SmartVent

NZ's Home Ventilation Specialists

ISSUE 5

Technical Guide

The experts' guide to specifying a healthier home

SmartVent Positive

SmartVent Synergy

Welcome to the SmartVent Technical Guide.

Thank you for taking the time to improve your knowledge of the SmartVent range.

Over the years, a number of installers have commented that Simx should be more proactive in the training and up-skilling of those in the industry we serve, especially as the product range we offer becomes more diverse and technical. So this is the result; an improved and more formalised training guide for contractors.

The main focus of this Technical Guide is to increase the familiarity of the SmartVent product range and outline best practice for installations.

We encourage you to ask questions and we welcome feedback so we can continue to improve our offer to you.

As a leading supplier to the Australian and New Zealand Electrical and HVAC industry for over 30 years, Simx is committed to the development of high quality products with features demanded by the market.

Simx has evolved from its beginnings in security products to healthy home solutions and commercial ventilation products and is even more committed to innovation and excellence than ever before. Trusted by electricians and HVAC industry professionals, our product range spans many markets including domestic, commercial and HVAC, with market leading brands such as Manrose, Vent-Axia, Simx, Alaskon and SmartVent denoting quality, service and reliability.

Contents

BRANZ Bulletin 508. February 2009.

1.0.1 Daily household activities such as cooking, washing and even breathing release moisture and pollutants into the air. Air needs to be regularly refreshed to maintain its purity. Houses of the past were cold & draughty, but provided adequate ventilation through leakage around window and doors.

1.0.2 Modern homes are more insulated and airtight. While this makes them more energy efficient it also results in reduced airflow in and out. If polluted air and moisture remain trapped inside, indoor air quality is reduced.
New Zealand has a comparatively high rate of asthma and moisture can cause both cosmetic & structural damage to the building.

1.0.3 NZ Building Code clause G4 Ventilation requires that 'spaces within buildings shall have a means of ventilation with outdoor air that will provide an adequate number of air changes to maintain air purity'.

1.0.4 The minimum number of air changes per hour (ACH) deemed to be adequate for living areas is 0.35, which means approximately one-third of the total volume of air must be changed every hour.

1.0.5 Opening windows provides passive ventilation (acceptable under G4), but heat can be lost and security can be compromised.

"The average NZ family produces over 100 litres* per week of moisture while carrying out normal everyday activities"

* Source: EECA (Energy Efficiency and Conservation Authority)

Over 30 years' experience in the ventilation market

Simx, the manufacturers and distributors of SmartVent Home Ventilation systems, have been in operation for over 30 years in the ventilation industry. We are the choice of the professional trade market. 8 out of 10 electricians recommend SmartVent.

Acoustic insulated duct for quieter performance

Our unique acoustic insulated duct lessens air noise travelling down the duct and entering the room the outlets are placed in.

F7 class air filtration

The SmartVent systems use F7 class filters which capture on average up to 90% of 0.4 micron particles over the lifetime of the filter.

SmartVent grows with the family

All SmartVent systems can be easily upgraded as a family grows, with smart affordable features. A consumer can purchase the standard system initially and add upgrades at a later stage.

Five year warranty

Simx source only the highest quality componentry and as such all SmartVent systems are supported by a 5 year warranty.

SmartVent Home Ventilation systems are recommended and installed by qualified Electrical and HVAC contractors across the country.

SmartVent is proud to be recommended by the Certified Builders Association of New Zealand, which promotes a commitment to excellence within the building industry.

SmartVent is proud to be a member of the CCCA (Climate Control Companies Association). The purpose of the organisation is to promote high standards of business competence and industry conduct for companies engaged in climate controlled environments.

Market feedback from these groups and consumers, along with ongoing investment in research and development has led to SmartVent having the most flexible, future-proofed home ventilation systems in the New Zealand market.

Climate Control
Companies Association

New Zealand
Certified
Builders
Association
NZ

The SmartVent family is comprised of three unique products designed to improve the air quality and comfort in your home.

SmartVent Positive

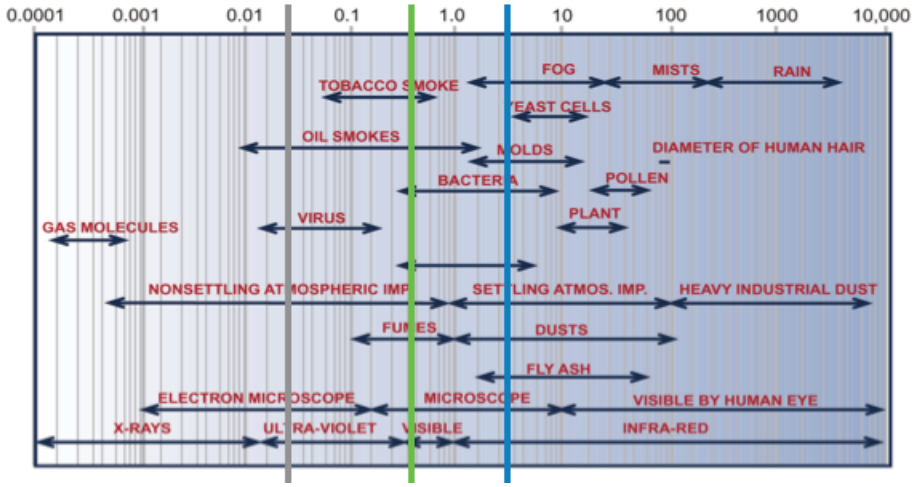
A SmartVent Positive system draws fresher, drier air into your home from either the roof cavity or outside (optional). This air is then passed through a filter and introduced into the home.
This process positively pressurises the home creating air circulation and forcing out the moist, stale air that causes condensation, mould and mildew. Fully upgradable to include heat transfer and a choice of heaters.

SmartVent Synergy

SmartVent Synergy is different from most other home ventilation systems. It is a completely balanced system, capable of extracting stale, moisture-laden air from inside your home and bringing in fresh, drier air simultaneously. Best of all, Synergy is an energy recovery system that recovers and re-uses energy from the air extracted from the home. Fully upgradeable to include heat transfer and a choice of heaters.

All SmartVent systems feature high grade F7 filters that capture up to 90% of 0.4 micron particles such as fine pollens, dusts and allergen from the air making the air cleaner to breathe. A high quality HEPA filter option is a must for homes with asthma and allergy sufferers.

Filter Classification of Common Air Contaminants (shown in micrometres)



HEPA Filters (< 0.04 microns)

F7 Filter (< 0.4 microns)

G3 Filter (< 5 microns)

SmartVent Positive

Overview

SmartVent Positive systems draw fresher, drier air into your home from either the roof cavity or outside (optional). This air is then passed through a filter and introduced into the home. This process positively pressurises the home creating air circulation and forcing out the moist, stale air that causes condensation, mould and mildew resulting in a healthier more comfortable home.

Systems

SmartVent Positive systems are suitable for most homes and particularly well suited to older homes where timber joinery and older aluminium joinery allow air to be forced out more easily and create better air circulation. SmartVent Positive systems come in various kit sizes for homes up to 70sqm, 100sqm, 280sqm and 560sqm.

Controllers

SmartVent Positive systems use a proprietary control system designed in New Zealand for New Zealand conditions by SmartVent. The functionality of the control systems is determined by which of two variants you select.

SmartVent PositiveEvolve

- Integrated web server controller
- Combined temperature and humidity sensors mounted in the lounge, bedroom, ceiling cavity, internal wall cavity and outside the home.
- High performance centrifugal fan/s.
- Dew point control.
- Automated fan speed control
- Automated air source control (if Second Air Source Kit and/or Heat Transfer Upgrade is installed).
- Wi-Fi / network capable; able to be controlled with any tablet device, home computer, smart phone.

SmartVent Positive

- Wall mounted LCD digital controller.
- 2 x Temperature sensors, one in the ceiling control box and one in the wall panel used in heat transfer mode (requires Heat Transfer Upgrade).
- High performance centrifugal fan/s.
- Automated air source control (if Second Air Source Kit and/or Heat Transfer Upgrade is installed).

SmartVent Positive

Selection Guide

What is the size of your home (m2)?	Would you like the Evolve temperature and humidity sensor capabilities and Tablet?	How many rooms do you wish to distribute to?	SmartVent System	Order Codes
Up to 70m²	-	1	SV01C	FAN2023
		2	Extension Kit	DCT2276
		1	SV01 (no controller)	FAN1056
Up to 100m²	Yes	2	SV02E	FAN2113
		3	Extension Kit	DCT2276
	No	2	SV02	FAN0939
		3	Extension Kit	DCT2276
Up to 280m²	Yes	4	SV04E	FAN2115
		5 - 6	Extension Kit/s	DCT2276
	No	4	SV04	FAN1057
		5 - 6	Extension Kit/s	DCT2276
Up to 560m²	Yes	6	SV06E	FAN2117
		7 - 12	Extension Kit/s	DCT2276
	No	6	SV06	FAN1064
		7 - 12	Extension Kit/s	DCT2276

IMPORTANT

- If you exceed the number of rooms listed in the selection guide above, the performance of the system will not work as designed.
- Maximum outlets are listed above, do not exceed the number listed.
- For the SV06 systems, a total of 6 extension kits can be added, however do not exceed 3 extension kits per branch of the system.

Kit		SV01	SV01C	SV02	SV02E	SV04	SV04E	SV06	SV06E
Second Air Source Kit		-	DCT2134	DCT2134		DCT2128		DCT2135	
Outdoor Air Supply Kit		FAN6264	FAN6264	FAN6264		-		-	-
Heat Transfer Kit		-	-	FAN2027		FAN2028		FAN2028 (1 branch) FAN4438 (both branches)	
Tempering Heater	1 kW	DCT2123	DCT1226	DCT1226	DCT3478	DCT1483	DCT3231	DCT1483	DCT3231
	2 x 1 kW	-	-	-	-	-	-	DCT1491*	DCT3418*
	2 kW	-	-	-	-	DCT1484	DCT3230	DCT1484	DCT3230
Digital PTC Room Heater	1.6 kW	DCT4039**	DCT4039**	DCT4039**	-	DCT4039**	-	DCT4039**	-
Evolve PTC Room Heater	1.6 kW	-	-	-	DCT4037	-	DCT4037	-	DCT4037
Additional Fan Kit – 150mm		-	FAN5836	FAN5836		FAN5836		-	FAN5836
Additional Fan Kit – 200mm		-	FAN5837	FAN5837		FAN5837		-	FAN5837

* DCT1491 / DCT3418 consist of 2 x 1kW units for installation into each branch of an SV06/E system.
** When adding more than one PTC Room Heater into the digital system contact Simx Technical Support for advice on 09 259 1660 **BEFORE PLACING ORDER.**

Kit Contents

Kits	SV01/SV01C	SV02/SV02E	SV04/SV04E	SV06/SV06E
No Controller (SV01 only)	FAN1056			
Digital Controller	FAN2023	FAN0939	FAN1057	FAN1064
Evolve Tablet controller and sensors		FAN2113	FAN2115	FAN2117
Kit Contents	**SV01/SV01C**	**SV02/SV02E**	**SV04/SV04E**	**SV06/SV06E**
150mm Supply Diffuser	1	2	4	6
150mm Fixed Grille		1	1	
200mm Fixed Grille			1	3
F7 Filter	1	1	1	2
150mm 3 Speed Fan	1	1		
200mm 3 Speed Fan			1	2
150mm x 3m Acoustic Insulated Ducting	1			
150mm x 6m Acoustic Insulated Ducting		1	3	4
150mm x 3m Insulated Ducting		1		
200mm x 6m Insulated Ducting				1
200mm x 3m Insulated Ducting			1	
200mm x 6m Unilok Ducting				1
200mm x 3m Unilok Ducting			1	
150/150/150mm Y-Branch		1	1	
200/150/150/150mm Double-Branch			1	
150mm Duct Joiner			1	2

Additional Information

- By adding additional outlets to the system the available air is being divided amongst more rooms.
- Extra duct may be required depending on the size & layout of the home. See accessories on the back page.
- For larger homes please contact SmartVent for technical advice.
- A SmartVent Positive Pressure system with an in-line tempering heater is not intended to be a substitute for an effective heating system in the home.
- A PTC heater is a self regulating heating technology which adapts to your space only using the required amount of power.
- When installing a Heat Transfer Upgrade, an adequate heat source is required that is capable of delivering enough excess heat to adequately warm all areas heat is transferred to, while remaining effective in the source room.

Adjustable Diffuser

Extract Grille

Soffit Grille

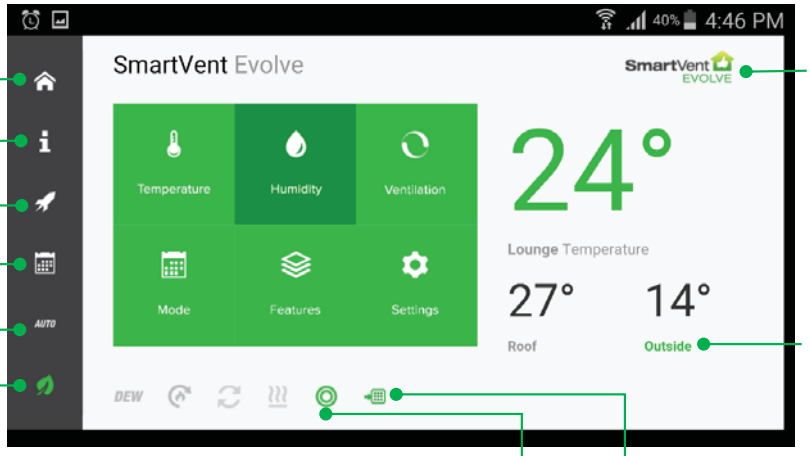
Ducting

Kits	SV01/SV01C	SV02/SV02E	SV04/SV04E	SV06/SV06E
No Controller (SV01 only)	FAN1056			
Digital Controller (SV01C)	FAN2023	FAN0939	FAN1057	FAN1064
Evolve Tablet controller (E Models)		FAN2113	FAN2115	FAN2117
Specifications	**SV01/SV01C**	**SV02/SV02E**	**SV04/SV04E**	**SV06/SV06E**
House size*	up to 70m²	up to 100m²	up to 280m²	up to 560m²
Max. Air Flow	620 m³/hr	620 m³/hr	920 m³/hr	1840 m³/hr
Fan Type (Centrifugal)	150mm	150mm	200mm	2x 200mm
Fan Speeds	3	3	3	3
Supply Outlets	1	2	4	6
Default Air Source	Roof space	Roof space	Roof space	Roof space
Sound level	47 dB(A)	47 dB(A)	53 dB(A)	53 dB(A)
Max Operating Temperature	60 °C	60 °C	60 °C	60 °C
Min. setting	0 °C	0 °C	0 °C	0 °C
Max. setting	35 °C	35 °C	35 °C	35 °C
Operating hysteresis temperature	-	2 °C	2 °C	2 °C
Minimal Differential	-	5 °C	5 °C	5 °C
Temperature Accuracy (at source)	-	± 1 °C	± 1 °C	± 1 °C
Power Supply (Must be mains earthed)	220-240 VAC 50 Hz	220-240 VAC 50 Hz	220-240 VAC 50 Hz	220-240 VAC 50 Hz
Controller Connection	- / 10m RJ45	10m RJ45 / Wireless	10m RJ45 / Wireless	10m RJ45 / Wireless
Filter/s	F7 (Inline)	F7 (Inline)	F7 (Inline)	F7 (Inline)

The following is from the Evolve User Guide (Pub1272).

SmartVent

EVOLVE™ User Guide



MODE Settings

MANUAL

Your desired Temperature, and Humidity can be adjusted to suit your personal comfort. EVOLVE will take care of the rest.

Ventilation settings can be adjusted for continuous ventilation at the set values when required. Outside and Recycle are available with the optional upgrades[1,2].

Auxiliary fan settings under Ventilation require an additional fan kit.

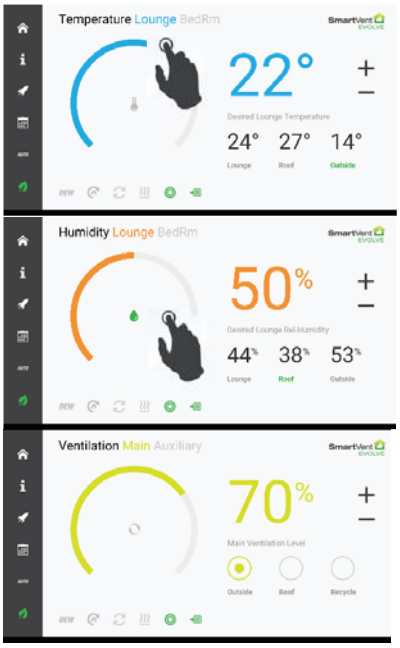
AUTO

EVOLVE uses its multiple sensors to determine the best air source[1] based on both temperature and humidity.

*EVOLVE also adjusts fan speed to deliver the right amount of air to achieve your **Desired** settings.*

*EVOLVE will work to achieve a comfortable balance between your selected **Desired Lounge** or **Desired Bedroom** Temperature, and Humidity settings.*

[1] Summer Feature Upgrade required.
[2] Heat Transfer Upgrade required.



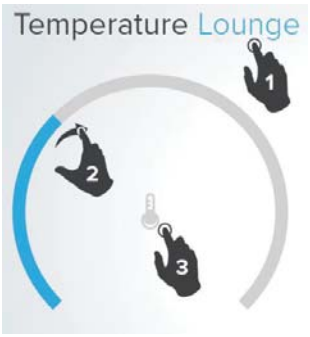
Default values shown above.

CHANGING SETTINGS

1. *For Temperature, and Humidity select your **Room**, for Ventilation select your **Fan***
2. *Adjust the set values*

Touch + or - to adjust values

Or Touch and drag the coloured ring segment to adjust values



3. *Activate/deactivate settings by pressing the icon in the centre of the colour dial.*

***NOTE: DEW** function, when activated, may temporarily override desired settings to fight condensation.*

MODE Scheduler

AVAILABLE SCHEDULE MODES

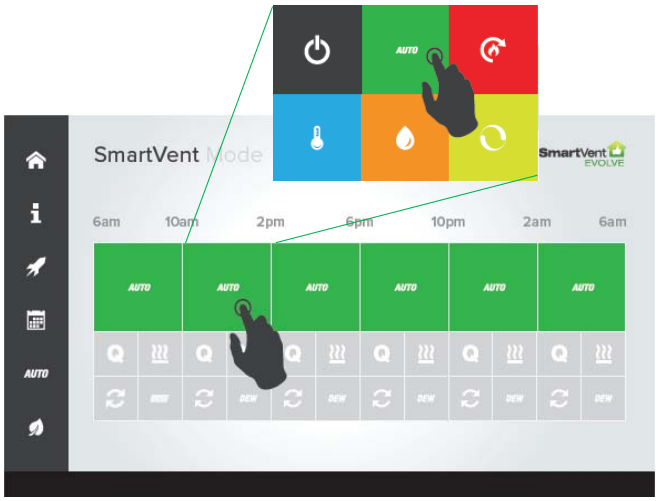
- STANDBY
- AUTO
- HEAT TRANSFER*
- TEMPERATURE
- HUMIDITY
- VENTILATION

ADDITIONAL SCHEDULE MODE

QUIET

For those times when you want quiet, Evolve will lower the fan speed tolerance reducing air transfer noise.

Touch to select. Icons are coloured when enabled.



DEW Condensation control

Recycle air*

Heat transfer*

Tempering heater**

* Heat Transfer Upgrade kit required to enable

* Tempering Heater required to enable

SETTING THE SCHEDULE

1. Select the **MODE/s** to activate/deactivate for the selected time slot.

   Active modes appear in colour.

2. Select the next time slot or tap the icon to activate/deactivate your settings and schedule

CANCELLING THE SCHEDULE

Cancel the schedule by selecting **AUTO**, or by tapping the icon. It will turn white when deactivated.

EVOLVE Features & Settings

ECO

Select an ECO level. As long as your temperature and humidity criteria are met the system will cycle the fans as selected.

- Turns the fan off for 20 minutes at 60% then on for 40 mins.
- Turns the fan off for 20 minutes at 60% then on for 20 mins.
- Turns the fan off for 40 minutes at 60% then on for 20 mins.
- Turns the fan off when not required.

HEAT TRANSFER

Activate HEAT TRANSFER to make better use of your heating in winter. In this mode excess heat from the heat source room is transferred to other rooms in your home when the source room temperature exceeds your **Desired** set temperature.

Tap to select, enable. Icons are green when enabled.

TECHNICAL SUPPORT

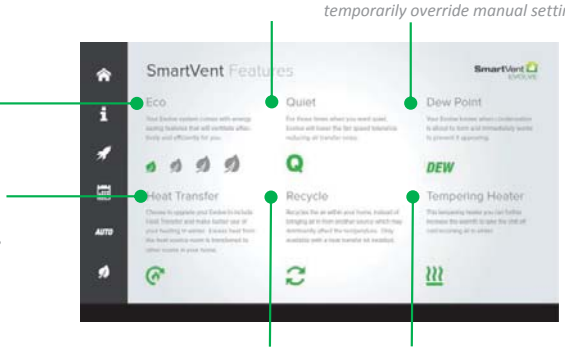
If you have performance concerns contact your installer in the first instance. For further assistance contact SmartVent Technical on 09 259 1662.

QUIET

Enable QUIET in the MODE schedule for those times when you want quiet. EVOLVE will lower the fan speed tolerance reducing air transfer noise.

DEW POINT

Enable DEW POINT for EVOLVE to detect when condensation is about to form and immediately work to prevent this happening. DEW POINT may temporarily override manual settings.



RECYCLE

Mixes the air inside your home when other air sources are not desirable.

* Upgrade kit required to enable

TROUBLESHOOTING

If you experience a disconnection from your system, follow the adjacent connection guides to reconnect.

TEMPERING HEATER

Turns on your tempering heater when air sources are supplying cold air.

* Upgrade kit required to enable

WIRELESS CONNECTION

Connect to EVOLVE wirelessly from any device, find the EVOLVE router in your WiFi list then enter the Password.

SSID: evolve **Password:** smartvent

SETTINGS

LOGIN

User Name: admin

Password: evlove (evolve backwards)

SET CLOCK TIME

User adjustable.

HEATTRANS

User adjustable

THRESHOLDS

Advanced user settings

SCHEDULER

Advanced user settings

FILTER

Select **RESET Timer** to reset to 0%.

FIRMWARE & WEB

Reference only, no user settings.

RESET

Factory RESET.

ENABLE ADD_ON

Advanced user settings

EVOLVE CONTROLS

To open the EVOLVE controls, open a web browser, type in the website address (URL) below, and book mark it for future use.

URL: 192.168.1.170

For further information on EVOLVE scan the QR code or visit www.smartvent.co.nz.

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General enquiries ph: **0800 140 150** | Technical support ph: **09 259 1662**
W: www.smartvent.co.nz / www.facebook.com/SmartVent
E: enquiry@smartvent.co.nz

PUB1272 Iss02 06/15

Set Up

Setting up your positive pressure system with a Digital controller.

- The default setting on your controller is 5°C Minimum Temperature and 30°C Maximum Temperature.
- The temperature is measured at the ceiling control box in the ceiling space for ventilation and at the controller in the home when using the Heat Transfer feature.
- Your system will run on the set fan speed between the Minimum and Maximum temperatures. When it gets above or below these temperatures the system will either continue operating at the same speed, drop to low speed or shut off. These options are adjustable on the “Fan Mode” settings.
- You can adjust the “Minimum” and “Maximum” temperature to control the comfort level and help with reducing your condensation levels as needed.

Winter settings: Starting at 5°C. Raise the “Minimum Temperature” a degree or two every few days until you notice condensation on your windows. Then lower it just to the point where it keeps up with the condensation. Raise the “Maximum Temperature” to utilize all the heat in the ceiling space to help warm your home.

Summer Settings: Lower the “Maximum Temperature” to minimise the heat coming into your home. This setting will switch the system to take air from outside if you have the “Second Air Source Kit” feature installed.

Heat Transfer: When this feature is added it will interrupt the ventilation process by reading the temperature where the wall controller is located (which should be in the same room as your heat source). When the measure temperature reaches the specified “Comfort Temperature” it will switch the system to take the air from the heat source room and deliver to the other rooms of your home.

Recycle Mode: When Heat Transfer upgrade is installed another feature of this upgrade is recycle mode (requires version 3.0). When enabled the air will be recycled around the home when the temperature in the roof cavity drops below minimum ensuring air flow around the home, but no cooler air from either the roof cavity or outside is introduced.

Control

When the roof cavity temperature falls below the minimum temperature (set on the controller - adjustable by the home owner - default temperature is 5°C) the system will do one of three things:

1. The system will either turn the fan to the lowest fan speed, or
2. Turn the system off (if the fan mode for the min temp off is enabled), or
3. Turn the heater on (if installed) and start distributing tempered air throughout your home.

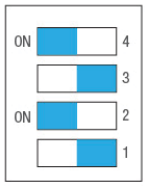
When the roof cavity temperature increases above the maximum temperature (set on the controller - adjustable by the home owner - default temperature is 30°C) the system will do one of two things:

1. The system will either run at the same fan speed (if the fan mode for the max temp off is disabled), or
2. Turn the system off (if the fan mode for the max temp off is enabled)

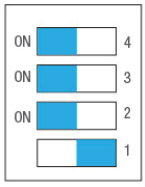
Digital controller

Second Air Source Kit dip switches

No Second Air Source Kit Fitted

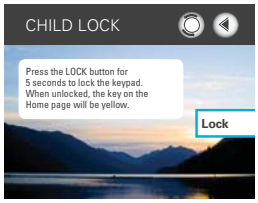


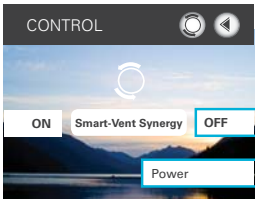
Second Air Source Kit Fitted



Digital touchscreen controller (Discontinued)

Second Air Source Kit is set by holding down the 'SmartVent' in the top left hand corner of the home screen for 5 seconds and switching 'Summer' to 'ON'.

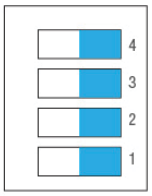




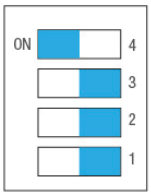
Ceiling Control Box Settings

Heat Transfer and Heater settings are set in the ceiling control box.

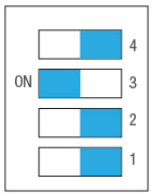
No Heater / No Heat Transfer



Heater Fitted



Heat Transfer Fitted

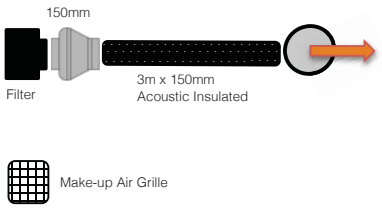


Evolve Upgrade for Digital Controlled Systems

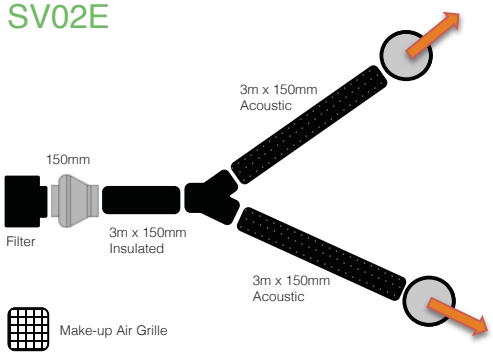
Upgrade Digital SmartVent Systems to Positive Evolve. Contains all you need to convert SmartVent Positive Digital to SmartVent Positive Evolve.

DCT3432

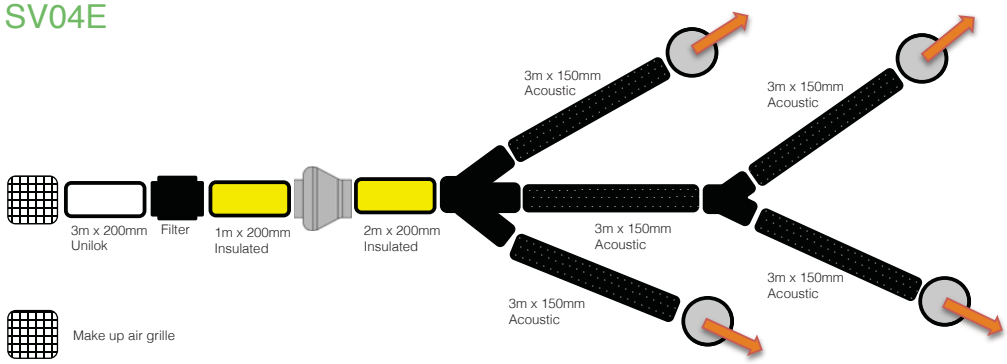
SV01 / SV01C



SV02 / SV02E

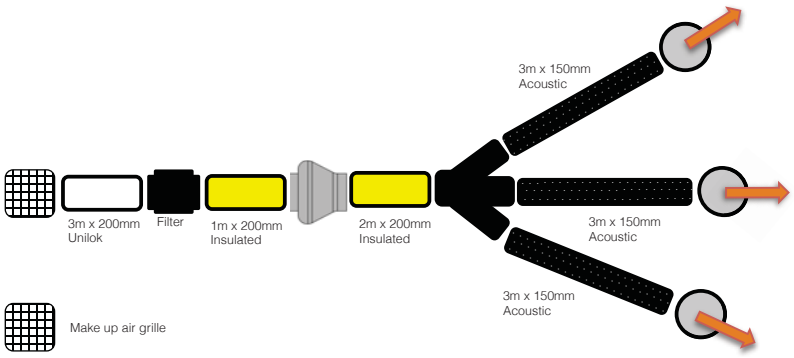


SV04 / SV04E



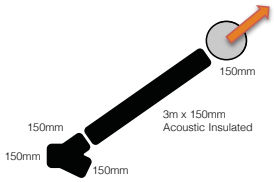
SV06 / SV06E

Note: For SV06 systems the ducting diagram below is duplicated.



Additional Outlet/s

Kit	SV01	SV01C	SV02	SV02E	SV04	SV04E	SV06	SV06E
Additional Outlet	DCT2276							



Note: Exceeding the number of rooms listed in the Selection Guide (by product) may affect the performance of the system and should be reviewed with SmartVent prior to purchase and installation.

Second Air Source Kit / Outdoor Air Supply

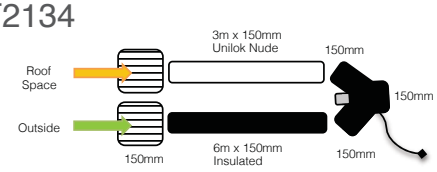
Kit	SV01	SV01C	SV02	SV02E	SV04	SV04E	SV06	SV06E
Second Air Source Kit	-	DCT2134			DCT2128		DCT2135	
Outdoor Supply Kit	-	FAN6264			-		-	

Second Air Source Kit

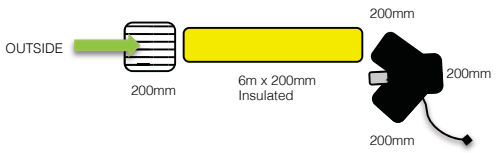
A Second Air Source kit is an optional second air intake located under the eaves or at the gable end of the home (weatherproof grille maybe required). This feature provides an alternative air supply when the roof cavity temperature exceeds the maximum temperature set by the user.

- When installed on the south side of the house it ensures the coolest possible air is used to ventilate the home in the warmer months.
- Evolve uses the Second Air Source kit to manage the temperature and or humidity conditions in the home.
- If the house design prevents the installation of the Second Air Source kit, there are alternative options for a second air source such as thru-roof kits. SmartVent have a full range of accessories available to assist.

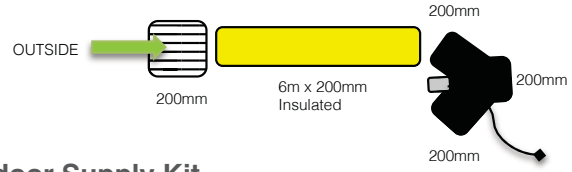
DCT2134

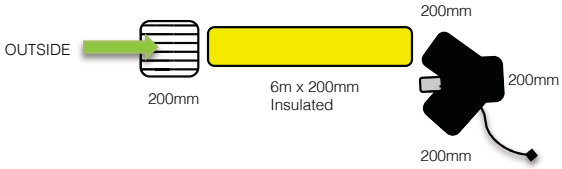


DCT2128



DCT2135 (For both branches of an SV06 / SV06E system)

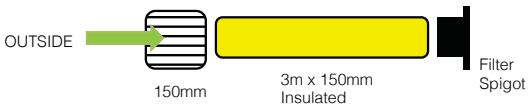




Outdoor Supply Kit

The outdoor supply kit is designed specifically for SV02 & SV01 systems when roof space air is not required. The kit contains a fixed grille, duct and filter spigots.*

FAN6264



*** All other systems include these parts in the standard kit.**

Heat Transfer / Recycle

Kit	SV01	SV01C	SV02	SV02E	SV04	SV04E	SV06	SV06E
Heat Transfer Kit	-	-	FAN2027		FAN2028		FAN2028 (1 branch) FAN4438 (both branches)	

Heat Transfer / Recycle has a motorised damper that operates to switch the air drawing from either the outside or roof space to instead draw air from the room where there is a heat source - usually a living room. This feature can also provide an alternative air supply for your Evolve system.

- It is important to point out that when Heat Transfer / Recycle is activated, the system is not bringing in fresh air, therefore not ventilating the home - however the home is getting the benefit of transferring heat around the house (e.g. cold winter nights). It also shuts off any supply back into the heat source room.
- Evolve will use the Heat Transfer / Recycle Function to manage the preferred temperature and/or humidity conditions in the home.
- The Recycle Function will recycle air around the home when other air sources are not suitable.

Evolve controller

There are two operation modes:

- Auto mode – Turn on Heat Transfer under the 'Features' page. Heat Transfer will operate when the roof temperature is lower than your desired temperature or when the humidity in all other spaces are not suitable.
- Schedule mode – As per 'Auto' mode but at pre-set times only.
- Uses the temperature in the destination room to operate.

To use the Heat Transfer with Evolve the feature must be enabled in 'Settings'. Touch 'HeatTrans' then check it is Enabled , touch to change.

Note: Your Positive system Evolve controller offers multiple options for controlling the features above. Refer to Evolve Controller Settings on page 11.

Digital controller

There are three operation modes:

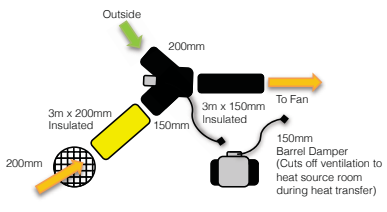
- Normal mode - Operates when the temperature in the heat source room exceeds the comfort temperature.
- Timer mode - Operates at pre-set times only (two time periods available) when the temperature in the heat source room exceeds the comfort temperature.
- Override - Forces the system into Heat Transfer for 1, 2, 4 or 6 hours regardless of room temperature.
- Uses the temperature in the heat source room to operate.

Note: Your Positive system digital controller offers multiple options for controlling the features above. Refer to the Digital Controller Settings on page 13.

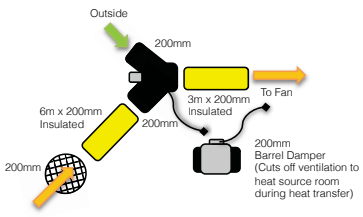
Note:

- Heat Transfer is recommended when there is a heat source that creates excess heat i.e. wood fire or similar.
- A heat pump sized for the room it occupies may not be suitable for Heat Transfer.
- If planning to use a heat pump with Heat Transfer, first consult the heat pump installer/manufacturer.

FAN2027

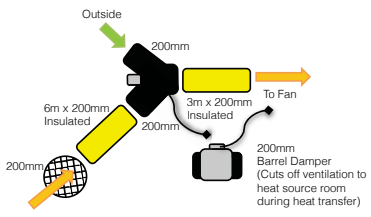


FAN2028



FAN4438

(Includes two sets for each branches of an SV06 / SV06E system)



Tempering Heaters

Kit		SV01	SV01C	SV02	SV02E	SV04	SV04E	SV06	SV06E
Tempering Heater	1 kW	DCT2123	DCT1226	DCT1226	DCT3478	DCT1483	DCT3231	DCT1483	DCT3231
	2 x 1 kW	-	-	-	-	-	-	DCT1491*	DCT3418
	2 kW	-	-	-	-	DCT1484	DCT3230	DCT1484	DCT3230

* DCT1491 / DCT3418 consist of 2 x 1kW units for installation into each branch of an SV06/E system.

Tempering Heater

A Tempering Heater is a 1kW or 2kW element in line heater designed to temper the incoming air.

- It can be specified if the ability to temper the delivered air to a more comfortable temperature is required.
- Tempering heaters will not provide a home heating solution.
- The temperature of the introduced air will be raised by up to 8°C. The temperature of the home will not increase by this much.

Evolve controller

There are two operation modes:

- Auto mode – Turn on the heater under the 'Features' page. The heater will operate when the roof temperature is lower than your desired temperature.
- Schedule mode – As per 'Auto' mode but at pre-set times only.

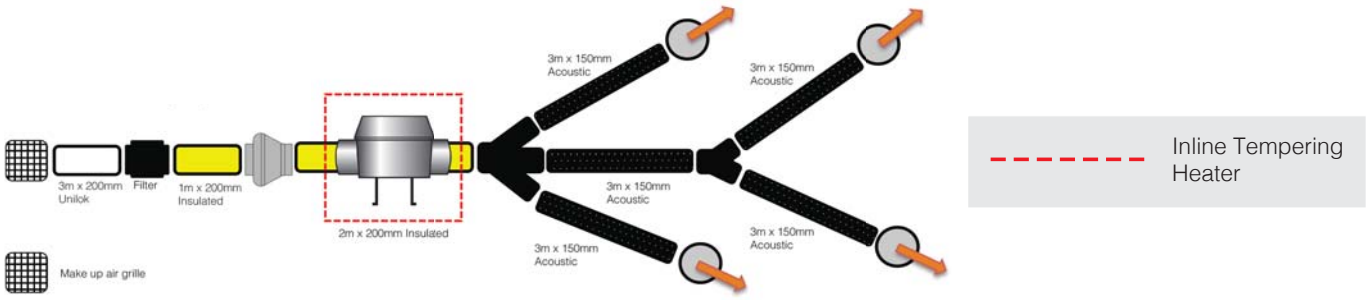
Note: Your Positive system Evolve controller offers multiple options for controlling the features above. Refer to Evolve Controller Settings on page 11.

Digital controller

There are three operation modes:

- Normal mode - Operates when the temperature in the roof cavity falls below the minimum temperature.
- Timer mode - As per normal mode but at pre-set times only (two time periods available).
- Override - Forces the heater on for 1, 2, 4 or 6 hours regardless of the temperature in the roof cavity.

Note: Your Positive system digital controller offers multiple options for controlling the features above. Refer to the Digital Controller Settings on page 13.



Inline PTC Room Heaters

Kit		SV01C	SV02	SV02E	SV04	SV04E	SV06	SV06E
Digital PTC Room Heater	1.6 kW	DCT4039**	DCT4039**	-	DCT4039**	-	DCT4039**	
Evolve PTC Room Heater	1.6 kW	-	-	DCT4037	-	DCT4037	-	DCT4037

** When adding more than one PTC Room Heater into the digital system contact Simx Technical Support for advice on 09 259 1660 **BEFORE PLACING ORDER.** See Note Below.

Inline PTC Room Heaters

A PTC heater is a self regulating heating technology which adapts to your space only using the required amount of power.

- Especially designed for installation into existing SmartVent systems.
- Energy Efficient heating.
- Easy Retro fit into ceiling space.

Evolve controller

There are two operation modes:

- Auto mode – Turn on the heater under the 'Features' page. The heater will operate when the roof temperature is lower than your desired temperature.
- Schedule mode – As per 'Auto' mode but at pre-set times only.

Note: Your Positive system Evolve controller offers multiple options for controlling the features above. Refer to Evolve Controller Settings on page 11.

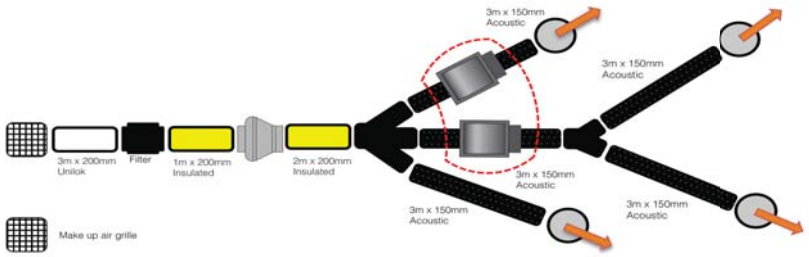
Digital controller

There are three operation modes:

- Normal mode - Operates when the temperature in the roof cavity falls below the minimum temperature.
- Timer mode - As per normal mode but at pre-set times only (two time periods available).
- Override - Forces the heater on for 1, 2, 4 or 6 hours regardless of the temperature in the roof cavity.

Note: Your Positive system digital controller offers multiple options for controlling the features above. Refer to the Digital Controller Settings on page 13.

The PTC Heater(s) must only be installed after the first splitter in all systems, otherwise there will not be sufficient airflow across the elements.



Inline PTC Room Heaters (Two Units Pictured)

Note:

- The Evolve PTC Room Heater requires an external power supply and comes complete with a three pin plug.
- The Digital PTC Room Heater power supply is built into the control box with a maximum capacity of 2.3kW. Adding more than one heater requires a relay. For supplementary heaters, order the Evolve Heater models as they come complete with a three pin plug. For advice please contact Simx Technical Support on 09 259 1660 .

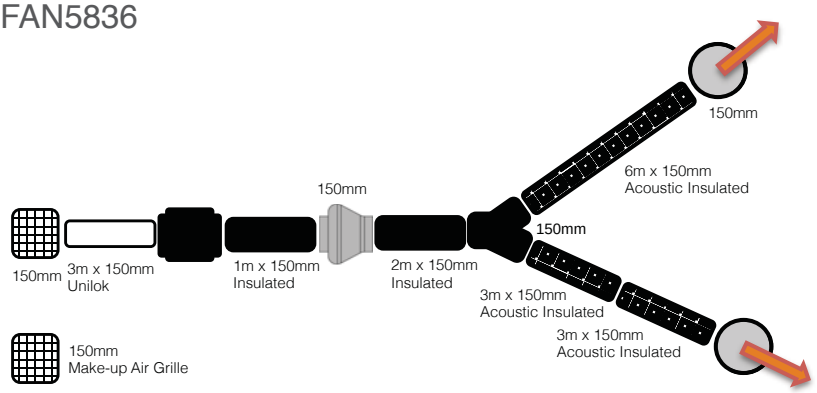
Additonal Fan

Kit	SV01	SV01C	SV02	SV02E	SV04	SV04E	SV06	SV06E
Additional Fan Kit – 150mm	-	FAN5836	FAN5836		FAN5836		-	FAN5836
Additional Fan Kit – 200mm	-	FAN5837	FAN5837		FAN5837		-	FAN5837

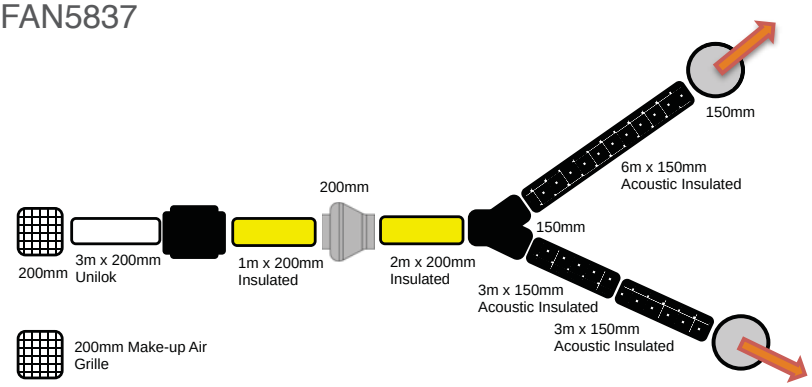
An additional fan kit allows an additional branch with fan, filter and outlet to be fitted to the system. The additional fan kits enable a single controller to operate two systems where longer duct runs or between floor configurations would normally be required.

Ducting after the Y-branch for each system are 150mm acoustic.

FAN5836



FAN5837



SmartVent Synergy

Overview

SmartVent Synergy is different from most other home ventilation systems. It is a completely balanced system, capable of extracting stale, moisture-laden air from inside your home and bringing in fresh, drier air simultaneously. Best of all, Synergy is an energy recovery system that recovers and re-uses energy already paid for from the air extracted from the home.

Systems

SmartVent Synergy is particularly suited to modern homes that are better insulated with modern joinery which results in homes being more airtight. Synergy systems in these situations are a complete solution to achieving an optimum healthy home environment. Synergy systems come in various sizes for homes up to 150, 250 and 350sqm.

Controllers

SmartVent Synergy systems use either the advanced proprietary SmartVent Evolve control system designed in New Zealand for New Zealand conditions by SmartVent, or a dedicated Touch Screen Controller (TSC)*. The functionality of the control systems is determined by the model you select.

*Available with the Synergy 405 only.

SynergyEvolve

- Integrated web server controller
- Combined temperature and humidity sensors, mounted in the lounge, bedroom, return air, supply air and outside the home.
- High performance centrifugal fan/s.
- Dew point control.
- Automated fan speed control
- Automated air source control (if Outside Feature and/or Heat Transfer Upgrade is installed).
- Wi-Fi / network capable; able to be controlled with any smart device, home computer, smart phone.
- IoT (Internet of Things) compatible.
- Tablet not included (optional extra).

SynergyTSC

- Wall mounted LCD digital controller.
- 2 x Temperature sensors, one in the ceiling control box and one in the wall panel used in heat transfer mode.
- High performance centrifugal fan/s.
- Automated air source control.

What is the square metre size of the home?	How many rooms do you wish to supply to?	How many rooms do you wish to extract from?	SmartVent Synergy System	Order Code
Up to 150m2	3	1	Synergy 190E	FN2177
	4	2	Supply & Extract Extension Kits	DCT2276 Supply Kit DCT2289 Extract Kit
	3	1	Synergy 1015E	FAN6065
	4	2	Supply & Extract Extension Kits	DCT4015 Supply Kit DCT4016 Extract Kit
Up to 250m2	3	1	Synergy 2025E	FAN6067
	4	2	Supply & Extract Extension Kits	DCT4015 Supply Kit DCT4016 Extract Kit
Up to 350m2	3	1	Synergy 3035E	FAN6069
	4	2	Supply & Extract Extension Kits	DCT4015 Supply Kit DCT4016 Extract Kit
	5	2	Synergy 405	FAN2191
	6	3	Supply & Extract Extension Kits	DCT2334 Supply Kit DCT2335 Extract Kit

Kit		Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Second Air Source		DCT4017				Included
Heat Transfer		FAN2027	FAN2027	FAN2027	FAN2027	-
Tempering Heater	1 kW	DCT3478	DCT3231	DCT3231	DCT3231	DCT1483
	2 kW	-	DCT3230	DCT3230	DCT3230	DCT1484
TSC PTC Room Heater	1.6 kW	-	-	-	-	DCT4039
Evolve PTC Room Heater	1.6 kW	DCT4037				-
Core By-pass Kit		FAN2172	Included *			Included
Heat Boost		-	-	-	-	Included
Remote Sensor		-	-	-	-	FAN2047

Refer to the Synergy Upgrades section (page 26) for more details.

* Refer to the Core By-pass section (page 33) for more details.

Additional Information

- These recommendations are based on the standard components in the system.
- This selection guide assumes 2.4m stud height, if greater please increase the square metre size by 4% for every 0.1 metre. For example for a 2.8m stud height, increase your house size by 16%.
- If you choose to exceed the number of rooms listed in the selection guide above, the performance of the system will be affected.
- This selection guide assumes that there is sufficient ceiling space to install all componentry.
- By adding additional outlets to the system you are simply dividing the available air amongst more rooms. Extra duct may be required depending on the size & layout of the home. See accessories on the back page.
- For larger homes please contact SmartVent for technical advice.
- A SmartVent Synergy system with in-line tempering heaters is not intended to be a substitute for an effective heating system in the home.
- A PTC heater is a self regulating heating technology which adapts to your space only using the required amount of power.

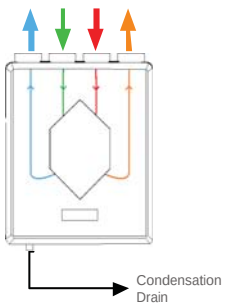
Kit Contents

Kit Contents	Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Order Codes	FAN2177	FAN6065	FAN6067	FAN6069	FAN2191
Colour Touch Screen Controller					Included
150mm Supply Diffuser	3	3	3	3	5
150mm Extract Diffuser	1	1	1	1	2
150mm Fixed Grille	2	2	2	2	
200mm Fixed Grille					4
F7 Filter	1	1	1	1	1
G3 Filter	2	2	2	2	2
High Performance Fans	2	Integrated	Integrated	Integrated	Integrated
Heat Recovery Core	1	1	1	1	1
200mm Motorised Damper					1
150mm x 6m Acoustic Insulated Ducting	2	3	3	3	3
150mm x 6m Insulated Ducting	1	2	2	2	1
200mm x 3m Insulated Ducting		1	1	1	
200mm x 6m Insulated Ducting					3
3m x 150mm Unilok Ducting	1				
6m x 150mm Unilok Ducting		1	1	1	
3m x 200mm Unilok Ducting					1
150/150/150mm Y-Branch	2				
200/150/150mm Y-Branch					1
200/200/200mm Y-Branch					1
200/150/150/150mm Double-Branch		1	1	1	1
150mm Barrel Damper					1
150mm Duct Joiner	1	1	1	1	1
200mm Duct Joiner					1
Condensation Drain	3m x 19mm				3m x 19mm

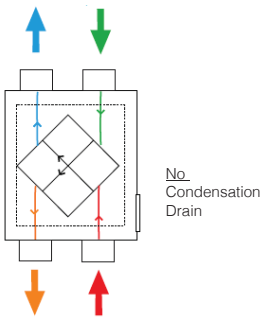
Energy Recovery Cores - How they work

At the heart of the system is the energy recovery ventilator (ERV), where the extract and supply airflows by-pass each other. The ERV recovers energy from the extracted air which is transferred to the incoming fresh supply air before it is distributed around the home.

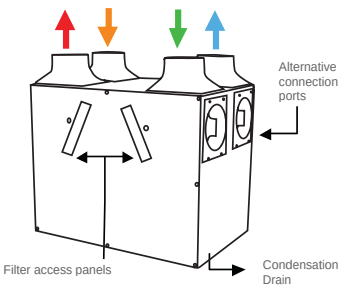
Synergy 190E



Synergy 1015E / 2025E / 3035E



Synergy 405



Extracted moist/stale air exits the home, Fresh drier air supplied from the roof cavity or outside,
Moist, humid air is extracted from the home, Warm supply air enters the home

System	Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
System Codes	FAN2177	FAN6065	FAN6067	FAN6069	FAN2191
Specifications	**Synergy 190E**	**Synergy 1015E**	**Synergy 2025E**	**Synergy 3035E**	**Synergy 405**
House size *	Up to 150m²	Up to 150m²	Up to 250m²	Up to 350m²	Up to 350m²
Air Flow	53 l/s, 190 m³/hr	42 l/s, 150 m³/hr	69 l/s, 250 m³/hr	97 l/s, 350 m³/hr	111l/s, 400m³/hr
Fan Type	Backward curved	Forward curved	Forward curved	Forward curved	Backward curved
Fan Speeds	3	3	3	3	9
Supply Outlets	3	3	3	3	5
Extract Outlets	1	1	1	1	2
Default Air Source	Outside	Outside	Outside	Outside	Roof & Outside
Max Pressure	290 Pa	100 Pa	85 Pa	140 Pa	150 pa
Sound spectrum	40.5 dB(A) **	31.5 dB(A) **	34 dB(A) **	37 dB(A) **	49.3 - 57.0 dB(A) **
Max Operating Temperature	60 °C	60 °C	60 °C	60 °C	60 °C
Power Supply (Must be mains earthed)	220-240 VAC 50 Hz	220-240 VAC 50 Hz	220-240 VAC 50 Hz	220-240 VAC 50 Hz	220-240 VAC 50 Hz
Power (Max Consumption)	175 W	178 W	178 W	230 W	230 W
Controller Connection	Wi-Fi	Wi-Fi	Wi-Fi	Wi-Fi	10m RJ45
Filter/s	F7 (Inline) G3 (Twin washable synthetic)	F7 (Inline) G3 (Twin washable synthetic)	F7 (Inline) G3 (Twin washable synthetic)	F7 (Inline) G3 (Twin washable synthetic)	F7 (Inline) G3 (Twin washable synthetic)
Core Material	Polymer	ER Paper	ER Paper	ER Paper	Polymer
Unit Orientation	Horizontal / Vertical	Horizontal	Horizontal	Horizontal	Horizontal / Vertical
Housing	ABS and foam composite	Galv/Steel	Galv/Steel	Galv/Steel	ABS and foam composite
Condensate drain***	Yes	No	No	No	Yes
Dimensions	**Synergy 190E**	**Synergy 1015E**	**Synergy 2025E**	**Synergy 3035E**	**Synergy 405**
Weight	10 kg	22 kg	25 kg	35 kg	25 kg
Height	260 mm	220 mm	220 mm	230 mm	630 mm
Width	560 mm	625 mm	650 mm	770 mm	520 mm
Length (Excludes spigots)	605 mm	750 mm	820 mm	960 mm	776 mm
Spigot diameter	125 mm	150 mm	150 mm	150 mm	150 mm

* Based on 2.4m stud.
** Measured at 3m (Typical).
*** A drain connection and, a hose for condensation to drain to the outside of the home is required for the Synergy 190E and Synergy 405

Synergy Controllers

Synergy Evolve

The Evolve controller operates on the humidity level or temperature in and around the home.

Standard Controller
2016 - Current

Synergy 405

The 405 controller adds the following features:

- Energy Recovered (kWh)
- Dollars Recovered ($)
- Carbon Footprint (kg CO2)
- Moisture Removed (l)

405 Controller
2008 – Current

Set Up

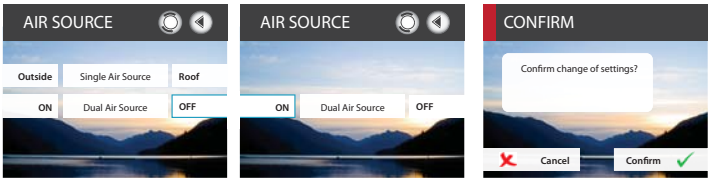
- First set the Fan Min setting which controls what you want to happen when the temperature in the control room falls below the preferred temperature.
- Then set the Comfort Level. Comfort level sets the target warmth of the home. In most cases the setting will not need to be adjusted, it comes pre-set on the middle setting and this meets most home requirements. In winter if the home is too cool, the first thing you should do is increase the heat you are generating in the home as this will have the most bearing on the end result the Synergy system will deliver.
- Following this adjusting the comfort level to warmer will prevent the system boosting to reduce temperature unnecessarily and it will ensure the core by-pass will not activate.
- In summer if the home is too warm, adjusting the comfort level may assist with bringing in air either faster or slower (dependent on the temperature of the room the controller is in).
- Set the system at the cooler end of the scale so it boosts automatically if the temperature rises steeply in the home (Core By-pass will act alongside this function).
- And finally you set the time and date.

Control

When the system falls below the minimum temperature set (default temperature 18° - adjustable by the homeowner) it will do one of three things. The system will either carry on at current fan speed, or with the fan minimum options you can choose to lower the fan to speed one, or turn the fan off.

Touch screen controller

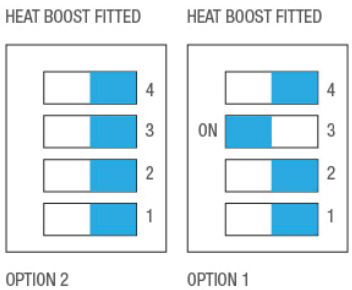
Dual air source is accessed by holding down the 'SYNERGY' in the top left hand corner of the Home screen for 5 seconds (listen for 5 beeps) and switching 'Dual Air Source' to 'ON'. Synergy 405 comes standard with dual air source enabled.



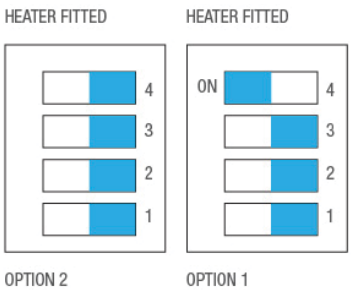
Ceiling Control Box

The following settings are set in the ceiling control box.

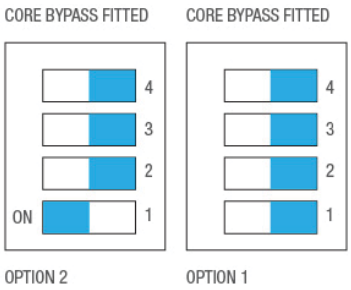
Heat Boost



Heater



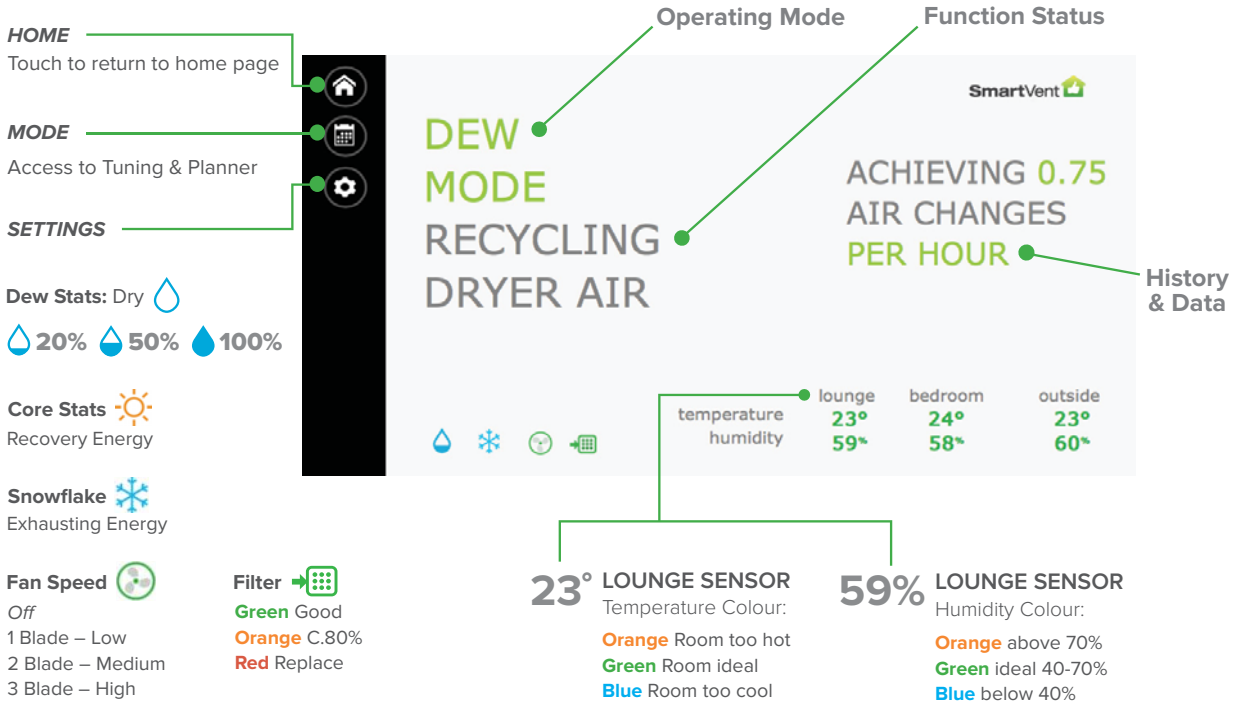
Core By-pass



Synergy Evolve Controller Settings

The following is from the Synergy Evolve User Guide (PUB1380).

User Guide – SmartVent Synergy



Modes

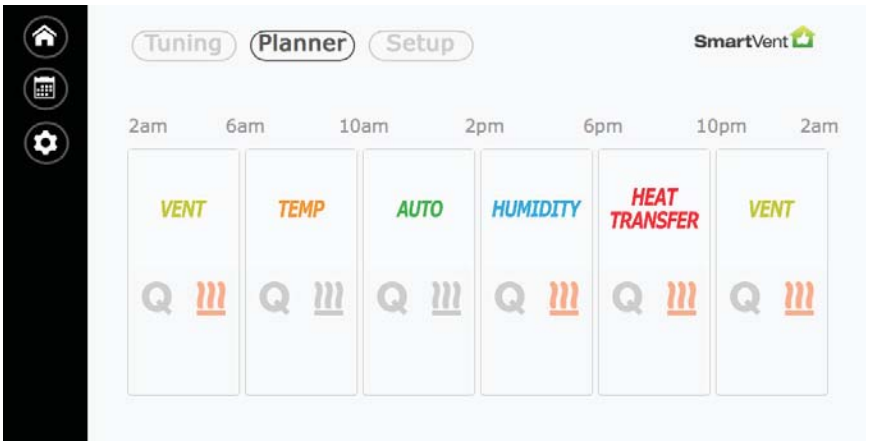
Available Schedule Modes

- Standby
- Auto
- Heat Transfer
- Temperature
- Humidity
- Ventilation

Additional Schedule Mode

Quiet

For those times when you want quiet, Evolve will lower the fan speed tolerance reducing air transfer noise.



TECHNICAL SUPPORT

If you have performance concerns contact your installer in the first instance. For further assistance contact SmartVent Technical on 09 259 1662

TROUBLE SHOOTING

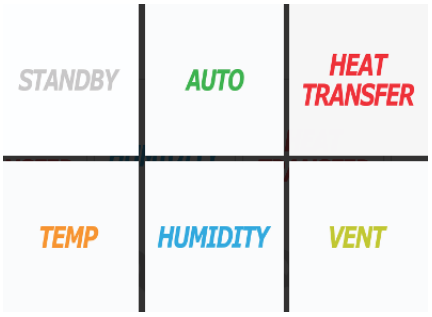
If you experience a disconnection from your system, follow the adjacent connection guides to reconnect.

WIRELESS CONNECTION

Connect to EVOLVE wirelessly from any device, find the EVOLVE router in your Wi-Fi list then enter the password. ***SSID:*** *evolve,* ***Password:*** *smartvent*

EVOLVE CONTROLS

To open the EVOLVE controls, open a web browser, type in the website address (URL) below, and book mark it for future use. ***URL: 192.168.1.170***



Settings

Tuning Modify for personal preferences
Planner (Low) Set up Evolve during the day
Set-up System settings dock – schedule time blocks.
Filter reset, Enable Add-ons.

Lower/Raise – Evolve Temperature Control, above or below 21%

Lower/Raise – Evolve Humidity Control, above or below 50%

Ventilation rate:
Low: 0.35 ACPH
Medium: 0.50 ACPH
High: 1.0 ACPH

Air Source:
Preferred Air Source
Outside default
Roof alternative air (if installed)
Recycle uses Heat Transfer (if installed)

Dew Point Mode:
OFF: Normal Dew Operation
Passive: Delays starting Dew Control
Active: Advances Dew Control

Dew Level:
Amount of condensation in room

General enquiries ph: 0800 140 150
Technical support ph: 09 259 1662
W: www.smartvent.c.nz /
www.facebook.com/SmartVent
E: enquiry@smartvent.co.nz

SmartVent

SmartVent Settings

Features & Settings

**Evolve needs to be adjusted for daylight saving.*

Press 2x to sync time from the device.

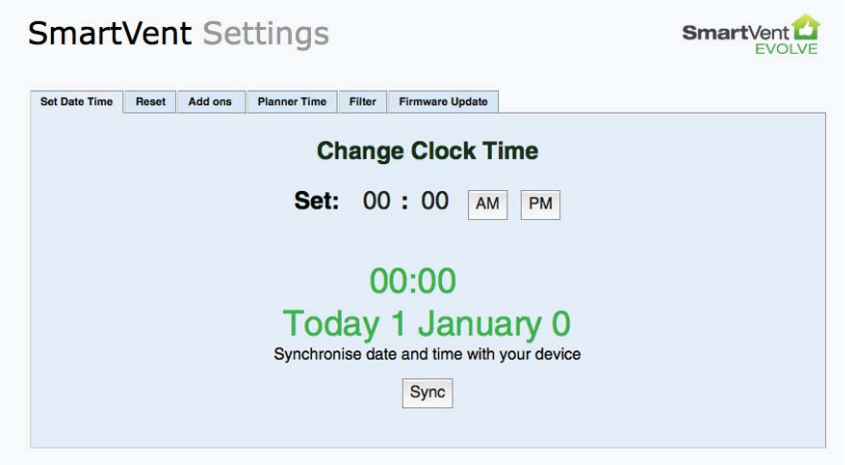
Reset:
Reset all to default.

Enable Add-on:
Enable your new add-ons.

Planner:
Adjust 6 time slots for planner.

Filter:
Filter reset.

Firmware and Web:
Update web pages and firmware.

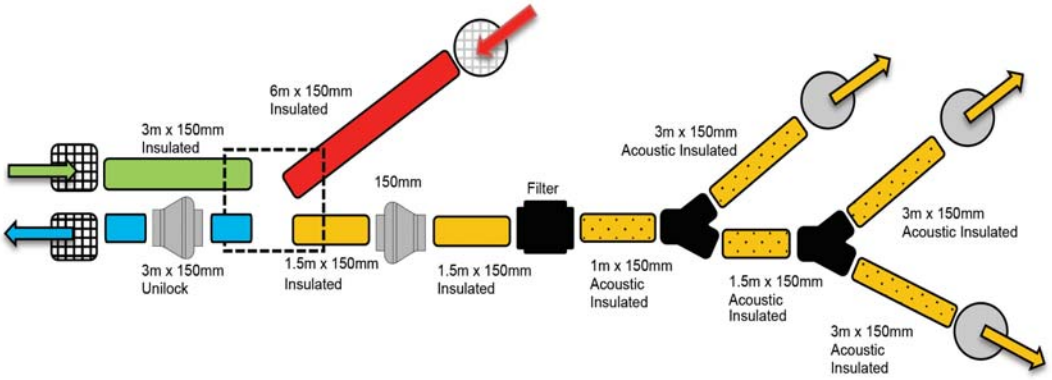


Distributed by: Simx Limited
Simx reserves the right to alter technical specifications without prior warning.
Pub1380

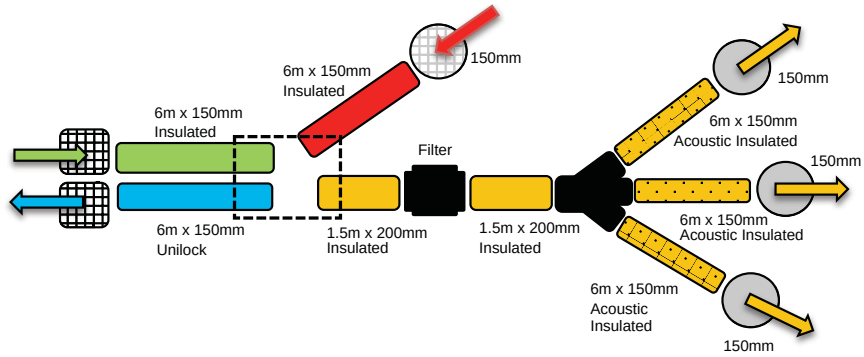
Note: The layouts below are intended as a guide only, refer to the Kit Contents list and latest system installation manual for the specific product details and layout.

OA = Outside Air **SA** = Supply Air **RA** = Return Air **EA** = Exhaust Air

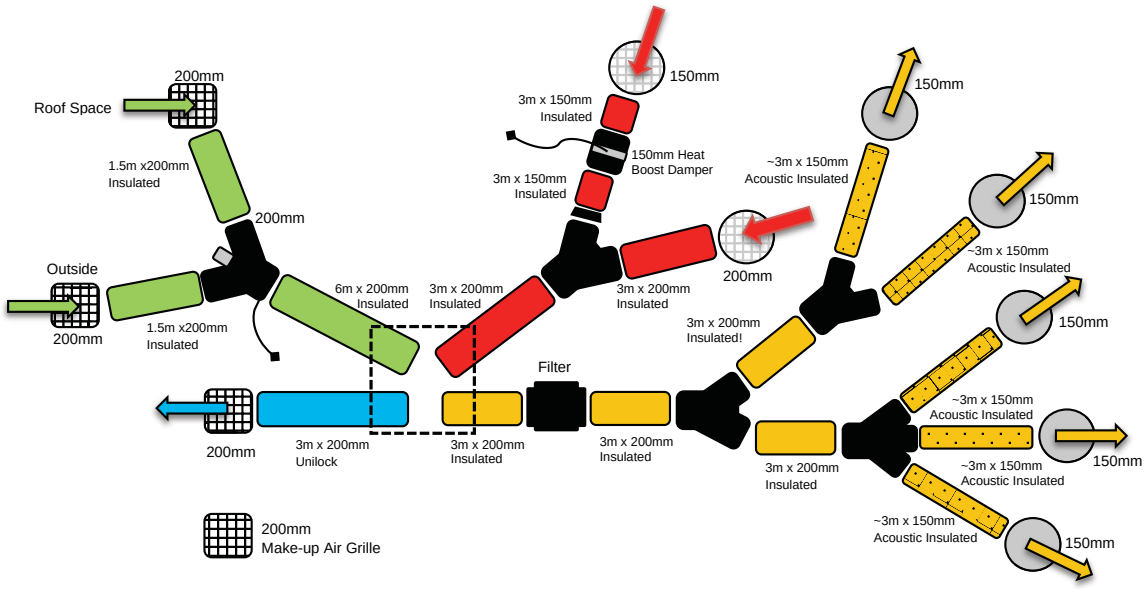
Synergy 190E



Synergy 1015E / 2025E / 3035E



Synergy 405



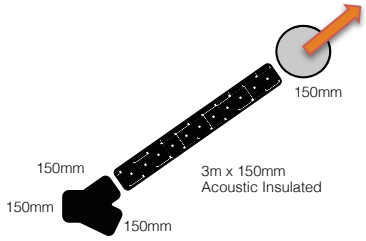
SmartVent has a range of upgrade kits available to suit different requirements. Please contact SmartVent if you have any specific requirements not listed below or in this guide.

Additional Outlet/s & Extracts

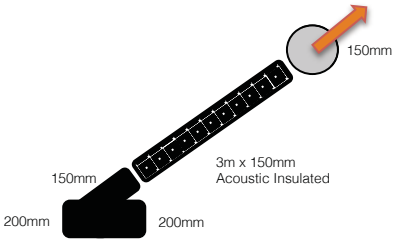
Kit	Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Additional Outlet	DCT2276	DCT4015	DCT4015	DCT4015	DCT2334
Additional Extract	DCT2289	DCT4016	DCT4016	DCT4016	DCT2335

Note: Exceeding the number of rooms listed in the Selection Guide (by product) may affect the performance of the system and should be reviewed with SmartVent prior to purchase and installation.

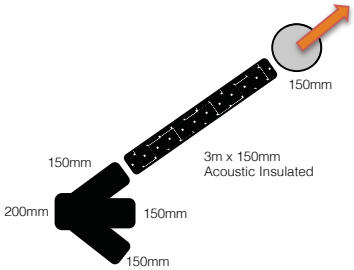
DCT2276



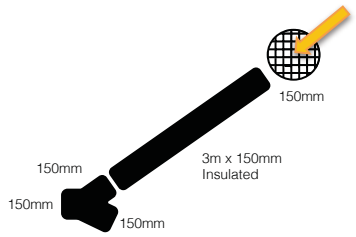
DCT4015



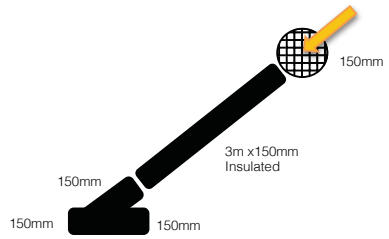
DCT2334



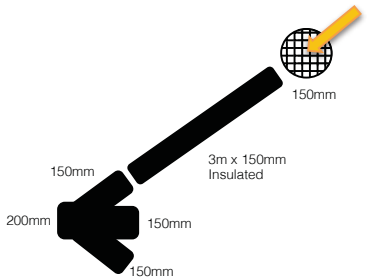
DCT2289



DCT4016



DCT2335

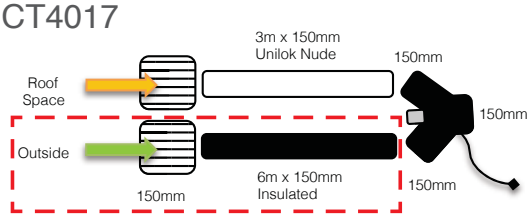


Second Air Source

Kit	Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Second Air Source	DCT4017	DCT4017	DCT4017	DCT4017	Included

Second Air Source is an optional second air intake located in the roof cavity. This feature allows the system to utilise the roof cavity temperature for increased heating efficiency.

DCT4017



Heat Transfer / Recycle

Kit	Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Heat Transfer Kit	FAN6418	FAN2027			-

Heat Transfer / Recycle has a motorised damper that operates to switch the air drawing from outside to instead draw air from the room where there is a heat source - usually a living room.

- It is important to point out that when Heat Transfer / Recycle is activated, the system is not bringing in fresh air, therefore not ventilating the home - however the home is getting the benefit of transferring heat around the house (e.g. cold winter nights). It also shuts off any supply back into the heat source room.
- Evolve will use the Heat Transfer / Recycle Function to manage the preferred temperature and/or humidity conditions in the home.
- The Recycle Function will recycle air around the home when other air sources are not suitable. An optional extra for Synergy 1015E, 2025E and 3035E, not available for the Synergy 405.

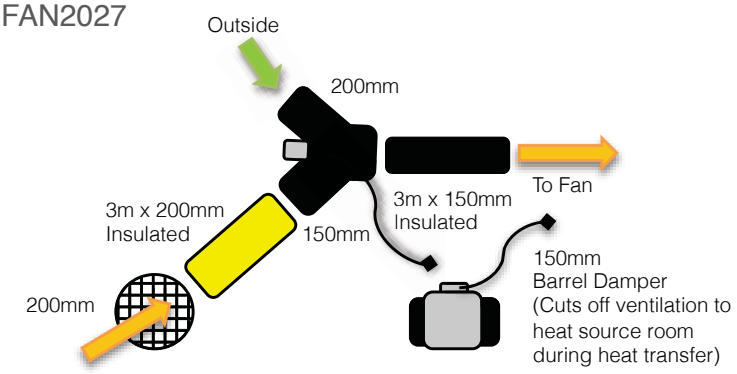
Evolve controller

There are two operation modes:

- Auto mode – Turn on Heat Transfer under the 'Features' page. Heat Transfer will operate when the roof temperature is lower than your desired temperature.
- Schedule mode – As per 'Auto' mode but at pre-set times only.

To use the Heat Transfer with Evolve the feature must be enabled in 'Settings'. Touch 'HeatTrans' then check it is Enabled , touch to change.

FAN2027



Remote Sensor Panel (Synergy 405 only)

Kit	Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Remote Sensor	-	-	-	-	FAN2047

The remote humidity sensor allows you to control your relative humidity and temperature readings from a room other than where your touch-screen controller is situated. This is ideal for areas where moisture/dampness is especially high, such as a bathroom or laundry.

Tempering Heater

Kit		Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Tempering Heater	1 kW	DCT3478	DCT3231	DCT3231	DCT3231	DCT1483
	2 kW	-	DCT3230	DCT3230	DCT3230	DCT1484

Tempering Heaters

A Tempering Heater is a element in-line heater designed to temper the incoming air.

- It should be specified if the ability to temper the delivered air to a more comfortable temperature is required.
- Tempering heaters will not provide a home heating solution.
- The temperature of the introduced air will be raised by up to 8°C. The temperature of the home will not increase by this much.

Evolve controller

There are two operation modes:

- Auto mode – Turn on the heater under the 'Features' page. The heater will operate when the roof temperature is lower than your desired temperature.
- Schedule mode – As per 'Auto' mode but at pre-set times only.

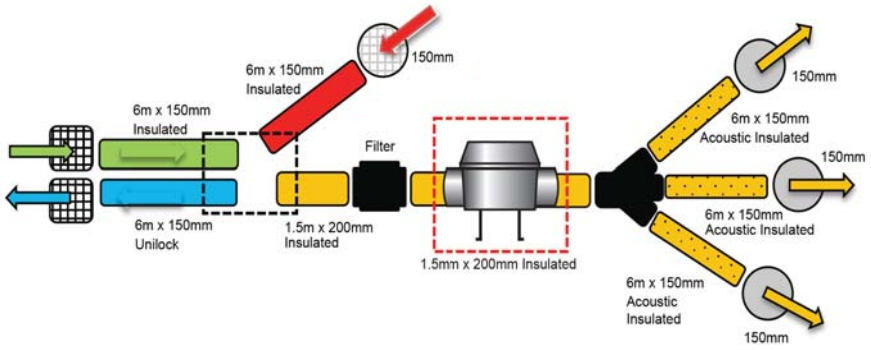
TSC controller

There are three operation modes:

- Normal mode - Operates when the temperature in the roof cavity falls below the minimum temperature.
- Timer mode – As per normal mode but at pre-set times only (two time periods available).
- Override - Forces the heater on for 1, 2, 4 or 6 hours regardless of the temperature in the roof cavity.

* Refer to the Evolve User Manual for heater functions.

Note: Your Synergy system controller offers multiple options for controlling the features above. Refer to the Ceiling Control Box under Synergy Controller Settings.



Inline PTC Room Heaters

Kit		Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
TSC PTC Room Heater	1.6 kW	-	-	-	-	DCT4039**
Evolve PTC Room Heater	1.6 kW	DCT4037				-

** When adding more than one PTC Room Heater into the TSC Synergy 405 system contact Simx Technical Support for advice on 09 259 1660 **BEFORE PLACING ORDER.** See note below.

Inline PTC Room Heaters

A PTC heater is a self regulating heating technology which adapts to your space only using the required amount of power.

- Especially designed for installation into existing SmartVent systems.
- Energy Efficient heating.
- Easy Retro fit into ceiling space.

Evolve controller

There are two operation modes:

- Auto mode – Turn on the heater under the 'Features' page. The heater will operate when the roof temperature is lower than your desired temperature.
- Schedule mode – As per 'Auto' mode but at pre-set times only.

TSC controller

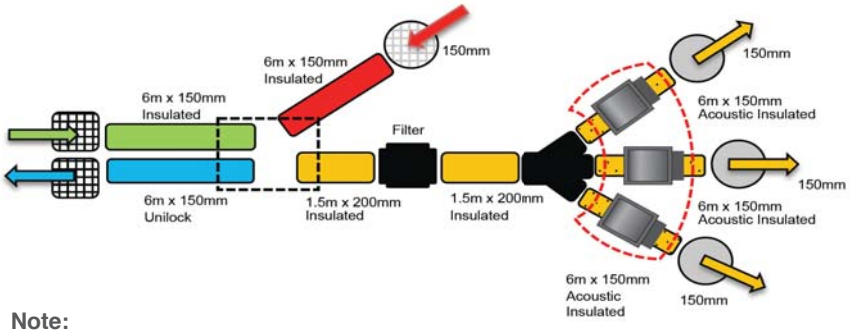
There are three operation modes:

- Normal mode - Operates when the temperature in the roof cavity falls below the minimum temperature.
- Timer mode – As per normal mode but at pre-set times only (two time periods available).
- Override - Forces the heater on for 1, 2, 4 or 6 hours regardless of the temperature in the roof cavity.

* Refer to the Evolve User Manual for heater functions.

Note: Your Synergy system controller offers multiple options for controlling the features above. Refer to the Ceiling Control Box under Synergy Controller Settings.

The PTC Heater(s) must only be installed after the first splitter in all systems, otherwise there will not be sufficient airflow across the elements.



Note:

- The Evolve PTC Room Heater requires an external power supply and comes complete with a three pin plug.
- The TSC PTC Room Heater power supply is built into the control box with a maximum capacity of 2.3kW. Adding more than one heater requires a relay. For supplementary heaters, order the Evolve Heaters models as they come complete with a three pin plug. For advice please contact Simx Technical Support on 09 259 1660 .

Core By-pass

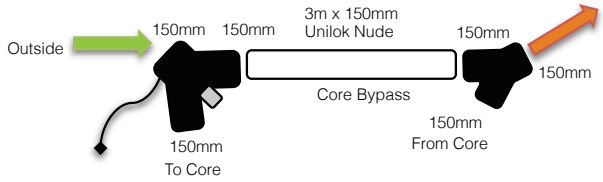
Kit	Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Core By-pass Kit	FAN2172	Included *			Included

This feature diverts fresh filtered air around the core. This is useful in summer when the outside temperature is assumed to be lower than the inside and you do not want to warm the incoming air with the air you are extracting from the home. A Core By-pass is included as standard in Synergy 405, 1015E, 2025E and 3035E, and is available as an optional extra for Synergy 190E.

What are the functions of the Core By-pass?
Core By-pass has two functions.

- The most common use is to by-pass the core in the summer when Energy Recovery is not desirable. In the summer, Core By-pass ensures the coolest possible air is used to ventilate the home.
- The second and least used function - dependent on your location - is the ability to bypass the core when the temperature falls below minus 5°. This is used to protect the core against potentially icing up, but allows the customer to still have continuous ventilation.

FAN2172



Evolve controller

How does Core By-pass operate?

Enable the Core By-pass in the features screen.

The system will automatically select Core By-pass when conditions are suitable.

* In models 1015E, 2025E, 3035E, core by-pass is simulated with fans alternating between extraction and positive pressure.

TSC controller

How does Core By-pass operate?

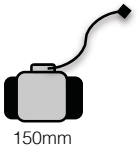
The Core By-pass, once enabled on the Touch Screen Controller, opens and closes automatically based on the temperature in the home, i.e. when the temperature in the home rises significantly above the Comfort Level the damper closes and the incoming air bypasses the Heat Exchange Core.

Should you be in a cold area and you want Core By-pass for summer, but you do not want it to activate at minus 5°, you can achieve this by setting fan minimum to 'OFF'.

Heat Boost

Kit	Synergy 190E	Synergy 1015E	Synergy 2025E	Synergy 3035E	Synergy 405
Heat Boost	-	-	-	-	Included

A Heat Boost is designed to allow extract points (where more than one is installed) to be closed off to optimise the heat recovered from the heat source room.



Air Changes per Hour (ACH)

The New Zealand Building Code recommends a minimum of 0.35 air changes per hour.

Our positive pressure systems are designed to deliver 1 air change per hour. Our Energy Recovery systems are designed to deliver 0.5 air changes per hour.

Note: The number of ACH required will vary from house to house.

Bathroom Extraction

We recommend a Manrose fan ducted to the outside of the house delivering 10 -15 air changes per hour be placed in every bathroom. Visit www.simx.co.nz and download the Manrose Extraction Selection Guide.

Note: Section G4 Ventilation of the NZ Building Code states all buildings shall have a way of removing, among others, steam from bathing and showering to the outside of the home.

Filters

- ☑ **F7 Filters**
  SmartVent high grade F7 Filters capture 80 - 90% of fine pollens dusts and allergens from the air are included with all systems, making the air cleaner to breathe. All SmartVent systems come standard with an F7 Filter.
  Note: See also Carbon Filters, HEPA Filters

- ☑ **Carbon Filters**
  If there is concern about smell from the roof cavity, outside, or from the fire if heat transfer is installed. Carbon Filters remove odours. F7 with Carbon.
  Note: Carbon filters will reduce the air flow through the system.

- ☑ **HEPA Filters**
  A high quality HEPA filter is available if required, for families with asthma and allergy sufferers.
  Note: HEPA filters will reduce the air flow through the system.

Diffusers

The diffusers are flat so therefore distribute the air across the ceiling and down the walls and windows to help reduce condensation. As a result the air is distributed further around the room.

Note: Diffusers are adjustable to allow balancing of airflow delivery for each room.

Heating Systems

- ☑ Pellet Fires, Wood Fires, Electric Heaters or Heat Pumps
- ☒ Portable LPG gas heaters or un-flued Fixed Gas

Un-flued Gas appliances of both kinds release large volumes of moisture into the air the entire time they operate. This can result in condensation levels being higher and also make the moisture content in the air difficult to treat with a ventilation system. We recommend homeowners use different forms of heating. Gas appliances with a flue are acceptable because they expel moisture externally.

Note:

- Heat Transfer should only be specified when there is a heat source that creates excess heat i.e. wood fire or similar.
- A heat pump sized for the room it occupies is not suitable for Heat Transfer.
- If planning to use a heat pump with Heat Transfer, first consult your heat pump installer/manufacturer.

Heat Trans Systems

If the home already has a Simx HeatTrans system installed you have three options:

- Re-use the duct and diffusers and install a SmartVent Positive Pressure system with a Heat Transfer upgrade incorporated.
- Re-use the duct and diffusers and install a SmartVent Synergy system to replace a HeatTrans system
- Upgrade HeatTrans with a touchscreen controller (FAN5555) and a HeatTrans Summer Upgrade Kit (DCT1481).

House size

The first step when specifying a SmartVent system is how many square metres the home is excluding the garage.

A secondary (but just as important) factor is the stud height. The Square Metre (m2) used in the selection charts is based on a stud height of 2.4m.

House layout

The layout and orientation of the home, the way it is heated, as well as the construction all have an influence on the system to specify.

Note: Use the page at the back of this manual to map your layout. Plan where the outlets will be placed in each room.

Two storey houses

Access to lower floors can be achieved through cupboards, wardrobes and other voids.

Consider increasing the size of the kit specified if there is more than one duct run required to a lower floor.

It is better to specify a larger or two-fan system particularly if the ground floor is concrete block with aluminium joinery and/or a large area.

Open cavity walls

- ☑ SmartVent Positive Evolve is the only Positive Pressure system appropriate to use on an open cavity wall home as it measures both temperature and humidity. An outdoor air supply is required in this scenario.
- ☒ Open cavity walls may present a problem for Positive pressure systems, as they can draw damp air from under the house into the home.

Unvented Appliances

- ☒ Unvented range-hoods and clothes driers not only fill the roof cavity or home with moisture, they may not be compliant with current building regulations. If you are installing any ventilation system into your customer's home, you should also recommend that they duct these appliances to the outside.

Roof cavity and access

Ensure you have enough room to install the system, note any areas you may not be able to access (i.e. flat roof, lower floor rooms), and be aware of any potential problem areas.

A minimum of 400mm is required to fit SmartVent Positive componentry.

Note: Check the dimensions of the product to ensure access to the roof space is available.

Ensure a make-up air grille is installed in the soffit to ensure outside replacement air is available.

Outlet guidelines

We recommend outlets are installed in each bedroom and living area.

- ☑ SmartVent Positive outlets should be placed in your living areas and bedrooms, in a central position.
- ☑ SmartVent Synergy outlets should be placed in bedrooms and living areas. Return air should be placed in the hallway.

Place the outlets at least one metre from any vertical surface. In a living room try to install an outlet near the centre of the room.

A centrally placed outlet in the hall is not recommended as there is no guarantee the occupants of the home will keep the bedroom doors open overnight or that sufficient amounts of air would even go in there if they were, as bedrooms are areas where condensation is often a problem.

Avoid placing too close (at least a metre away) from any vertical surfaces (i.e. a wall) and away from the entrance to an ensuite or bathroom.

Ideally centrally locate the supply air. If necessary to offset do so on the window side of centre.

Ducting runs

Once you have decided the outlet locations, connect ducting to the back of the diffuser, then work towards the centre of the home to ascertain a central position for the fan, preferably above a utility room, bathroom or similar.

Note: Avoid long duct runs by placing the fan centrally.

Longer duct runs should have fewer outlets.
The highest percentage of air should go through the longest duct run - adjust diffusers to suit.
Two duct runs in parallel will move more air than one long run.

- ☒ The more duct and bends, the less air that will come out of the diffusers.
- ☒ The longer the duct run the more resistance against the fan and the less air will be delivered to the home.
- ☒ Install duct fully extended, do not install in the compressed state or use excess lengths.

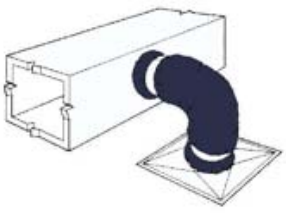
Cut out excess duct and avoid unnecessary bends.

Ducting joins

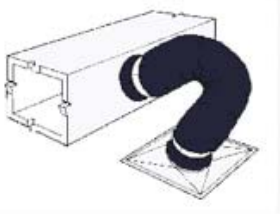
Double tape every join in the duct and use a duct joiner.

Note: If you do not use a duct joiner the duct may collapse over time and the join may separate. This is one of the most common faults in installation and the most simple to get right. Be sure to correctly pull down the blanket insulation and double tape a join.

☑ **Correct**



☒ **Incorrect**



Ducting support

Hanger or saddle material in contact with the flexible duct shall be of sufficient width to prevent any restriction of the internal diameter of the duct when the weight of the supported section rests on the hanger or saddle material.

Flexible duct may rest on ceiling joists or truss supports. Maximum spacing between supports should not exceed 1.5m.

Ducting branches

Y-branches will split the air 50/50.
DBTO (Double Branch Take Off) will split the air relative to the outlet sizes. If a DBTO is used, ensure the central take-off is used to where the most air is required.

Note: When you add branches or extension kits to the system try to ensure duct runs are of similar lengths.

Extract – Heat Transfer

Place the Heat Transfer intake across the room from the heat source to ensure heat travels across the room prior to being extracted.

The wall controller must be in the heat source room.

- ☒ Do not place the intake less than 2 metres away from a fireplace, this is to protect the fan motor from high heat.

Return Air – Synergy

Under ideal conditions, supply air to the perimeter of the home and extract from the centre. Consider the overall airflow pattern.

Non-Standard installations

SmartVent can recommend solutions (e.g. roof kits, low profile ducting) for unusual installations.

Installation Checklist

Smart Vent Pre-Installation Checklist	Save a copy of this form with Product Warranty Card
Date:	Installing company:
Customer name:	Installer:
Customer address:	Planned install date:
Phone:	Customer email:
Plan provided by Simx: Yes / No	Simx Rep:
Requirements: Ventilation Condensation control Energy recovery Heat Transfer	
Areas of concern:	
Square m of house (add 4% for every .1 metre over 2.4 ceiling height):	
Smart Vent System recommended:	How many outlets: Supply Extract
Access to all Supply and Extract grille locations (Note additional material required in “Comments”): Yes / No	
How many stories to home:	Age of Home:
How many occupants in the house:	Type of cladding:
Asbestos: Yes / No (if uncertain, assume Yes)	Manhole access/size:
Open wall cavities? (Space between brick cladding and exterior wall): Yes / No	
Extract/Summer/Makeup grill location: Soffit Gable end Roof	
Condition of roof space (ie: clean/evidence of rodents/leaks):	
Type of Roof:	Roofing lined with paper: Yes / No
Insulation Installed: Yes / No	Insulation thickness:
Downlights installed: Yes / No	Capped or openbacked?
Kitchen Extraction: Yes / No	Vented outside: Yes / No
Bathrooms Extraction: Yes / No	Vented outside: Yes / No
Clothes Dryer: Yes / No	Vented outside: Yes / No
Any items that will contribute to condensation i.e. drying rack, non-vented gas heaters : Yes / No	
Areas around and under house checked to assure damp conditions do not exist: Yes / No	
Glazing: Single / Double	What type of heat source is used:
Types of window coverings:	Pelmets installed: Yes / No
Comments:	
System checked by:	

Positive	Kit	Install Times	Optional Extras				
			Extension	Summer Feature	Heat Transfer	Tempering Heater	PTC Room Heater
Up to 70m2	SV01C	3 hours	-	-	-	2 hours	2 hours
	SV01	2 hours					
Up to 100m2	SV02E	4 hours	1 hour	3 hours	3 hours	2 hours	2 hours
	SV02	3 hours					
Up to 280m2	SV04E	6 hours	1 hour	3 hours	3 hours	2 hours	2 hours
	SV04	5 hours					
Up to 560m2	SV06E	8 hours	1 hour	4 hours	3 hours (1 leg)	4 hours	2 hours
	(2 legs)				4 hours (2 legs)		

Synergy	Kit	Install Times	Extension / Extract Kits	Second Air Source	Heat Transfer	Core By-Pass	Tempering Heater	PTC Room Heater
Up to 37m2	SRHR	3 hours	-	-	-	-	-	-
Up to 150 m2	Synergy 190E	10 hours	1 hour	2 hours	3 hours	2 hours	2 hours	2 hours
Up to 150 m2	Synergy 1015E	8 hours	1 hour	3 hours	3 hours	-	2 hours	2 hours
Up to 250 m2	Synergy 2025E	8 hours	1 hour	3 hours	3 hours	-	2 hours	2 hours
Up to 350 m2	Synergy 3035E	8 hours	1 hour	3 hours	3 hours	-	2 hours	2 hours
Up to 350 m2	Synergy 405	16 hours	1 hour	Included in system	Included in system	Included in system	2 hours	2 hours

The Right Tools for the Job

Invest in the tools below to save you time on the job, cleaning up and increase accuracy.

① **Adjustable hole cutter**
Quickly and safely cut large diameter holes in a wide variety of materials.

② **Gib saw**
For cutting holes in tight corners, and for controllers.

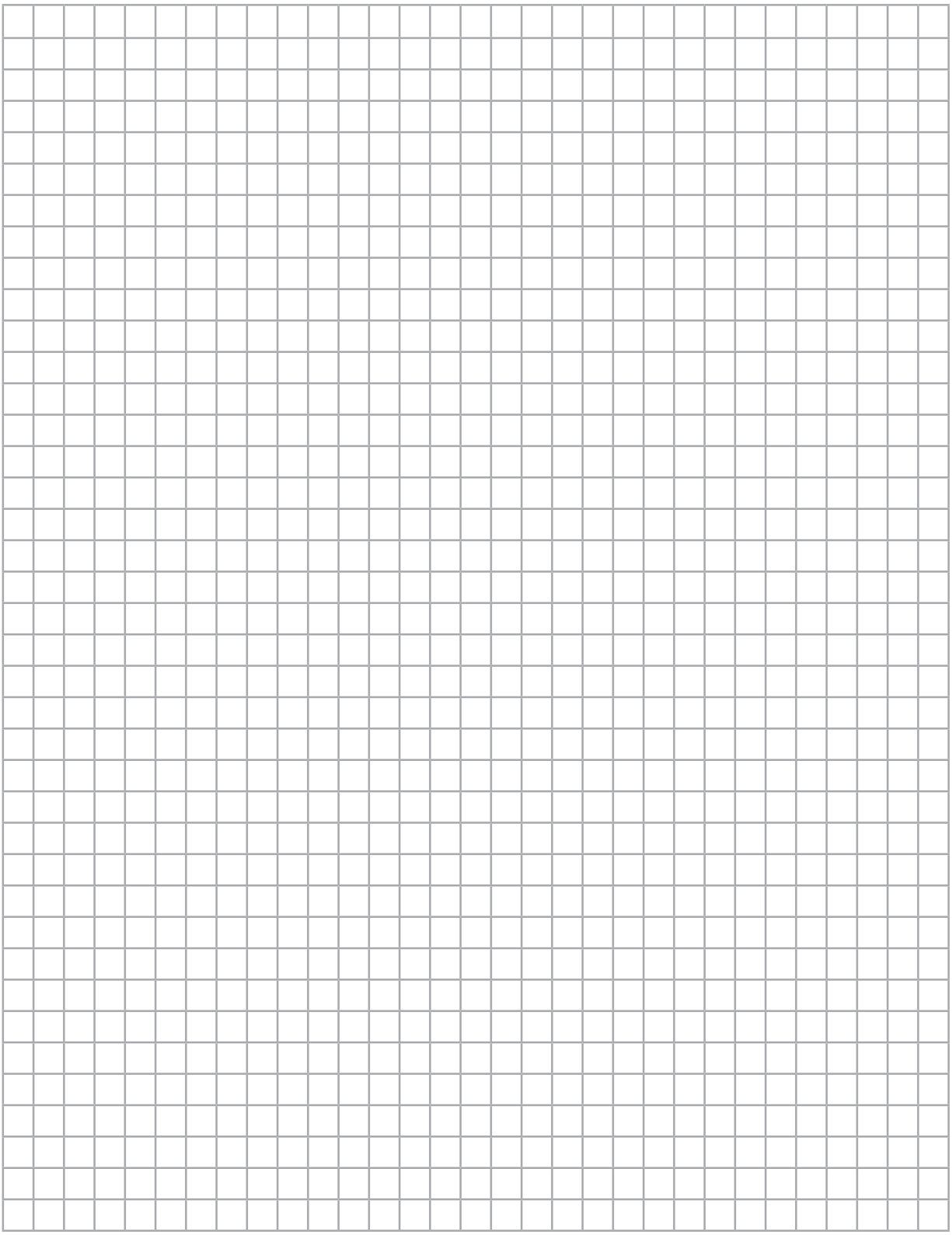
③ **Hole cutter**
For cutting holes in both ceilings and floor boards between floors.

④ **Led headlight**

Other recommended tools…. Phillips Screwdriver, Battery Drill, Knife, Tape Measure.

Map Your Installation

A useful onsite tool. Use this graph to sketch a plan of the home and intended layout.



Acoustic Insulated Ducting

150mm diameter x 3m	DCT0633
150mm diameter x 6m	DCT0634
200mm diameter x 3m	DCT0635
200mm diameter x 6m	DCT0636

Unilok Nude Ducting

150mm diameter x 3m	DCT0561
150mm diameter x 6m	DCT0562
200mm diameter x 3m	DCT0563
200mm diameter x 6m	DCT0564

Noise Reduction Fan Housing

150/200 Centrifugal fan	DCT2297
150/200 Mix flow fan	DCT2298

Replacement Filters for Positive / Synergy

G4 Sock	DCT1411
G4 Filter	DCT2221
F7 Filter/ EU 7	DCT2093
F7 with carbon filter	DCT2277
HEPA with carbon filter	DCT2278

Extension Leads

3m Fan lead (4 wire)	FAN2190
3m Heater or damper lead (3 wire)	FAN2194

Y Branch

150-150-150	DCT1233
200-150-150	DCT0379
200-200-200	DCT0376
250-200-200	DCT0471

Insulated Ducting

150mm diameter x 3m	DCT0583
150mm diameter x 6m	DCT0584
200mm diameter x 3m	DCT0585
200mm diameter x 6m	DCT0586

Duct Fasteners

Hanging strap	DCT2299
Duct tape 48mm x 5m	DCT0173
Duct tape 48mm x 30m	DCT0807

Duct Connectors

150mm metal	DCT0723
200mm metal	DCT0724

Fixed Louvre Grilles

125mm white	DCT0041
150mm white	DCT0063
200mm white	DCT0340

Ceiling Diffuser

150mm Flat ceiling diffuser	DCT2208

Extract Diffuser

150mm Unijet Diffuser Ice White	DCT2610
200mm Unijet Diffuser Ice White	DCT2611

Other accessories

SmartVent is able to offer a full range of ducting accessories. Contact us to discuss any specific ducting requirements you may have.

Branch Take Off

200-200-150 (Single)	DCT0877
250-250-150 (Single)	DCT0880
200-150-150-150 (Double)	DCT0899
250-200-150-150 (Double)	DCT0891

SmartVent
0800 140 150
www.smartvent.co.nz

Technical support ph: 09 259 1662 | enquiry@smartvent.co.nz
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