supplied (see Fig.2). Leave the HC60NG boiler controller unmarked.
NOTE: It is important not to mismatch the pairs from the system pack boxes as they are already pre-bound. Keeping them in pairs will speed up system set-up. The HC60NG from the system packs work as zone controllers (controlling the zone valves or zone pumps), the HC60NG delivered separately will work as the boiler controller (see Fig.1)
- Install and wire up all the zone controllers following the installation guidelines, zoning system plan (see Fig.1) and wiring diagrams.
NOTE: Do not connect power supply to the boiler controller.
- Remove the insulation tabs from the room unit battery compartments (see installation diagram [2]).
- To check the factory pre-set RF link between the room unit and zone controller, move the CM67NG slider into **OFF** position (for CM61NG press the **OFF** button) and press **TEMP** ▲, ▼ and **PROG 2** buttons together for 3 sec. The unit will display **test** and it will send test signals. The zone controller 1 will start switching green LED on and off every 5 sec (the relay output will remain off)
- Exit the test mode by moving the slider into **AUTO** position (for CM61NG press the **AUTO** button)
NOTE: If green LED is not switched on and off at specified intervals, follow the procedure described in Part A. section 8. **BINDING**.
- Repeat steps 4 and 5 for every room unit and zone controller pair in the system.

2. SYSTEM SYNCHRONISATION

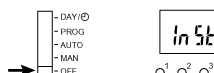
One of the room units has to be set up to govern the synchronisation of all zones. To configure room unit [1] as system synchroniser follow the procedure below:

- Enter the installer's mode of the room unit [1] by moving the slider to the **OFF** position (for CM61NG press the **OFF** button) and pressing the **PROG 3, 4** and **INFO** buttons together
- Press the **PROG 2** button to enter the category 2 parameters. Select parameter 9:Sn by pressing **+** or **-** button
- Set the 9:Sn parameter value to 1 by pressing the **TEMP** ▲ or ▼ button. Confirm the selected value by pressing the **INFO** button
NOTE: Only one room unit can be configured as the system synchroniser.
- Move the CM67NG slider to **AUTO** or **MAN** position (for CM61NG press the **AUTO** or **MAN** button) to exit the installer mode.
- To check if the room unit [1] is configured as the synchroniser press the **INFO** button twice. The unit will display the time and **Sn**



NOTE: If the Sn is not displayed repeat instructions above

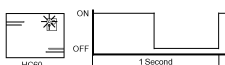
- Using the room unit [1] configured as the synchroniser, enter the synchronisation binding mode by moving the CM67NG slider to the **OFF** position (for CM61NG by pressing the **OFF** button) and pressing the **TEMP** ▲, ▼ and **PROG 6** buttons together. The CM67/61NG will display **InSt Sn**
- To enter the binding mode, press and hold the push button of the HC60NG zone controller [2] for 5 sec (until the red LED starts flashing at 0.5s on/0.5s off).
NOTE: It is not required to bind the room unit [1] to the zone controller [2] as they are already factory bound.
- Press the **INFO** button of the CM67/61NG synchroniser room unit to send the timing binding signal. After successful binding operation the red LED will be switched off. If red LED still flashes push the **INFO** button again until binding is successful.
- If you set-up a system with 3 or 4 zones, repeat steps 7 and 8 with HC60NG zone controllers for zone 3 and 4
- Exit the synchroniser binding mode by moving the slider to **AUTO** or **MAN** position (for CM61NG by pressing the **AUTO** or **MAN** button)



3. BINDING THE ROOM UNITS TO THE BOILER CONTROLLER

To provide the heat demand signal from individual zones to the boiler, each zone room unit has to be bound to the boiler controller

- Install and wire-up the HC60NG boiler controller. The red LED will flash 0.1s on/0.9s off.
NOTE: If it is not flashing as described above, press and hold the push button for 15 sec to remove any stored binding data from the memory.
- Press and hold the push buttons of the boiler controller for 5 sec to enter the binding mode. The red LED will start flashing at 0.5s On/0.5 s Off. HC60NG is ready for binding



- Move the slider of the CM67NG [1] to **OFF** position (for CM61NG [1] press the **OFF** button). Press the **TEMP** ▲, ▼ and **PROG 1** button together. The CM67/61NG will display **InSt**



- Press the **INFO** button to send the binding signal to the HC60NG boiler controller. After successful binding operation the red LED will be switched off. If red LED still flashes push the **INFO** button again until binding is successful.
- Move the CM67NG slider to **AUTO** or **MAN** position (for CM61NG press the **AUTO** or **MAN** button) to exit the binding mode.
- Repeat steps 2 to 5 with each room unit ([2], [3], [4]) in the system.

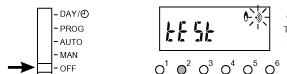
C. TROUBLE SHOOTING GUIDE

Symptom (Fault Message)	Possible Cause	Remedy
This part of the trouble shooting guide refers to single-zone and multi-zone systems		
The room unit displays the ⬆ symbol but the relay does not switch on	This is normal operation. The room unit sends only the demand signal (0-100%) to the relay box. Depending on the demand signal the relay box will switch the relay on when required	Using TEMP ▲ button change the temperature setpoint by a few degrees. The receiver should switch the relay on after a few seconds delay
The HC60NG zone controller does not react to setpoint changes on the room unit	The room unit and receiver are not bound.	Reset* the HC60NG zone controller and follow the binding procedure as described in part A . section 8 BINDING
After binding procedure the red LED is on and the green one is flashing once every 3 sec	Incorrect or incomplete binding procedure Incorrect position of the room unit during binding	Repeat the binding procedure Repeat the binding procedure keeping approx. 1 m distance between the HC60NG and CM61/67NG
The red LED is on (Communication loss)	The relay box receives no RF messages from CM67/61NG: RF signal is blocked due to wrong location of the room unit Room unit batteries are exhausted	Re-locate the room unit(s) following instructions in: Part A . section 2. LOCATING THE CM67/61 NG ROOM UNIT or Part D . section 4. LOCATING THE ROOM UNITS Replace batteries in the room unit
This part of the trouble shooting guide refers to multi-zone systems only		
After procedure described in part D . section 3. BINDING THE ROOM UNITS TO THE BOILER CONTROLLER the red LED is on and the green one is flashing twice every 3 sec.	An attempt was made to bind more than 4 room units with the boiler controller	Reset* the HC60NG boiler controller, repeat the following binding procedures: Part A . section 8. BINDING Part D . section 3. BINDING THE ROOM UNITS TO THE BOILER CONTROLLER
After procedure described in part D . section 2. SYSTEM SYNCHRONISATION the red LED is on and the green one is flashing 3 times every 3 sec.	An attempt was made to bind the HC60NG with system timing message when no demand binding information is present	Reset* HC60NG zone controller, repeat the following binding procedures: Part A . section 8. BINDING Part D . section 2. SYSTEM SYNCHRONISATION The above listed operations should be repeated ONLY for the receiver which displayed the fault message
After procedure described in part D . section 2. SYSTEM SYNCHRONISATION the red LED is on and the green one is flashing 4 times every 3 sec.	An attempt was made to bind two system timing masters with one receiver box	Make sure that only one room unit in the system is configured as synchroniser. Reset all the HC60NG's in the system. Bind matching room units with the zone controllers (1 with 1, 2 with 2, ...) as described in Part A , section 8. BINDING Follow the instructions described in Part D . MULTI-ZONE RF SYSTEM SET-UP
The red LED is flashing 2.5 sec on - 2.5 sec off (Communication loss)	The relay box is missing signals from one (or more) CM67/CM61NG but still receives messages from other room units: RF signal is blocked due to wrong location of some room units in the system Room unit batteries are exhausted	Relocate the room unit(s) following the instructions in: Part D . section 4. LOCATING THE ROOM UNITS Replace batteries in the room unit

NOTE: If you replace any of the components of the multi-zone control system, it is recommended to follow all procedures described in Part. D
* Reset by pressing and holding the button on the HC60NG for 15 seconds

4. LOCATING THE ROOM UNITS

- Move the CM67NG slider into **OFF** position (for CM61NG push the **OFF** button) and push the **TEMP** ▲, ▼ and **PROG 2** buttons together to enter the RF communication test mode. The room unit will display **test**



- The room unit will start sending RF signals switching the green LED of the HC60NG's on and off every 5 seconds for 10 minutes.
NOTE: All the HC60NG relays will be off.
- Review the RF Communication Check Table to establish which HC60NG should react to the test signals of the room unit
- Observing the room unit location guidelines (Fig. 9) find suitable location for the room unit where RF communication is reliable.
- The reliable communication is indicated when all appropriate HC60NG's (see **RF COMMUNICATION CHECK TABLE**) are switching the green LED every 5 seconds.
- Install the room unit in the selected location following CM67/61NG Installation Guide (alternatively use the optional table stand).
- Repeat the testing procedure with all the room units in the system.

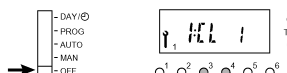
5. RF COMMUNICATION CHECK TABLE

	Room Unit in Test Mode	Responding Relay Boxes
Zone 1	Room Unit [1], System synchroniser	All zone controllers, Boiler controller
Zone 2	Room Unit [2]	Zone controller [2], Boiler controller
Zone 3	Room Unit [3]	Zone controller [3], Boiler controller
Zone 4	Room Unit [4]	Zone controller [4], Boiler controller

6. FAIL-SAFE MODE SET-UP

The failsafe mode selected defines the HC60NG output relay status if the RF communication is lost. The factory setting keeps the relay permanently off when communications is lost. If the factory setting needs to be changed follow the instructions below:

- Move the CM67NG slider into **OFF** position (for CM61NG press the **OFF** button). Press and hold the **INFO** and **PROG 3 & 4** buttons together.
- Press the **PROG 2** button to enter the category 2 parameters. Select the parameter 16:LC by pressing **+** or **-** button.
- Select the fail-safe mode by pressing **TEMP** ▲ or ▼ buttons
0 - when RF communication is lost the relay will be held in OFF position
1 - when RF communication is lost the relay output will cycle at 20% on 80% off
IMPORTANT:
- To enable the frost protection when RF communication is lost select the fail-safe mode 1
- For systems with separate frost protection thermostat or where frost protection is not required select fail-safe mode 0
- Confirm the selected value by pressing the **INFO** button
- Attach appropriate label to the HC60NG to indicate the selected fail-safe mode.
NOTE: You can set fail-safe mode operation individually for each zone.



7. AUTOMATIC OPERATION

HC60NG receives the heat demand (0-100%) signal from one (or more) CM61/67NG. The room unit will display the **⬆** symbol whenever more heat is required. Depending on the demand signal the HC60NG will switch the heating device on to match the current requirements of the system.

Green LED on - relay on

Green LED off - relay off

The green LED indicates status of the relay output.

8. TEMPORARY MANUAL OVERRIDE

Pressing the HC60NG button will override the current relay position. As soon as next signal is received from the room unit the HC60NG will return to automatic operation as the automatic control has higher priority than manual operation

9. COMMUNICATION LOSS

When the RF communication is lost for a period of 1 hour the red LED will be switched on to indicate that no RF messages have been received during the last hour.

The HC60NG will also enter the failsafe mode as selected in Installer's Mode (see **6. FAIL-SAFE MODE SET-UP**).

Red LED flashing at 2.5s on/2.5 sec off - if messages from one of the room units is lost but the HC60NG still receives signals from others units it is bound to.

The fail-safe mode operation depends on the HC60NG configuration and its function in the system:

- HC60NG boiler controller: Fail-safe mode/0 configured in all room units => relay OFF
Fail-safe mode/1 configured in any of room units => relay cycling 20% ON/80% OFF
- HC60NG zone controller: Fail-safe mode/0 configured in the zone room unit => relay OFF
Fail-safe mode/1 configured in the zone room unit => relay ON

When the HC60NG does not receive the synchronising message it will indicate the communication loss status (red LED flashing at 2.5s on/2.5 sec off) It will operate using the available heat demand information. The system synchronisation may be lost and consequently temperature control performance will become unsatisfactory. See section **C. TROUBLE SHOOTING GUIDE** for possible cause and remedy.

For the set-up of the fail-safe mode see **6. FAIL-SAFE MODE SET-UP**.

10. SYSTEM PARAMETERS CONFIGURATION

The key parameters of the boiler control algorithm are set centrally at the unit configured as the system synchroniser. The following parameters of the synchroniser unit will be used for boiler control:

Parameter	Factory Setting	Range
- minimum on time:	default value 1 minute	range: 1-5
- cycle rate	default value 6 cycles per hour	choice of 3, 6, 9 and 12 cycles per hour

If no modifications to the values of these parameters are made the default values apply (see part **B. INSTALLER SET-UP MODE**).

For detailed information on setting Installers parameters refer to part **B. INSTALLER SET-UP MODE**.

NOTE: The minimum on time setting applies only to the boiler controller. All HC60NG zone controllers work with a standard minimum on time of 30 seconds.



This product can be used in the **United Kingdom, Republic of Ireland**

This product has been designed with your environment in mind!
Please respect this by disposing of all packaging, used parts and eventually the product itself in an environmentally friendly manner.

Home Comfort & Systems

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Honeywell

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