



SCREENZONE RECESSED WARM AIR CURTAINS

RAC0603	RAC0603RX
RAC0604	RAC0604RX
RAC1006	RAC1006RX

INSTALLATION AND OPERATING MANUAL

All electrical appliances produced by the Company are guaranteed for one year against faulty materials or workmanship. This applies only if the appliance has been used for purposes in accordance with the instructions provided and has not been connected to an unsuitable electricity supply, or subject to misuse, neglect, damage or modified or repaired by any person not authorised by us. This guarantee is offered to you as an extra benefit and does not affect your legal rights.

The correct electricity supply voltage is shown on the rating label attached to the appliance.

Reasonable care has been taken to ensure that this guide is accurate at the time of printing. In the interest of progress the Company reserve the right to vary specifications from time to time without notice.

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1. General Information

1.1 Warnings

All installations must be in accordance with the regulations. 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. To ensure continued and safe operation it is recommended that the appliance is serviced annually. The air curtain's outlet/inlet grille must not be obstructed during use. Any modifications made to the unit not approved by Consort will void manufacturer's warranty and potentially create a hazard. The appliance is NOT intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience or knowledge unless they have been given instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance. Parts of the air curtain can become very hot when in operation and cause burns. The air curtain is not suitable for spot heating in large rooms with a low ambient temperature.

1.2 Health and Safety

Please read these instructions thoroughly before installing the appliance. 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 protective safety wear such as hand, eye, ear and head protection is used during installation of the product. Ensure that all anchoring points are suitable for the weight of the appliance.

1.3 Location

The air curtains are designed for discreet positioning in a suspended ceiling or on a bulkhead in the doorways of retail or commercial premises. Overall energy saving is likely when the air curtain is sited above a frequently opened external door as the airstream can prevent heat loss. Will fit a recess as shallow as 195mm.



**THIS HEATER SHOULD NOT BE
INSTALLED WHERE THERE IS A
CORROSIVE ATMOSPHERE OR
EXCESSIVE DUST.**

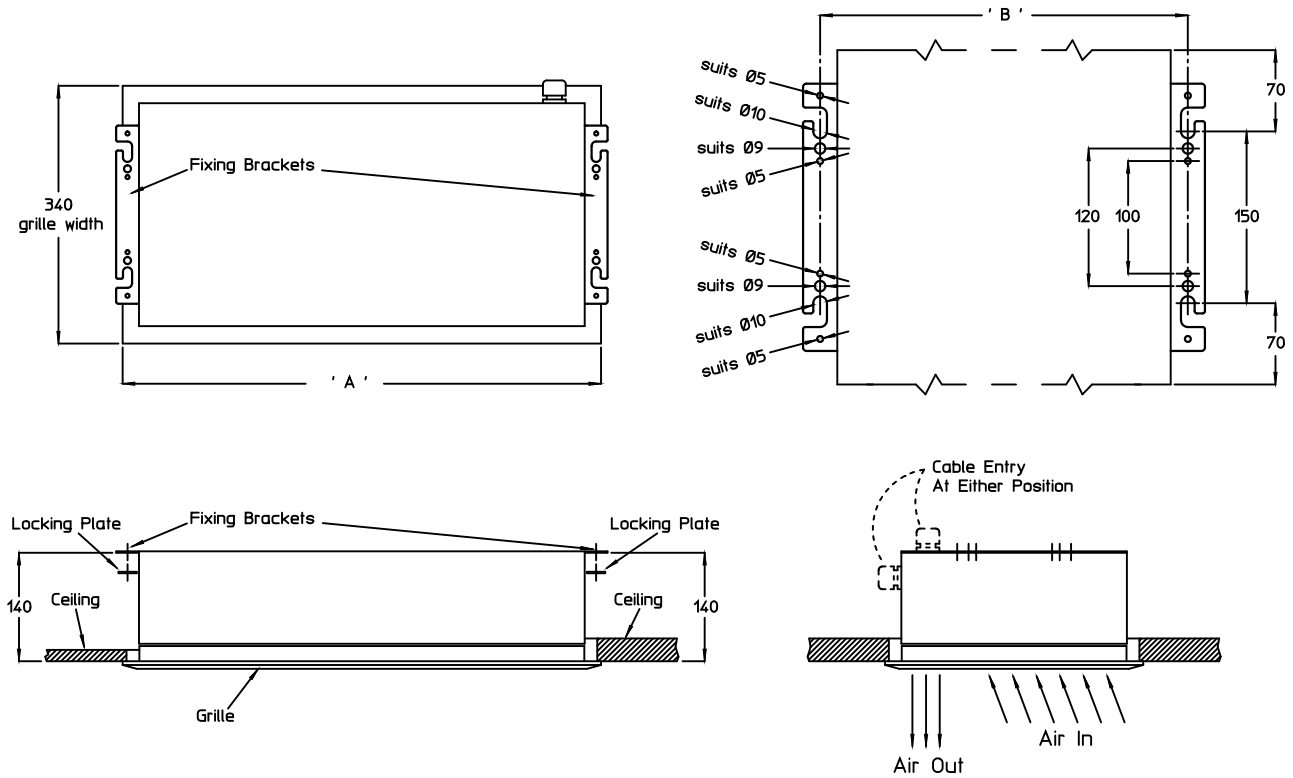


2. Dimensions

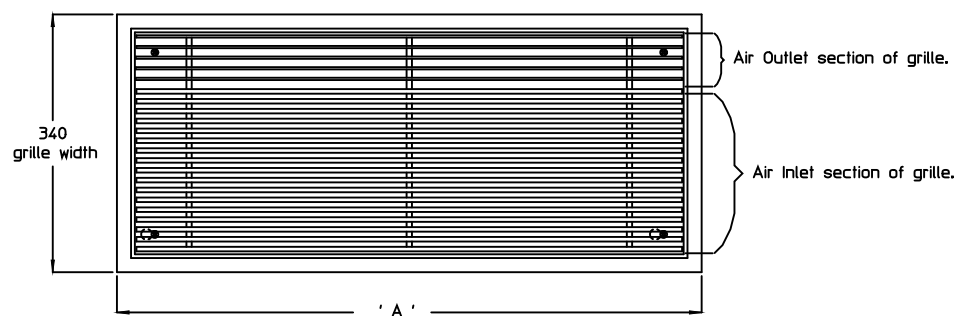
2.1 Air Curtain Dimensions

It is recommended that a minimum clearance of 100mm is allowed around the case and 55mm above. The clearance allows for cable entry and prevents combustible surfaces overheating.

The minimum mounting height (floor to grille) is 2m. The maximum mounting height is 3m.



DIMENSION	RAC0603	RAC0604	RAC1006
' A '	618	618	930
' B '	608	608	920



3. Installation Details

3.1 Mounting

All units should be installed horizontally directly over the door opening. It is recommended that the air curtain is installed on the inside of the building, within the open room space against a wall or ceiling.

Care must be taken to allow complete free air movement into the inlet grilles of the unit to ensure correct working operation of the air curtain. The discharge opening should be as close to the top of the door as possible and cover the entire door width.

Units can be mounted adjacent to each other to cover the full door opening across wider entrances.

The weight of the RAC0603 and RAC0604 is 8kg

The weight of the RAC1006 is 11.5kg

3.2 Electrical Installation

These units are suitable for connection to 230/240 Volt 50 Hz single phase supply.

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



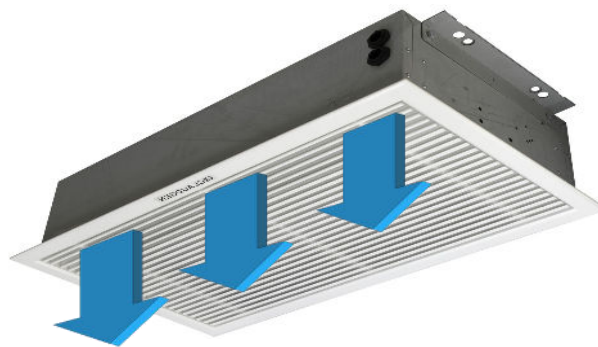
There are no exceptions.



For connection to the mains supply it will be necessary to remove the grille from the unit. It will be necessary to connect the mains supply and the lead from the controls prior to refitting the cover. Wire in accordance with wiring diagrams. Test for correct operation and refit the grille.

For safety reasons, a sound earth connection must always be made to the unit before it is put to use. The unit should be wired in accordance with IEE Regulations for the Electrical Equipment of Buildings.

Fig.1 RAC air outlet



ENSURE AIR OUTLET LOUVRES ARE NEAREST TO THE DOOR APPERTURE.

Fig.2 Ceiling cutout for RAC0603 and RAC0604

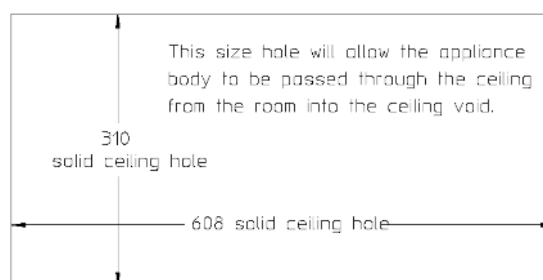


Fig.3 Ceiling cutout for RAC1006

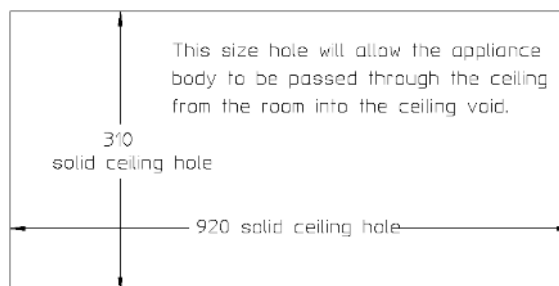
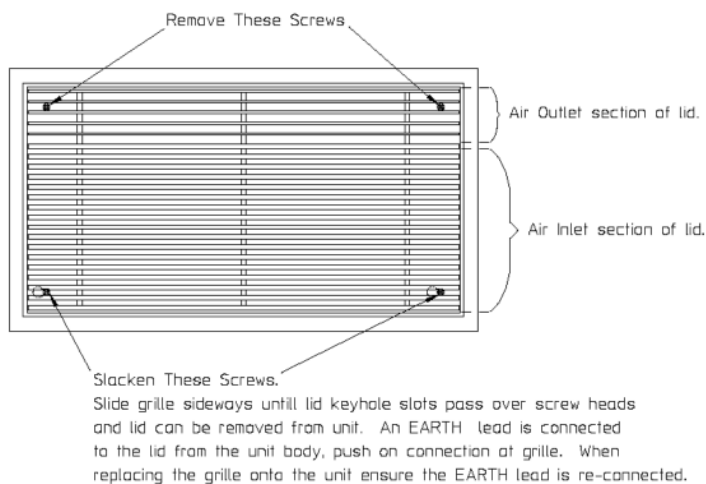


Fig.4 Grille fixings detail



3. Installation Details

3.3 Installation

It is the sole responsibility of the installer to ensure that the points of attachment to the building are sound. Consultation with the consultant/architect or owner of the building is recommended to ensure that a sound, mechanically stable installation is achieved.

Before fitting or wiring the air curtain, ensure the outlet is facing the doorway as on the (Fig.1) and see the general installation guidance notes.

Using a pozidrive screwdriver slacken the two M5 screws in the corners near air inlet side and remove the two M5 screws in opposite corner near the outlet. Slide the lid sideways until the keyhole slots pass over the screw heads. The grille assembly can now be removed from the case. (Fig 4)

Each unit has 2 fixing brackets from which it is suspended. The brackets may be removed to assist in passing the air curtain through the recess then reattached when in-situ.

Either drop rods or catenary wire can be used to fasten the air curtain to the ceiling support structure.

The height between the ceiling face and the top of the air curtain case needs to be adjusted to circa 140mm to enable the grille assembly to fit flush with the ceiling. Adjust accordingly.

After fitting the product in the ceiling recess and adjusting the height to ensure that the grille sits flush to the ceiling (when re-fitted) take the grille assembly and refit using the screws removed.

3.4 Electrical connections

With grille removed, connect the electrical supply and controls wiring to the appropriate terminals (see relevant wiring diagram section).

The unit has four holes for the cable entry, two on the top and two on the side. Cable entry may be moved to alternative position if desired (see Fig.9 drawing).

An **EARTH** lead is connected to the lid from the unit body via a push on connection at grille. When replacing the grille onto the unit ensure the **EARTH** lead is re-connected. (see Fig.8)

Electrical supply is 230/240V single phase, Neutral and Earth. The maximum cable inlet size is 4mm².

Fig.5 Fixing points



Fig.6 Wire fixing



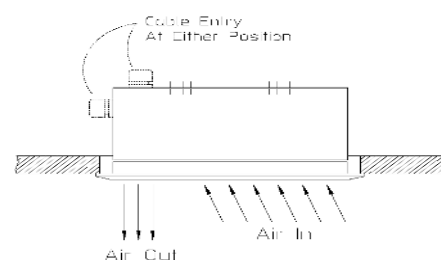
Fig.7 Rod fixing



Fig.8 Grille Earth lead



Fig.9 Cable entry position



4. Standard Model Air Curtains

4.1 Electrical connections for standard models

Fig.10 Mains supply direct to air curtain

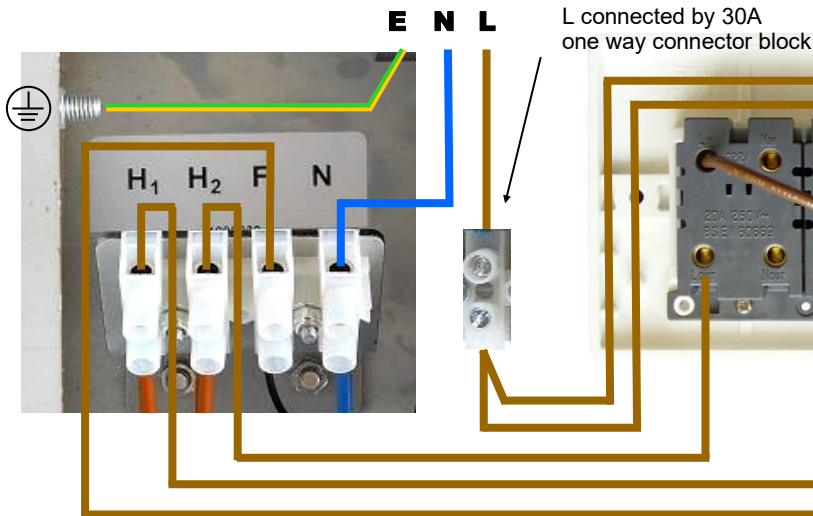


Fig.11 Remote switch terminal side view

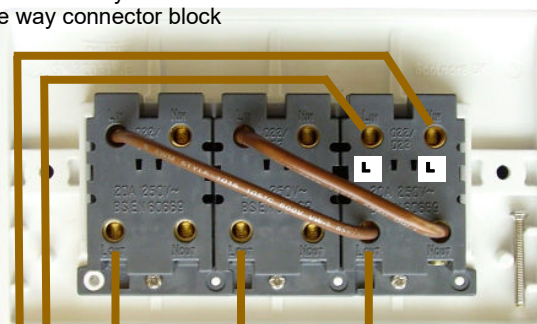
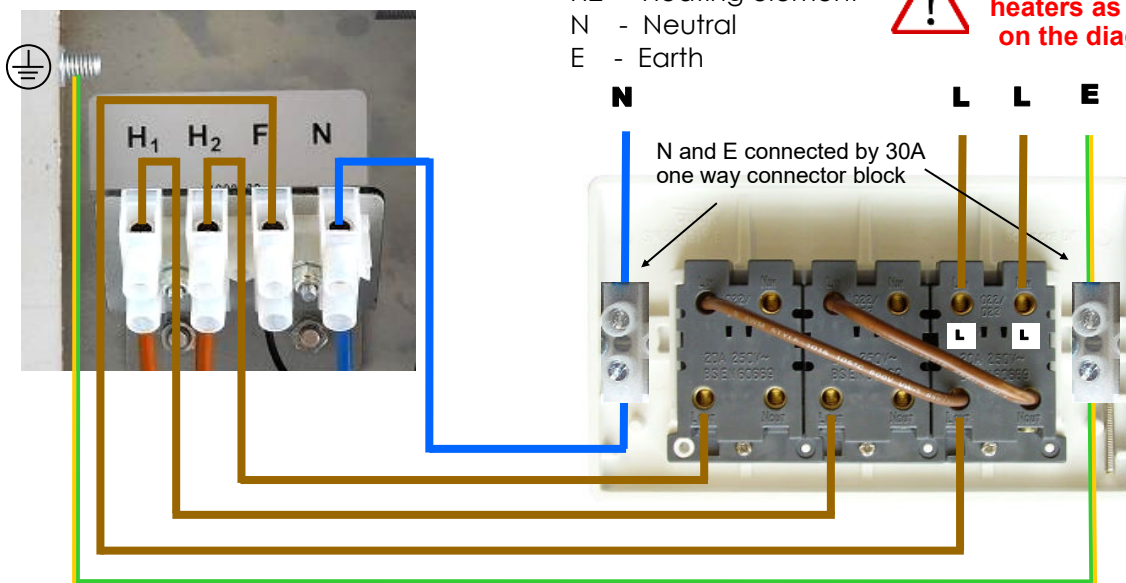


Fig.12 Mains supply via remote switch



4.2 Electrical connections without using the remote switch standard models

If the air curtains are to be controlled by means other than the remote switch supplied, e.g. BMS, then the heat output can be selected by connecting the appropriate terminals.

Fig.13 Wiring of the air curtains without using remote switch

WIRED TERMINALS	RAC0603	RAC0604	RAC1006
H1 + H2 + F	3000W	4500W	6000W
H1 + F	1000W	1500W	2000W
H2 + F	2000W	3000W	4000W

Please note the 'F' terminal must always be connected

4. Standard Model Air Curtains

4.3 Air Curtain Operation

WARNING



The standard model air curtains rely up on a circulation of relatively cool air to operate efficiently. If the air curtain is being used in a small space or where there isn't constant traffic through doors it is advised that an independent temperature control is fitted close to the air curtain to disable or reduce the heat output if the room temperature is too high.



Standard models

All standard RAC air curtains are supplied with a remote switch that gives the following functions; On/off, fan only and heat.



Fig.14 HE8407 remote switch

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 air curtain remote switch.

For RAC0604 and RAC1006, or to control more than one RAC0603 air curtains by a thermostat, a contactor or a relay in conjunction with the thermostat should be used.

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

When the centre switch only (marked with a single bar) is depressed the heat output is $\frac{1}{3}$ of full heat. RAC0603 - 1kW, RAC0604 - 1.5kW, RAC1006 - 2kW

When the right hand switch only (marked with a double bar) is depressed the heat output is $\frac{2}{3}$ of full heat. RAC0603 - 2kW, RAC0604 - 3kW, RAC1006 - 4kW

When both the centre switch and the right-hand switch are depressed the full heat output is available.

RAC0603 - 3kW, RAC0604 - 4.5kW, RAC1006 - 6kW

The RAC0604 has an additional operating feature protecting the air curtain from overheating. In the event of the temperature around the air curtain reaching excessive levels the air curtain will automatically reduce its heat output until the temperature in the air curtain reduces.

Controller standard models

The RAC0603, RAC0604, RAC1006 air curtains are supplied with a remote mechanical controller. The remote control unit houses 3 double pole 20A rocker switches.

The air curtain can also be controlled remotely via BMS or any controls with contact rated at 20A for RAC0603, RAC0604 and 30A for RAC1006.

The controller is wired to the base unit via an appropriate sized cable specified by the current IEE standard.

5. Wireless RX Model Air Curtains

5.1 Electrical Connections for Wireless Control Models

Fig.15 'L' and 'N' connections

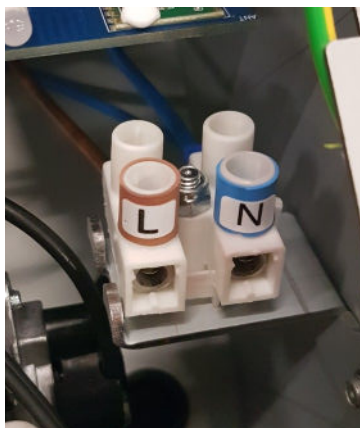


Fig.16 Earth connection



5. Wireless RX Model Air Curtains

5.2 Models for wireless controls

The wireless controlled models RAC0603RX, RAC0604RX and RAC1006RX can only be controlled by a CONSORT CRXSL or HRXSL.



The RX model air curtains will not work without a controller.



An RX controller is not supplied with the air curtains

Each controller has a unique identification code, it can control an unlimited number of air curtains in the same room and will not interfere with other controllers within the building. For more details, please follow the instructions supplied with the controller.

Fig.17 CRXSL & HRXSL wireless controllers



5.3 Status lights on RX models

The air curtain will display a status light depending on what the air curtain is doing. These are the options below.

Light colour	Heater status
	Heater is in stand-by mode/ not receiving signal from controller. Heater is ready for pairing with controller.
	Heater paired successfully - Solid Purple light for 5 seconds
	Half heat output
	Full power heat output
	Heater is in fan only mode
	If the LED is flashing white, there is a fault. The unit will continue to function in restricted mode. However, in specific circumstances, the unit will stop running.

5.4 RX Controller Location

It is essential the Controller is positioned in the same room as the air curtain. It should be where its temperature will not be changed by local effects. Avoid:

- Draughty places near windows or doors
- Places near the air curtain itself or any other heat sources in the room
- Places where the sun will shine directly on it
- Places where it may get wet

5.5 Pairing air curtain to controller

In order to pair the RX air curtains to a controller will require cycling the power to the air curtain then, depending on the controller in use, the pairing sequence buttons should be pressed within 20 seconds of cycling power.

Air curtains have to be paired with the controller otherwise they will not work.

1. Ensure controller is powered
2. Cycle power to the air curtain (wait until status light disappears before reenergising the air curtain)
3. Within 20 seconds of powering the air curtain, depending on controller; pressing the pairing button/buttons
4. The air curtain status light should display a purple light followed by red
5. Air curtain is now ready to use.

5.6 Noise Levels

The recorded noise levels are between 55-57 dBA Sound pressure levels dBA are measured at a 3m distance with a single air curtain mounted at its maximum mounting height, operating in a room with average acoustic characteristics as defined in CIBSE Guide B5 (reverberation time 0.7s at 1kHz) and a room size equivalent to 8 air changes per hour (ac/h).

The dB meter must not be in the direct airflow of the air curtain. Care needs to be taken when selecting air curtains for an installation as noise levels can be several dB higher if the mounting height is reduced, if the room is more 'live' (i.e. hard surfaces, no furnishings or absorbent materials), if the room is smaller than 8 ac/h equivalent or a combination of these factors.

Noise levels will also increase if more than one air curtain is installed at the same doorway (e.g. +3dBA for 2 equal point sources: direct field).

6. Servicing & Maintenance

6.1 Fault indication on RX models

Air curtains are equipped with electronic fault detection. In the event of a fault being detected, the air curtain will show the nature of the fault by a flashing status LED located at the front of the air curtain. The LED will flash one of the sequences as shown in the table below. The sequence is repeated every 5 seconds.

Number of flashes	Fault
1	<u>Overheating detected</u> If light is blue, heater has detected overheating and is cooling down. After 10 minutes, it will return to normal operation. If light is green, the thermal cutout has operated. Isolate power and allow heater to cool for 10 minutes.
2	<u>Temperature measurement fault</u> Cause: Faulty temperature sensor. Response: Will operate as normal. However, overheating protection will not work.
3	<u>Low power detected</u> Cause: low supply voltage, TOC tripped, blow fuse, faulty heating element, faulty PCB, power measurement fault. Response: Heater inoperative.
4	<u>Problem with motor</u> Cause: Faulty motor, RPM sensor fault, low supply voltage (following power-cut). Response: Heater inoperative.
5	<u>High power detected</u> Cause: Stuck relay, overvoltage. Response: Heater inoperative.
6	<u>Motor slow</u> Response: Heat reduced.

6.2 General

If the air curtain does not operate after switching on, then a suitably competent service engineer should be called to identify the nature of the fault. All Air Curtains are fitted thermal cut-outs and motor thermal protection. Other faults in relation to the element, motor and wiring should be identified using conventional fault finding techniques. In the event that electrical components are replaced, please ensure that electrical safety checks in accordance with the regulations in force in the country of use are undertaken.

6.3 Thermal and Fault Protection

The units are protected from overheating in the event of fan failure or an obstruction of the free airflow by thermal cut-outs.

If this happens, the thermal cut-outs effectively switch off the appliance by disconnecting power to the control circuit. The appliance will not operate until the thermal cut-outs have been disconnected from power; then allowed to cool for 15 minutes. This should be done by a competent electrician.

The air curtains are also protected by thermal fuses to prevent catastrophic failure. The thermal fuse will trip and disconnect power to the affected air curtain. Thermal fuses are not resettable.

THE CAUSE OF CUT-OUTS OPERATING SHOULD BE INVESTIGATED BEFORE RESETTING

6.4 Maintenance



To obtain the best results from the air curtain, it is essential to avoid the accumulation of dust and dirt within the unit 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 rotor blades.

Cleaning of the fan is best carried out with a soft brush. The product should be serviced annually. Servicing shall be undertaken by a competent person.

6.5 Replacing Air Curtain Fan Assembly

1. Remove the lid.
2. Disconnect the internal wiring from the main terminal block.
3. Remove the four nuts and washers fixing the fan air curtain assembly to the back of the case.
4. The fan air curtain assembly can now be eased forward and removed from the air curtain case.
5. Fit replacement fan air curtain and assemble in reverse order.

7. Wiring Diagrams, PCB & Air curtain Connections

7.1 Wiring Diagram - RX Models

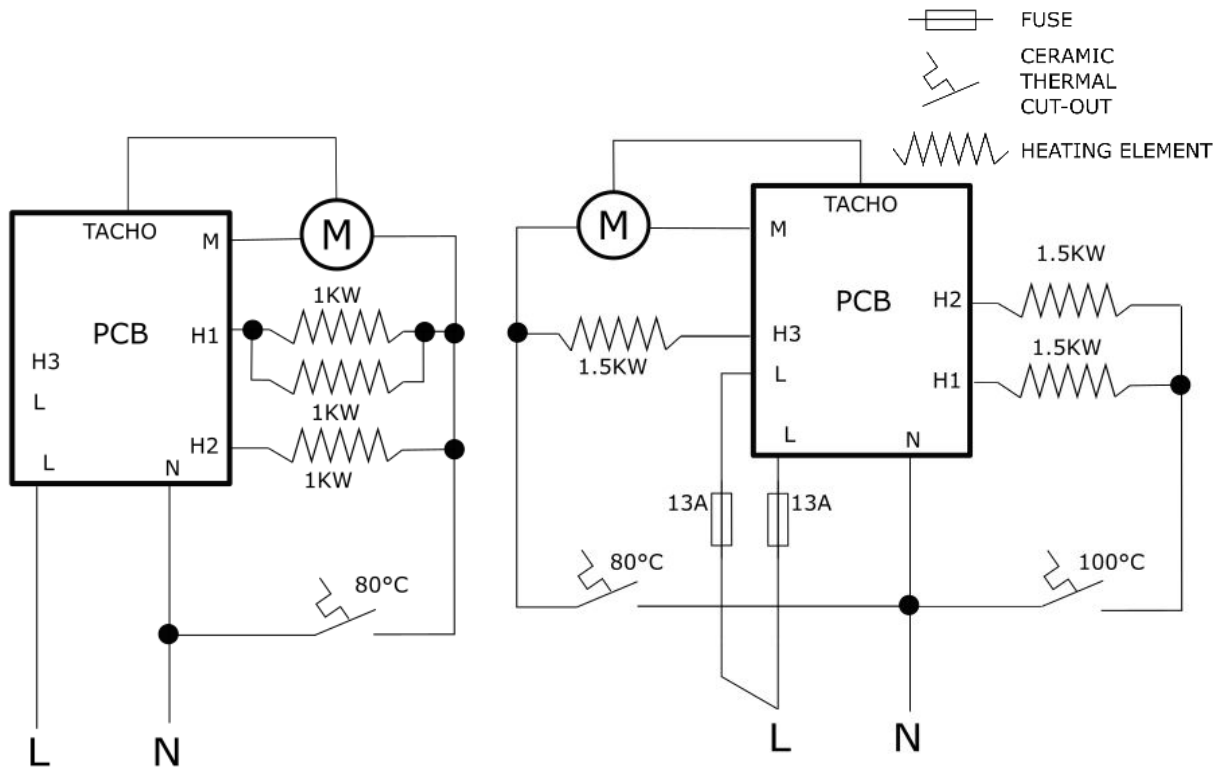


Fig 18. RAC0603RX

Fig 19. RAC0604RX

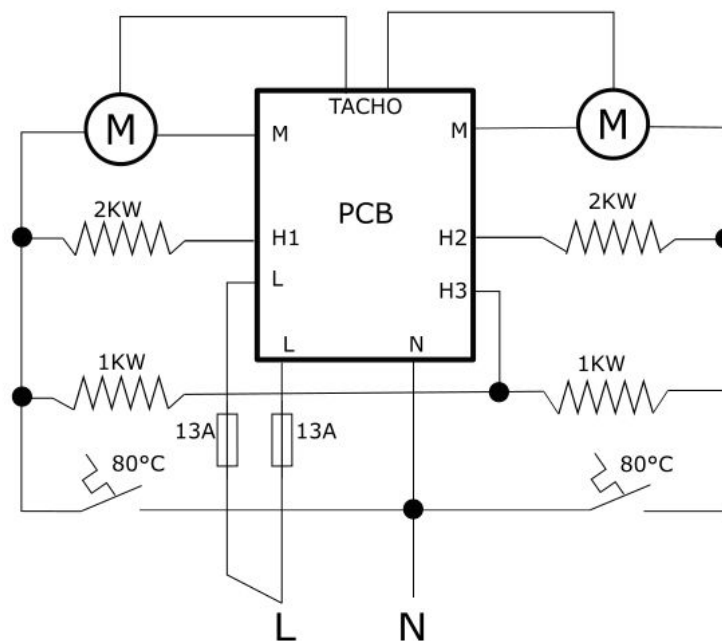


Fig 20. RAC1006RX

7. Wiring Diagrams, PCB & Air curtain Connections

7.2 Air curtain Connections - RX Models

Fig 22. RAC0603RX

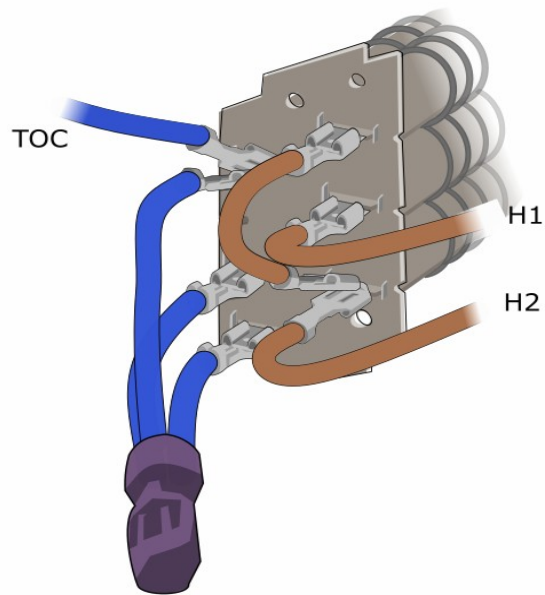


Fig 23. RAC0604RX

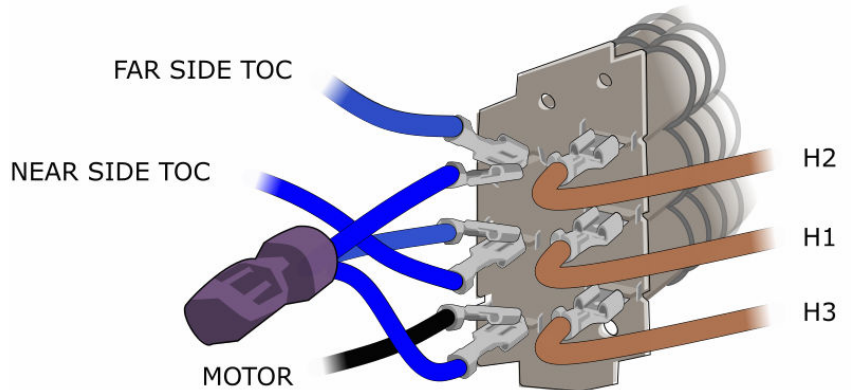
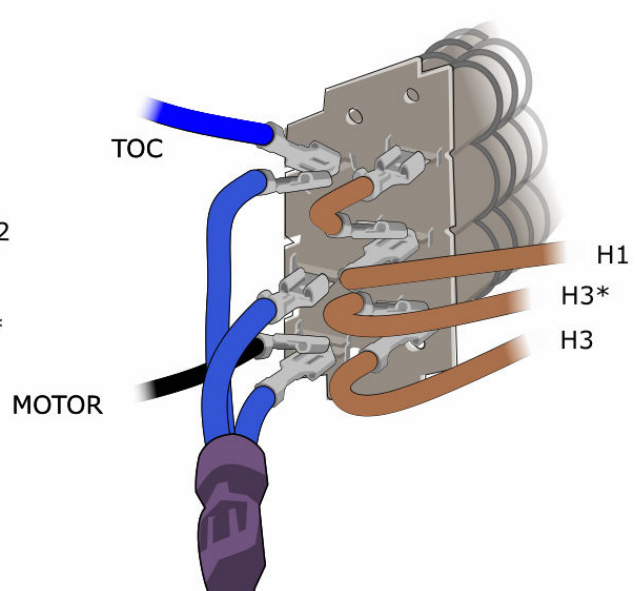
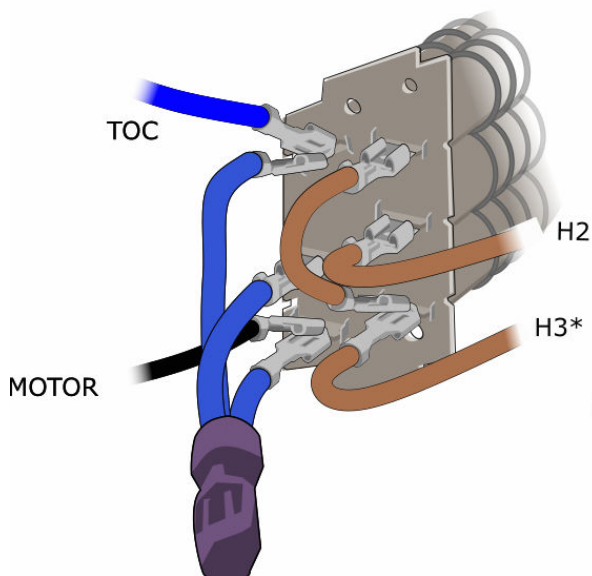


Fig 24 & 25. RAC1006RX

FAR SIDE FROM PCB

NEAR SIDE FROM PCB



7. Wiring Diagrams, PCB & Air curtain Connections

7.3 Wiring Diagram - Standard Models

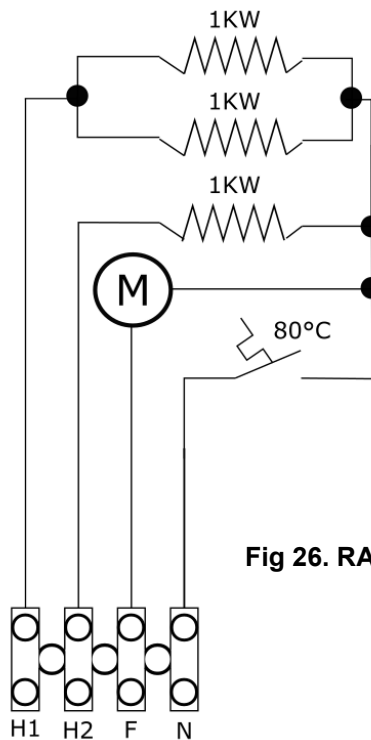


Fig 26. RAC0603

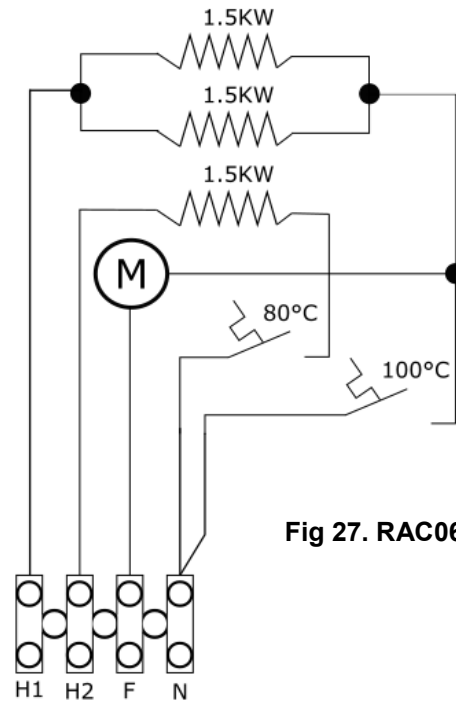


Fig 27. RAC0604

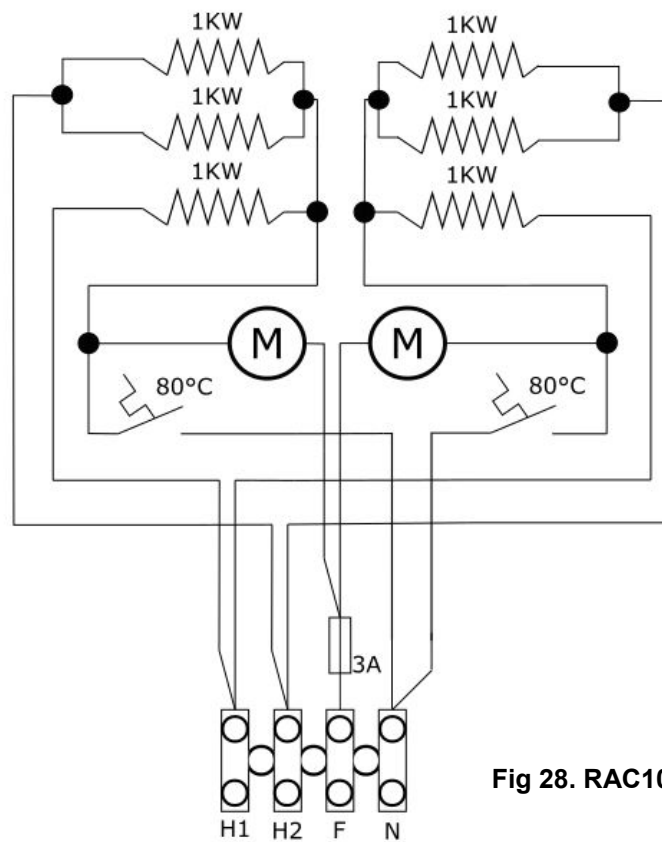


Fig 28. RAC1006

7. Wiring Diagrams, PCB & Air curtain Connections

7.4 Air curtain Connections - Standard Models

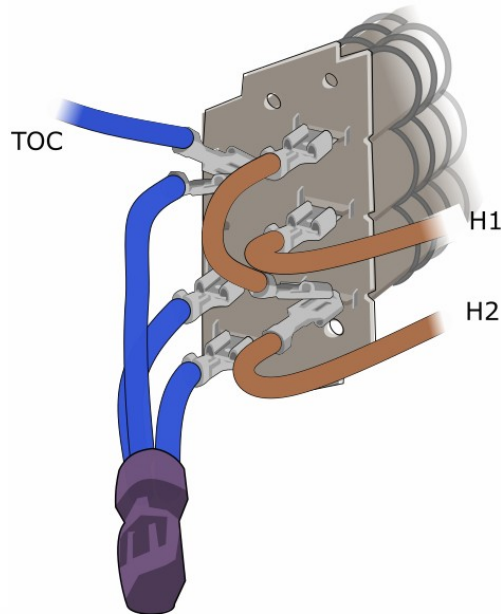


Fig.29. RAC0603

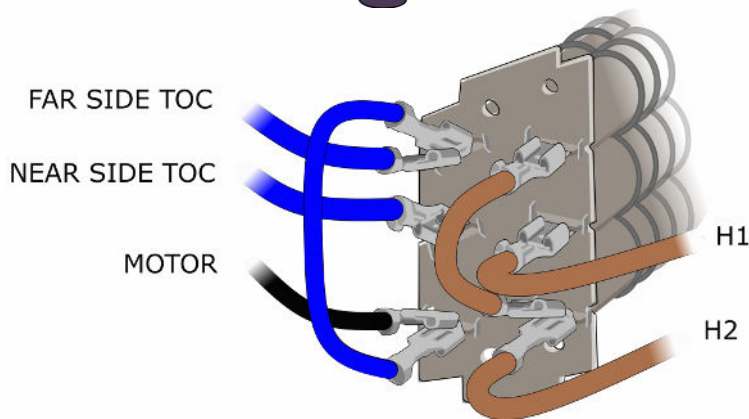


Fig.30. RAC0604

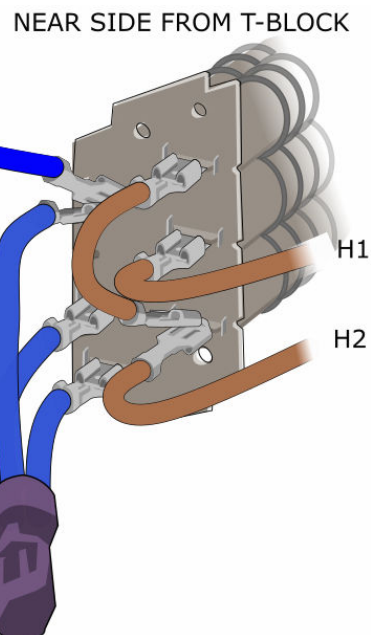
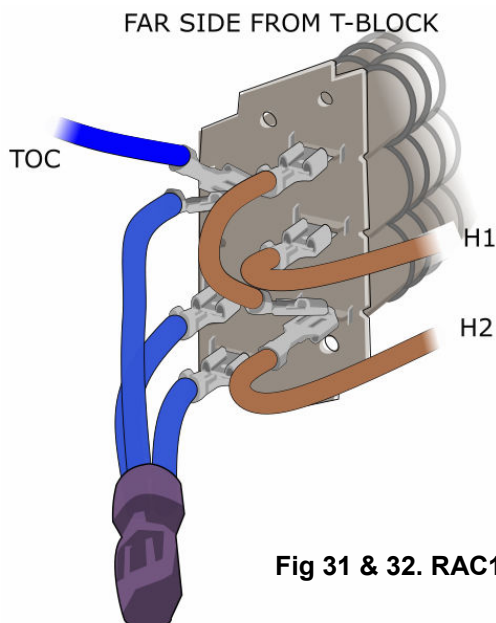


Fig 31 & 32. RAC1006

Declaration Of Conformity

In accordance with UK Government Guidance.
WE HEREBY CERTIFY THAT THE APPLIANCES DETAILED HEREON HAVE BEEN
INSPECTED AND TESTED, AND CONFORM TO THE REQUIREMENTS OF THE
FOLLOWING UK STATUTORY INSTRUMENTS WHERE APPLICABLE:

Electrical Equipment (Safety) Regulations 2016 SI. 2016 1101

Electromagnetic Compatibility Regulations 2016 SI. 2016 No. 1091

Radio Equipment Regulations 2017 SI. 2017 No. 1206

The Ecodesign for Energy Related Products and Energy Information (Amendment) (EU Exit) Regulations 2019. SI. 2010 2617

The Restriction of use of Certain Hazardous Substances. SI. 2012 No. 3032

The Waste Electrical and Electronic Equipment Regulations 2013. SI. 2013 No. 3113

Security Requirements for 'Connectable Products' PTSI Act 2022

The Product Security and Telecommunications Infrastructure (Security Requirements for Relevant Connectable Products) Regulations 2023

Transposed standards used:

- | | |
|---------------------------|--------------------------------------|
| • BS EN 55014 (2006) | • EN 50663 (2017) |
| • BS EN 301489.1 & .3 | • EN 60730-2-9 (2010) |
| • BS EN 300220.1 & .2 | • EN 60730-1 (2011) |
| • BS EN 60730.2.9 | • ETSI EN 300 220-1 V3.1.1 (2017-02) |
| • BS EN 60335.1 (2012) | • ETSI EN 300 220-2 V3.2.1 (2018-06) |
| • BS EN 60335.2.30 (2009) | • ETSI EN 301 489-1 V2.2.2 (2019) |
| • ETSI BS EN 303645 | • ETSI EN 301 489-3 V2.1.1 (2019) |

PART NUMBER AND DESCRIPTION OF APPLIANCE:

**RAC0603, RAC0604, RAC1006
RAC0603RX, RAC0604RX, RAC1006RX**

NAME OF RESPONSIBLE PERSON:

POSITION:

DATE:

DAVID O'SULLIVAN

OPERATIONS MANAGER

03/07/24



FM 12671

CONSORT EQUIPMENT PRODUCTS LTD.

THORNTON INDUSTRIAL ESTATE, MILFORD HAVEN, PEMBROKESHIRE, SA73 2RT. UK
TEL: +44 1646 692172 FAX: +44 1646 695195. E-MAIL: ENQUIRIES@CONSORTEPL.COM
WWW.CONSORTEPL.COM