

SPECIFICATION AND APPROVALS

AS2-RF Transmitter specification:

Power supply: 3 X AA (LR6) Batteries
Transmitter Frequency: 868 MHz
Operating Temperature range: 0°C to 40°C
Temperature Control Range: 5°C to 30°C
Standby Temperature: 5°C to 30°C
Double insulated.
Enclosure protection: IP30
Purpose of control: Electronic thermostat
Reserve Battery Type: Lithium
Case material: Thermoplastic, flame retardant
Dimensions: 120mm x 90mm x 32mm
Display: Liquid crystal, Backlit
Clock: 24 hour
Display time adjustment: 1 Minute steps
Switched time adjustment: 15 Minute steps
Programme selection: Auto, Standby
Operating periods per day (Warm): 3
Override: Instant Warm/Cool
backplate: Industry Standard backplate

ASR-RF (receiver) specification:

Contact type: Micro dis-connection
(Voltage Free)
Contact rating: 3(1)Amps 230-240V AC
Power supply: 230V AC 50Hz
Operating Temperature range: 0°C to 40°C
Double insulated.
Enclosure protection: IP30
Case material: Thermoplastic, flame retardant
Dimensions: 120mm x 90mm x 32mm
Override: On/Off
backplate: Industry Standard backplate



For more information on Z Wave technology please visit;

www.zen-sys.com

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ISSUE 1

THERMOPLUS AS2-RF & ASR-RF
INSTALLATION INSTRUCTIONS



HORSTMANN

The Horstmann ThermoPlus AS2-RF - Programmable Room Thermostat with wireless communication technology.



INTRODUCTION

The Horstmann ThermoPlus AS2-RF is a wireless room thermostat that has been designed to make its operation very simple for the householder. The built in automatic clock means it will not need setting or adjusting for BST and GMT time changes. The ThermoPlus will provide a Warm temperature setting at times pre-set by you installer and day-to-day user adjustments are carried out using just three buttons.

The AS2-RF kit is supplied in two parts. The receiver which is hard wired to the combi or conventional system boiler and the AS2-RF thermostat which can be used in any normal domestic environment within a typical 30 metre range without the need for any costly or disruptive wiring.



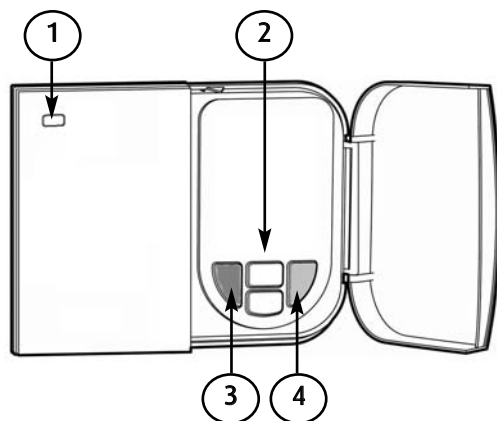
THERMOPLUS AS2-RF - PRODUCT OVERVIEW

The AS2-RF thermostat kit is made up of two parts:

- 1 x receiver Receiver
- 1 x AS2-RF Transmitter

Both parts have been designed to be easily installed and offer maximum flexibility. No hard wiring is required between the transmitter and the receiver. The receiver unit is hard wired to the boiler and should be sited close to the existing wiring. The AS2-RF can then be positioned up to 30 metres away - *Range will vary depending upon the composition, density and number of walls between the AS2-RF transmitter and the receiver.*

ASR-RF RECEIVER



ThermoPlus Receiver

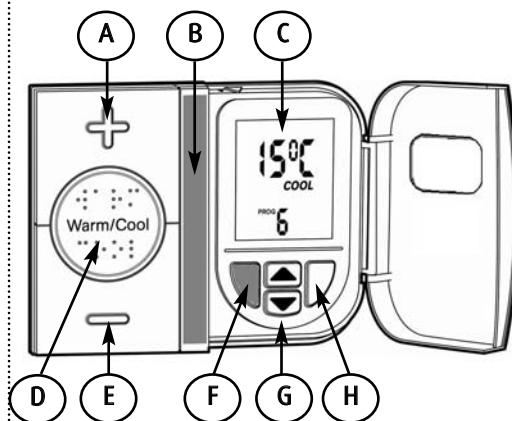
LED INDICATOR - The tri-colour LED gives the status indication to the user and installer.

EASY TO USE PAIRING AND OVERRIDE BUTTONS - Simple to identify colour coded buttons allow you to connect the transmitter and receiver. They also allow override of the boiler without the transmitter.

- 1 - Status Indicator LED
- 2 - AS2-RF Pairing (Add/Remove) Buttons
- 3 - Boiler 'Off' Override** (Red)
- 4 - Boiler 'On' Override** (Green)

**The override facility will only operate when an amber LED is showing. This indicates no signal from the AS2-RF transmitter is being received, the position and battery level should be checked.

AS2-RF TRANSMITTER



ThermoPlus AS2-RF Transmitter

LCD DISPLAY FEATURES - A fully graphical back-lit installer and user display.

LED INDICATOR - Red and Blue indicators show if you are in a 'Warm' or 'Cool' period.

PRESET PROGRAMMES - Programming is made simple and a one touch override facility makes temporary changes simple to use.

AUTOMATIC CLOCK - A factory set clock which automatically adjusts between winter (GMT) and summer (BST) time.

- A - '+' Button
- B - LED Indicators
- C - Installer Display
- D - 'Warm/Cool' Button
- E - '-' Button
- F - Standby / Time / Set Button
- G - Increase / Decrease Buttons
- H - Prog / Exit Button

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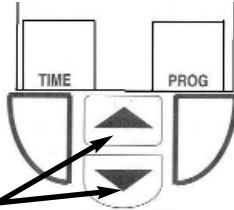
RESETTING THE AS2-RF TRANSMITTER

Electronic equipment can in some circumstances be affected by electrical interference. If the display becomes frozen or scrambled; or if you wish to revert back to the default settings please use the following procedure.

PLEASE NOTE; Using this procedure will restore the AS2-RF to the original factory settings, the time of day will also revert to 1/1/06, details of how to adjust the time are contained within the user guide.

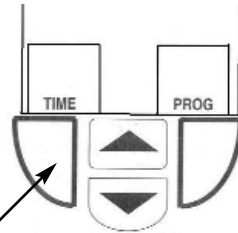
RESETTING THE THERMOPLUS AS2-RF

- On the ThermoPlus AS2-RF press the 'UP' and 'DOWN' arrow buttons together:
- Then release the buttons and the thermostat will return to preset factory settings.



STANDBY / FROST PROTECTION

The Blue button situated under the flap will initiate the frost protection mode when pressed, the word 'STANDBY' will appear on the display, the thermostat has been pre-programmed with a frost protection temperature level of 7°C, this can be adjusted by using the up and down arrow buttons.



PRESS FOR STANDBY / FROST PROTECTION

INDICATING LIGHTS AND BACK-LIT DISPLAY

The ThermoPlus AS2-RF is battery powered and is intended for applications where running cables to a boiler would be difficult. To conserve battery life there is an 8 second auto power down mode on the indicator lights and the display back light. The LED target temperature display will remain on, but not back-lit, at all times. The LED indicators will illuminate whenever the +/- or 'Warm/Cool' buttons are pressed. The Back-lit display will operate whenever any of the buttons located under the flap are pressed.

OPERATING MODES

During normal operation the receiver will indicate the AS2-RF demand status through the colour of its LED, please refer to the RECEIVER STATUS INDICATOR LED section of this guide.

The AS2-RF also uses a combination of LED and LCD displays to assist the user to gain maximum benefit from the thermostat, during normal operating periods, where no user intervention has occurred, the AS2-RF will power down to maximise battery life, to 'wake up' the AS2-RF press the 'Warm/Cool' for 5 seconds, the displays, both LED and LCD, will now illuminate and will stay lit for a period of 8 seconds after the last button press.

INSTALLATION AND CONNECTION OF THE THERMOPLUS RECEIVER AND AS2-RF SHOULD ONLY BE CARRIED OUT BY A SUITABLY QUALIFIED PERSON. ALWAYS CONSULT THE SPECIFIC BOILER MANUFACTURERS INSTALLATION INSTRUCTIONS BEFORE COMMENCING THE INSTALLATION .

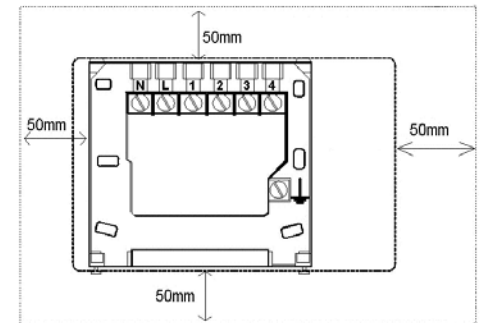
WARNING : ISOLATE MAINS SUPPLY BEFORE COMMENCING INSTALLATION

STAGE 1 - FITTING THE RECEIVER

RECEIVER FITTING AND LOCATION

To remove the backplate from the receiver undo the two retaining screws located on the underside, the backplate should now be easily removed. Once the backplate has been removed from the packaging please ensure the receiver is re-sealed to prevent damage from dust, debris etc.

The backplate should be fitted with the wiring terminals located at the top and in a position which allows a total clearance of at least 50mm around the receiver.

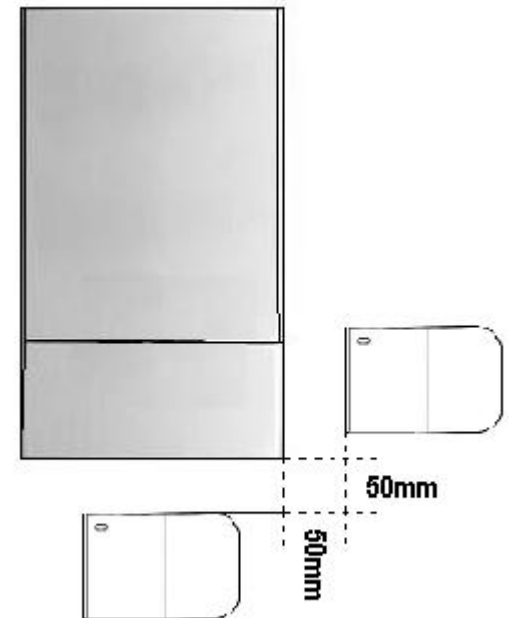


DIRECT WALL MOUNTING

The receiver should be ideally located near an existing power supply within an easy wiring location to the boiler. Offer the plate to the wall in the position where the receiver is to be mounted, remembering that the backplate fits to the left hand end of the receiver. Mark the fixing positions through the slots in the backplate, drill and plug the wall, then secure the plate in position. The slots in the backplate will compensate for any misalignment of the fixings.

WIRING BOX MOUNTING

The receiver backplate may be fitted directly on to a single gang steel flush wiring box complying with BS4662, using two M3.5 screws. The receiver receiver is suitable for mounting on a flat surface only, it must not be positioned on an unearthed metal surface.



ELECTRICAL CONNECTIONS

All necessary electrical connections should now be made. Flush wiring can enter from the rear through the aperture in the backplate. Surface wiring can only enter from beneath the receiver and must be securely clamped.

The mains supply terminals are intended to be connected to the supply by means of fixed wiring.

The receiver is mains powered and requires a 3 Amp fused spur. The recommended cable sizes are 1.0mm² or 1.5mm².

The receiver is double insulated and does not require an earth connection, an earth connection block is provided on the backplate for terminating any cable earth conductors. Earth continuity must be maintained and all bare earth conductors must be sleeved. Ensure that no conductors are left protruding outside the central space enclosed by the backplate.

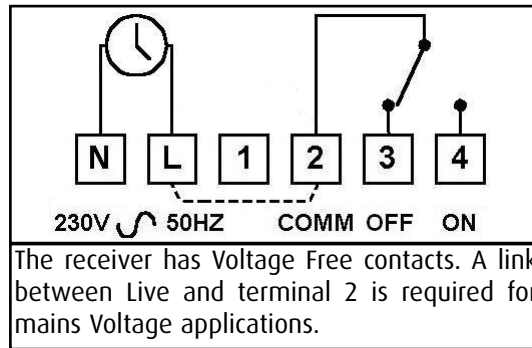
WIRING DIAGRAMS AND ELECTRICAL CONNECTIONS

Two example circuit diagrams for typical boiler installation are shown below. These diagrams are schematic and should be used for guidance only.

Please ensure that all installations comply with the current IEE regulations and the boiler manufacturers installation instructions.

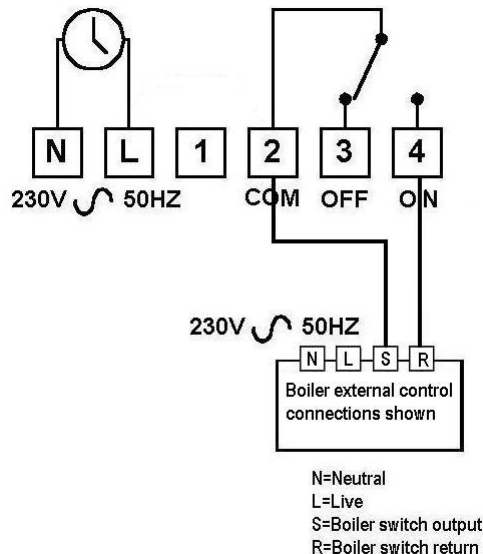
For reasons of space and clarity not every connection has been included and the diagram has been simplified, for instance some earth connections have been omitted.

INTERNAL WIRING DIAGRAM RECEIVER



Typical combi boiler basic layout

This diagram shows a typical receiver combination boiler installation, where the external boiler control is connected via switching terminals (a link may have to be removed on the boiler switching control terminals). Mains supplies to both the receiver and the boiler are omitted for clarity. Please consult the boiler manufacturers installation hand book before commencing any installation work.

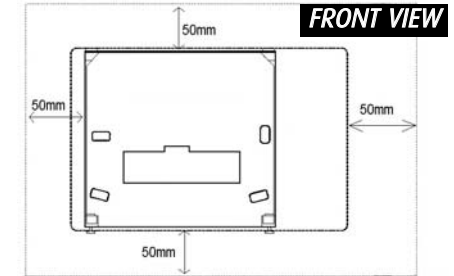


FITTING THE AS2-RF

Mark the fixing positions through the slots in the backplate, drill and plug the wall. The slots in the backplate will compensate for any misalignment of the fixings. The AS2-RF thermostat is suitable for mounting on a flat surface only.

Before fitting the AS2-RF to its backplate ensure the commissioning instructions have been thoroughly carried out. After a successful pairing please follow the following instructions;

- Fit the AS2-RF to the backplate, ensure the lugs on the backplate engage with the slots on the thermostat.
- Swing the bottom of the thermostat into position ensuring that the lugs click firmly into position.

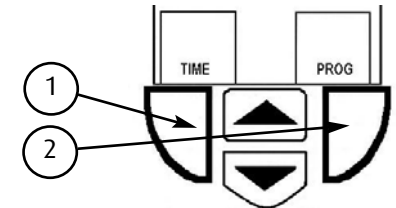


GENERAL INFORMATION

THERMOPLUS PROGRAMMING MODE

Once the ThermoPlus has been installed, please press buttons 1 and 2 Simultaneously to enter the programming mode, this will allow you to;

- Check the current time/date/year is correct
- Set a profile suitable for the end user



TIME AND DATE CHECK

The AS2-RF thermostat has been pre-set with the current time and date during manufacture. No alteration should be required to the time and date, however if any modification is required please refer to the flowchart below located in the user guide.

SETTING USER PROFILES - ONE TO FIVE

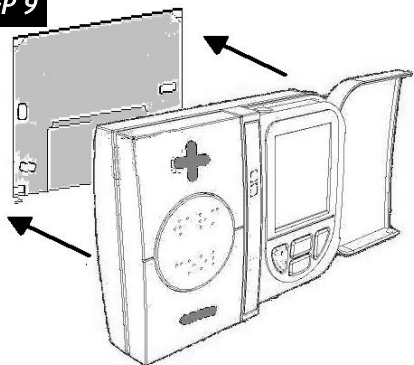
The ThermoPlus contains a selection of five pre-set profile options, one of these must be set by the Installer. It is vital that care is taken to ensure a profile is selected that suits the lifestyle of the householder concerned. The flow chart on page 8 of the user guide is designed to easily guide you through the process of setting the required profile.

Profiles one to five are detailed on page 9 and 10 of the user guide.

PLEASE NOTE: If none of the provided profiles meet the users requirements it is possible to set a user defined profile (6), full details are given on page 11 of the user guide.

Upon completion of the instructions above, please ensure that you explain operation of this thermostat to the user and hand over the user guide as supplied.

STEP 9



Once successfully tested the AS2-RF can be mounted at its backplate location.

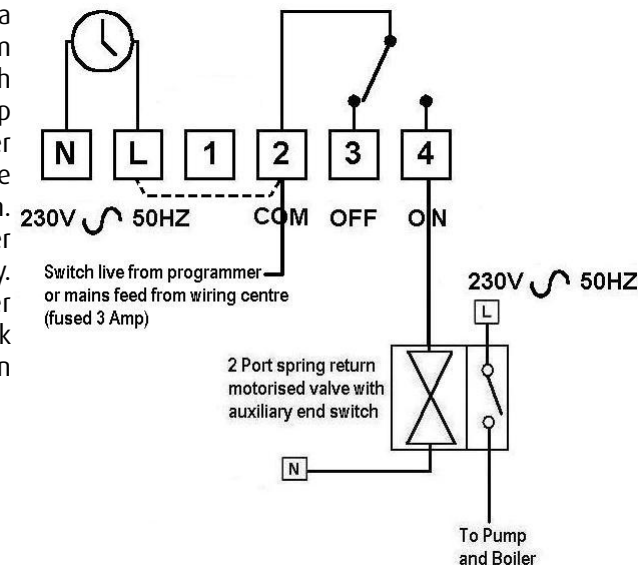
Step 8 test should now be repeated to ensure signal strength and to prove operation.

Should the receiver fail to respond to the AS2-RF temperature change an alternative location may need to be sought.

Programme the AS2-RF to suit the users requirements, details of how to set the 'Warm/Cool' times are located under the 'SETTING USER PROFILES' located in the user guide

Zone/Heating control basic layout

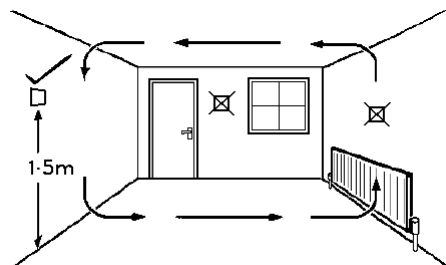
Diagram shows a receiver used in a conventional fully pumped system using 2 port motorised valve with auxiliary switch to control the pump and boiler. Please note; Hot water control will need to be provided by the use of a programmer or timeswitch. Mains supplies to both the receiver and the boiler are omitted for clarity. Please consult the boiler manufacturers installation hand book before commencing any installation work.



STAGE 3 - FITTING THE AS2-RF THERMOSTAT

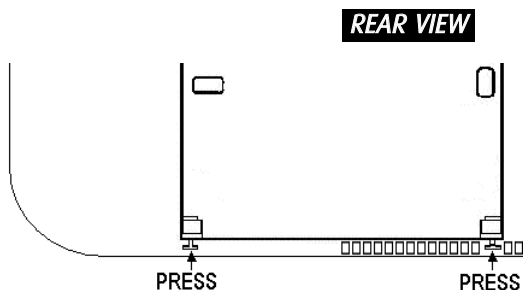
POSITIONING THE BACKPLATE FOR THE AS2-RF

The AS2-RF should be mounted on an internal wall approximately 1.5 metres from floor level and should be in a position away from draughts, direct heat and sunlight. Ensure that there will be enough space to allow easy access to the release buttons located on the lower part of the AS2-RF.



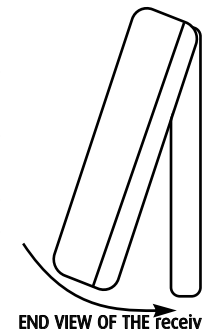
FITTING THE BACKPLATE FOR THE AS2-RF

To remove the backplate from the AS2-RF press the two lugs located on the underside, the backplate should now be easily removed. Position the backplate to the wall in the position where the AS2-RF is to be mounted, remembering that the backplate fits to the left hand end of the thermostat.



FITTING THE RECEIVER

- If surface wiring has been used, remove the knockout/insert from the bottom of the thermostat to accommodate it.
- Fit the receiver to the backplate, ensure the lugs on the backplate engage with the slots on the receiver.
- Swing the bottom of the receiver into position ensuring that the connection pins on the back of the unit locate into the terminal slots in the backplate.



RECEIVER STATUS INDICATOR LED

The Tri-coloured LED on the receiver allows the installer and the end user to understand the status of communication between the receiver and the AS2-RF. The LED has six different indications, these are;

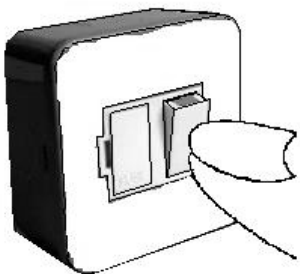
- INSTALLATION MODE;**
 - Flashing Red** - No network connection, please refer to 'COMMISSIONING INSTRUCTIONS' section of this guide.
- NORMAL OPERATION**
 - Flashing Green** - Indicates a successful network connection.
 - Solid Red** - Relay / Heating off
 - Solid Green** - Relay / Heating on
- FAIL SAFE MODE**
 - Solid Amber** - Relay / Heating off indicating no message from AS2-RF for 60 minutes -
 - Flashing Amber** - Fail safe green override button activated - Relay / Heating on

PLEASE NOTE; The red and green override buttons on the receiver will only operate in fail safe mode. In normal operation pressing these buttons will have no effect.

STAGE 2 - COMMISSIONING INSTRUCTIONS

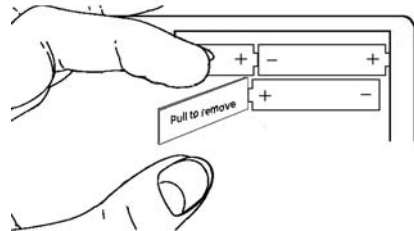
PLEASE NOTE; if more than one kit is being installed within the same property e.g. multi-zone control, then it is vital that each pair are matched correctly to the relevant receiver. This can be simply achieved by commissioning each kit in turn.

STEP 1



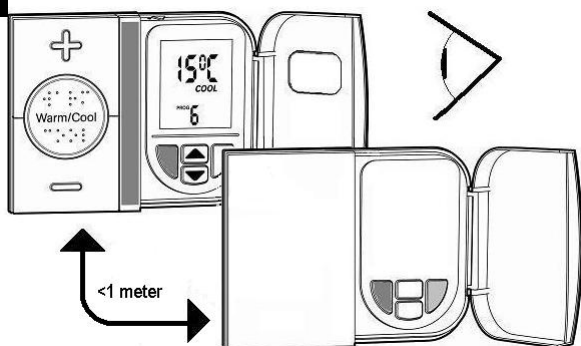
Switch on mains supply to the receiver. The LED on the receiver will flash red.

STEP 2



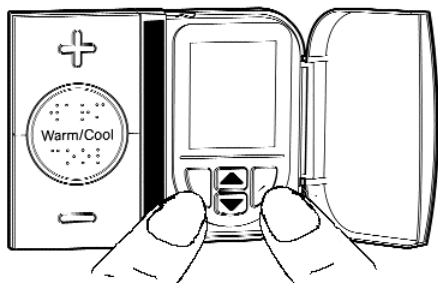
Remove the battery protection strip from the rear of the AS2-RF thermostat.

STEP 3



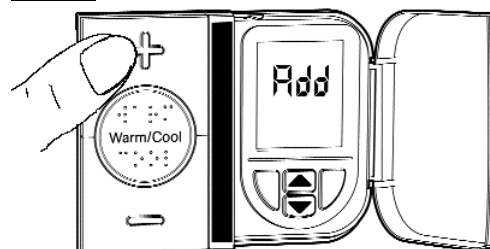
Place the AS2-RF in sight of the receiver, less than 1 metres for best results.

STEP 4



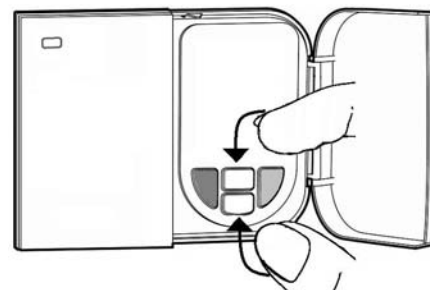
Press the two out-side buttons on the AS2-RF to enter installer mode.

STEP 5



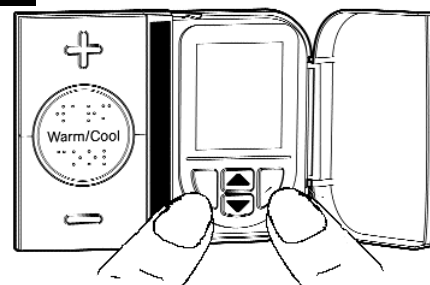
Press the '+' button down until the word 'Add' appears on the display.

STEP 6



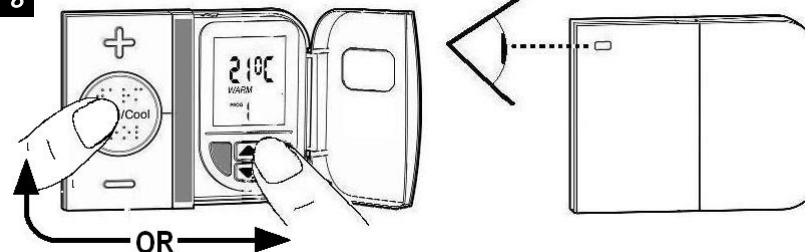
Under the flap of the receiver press the two white buttons simultaneously. The flashing red LED will change to flashing green and then go solid red, indicating a successful pairing. The AS2-RF will also give an audible signal

STEP 7



Press the two out-side buttons, coloured blue and grey, on the AS2-RF keypad to exit installer mode.

STEP 8



To test the RF connection use the 'Warm/Cool' button, changing from the warm to cool and vice versa, this will make the receiver indicator change from red(off) to green(on) etc.

Please note: If the ambient air temperature in the test area exceeds 21°C then the up and down buttons located on the keypad, under the flap, should be used as an alternative to the warm/cool buttons.