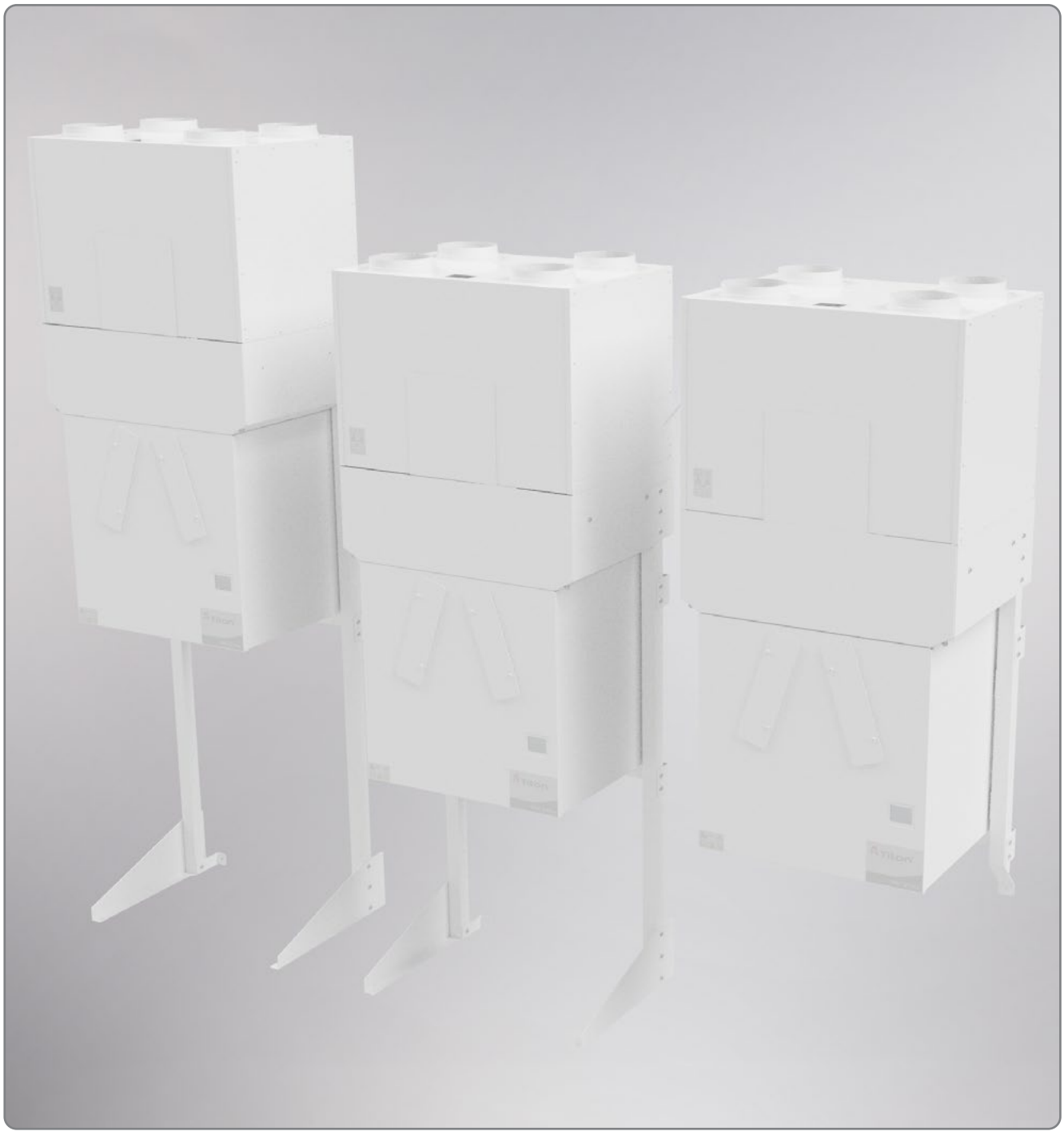
Manual

EN



HRV Cool Plus

Titon®
ventilation systems

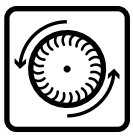
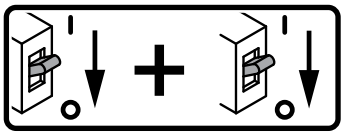
Important Information

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 0.75mm²).
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 (NOT FAST-BLOW).
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 R32 refrigerant.
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.

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Units

List of Products

This Manual is for the following Products

HRV Cool Plus Wall Mount Components TP759

HRV Cool Plus Floor Stand Components TP758

HRV Cool Plus Washing Machine Floor Stand Components TP761

HRV Cool Plus Unit Kit TP762

- Cooler 56300950
- HRV4.25 ..... TP433CP_T
- Flexible Silencer 89724

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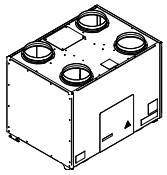
Product Information

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.

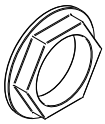
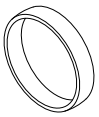
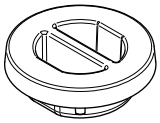
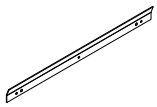
Cooler (56300950)

(50kg)

	Description / Part No.	QTY
	Cooler 56300950	1

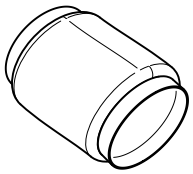
HRV4.25 (TP433CP_T)

(28.5kg)

	Description / Part No.	QTY		Description / Part No.	QTY
	Titon HRV4.25 TP433CP_T	1		Room Thermostat TP760	1
	Product Manual DO5867	1		Fiche & Energy Label	1
	M6x10 FF225	4		M6 FF224	4
	Condensate Drain Nut	1		Condensate Drain Olive	1
	Transport Bung	4		Unit Bracket CP44004	1

Flexible Silencer (89724)

(2kg)

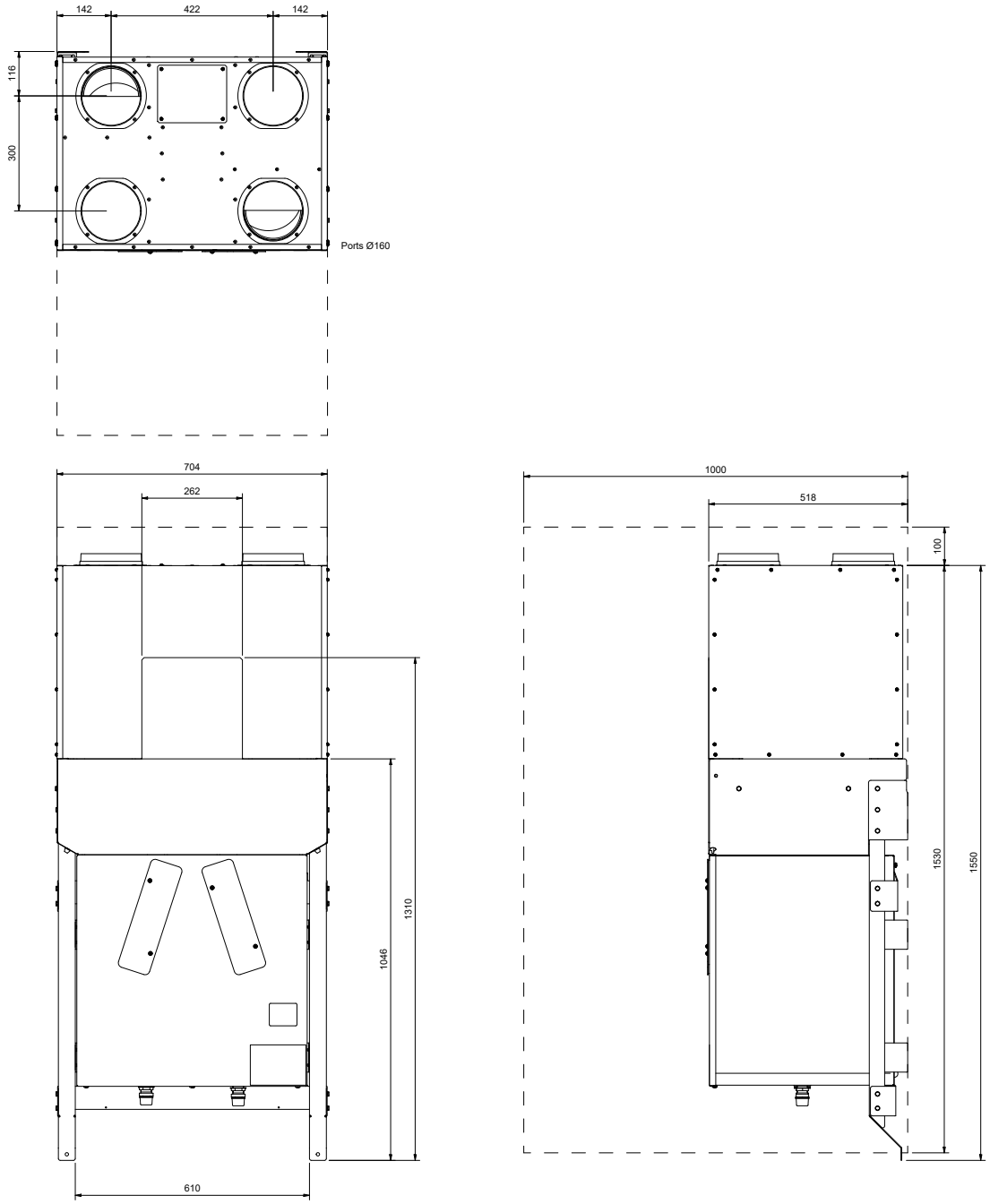
	Description / Part No.	QTY
	Flexible Silencer	4

Weights are without packaging.

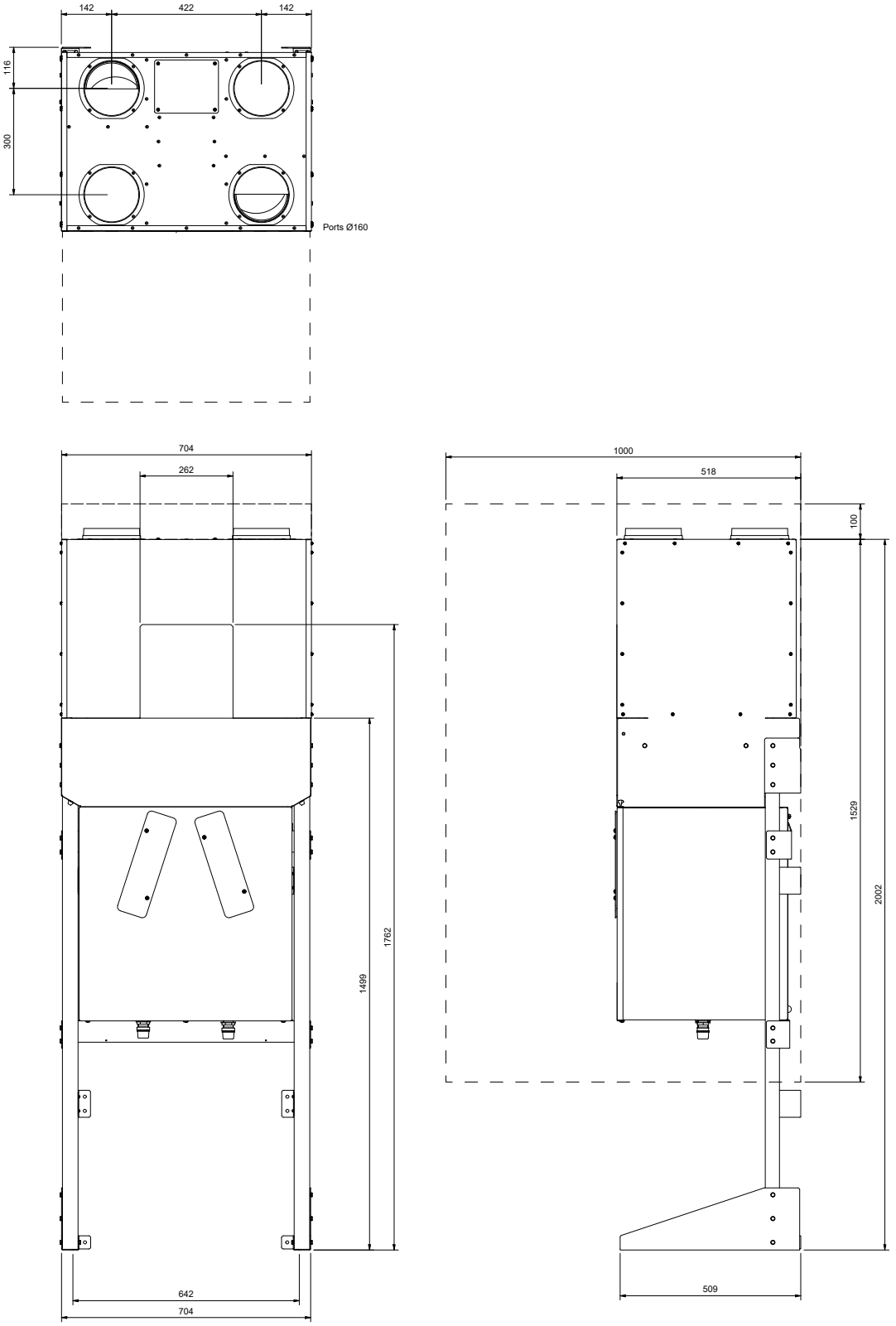
HRV Cool Plus

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.

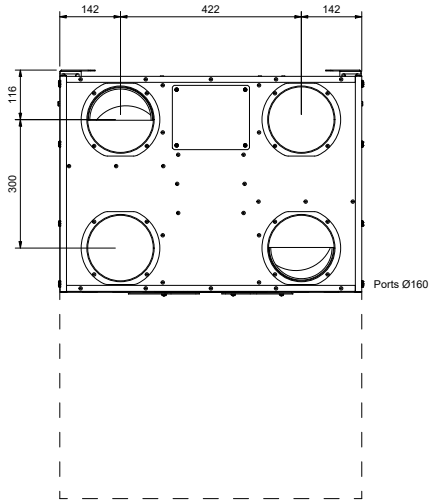
Wall Mounted (TP759)

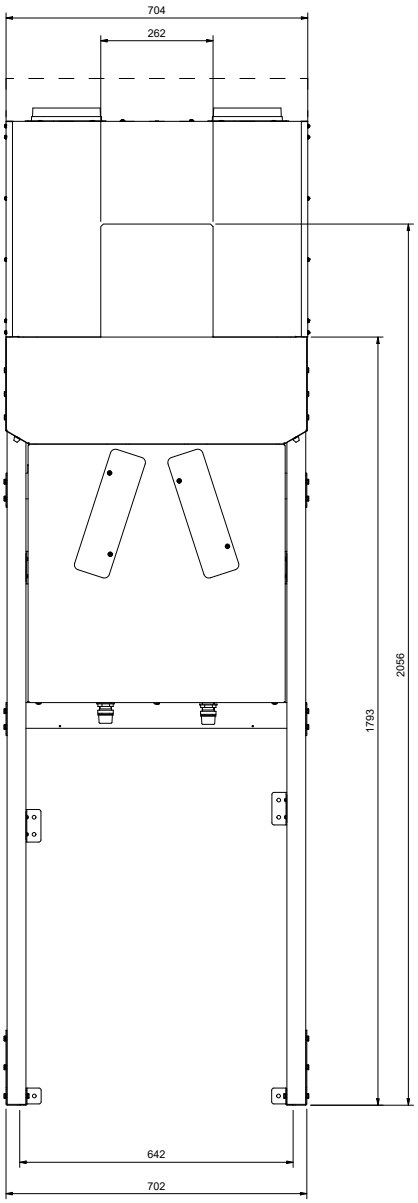


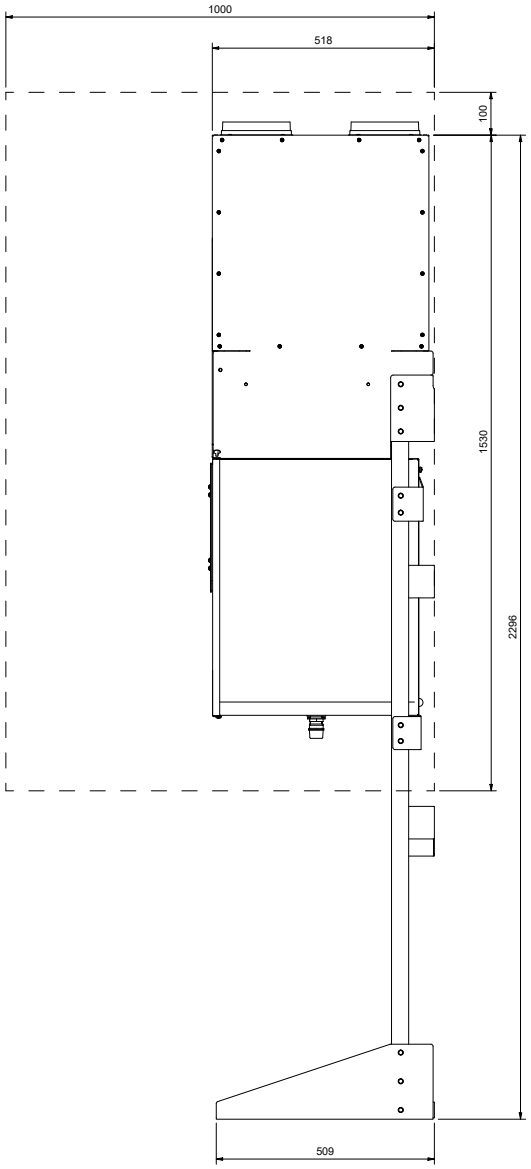
Floor Standing (TP758)



Floor Standing Washing Machine (TP761)







Titon Cool Plus Cooler II Order of Installation

Frame Manual

1. Build Frame
2. Fit Frame to Wall (TP759) or Floor & Wall (TP758 or TP761)

Units Manual

3. Determine the Handing of the installation
4. Mount Cooler II
5. Plumb Condensate Drain and Waterless Trap for Cooler II
6. Fit Stop end to unused Cooler II condensate outlet.
7. Route Cooler II behind frame
8. Route HRV's thermostat cable and other control cables, as required. (tape up out of way)
9. Mount HRV
10. Fit Duct Cover Side panels
11. Plumb HRV's Condensate drain and waterless trap
12. Fit blanking disc to unused condensate outlet.
13. Plug-in Cooler II control cable to HRV flying lead.
14. Route HRV power cable behind frame.
15. Fit ducts between Cooler II and HRV; secured with hose clamps.
16. If required Remove Cooler II front access panel to change to jumper Right Hand operation.
17. Fit front duct cover.
18. If required When powered up use the onboard touchscreen to change the HRV to right Hand.

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 (56300950) - A heat pump unit with a fully sealed coil & fin heat exchangers using a proven & reliable refrigerant R32 (GWP 675) that requires minimal maintenance.
- HRV4.25 (TP433CP_T) - 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 (TP759), Floor (TP758) or Floor Washing Machine mounting brackets (TP761).

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 0 - 22°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.

Cooler Lock Out

To prevent conflicts between the cooler and the property's heating system Live Switch input LS1 is configured as a Cooler Lock Out Input. When a mains voltage signal from the heating system is applied to this input the cooler will not operate, and will stay locked out for 3 hours following removal of the signal from the heating system.

Boost Overrun Timer

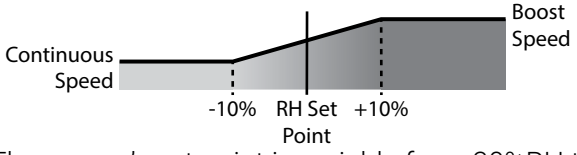
A programmable timer that controls the time the HRV remains at Boost Speed after all boost, PIR switches & humidity sensors, have been released; including a 3 Position Switch.

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 depending on the measured RH.



The sensor's set point is variable from 30%RH to 100%RH.

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

By default the live switch input is configured as a Heating input to lock out the cooler, but it can be reconfigured to have any of the 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%.

If the supply to or extract from the dwelling air temperature falls below 6°C the unit will limit the maximum speed to 23%.

If the supply to or extract from the dwelling air temperature falls below 3°C the unit will limit the maximum speed to 18%.

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.

Unit Handing

All units are supplied as Left Handed Units and can be reconfigured on site to Right Hand Units Right Hand units require use of different condensate outlets and jumper change to the cooler and configuration of the HRV using the touch screen.

Before installation of Ducting, Condensate Drains the HRV and the Cooler, the hand of the installation must be confirmed and communicated to ALL persons involved with the installation and commissioning of the Installation.

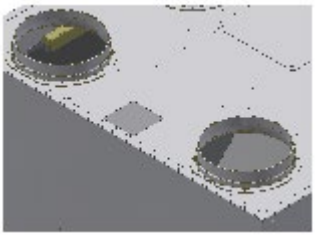
Mounting:

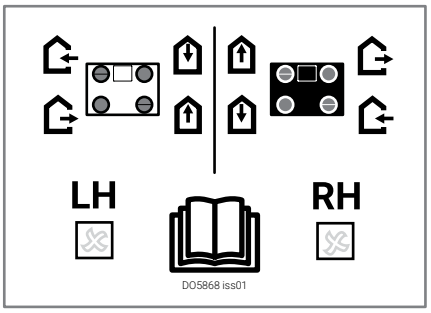
Read and observe the guidance & safety notices listed in Warnings, Safety Information and Guidance.

- 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 108kg.
- 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)

IMPORTANT

All units are supplied as Left Handed Units and can be reconfigured on site to Right Hand Units Before installation of Ducting, Condensate Drains the HRV and the Cooler, the hand of the installation must be confirmed and communicated to ALL persons involved with the installation and commissioning of the Installation.





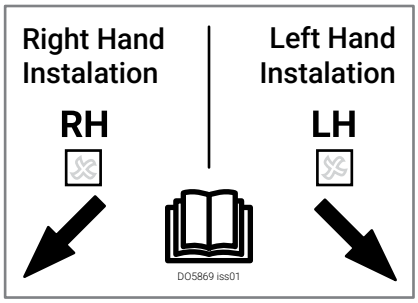
This label is affixed to the top of the Cooler unit it must be marked with a permanent marker to identify the handing of the unit and Instalation.

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

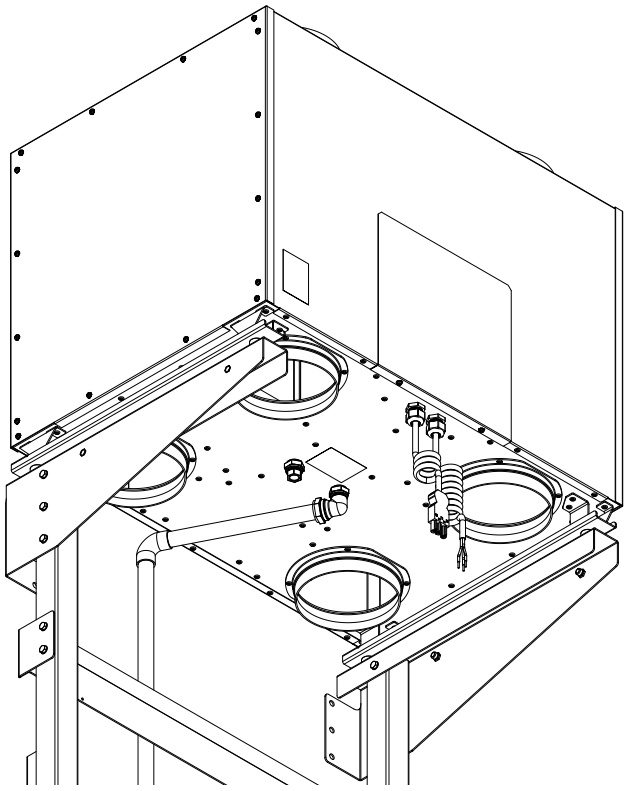
SUPPLY TO DWELLING - This duct port is connected to the ducting that carries the fresh warmed air to the habitable rooms from the HRV unit.

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

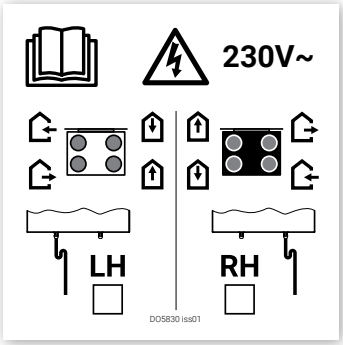
FROM ATMOSPHERE - This duct port is connected to the ducting that carries fresh outdoor air to the HRV unit.



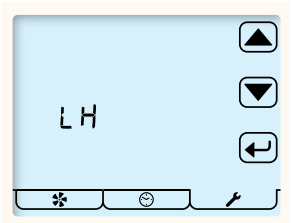
This label indicates which Condensate Outlet must be used for each Hand
This label is affixed the Bottom of the Cooler it must be marked with a permanent marker to identify the handing of the unit.



Left Hand Configuration Shown



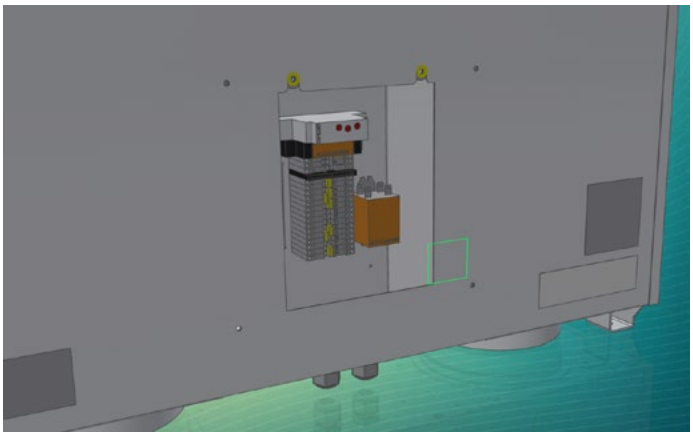
This label is affixed to the top of the HRV unit it must be marked with a permanent marker to identify the handing of the unit.



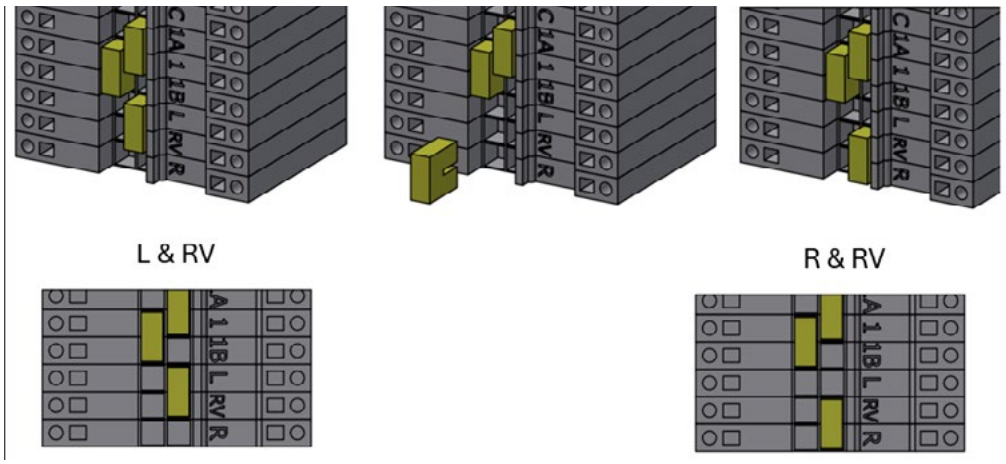
Handing of the HRV unit is achieved by the physical connections to the unit; ducting & condensate drain and electronically with the aura-t or the Service Tool.

Handing of the unit is achieved by using Setup Sub Menu; item 5.

The Cooler is supplied as a LH unit. The Cooler can be changed to RH by moving a Jumper. The Jumper is located inside the Cooler behind front panel.

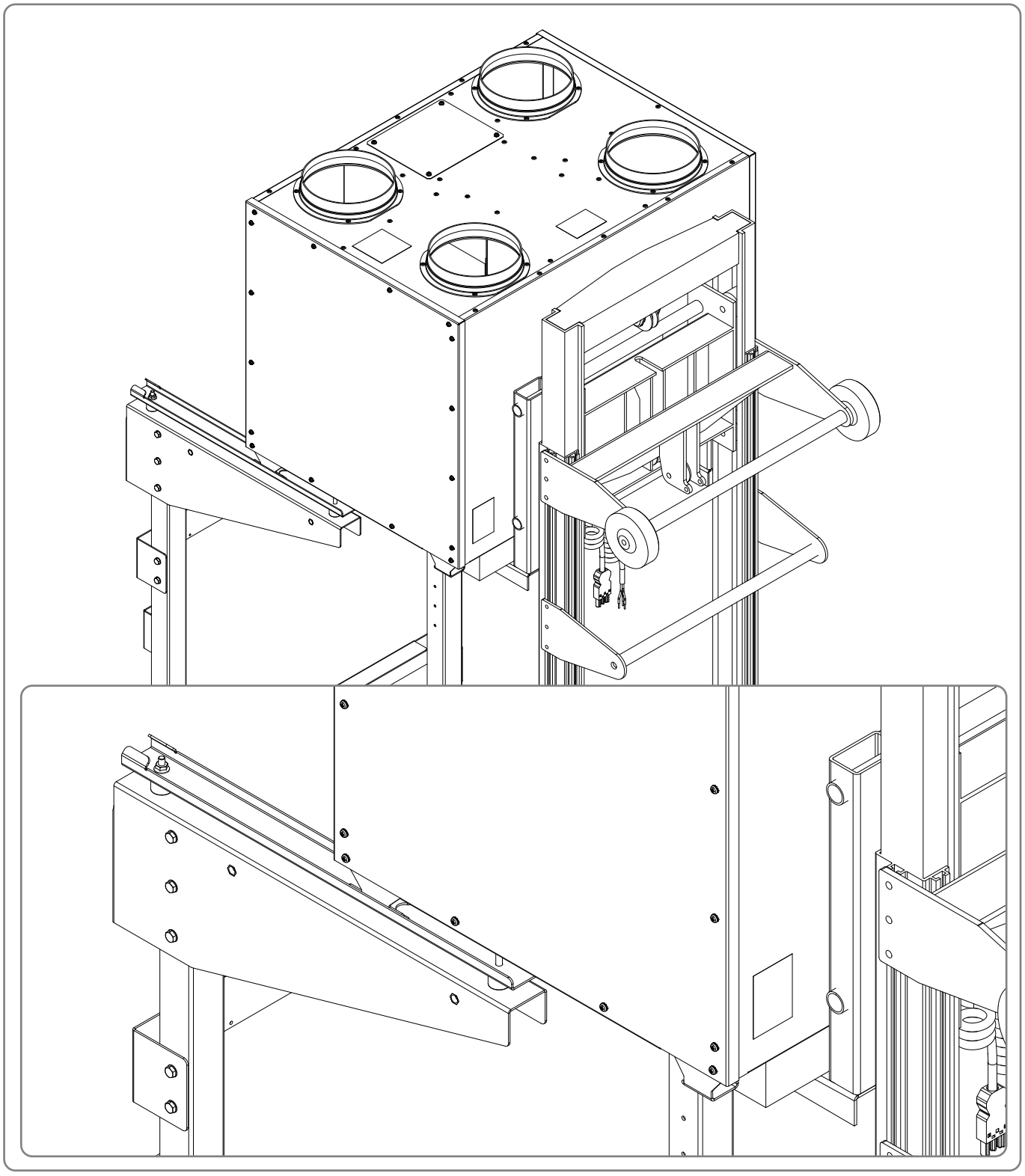


The jumper default location being Left-Hand installation, to change to a Right-Hand installation move the jumper position from (L & RV) to (R & RV).

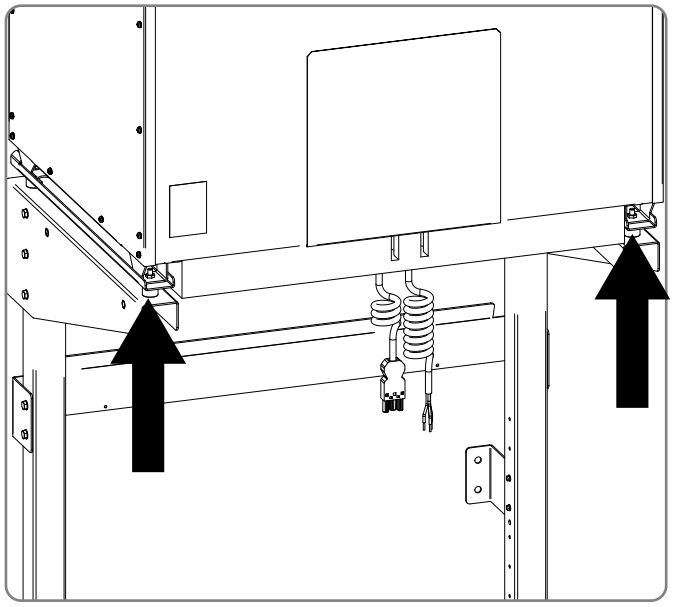


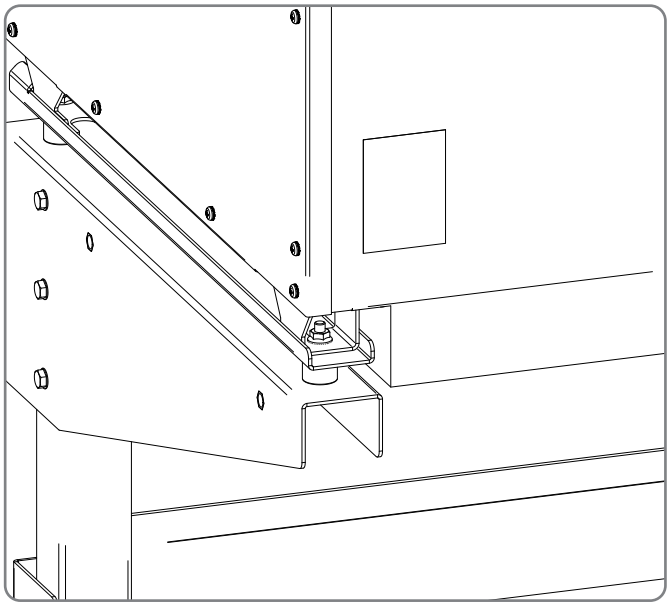
Cooler Fitting

1. Leaving the port protection foam block on the base of the Cooler, raise the Cooler above the height of the upper arms using a suitable manual handling lift and move it approximately half way in.
2. Align the rear feet of the Cooler with the runners on the top arms, lower the cooler onto the runners so that the rear feet contact around the middle of the runner.
3. Slide the Cooler from the lift onto the runners, until the rear feet fully engage with the runners and front feet's slot engages with the threaded part of the acoustic isolation mounts

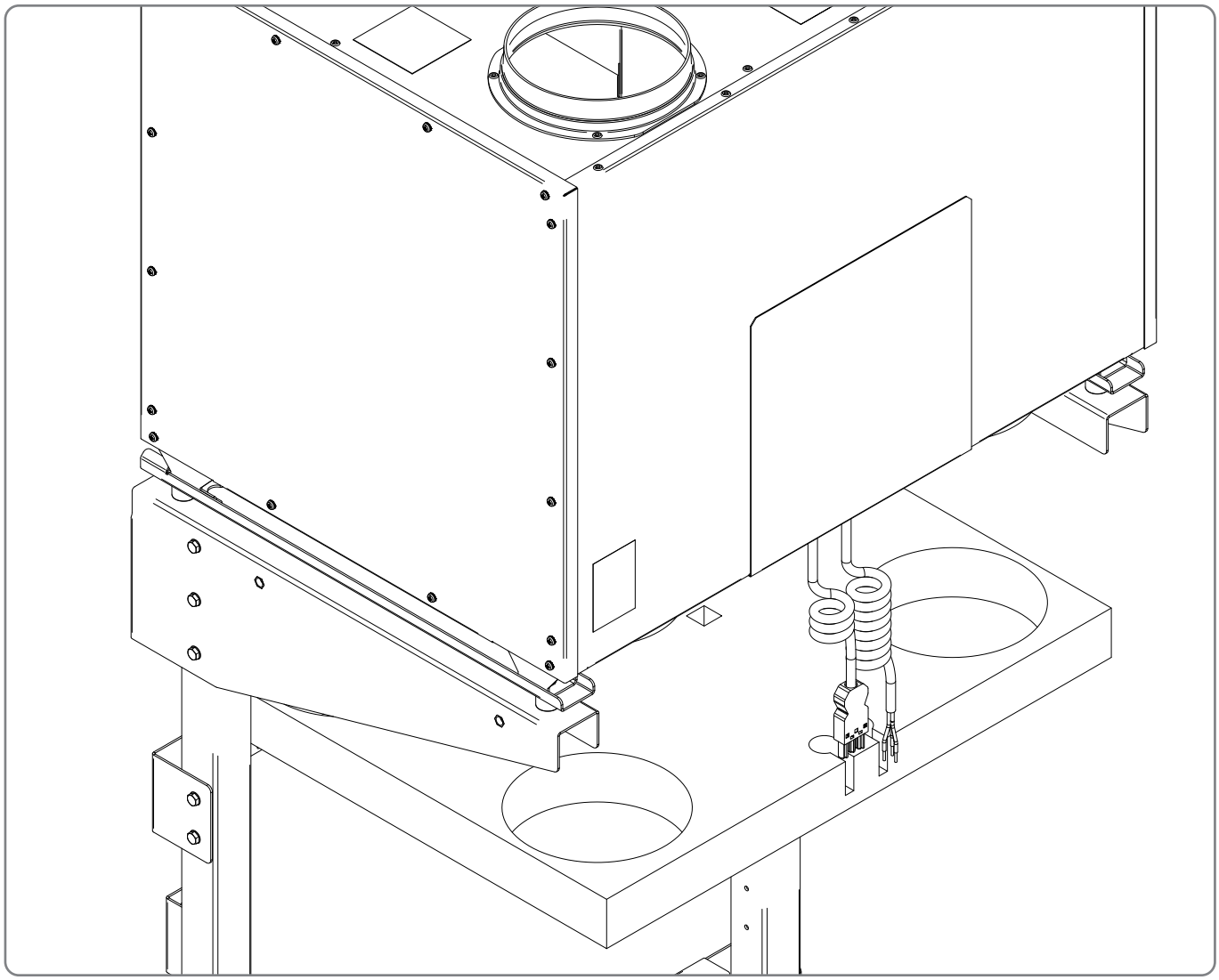


4. Fit two flanged nuts (FF375) to the front acoustic isolation mounts to fix the Cooler in position.

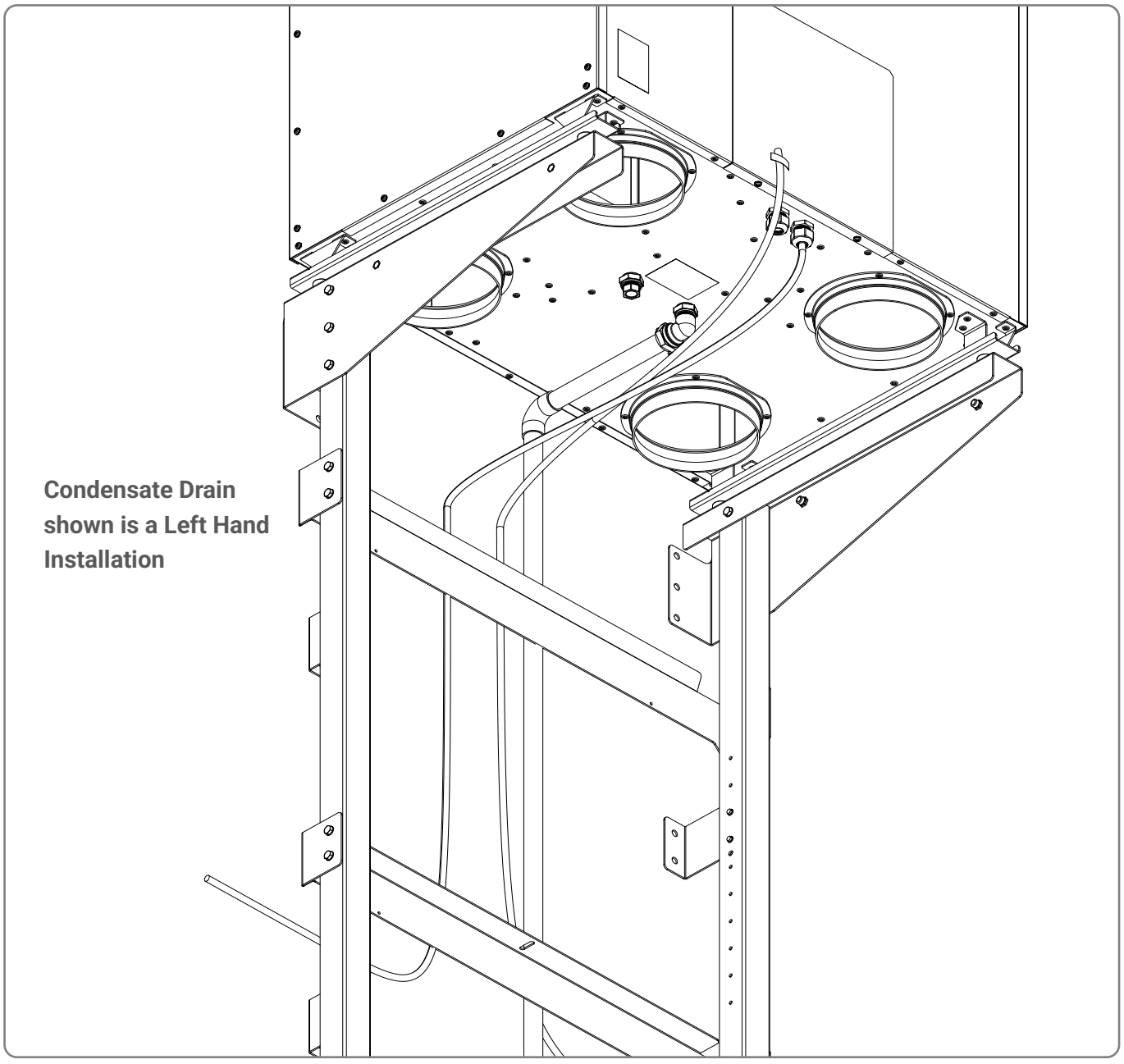




5. Remove the port protection foam block from the base of the Cooler and discard. .



6. Fit the Cooler condensate drain piping touted behind the MVHR mounting brackets. The Cooler condensate exit pipe is Ø15mm. Route the Cooler supply cable behind the MVHR mounting brackets and a vertical strut if required.
7. Route the thermostat cable behind the MVHR mounting brackets and a vertical strut. Temporally tape the cable out of the way prior to installing the HRV4.25 which the cable will be connected to.

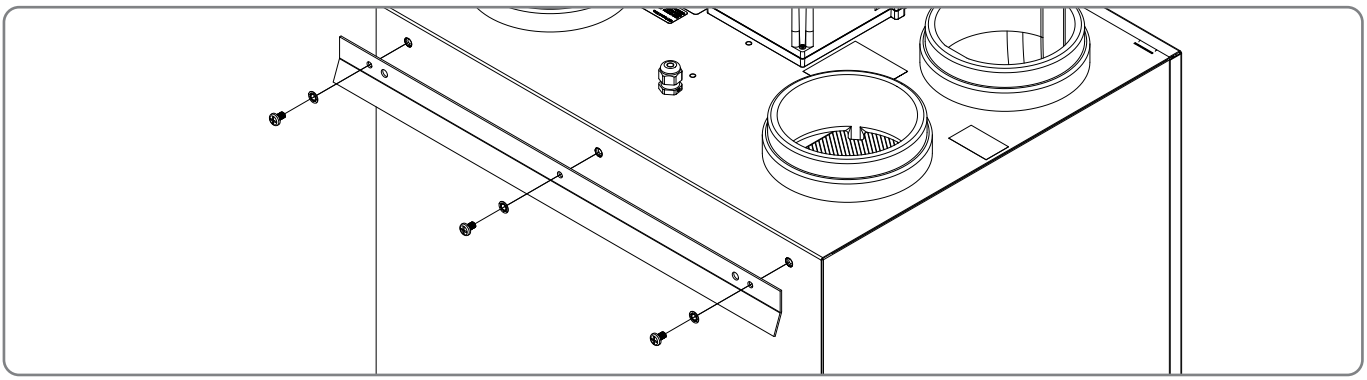


Condensate Drain shown is a Left Hand Installation

It is essential that there is the required 50mm separation between the 230V~ and control cables is maintained

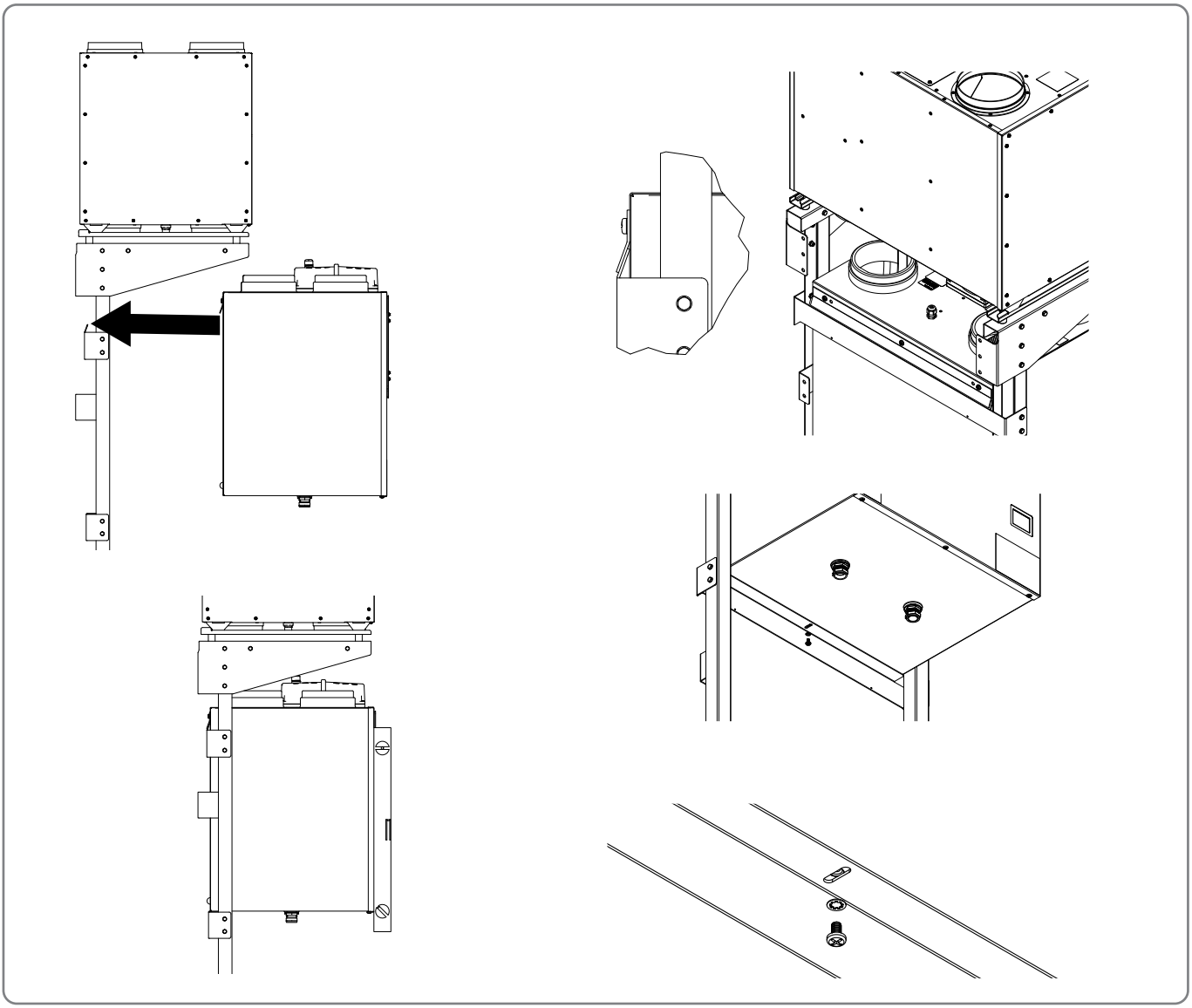
HRV Fitting

8. Fit the HRV unit bracket (CP44004) to the HRV4.25 using M6x10 screws (FF225) & washers (FF224)

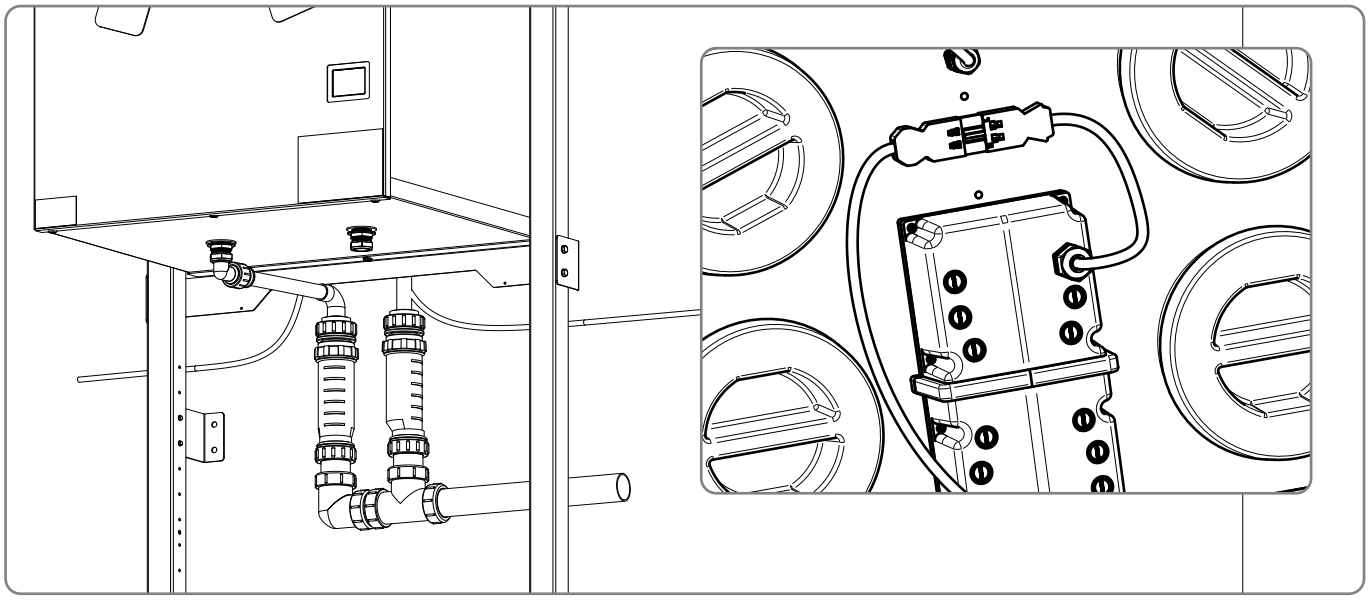


Before Fitting the HRV ensure the correct handing of the Cooler's Condensate drain

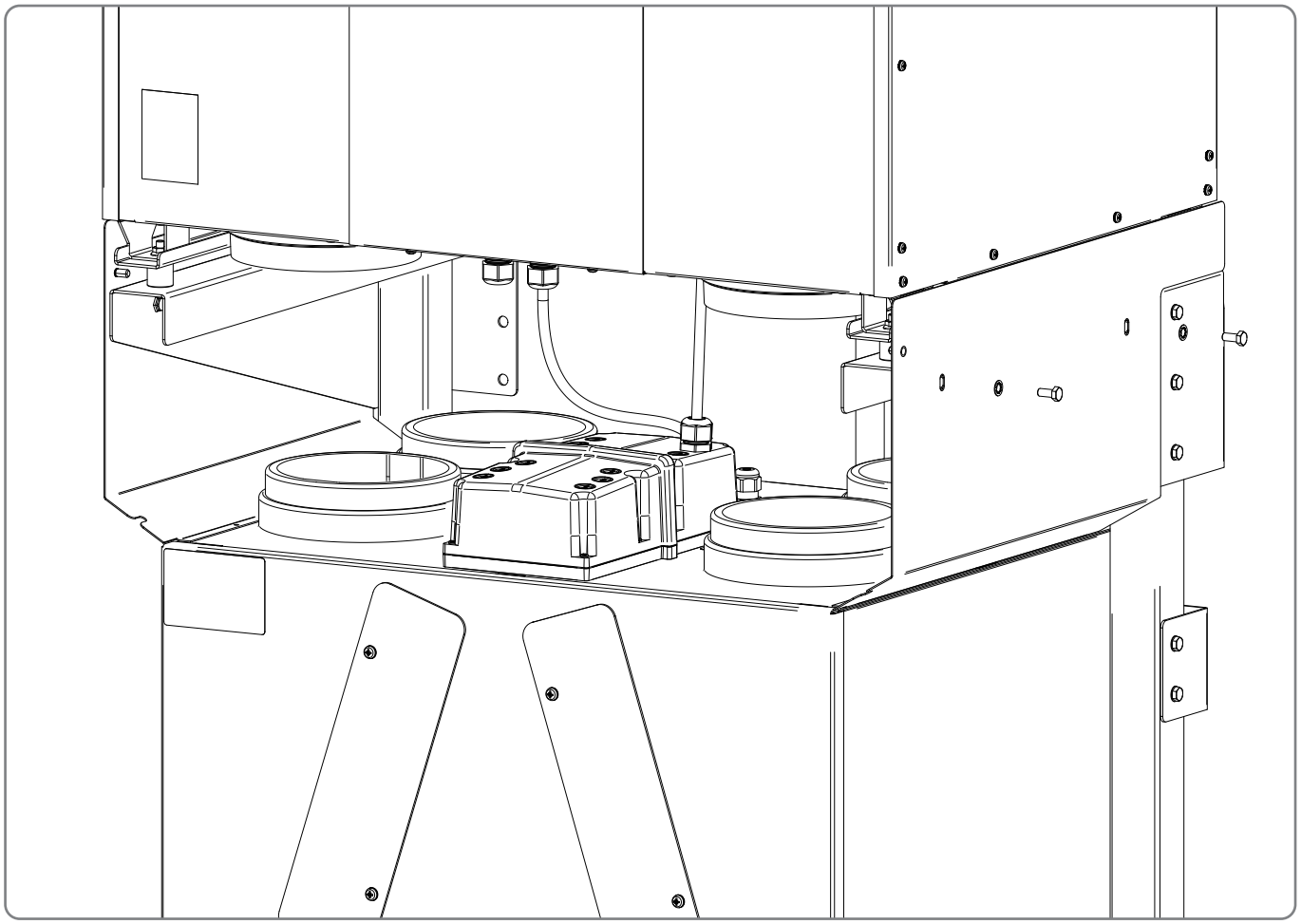
9. Hang the HRV4.25 onto the frame top bracket and the unit sit on the frame bottom bracket. Adjust the position of the HRV to ensure the unit is level top to bottom and fix in place using M6x10 screw (FF225) & washer (FF224).



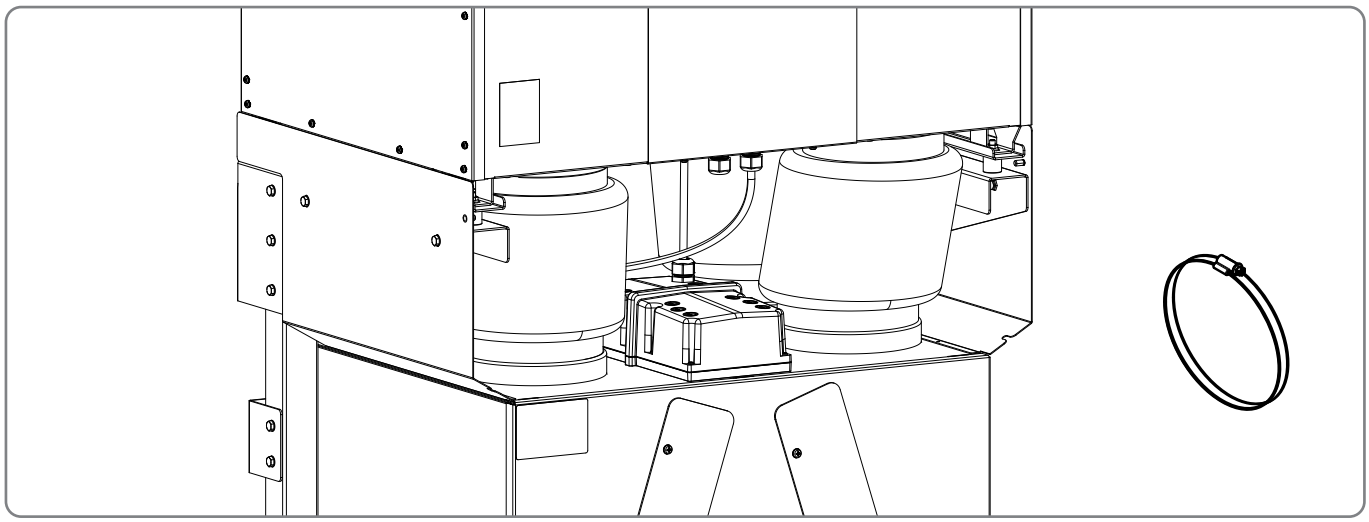
10. Fit the condensate piping to the Left-Hand drain for a Left-Hand installation and to the Right-Hand drain for a Right-Hand installation. Connect the communication cables for the Cooler and HRV unit by plugging together the plug and socket.



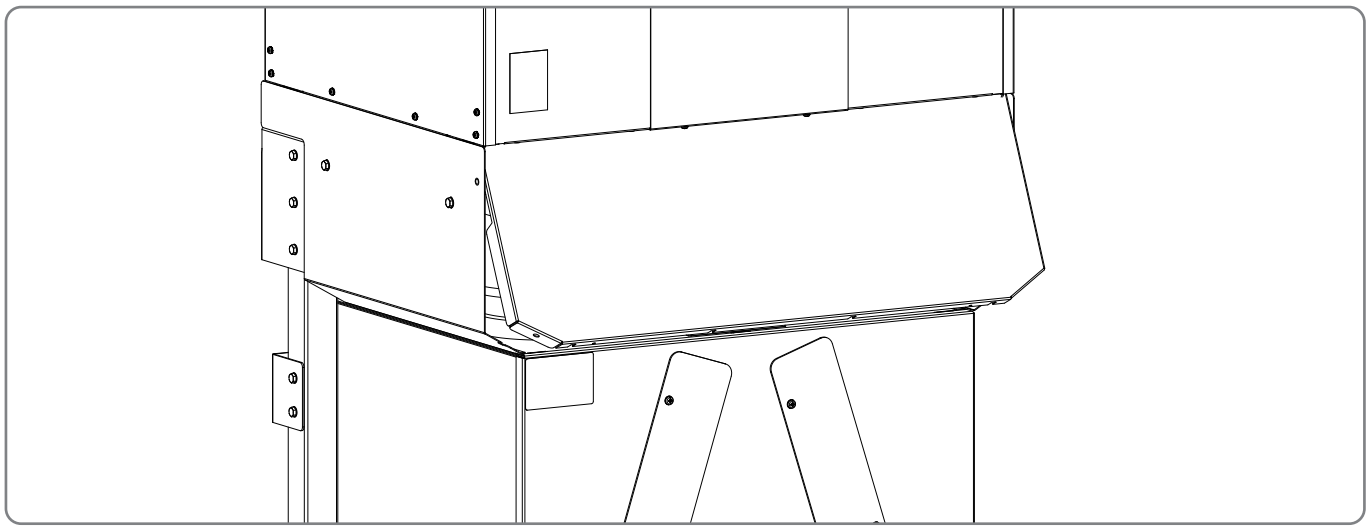
11. Attach the duct cover sides (CP1011913 & CP1011914) to the frame support using M6x14 screws (FF406) & washers (FF224).

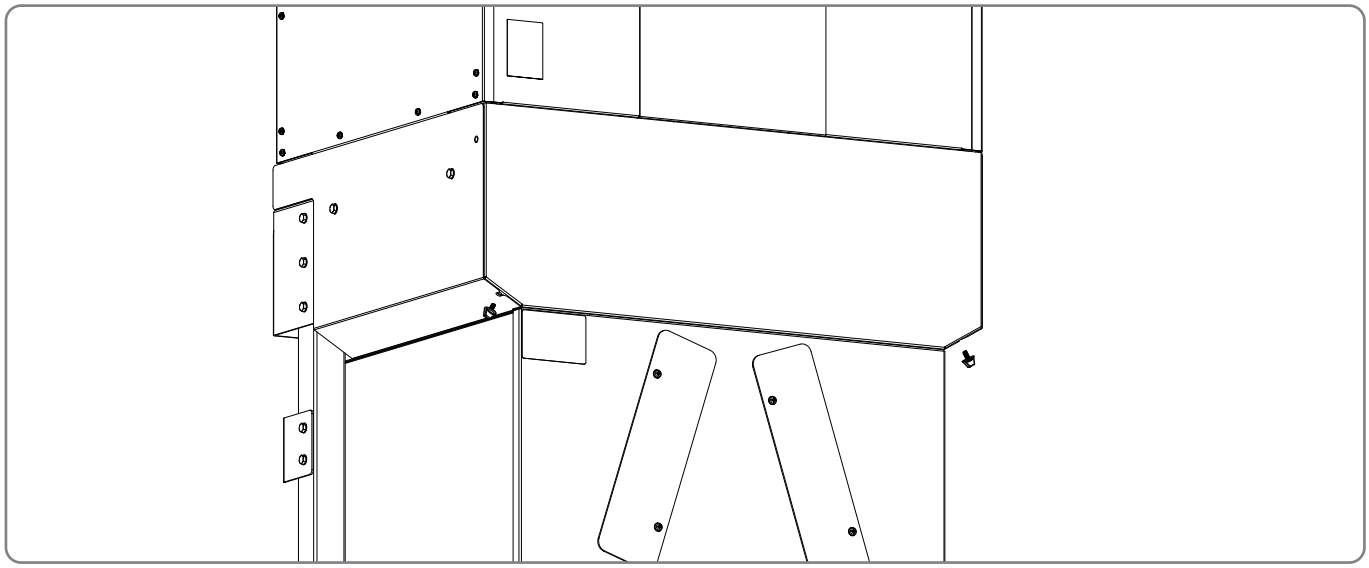


12. Fit the four flexible silencers (89724) between the Cooler and HRV.4.25; secure using the eight supplied Hose Clamps 8960188



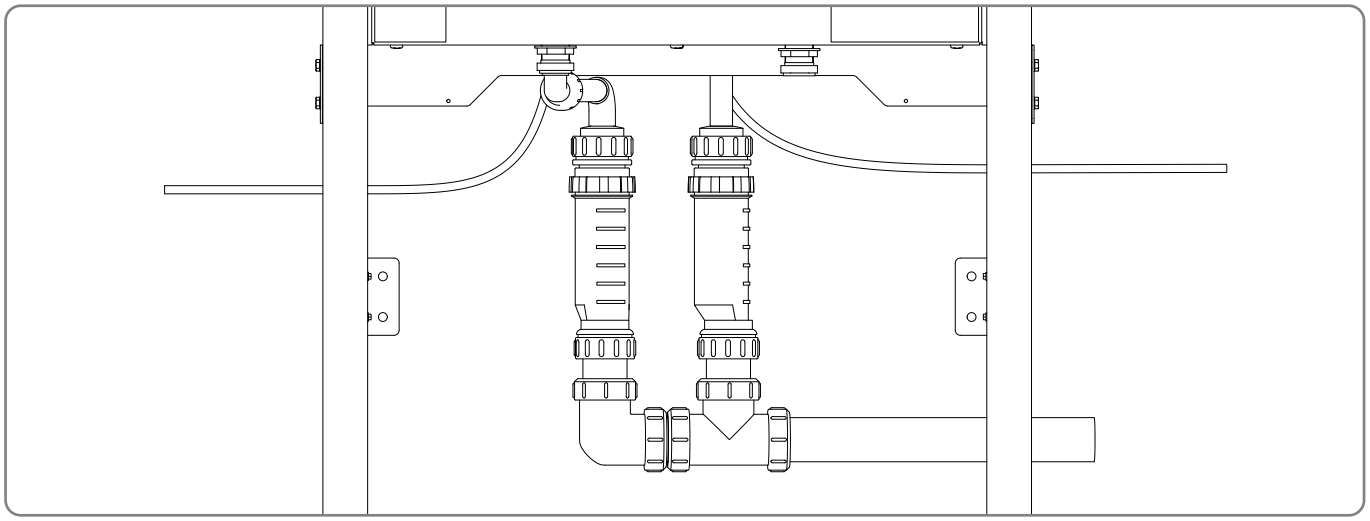
13. Hook the Front Cover (CP1011915) over the two pins & secure with two M5x10 Thumb Screws (FF343)





Condensate Drain

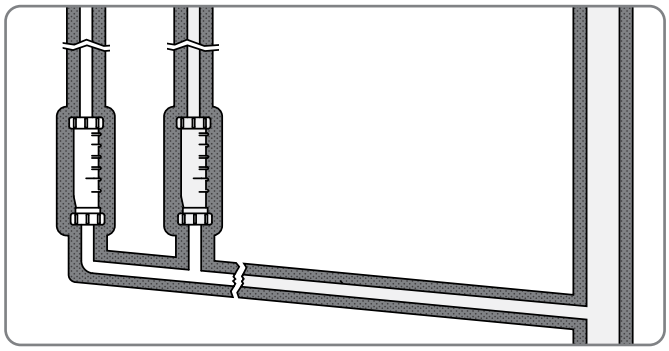
The HRV and Cooler's Condensation Drain Pipes must be fitted and connected to the dwelling's foul water drainage system in accordance with the relevant building regulations. Each drain requires a dedicated trap before connection to foul water system.



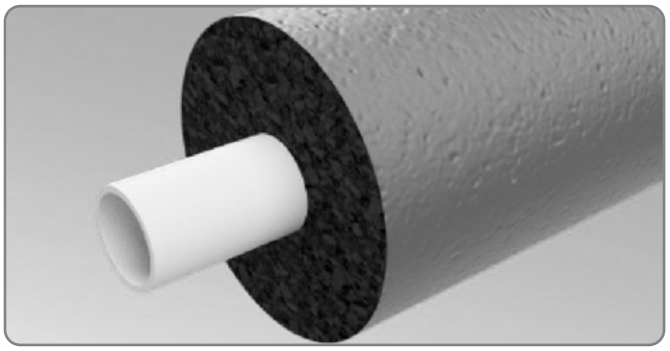
Dedicated Condensate Drains

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.
- 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.

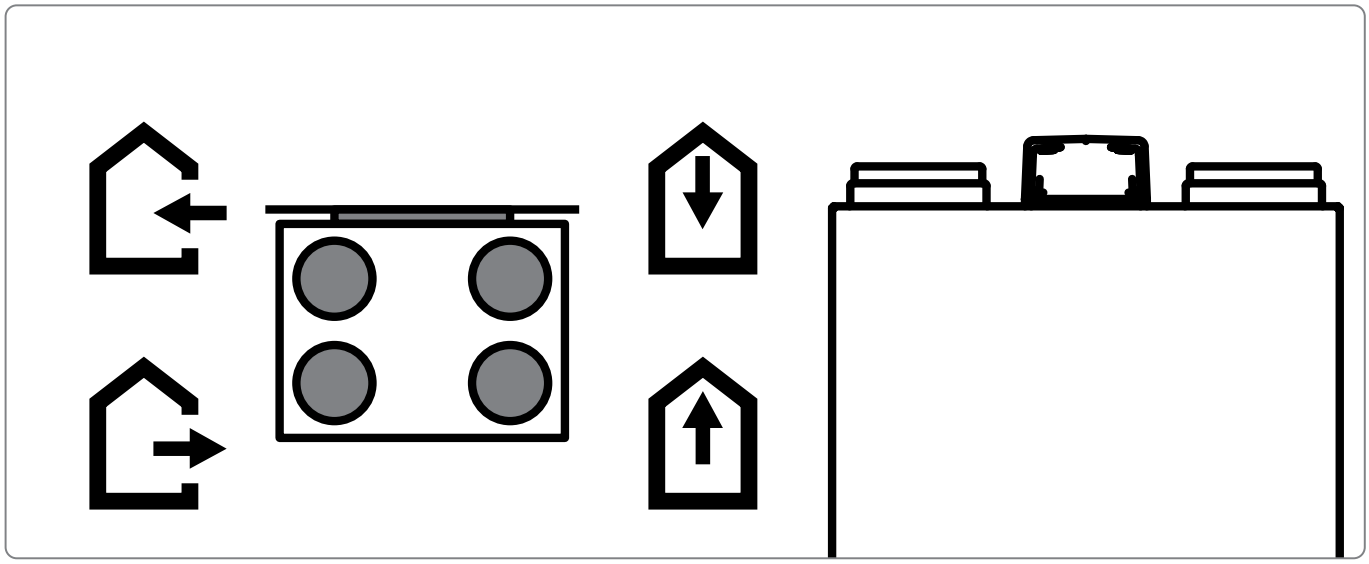


Insulated Self Sealing Traps and Waste



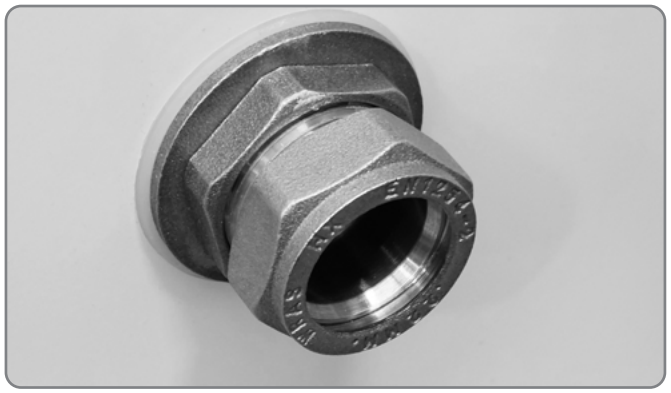
Insulated Condensate Drain

HRV Condensate Drain Handing

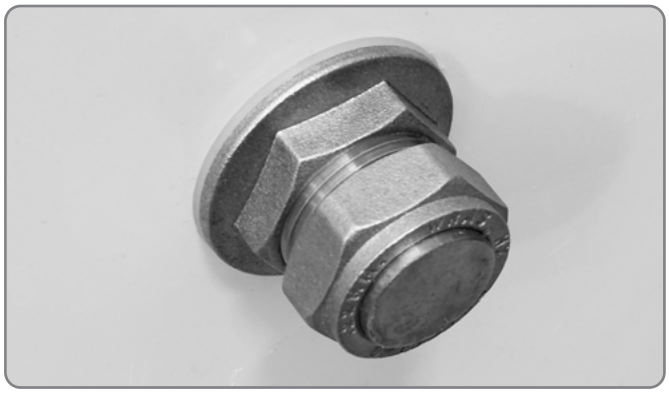


Blanking Plug

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



Condensate Outlet



Blanking Plate fitted to unused Outlet

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.

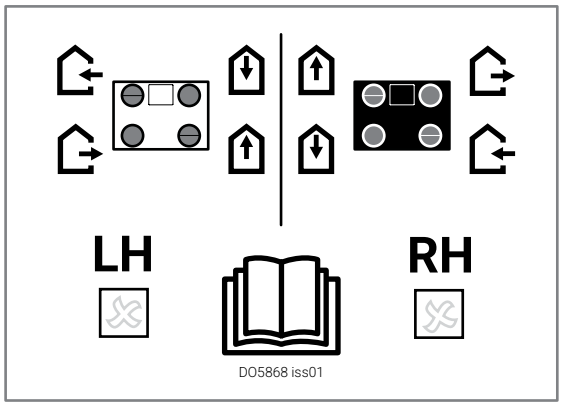
Port Designations

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.

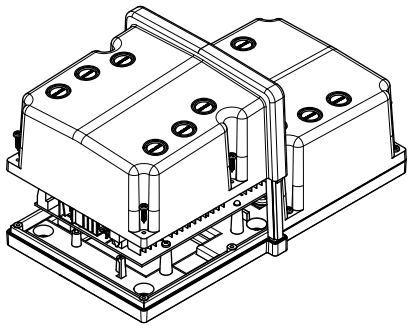


Wiring Access

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.

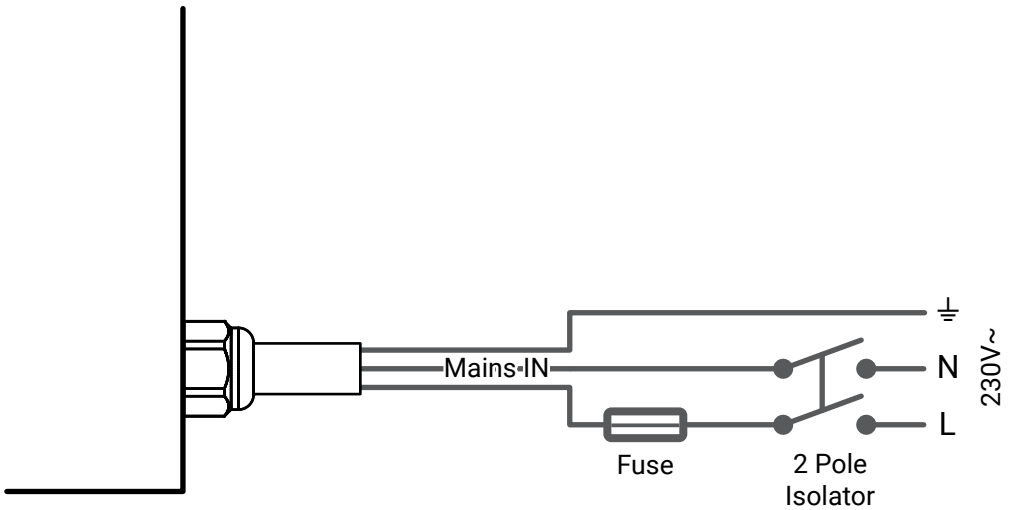
The Electronics Terminal Enclosure. compartment has two removable lids. The front lid must always be removed before the rear lid; both lids are fixed by four screws. All wiring must be routed into the electronics compartment using cable glands or similar.



Electronics Terminal Enclosure

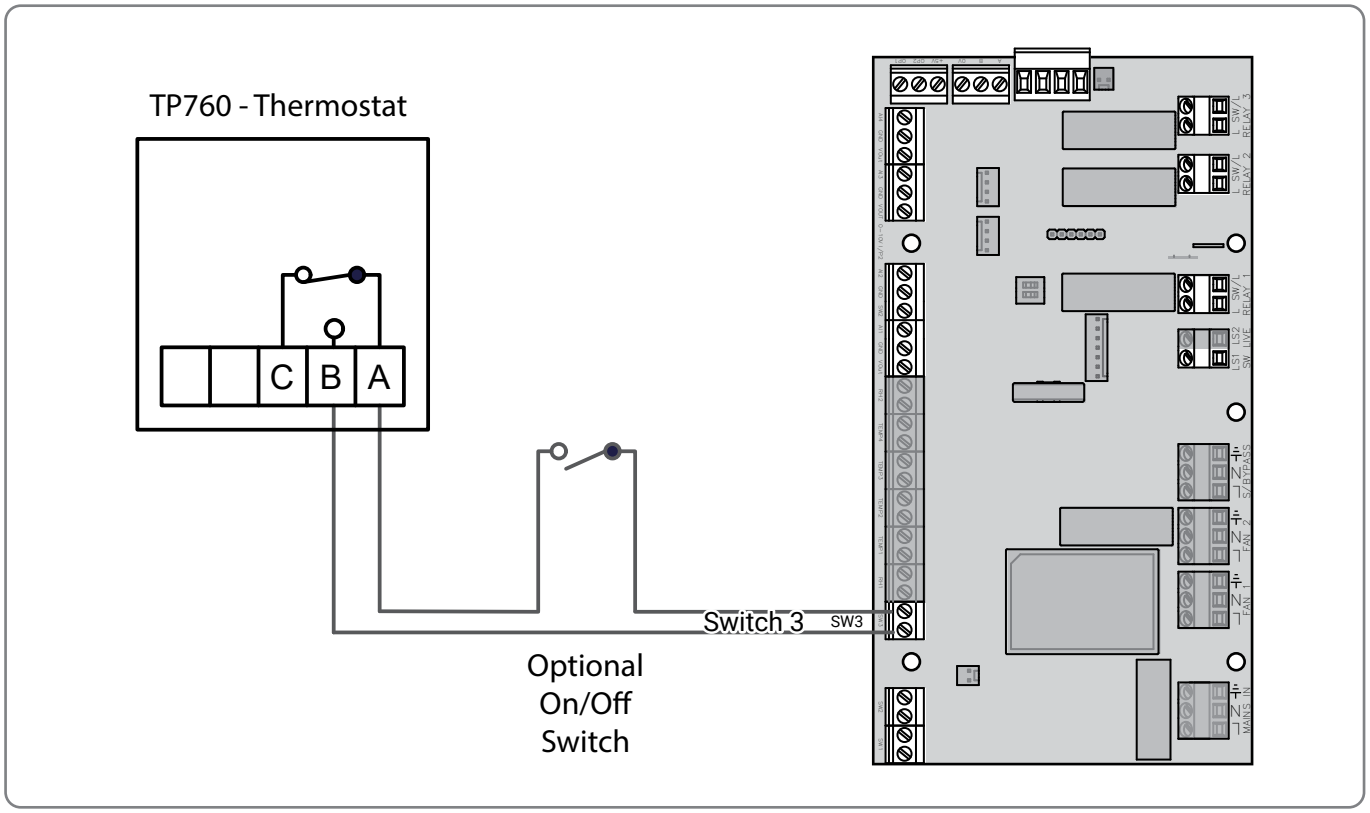
Supply

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



Supply Wiring

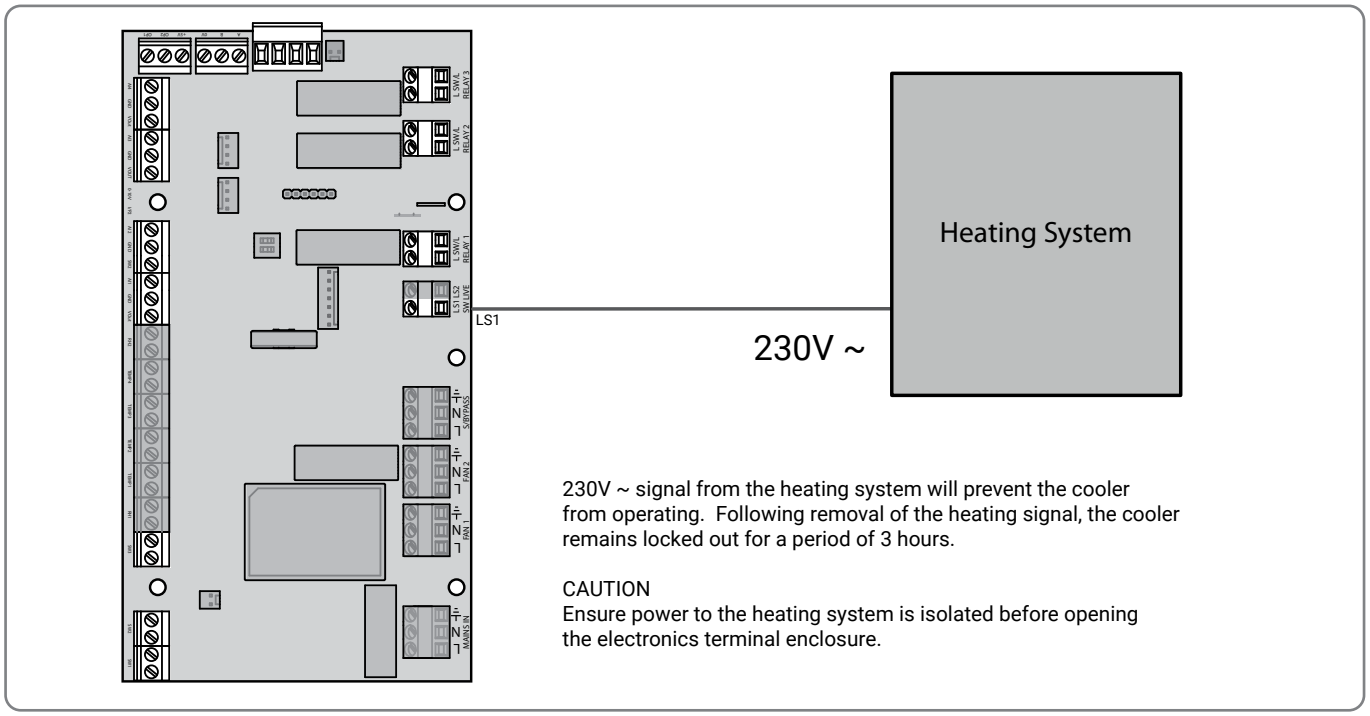
Thermostat Connection



Thermostat to HRV4.25 Connection

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

Heating System Connection



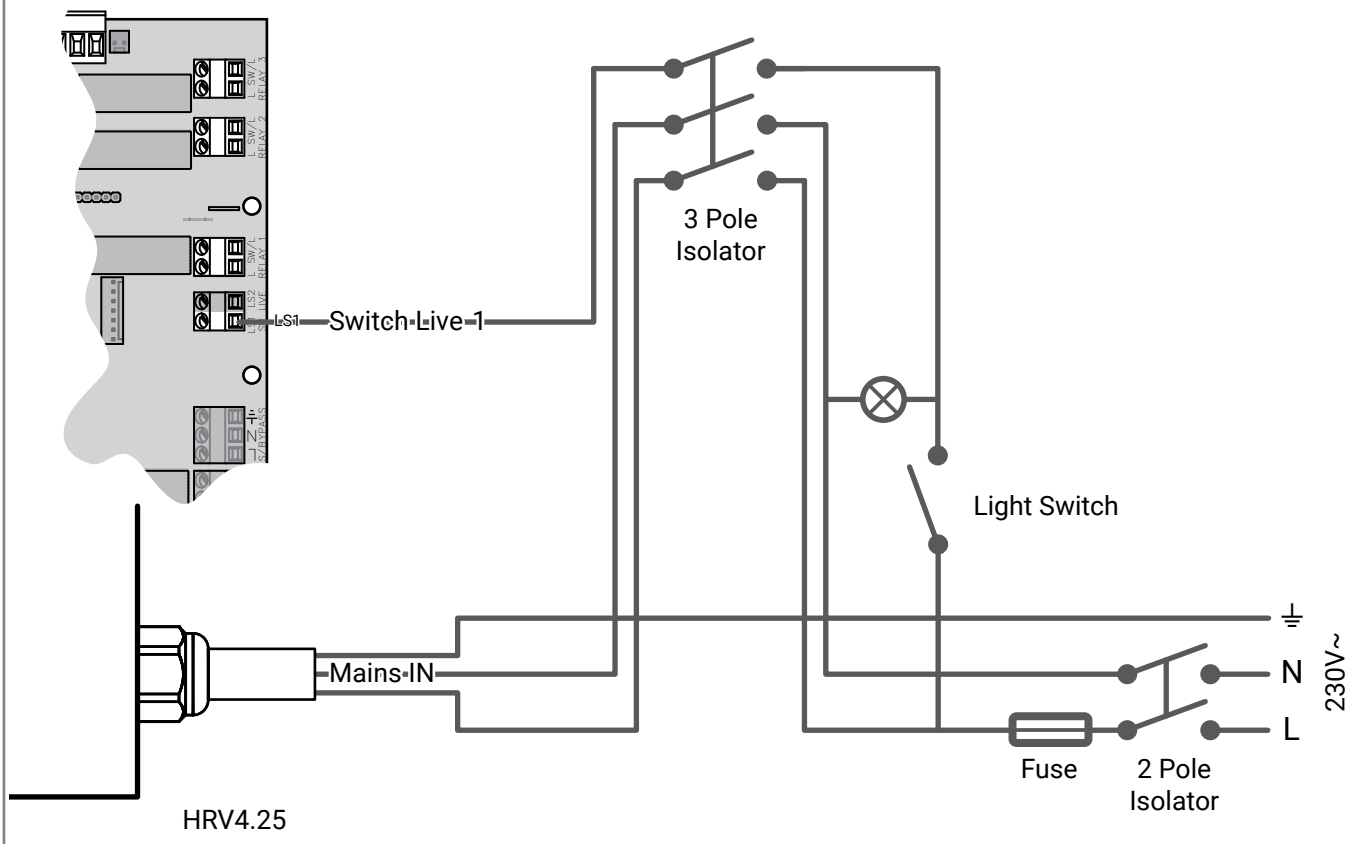
230V ~ signal from the heating system will prevent the cooler from operating. Following removal of the heating signal, the cooler remains locked out for a period of 3 hours.

CAUTION
Ensure power to the heating system is isolated before opening the electronics terminal enclosure.

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.

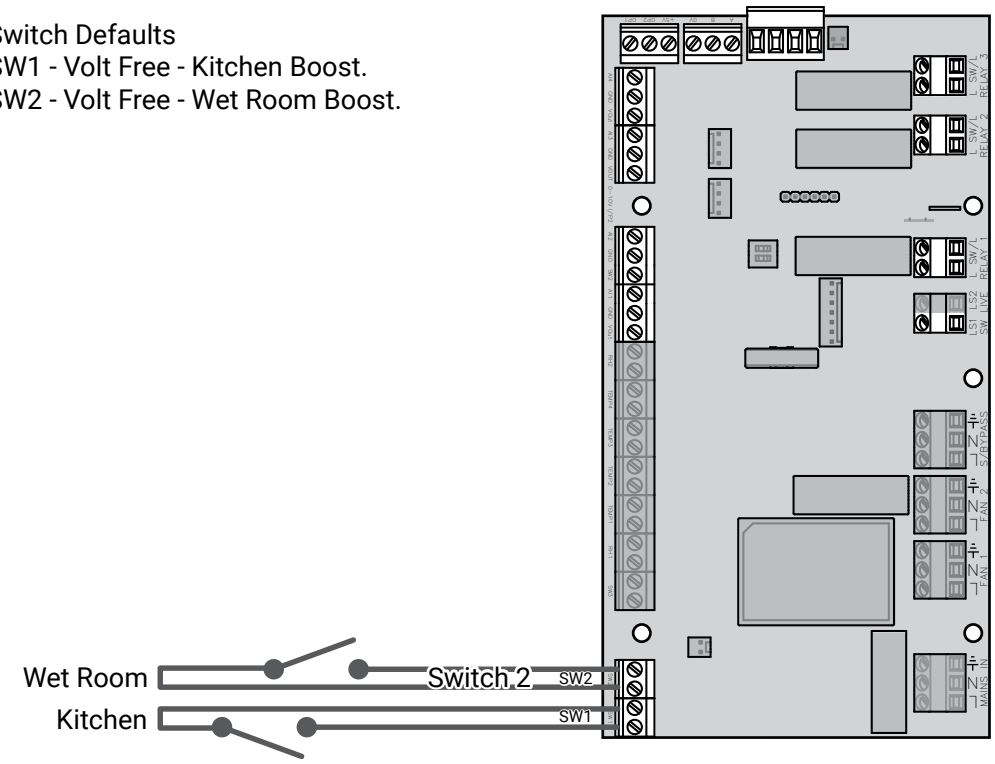
By default LS1 is set to a heating input to disable the cooler, but it can be reconfigured to a boost switch input.



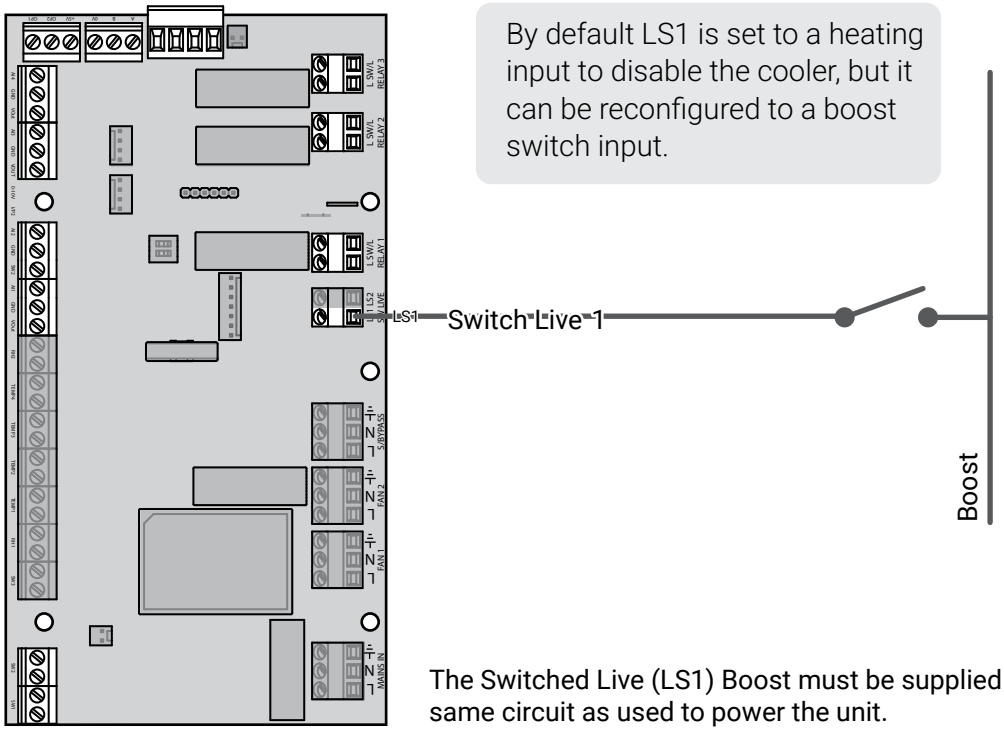
HRV4.25 Supply Wiring with Switch Inputs

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

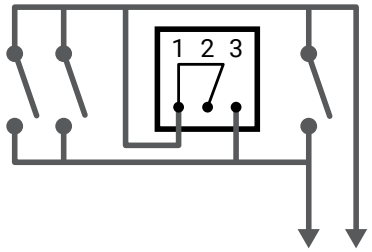


By default LS1 is set to a heating input to disable the cooler, but it can be reconfigured to a boost switch input.

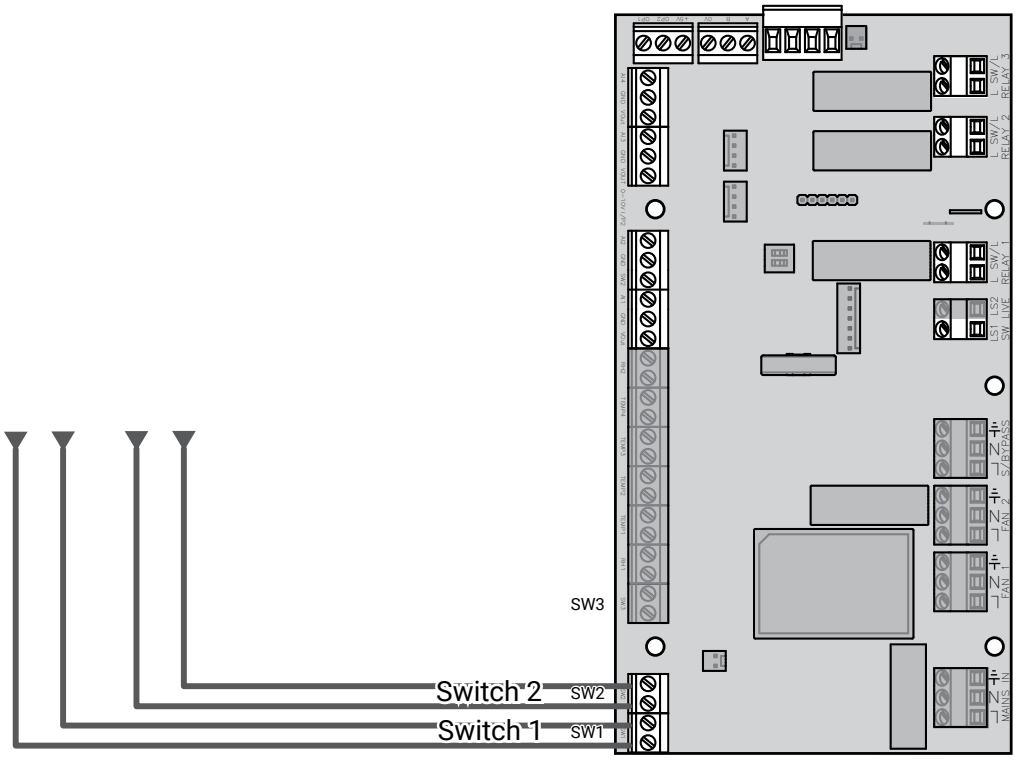
The Switched Live (LS1) Boost must be supplied via the same circuit as used to power the unit.

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.



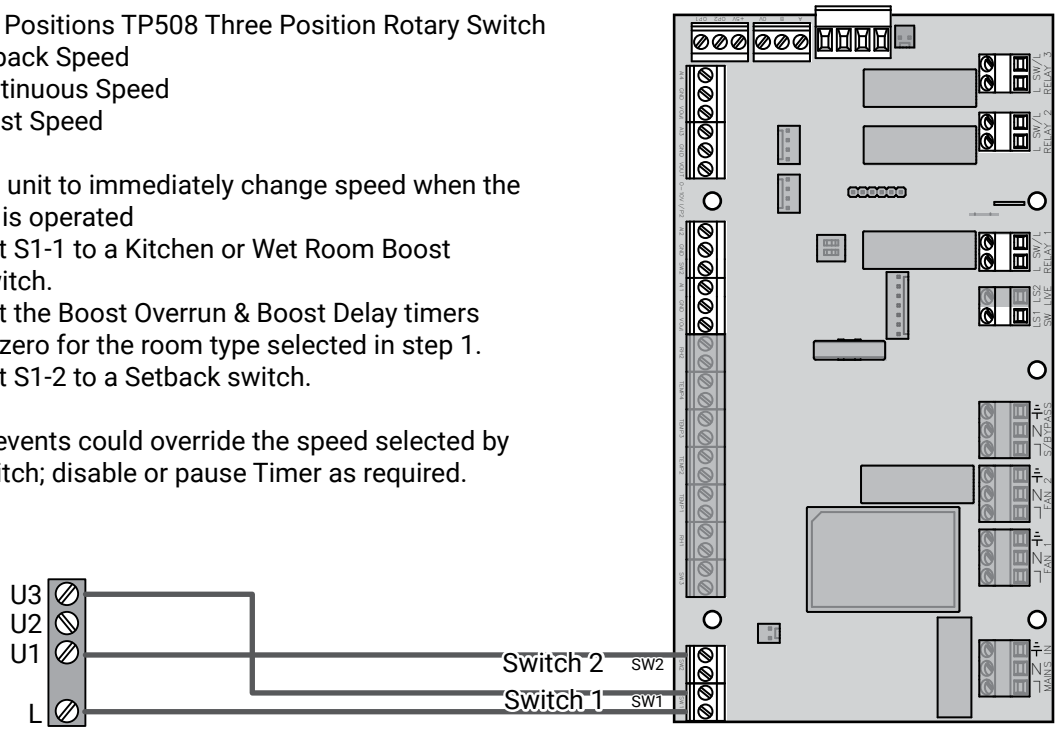
Volt Free Switch Inputs

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

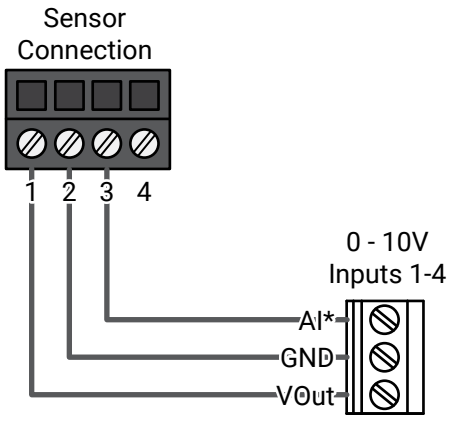
1 Set S1-1 to a Kitchen or Wet Room Boost switch.
2 Set the Boost Overrun & Boost Delay timers to zero for the room type selected in step 1.
3 Set S1-2 to a Setback switch.

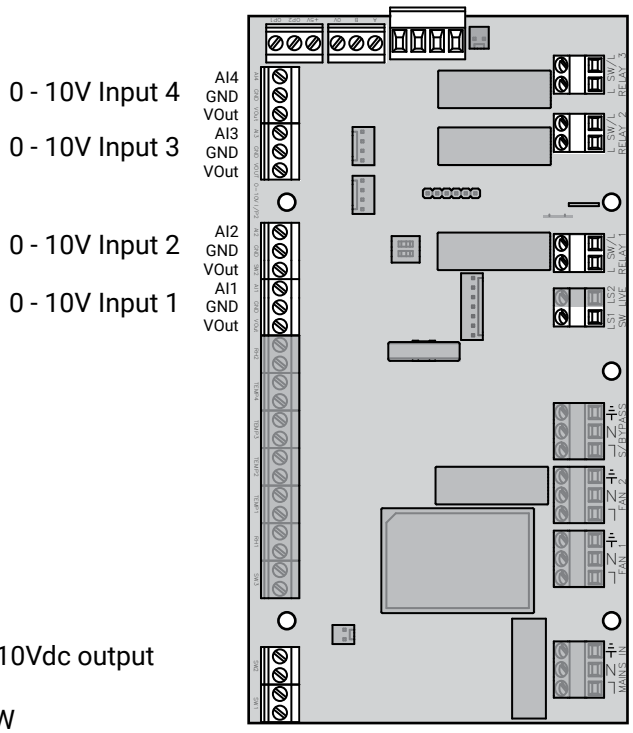
Timer events could override the speed selected by the switch; disable or pause Timer as required.



Three Way Rotary Switch

External Sensors



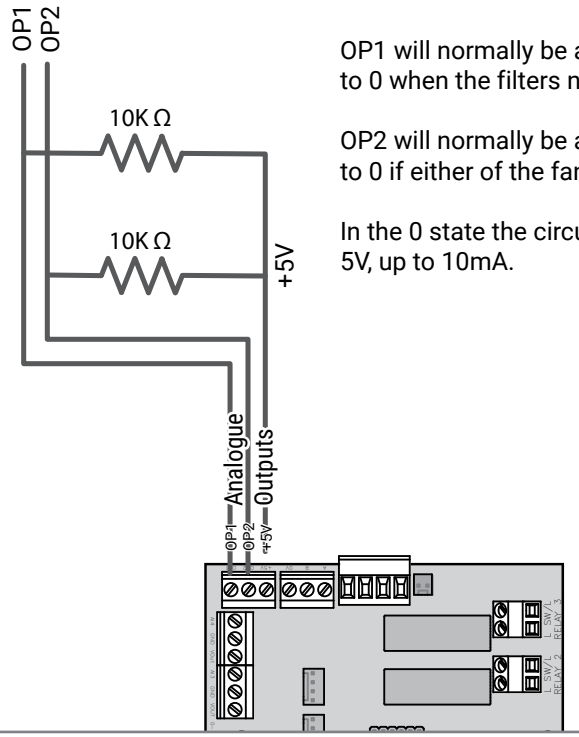


Sensor Options
TP540 VOC
TP541 CO_2
TP542 Humidity

- 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

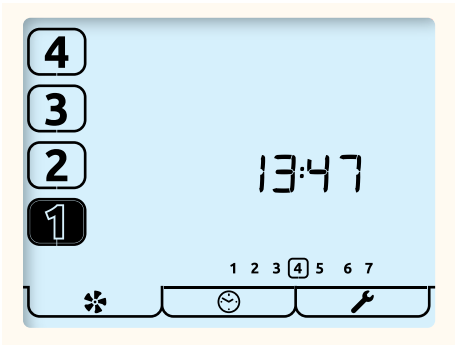
Once installation is complete the ventilation system will need to be commissioned and setup using aura-t controller,
The aura-t™ on board controller is a programmable touch screen controller which monitors and displays the status of a HRV unit. It allows the unit to be commissioned, and gives the user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

User Interface

Menu Tabs

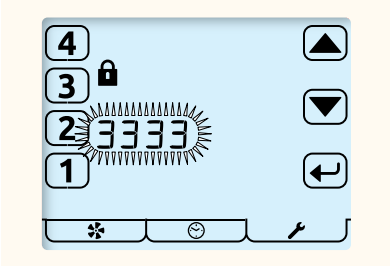
The aura-t™ screen has three interactive menu screens which are selected via tabs at the bottom of the touchscreen.

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.

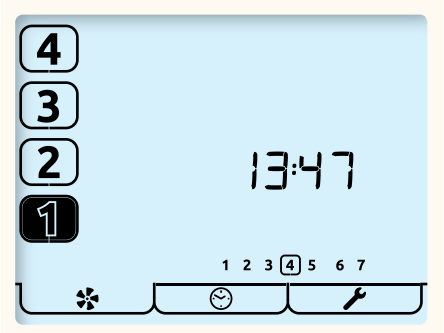


Passcode Screen

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.

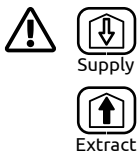
Other Icons

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 flashing the indoor temperature is low and both fans will be restricted to 23% @ 6°C or 18% @ 3°C.
	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.



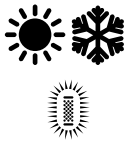
In an HRV with constant volume functionality; when one of the fans has reached the maximum permissible speed for constant volume operation, either of these icons will slowly flash to indicate which fan is running too fast. Check the duct work and filters for restrictions or blockages



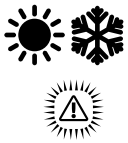
The warning icon flashing at the bottom of the screen adjacent to the Fan icon indicates a fan failure has been detected; a flashing supply or extract icon at the top of the screen indicates which fan has failed; contact the installer. If very high temperatures are detected inside the HRV, fan failure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

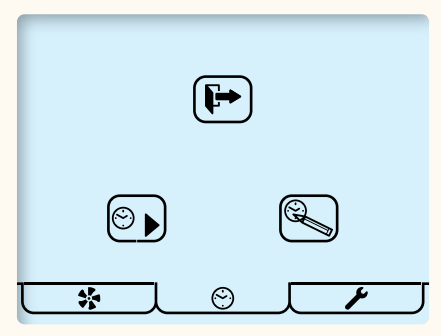


Cooler has previously been shut down due to low air flow, Cooler will restart. If the Cooler detects low air flow again the Cooler will shut down and restart. If the dwelling temperature drops below the thermostat's set temperature, this warning is reset.

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.

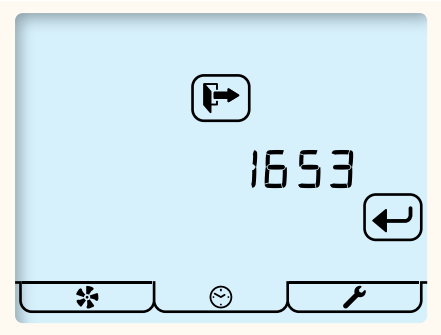
An additional function of the timer is that when it activates Setback there is an option to engage Boost Inhibit.



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.

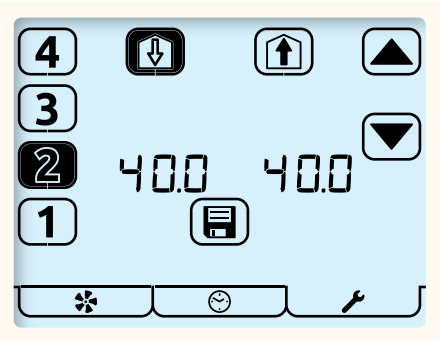
- When the timer has automatically switched the HRV to Speed 1 this can be manually overridden by tapping [2-4] keys. Tap the Speed 1 key to return to timer control.
- When the next timed event occurs the unit will revert to timer control.
- Manual override is not possible if Boost Inhibit is in operation.



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

Fan Commission

Ensure the Cooler is not activated whilst changing fan speeds



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.

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.

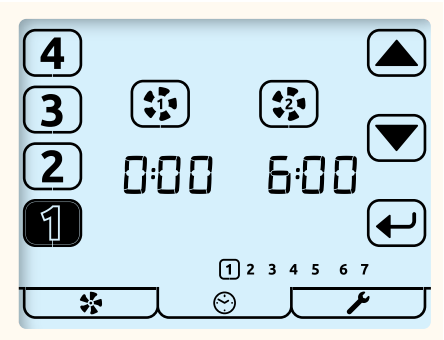
To set the fan speed to Zero/ Off set Speed 1 to the minimum speed for the selected units and press and hold the [1] key

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.

Timer Setup

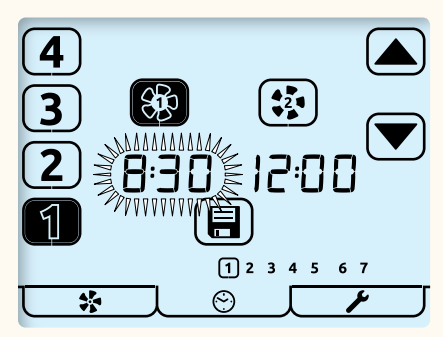
Timer setup is achieved in three steps

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.

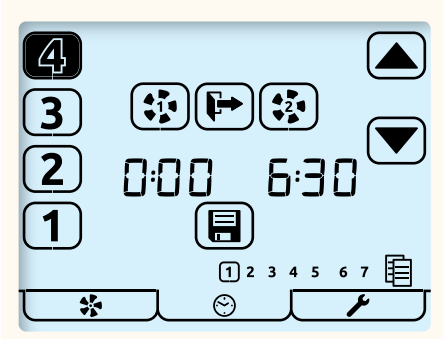
2 Select Event & Edit Timers



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

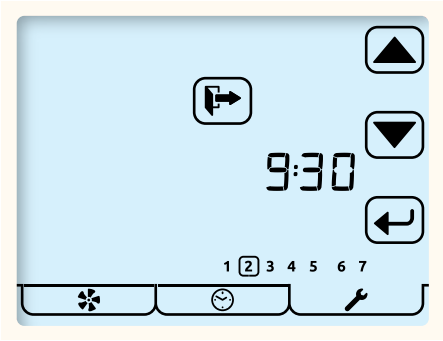
Event timings:

- 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.

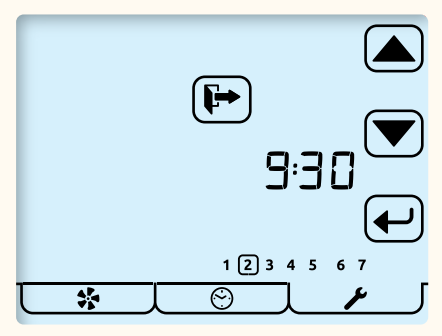
1. Time (24 hour clock)
2. Day of week.
3. Humidity threshold[4]
4. Kitchen Overrun timer.
5. Wet room Overrun timer.
6. Filter Change Interval (months 1-24)[2]
7. Filter Reset; also displays remaining time in days[2]

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.

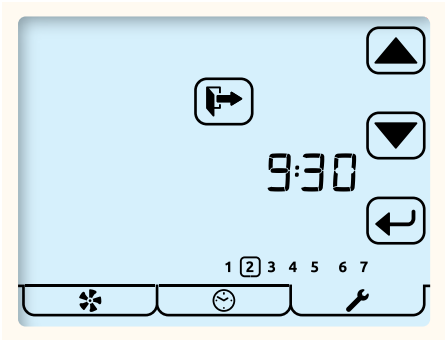
Tap the Setup Menu tab twice to enter the Cooler Setup Menu

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.

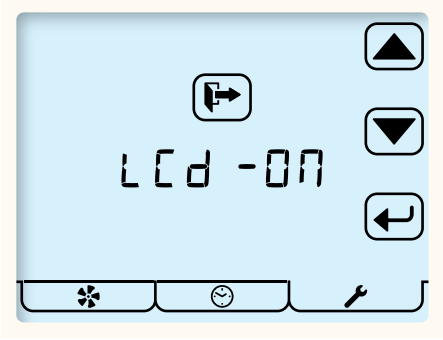
The order in which editable settings are displayed is as follows.

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.

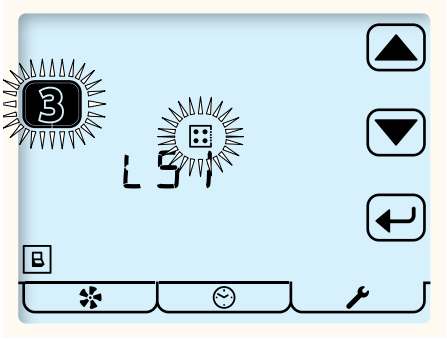
Eco mode will only operate when timers are permanently paused & Cooler is set to off.

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.

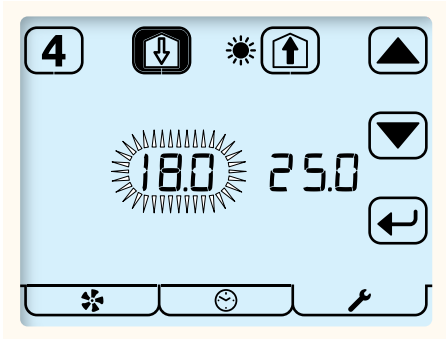
B	Switch Setup menu active.

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.
HEAT	Heating Input - locks out cooler (LS1 only)

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. The default setting for LS1 is Heat.

Summer Bypass Setup



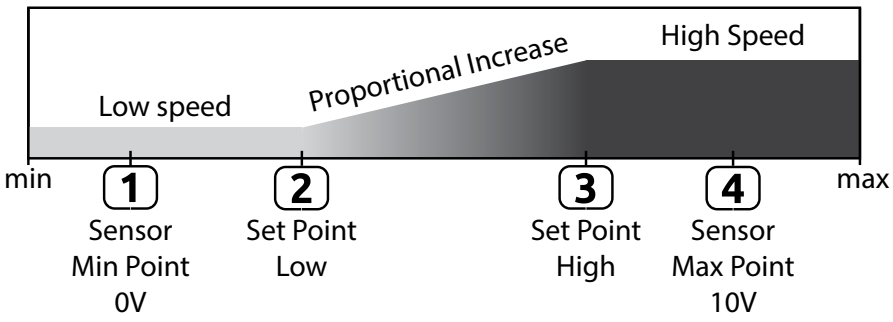
Use to adjust value up or down.

Enter key.

Supply / Extract	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.
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.

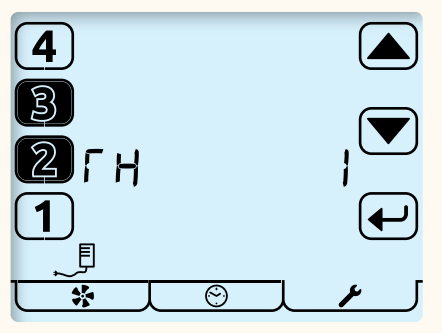


There are 4 room sensors connections available; each Sensor has two configuration screens, each pair of screens is displayed sequentially. ie 1a, 1b, 2a, 2b, 3a etc.

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..

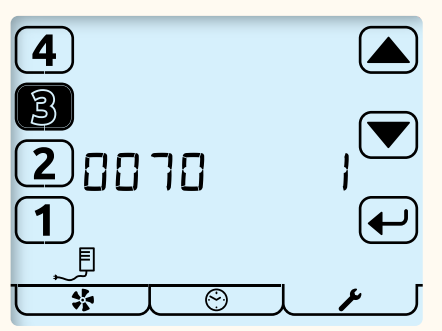


Use to cycle through the sensor options

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.

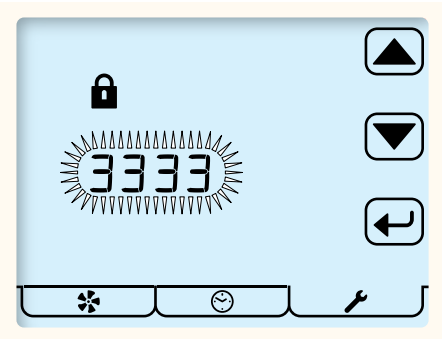
1 Sensor Min Point 0V

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

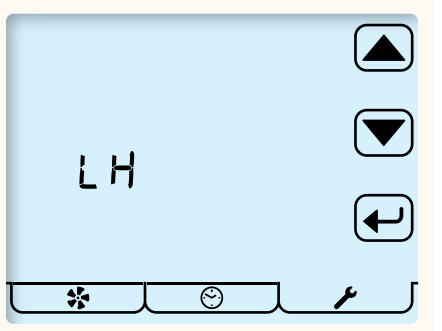


Tap Enter key
to edit state.

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

Unit Handing

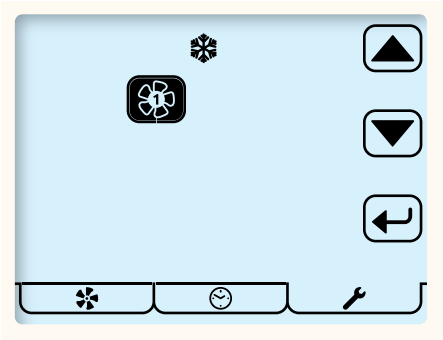


Use the Arrow buttons to select between LH and RH

Tap Enter key
to save and exit.

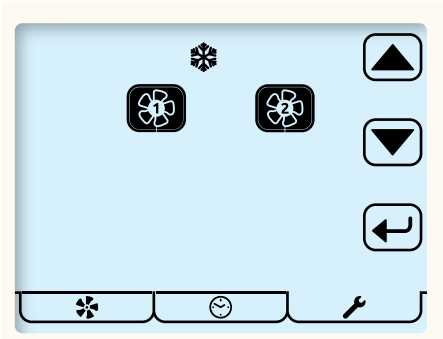
Frost Setup

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.

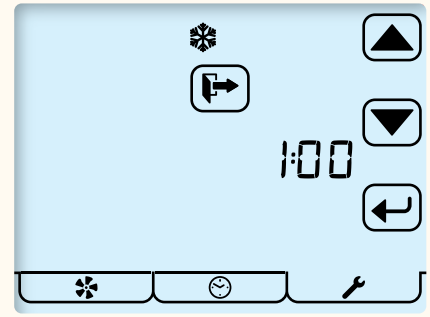


Cooler Setup

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



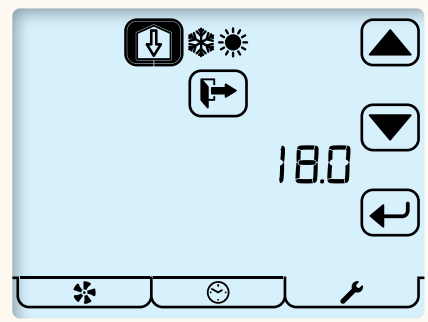
Tap Enter key to edit state.
Display will show previous time set.
Tap Enter Key to set Manual Mode and activate.

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

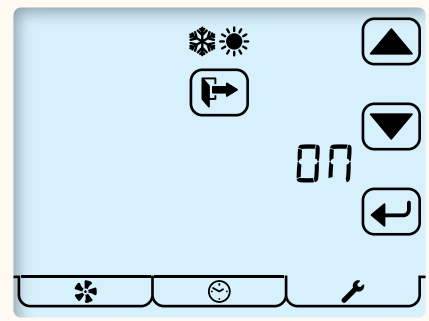


Tap Enter key to edit state.
Display will show temperature setting
Tap Enter Key to set

Use the Arrow buttons to change temperature (Range 0°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)		Heat
Live Switch 2 (LS2)		Reserved for Cooler

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

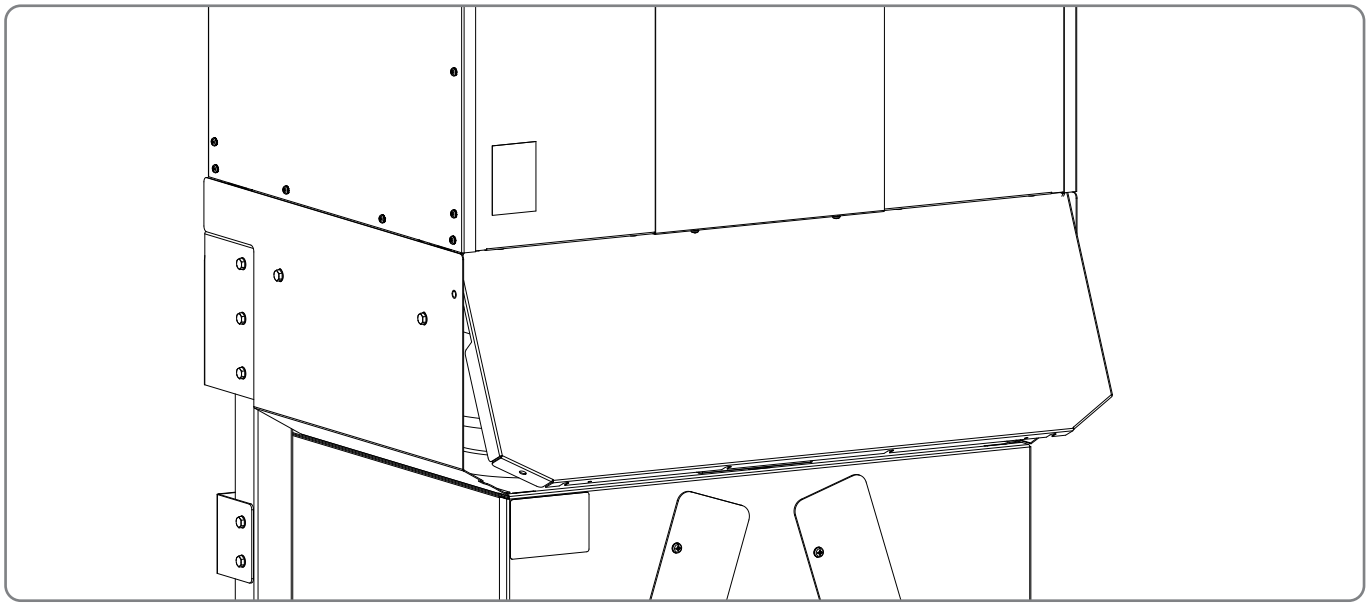
For best results:

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

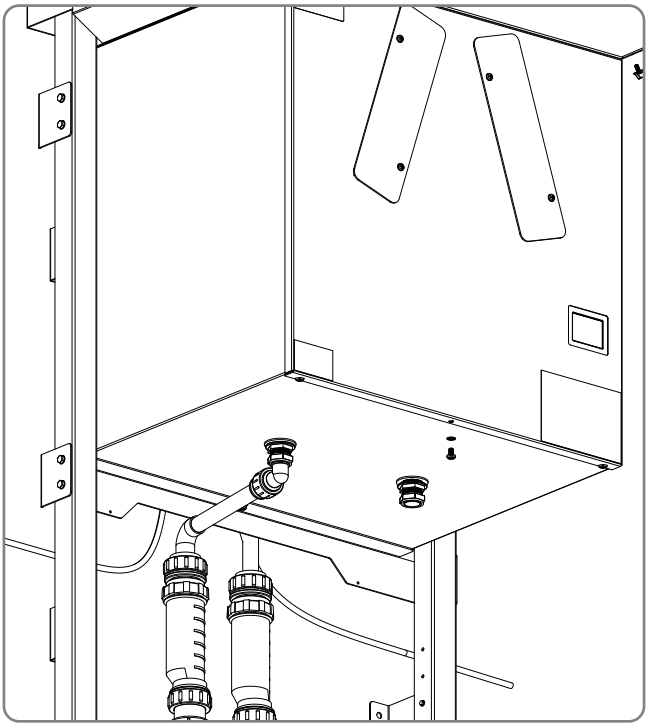
Do not use water or any other fluids

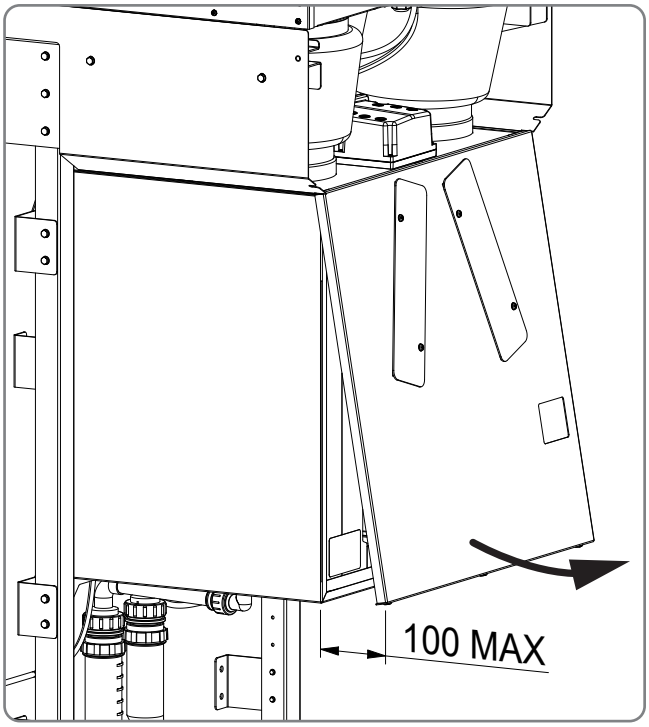
Front Cover Removal

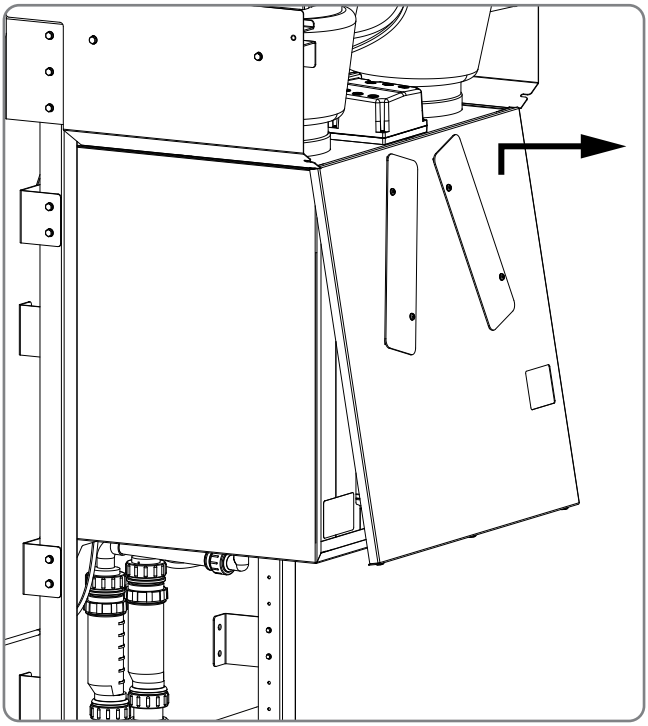
1. ISOLATE the unit from mains power supply and allow sufficient time for all moving parts to stop
2. Remove the Front Centre Cover by loosening the thumb screws, lifting and unhooking. .



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 is securely located at the top before refitting and tightening the screws.

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)
HRV4.25 *Q Plus*	XP2011629

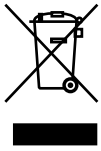
To replace filters.

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”

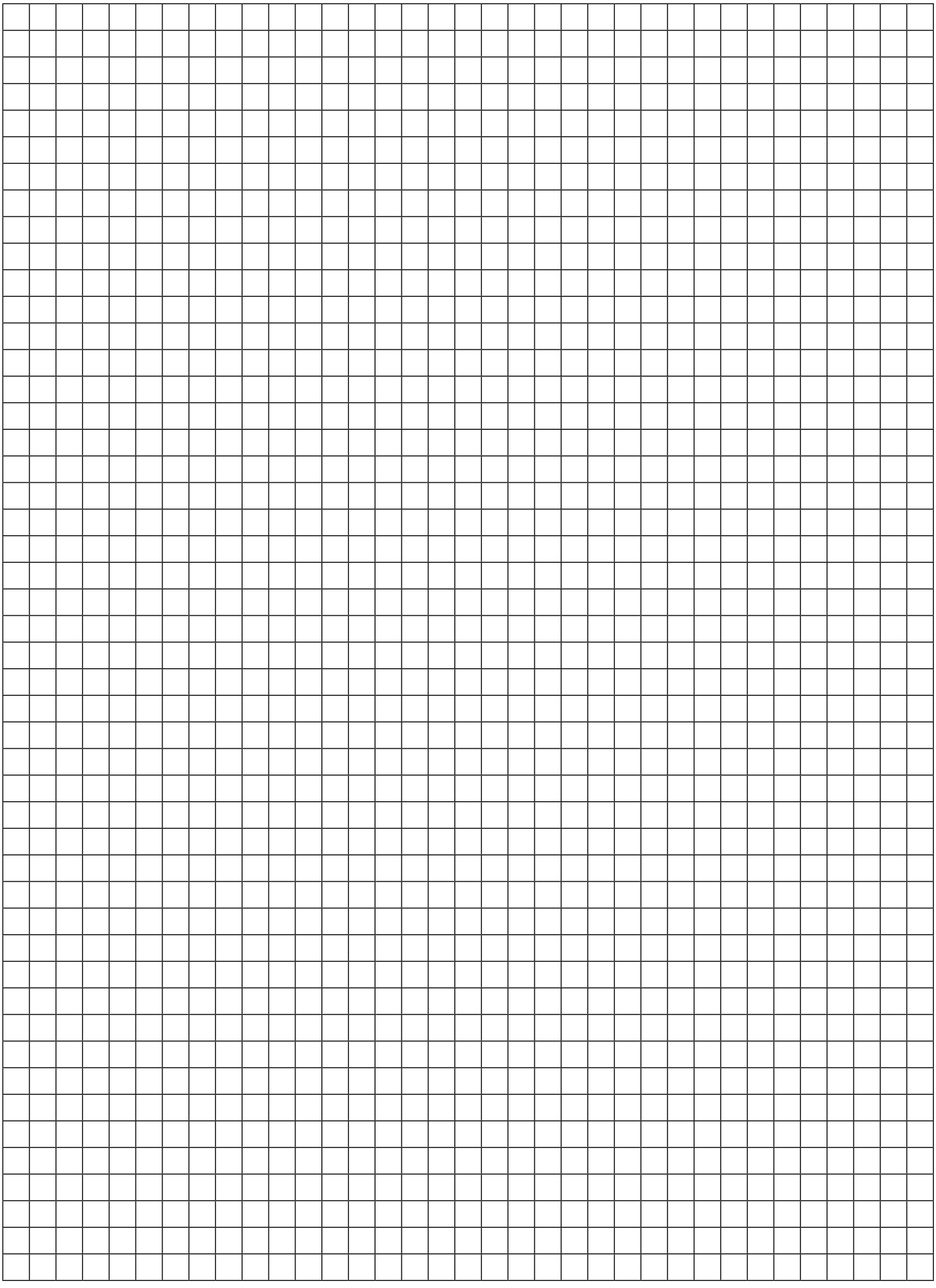
Respect the local environmental rules.

Titon®

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Service Record

Serviced By	Company Name	Date	Notes



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ventilation systems

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