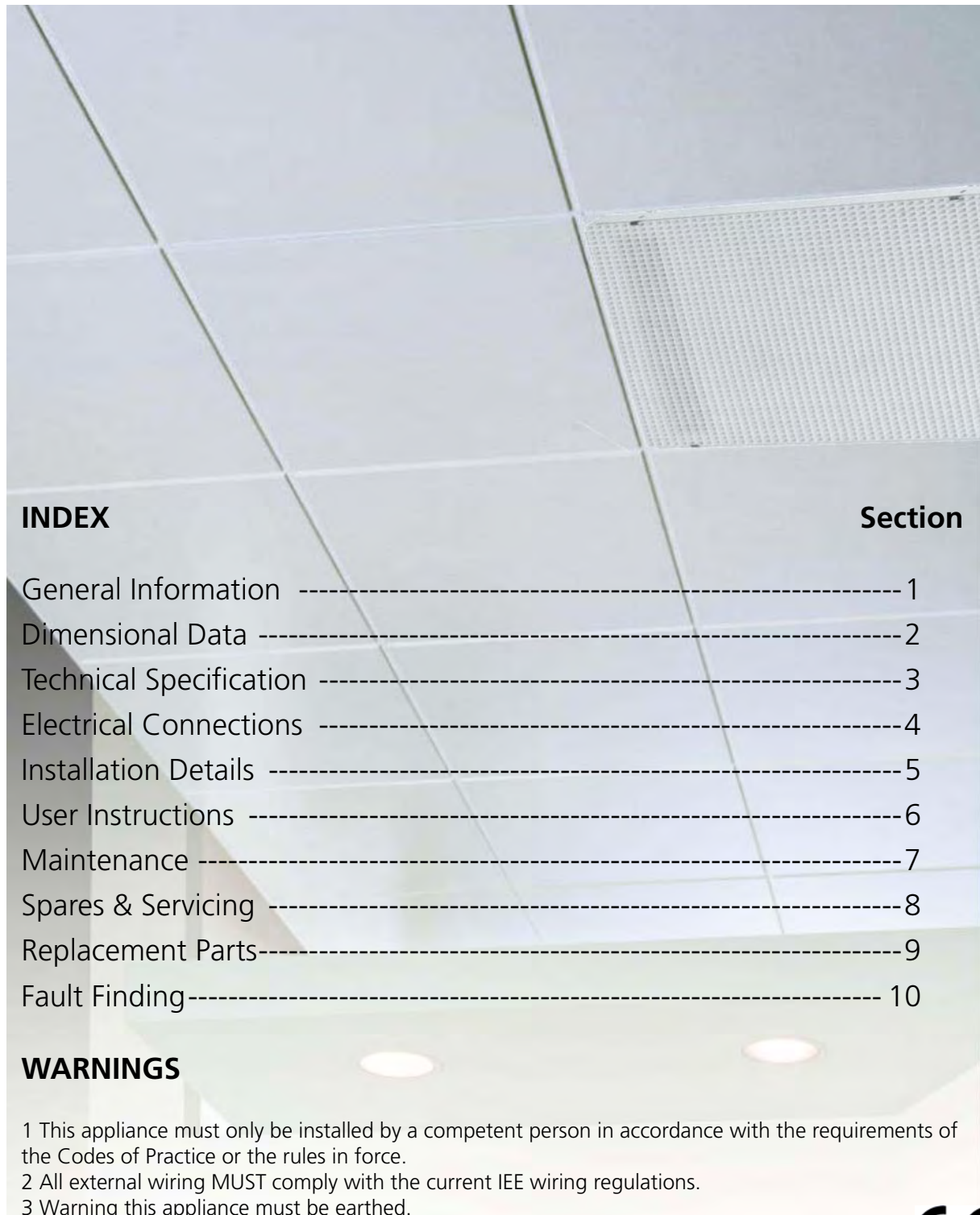


ACT-1 COMMERCIAL & RETAIL

RECESSED CEILING TILE HEATER &
SURFACE MOUNTED STOCKROOM HEATER

INSTALLATION AND OPERATING MANUAL



INDEX

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WARNINGS

- 1 This appliance must only be installed by a competent person in accordance with the requirements of the Codes of Practice or the rules in force.
- 2 All external wiring MUST comply with the current IEE wiring regulations.
- 3 Warning this appliance must be earthed.

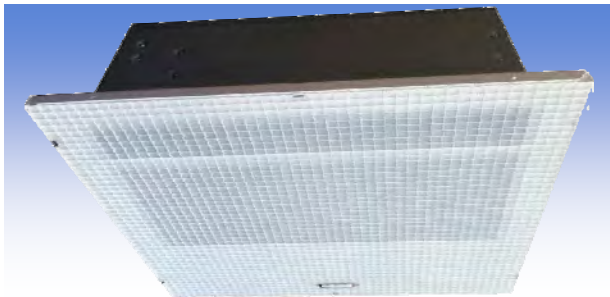
1. General Information.

1.1 Introduction

This instruction manual describes the Airbloc ACT -1 range of recessed ceiling tile and surface mounted stockroom heaters from 3-6kW.

The Airbloc ACT-1 range of electric heaters direct a down-flow of warm air from overhead, delivering immediate heat where required, rapidly creating a comfortable environment for staff and customers.

The Airbloc ACT-1 recessed ceiling heater is designed for discreet positioning in a suspended 600mm tiled ceiling. It is supplied complete with a remotely mounted control switch box, or wireless controller.



The Airbloc ACT-1 surface mounted ceiling heater is designed for suspension from a ceiling using threaded bar. It is supplied with stud bar mounting kit and painted enclosure.



1.2 General

All installations must be in accordance with the regulations in force in the country of use.

These instructions must be handed to the user on completion of the installation.

Installers and service engineers must be able to demonstrate competence and be suitably qualified in accordance with the regulations in force in the country of use.

To ensure continued and safe operation it is recommended that the appliance is serviced annually.

The manufacturer, offers a maintenance service. Details are available on request.

1.3 Electrical

This unit is suitable for connection to 230V 50Hz supplies. Maximum supply cable size is 4mm².

The appliance should be connected to the supply via an appropriate switched fused double pole isolator having a contact separation of 3mm or greater.

The connections between the heater and the remote control box are detailed in section 4 - Electrical Connections.

BMS control, time switches, room thermostats and door interlocks can be installed at the discretion and responsibility of the installer.

For safety reasons, a sound earth connection must be made to the unit before use.

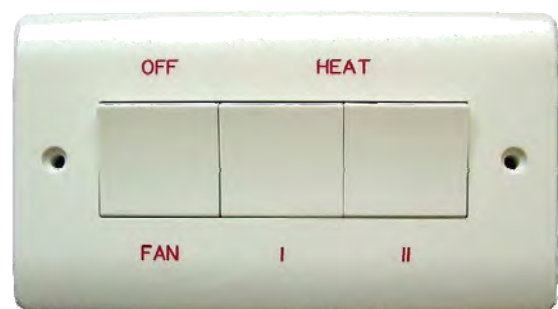
The unit should be wired in accordance with IEE regulations for Electrical Equipment of Buildings.

Warning

For safety reasons a good earth connection must ALWAYS be made to the heater and control box.

The ACT-1 is supplied with either a remote control box with 3 rocker switches, or an optional wireless controller. The switched versions give ambient airflow plus two heat switching options. The wireless versions provide variable heat control.

For further details please refer to section 6 - User Instructions in this manual.



3 way switch box



Wireless controller

1.4 Location

All units should be installed horizontally.

It is recommended that the recessed ceiling heater is installed within the ceiling void or roof space. The surface mount ceiling heater should be suspended from a solid surface via four 10mm drop rods.

Care must be taken to allow complete free air movement to the inlet grille of the unit to ensure correct operation.

If the ACT03-1/04-1 heaters are mounted close to the wall or corner, the discharge opening should face the wall with a minimum distance to the wall of 0.8m, or 1.2m for the ACT06-1.

1.5 Clearance distances

It is recommended that a minimum clearance of 50mm is allowed around the case and 30mm above the heater.

The clearance allows for cable entry and prevents combustible surfaces overheating.

Minimum mounting height (floor to grille) is:

2.2m - ACT03-1/ACT04-1

2.5m - ACT06-1.

The recommended mounting height is:

2.5m - ACT03-1/ACT04-1

3.0m - ACT06-1.

1.6 Standards

Units conform to the European electrical standard BS EN 60335-2-30

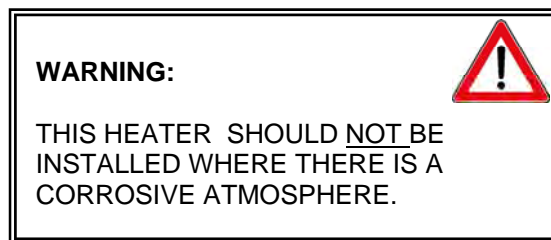
All must be wired in accordance with I.E.E regulations for the Electrical Equipment of Buildings.

1.7 Health and Safety

Sole liability rests with the installer to ensure that all site safety procedures are adhered to during installation.

Sole liability rests with the installer to ensure that personal protective equipment is used during installation of the product.

Do not rest anything, especially ladders, against the product.



2. Dimensional data.

Figure 1. ACT03-1/04-1 Recessed Ceiling Tile.

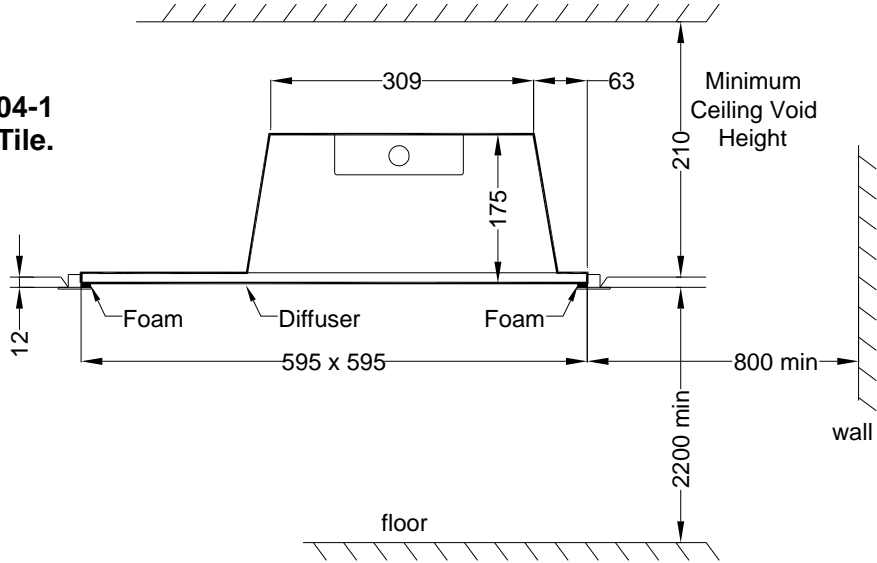


Figure 2. ACT06-1 Recessed Ceiling Tile.

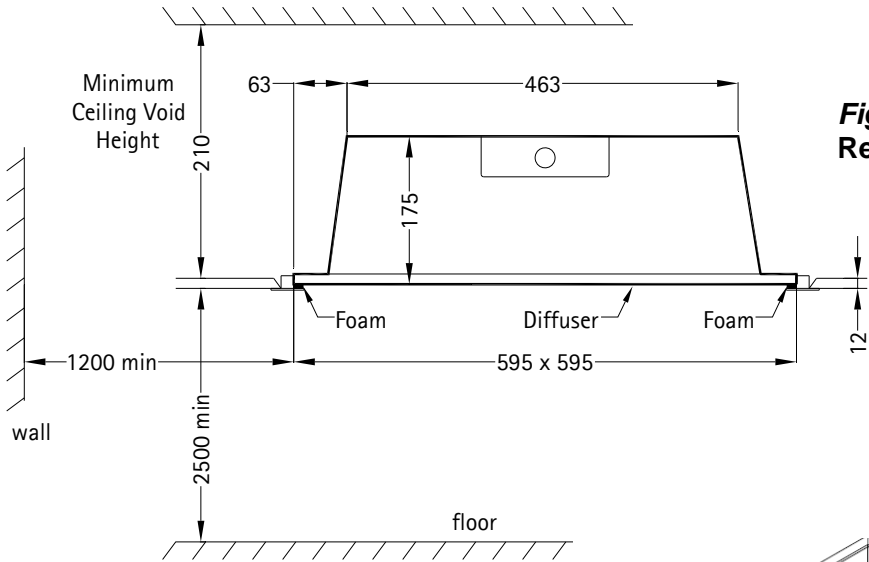
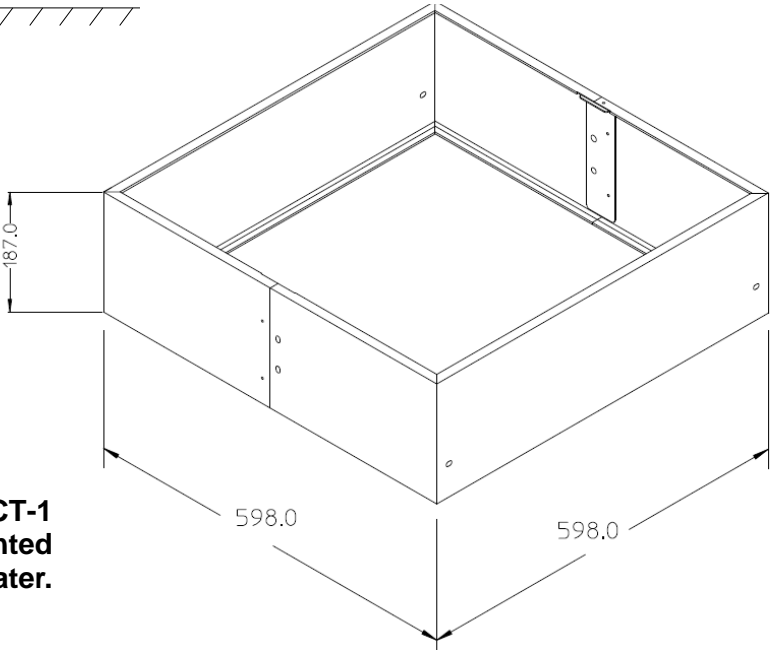


Figure 3. ACT-1 Surface Mounted Stockroom Heater.



3. Technical Specification.

		ACT03-1	ACT04-1	ACT06-1
General Data				
Recommended height	M	2.5	3.0	
Min/max height	M	2.2-3.0		2.5-3.5
Heat medium		Electrically heated		
Maximum heat capacity	kW	3.0	4.5	6.0
Heat setting (switchbox versions)	kW	1.0/2.0/3.0	1.5/3.0/4.5	2.0/4.0/6.0
Heat setting (wireless versions)		Variable		
Fan type		Crossflow		
Fan dia	mm	60		
Fan settings		1		
Air outlet		Fixed vent		
Switching type		Remote switchbox/Wireless controller		
Weight Recessed / Surface Mounted	kg	7 / 10		10 / 16
Electrical Data				
Maximum heat capacity	kW	3.0	4.5	6.0
Supply voltage		230V 1ph 50Hz		
Total load	amps	13	20	27
Cable size		2 x 2.5mm ² + E	2 x 4.0mm ² + E	
External fuse size amps	amps	16	25	32
Switch box wiring		2 x 2.5mm ² + E	2 x 4.0mm ² + E	
Mains terminal block position		Inside cover		
Control terminal block position		Inside cover		
Air Data				
Fan setting		1		
Airflow	l/s	50	60	120
Noise level	dBA	44	52	
Dims Data				
Length	mm	nom 600		
Depth	mm	nom 600		
Total Height (incl terminal box)	mm	175 (187 Surface Mounted)		

4. Electrical Connections.

These units are suitable for connection to 230V 50Hz supplies. Maximum supply cable size is 4mm².

The appliance should be connected to the supply via a switched fused double pole isolator having a contact separation of greater than 3mm.

The ACT-1 can be supplied with either a remote control switch box housing 3 rocker switches, or

an optional wireless controller.

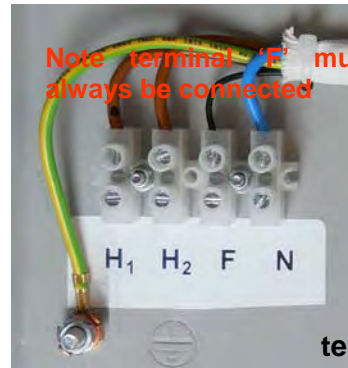
The mains supply can be fed either directly to the heater or the remote control box as per the following diagrams.

On switch box units, for thermostatic control, a room thermostat of appropriate switch rating maybe connected to the circuit. The thermostat should be wired between the isolator switch and

the heater remote switch.

For ACT04-1, ACT06-1 models or to control multiple ACT03-1 models by a thermostat, a contactor or a relay in conjunction with the thermostat should be used.

! If the heaters are to be controlled by means other than the remote switch supplied, eg BMS, then the heat output can be selected by connecting appropriate terminals shown in the table below.



- F - Fan
- H1 - Heat 1
- H2 - Heat 2
- N - Neutral
- E - Earth

Figure 4. ACT-1 Switchbox version terminal connections

Unit / Wire terminals	H1 + F + N	H2 + F + N	H1 + H2 + F + N
ACT03-1	1.0kW	2.0kW	3.0kW
ACT04-1	1.5kW	3.0kW	4.5kW
ACT06-1	2.0kW	4.0kW	6.0kW

fig 5. ACT03-1 electrical diagram, mains supply via remote switch

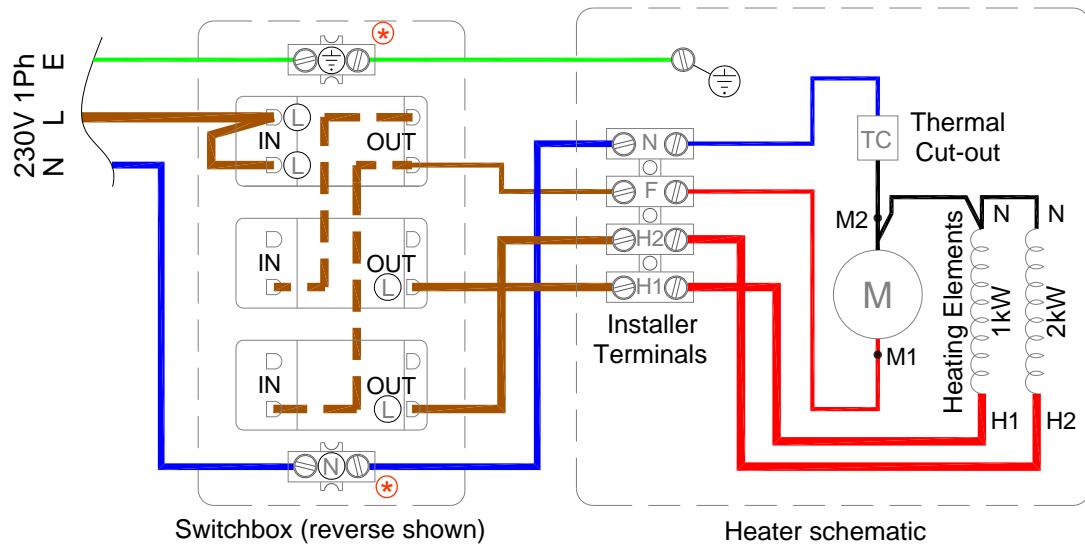
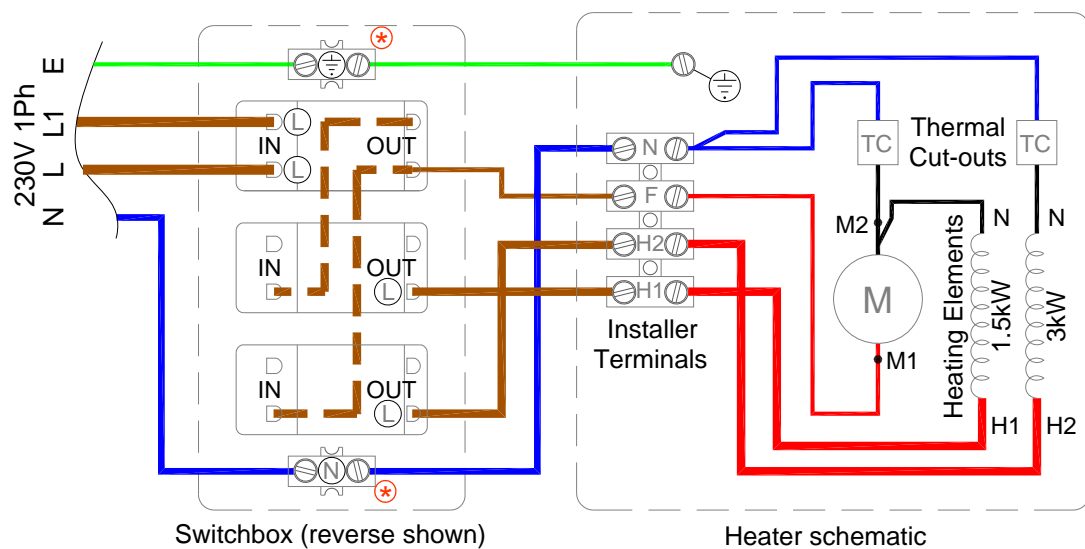


fig 6. ACT04-1 electrical diagram, mains supply via remote switch



⊕ denotes 30A, one way connector block

fig 7. ACT06-1 electrical diagram, mains supply via remote switch

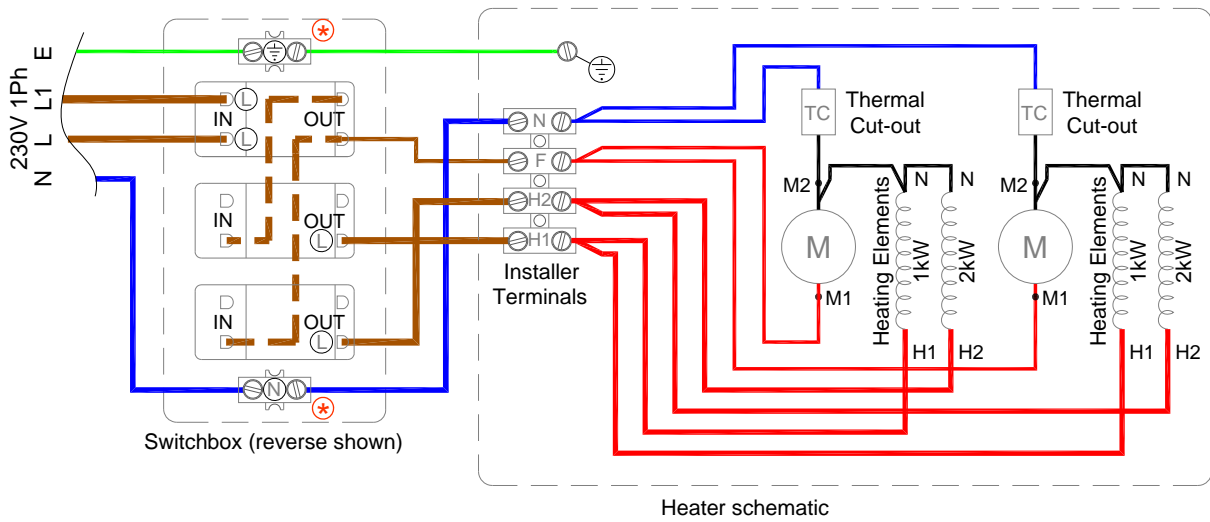


fig 8. ACT03-1 electrical diagram, mains supply direct to heater

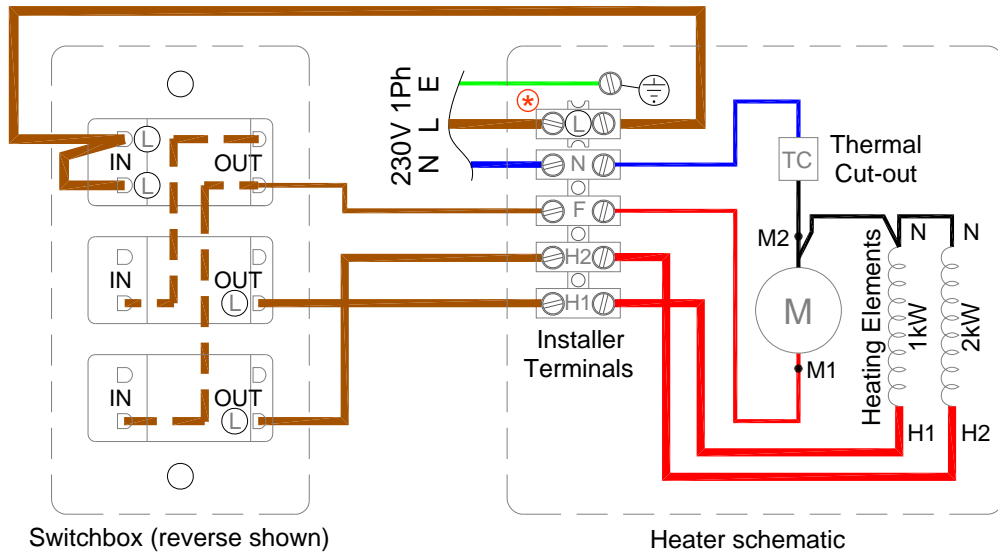
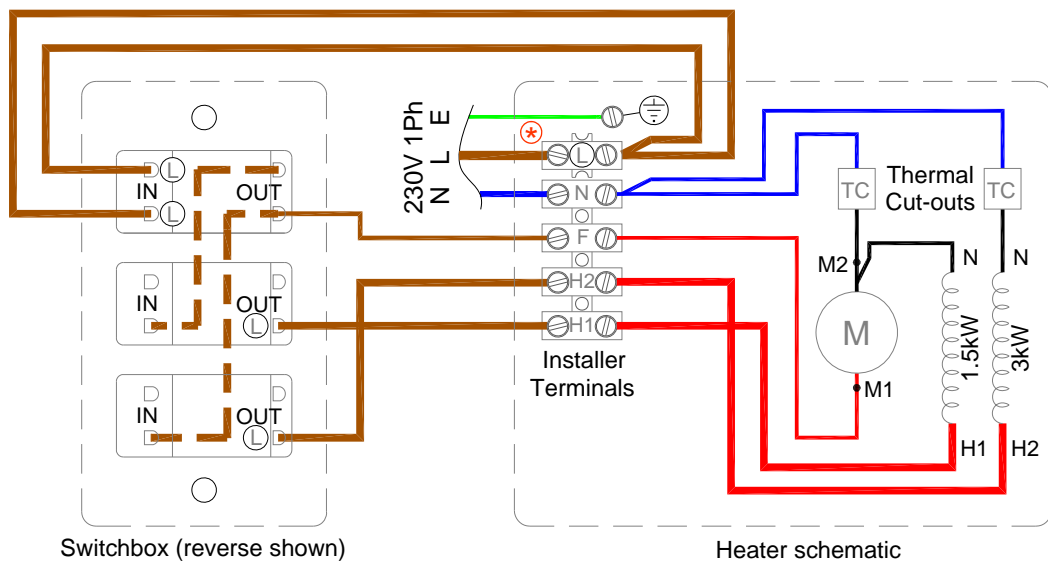
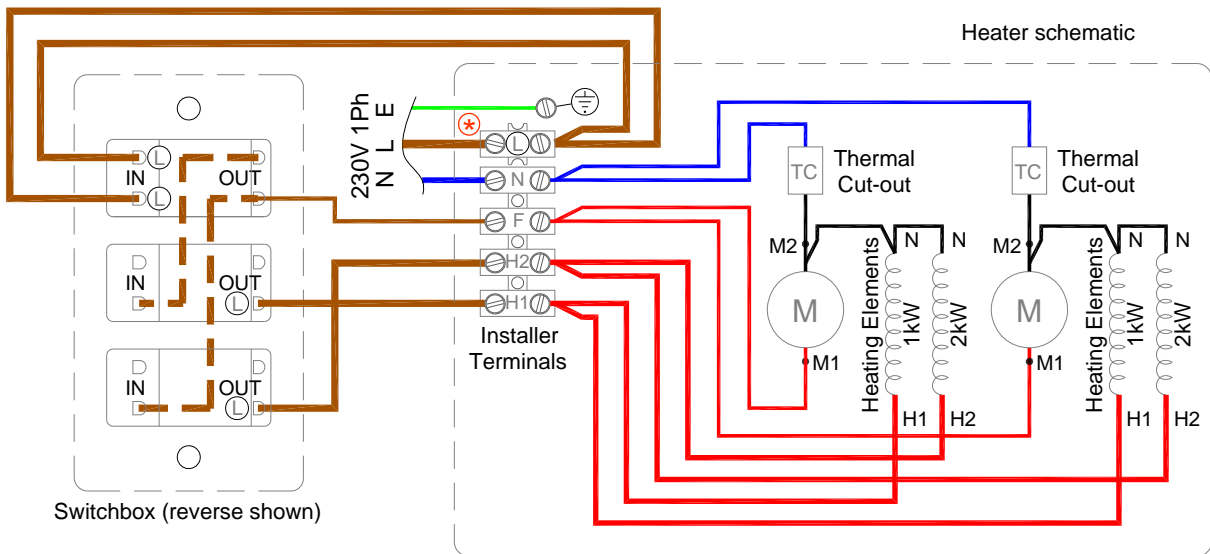


fig 9. ACT04-1 electrical diagram, mains supply direct to heater



⊕ denotes 30A, one way connector block

fig 10. ACT06-1 electrical diagram, mains supply direct to heater



⊛ denotes 30A, one way connector block

Important: Two independent live feeds must be used on ACT04-1 and ACT06-1 heaters as shown in the wiring diagrams.

Figure 2. ACT 03-1 3.0kW Wireless internal wiring.

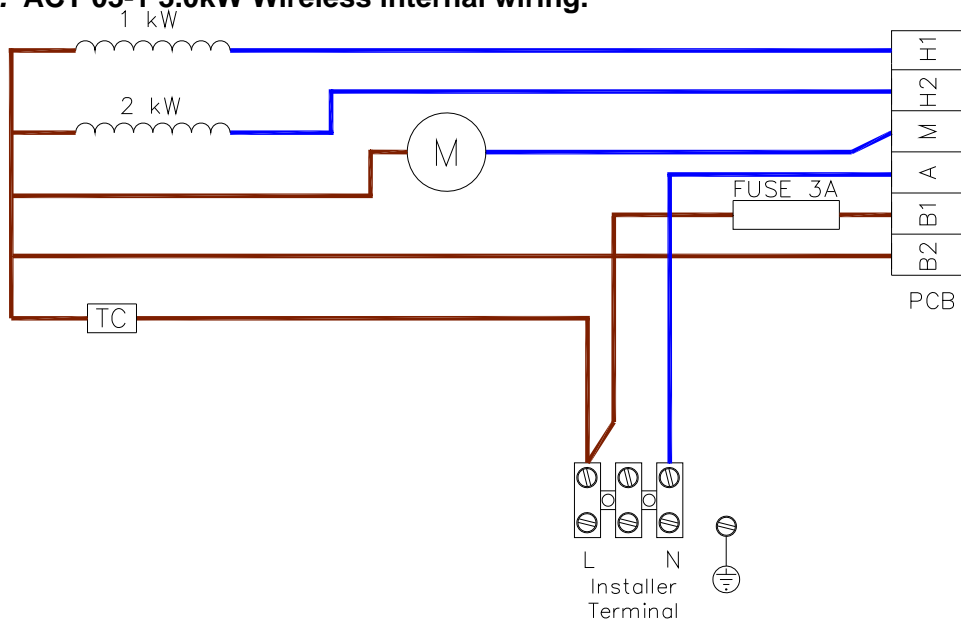


Figure 3. ACT 04-1 4.5kW Wireless internal wiring

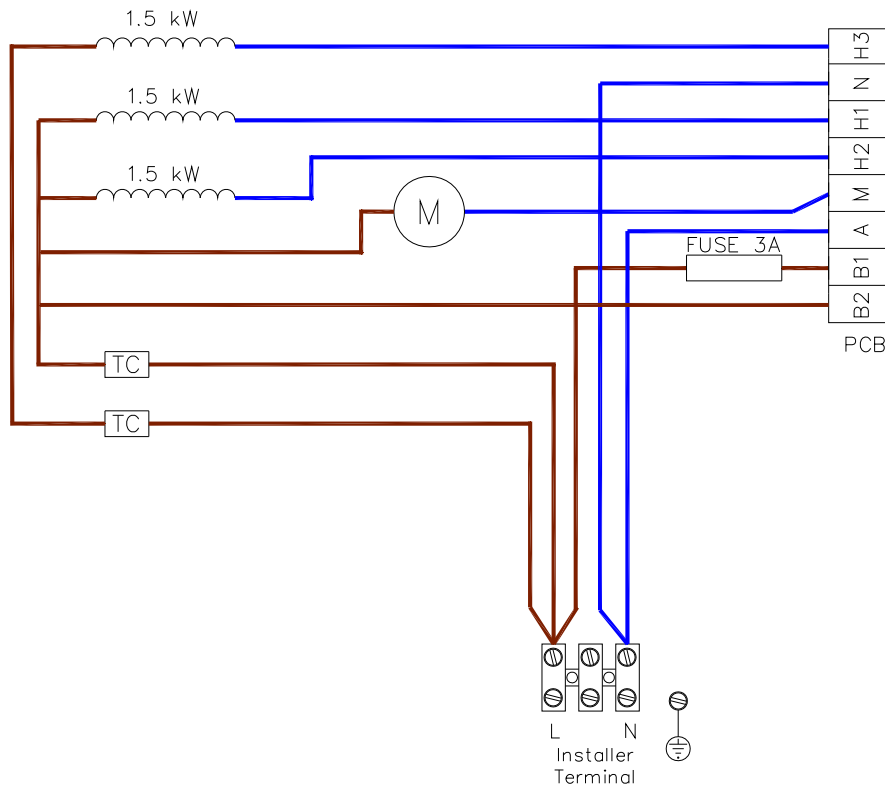
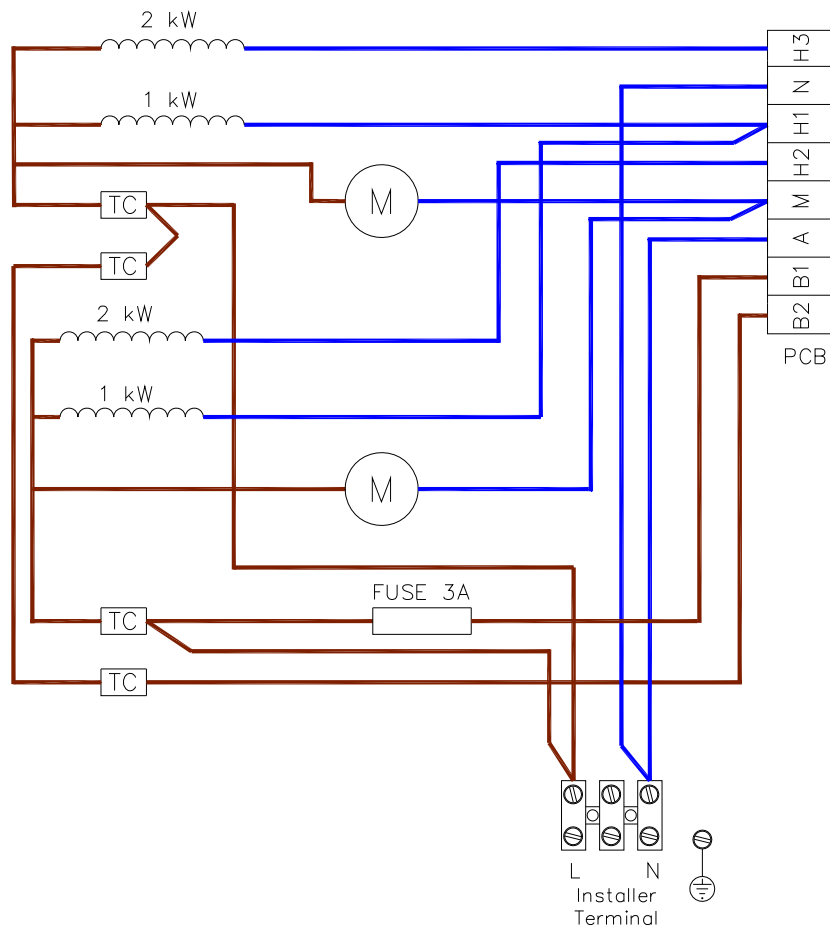


Figure 4. ACT 06-1 6.0kW Wireless internal wiring



5. Installation Details.

5.1 ACT-1 Recessed unit

The Airbloc ACT-1 recessed ceiling heaters are designed to fit in place of a standard 600mm ceiling panel.

! It is essential that the ceiling frame is adequately fixed to support the weight of the ACT-1 ceiling heater, or that the unit is individually supported.

There is a provision on the unit for chain or wire support or independent mounting.

**Weights: ACT03/04-1 7kg
ACT06-1 10kg**

It is the sole responsibility of the installer to ensure that the points of attachment to the building are

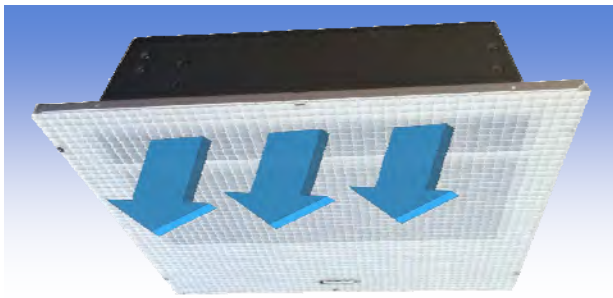


Figure 11. ACT03-1/ACT04-1 Air discharge

sound. Care must be taken to allow complete free air movement into the inlet grilles of the unit to ensure correct operation.

The unit is supplied with a length of self-adhesive foam strip. This can be cut into lengths and is to be laid on the 4 sides of the ceiling frame. This will ensure that the unit assembly is free from vibration.

The discharge grille and diffuser assembly can now be fitted into the ceiling frame.

! Ensure the air outlet is nearest the wall or corner of the room.

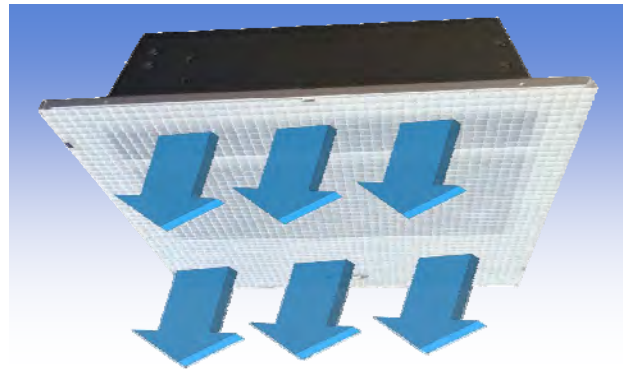


Figure 12. ACT06-1 Air discharge

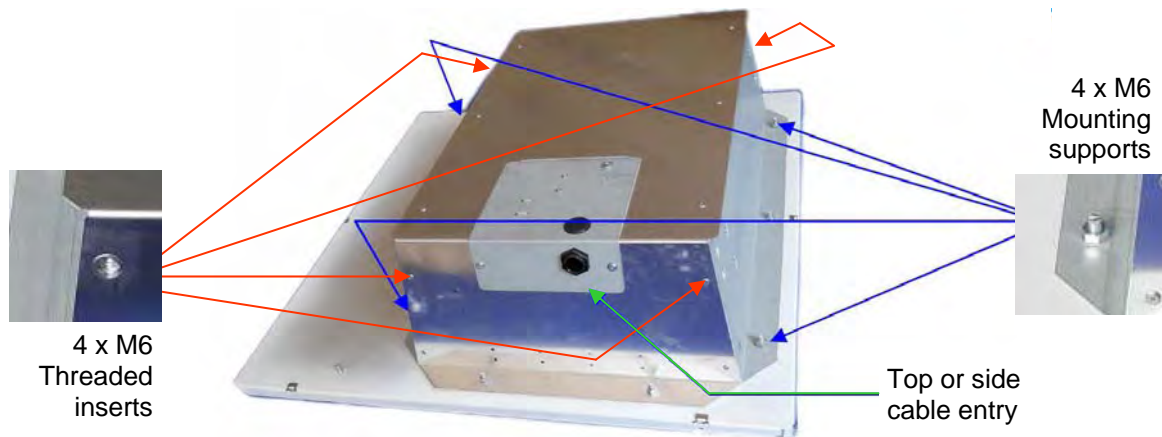


Figure 13. Mounting and installation views

5.2 ACT-1 Surface Mounted unit

The Airbloc ACT-1 surface mounted ceiling heater is designed for suspension from a ceiling using threaded bar.

**Weights: ACT03/04-1 12kg
ACT06-1 15kg**

It is the sole responsibility of the installer to ensure that the points of attachment to the building are sound. Care must be taken to allow complete free air movement into the inlet grilles of the unit to ensure correct operation.

The unit is supplied with a length of self-adhesive foam strip. This can be cut into lengths and is to be laid on the 4 sides of the bottom of the heater casing. This will ensure that the heater assembly is free from vibration.

A pair of machine screws hold each shroud half together at each joint. A machine screw secures each shroud half to each heater beam.

Remove these machine screws and slide each shroud half off the heater base panel.

Note: The base panel fits inside the shroud halves. The diffuser is already clipped into and under the base panel and need not be removed.

With the shroud removed the two heater beams reveal the holes/slots shown and dimensioned below. Two Ø10mm hanging rods (stud bars) are required to support each heater beam. The rods pass through and into each heater beam. Support washers together with nuts locate and lock the heater beams after adjustment to level the heater.

Replace shroud halves. Slide shrouds beneath and around base panel. Secure each shroud half to each heater beam with machine screws. Screw shroud halves together at each joint.

Ensure the air outlet is nearest the wall or corner of the room.

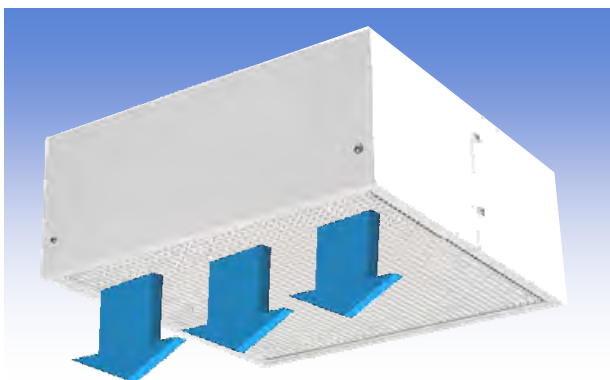


Figure 14. ACT03-1/ACT04-1 Air discharge

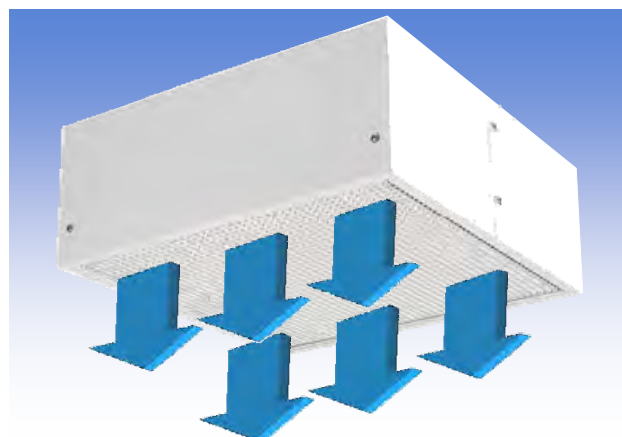


Figure 15. ACT06-1 Air discharge

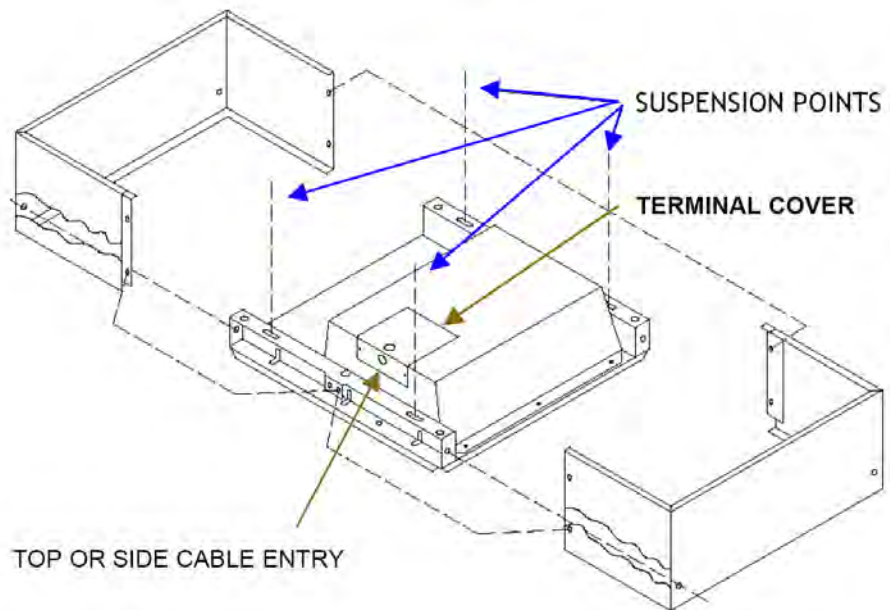


Figure 16. Mounting and installation views. Surface Mount

6. User Instructions.

6.1 Control

The remote control box houses 2 switches, a double pole and a single pole, and gives the following functions:

- Switch 'FAN' on = Off/Fan Only
- Switch 'I' on = $\frac{1}{3}$ Heat
- Switch 'II' on = $\frac{2}{3}$ Heat

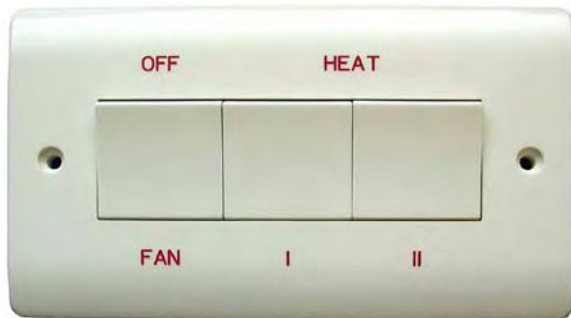


Figure 17. Remote Control Box

To switch on the appliance and operate the blower in Ambient mode, depress the left-hand switch (marked "FAN").

When the centre switch only (marked 'I') is depressed the heat output is $\frac{1}{3}$ of full heat. ACT03-1 = 1.0kW, ACT04-1 = 1.5kW, ACT06-1 = 2.0kW.

When the right hand switch only (marked 'II') is depressed the heat output is $\frac{2}{3}$ of full heat. ACT03-1 = 2.0kW, ACT04-1 = 3.0kW, ACT06-1 = 4.0kW.

When both the centre switch and the right-hand switch are depressed the full heat output is available. ACT03-1 = 3.0kW, ACT04-1 = 4.5kW, ACT06-1 = 6.0kW



Figure 18. Wireless controller

Wireless remote control

The controller is a wireless (433MHz) thermostat giving high precision room temperature control. It is also a seven day programmer with up to six temperature settings per day. Each controller can control any number of heaters.

Batteries

Remove the controller battery cover and insert 2 new high quality alkaline AA batteries.

WARNING

The manufacturer is not responsible for damage due to corrosion. Battery leakage will cause permanent damage. To help avoid this:

- Replace the batteries annually, even if there is not a low battery warning. Remove failing or flat batteries immediately.
- Always fit a pair of new high quality alkaline batteries from the same pack. Never mix new and old batteries, or batteries of different brands or types.
- Never attempt to revive alkaline batteries by heating, or recharging.

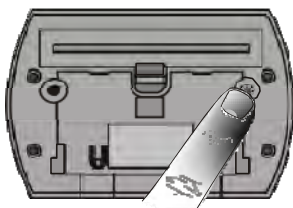
You must reset the clock after replacing the batteries, all other settings are unaffected.

Making wireless connection

This has to be done or the heater will not operate.

- Switch the heater's mains supply off.
- Switch it on for 3 seconds, then off again.
- Switch it back on. The green light on the heater should be flashing, if not repeat the procedure.

You now have half a minute to press the button on the back of the controller. Once pressed the light on the heater will stop flashing and possibly change to yellow or red depending on the controller settings and the room temperature.



Button on rear of controller


This should not need to be repeated unless more heaters are added to the controller.

Choose position in the room

The controller should be positioned on a wall in the same room as the heater.

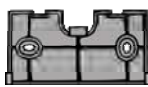
Avoid mounting in the following places:

- Draughty areas near windows, doors or vents.
- Near the heater itself or any other heat sources.
- In direct sunlight.
- Where it could be hit by a door.
- Where any moisture is present.

Before permanently fixing the controller in the chosen position then use ▲ to show power bars  (see quick adjust for more details).

Ensure heater turns on, if not consider another position.

Fixing controller to wall



Remove the wall plate from the rear of the controller and mark through the screw holes (60mm centres). Drill and plug the wall to accept No. 6 or 8 screws and mount the wall plate. Clip the controller back on to the wall plate.

Heater control light

The control light can show 3 colours which are:

- Green when no heat is needed.
- Yellow when some heat is needed to maintain room temperature.
- Red when the heater is on full power.

The controller sends a radio signal every minute. When the heater receives the signal, the light turns off briefly and may change colour. When the heater is switched on, the light is always green until the first signal.

A slow flashing green light (every 1.6 seconds) means that, for 5 minutes no radio signals have been received. Follow the steps in 'Making wireless connection' to fix this.

A fast flashing red light (every 0.5 seconds) means the heater has overheated. Make sure the air flow is not restricted, switch heater off and allow to cool before switching on again.

Manual Control

(heater not operated from controller)
To set manual control:

- If the heater is on, switch it off.
- Switch it on for three seconds then off again.
- Do this 5 times and your heater will be in manual control.
- To re-enable the controller, make a new

wireless connection as described earlier.

In manual control, simply switch the heater on and off at its mains supply.

Cleaning the controller

Clean the controller with a soft lint-free cloth. Avoid getting moisture on the buttons or openings. Do not use sprays, liquids or abrasives.

Engineers settings

Time, Day and Program

Displays current time and day. Prog shows current program step.

Holiday (no program)

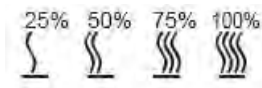
Switches the program off during holiday. Use ▲ ▼ to alter temperature. Choose - - - : no heating. 4°C : frost protection, or anything up to 12°C. These are set until


Timed boost

Press boost once to turn on for 15 min. Press again to add 15 min (up to 4 hrs. max). Use ▲ ▼ to adjust temperature. Boost ends when time elapsed or CLEAR is pressed.

Power and transmit signals

As the room reaches target temperature, heating is reduced from 100% (4 bars) to 0% (no bars).



The radio transmit symbol  appears when the controller transmits to the heater. This happens about once per minute.

Locking the controller

The controller can be locked to prevent tampering. When locked all buttons are disabled. HOLIDAY, BOOST, SET-BACK, ADVANCE, ▲ and ▼ are not displayed. To lock press SET-BACK and ADVANCE together, then press button on rear for 2 seconds. To unlock press SET-BACK and ADVANCE together, release them, then press button on rear within 2 seconds.

Quick adjust

Use ▲ ▼ to alter temperature. This reverts to set point in next program. If CLEAR is pressed it can be set to - - - : no heating, or anything between 4-30°C.

Continuous fan

If ▲ ▼ are pressed together the fan will operate regardless of the heat setting. This reverts to set point in next program or if CLEAR is pressed.

Advance

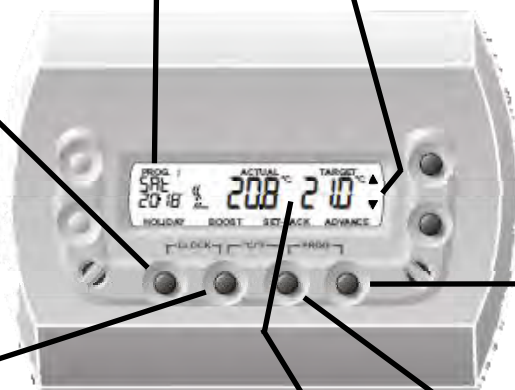
This brings forward the next program. Stays advanced until normal program time or CLEAR is pressed.

Set-back (economy)

The 7 day program continues to run, but temperatures, (except frost), are lowered by 5°C. Continues until CLEAR is pressed.

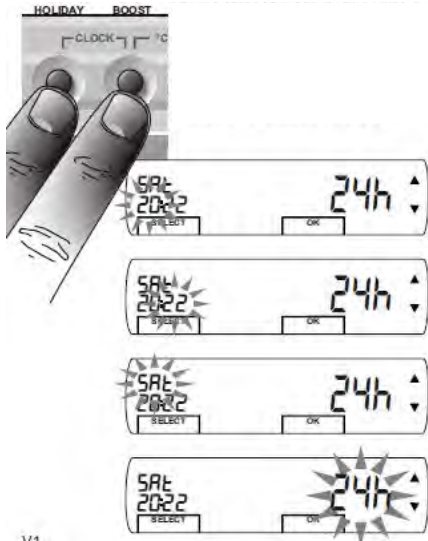
Actual and target temperatures

Actual is current room temperature, target is the desired temperature. Target is set manually or by the program and can be displayed as - - - when no heating required.



Setting the time and day

To set the clock press HOLIDAY and BOOST together. The hour will start to flash and can be adjusted with ▲ ▼ Using SELECT adjust minutes, day of the week or change between 24 and 12 hour clock. When finished press OK.



Celsius or Fahrenheit

Pressing BOOST and SET-BACK together changes actual and target temperatures from Celsius to Fahrenheit.



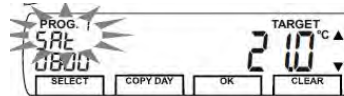
Setting the 7 day program

To set a program press SET-BACK and ADVANCE together. This will take you to stage 1 below. Program times cannot overlap.

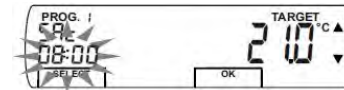
Note: should the unit accidentally lock while setting a program, see 'Locking the controller' section.



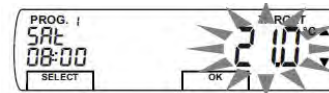
- 1) The program number and day will flash. Change using ▲ ▼ SELECT goes to stage 2.



- 2) The time flashes. Adjust using ▲ ▼ SELECT goes to stage 3.



- 3) The temperature flashes. Adjust using ▲ ▼ for room temperature, 4°C (frost protection) or - - - (no heating)



- 4) When programming has finished, press OK to return to normal operation.

Factory set program

Program	Mon to Fri	Sat and Sun
1	06:30 21.0°C	08:00 21.0°C
2	08:30 4.0°C	23:00 4.0°C
3	16:30 21.0°C	--:-- --:--
4	23:00 4.0°C	--:-- --:--
5	--:-- --:--	--:-- --:--
6	--:-- --:--	--:-- --:--

Each weekday is 21°C from 6.30 to 8.30am, then 4°C until 4.30pm, then 21°C until 11.00pm, then finally 4°C until program 1 on the next day. To restore this program press ▲ ▼ together during 'copy day' in 'Setting the 7 day program'.

Frost protection 4°C

Set target temperature to 4°C. For no frost protection set to - - -. The snowflake symbol appears if the actual temperature falls below 4°C.



Continuous fan

While temperature is flashing press ▲ ▼ together to choose continuous fan for current program.

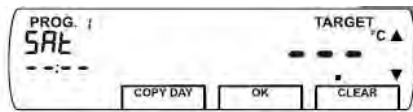
Manual operation

If all 6 programs in all 7 days are cleared, then the temperature control is done by 'Quick adjust'.

Clearing a program

From stage 1 press CLEAR to clear a program, or press again to un-clear a program.

A cleared program displays as --:-- , °C, and the program is ignored.



Copy day

This copies all 6 programs from the day being programmed to another day. Press COPY DAY to do the copy. CLEAR will return to stage 1.



7. Maintenance

! ALWAYS ENSURE THAT THE ELECTRICITY SUPPLY IS SWITCHED OFF BEFORE COMMENCING WORK ON THIS HEATER.

To obtain the best results from the heater, it is essential to avoid the accumulation of dust and dirt within the heater, or on the air inlet and discharge grilles. For this reason regular cleaning

is necessary, paying particular attention to the removal of dirt build up on the fan blades. Cleaning of the fan is best carried out with a soft brush.

A single drop of light oil should be applied to the motor bearing from time to time.

8. Spares & Servicing

It is essential when ordering spares or replacement parts to state the model number and the serial number on the rating label on the rear of the heater.

The heater should be serviced annually. The company offer a service facility, call 01384 489700. Servicing should be undertaken by a competent person.

Any repair or alteration carried out to this product whilst under warranty without prior authority will invalidate said warranty.

9. Replacement Parts

! ALWAYS ENSURE THAT THE ELECTRICITY SUPPLY IS SWITCHED OFF BEFORE REPLACING PARTS ON THIS HEATER.

9.1 TO REPLACE A FAN/HEATER ASSEMBLY

- Switch off the mains supply.
- Split and remove shroud (surface mount only).
- Remove the grille.
- Disconnect the internal wiring from the fan/heater assembly.
- Remove the four screws fixing the fan/heater assembly to the rear of the case.
- The fan/heater assembly can now be eased forward and removed from the heater case.
- Fit replacement unit and re-assemble in the reverse order.

9.2 TO REPLACE A SWITCH IN THE CONTROL BOX

- Switch off the mains supply.
- Remove the switch box cover.
- Disconnect the wiring to the switch.
- Remove the appropriate fixing screw(s) and push out the switch.
- Fit the replacement switch, reconnect the wiring and replace the cover.

10. Fault Finding

6.2 Protection

(Thermal cut-out)

The heaters are protected from overheating in the event of fan failure, or an obstruction of the airflow, by auto resetting self hold thermal cut-outs. If this happens the thermal cut-outs switch off mains power to the heater. The heater will not operate until it has cooled down. If this fault recurs, refer to 'fault conditions'.

NOTE: DO NOT COVER the air inlet or outlet grilles, at any time.

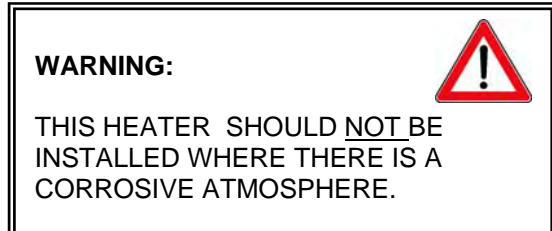
6.3 To reset the self hold cut-out

- The cut-out is reset by switching OFF mains power to the heater.
- Allow the heater to cool for 20 minutes.

Switch ON mains power to the heater. If the cut-out trips again, a qualified electrician should be consulted.

Fault conditions

If the heater will not operate, disconnect it from the mains and arrange for a certified electrician to attend to investigate the fault.





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