Manual

EN

HRV Cool Plus

Titon®
ventilation systems

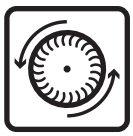
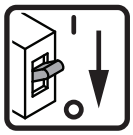
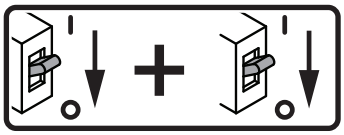
Important Information

Important: read these instructions fully before the installation of this appliance

1. Installation of the appliance and accessories must be carried out by a qualified and suitable competent person and be carried out in clean, dry conditions where dust and humidity are at minimal levels.
2. This manual covers the installation of the Heat Recovery Ventilation (HRV) unit and Cooling unit
3. All wiring must conform to current I.E.E. Wiring Regulations and all applicable standards and Building Regulations.
4. Inspect the appliances and electrical supply cords. If a supply cord is damaged, it must be replaced by the manufacturer, their service agent, or similarly qualified persons in order to avoid a hazard.
5. The units are supplied with a mains rated 3 core flexible cord (PVC sheathed, brown, blue and green/yellow 0.75mm^2).
6. The appliance must be connected to a local double pole isolation switch with a contact separation of at least 3mm.
7. The appliance must be earthed.
8. HRV4.25 *Q Plus* unit is suitable for 230V ~ 50/60Hz single phase with a fuse rating of 5A. The Cool Plus unit is suitable for 230V ~ 50Hz single phase with a fuse rating of 8A.
9. Control, Boost & communication cable access is via the fitted cable gland(s) which are suitable for Ø3- 6mm cable.
10. Control, Boost & communication cables - Unshielded 4 Core minimum 18-24AWG Stranded, Tinned Copper. Control Cables must not be twisted pairs.
11. All Control, Boost & Communication cables should not be placed within 50mm or on the same metal cable tray as any 230V~ lighting or power cables.
12. Ensure all cable glands are fully tightened.
13. The units must be stored in a clean and dry environment.
14. Do not install the appliance in areas where the following may be present or occur;
    Excessive oil or a grease laden atmosphere,
    Corrosive or flammable gases, liquids, or vapours,
    Ambient temperatures above 40°C or below -5°C,
    Humidity levels above 90% or is a wet environment.
15. These appliances are not suitable for installation to the exterior of the dwelling.
16. These appliances are not suitable for installation in unheated spaces.
17. These appliances can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children should be supervised to ensure that they do not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

18. The outer casing must never be drilled, cut or altered under any circumstances.
19. Ensure that external grilles are located away from any flue outlet, in accordance with relevant Building Regulations.
20. The unit must not be connected to a tumble dryer or a cooker hood.
21. Heat recovery systems and extract fans can create negative pressures within rooms. Ensure precautions are taken to avoid negative pressure creating a back-flow of gases into the room from an open flue.
22. Ensure all ducting, condensate drain and associated pipe work is free from debris and blockages before switching on the unit.
23. The Cool Plus unit is heavy and it is advised that lifting, moving and handling of the unit is carried out by two competent people and installed using a suitable lift.
24. The Cool Plus unit is an electromechanical unit that use R407C refrigerant. Refrigerant weight, 0.665kg (Maximum)
25. Please ensure when installing the Cooler Plus that the unit is kept vertical during transportation and installation and left for a minimum of 4 HOURS before switching on. If Cooler has not been stored vertically (refer to the "This Way Up" packaging label) the Cooler must not be operated for 24 HOURS following installation.
26. Ensure supply and extract airflows are kept as equal as possible when the Cool Plus unit is in operation. Too much air on the heating side could cause the cooling side heat exchanger to freeze at certain conditions. Too much air on the cooling side could cause the high-pressure relay switch to trip out regularly in certain conditions.
27. Do not damage the pipes of the refrigerant circuit.
28. Do not use the unit if damaged, contact after sales.
29. In the event of gases escaping from damaged pipework, avoid contact with eyes.

Explanation of symbols on the appliance

Symbol	Definition
	Read instruction Manual.
	Risk of Electric Shock.
	General hazard safety alert.
	Wait until all machine components have completely stopped before touching them.
	Disconnect the mains supply before removing this cover.
	Disconnect the mains supply before removing this cover. Before obtaining access to terminals or removing this cover, all supply circuits must be disconnected.

Titon Recommend:

- Any flexible ducting should only be used for final terminations only and must be a maximum of 300m long and be pulled taut, and straight.
- A minimum distance of 200mm between the HRV unit and any sharp bends in duct work.
- All ducting should be insulated to reduce the possibility of condensation forming.
- Where a duct extends externally above roof level the section above the roof should be insulated or a condensate trap should be fitted just below roof level.
- All ducts within the building heated envelope between the external terminals and the unit's From Atmosphere and To Atmosphere ports should be insulated and wrapped additionally with a vapour barrier outside the insulation.
- Where duct pass through any fire barriers or walls, they must comply with the requirements of local Building Regulations.
- A ducting condensate drain must be fitted to vertical To Atmosphere duct work.
- Ducting must be installed in such a way that resistance to airflow is minimised.
- Ducting connected to the From Atmosphere & To Atmosphere ports, must be to/from the external air outside the building envelope.
- Duct joints to the unit's duct ports must be fixed using a method that ensures a long term seal is achieved. If using a short piece of flexible ducting secure using a hose clamp, do not over tighten hose clamp; as overtighting may distort and reduce the unit's port.
- A minimum distance of 2m exists between the external supply and exhaust terminals.

Contents

Units

List of Products

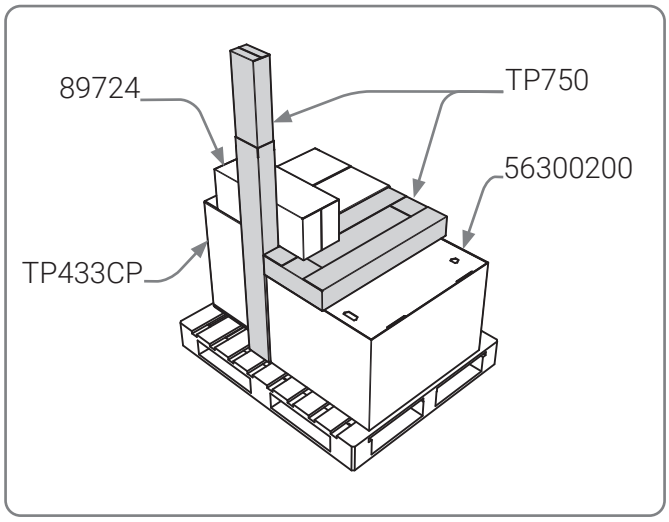
This Manual is for the following Products

When this document is viewed as a PDF the headings & sub headings on this page are hyper links to the content. Additionally the page numbers in this document are hyper links back to this contents page.

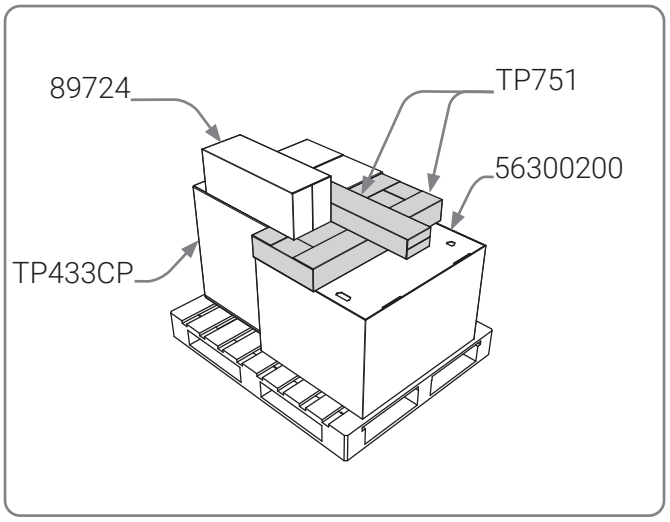
Product Information

Packaging Contents

Inspect the unit when taking delivery. Each unit is supplied with various accessories. Check the unit for damage and that all accessories have been supplied.



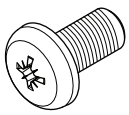
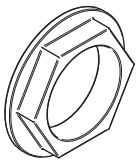
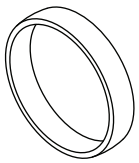
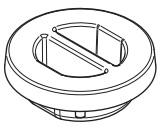
Cool Plus delivered items Wall Mount



Cool Plus delivered items Floor Stand

HRV4.25 TP433CP/LH-T

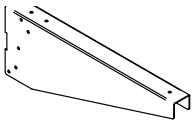
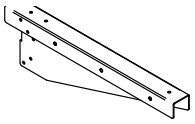
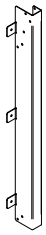
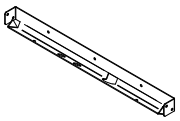
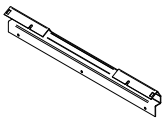
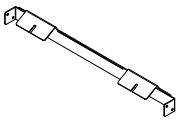
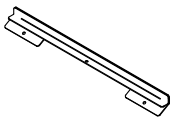
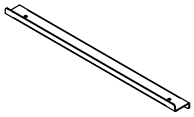
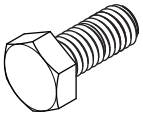
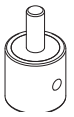
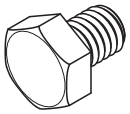
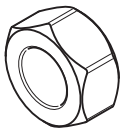
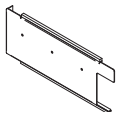
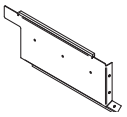
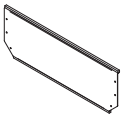
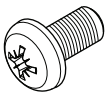
(28.5kg)

	Description / Part No.	QTY		Description / Part No.	QTY
	Titon HRV4.25 TP433CP/LH-T			Room Thermostat TP760	1
	Product Manual DO5843	1		Fiche & Energy Label	1
	M6x10 FF225	4		M6 FF224	4
	Condensate Drain Nut	1		Condensate Drain Olive	1
	Transport Bung	4		**Saftey Bracket CP40006	1

**Recycle this part as it is not required in the installation of the HRV4.25 with Cooler

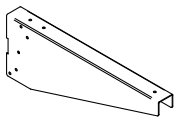
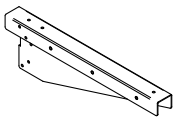
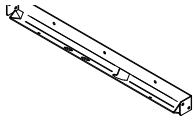
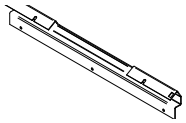
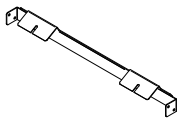
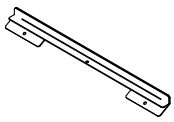
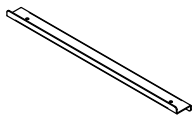
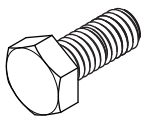
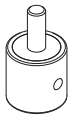
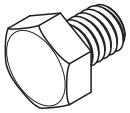
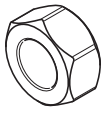
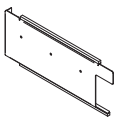
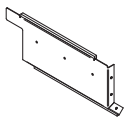
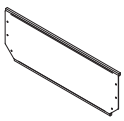
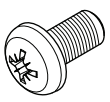
Wall Mount Components TP750

(19.5kg)

	Description / Part No.	QTY		Description / Part No.	QTY
	Cooler Support A CP1011728	1		Cooler Support B CP1011729	1
	Wall Strut LH CP1011768	1		Wall Strut RH CP1011769	1
	Wall AV Top Mounting Bracket CP1011770	1		HRV AV Top Mounting Bracket CP1011771	1
	Wall AV Bottom Brackett CP1011772	1		HRV AV Bottom Mounting Bracket CP1011792	1
	Cooler AV Runner CP1011773	2		M6x14 FF406	18
	M6 FF224	44		AV Mount BP9910371	8
	M6x8 FF355	8		M6 FF375	8
	M6 FF353	18		Grommet FF433	2
	LH Duct Cover CP1011664	1		RH Duct Cover CP1011665	1
	Front Panel CP1011666	1		M5x10 FF279	12
	M5 FF231	12		Hose Clamp 8960188	8

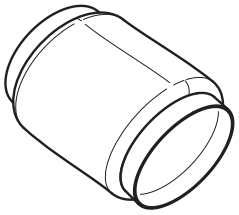
Floor Mount Components TP751

(25.5kg)

	Description / Part No.	QTY		Description / Part No.	QTY
	Cooler Support A CP1011728	2		Cooler Support B CP1011729	2
	Wall Strut CP1011661	2			
	Wall AV Top Mounting Bracket CP1011770	1		HRV AV Top Mounting Bracket CP1011771	1
	Wall AV Bottom Brackett CP1011772	1		HRV AV Bottom Mounting Bracket CP1011792	1
	Cooler AV Runner CP1011773	2		M6x14 FF406	32
	M6 FF224	72		AV Mount BP9910371	8
	M6x8 FF355	8		M6 FF375	8
	M6 FF353	32		Grommet FF433	4
	LH Duct Cover CP1011664	1		RH Duct Cover CP1011665	1
	Front Panel CP1011666	1		M5x10 FF279	12
	M5 FF231	12		Hose Clamp 8960188	8

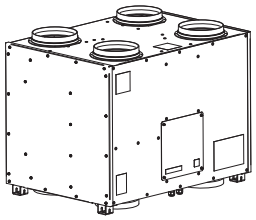
Flexible Silencer 89724

(2kg)

	Description / Part No.	QTY
	Flexible Silencer	4

Cooler 563002001

(50kg)

	Description / Part No.	QTY
	Cooler 56300200	1

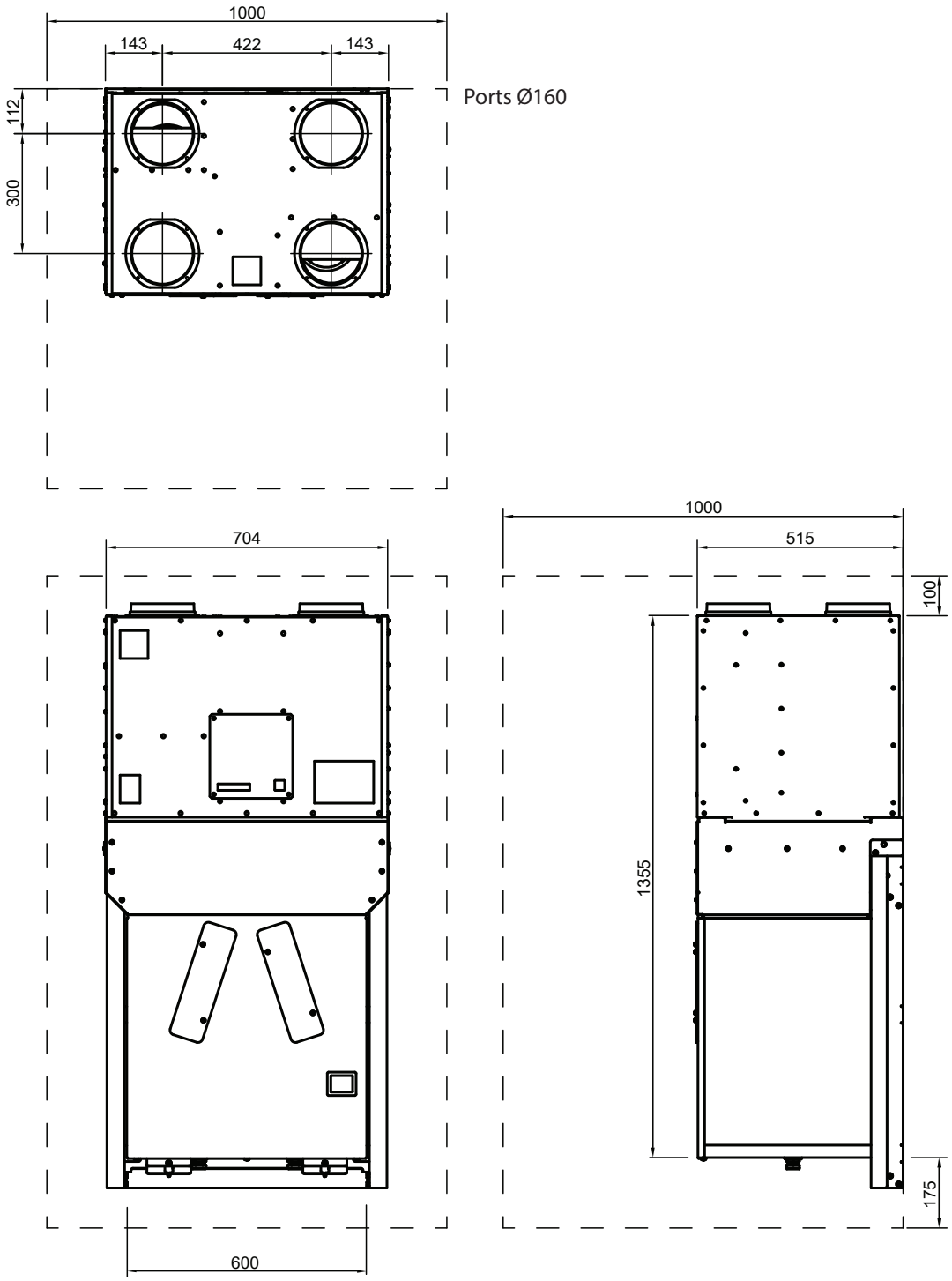
Weights are without packaging

Units Dimensions

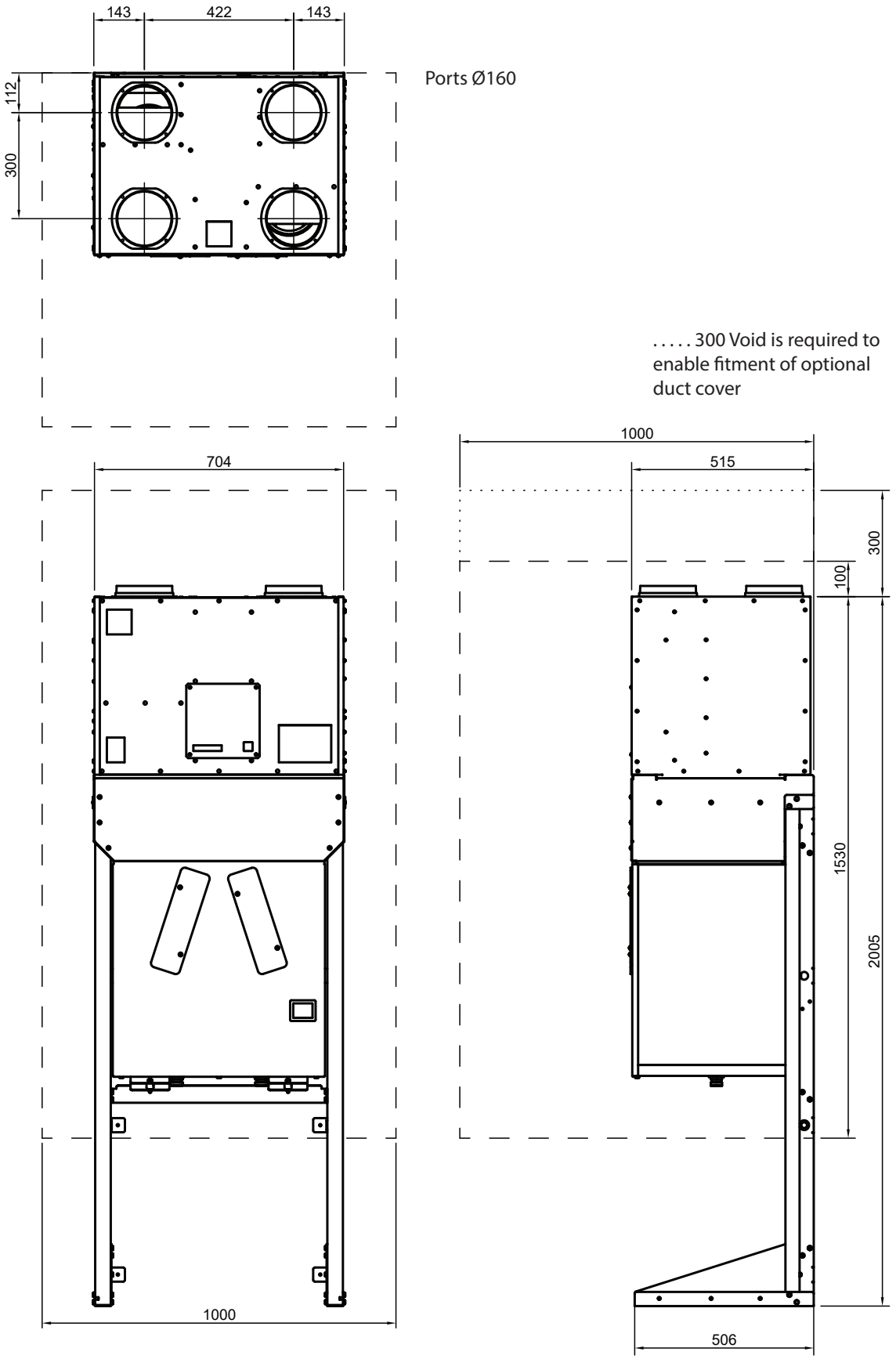
HRV Cool Plus

The following diagrams detail the overall size of the units, the duct port positions & the additional space required around the units (Service Void - - - -) to allow for commissioning and future service and maintenance.

Wall Mounted Unit



Floor Standing Unit



Product Features

The Titon HRV Cooler Plus™ is a mechanical solution to provide filtered and tempered air during periods of warm weather for occupier comfort as part of the heat recovery ventilation system. It consists of:

- Cooler (56300200) - A heat pump unit with a fully sealed coil & fin heat exchangers using a proven & reliable refrigerant R407c (GWP 1774) that requires minimal maintenance.
- HRV4.25 (TP433CP) - A Mechanical Ventilation with Heat Recovery (MVHR) unit, Titon HRV4.25 with high efficiency fans and counterflow heat exchanger. Filters, as standard are replaceable G4.
- Thermostst (TP760) - A digital thermostat to control the Cooler's operation.
- Wall or Floor mounting brackets (TP750) or (TP751).

Cooler Thermostat

A thermostat is connected to the HRV to control the operation of the Cooler. This thermostat should be positioned in the primary living space and set to the temperature at which you want the Cooler to operate. If the living space temperature goes above the thermostat set point then the cooler will activate and the HRV4.25 will switch to Speed4.

Cooler Manual Mode

In manual mode, the Cooler can be operated independently of the thermostat. The measured From Atmosphere temperature must exceed the Cooler Minimum Temperature.

Cooler Minimum Temperature

This adjustable threshold used to help prevent the Cooler from operating at the same time as a dwellings heating system. The Cooler will not operate if the measured From Atmosphere temperature is below the set point.
Default 18.0°C; range 10 - 20°C)

Cooler Minimum Speed

When the Thermostat calls for the Cooler to operate the HRV4.25 will switch to Speed4. If Speed4 is set below 70% the HRV4.25 will run at 70%; the Cooler Minimum Speed.

Left Handed Only

The HRV Cool Plus is only available as a Left Handed Unit

Boost Overrun Timer

A programmable timer that controls the time the HRV remains at Boost Speed after all boost, PIR switches & humidity sensors, have been released; including a 3 Position Switch.

Boost Inhibit

Prevents the HRV switching into Boost Speed 3 or Summer Boost - Speed 4 or allowing the fan speed to be increased above speed 2 by any proportional sensor speed control. This function is triggered by a connected controller.

Internal Humidity Sensor

The HRV has a relative humidity (RH) sensor. The RH sensor can be programmed to increase the fan speed of the HRV from Continuous Speed 2 to Boost Speed 3 proportionally.

Filter Change Alert

The unit can display a filter warning via the connected controller

Four Fan Speeds

The units have 4 programmable speed settings. All speeds allow independent speed setting of both supply and extract ventilation rates.

SUMMERboost®

SUMMERboost® allows both the supply and extract fans to run at Speed4 whenever the Summer Bypass is activated. By default SUMMERboost® is disabled.

Summer By Pass

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 dwelling.

Four Proportional Sensor Inputs

Enables connection of environmental sensors to the HRV which can be used to proportionally control HRV fan speeds.

Volt Free Switch Inputs

Enables connection of single pole momentary switches, latching switches or relay contacts to the HRV. These can be used to switch between fan speeds, turn the fans off or manually enable Summer Bypass

Live Switch Input

This is a live input switch which can also perform all of functions of the volt free inputs.

Frost Protection Program (Default)

During very cold weather, the Frost Protection Program will detect temperatures that could cause ice to form inside the unit. It will reduce or stop the supply ventilation rate, 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 temperatures rise the Frost Protection Program will increase the supply ventilation flow rate back to the commissioned settings.

Balanced Frost Protection

In properties where it is essential to maintain a balance airflow; perhaps because there is an open flue fireplace Balanced Frost Protection can be enabled. In this mode both fans are stopped when there is the risk of ice forming inside the heat cell.

Multiple Internal Temperature Sensors

The unit measures From Atmosphere and To Atmosphere air temperatures in real-time. Additionally the temperature of the heat cell is monitored.

Supply Air Comfort Control

If the supply to dwelling air temperature falls below 10°C the unit will limit the maximum speed to 45%. Additionally, if the supply to or extract from the dwelling air temperature falls below 6°C the unit will stop both fans.

Analogue Outputs

There are two open collector analogue outputs. Connecting these to an external circuit allows the status of the filter and fans to be monitored as they are driven low (to 0V) when the filters need replacing or a fan has failed.

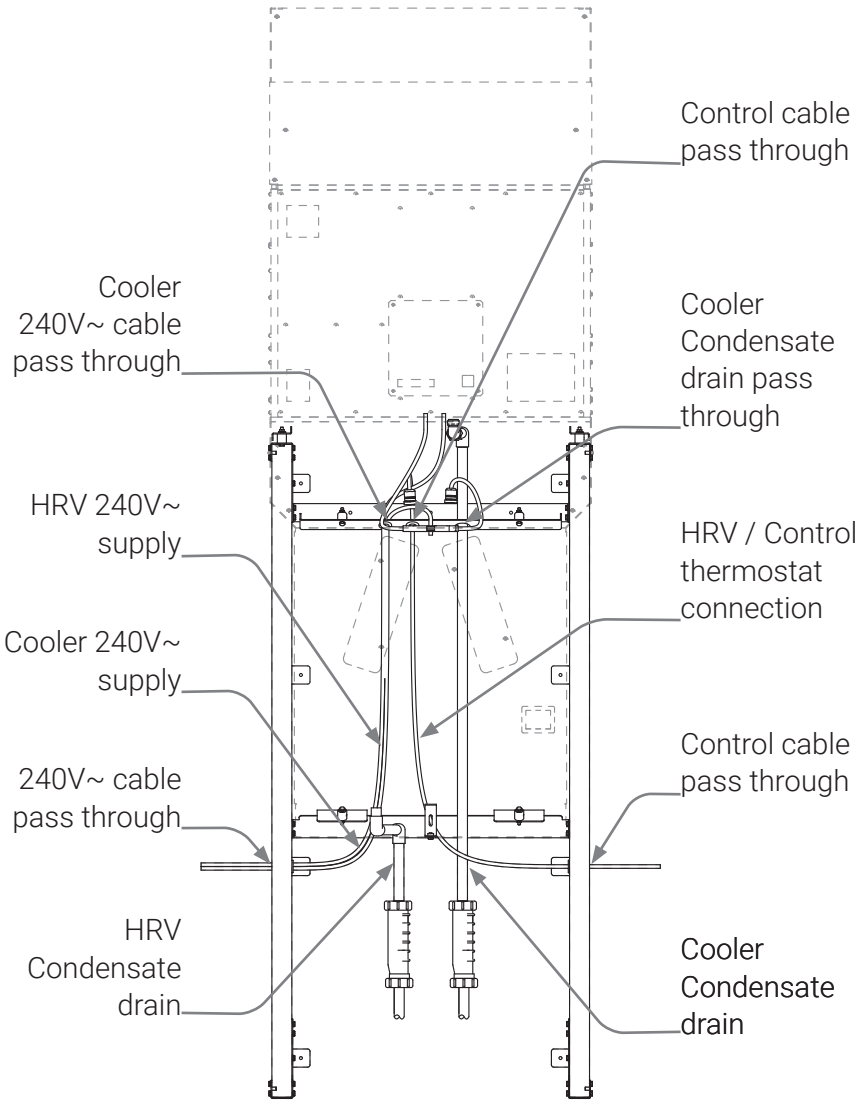
Modbus Port

The Modbus RTU port using RS485 allows the HRV to be monitored or controlled by any Modbus Master device.

Mounting:

Read and observe the guidance & safety notices listed in Warnings, Safety Information and Guidance.

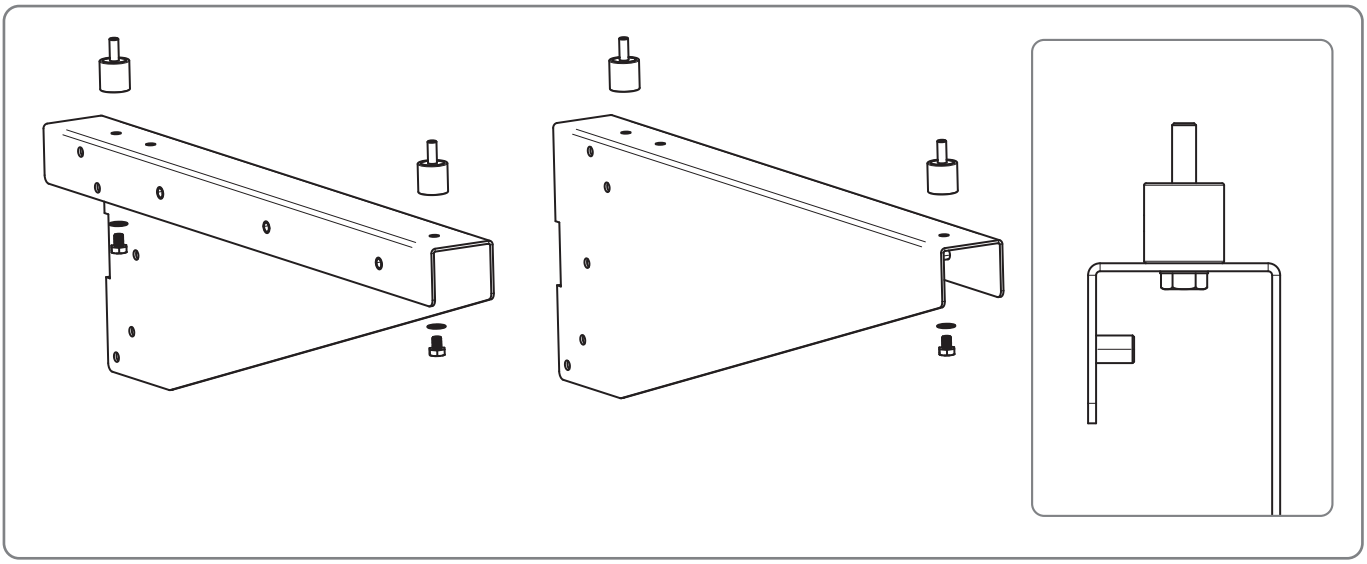
- Do not remove the Port Covers and protective film, until connecting ducting. Port Covers are fitted to prevent debris falling into the unit and causing blockages and damage:
- The mounting surface must be sufficiently strong to support the unit;
  Wall Mount 100kg, Floor Mount 106kg.
- Consider the positioning of electrical services and the Condensate Drain when siting the unit.
- Ensure there is sufficient access around the HRV *Q Plus* (Service Void - - -) for future maintenance; see Units' Dimensions Section for details.
- Do not 'box-in' the unit making access to the unit difficult for maintenance and repair. (Duct Covers are available)



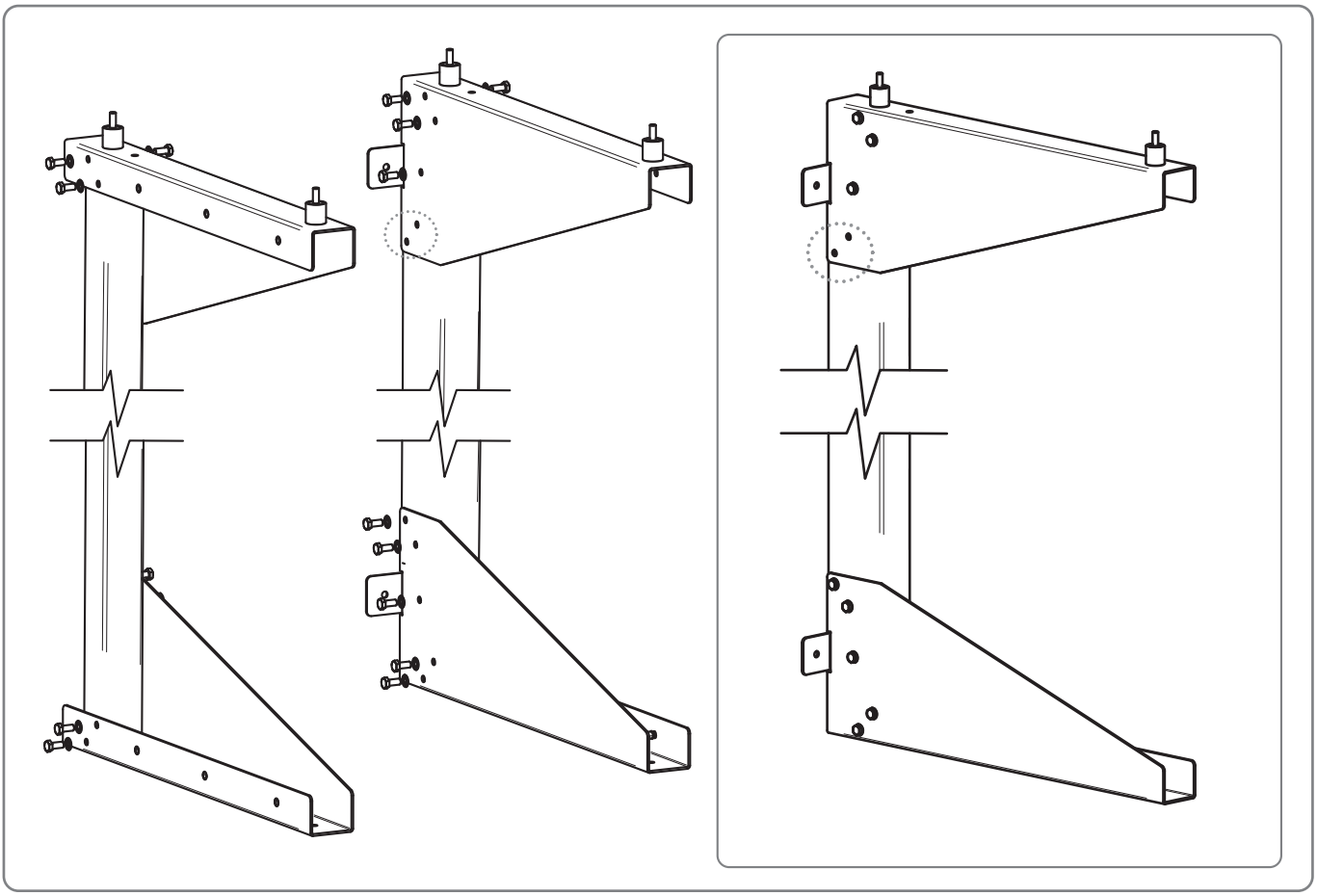
Each drain requires a dedicated trap
before connection to foul water system

Frame Assembly

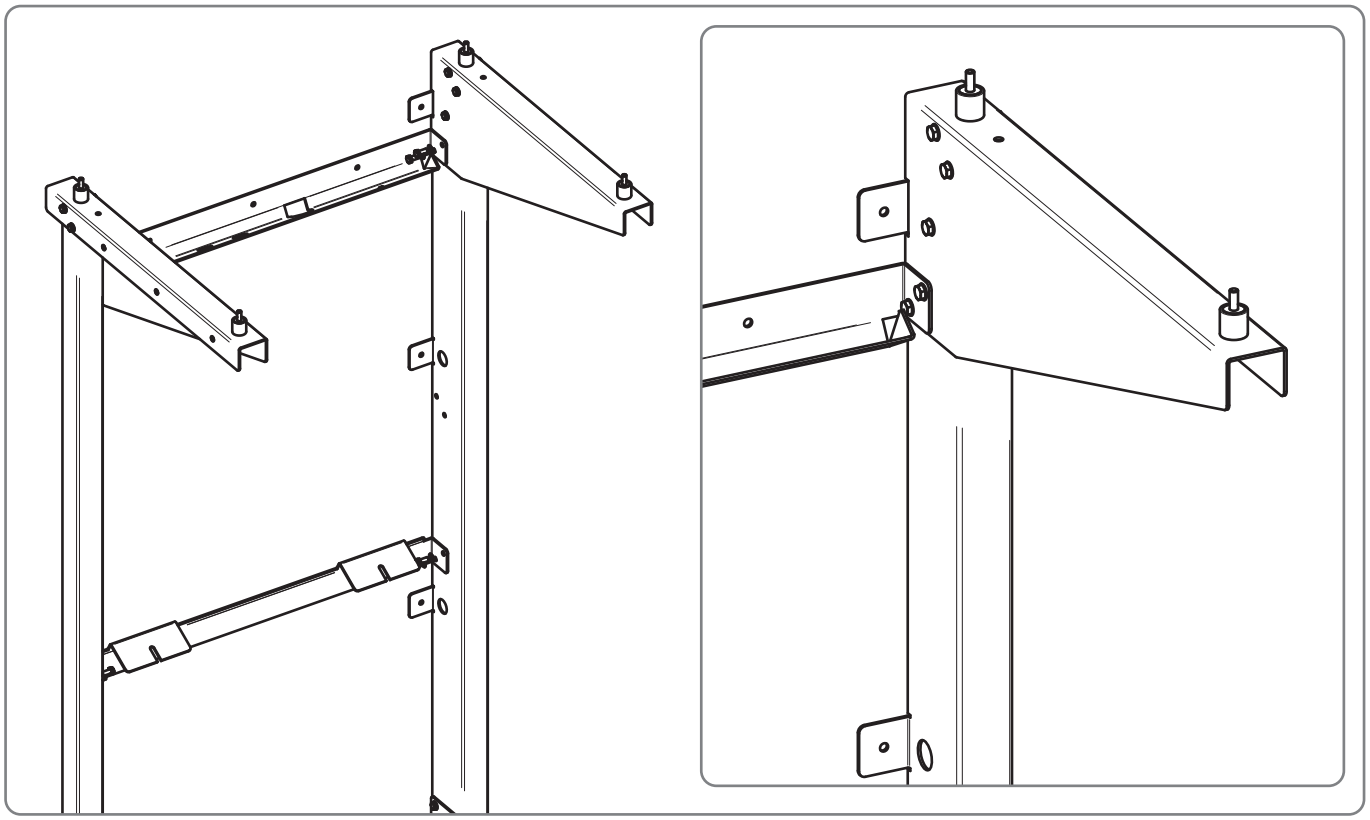
1. Fit two acoustic isolation mounts (BP9910371) to Support A (CP1011728) & two to Support B (CP1011729) using M6x8 screws (FF355) & washers (FF224) using the holes indicated.



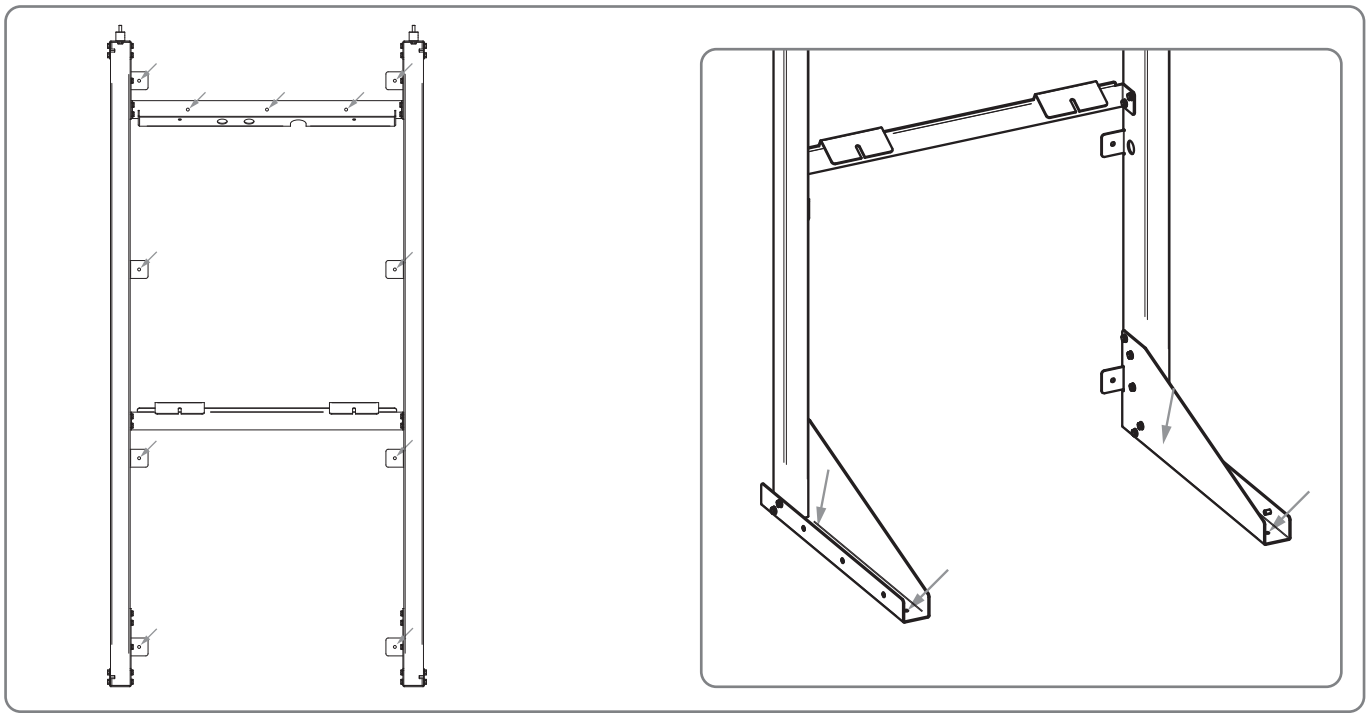
2. Fit the Supports, with the isolation mounts, to the top of each strut (Wall Mount CP1011768 & CP1011769). Fit two, additional supports to the bottom of the each strut (Floor Mount CP1011661 x 2) using M6x14 screws (FF406) nuts (FF353) & washers (FF224) DO NOT bolt through the highlighted holes, these four are used at in the next step



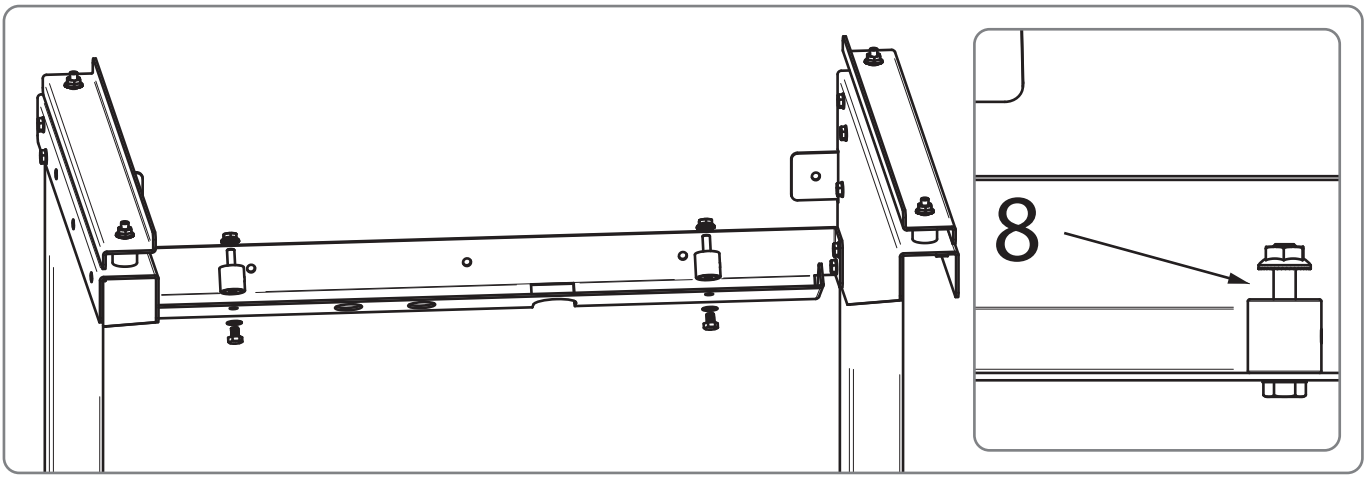
3. Attach the AV Mounting Brackets, top, (CP1011770) & Bottom (CP1011772) to the Wall Struts, M6x14 screws (FF406) nuts (FF353) & washers (FF224) ensure the bars are fitted into the correct positions.



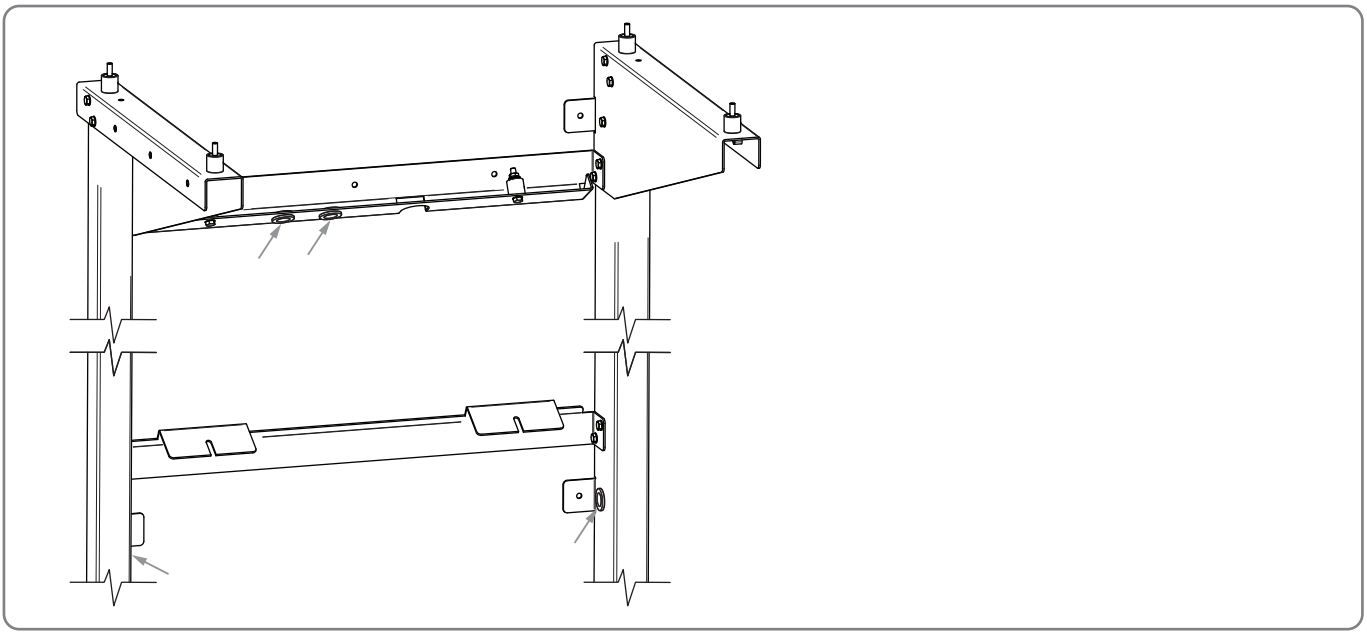
4. Position the frame in its final position and mark the fixing points
TP750 Wall Mount (nine) TP751 Flour Mount (eleven + four for the floor).
Use fixings suitable for Ø6 holes and the substrate the frame is being fixed to.



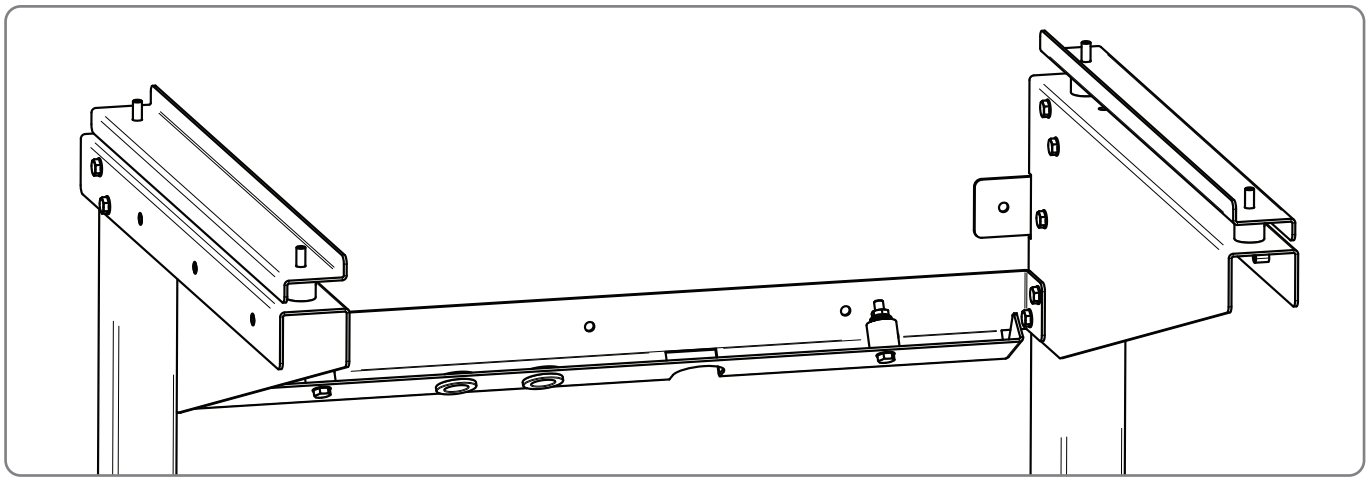
5. Fit two acoustic isolation mounts (BP9910371) to the Top AV Mounting Bracket using M6 x 8 screws (FF355) & washers (FF224), also loosely add a flanged nut (FF375) to each leaving a 8mm gap.



6. Fit the Grommets (FF433) to the Top AV Mounting Bracket and the lowest pass through hols in the Wall Struts Place both runners onto the upper arm's acoustic isolation mounts, do not bolt on at this stage.

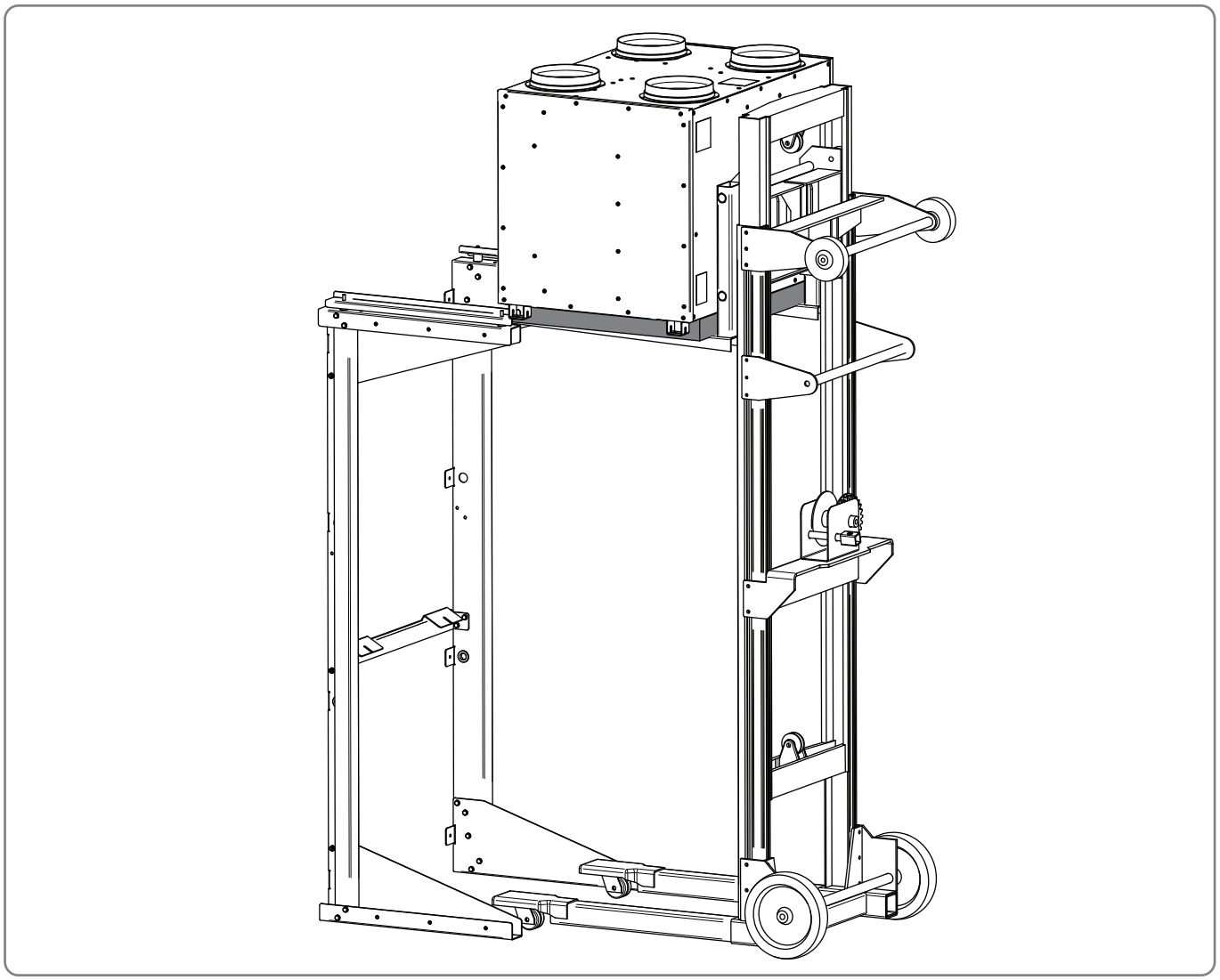


7. Place the runners (CP1011773) on the top Support Arm's acoustic isolation mounts, DO NOT fit nuts at this stage.

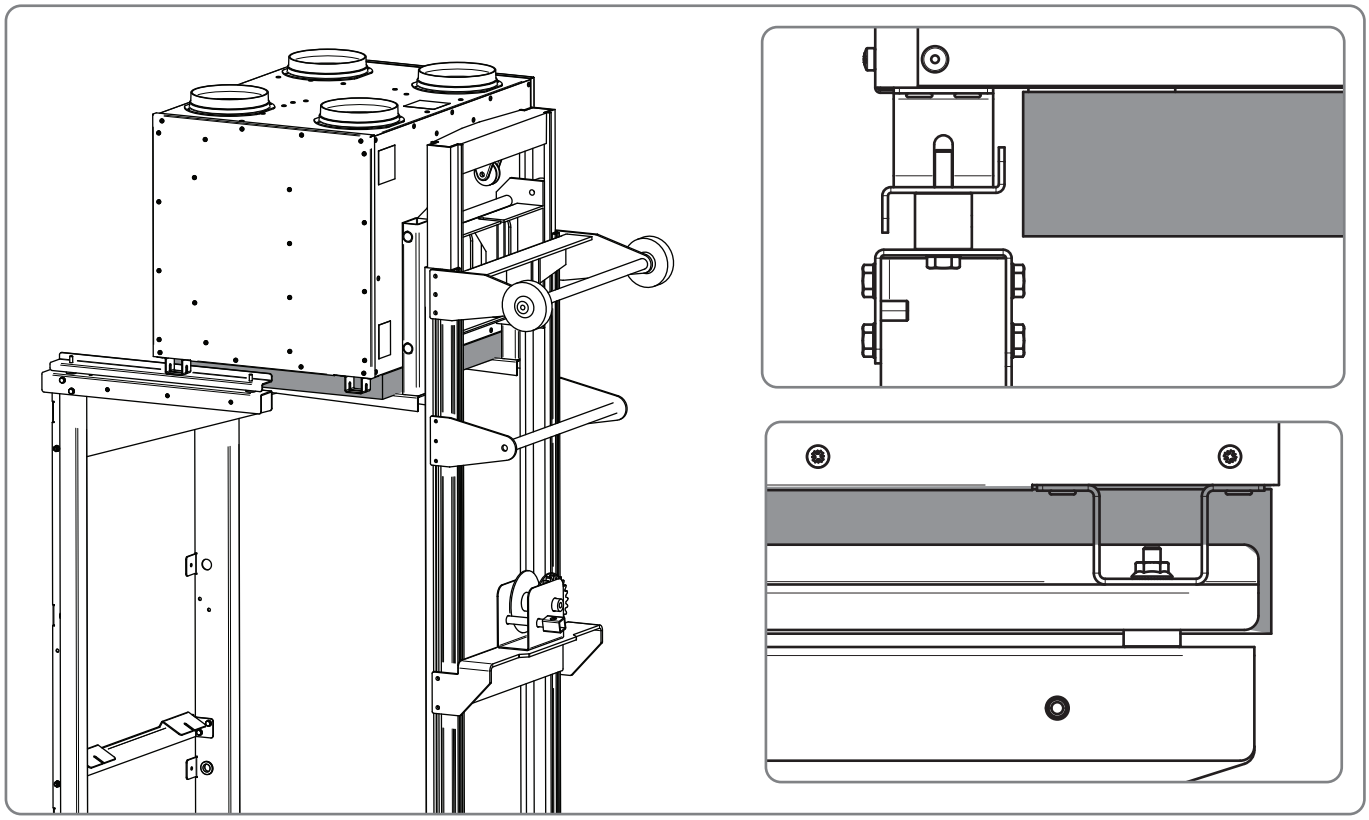


Cooler Fitting

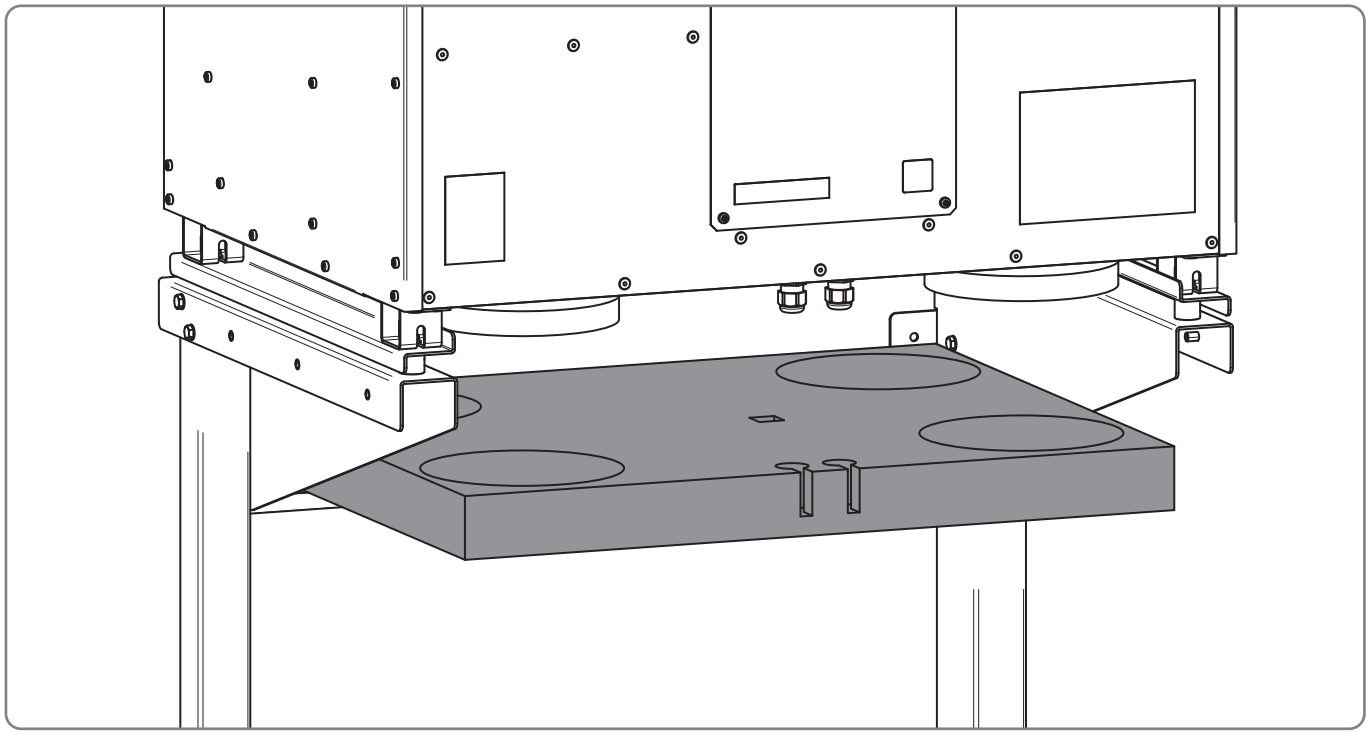
8. Leaving the port protection foam block on the base of the Cooler (56300200), raise the Cooler up to the height of the upper arms using a suitable manual handling lift.



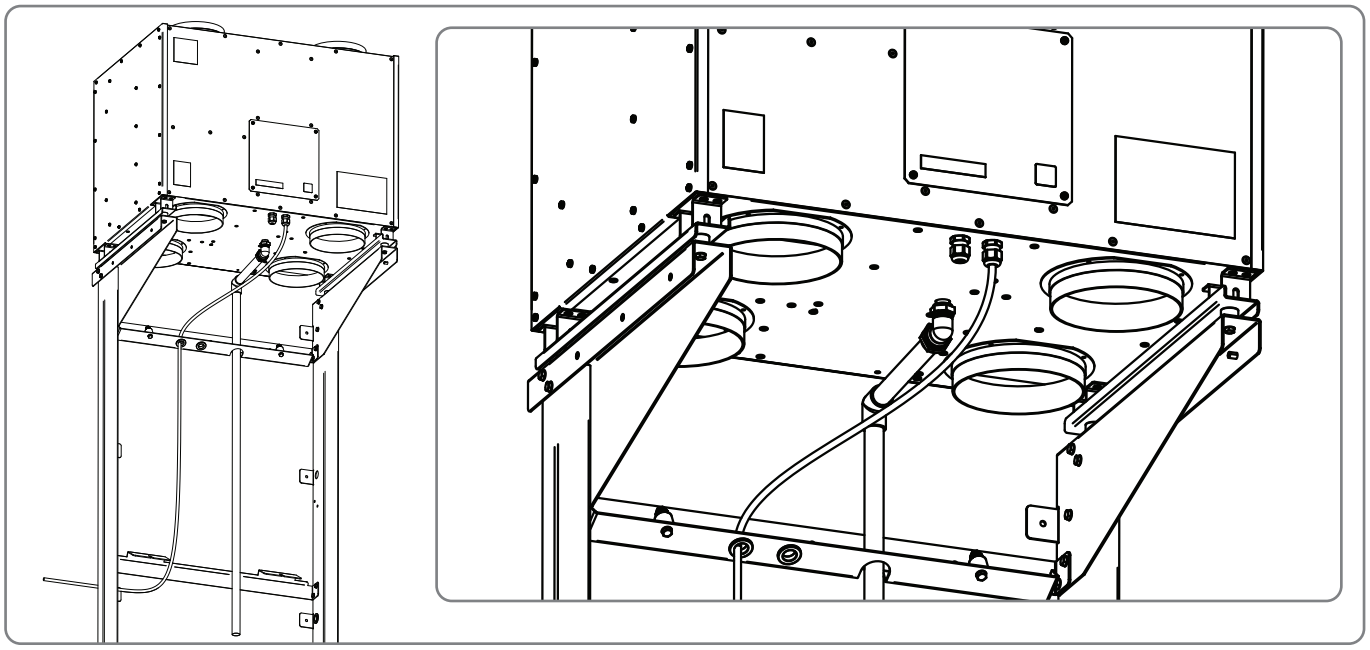
9. Align the feet of the Cooler with the runners on the top arms, slide the Cooler from the lift onto the runners, ensure the threads of the acoustic isolation mounts pass through the slots in the Coolers's feet. Leave approximately 10mm clearance between the wall and the back of the Cooler. Fit flanged nuts (FF375) to the four acoustic isolation mounts to fix the Cooler in position.



10. Remove the port protection foam block from the base of the Cooler.

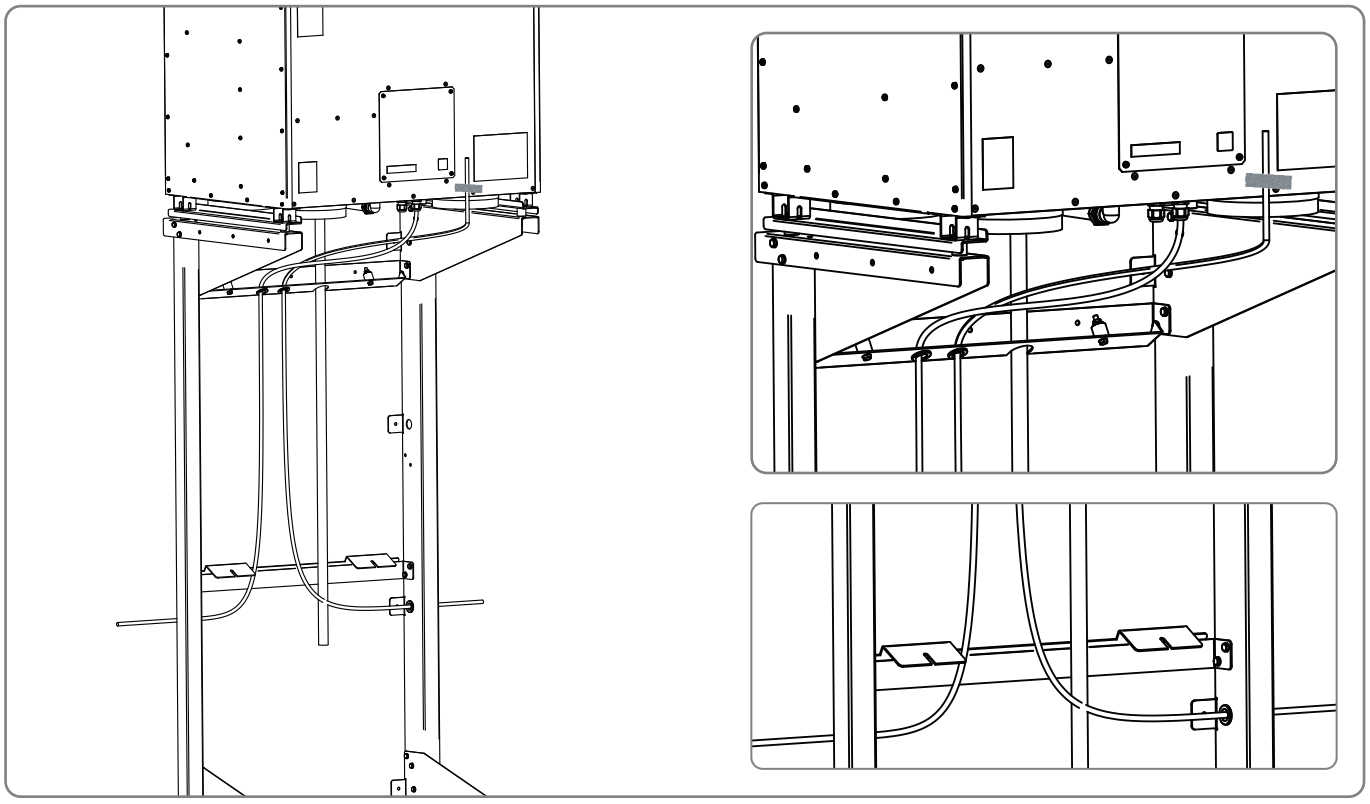


11. Fit the Cooler condensate drain piping routed through the opening in the Top AV mounting Bracket. Cooler condensate exit is Ø15mm. Route the Cooler supply cable through the left hand grommet in the Top AV mounting Bracket and through the pass grommet in the left hand Wall Strut.



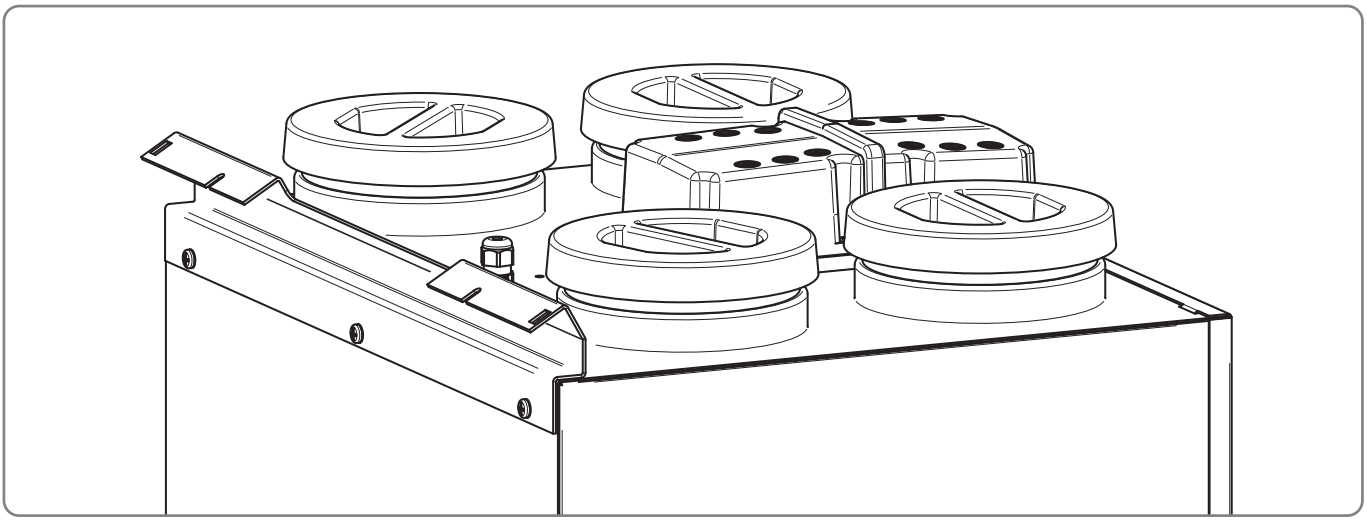
12. Route the cable for the thermostat through the right hand grommets in the Top AV mounting Bracket and right hand Wall Strut. Temporally tape the cable out of the way prior to installing the HRV4.25. The thermostat cable is to be connected to the HRV4.25.

It is essential that the specified cable routing is followed as this ensures that the required 50mm separation between 230V~ and control cables is maintained

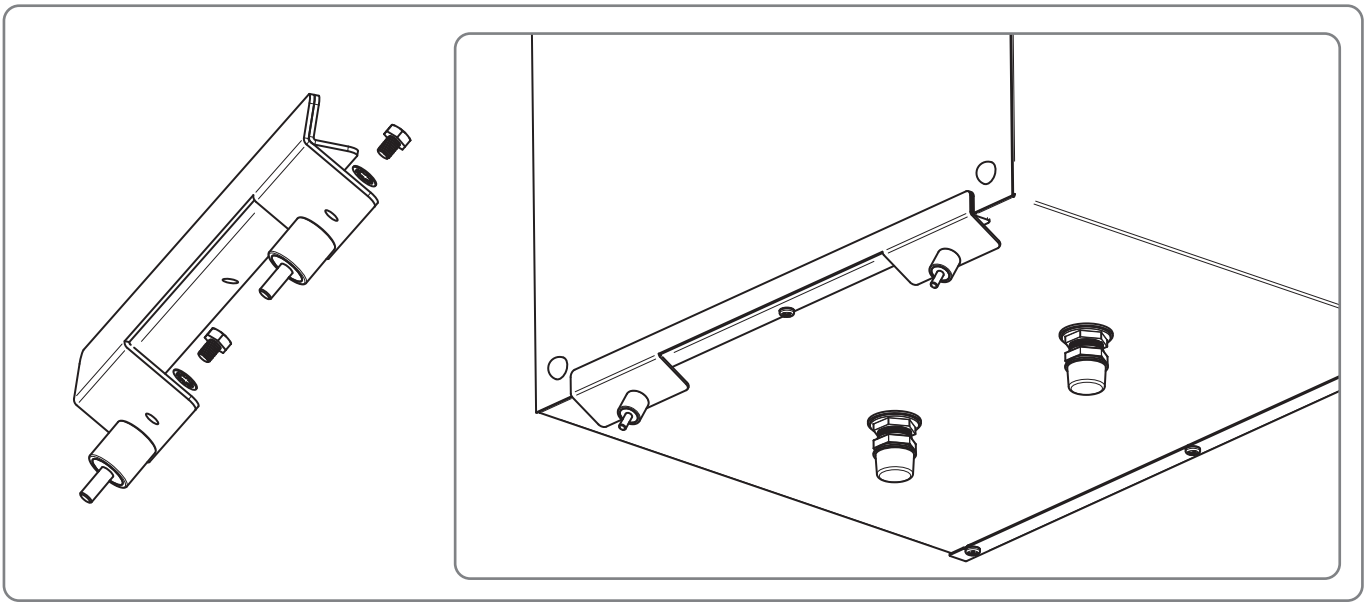


HRV Fitting

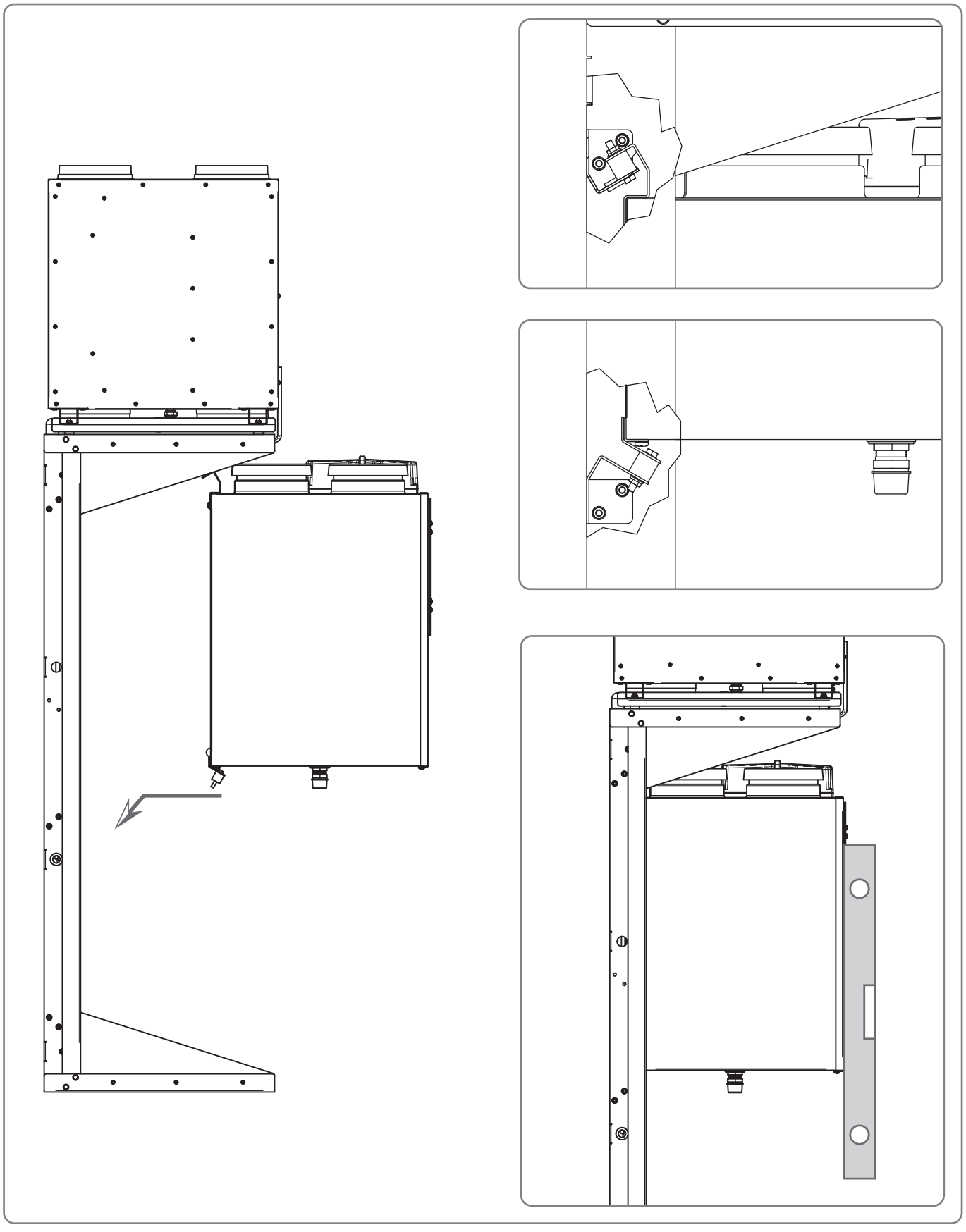
13. Fit the HRV AV Top Mounting Bracket (CP1011771) to the HRV4.25 using M6x10 screws (FF225) & washers (FF224).



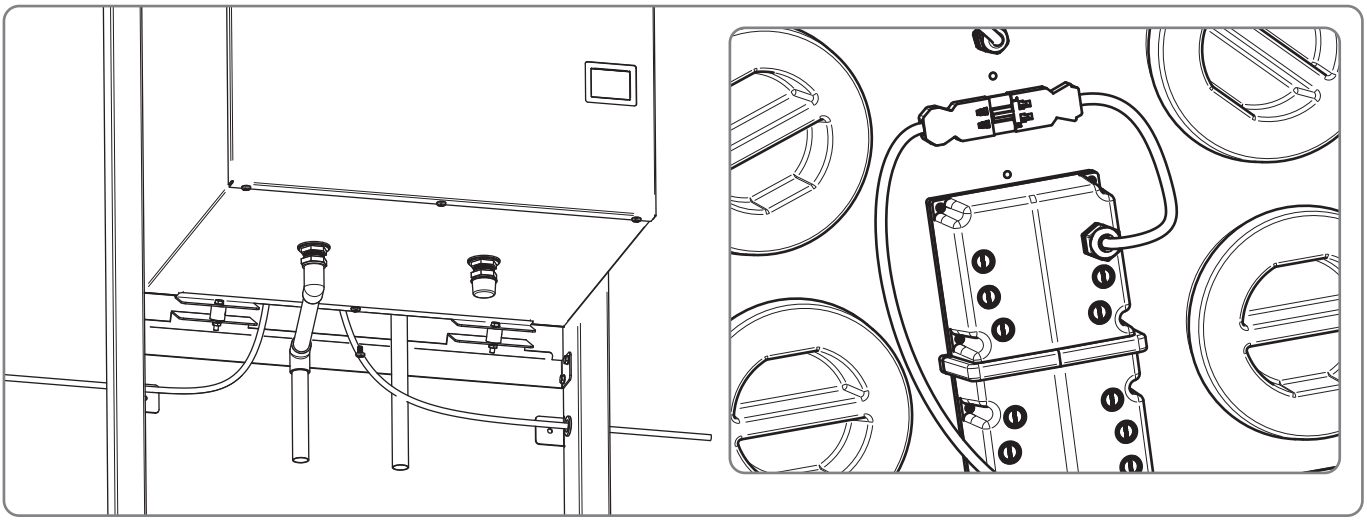
14. Fit two acoustic isolation mounts (BP9910371) to the HRV AV Bottom Mounting Bracket (CP1011792) using M6 x 8 screws (FF355) & washers (FF224). Then fit the bracket to the bottom of the HRV4.25 using a M6x10 screw (FF225) & washer (FF224).



15. Fit the HRV4.25 aligning all four acoustic isolation mounts with their respective slots. Adjust the position of the HRV to ensure the unit is level front back. Tighten nuts when unit is positioned correctly.

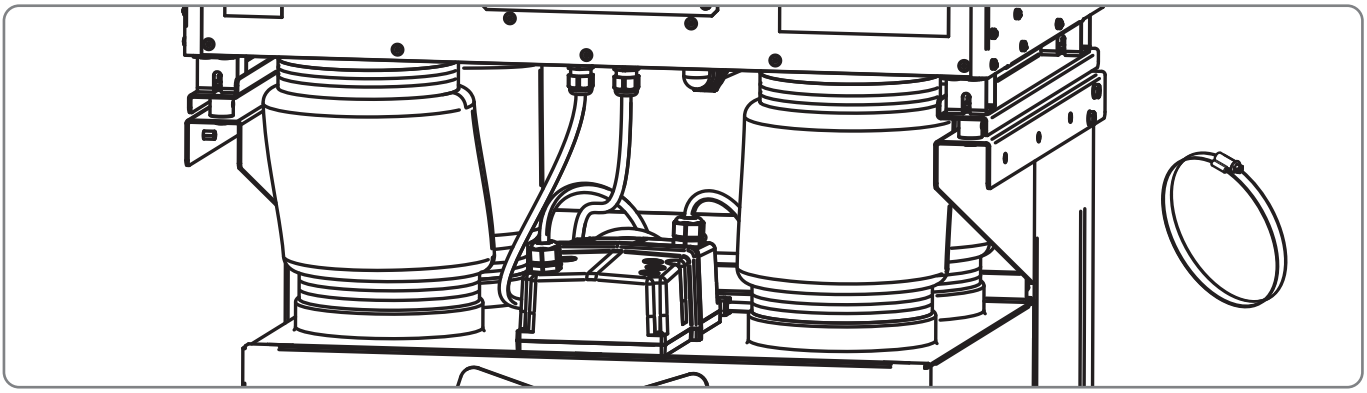


16. Fit the condensate piping to the Left Hand drain on the HRV and route the supply cable behind the unit and through the left hand upright. Using the plug and socket connect the HRV4.25 to Cooler communication cable.

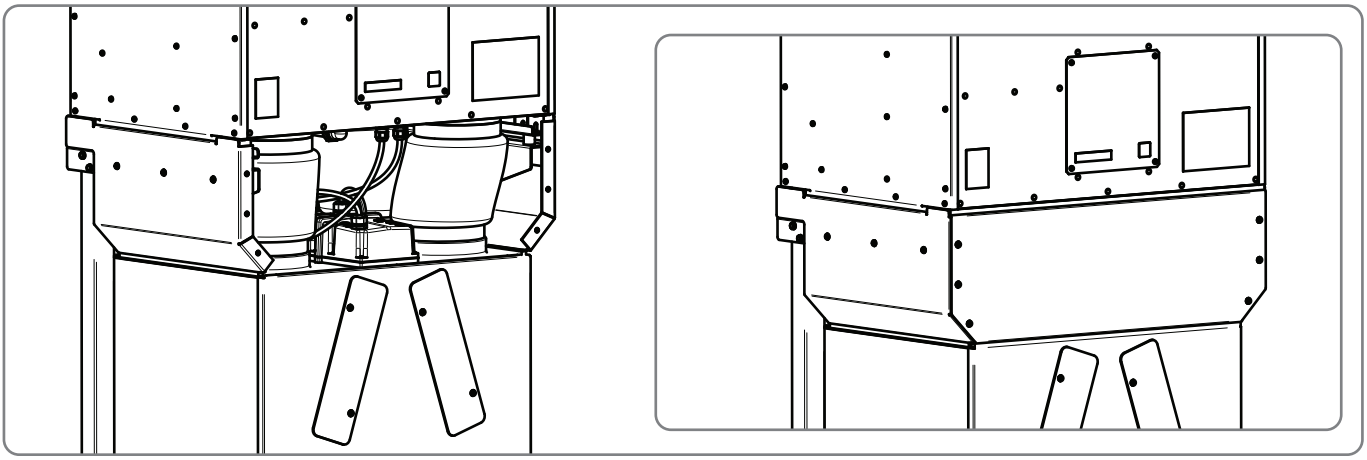


Internal Ducting & Cover Fitting

17. Fit the four flexible silencers (89724) between the Cooler and HRV.4.25; secure using the eight supplied Hose Clamps 8960188

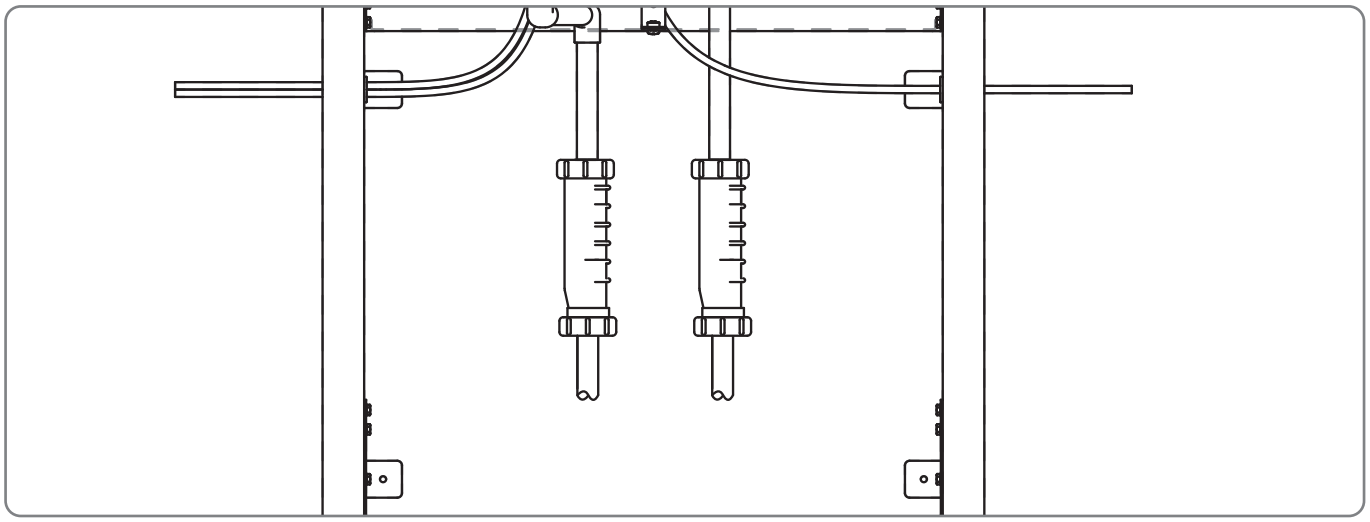


18. Fit the two side Ducting Covers (CP1011664 & CP1011665) to each Support, fit the Front Cover (CP1011666) using M5x10 screws (FF279) & washer (FF231).



Condensate Drain

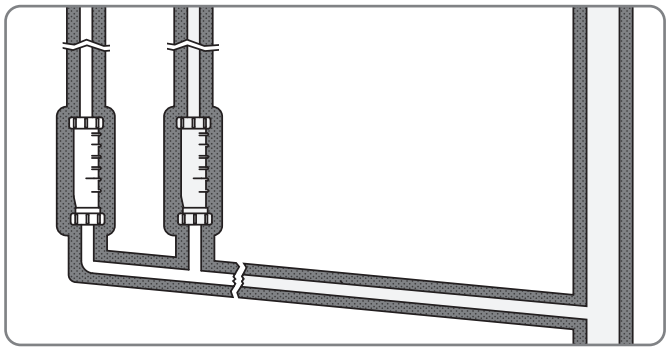
The HRV and Cooler's Condensation Drain Pipes must be fitted and connected to the dwelling's foul water drainage system in accordance with the relevant building regulations. Each drain requires a dedicated trap before connection to foul water system.



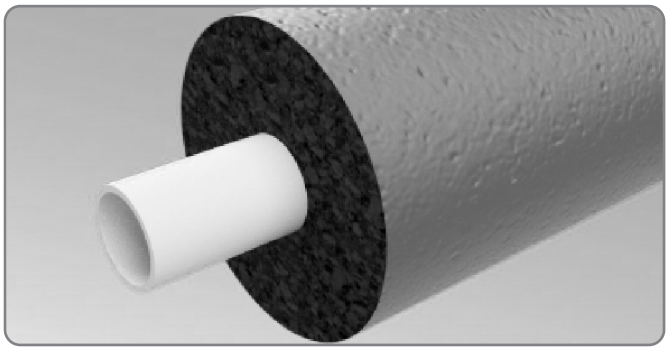
Dedicated Condensate Drains

The Condensate Drains:

- HRV4.25 Condensation Drain Pipe Is attached via a 22mm compression fitting.
- Cooler Condensate outlet is Ø15mm pipe.
- Each Drain must incorporate a suitable trap, which must act as an air lock, ie must be sealed, before connection to foul water system.
- Must be adequately secured along it's length.

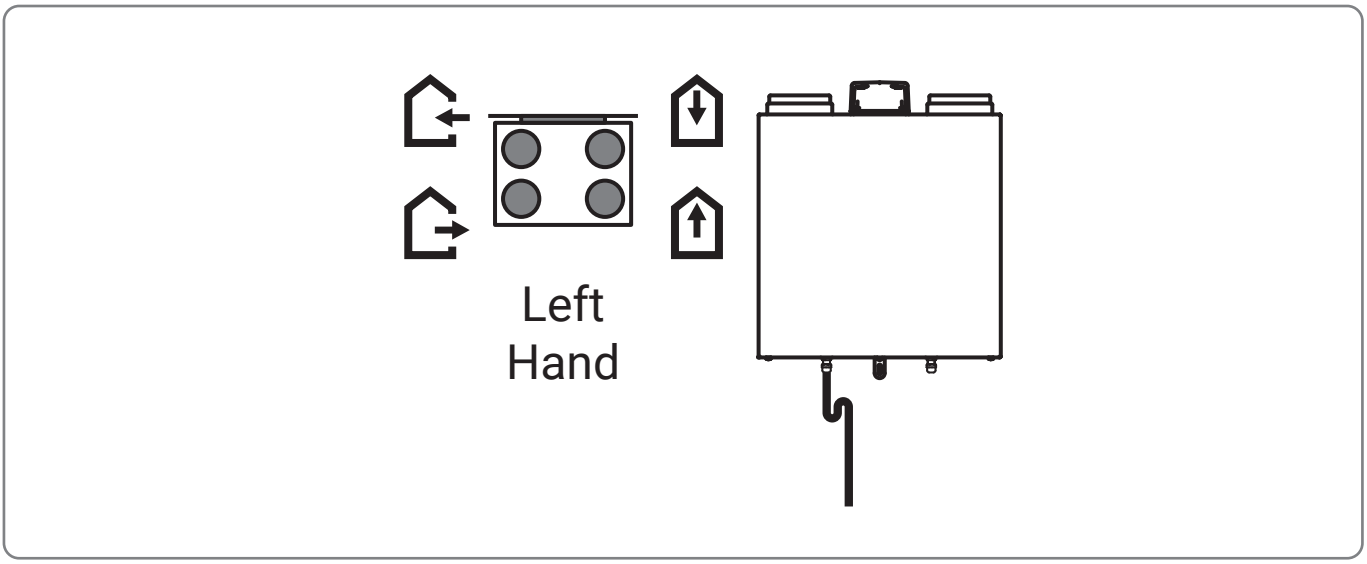


Insulated Self Sealing Traps and Waste



Insulated Condensate Drain

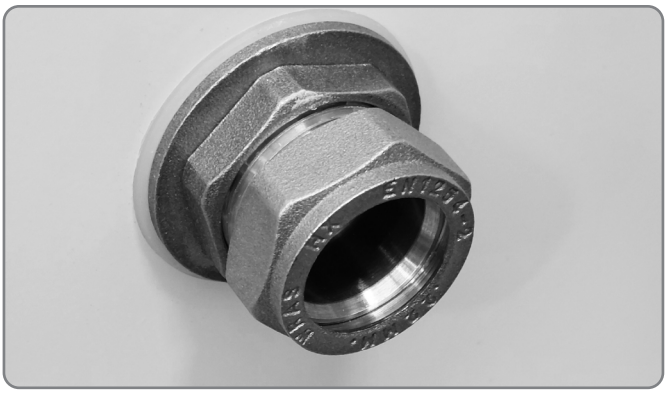
- Must be insulated if any part of the pipe passes through a unheated void or a space which could fall below 10°C.
- Must be installed to have a 3 to 5° fall from the unit.
- Titon recommend the use of a diaphragm type waste valve, in place of a conventional 'wet' trap which could dry out; Such as a 'Hepworth HepvO® Hygienic self sealing plastic waste valve' recommended as an alternative to traditional U-Traps (BRE certificate no. 042/97). If using a conventional U-trap ensure the U-trap has been filled to a suitable level of water to avoid any air locks.



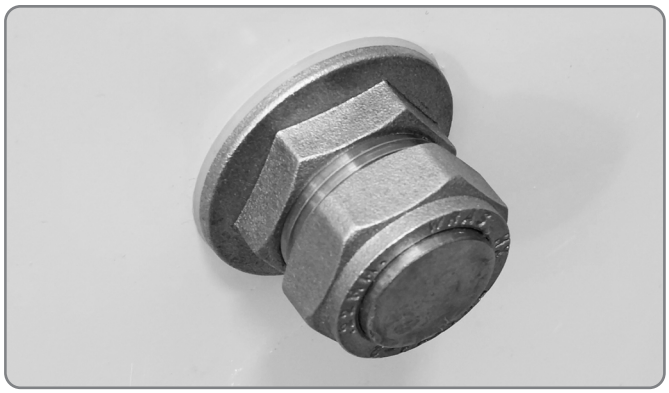
Left Hand Drain Connection & corresponding Ducting Connections

Blanking Plug

The Blanking plug must be fitted to the unused right hand condensate outlet and tighten to create a seal..



Condensate Outlet LH



Blanking Plate fitted to unused Outlet RH

Ducting Connections

The HRV unit has a labels with the icons indicating which port is which.

Read and observe the Warnings, Safety Information and Guidance.
It is very important that ducting is connected to the correct ports in line with the icons below.

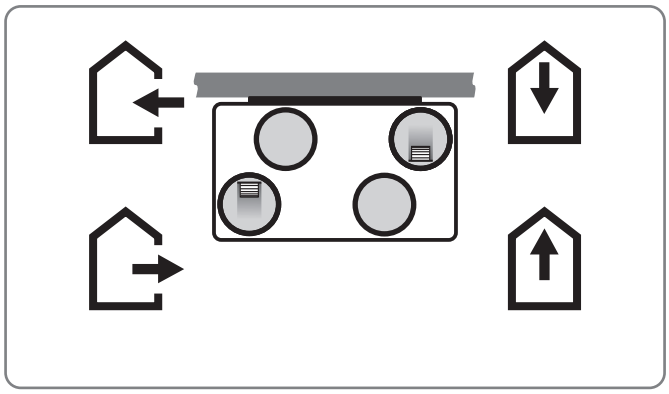
Port Designations

EXTRACT FROM DWELLING - This duct port is connected to the ducting that carries waste air from the 'Wet Rooms' to the HRV unit.

TO ATMOSPHERE - This duct port is connected to the ducting that carries the waste air to outdoors from the HRV unit.

SUPPLY TO DWELLING - This duct port is connected to the ducting that carries the fresh warmed air to the habitable rooms from the HRV unit.

FROM ATMOSPHERE - This duct port is connected to the ducting that carries fresh outdoor air to the HRV unit.



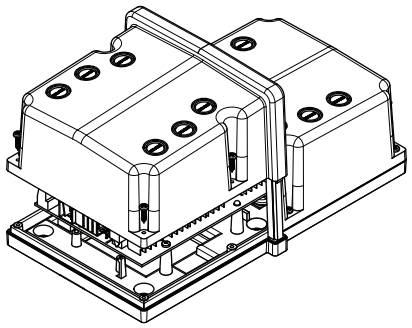
Units' Duct Connections

Wiring Access

All wiring must conform to current I.E.E. Wiring Regulations and all applicable national standards and Building Regulations.

Read and observe the Warnings, Safety Information and Guidance.

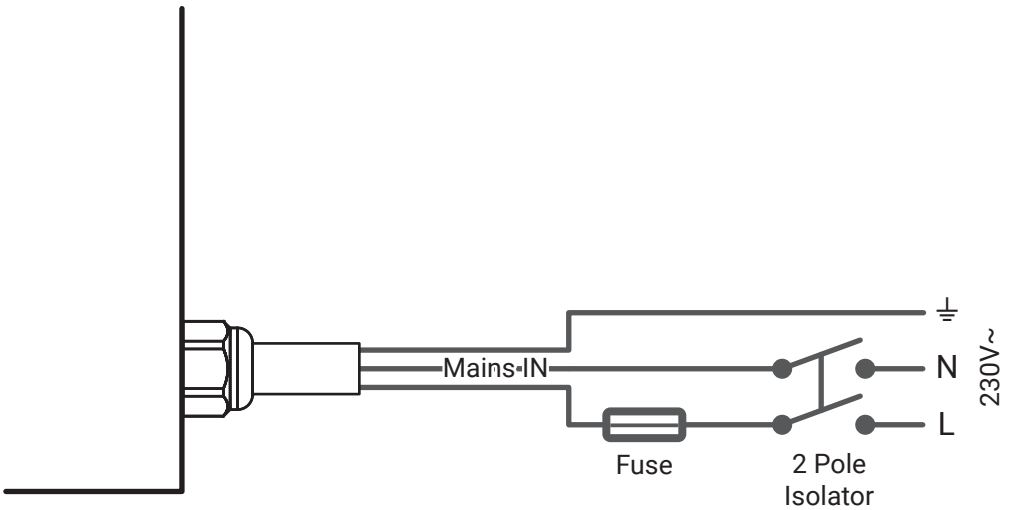
The Electronics Terminal Enclosure. compartment has two removable lids. The front lid must always be removed before the rear lid; both lids are fixed by four screws. All wiring must be routed into the electronics compartment using cable glands or similar.



Electronics Terminal Enclosure

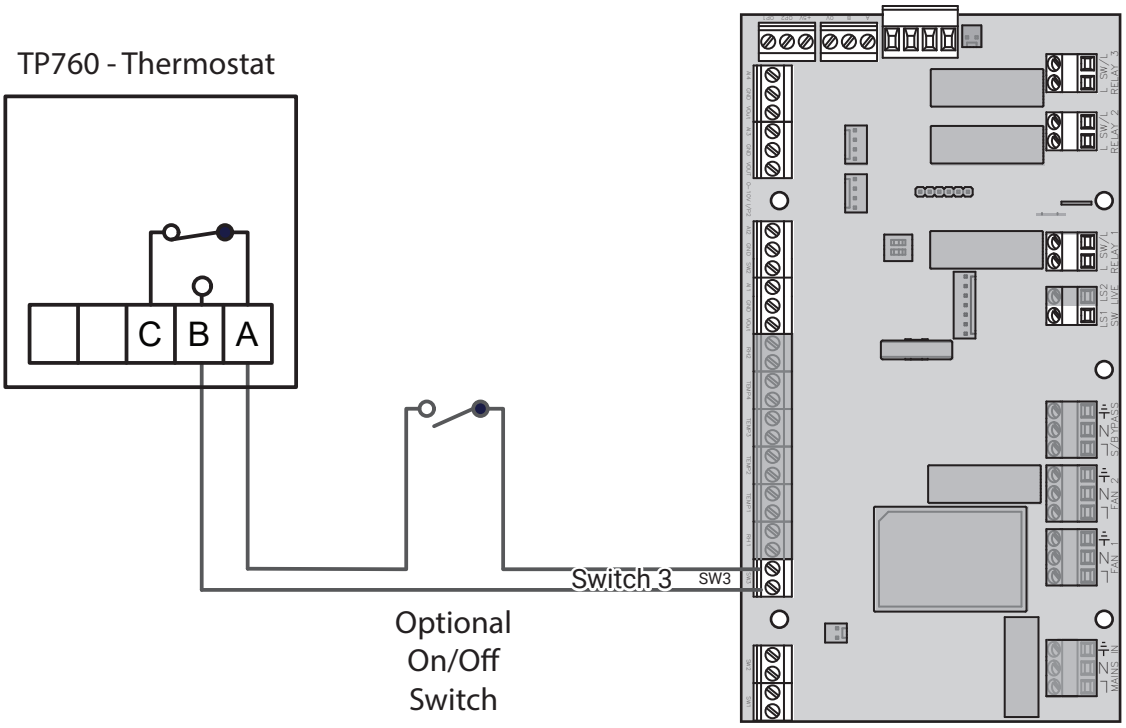
Supply

The HRV4.25 and the Cooler; each require a dedicated local double pole isolation switch.



Supply Wiring

Thermostat Connection

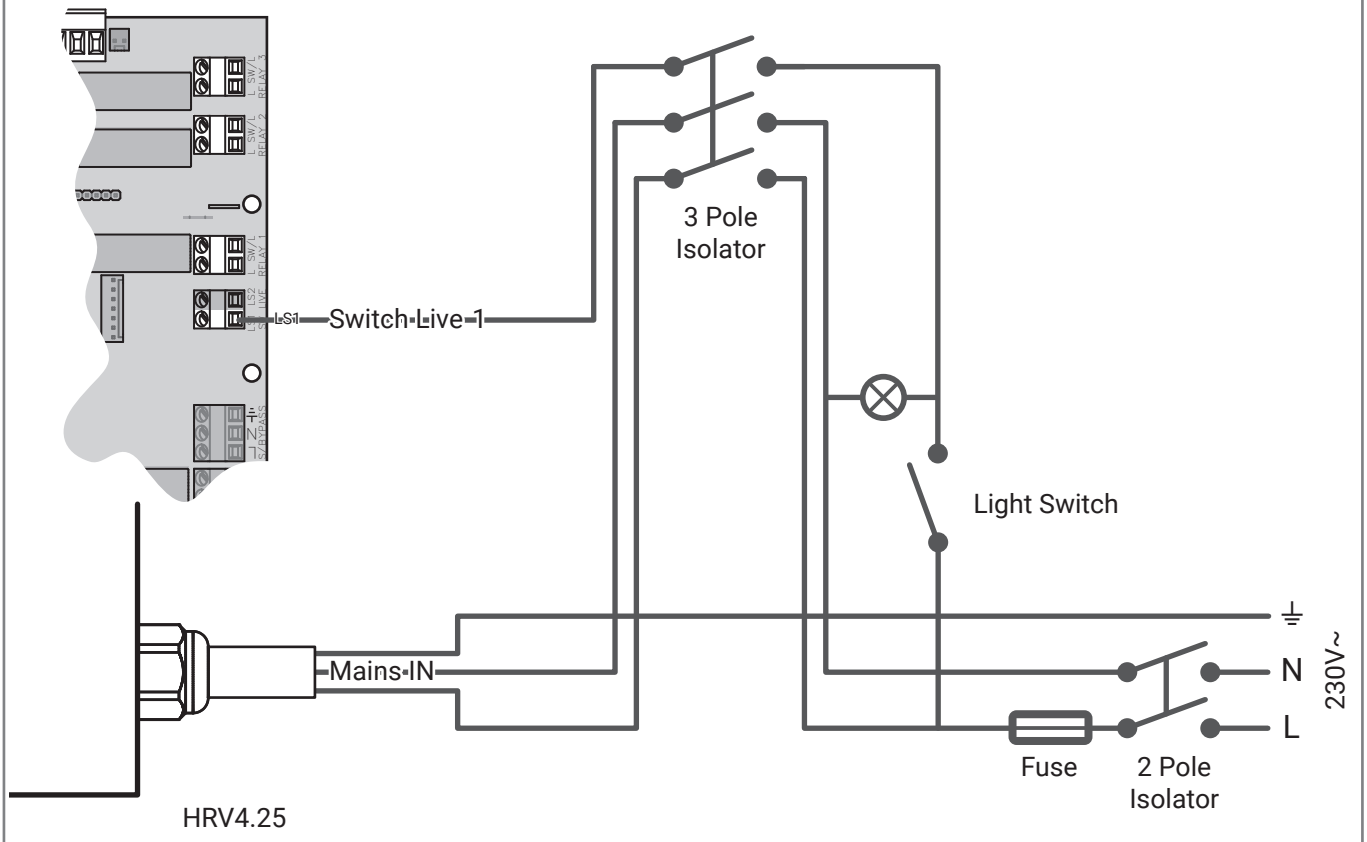


Thermostat to HRV4.25 Connection

The digital thermostat TP760 must be configure to cooler mode from heating mode see manual BM1275.

Switching & Controls

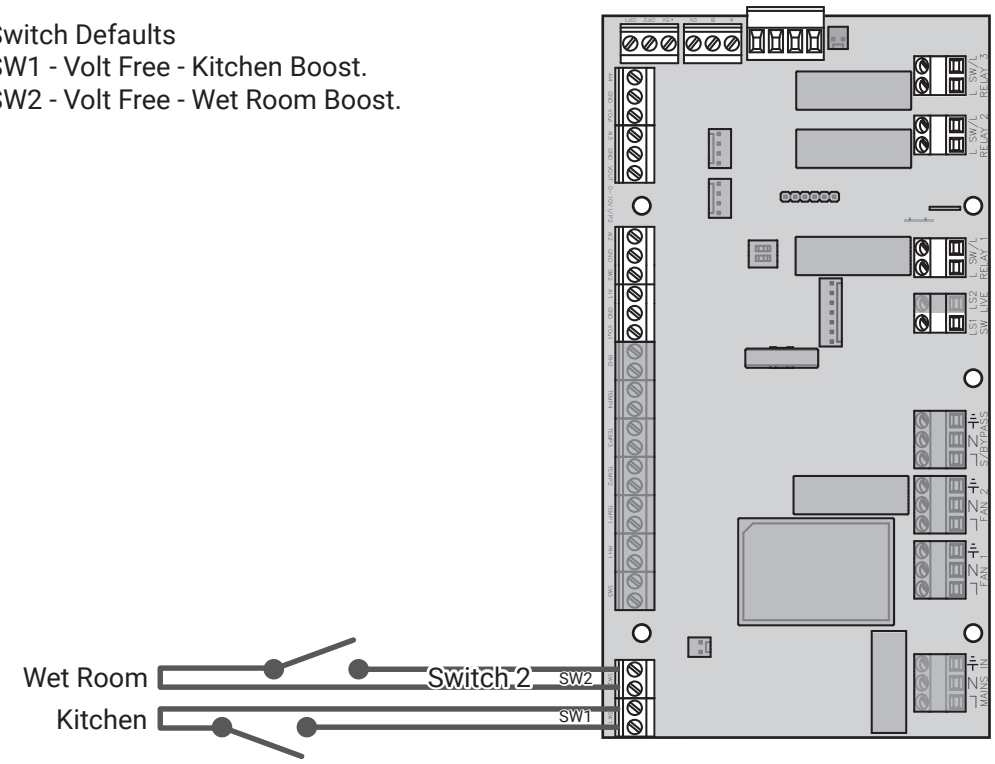
The Switched Live (LS1) Boost must be supplied via the same circuit as used to power the unit.
A 3 (LS1 only) pole local isolator must be installed.
The Boxed Relay (Part No. TP505) may be required to switch from other circuits.



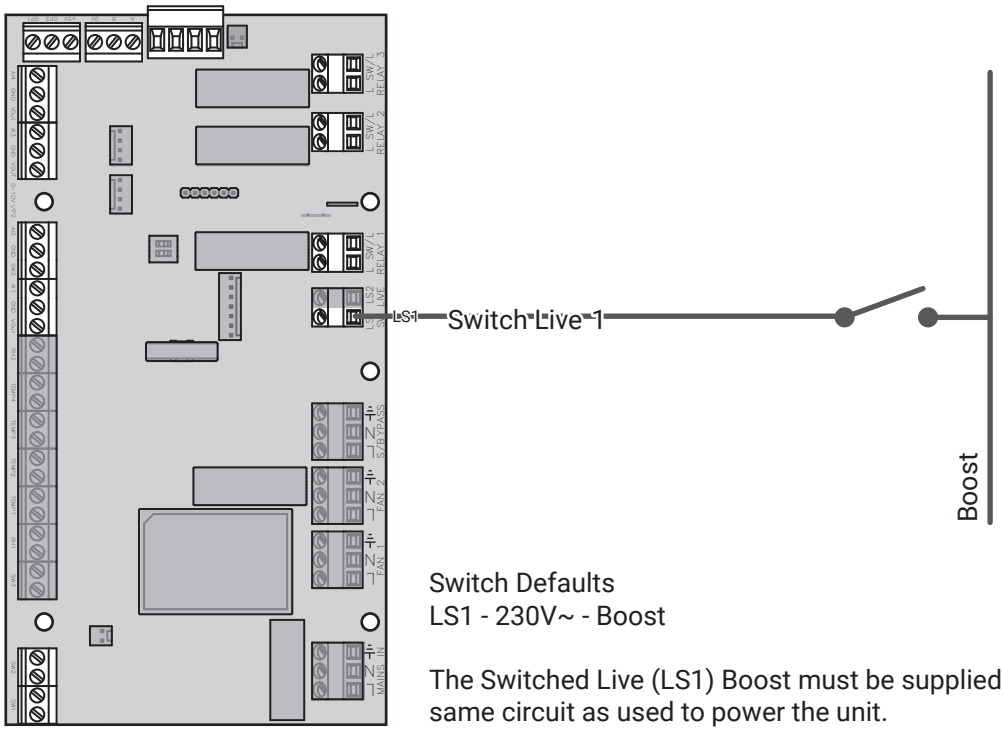
HRV4.25 Supply Wiring with Switch Inputs

All Control, Boost & Communication cables should not be placed within 50mm or on the same metal cable tray as any 230V~ lighting or power cables.

Switch Defaults
SW1 - Volt Free - Kitchen Boost.
SW2 - Volt Free - Wet Room Boost.



Volt Free Switch Inputs

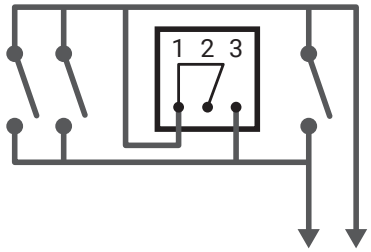


Switch Defaults
LS1 - 230V~ - Boost

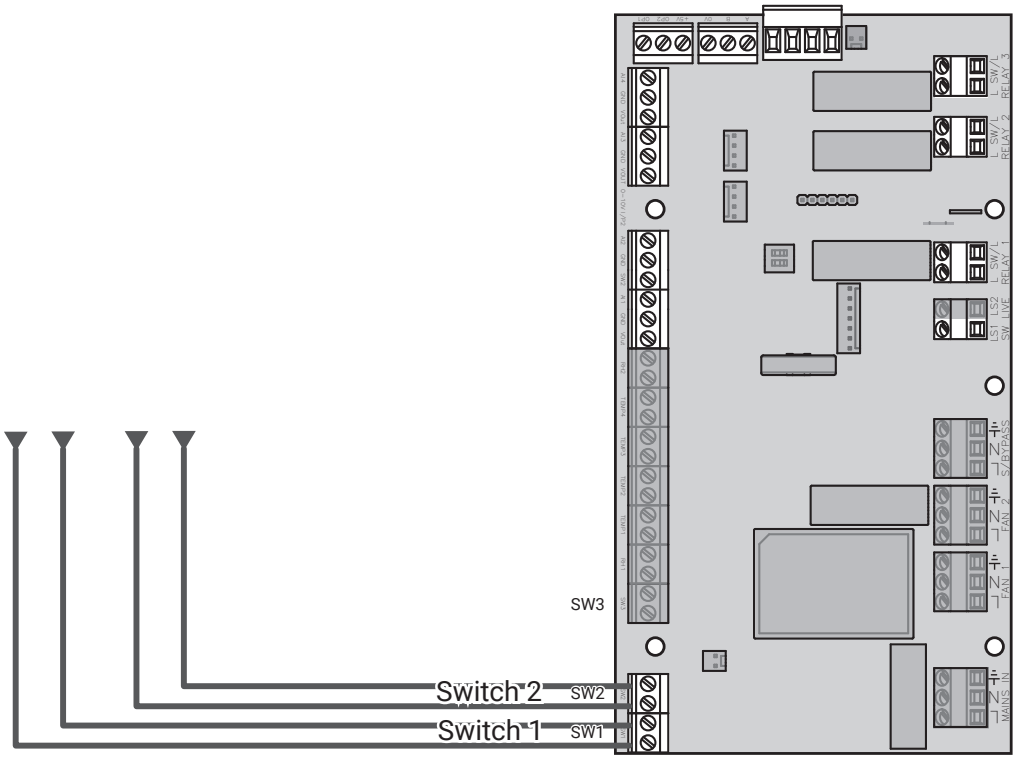
The Switched Live (LS1) Boost must be supplied via the same circuit as used to power the unit.

LIVE Switch Inputs

Any of these switch arrangements can be used in switch inputs SW1 to SW2



Volt-free boost switching of MVHR using single-pole switches TP502, TP503, TP507 and / or TP500/TP501 Humidistat.
There is a maximum of 10 single pole switches or Humidistats that can be used.



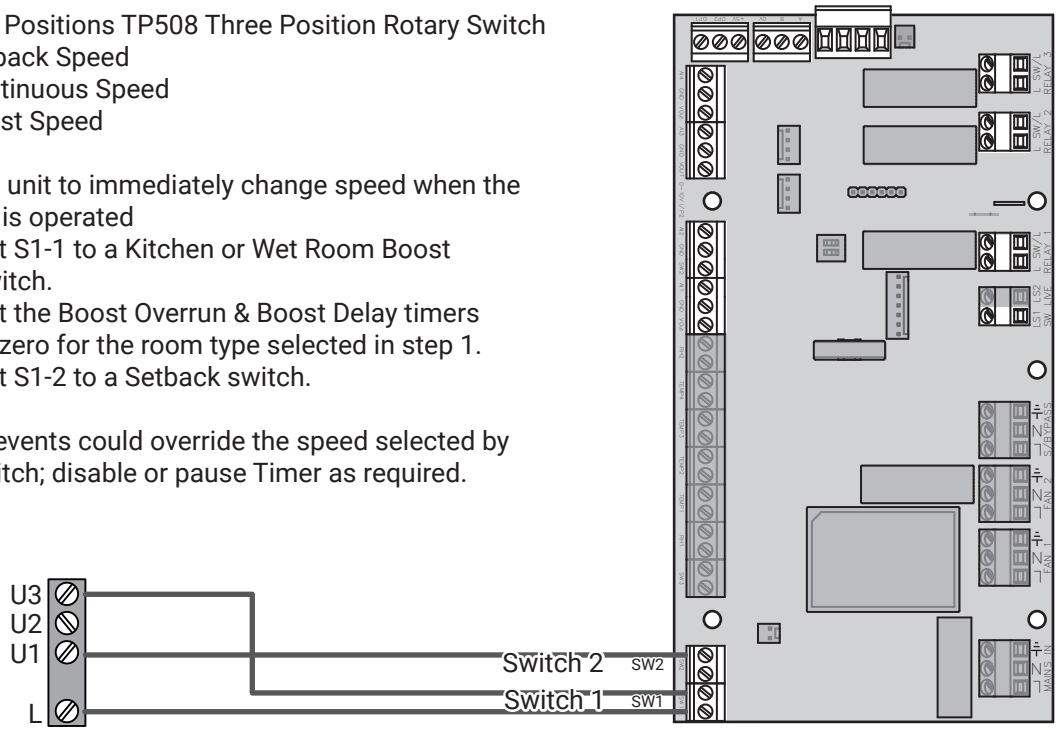
Volt Free Switch Inputs

Switch Positions TP508 Three Position Rotary Switch
1 - Setback Speed
2 - Continuous Speed
3 - Boost Speed

For the unit to immediately change speed when the switch is operated

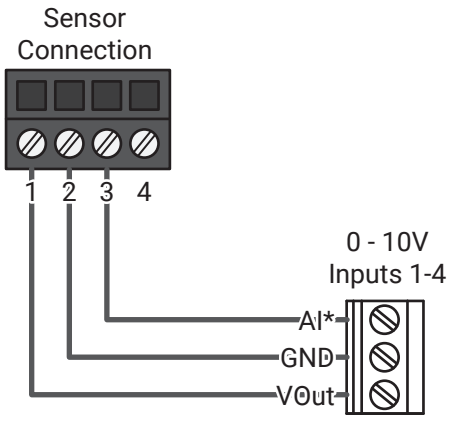
1 Set S1-1 to a Kitchen or Wet Room Boost switch.
2 Set the Boost Overrun & Boost Delay timers to zero for the room type selected in step 1.
3 Set S1-2 to a Setback switch.

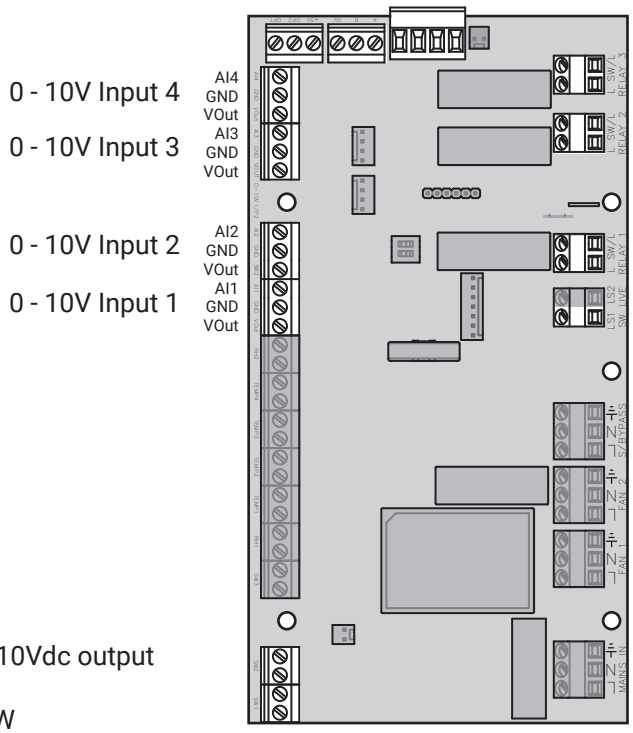
Timer events could override the speed selected by the switch; disable or pause Timer as required.



Three Way Rotary Switch

External Sensors



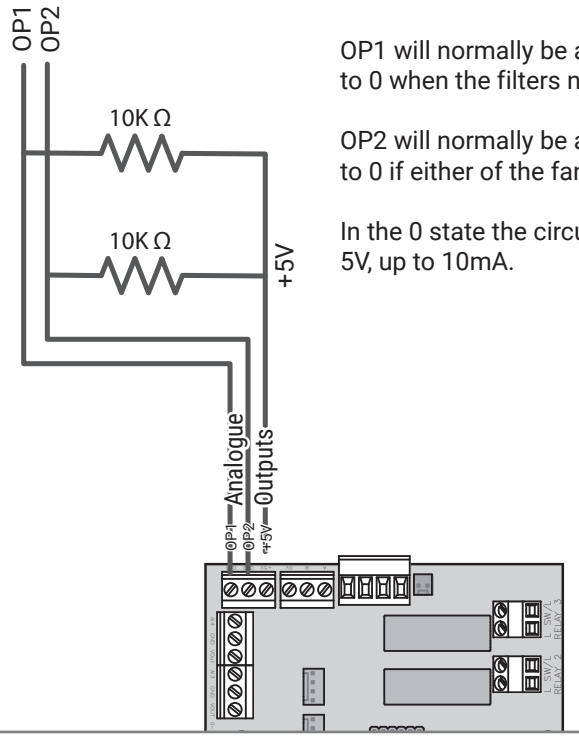


Sensor Options
TP540 VOC
TP541 CO_2
TP542 Humidity

- Ensure sensors are configured to give a 0-10Vdc output
- VOut = 24Vdc
- Combined sensor load must not exceed 4W

0-10V Sensor Connections

Analogue Output



OP1 will normally be at a logic of 1 and change to 0 when the filters need replacing.

OP2 will normally be at a logic of 1 and change to 0 if either of the fans have failed.

In the 0 state the circuit can drive low an input of 5V, up to 10mA.

Analogue Output connection information

Commissioning

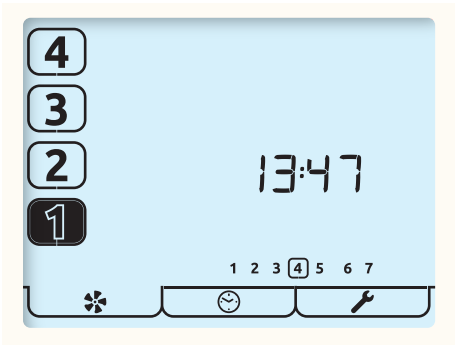
Once installation is complete the ventilation system will need to be commissioned and setup using aura-t controller,
The aura-t™ on board controller is a programmable touch screen controller which monitors and displays the status of a HRV unit. It allows the unit to be commissioned, and gives the user both manual and timed control of fan speeds. The screen is backlit, the backlight operates when the screen is touched.

User Interface

Menu Tabs

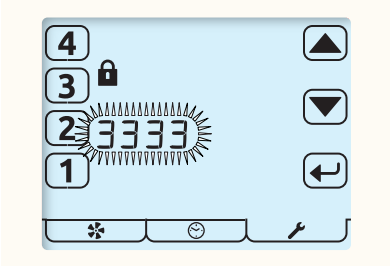
The aura-t™ screen has three interactive menu screens which are selected via tabs at the bottom of the touchscreen.

Tab			
Function	Monitor & Control Fan Commission	Timer	Setup



Tab			
Name	**Run Mode**	**Timer Mode1**	**Setup (Tap)** **Setup Menu**
Option	Displays: Fan Speed, Time, Day and Status. Gives access to: Fan Speed Setup.	Gives access to: Timer Run/Pause Timer Setup Second press display HRV's runtime.	Gives access to: Time, Day, RH threshold2, Overrun Timers, WiFi3, Filter Setup, Filter Reset.
			Setup (Tap x 2) **Cooler Setup Menu**
			Manual mode Cooler Min. Temperature Cooler On/Off

Tab			
			Setup (Long Press) **Setup Sub-Menu**
			Gives access to: Eco Mode[5], Switch setup, Summer Bypass, 0-10v Inputs (Room Sensors), Passcode settings, HRV handing settings[4], Frost setup.

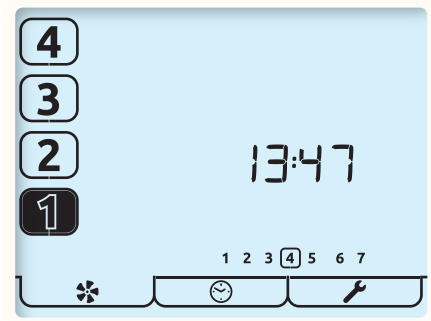


Passcode Screen

The passcode is always required to edit fan speeds and is optional for protection of the Setup-Sub-Menu settings.
Passcode - 3333

Run Mode

The aura-t™ controls the HRV unit's 4 programmable speed settings.



This is the Run Mode screen; use the number buttons to select the required fan speed.	
1	Press and Hold the [1] button to turn the unit off, just the [1] icon will be displayed; Tap the button to turn the unit back on.
	The current running speed will be indicated by the corresponding number button being highlighted.
	The time of day is also shown on this screen in 24 hour format along with the days of the week; the current day is ringed.

Status Icons

If the fan speed is being controlled by an external switch, a sensor or the timer this is indicated by an icon beneath the speed selection buttons being visible. The icons are as follows:

	An external switch is active and is controlling a function of the unit.
	The timer is active and is keeping the HRV at Speed 1. Using the auraSMART® app all speeds can be controlled.
	The speed the HRV is running at is being controlled by the internal humidity sensor or an external Proportional Input sensor
	The Thermostat has called for the Cooler to operate.

Other Icons

Other status icon that may be visible on the screen are listed below:

	Filters require replacement. Refer to the Controller Setup for details of how to reset.
	Frost Protection, if this icon is constantly lit the temperature outside is low and the HRV Supply Fan has been stopped (both fans if Balanced Frost Protection enabled) to prevent damage to the Heat Cell. If the Frost icon is slowly flashing and the Speed 1 button is highlighted, the unit is in Pre-Frost mode; both fan speeds will have been reduced as an attempt to maintain balanced ventilation and avoid going into full Frost Protection mode. 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 number buttons to restart the fans. If the temperature is still too cold, Frost Protection will be activated. If this occurs with an indoor temperature above approximately 5°C it could indicate the handing of the unit is wrong or the ducting is misconnected.
	Summer Bypass 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 hot air is extracted. Press & Hold the [4] button to cancel SUMMERboost®.
	The Boost Overrun timer is active and is holding the HRV at Speed 3; this follows an external Boost switch being deactivated.
	The padlock icon adjacent to the Speed 3 button and accompanying the timer icon indicates Boost Inhibit is active; the HRV's maximum speed is Speed 2. The unit will not respond to external Boost switches or the internal Humidity sensor & proportional Input sensors can only increase the HRV to Speed 2.

In an HRV with constant volume functionality; when one of the fans has reached the maximum permissible speed for constant volume operation, either of these icons will slowly flash to indicate which fan is running too fast. Check the duct work and filters for restrictions or blockages

The warning icon flashing at the bottom of the screen adjacent to the Fan icon indicates a fan failure has been detected; a flashing supply or extract icon at the top of the screen indicates which fan has failed; contact the installer. If very high temperatures are detected inside the HRV, fan failure mode will be enabled to protect the HRV from damage.

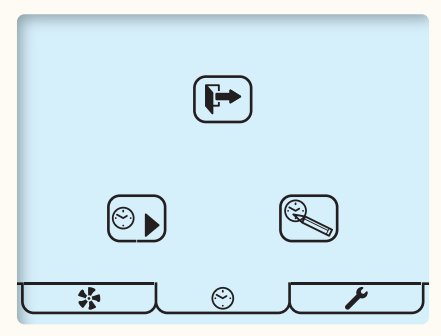
When the Backlight is flashing along with the Speed 3 button the HRV has been held at Boost, Speed 3 for more than 2 hours; Boost Alert is active.

Cooler has shut down due to low airflow, the Cooler will restart. If the dwelling temperature drops below the thermostat's set temperature, this warning is reset.

Cooler has previously been shut down due to low air flow, Cooler will restart. If the Cooler detects low air flow again the Cooler will shut down and restart. If the dwelling temperature drops below the thermostat's set temperature, this warning is reset.

Timer Mode

The controller has a seven day, four events per day timer. The timer is used to automatically change the HRV speed to Setback, Speed 1 at programmed times.
An additional function of the timer is that when it activates Setback there is an option to engage Boost Inhibit.



This is the Timer Mode screen; the buttons displayed on screen have the following functions:

Tap the Play / Pause button to toggle between play and pause.

Press and Hold to pause timers indefinitely.

The Run arrow indicates the timer is currently active and will be used to switch the HRV in and out of Speed 1

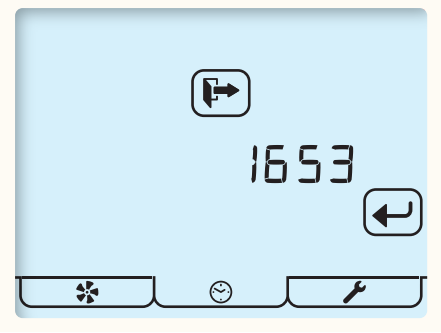
The Pause and Hour Glass symbols indicate the Timer is temporarily paused; Timer will restart 8 hours after being invoked.

The Pause symbol indicates the timer is currently inactive and will have no effect on fan speeds; this pause is indefinite.

Timer Setup , Tap this button to adjust the Timer, see Timer Setup section.

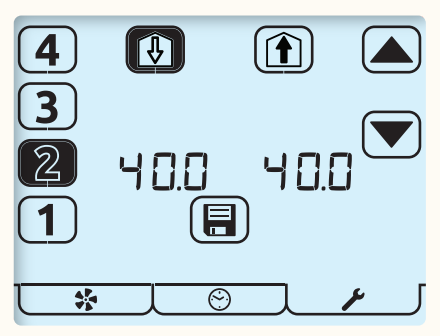
Tap this to Exit and return to Run Mode.

- When the timer has automatically switched the HRV to Speed 1 this can be manually overridden by tapping [2-4] keys. Tap the Speed 1 key to return to timer control.
- When the next timed event occurs the unit will revert to timer control.
- Manual override is not possible if Boost Inhibit is in operation.



Second Press of Timer Tab Displays HRV runtime.	
	Updates displayed fan speeds; used during fan speed cloning.
	Exit tab to Run Mode

Fan Commission



If constant volume fans are fitted to the unit the fan speeds will be displayed as either:

- m3/hr
- l/s
- l/s to 0.1 resolution

Fan Commission Mode is entered by pressing the Fan Button for 5 seconds whilst in Run Mode.

A flashing item on the screen indicates it is being edited.

1. Select the required fan speed using the number buttons at the left of the screen. The current fan speeds are highlighted, the HRV will run at the selected speed.

Supply

Extract

2. Use the Supply to dwelling or Extract from dwelling buttons at the top of the screen to select which fan is to be adjusted.

3. Use the arrow keys to adjust the fan speed. The fan will respond in real-time to the adjustment being made.

4. Repeat the above for all fan speeds requiring adjustment.

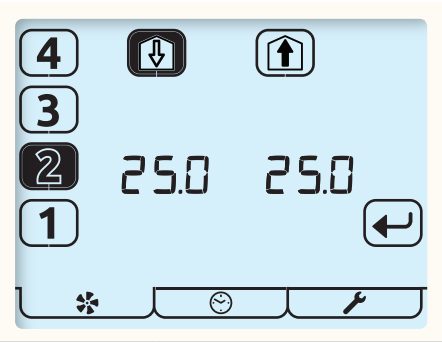
5. When all of the fan speeds are correct tap the Save button to store all the fan speed settings to memory and exit back to Run Mode.

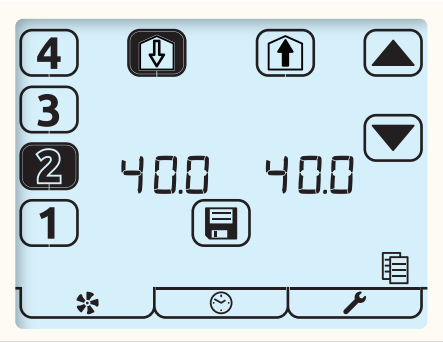
The temperature sensors are not active during fan commissioning, this prevents Frost Protection and the duct heater from functioning. Take care not to damage the heat cell if commissioning during extremely cold weather.

To set the fan speed to Zero/ Off set Speed 1 to the minimum speed for the selected units and press and hold the [1] key

Cloning

Cloning allows the commissioned fan speeds to be copied from one unit to another the using an external aura-t; for connection details refer to the manual supplied with the aura-t.





	Enter Fan Commission Mode by pressing the Fan button for 5 seconds whilst in Run Mode. The HRV's fan speeds will be displayed. Tap the Fan button to display the fan speeds stored on the aura-t™. The stored speeds can be viewed using the number buttons, the HRV will run at the selected speed.
	To copy the stored speeds to the HRV tap the Enter button, the arrow buttons will be illuminated and the speeds could be adjusted as detailed in **Commissioning** or simply written to the HRV by tapping the Save button
	If the stored speeds are incompatible with the HRV model the aura-T is connected to, dashes will be shown in place of the numbers and the warning triangle will be illuminated.

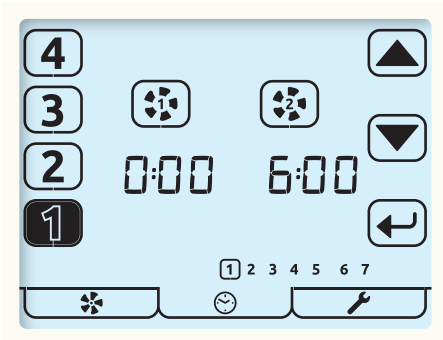
Saving Fan Speeds to the aura-t

Supply Extract	To save the current fan speed to the aura-t™ press and hold the Supply or Extract buttons whilst on the fan commission screen. The copy icon will be illuminated and when save is tapped the fan speeds will be saved to the aura-t™ and written to the HRV.
Copy	The aura-t™ could then be connected to another HRV and the stored speeds written or **Cloned** to it as detailed previously.

Timer Setup

Timer setup is achieved in three steps

1 Day Selection



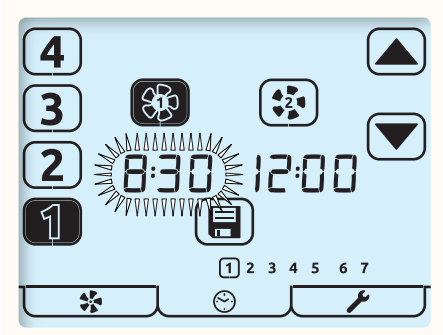
1. Tap the Timer Mode tab to enter the Timer Mode menu.

2. Tap the Timer Setup Key to commence setup.

3. A ring around the day selected will blink. Change the day that the timers are to be edited by using the Arrow Keys. .

4. Tap the Enter Key to start editing timers for that day.

2 Select Event & Edit Timers



In this example; tapping the Save key will save the settings; these will set the unit to run at Speed 1 between 08:00 & 12:00

1. Tap the event number to be edited [1-4] from on left hand side of the screen. The selected event will highlight.

2. Use the fan keys to select either the time the HRV will switch into Speed 1 or Speed 2.

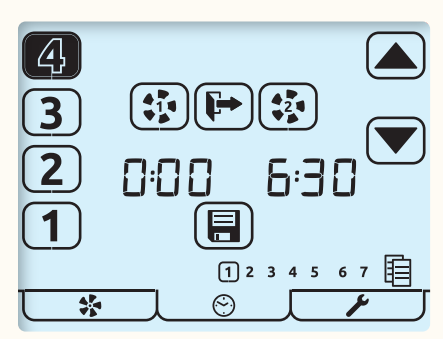
3. Speed 1 key toggles between selecting Speed 1 and selecting Speed 1 with Boost Inhibit indicated by Padlock Icon.

4. The selected time will flash, use the arrow keys to adjust in 5 minute increments.

5. Select the other events [1-4] to edit/check their times and function as required.

6. When all events for the current day Tap to save.

3 Copy Timers or Exit Timer Setup



1. The flashing Copy icon indicates the option to copy just edited settings to another day.

2. Tap the Enter Key to commence copy procedure.

3. Tap the Exit key to start editing another day's times or press a second time to exit to Run Mode.

4. When copying; the just edited day is ringed and the following day has a flashing ring. Tap the Enter key to select this day, solid ring indicates selection or use the arrow keys to choose days and the Enter key to select/deselect.

5. When all required day(s) have been selected tap the Save key to complete the copy and return to step **1** Day Selection Screen.

6. Repeat day, event and timer setup or tap the Exit key to return to Run Mode.

Timer Defaults

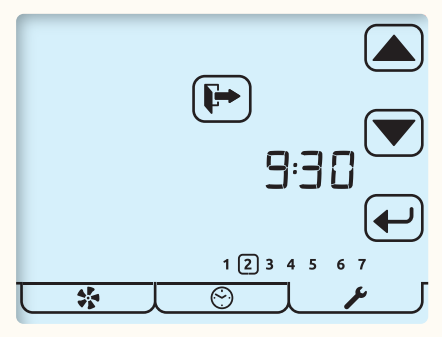
Event timings:

- The Speed 2 cannot be set earlier than Speed 1.
- Events where Speed 1 and Speed 2 are identical are ignored by the timer.

1 2 3 4 5 6 7 Days	Event	Speed 1	Speed 2
1 2 3 4 5	1	00:00	06:30
	2	08:30	12:00
	3	13:30	18:00
	4	22:30	00:00
6 7	1	00:00	07:30
	2	09:30	12:00
	3	14:00	18:00
	4	22:30	00:00
	Press & Hold the Timer Tab to load/reload the above default setting for the timer; this action also opens Timer Setup.		

Controller Setup

Setup menu



Enter key.

Exit Key.

Tap the Setup Menu tab to enter the Setup Menu

All the editable settings in the Controller Setup menu are accessed in the same way. Menu navigation is achieved by first Setting Selection and then Editing.

Setting Selection

- Arrow keys are used to select a setting, the setting will flash.
- Tapping the Enter key will allow the setting to edited.
- Tap the Exit button to return to Run Mode.

Setting Editing

- Arrow keys are used to change setting value.
- Tapping the Enter key whist editing will save and move to the next setting in the list.

The order in which editable settings are displayed is as follows.

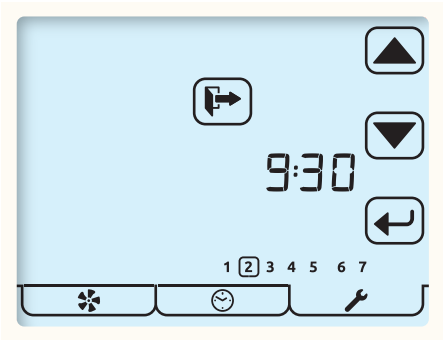
1. Time (24 hour clock)
2. Day of week.
3. Humidity threshold[4]
4. Kitchen Overrun timer.
5. Wet room Overrun timer.
6. Filter Change Interval (months 1-24)[2]
7. Filter Reset; also displays remaining time in days[2]

If a filter change is required the reset ring will be flashing. Tap the Enter key to reset or the Exit key.

If a filter change is not due but the filter timer requires resetting press the Enter key twice.

Tap Exit key to return to Run Mode.

Cooler Setup menu



Enter key.

Exit Key.

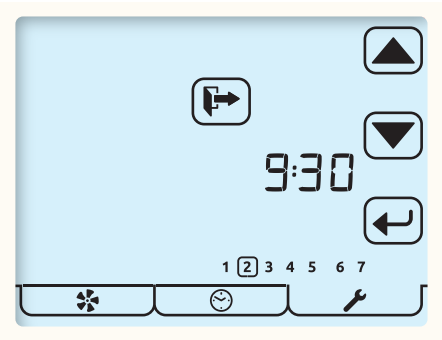
Tap the Setup Menu tab twice to enter the Cooler Setup Menu

All the editable settings in the Controller Setup menu are accessed in the same way. Menu navigation is achieved by first Setting Selection and then Editing.

The order in which editable settings are displayed is as follows.

1. Manual Mode
2. Cooler Minimum Temperature
3. Cooler On/Off

Setup Sub Menu



Enter key.

Exit Key.

Long Press the Setup Menu tab to enter the Setup Sub Menu, if the Pass code is enabled enter the passcode.

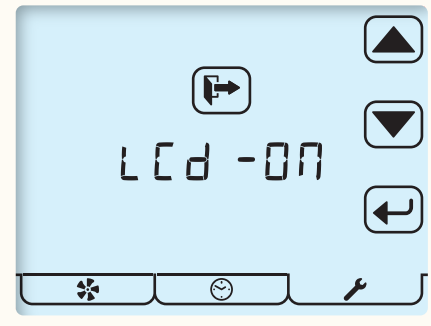
The order in which editable settings are displayed is as follows.

1. Eco Mode
2. Switches, 5 switches.
3. Summer Bypass
4. Room Sensors, 4 sensors

Passcode

5. Frost Setup; balanced / unbalanced
6. Tap Exit key to return to Run Mode.

Eco Mode Setup



Use to adjust between the options. Eco or On

Tap Enter key
to save and exit.

On - LCD display (not the Backlight) is on continuously.
Eco - After a one minute period of inactivity the aura-t will enter sleep mode.

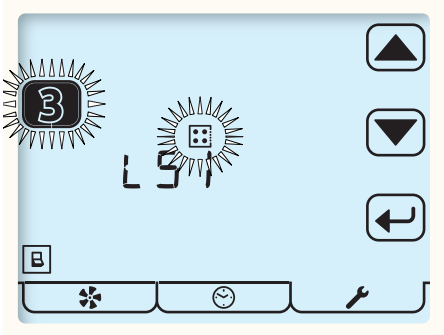
Eco mode will only operate when timers are permanently paused & Cooler is set to off.

To manually wake the screen up from Eco Mode tap anywhere on the screen.

The screen will wake from Eco Mode if there is a fault; ie Fan failure, Filter Change, Boost Alert, Internal Frost or Fan Flow Warning.

Switch Setup Menu

In this menu the installer can configure the function of the HRV unit's switch inputs S1, S2, S3, LS1 & LS2 (see HRV Product Manual for details)



Enter key.

Exit Key.

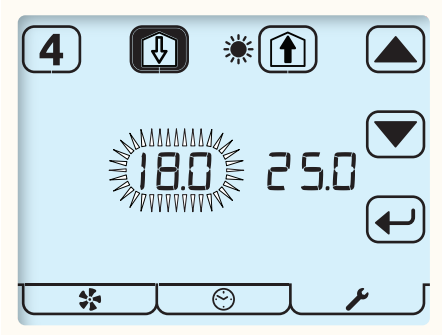
B	Switch Setup menu active.

All switch inputs to the HRV unit; S1, S2, S3, LS1 can be assigned any of the following functions.

3	Kitchen Boost, Speed 3.
3	Wet Room, Boost, Speed 3.
1	Speed 1, Setback
4	SUMMERboost disable.
4	Speed 4
OFF no	Off Normally Open
OFF nc	Off Normally Closed
☀	Manual Summer Bypass
rELAY	Relay control.

LS2 and S3 will be shown as Speed 4. Any changes to the functions of S3 and LS2 will not be saved to the controller, as doing so would prevent the Cooler from functioning.

Summer Bypass Setup



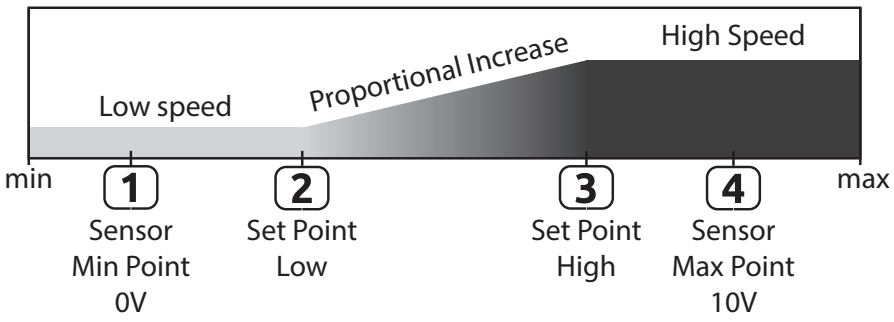
Use to adjust value up or down.

Enter key.

Supply	Use the Supply and Extract buttons to select which threshold is to be adjusted. Supply represents from atmosphere air temperature; Extract represents from dwelling air temperature.
Extract	
4	Tap button[4] to enable / disable SUMMERboost. Unfilled icon (shown) represents disabled.

0-10V Inputs (Room Sensors)

The 0-10V inputs control fan speed.

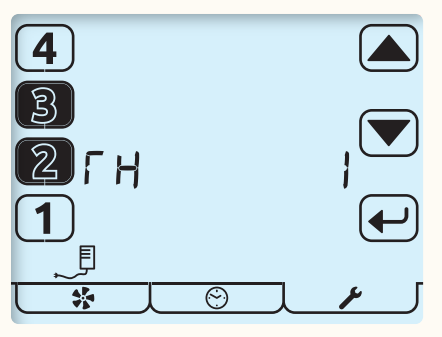


There are 4 room sensors connections available; each Sensor has two configuration screens, each pair of screens is displayed sequentially. ie 1a, 1b, 2a, 2b, 3a etc.

The first screen (a) configures:

- The sensor type either RH, Air Quality, CO2, Temperature or OFF.
- The Speed range that the sensor operates between; either 2 to 3 or 1 to 4.

The number adjacent to the arrow buttons display the Sensor number..

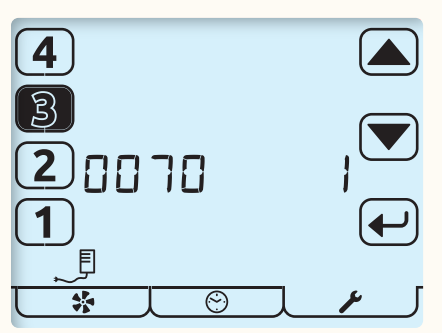


Use to cycle through the sensor options

Use the number keys to select the sensor Speed range.

Tap Enter key to save and move to next screen.

The second screen (b) configures:-
The Sensor Min Point 0V, Set Point Low, Set Point High, Sensor Max 10V
The number adjacent to the arrow buttons display the Sensor number..



Use to adjust parameter value.

Use the number keys to select which parameter to adjust,

Tap Enter key to save and exit.

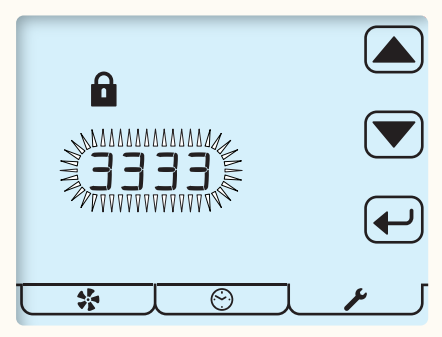
1 Sensor Min Point 0V

2 Set Point Low; the lower threshold where the fan speed begins to proportionally increase.

3	Set Point High; the upper threshold where the fan speed will go to Speed 3 or Speed 4 depending on the range selected on the previous screen.
4	Sensor Max 10V

The above is repeated for Sensors 2, 3 and 4.

Passcode Enable / Disable



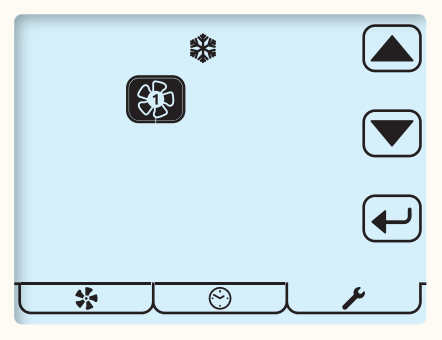
Tap Enter key
to edit state.

Use to enable / disable Passcode.

- - - - indicates Passcode is disabled.
3 3 3 3 indicates Passcode is enabled.
Enabling the Passcode only protects the menu items in the Setup Sub Menu.
The passcode is permanently enabled on the fan commission screen

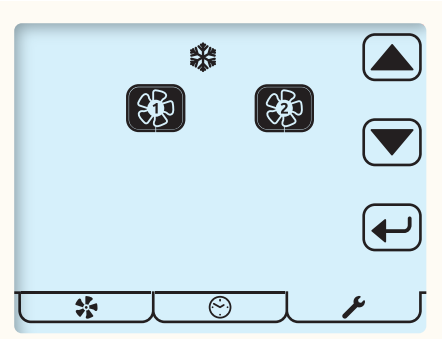
Frost Setup

This screen is used to select between unbalanced Frost Protection, where only the supply fan stops (default) or balanced where both fans stop. Balanced Frost Protection is for use in properties with an open flue fireplace.



Use the Arrow buttons to select between supply fan or both fans.

Tap Enter key
to save and exit.



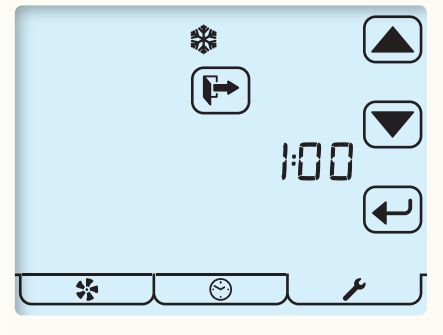
If this setting has been defined by MODBUS the Frost Setup menu item will not be displayed.

Cooler Setup

This menu is used to invoke Manual Mode and setup Cooler Minimum Temperature and to turn the Cooler On/Off.

Manual Mode - Enables Cooler to be operated independently of the thermostat.

Tap the Setup Menu tab twice to enter the Cooler Setup Menu



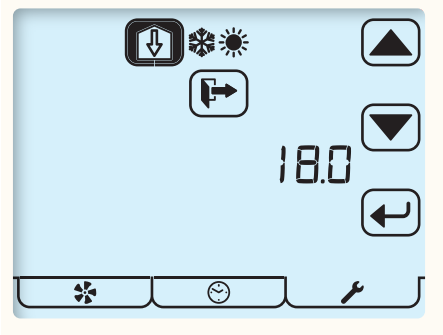
Tap Enter key to edit state.
Display will show previous time set.
Tap Enter Key to set Manual Mode and activate.

Use the Arrow buttons to change Manual Mode run time; can be set between 0:05 and 2:00.

Tap Exit key to return to Run Screen.

Manual Mode is active when this icon is flashing; the time remaining is shown. Setting time to 0:00 will turn off Cooler.

Cooler Minimum Temperature - used to help prevent the Cooler from operating at the same time as a dwellings heating system

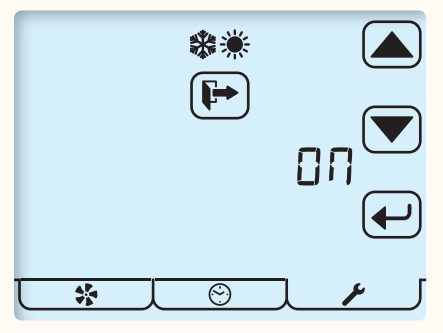


Tap Enter key to edit state.
Display will show temperature setting
Tap Enter Key to set

Use the Arrow buttons to change temperature (Range 10°C to 20°C)

Tap Exit key to return to Run Screen.

Cooler On/Off



Tap Enter key to edit state.
Display will show On/Off state
Tap Enter Key to set.

Use the Arrow buttons to change to Off or On

Tap Exit key to return to Run Screen.

If this is set to Off the previous screens will not be shown.

Default Settings

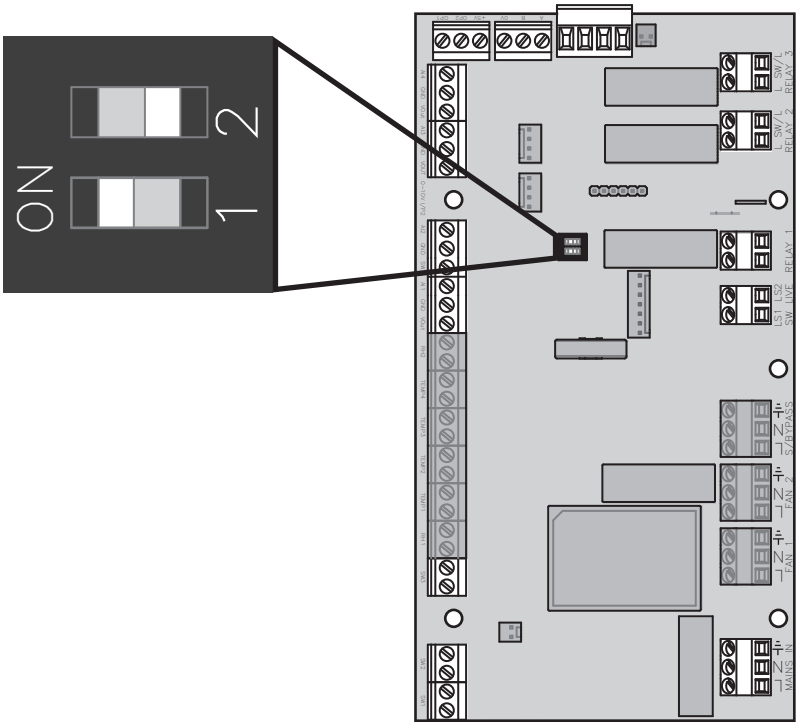
The HRVs are delivered with default factory settings these are detailed below.

Configurable Item		B2
SPEED 1 Setback	Supply	25 %
	Extract	25 %
SPEED 2 Continuous	Supply	40 %
	Extract	40 %
SPEED 3 Boost	Supply	70 %
	Extract	70 %
SPEED 4 Cooler	Supply	100 %
	Extract	100 %
Cooler Minimum Speed (HRV4.25 Speed4) Fixed	Supply	70 %
	Extract	70 %
Boost Overrun	Kitchen	15 mins
	Wet Room	15 mins
Boost Delay Timer	Kitchen	0 mins
	Wet Room	0 mins
Filter Change Interval		12 months
Boost Alert Timer		2 hours
Summer By Pass	Extract	25 °C
	Supply	18 °C
SUMMERboost®		Disabled
Cooler Minimum Temperature		18 °C
Room Sensor 1		
Enable/Disable		Enabled
Room Sensor Type		%RH
Sensor Min Point 0V		0000
Set point Low		0060
Set point High		0070
Sensor Max Point 10V		0100
Room Sensor 2		
Enable/Disable		Enabled
Room Sensor Type		CO_2
Sensor Min Point 0V		0000
Set point Low		0800

Configurable Item		B2
Set point High		1400
Sensor Max Point 10V		2000
Room Sensor 3		
Enable/Disable		Enabled
Room Sensor Type		%RH
Sensor Min Point 0V		0000
Set point Low		0060
Set point High		0070
Sensor Max Point 10V		0100
Room Sensor 4		
Enable/Disable		Enabled
Room Sensor Type		CO_2
Sensor Min Point 0V		0000
Set point Low		0800
Set point High		1400
Sensor Max Point 10V		2000
%RH Boost Set point		
Switch Input 1		Kitchen Boost
Switch Input 2		Wet Room Boost
Switch Input 3		Reserved for Cooler
Live Switch 1 (LS1)		Kitchen
Live Switch 2 (LS2)		Reserved for Cooler

Modbus Configuration Reset

There are a number of settings which are adjustable via Modbus, but could be left in a state where it is not possible to adjust them via any other controller. If the Modbus master has been disconnected from the unit it is possible to reset these settings back to default settings by switching DIP Switch 1 to the ON position and cycling the power to the unit.



DIP Switch Location

The following settings will be restored:	
Modbus Baud Rate	19200
Modbus Slave Address	1
Modbus Parity	None
Summer Bypass	Enabled
Temperature Controlled Summer Bypass	Enabled
Summer Boost	Enabled
Internal Humidity sensor	Enabled
Filter change warning	Enabled
Frost Protection	Unbalanced

Please Note

- These are standard factory defaults, the original settings for custom configured units may differ.
- Once the reset has been performed switch Dip Switch 1 to off.
- The unit should not be routinely operated with Dip Switch 1 in the ON position.

Routine Maintenance

All ventilation units require periodic maintenance. Routine maintenance, apart from filter changes, must only be carried out by a suitably qualified and competent person.

WARNING: The unit uses a ~230V supply and contains rotating mechanical parts.

ISOLATE the HRV4.25 and the Cooler from mains power supply and allow sufficient time for all moving parts to stop before undertaking any Servicing or Maintenance.
The unit may be supplied with multiple live supplies if switched live is used for Boost Speed control.

Cleaning Exterior

For best results use a clean damp cloth. Do not use abrasive cleaners, solvents or any other fluids.

Cleaning Interior

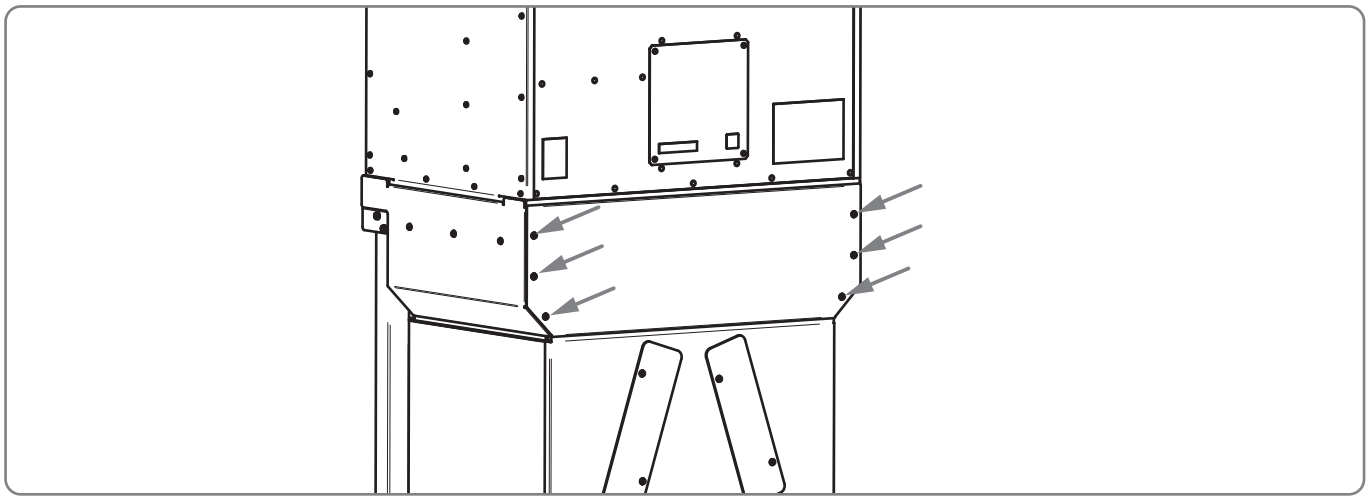
For best results:

1. Slide out the Filters.
2. Carefully remove any dust from face of heat exchanger, interior of the unit and the Bypass using a vacuum cleaner

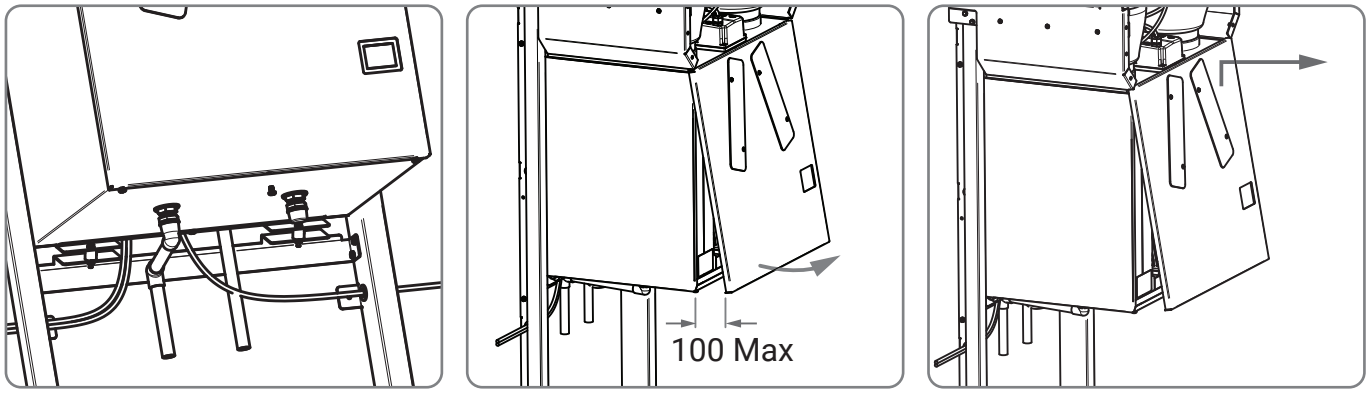
Do not use water or any other fluids

Front Cover Removal

1. ISOLATE the unit from mains power supply and allow sufficient time for all moving parts to stop
2. Remove the Front Centre Cover by removing the 6 screws.

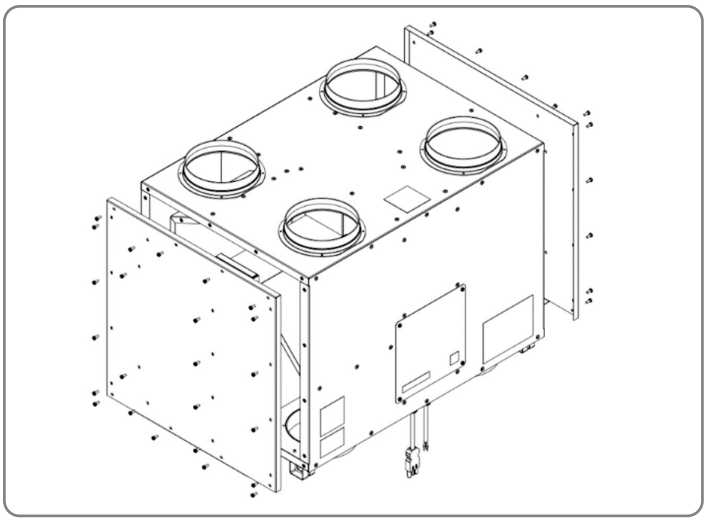


3. Loosen the two corner screws located on the bottom Front Cover of the unit; completely remove the centre screw.
4. Completely remove the Front Cover by hinging open at the bottom; take care not to lift too much, then lifting the Cover up and away from the unit.



Front Cover and Centre Cover replacement is the reverse of the above steps. Ensure the Front Cover it is securely located at the top before refitting and tightening the screws.

Cool Plus Cleaning Interior



1. Remove side access panels and remove any loose dirt from coils using a soft brush or a small flexible vacuum head. Ensure that dirt is not brushed into the fins of the coils.
2. If the coils have become excessively dirty, then if required use HYDRO-COIL or MULTISOLVE cleaning agents to adequately clean them.
3. Inspect the condensate drain tray around the heat exchanger flanges for dust/debris which may block the flow of condensate to drain spout.
4. Re-attach side access panels after cleaning has been completed.

Filter Replacement

Filters should be replaced at least annually, or more regularly dependent on environmental conditions. The connected controller will indicate filter change required in line with the Filter Change Interval settings.

Replacement Filters are available from Titon.

Filters should be replaced with like for like components.

Following filter replacement the HRV controller's Filter Warning should be reset.

The Filters are available in grade G4. Filter media should be replaced like for like. Filter Part number in table below.

Model	G4 Panel Filters Set (two filters)
HRV4 *Q Plus*	XP2011629

To replace filters.

1. Remove Filter Covers.
2. Slide out Filters make note of any arrows on the filters.
3. Replace Filters by carefully sliding in the replacement filters. Ensure that filters are replaced in the same orientation as they were removed.
4. Replace Filter Covers.

In the event of any queries please contact the system installer.
Ensure this booklet is passed to the householder once installation & commissioning of the ventilation system is complete.

This Product Manual must be kept in the Home Information Pack.

Installed by:

This symbol on this unit or the package, indicates that disposal of this unit after its life-cycle could harm the environment.
Do not dispose the units as unsorted municipal waste; they should be disposed by a specialized company for recycling. These units should be returned to your distributor or to a local recycling service.

Refrigerant must be recovered by a certificated technician before the unit is dismantled. Refrigerant recovery machines can remove over 95% of the refrigerant.

All recovered HFC refrigerants can either be:

- Sent for destruction by incineration at a licenced waste facility.
- Sent to a specialist plant that can re-process the old refrigerant into a gas with properties identical to virgin refrigerant, to create “Reclaimed Refrigerant”.
- Given a basic cleaning process to create “Recycled Refrigerant”

Respect the local environmental rules.

Titon®

MARKETING DIVISION
894 The Crescent, Colchester Business Park, Colchester, CO4 9YQ
Tel: +44 (0) 1206 713800 Fax: +44 (0) 1206 543126
Email: ventsales@titon.co.uk Web: www.titon.com

Service Record

Serviced By	Company Name	Date	Notes

Titon®
ventilation systems