Fault Finding

HRV 1.25, 1.35, 1.6, 1.75, 2, 2.75, 2.85, 3, 10, 10M, 10.25, 10.25M, 20 & H200 Units

‘HMB’ Models

Manufactured from Jan 2019 using Firmware Version FW0046 (see fig 5)

Vertical Units

Horizontal Unit

This document covers part numbers:-
TP401HMB, TP402HMB, TP404HMB, TP406HMB, TP407HMB, TP408HMB, TP409HMB TP440HMB, TP441HMB, TP442HMB, TP443HMB, TP451HMB, TP452HMB, TP453HMB & TP650HMB

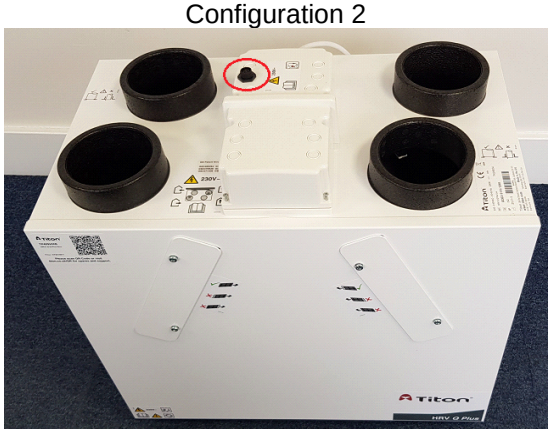
These units are supplied in two different configurations:-

1. With on board aura T controller (HRV 1.25, 1.35, 1.6, 1.75, 2, 2.85, 3, 10 & 10.25 only)
2. With the ability to connect an aura T controller, these units can be set up via the on board PCB or using an aura T controller

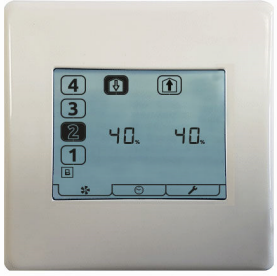
Configuration 1

1. On board Aura T (Controller Circled)

Configuration 2



2. Aura T Controller Connector (Connector Circled)



aura T Controller TP539

When the aura T starts up it will show ‘H’ an a series of numbers, this confirms the device has power and is running the correct software. The screen should then display as shown to the left, if this does not occur check the wiring.

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Caution - when looking at a unit without an on board controller or a plugged in controller, the unit may have been set up using the on board PCB controls or it may have been set with an aura T controller and the aura T controller has subsequently been removed.

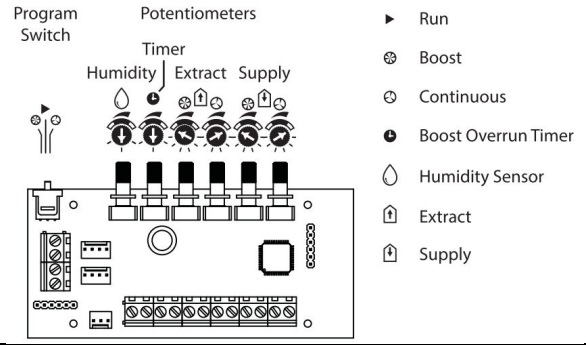
If this is the case it is not 100% possible to tell which method has been used. It is probable that if the potentiometers are at factory settings then the unit has been set up using an aura T controller.

If it has been set up with an aura T controller it will not be possible to determine all the settings unless they have been recorded in the manual left with the unit. In this situation fault finding should ideally be completed with an aura T controller connected.

It is possible to reset the unit to factory settings (see PCB reset), this will override all the aura T settings. Please note this may affect the switch inputs, meaning switches may have different functions.

DO NOT touch the program switch or potentiometers unless you are sure the unit has been set up this way

N.B. It is not possible to connect an Auralite and an aura T to a unit at the same time.



Factory Settings - Continuous at Minimum, Boost at Maximum, Overrun & Humidity at Half Way.

Contents

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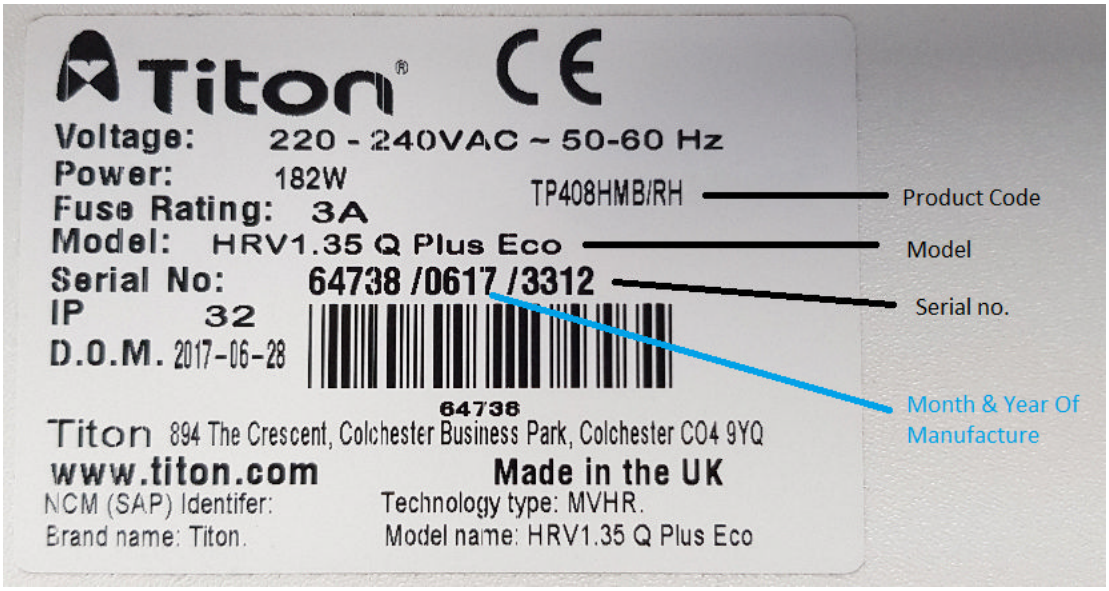
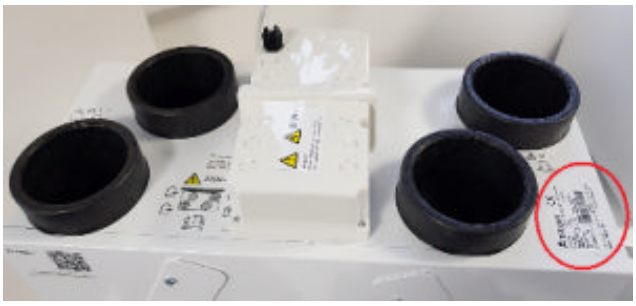
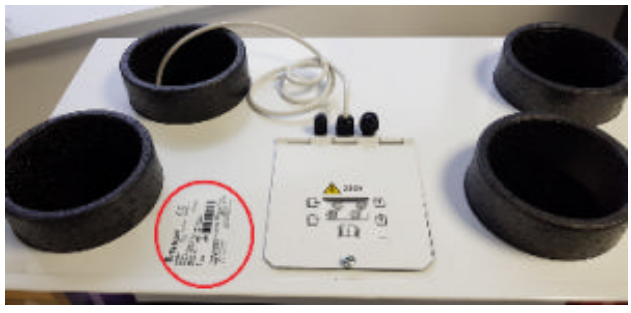
Identifying your product







All maintenance/fault finding/repairs must be completed by a competent person.

Safe isolation procedures must be followed when working on these units.

Product Features

Model	HRV1.25 Q plus	HRV 1.35 Q plus	HRV1.6 Q Plus	HRV1.75 Q plus	HRV2 Q plus	HRV2.85 Q plus	HRV3 Q plus	HRV10 Q plus	HRV10M Q plus	HRV10.25 Q plus	HRV10.25M Q Plus	H200 Q Plus			HRV20 Q Plus
Part Number	TP406HMB	TP408HMB	TP409HMB	TP404HMB	TP401HMB	TP407HMB	TP402HMB	TP440HMB	TP441HMB	TP442HMB	TP443HMB	TP451HMB	TP452HMB	TP453HMB	TP650HMB
Filter Covers	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Setback Speed 1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Continuous Speed 2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Boost Speed 3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Kitchen Overrun Timer	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Wet room Overrun Timer	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SummerBoost Speed 4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Summer Bypass	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Constant Volume Fans					●		●								
Ø100 & Ø125mm Ducting	●	●	●	●											
Ø125 & Ø150mm Ducting				●	●	●	●	●	●	●	●	●	●	●	●
Ø150mm Ducting												●			
Ø160mm Ducting													●		
204x60mm Ducting														●	
Ø200mm Ducting															●
Independent Adjustment of fans	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Automatic Frost Projection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Internal Humidity Sensor	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fan Speed display	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Temperature Display	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Status display	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Boost Alert	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Run Hours	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Manual Speed selection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fan Speed cloning	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Volt Free Switch Configuration	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Filter Change Alert	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Variable Filter Change Interval	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Manual Summer Bypass	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Fire Protection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Internal Frost Protection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Boost Inhibit Manual	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Error status	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Eco Mode	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Functions in RED are only available with aura T

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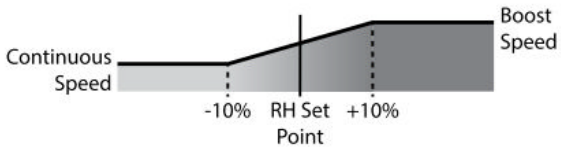
Integrated Humidity Sensor

Units are fitted with an Integrated Humidity Sensor. This continuously monitors the relative humidity (RH) of the extracted air. The fan speed increases proportionally between Continuous & Boost Speed depending on the measured %RH.



The Humidity Sensor's set point is variable from 55%RH to 85%RH and is configured using a potentiometer.

Filter Covers

Some units are fitted with removable filter covers on the front panel.

Setback Speed

Auto Setback Speed – Non aura T

Setback Speed is used to reduce ventilation rates. Setback Speed is automatically set at the mid point between minimum possible Continuous Speed and the selected Continuous Speed. The Setback Speed can be enabled by connection of a volt free one-way switch, or combined with the Boost Speed with the 3 position switch TP 508.

Setback Speed (1) – aura T

Setback Speed is generally used to reduce ventilation rates (can be set between 18-100%).

Continuous Speed

Continuous Speed is the normal continuous extract and supply air flow running speed of the units.

Boost Speed with Overrun Timer

Boost Speed with Overrun Timer - Non aura T

Boost Speed increases the extract and supply air flow. Boost Speed is configured with Step-less independent fan controls and includes an Overrun Timer variable between 0 and 60 minutes. The Boost Speed can be triggered by any device which provides a volt free one-way switch, such as a PIR, thermostat, humidistat or a standard one-way switch. If the unit is left Boost (latching switch) for longer than 2 hours the Overrun Timer is disabled meaning the HRV will return to Continuous Speed as soon as the switch holding the unit in Boost is released.

Boost Speed (3) with Overrun Timer - aura T

Boost Speed increases the extract and supply air flow. The Boost Speed can be triggered by any device which provides a volt free one-way switch, such as a PIR, thermostat, humidistat or a standard one-way switch. If the unit is left in Boost (latching switch) for longer than 2 hours the Overrun Timer is disabled meaning the HRV will return to Continuous Speed as soon as the switch holding the unit in Boost is released. Overrun can be set separately for Kitchens & Wet Rooms. Default overrun is for the kitchen.

Kitchen Overrun Timer

Overrun can be set between 0 and 60 mins.

Wet Room Overrun Timer

Overrun can be set between 0 and 60 mins

Summer Bypass

Summer Bypass is designed to operate during hot periods where fresh air can be vented straight into the property without being preheated by the extracted stale air. Summer Bypass operation is automatically controlled. The Summer Bypass mechanism diverts the stale air being extracted from the dwelling around the heat cell so that its heat energy is not transferred to the fresh air being supplied to the property. N.B. aura T can change the SummerBypass trigger temperatures

SUMMERboost®

SUMMERboost® - Non aura T – 100% fan speed

An optional SUMMERboost® facility is available that allows both the supply and extract fans to run at full speed whenever the Summer Bypass is activated.
By default SUMMERboost® is disabled by a Link Wire, see Wiring Diagrams.
Removal of the link wire will enable SUMMERboost®.

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When SUMMERboost® is trigged by Summer Bypass the increased fan speed can be prevented either Manually or Automatically.
Manual - This is by means of a volt-free switch wired directly into the controller PCB.
Automatic - This is by means of a dedicated wall mounted room thermostat. SUMMERboost® will only operate when the temperature has exceeded the thermostat setting. Should the room temperature fall below the thermostat setting, then SUMMERboost® will not operate.

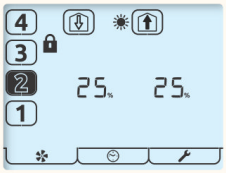
SUMMERboost® Speed (4) - aura T – 18-100% fan speed

An optional SUMMERboost® facility is available that allows both the supply and extract fans to run at full speed whenever the Summer Bypass is activated.
By default SUMMERboost® is disabled by a Link Wire, see Wiring Diagrams.
Removal of the link wire will enable SUMMERboost®.
When SUMMERboost® is trigged by Summer Bypass the increased fan speed can be prevented either Manually or Automatically.
Manual - This is by means of a volt-free switch wired directly into the controller PCB.
Automatic - This is by means of a dedicated wall mounted room thermostat. SUMMERboost® will only operate when the temperature has exceeded the thermostat setting. Should the room temperature fall below the thermostat setting, then SUMMERboost® will not operate.

Automatic Frost Protection

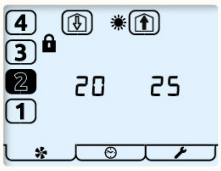
During very cold weather, Automatic Frost Protection will detect temperatures that could form ice inside the unit. It will reduce the supply ventilation rate to prevent ice build up within the heat cell. Automatic Frost Protection reduces the flow rate of cold air, thus allowing the warmer stale air to raise the temperature within the heat cell to such a level that prevents the formation of ice. As internal temperatures rise Automatic Frost Protection will increase the supply ventilation flow rate back to the commissioned settings.

Fan Speed Display - aura T only



The aura T displays the current fan speeds as a percentages.

Temperature Display - aura T only



The aura T displays the current supply and extract temperatures (°C).

Status Display aura - T only

The aura T displays has a number of Status Icons.

	An external switch is active and is holding the HRV at the indicated speed. If this icon is flashing along with the Speed 3 button and the backlight, a switch has held the HRV in Boost for more than 2 hours
	The speed the HRV is running as is being controlled by the internal humidity sensor
	The filters need changing or cleaning, refer to the Settings Menu for details of how to reset the timer
	Frost Protection, if this Icon is constantly on the temperature outside is low and the speed of the HRV Supply Fan has been reduced to prevent damage to the Heat Cell. If the Frost Icon and backlight are flashing the indoor temperature is low and both fans will have stopped. Tap any of the fan speed numbers to start the fans. If the temperature is still too cold, Frost Protection will be activated.
	SummerBypass is in operation, air from outside is being supplied directly to the property without recovering heat from the Heat Cell. This is often accompanied by SummerBoost, both fans switch to Speed 4 to increase the rate fresh air is supplied to the property and stale ait is extracted. Press & Hold the [4] button to cancel SummerBoost.

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	The Boost Overrun timer is active and is holding the HRV as Speed 3, this follows an external Boost Switch being activated.
	The padlock icon adjacent to the Speed 3 button indicates Boost Inhibit is active. The HRV will not respond to external Boost switches or the Humidity sensor, it is only possible to select speed 1 or 2.
	The warning icon flashing at the bottom of the screen adjacent to the Fan Icon indicates a fan or thermistor failure has been detected, contact the installer. The corresponding icon will be flashing at the top of the screen

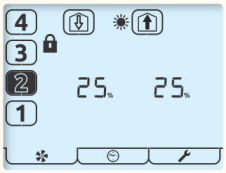
Boost Alert - aura T only

The aura T displays an Alert if a switch has held the HRV in Boost for more than 2 hours.

Run Hours - aura T only

Displays the length of time the HRV has been running in hours.

Manual Speed Selection - aura T only



Use the number buttons to select the required speed, display shown below at speed 2. The unit will automatically revert to speed 2 after 1 hour

Volt Free Switch Configuration - aura T only

SW1, SW2 & SW3 can be assigned any of the following functions, see wiring diagrams.
Kitchen Boost Speed 3
Wet Room Boost Speed 3
SetBack Speed 1
SummerBoost disable
Speed 4
Off Normally Open
Off Normally Closed
Manual Summer Bypass

Filter Change Alert - aura T only

The aura T will display a specified time when the HRV filters require changing, variable between 1 & 24 months.

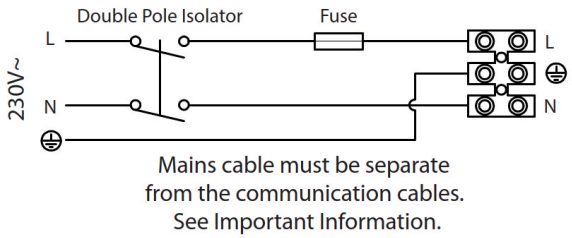
Boost Inhibit - aura T only

Boost inhibit is used to prevent the HRV's speed increasing by holding in either 1 or 2 until the padlock icon appears.

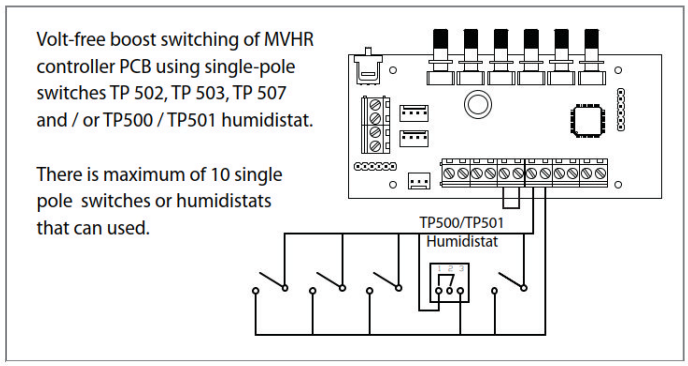
Eco Mode - aura T only

After a one minute period of inactivity the LCD will switch off, this function can be enabled or disabled.

Wiring Diagrams



Mains cable must be separate from the communication cables. See Important Information.



Boost switching and Humidistat connection ref EE173

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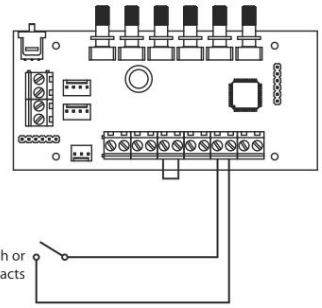
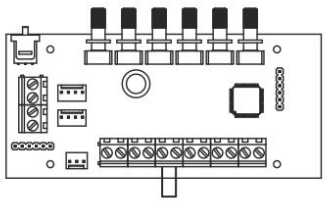
Volt-free setback switching of MVHR controller PCB using single-pole latching switch and / or volt-free normally open relay contacts.

To avoid the unit being inadvertently left in Setback Mode, it is recommended that only one latching switch is fitted.



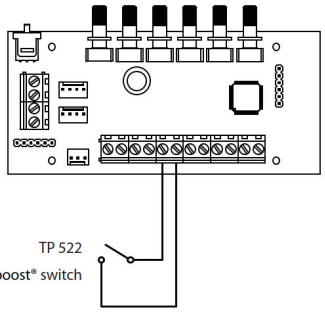
Setback Mode switching and connection ref EE177

SUMMERboost® Link Wire must be removed to enable SUMMERboost®.



SUMMERboost® Link Wire

Volt-free control of SUMMERboost® using one way latching switch.



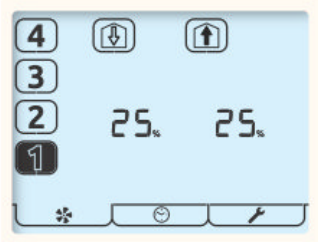
Switch Defaults shown above

SW1 - SummerBoost
SW2 - Boost
SW3 - setback

Fault Finding

⚠ Icon is Present

If the ⚠ icon is showing the specific fault can be determined by:-
Going to the main screen as shown below.



If the icon flashes the supply fan is faulty (go to supply fan not running information), if the icon flashes it is the extract fan faulty (go to extract fan not running information).
If neither are flashing change display to show temperatures.

If the icon flashes the supply thermistor is faulty, if the icon flashes it is the extract thermistor faulty. Check the connections of the thermistors on the control PCB fig 5. If the connections are ok, remove the respective thermistor cable form the control PCB and check the resistance across the cables (Table 8). If the temperature is correct the PCB is faulty, if not the thermistor is faulty

Unit Is Not Running

No aura T	With Or Setup with aura T
• The unit could be in internal frost protection mode, the temperature of the air being extracted is 6°C or below, switch the unit off for 20 second then switch back on. If this temperature continuous to be sensed the unit will stay off. Try temporarily disconnecting temp 3 thermistor, see fig 5.	• There is a capability to use one of the switch inputs to switch the fans OFF. Check switch set up. • Is the frost Icon and the backlight flashing, if so the unit is in internal frost protection mode, which switches both fans off, tap any of the fan speed number to re activate. • If the display is working this would indicate there is power at the Power PCB.

1. Check if the red LED is lit on the Power PCB (Fig3), if yes check 230V is present at the 'power supply to fans' terminals (fig 3). If 230V is present at the 'power supply to fans' terminals, the Power PCB is unlikely to be the issue.
   If the red LED is on:-

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- The unit could be in Fire protection mode, the temperature of the air being extracted is above 48°C, switch the unit off for 20 second then switch back on. If this temperature continuous to be sensed the unit will stay off. Try temporarily disconnecting temp 3 thermistor, see fig 5.

If the red LED is not on:-

- Check the fuse on the power PCB for continuity (Fig 3) – if blown replace.
- If the fuse is ok, check 230V is present on the 'mains supply connection' (Fig 3) If 230v is present then there is a PCB fault.
  - If 230v is not present at the 'mains supply connection' (Fig 3), check 230v is present at the input & output sides of the mains filter (where fitted see fig 4) if this ok or not fitted there must be cable issue or an external fault.
  - Check the continuity across the fuse in the spur & that mains power is present at the spur.

2. Check the connection of the ribbon cable joining the power PCB to the control PCB, and the cable is not damaged, figs 3, 4 & 12. 12v should be present across pins 2 & 3 (Fig 12)
3. Isolate the power at spur, remove the front cover or the ducting from the stale air to atmosphere and the fresh air to the habitable room spigots. Check if fans will run freely. Check for obstructions.
4. KEEPING your Hands away from the unit switch on the power, wait approx. 40 sec and look to see if fans are spinning, 'kicking' or are stationary

   If 'kicking' or are stationary there is a likely to be a PCB or fan fault.

   <u>Check fans</u>

   - Disconnect fan 1(Supply) Molex connector from the PCB (Fig 5), does fan 2 run? If yes, fan 1 is probably faulty. If no reconnect.
   - Disconnect fan 2 (Extract) Molex connector from the PCB (Fig 5), does fan 1 run? If yes fan 2 is probably faulty. If no reconnect.

   Fans can be independently checked by connecting them to a potentiometer, as detailed in Fig1. N.B. there needs to be power to the unit. If they fail to respond they are faulty. If they both respond there is fault with the control PCB.

   <u>PCB Check</u>

   - Check the resistance across the boost, setback and SummerBoost terminals on the PCB (this checks if the circuit has been damaged and caused a knock on affect to the PCB's operation), see fig 6. N.B. the PCB is supplied from the factory with a link across the SummerBoost terminals.

N.B. The above PCB test only checks the switch inputs, if it passes this test it could still be faulty. There are no other checks that can easily be carried out.

Unit Trips RCD or MCB

1. Disconnect both fans from the 'power supply to fans' terminals Fig 3. Try powering up the unit, if the power does not trip there is probably a fault with one or both fans. If it trips then there is an issue with the power supply PCB, supply cable, external wiring or filter (where fitted).
   - If it has not tripped, connect in turn both fans back into the mains supply terminal Fig 3, Try powering up with each fan, to determine which fan(s) is causing the fault.
   - If it has tripped Disconnect the mains supply from the Power PCB fig 3, place the cables into suitable terminal block (3A or greater). Try powering up, if the power does not trip the Power PCB is faulty, if it does trip the fault is with the cable, external wiring or filter (where fitted).

N.B. The most common reason for the unit tripping is water/moisture is present within the fan(s). There are generally two causes for this:-

- The ducting has not been fully insulated, as required by DVCG
- The condensation drain(s) have not been air sealed, as required in the manual.

Supply Fan (1) Not Running

No aura T	With Or Setup with aura T
• Move the program switch into the commissioning continuous mode Fig 10, does the fan start if yes the unit is likely to be in frost protection mode. Remove thermistor from temp 3 (Fig 5), this will temporarily remove frost protection. Measure the resistance across the thermistor, if it is above 23KΩ the unit is in frost protection mode.	• Is there a fault Icon present? See previous Status Display aura - T information. • Is the Frost Protection icon visible ❄ . Remove thermistors from temp 3 (Fig 5), this will temporarily remove frost protection. Measure the resistance across the thermistor, if it is above 23KΩ the unit is in frost protection mode.

1. Check Molex connector Fan 1 is firmly pushed onto the PCB (Fig 5)
2. Isolate the power at the spur, remove the front cover or the ducting from the fresh air to habitable room spigot. Check fans will run freely. Check for obstructions.

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3. KEEPING your Hands away from the unit switch on the power, wait approx. 40 sec and look to see if the fan is running, 'kicking' or is stationary.

If 'kicking' or stationary.

Check the fan

- Disconnect fan 2 (Extract) Molex connector from the PCB (Fig 5), then disconnect fan 1 (supply) Molex connector from the PCB (Fig 5), Connect Supply Fan 1 Molex on the connector for Fan 2. If the Supply fan runs then there is a PCB fault if it fails to run then the fan is faulty, this can be further checked by connecting the fan to a potentiometer as detailed in Fig 1. N.B. there needs to be power to the unit.

PCB Check

- Check the resistance across the boost, setback and SummerBoost terminals on the PCB (this checks if the circuit has been damaged and caused a knock on affect to damage the PCB operation, see fig 6. N.B. the PCB is supplied from the factory with a link across the SummerBoost terminals.

N.B. The above PCB test only checks the switch inputs, if it passes this test it could still be faulty. There are no other checks that can easily be carried out.

Extract Fan (2) Not Running

1. Check Molex connector Fan 2 is firmly pushed onto PCB (Fig 5)
2. Isolate power at spur, remove front cover or ducting from fresh air to habitable rooms spigots. Check fans will run freely. Check for obstructions.
3. KEEPING Hands away from the unit switch on power, wait approx. 40 sec and look to see if the fan is spinning, 'kicking' or are stationary.

If 'kicking' or are stationary

Check the fan

- Disconnect fan 1 Molex (Supply) connector from the PCB (Fig 5), then disconnect fan 2 Molex (Extract) connector from the PCB (Fig 5), Connect Extract Fan 2 Molex on the connector for Fan 1. If the Extract fan runs then there is a PCB fault if it fails to run then the fan is faulty, this can be further checked by connecting the fan to a potentiometer as detailed in Fig 1. N.B. there needs to be power to the unit.

PCB Check

- Check the resistance across the boost, setback and SummerBoost terminals on the PCB (this checks if the circuit has been damaged and caused a knock on affect to the PCB's operation), see fig 6. N.B. the PCB is supplied from the factory with a link across the SummerBoost terminals.

N.B. The above PCB test only checks the switch inputs, if it passes this test it could still be faulty. There are no other checks that can easily be carried out.

N.B. The most common reasons for the extract fan failing are, that the duct to atmosphere is not fully insulated or the condensation drain has no trap fitted and/or is not air sealed.

Unit Will Not Boost

No aura T	With Or Setup with aura T
• Is the unit in the commissioning mode? Programming switch should be in the central Run position see fig 5 & 10.  • Check the flow rates at continuous and boost to see if there is a difference. • Change the units speed to determine if the difference is then audible. • The unit speeds can be determined by looking at the top of the relevant potentiometer and seeing where the arrows point. If the arrows on the continuous and boost pots are in the same or similar positions the flow rates and noise will be similar. N.B. Turning Anticlockwise – decreases speed, Turning Clockwise – increases speed	• Is one of the volt free switches assigned to boost • Is the program switch in the Run positon N.B. Aura T has two overrun timers one for the Kitchen and one for wet rooms, the wet room one is the default. Check which one is being used by checking the switch input configurations.

1. If using momentary switches, is over run timer set to zero?
2. Is a boost setting required – if yes, is the continuous flow rate requirement higher or the same as the boost flow rate requirement?

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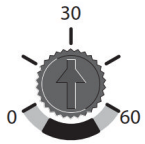
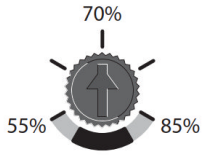
3. Is it actually boosting but the boost speed is just higher or the same as the continuous speed, therefore there is no audible difference
4. Is the unit already running at full speed on continuous?
5. If the unit is a HRV2&3, the unit may be running at full speed on continuous as there is high resistance within the system and therefore the unit cannot run any faster. This can be proved by removing the front panel and/or removing the ducts from the unit, upon removal, if there is high resistance in the system the fan speeds will reduce significantly.
6. Is a boost switch fitted?
7. Are boost cables connected to correct terminals (fig 5 & wiring diagrams)?
8. Is the boost switch providing a connection across the boost terminals?
    - Disconnect the boost wires and check for continuity, with a continuity tester or multimeter.
    - The boost function can be tested by bridging the boost terminals, using a link wire, fig 7.
9. Has 230v been incorrectly applied to the PCB (all switching is volt free). The PCB may show signs of damage but not always. If a voltage has been applied, this can be proved by measuring the resistance across the terminals (with cables removed), if open circuit then a voltage has been applied. If a voltage has been applied the PCB will require replacing. It may also result in one or both of the fans requiring replacing, depending whether damage has been limited to the PCB or not (Fig 6). N.B. the PCB is supplied from the factory with a link across the SummerBoost terminals.

Unit Will Not Drop Out Of Boost

No aura T	With Or Setup with aura T
• Before commencing any checks complete the following:- A. Make a note of where the overrun timer is set, then set to minimum B. Make a note of where the humidity is set, then set to maximum C. Switch the unit off for 20 seconds, then back on.  0 to 60 mins  55% to 85% hum.	• Is the display showing speed 3, if yes the unit is being triggered/selected to boost. • Is the overrun icon visible  , if yes the overrun is still running down • Is the humidity icon visible  , if yes the boost is being triggered by humidity.

Has this resolved the problem?
Is the unit in SummerBoost? SummerBoost is activated when SummerBypass is activated.

SummerBoost is deactivated by either a link wire across SW1 or by a switch across SW1. Depending upon where the boost speeds are set, there may be very little speed difference between boost and SummerBoost (SummerBoost is 100% fan speed) Check that either the SummerBoost link is still fitted or if a switch has been fitted it is on (closed circuit). If in doubt fit a link, see wiring diagrams.	SummerBoost can be deactivated by one of the switch inputs, check that a switch input has been assigned, default is SW1. It can be disabled either by a link wire or a switch. SummerBoost Speed is variable and therefore may sound the same as boost.

You can check if the unit is in SummerBypass in a number of ways.

- Remove the front panel and look to see if the metal white painted grille is open or closed, if closed the unit is in SummerBypass
- Check for a voltage across pins 1 & 3 (see fig 12).
- Check for 230v across the 'power supply bypass' terminals (fig 3), 230v indicates the unit is in SummerBypass.

1. Is the program switch in the Run Position
2. Are all boost switches in the OFF position?
3. Is a boost switch providing a connection across the boost terminals?
    - Disconnect the boost wires and check them for continuity, with a continuity tester or multimeter.
    - The boost function can be tested by bridging the boost terminals, using a link wire, fig 7.
4. Has 230v has been inadvertently applied to the boost terminals – control circuitry has been damaged. Check as Fig 6
5. HRV2&3. The set speeds may be correct but resistance is causing the fans to run at a faster speed to achieve the required flow rate (constant volume motors). Remove ducting to the unit, one duct at a time. If a fan speed drops dramatically then there is excessive resistance in that duct run

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N.B. If the mains cable and boost cables are run in close proximity, it is possible the 230v can induce a voltage into the boost cables and result in the unit not dropping out of boost. Five core cable – live, neutral, earth and two for boost must not be used. Min 50mm segregation required.

Unit Speed Drops Below Normal Running Level

No aura T	With Or Setup with aura T
• Is the unit in setback mode, check switch inputs Fig 5 & wiring diagrams. • Is the unit in frost protection mode? Remove the thermistor from temp 3 (Fig 5), this will temporarily deactivated frost protection. Measure the resistance across the thermistor, if above 23KΩ the unit is in frost protection mode.	• Is one of the volt free switches assigned to setback and is the associated switch ON • Is the Frost Protection icon visible  . Remove thermistors from temp 3 (Fig 5), this will temporarily remove frost protection. Measure the resistance across the thermistor, if it is above 23KΩ the unit is in frost protection mode.

Excessive Unit/System Noise

1. Has the unit been set to the correct continuous flow rates and running in continuous mode, if yes, are the speeds higher than predicted (reference unit fan curves – available on our web site). If yes check for excess resistance/leakage:-
    - o Is there excess flexible ducting and/or tight bends?
    - o Are all ducts connected and sealed?
    - o Are ducts sizes correct?
    - o Are external terminals (roof terminals or air bricks) suitable for the application?
    - o Have ceiling terminals be wound too far in?
    - o Are there any deviations from the design?
    - o Are there any blockages in the ducting or in the air ways in the unit?
        - Has the unit been mounted on a stable surface using the mounting brackets provided?
        - Is the unit horizontally & vertically square?
2. Isolate the power at spur, remove front cover or ducting from stale air to atmosphere and fresh air to habitable room spigot. Check fans will run freely, with no unexpected bearing noise or signs the fan is hitting/rubbing against its housing.

HRV2&3. The set speeds may be correct but resistance is causing the fans to run at a faster speed to achieve the required flow rate (constant volume motors). Remove ducting to the unit, one duct at a time. If the fans speed drops dramatically then there is excessive resistance in that duct run.

Unit Will Not Respond When Commissioning

No aura T	With Or Setup with aura T
• The unit is not in the commissioning mode – the program switch has not been moved, see Fig 10 • Check the position of the potentiometers – N.B. Boost cannot be set lower than Continuous & Continuous cannot be set higher than Boost. Follow PCB reset process.	• The program switch Is not in the Run position Fig 10

1. Has 230v been applied to the boost terminals? See fig 6
2. HRV2 & 3 Remove the ducting from the unit and check if the fans then respond.

Unit Does Not Go Into Bypass

SummerBypass is triggered when defined temperatures are met, these are measured inside the unit and may vary to temperatures measured inside and outside of the property.

No aura T	With Or Setup with aura T
• The extracted air temperature must be above 22°C and also the incoming air temperature must be above 15°C.	• The extracted and the incoming air temperatures must be above those set within the aura T.

In addition the extracted air temperature must be 1°C above the incoming air temperature. If the SummerBypass temperatures are met for more than 8 hours the SummerBypass solenoids will be deactivated for an hour and then reactivated if the parameters are still met.

1. The program switch is not in the Run position Fig 10
2. Has a thermistor become disconnected or its cable damaged Fig 9.
3. Is the ribbon cable attached and undamaged (check continuity of the cable) Fig 3 & 4.
4. Is there 240v across the Bypass terminals Fig 3

N.B. the unit can be forced into Bypass by attaching a variable resister network to the Control PCB thermistor inputs (see fig 5) and adjusting the resistances until they are above resistances stated above, see fig 11 for resistor network.

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Required Fan Rates Cannot Be Achieved

1. Incorrect unit selected – refer to the unit literature (performance graph) for unit capability.
2. Excess resistance/leakage:-
    - Is there excess flexible ducting and/or tight bends?
    - Are the ducts sizes correct?
    - Are the external terminals (roof terminals or air bricks) suitable for the application?
    - Have the ceiling terminals been wound too far in?
    - Are there any deviations from the design?
    - Are ducting joints sealed (silicone or other recognised method)?
    - Are there any deviations from the design?
    - Are there any blockages in the ducting or in the air ways in the unit?

Moisture/Water On Or Around Unit

1. Are the ducts to atmosphere insulated from the top of the unit to the underside of the roof (roof terminal) or to the brickwork (airbrick)?
2. If the stale to atmosphere rises vertically to a roof terminal, is a condensation trap fitted?
3. If the ducts from the unit to the wet rooms and/or those to the habitable rooms pass through a cold void are they insulated?
4. Is the internal condensation tray split?
5. Is the unit fitted square both horizontally and vertically?
6. Is the condensation drain fitted?
7. Is the condensation drain fitted with a proprietary trap and the pipe air sealed to the trap? If air can be pulled back into the unit it is likely to cause water to be sprayed around internally.
8. Dose the condensation drain run have a minimum of 5º fall?
9. Has the ducting been connected to the correct unit spigots

Moisture Inside The Unit

During normal running it is usual to find water within the heat recovery cell and traces of moisture in the condensation tray adjacent to extract fan. The level of water within the cell and in the condensation tray will be higher if there is currently or has been recently high humidity within the Kitchen or wet rooms. The higher the flow through the faster the unit will dry out. Insufficient flow rate may result in water being present for prolonged periods.

If water is found in the fan scrolls, underneath the tray, around the fan EPP or in the vicinity of the PCB's this indicates there is an issue with the installation.

Check the following.

1. Are the ducts to atmosphere insulated from the top of the unit to the underside of the roof (roof terminal) or to the brickwork (airbrick)?
2. If the stale to atmosphere rises vertically to a roof terminal is a condensation trap fitted?
3. If the ducts from the unit to the wet rooms and/or those to the habitable rooms pass through a cold void, are they insulated?
4. Is the internal condensation tray split?
5. Is the unit fitted square both horizontally and vertically?
6. Is the condensation drain fitted?
7. Is the condensation drain fitted with a proprietary trap and the pipe air sealed to the trap?
8. Dose the condensation drain run have a minimum of 5º fall?
9. Has the ducting been connected to the correct unit spigots?
10. Is there moisture on or inside the ducts.

Unit Performance Has Dropped

1. The filters have become clogged.
2. Flexible ducting has been crushed.
3. Rigid ducting has been knocked or moved resulting in air leakage.
4. Ceiling terminals have been tampered with.
5. Airbricks and /or roof terminals have become blocked or restricted.

Unit Ramps Up Without Manual Switches Being Operated

1. Humidity within property has increased sufficiently to trigger boost. This can be checked by increase the humidity trigger point to maximum, switching off the unit for 20 seconds, then back on, if the problem is resolved then the trigger point is causing the issue. Re adjust humidity level to a suitable point.
2. If PIR's are fitted are these being triggered.
3. The unit has been triggered into SummerBypass & SummerBoost,
    - Check if the factory fitted link wire is still in place.
    - If an override switch is fitted is it enabled?

    You can check if the unit is in SummerBypass in a number of ways.
    - Remove the front panel and look to see if the grille is open or closed, if closed the unit is in SummerBypass
    - Check for a voltage across pins 1 & 3 (see fig 12).

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- Check for 230v across 'power supply bypass' terminals (fig 3), 230v indicates the unit is in SummerBypass.

N.B. If the mains cable and boost cables are run in close proximity it is possible the 230v can induce a voltage into the boost cables and result in spurious boosting. Five core cable – live, neutral, earth and two for boost must not be used.

Cold Air is Being Blown Into The Habitable Rooms

No aura T	With Or Setup with aura T
• Has the extract fan stopped working, Switch the unit off at the spur, remove the front panel. Keeping pour hands away from the unit turn the spur back on. Are both fans running?	• Is there a fault Icon ⚠ present? See previous Status Display aura - T information. The extract fan may have stopped running.

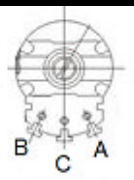
1. Has the air temperature been measured and compared with the air temperature in the wet rooms. The difference should be approx. 2-4ºC. *Moving air does feel cold!*
2. Are the correct type of ceiling terminals fitted?
3. If the ducts from the unit to the wet rooms and/or those to the habitable rooms pass through a cold void are they insulated?
4. Are the supply and extract rates balanced, i.e. is the supply rate dramatically higher than the extract rate.
5. Is the unit in SummerBypass mode?

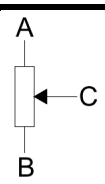
   You can check if the unit is in SummerBypass in a number of ways.
   - Remove the front panel and look to see if the grille is open or closed, if closed the unit is in SummerBypass
   - Check for a voltage across pins 1 & 3 (see fig 12).
   - Check for 230v across 'power supply bypass' terminals (fig 3), 230v indicates the unit is in SummerBypass.

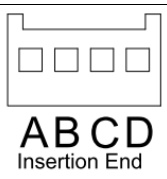
PCB Reset (to Factory Settings)

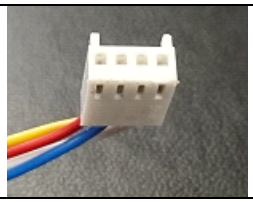
No aura T	With Or Setup with aura T
• Rotate the Supply and Extract Continuous Speed potentiometers fully anticlockwise • Rotate Supply and Extract Boost Speed potentiometers fully clockwise move the Run/Program Switch from the Run position to the Continuous position, from the Continuous position to the Boost position and back to the Run position. To ensure that the reset switch movements are registered by the controller wait two seconds between each switch movement. • Rotate the overrun timer fully anticlockwise • Rotate the humidity sensor fully clockwise Switch the power off to the unit for a minimum of 20 seconds then switch back on. The unit will go through a ramp up routine then after approx. 40 seconds it will run as determined by any internal/external inputs.	• Power down the unit. • Place all three switch inputs into the closed position and the Commission switch on the unit PCB to the Continuous position. • Power up the unit for no longer 10 seconds. • Power down the unit. • Return the commission switch on the PCB to the Run positions and open the switches. • Power up the unit. • Rotate the Supply and Extract Continuous Speed potentiometers fully anticlockwise • Rotate Supply and Extract Boost Speed potentiometers fully clockwise move the Run/Program Switch from the Run position to the Continuous position, from the Continuous position to the Boost position and back to the Run position. To ensure that the reset switch movements are registered by the controller wait two seconds between each switch movement. • Rotate the overrun timer fully anticlockwise • Rotate the humidity sensor fully clockwise Switch the power off to the unit for a minimum of 20 seconds then switch back on. The unit will go through a ramp up routine then after approx. 40 seconds it will run as determined by any internal/external inputs

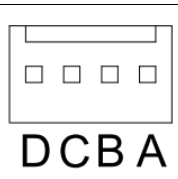
Fig 1 Molex Connetor











10KΩ Potentiometer Connections	Fan Connector A - 10V, B - 0V, C - PWM & D - Tacho	PCB Connector

Connect a 10KΩ Potentiometer across the terminals shown and rotate to check if the fan will respond. If this is not possible, try bridging the A and C terminals on the fan connector, the fan should then run at full speed.

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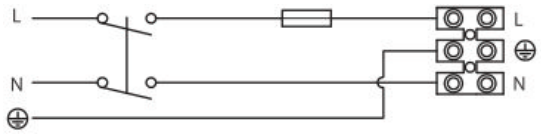
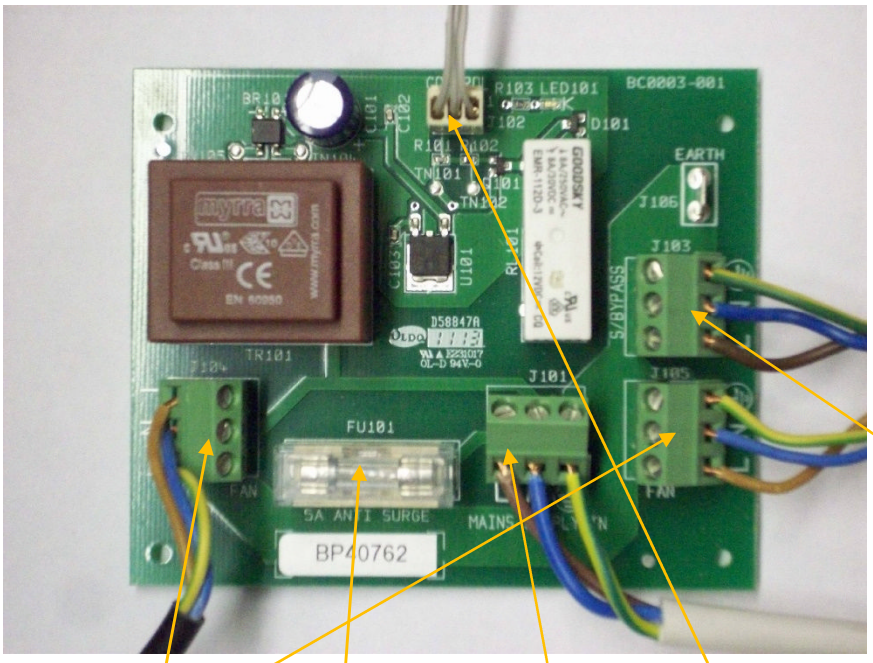
Fig 2 Mains Connection



Wiring diagram

Fig 3 Power PCB



Power PCB 230V

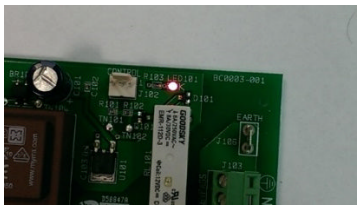
Power Supply Bypass 230V

Fuse

Ribbon Cable

Power Supply To Fans 230V

Mains Supply Connection 230V



Lit LED denotes 12Volts is present.

Ribbon Cable

Fig 4 Mains Filter

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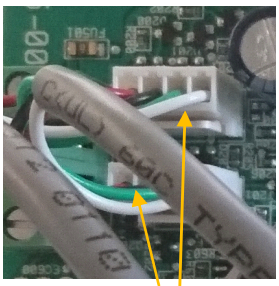
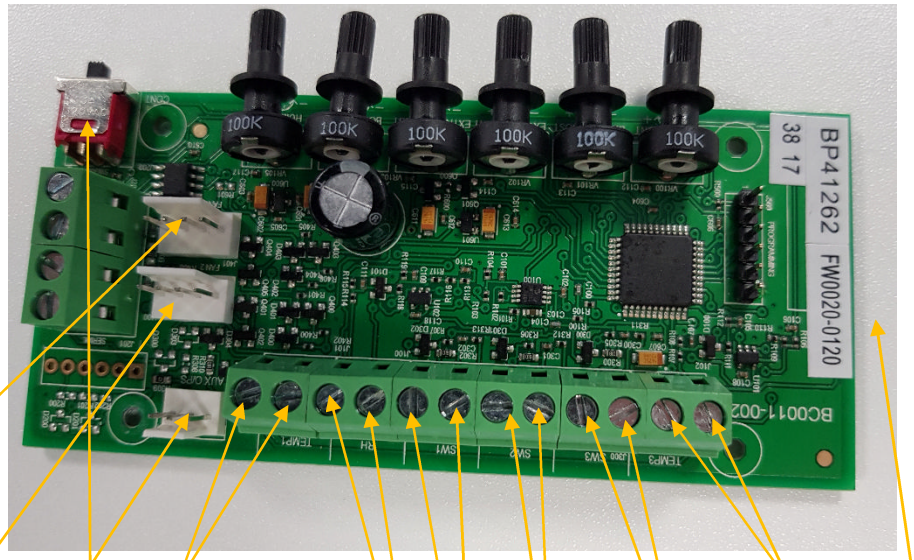
Fig 5 Control PCB





Molex Fan Control Connectors

Molex Fan 1 Supply (temp 3)

Thermistor- Stale Air In (temp 1)

Thermistor- Fresh Air In

Molex Fan 2 Extract

Humidity Sensor (RH)

SW2

SW3

Ribbon Cable connector

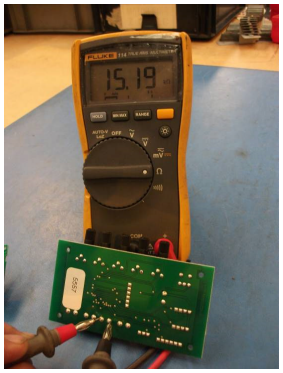
SW1

Programming Switch

Firmware Version

Control PCB Defaults
SW1 SummerBoost Enable/Disable
SW2 Boost
SW3 Setback

Fig 6 Testing PCB Inputs

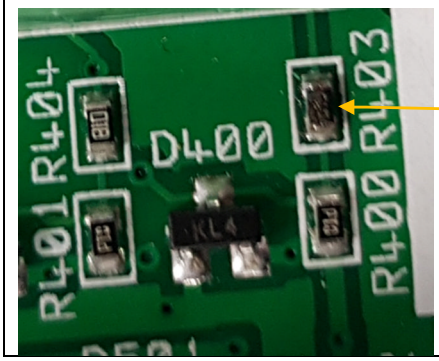


Measure resistance across the terminals, this is easier across the soldered joints rather than the terminals block.

If reading is open circuit, it is probable that 230v has been applied.

If reading is approx. 15kΩ, then the circuit is ok.

This only checks the switch input circuits and does not prove overall functioning i.e. PCB may still be faulty if reading is approx. 15kΩ



Damage to component

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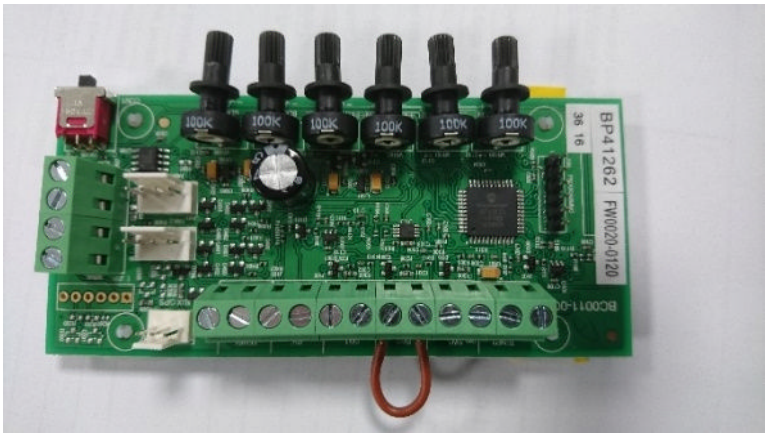
Fig 7 Boost Link Test



Boost Link

Fig 8 Thermistor Values

Temp ºC	Resistance (KΩ)
-10	42.47
-9	40.57
-8	38.77
-7	37.06
-6	35.44
-5	33.90
-4	32.44
-3	31.05
-2	29.73
-1	28.48
0	28.48
1	26.13

Temp ºC	Resistance (KΩ)
2	25.03
3	23.99
4	23.00
5	22.05
6	21.15
7	20.30
8	19.48
9	18.70
10	17.96
11	17.24
12	16.56
13	15.90

Temp ºC	Resistance (KΩ)
14	15.28
15	14.69
16	14.12
17	13.58
18	13.06
19	12.56
20	12.09
21	11.63
22	11.20
23	10.78
24	10.38
25	10.00
26	9.63

Fig 9 Thermistor

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Fig 10 Control PCB Functions

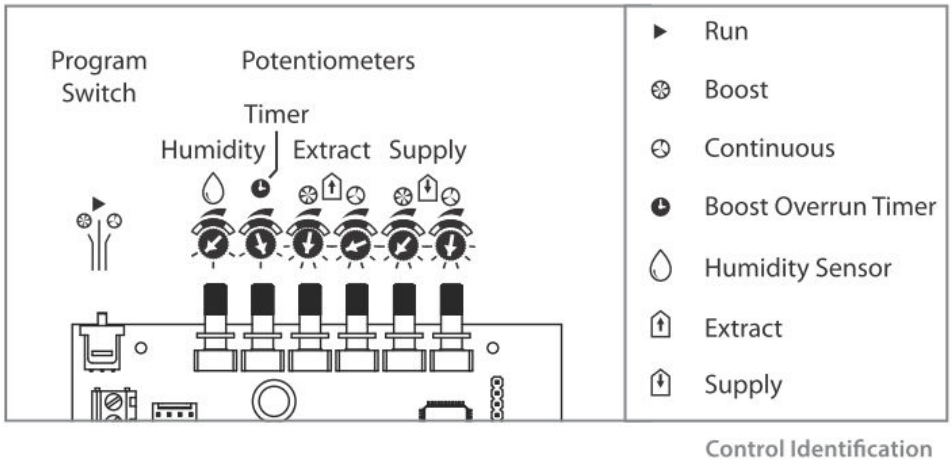
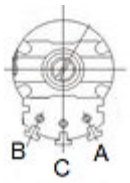
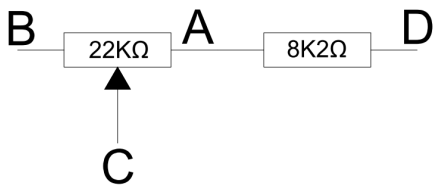


Fig 11 Resistor Network

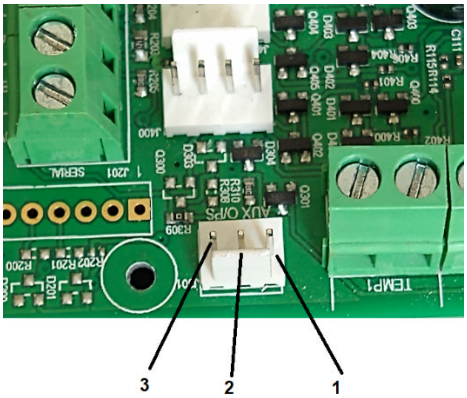


Variable Resistor Wiring



Connect C & D to Thermistor Inputs On Control PCB

Fig 12 Ribbon Cable Connection



12v should always be present across pins 3 & 2, with pin 2 being at 12v and pin 3 being at 0v.

Voltage measurement	
SummerBypass disengaged	12v will be present across terminal 1 & 3
SummerBypass engaged	0v will be present across terminal 1 & 3

N.B. For simplicity the photo's show the ribbon cable disconnected, however measurement should be taken with it connected.

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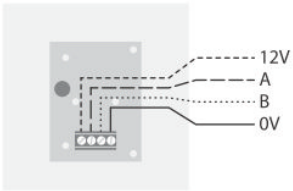
Auralite

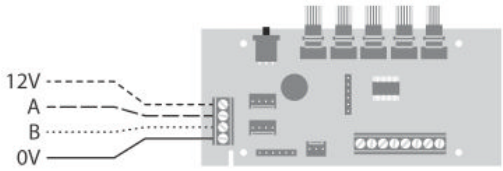
Fault Finding can be aided by fitting an Auralite indicator TP518. This will give an indication of which mode the unit is running in.

- Normal - the system is running at continuous speed. (normal mode) or the unit is running at setback speed if this light is flashing
- Frost - the unit is in automatic frost protection mode.
- Filter - the filters require changing
- Boost - the system is running in boost speed.
  If flashing indicates boost alert
  Summer - the unit is in summer bypass mode
- Fault - there is a fault with the system:-
  - Auralite cable termination fault or incorrect wiring
  - Fan Fault – This generally falls into one of 2 faults, the fan is actually not running or there is tacho signal error. Check if the fans are running and check the Molex connectors are firmly connected onto the control PCB (see fig 5). If the fans are running this will mean there is a tacho issue and one of the fans need replacing, unfortunately this fault indication does not indicate which fan is causing the fault.
  - Control PCB fault

Wiring Diagrams

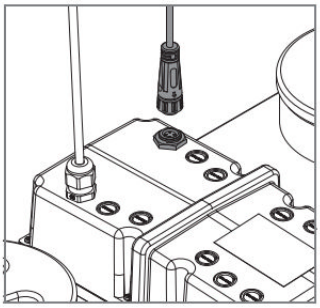


Auralite PCB

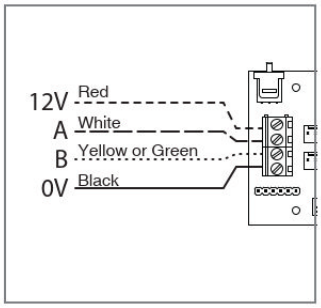


HMB Control PCB

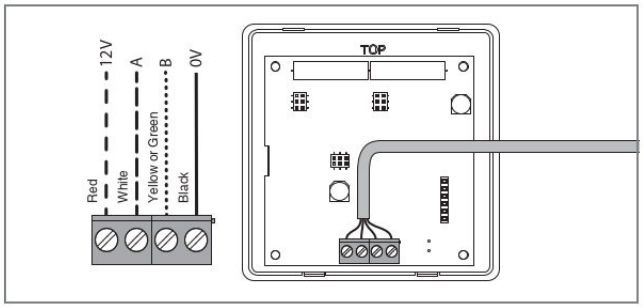
Aura T Wiring Diagrams



typical plug connection to HRV



Wire connection to HRV



Connection to aura-t

Reference Documents

Approved Document Part F
Domestic Ventilation Compliance Guide (DVCG)

Available from https://www.gov.uk/government/publications/ventilation-approved-document-f

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