

HOME VENTILATION SYSTEMS



SV02AD
SV04AD
SV06AD

Installation Instructions

The expert's guide to installation for a healthier home



SMARTVENT POSITIVE ADVANCE SYSTEM

Contents

Definitions/Warning/Caution.....	4
Kit Contents	5
System Overview	6
Standard Systems	7
Installation	8
Preparation.....	8
Sensors.....	9
Ceiling Controller	10
Fans	11
Diffusers	11
Grilles	11
Ducting.....	12
Touch Screen Controller	12
Commissioning and Testing.....	13
Caution	13
Inspection Checklist	13
Screens and Navigation.....	14
Maintenance.....	17
F7 and HEPA Filters.....	17
Replace Sensor Battery.....	17
Troubleshooting.....	18
Error Codes	19
Technical Specifications.....	20

DEFINITIONS

Before use please read and understand these definitions.

WARNING and/or the use of the symbol  refers to conditions where the possibility of injury, or death, exists if the procedure is not followed.

CAUTION CAUTION indicates the possibility of damage to the equipment, installation or premises if a procedure is not followed.

NOTE NOTE provides additional information intended to clarify points, procedures or instructions.

WARNING

- Please read all instructions carefully before commencing installation.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- Precautions must be taken to avoid the backflow of gases into the room from the open flue of gas or other open-fire appliances when mounted in outside walls or soffits.
- Isolate the mains supply before making any electrical connections. This system should be installed by a qualified electrician.
- A means of mains power isolation must be installed in the circuit for the purpose of safe access for any internal cleaning, recalibration or maintenance.
- Isolate the mains supply before attempting to replace the systems air filter.

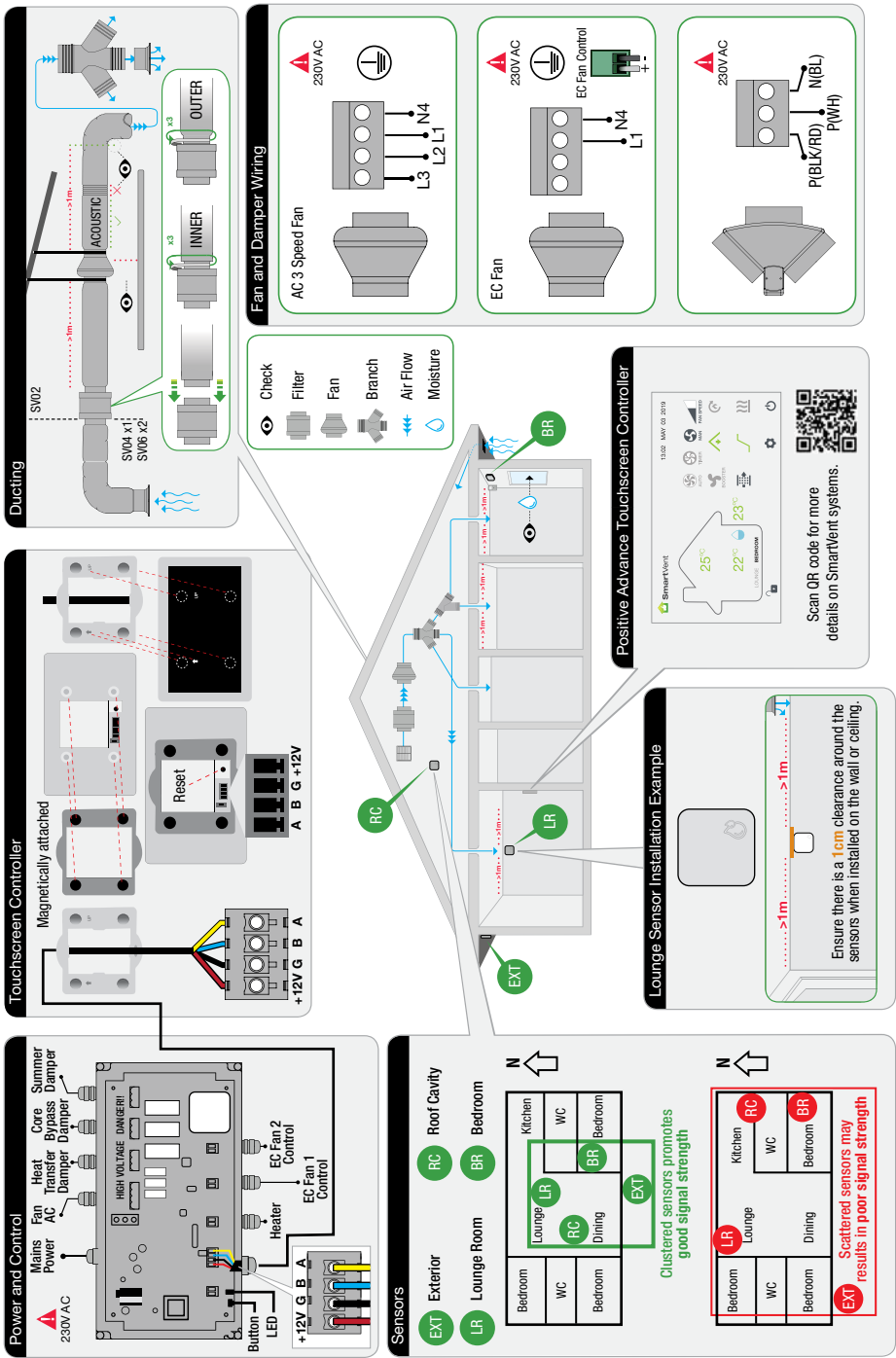
CAUTION

- If any of the fan or controller supply cords are damaged they must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid possible damage to the fan motor or controller.
- All wiring must comply with national wiring rules.
- Any changes or modifications made or attempted to this product, without the prior written approval of the manufacturer, will void any and all stated warranties.
- Take appropriate safety measures when cutting hazardous building materials.
- The roof space **MUST** be inspected to ensure it does not have any conditions that may cause the system to draw moisture into the home. Conditions may include: unducted bathroom or kitchen extraction, roof leaks, tile roofs requiring re-coating, open wall cavities, gutter leaks or other building envelope leaks.
- Ceiling penetrations/openings (i.e. access hatch, open backed down lights) between the living spaces and roof space reduce the effectiveness of the system. These should be sealed where possible.

KIT CONTENTS

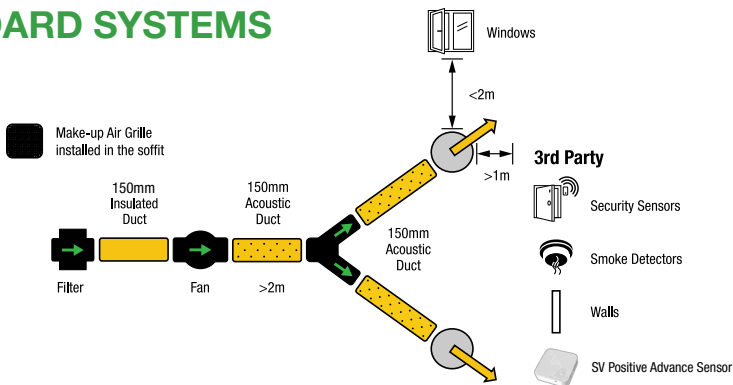
Kit Contents	SV02AD	SV04AD	SV06AD
SmartVent Ceiling Controller	1	1	1
SmartVent Touch Screen Controller (TSC) Assembly	1	1	1
SmartVent Wireless Sensors	4	4	4
150mm AC 3 Speed Fan	1	-	-
200mm EC Variable Speed Fan	-	1	2
Fan Suspension Kit	1	1	2
F7 Filter	1	1	2
150mm Fixed Grille	1	1	-
200mm Fixed Grille	-	1	3
150mm Low Profile Diffuser	2	4	6
150/150/150mm Y Branch	1	1	-
200/150/150/150mm Double Branch	-	1	2
200mm x 3m Nude Duct	-	1	-
200mm x 6m Nude Duct	-	-	1
150mm x 6m Acoustic Duct	1	3	4
150mm x 3m Insulated Duct	1	-	-
200mm x 3m Insulated Duct	-	1	-
200mm x 6m Insulated Duct	-	-	1
30m Duct Tape Roll	1	1	2
10m 4 Core Cable	1	1	1
150mm Duct Joiner	-	1	2

SYSTEM OVERVIEW

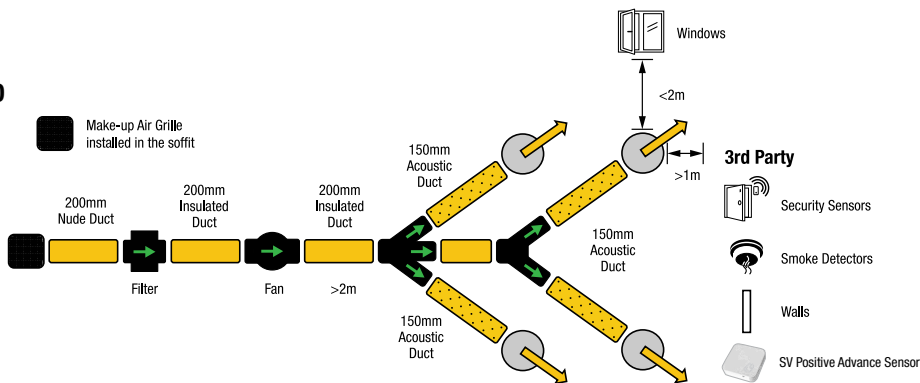


STANDARD SYSTEMS

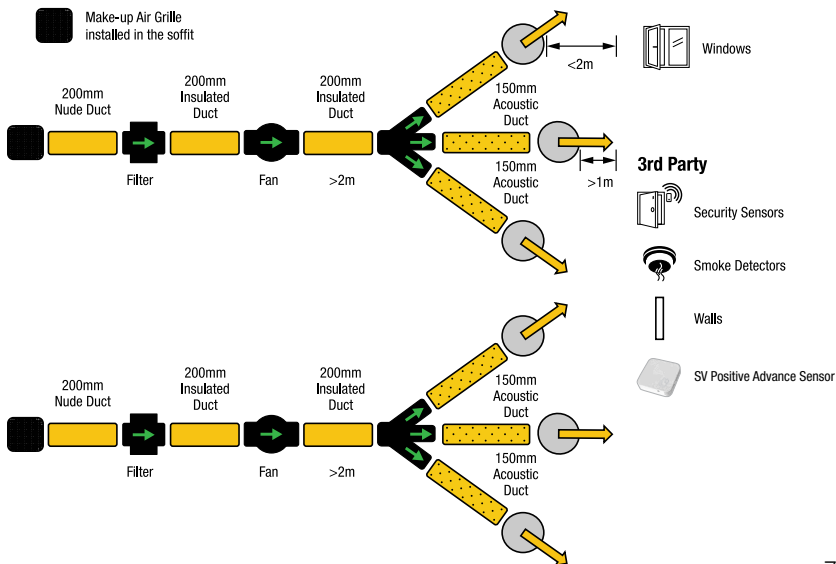
SV02AD



SV04AD



SV06AD



INSTALLATION

Preparation

Before commencing installation it is strongly recommended that planning is undertaken and completed to ensure that the best possible ventilation solution is achieved.

Please use the checklist below for your installation planning and change as may be required.

Planning Checklist

Sensors	Page 9
Ceiling Controller	Page 10
Fans	Page 11
Diffusers	Page 11
Grilles	Page 11
Ducting	Page 12
Touch Screen Controller	Page 12

INSTALLATION

Sensors



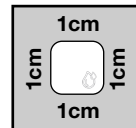
DO NOT mount the sensors before reading all the instructions

Locations

- **DO NOT** install sensors within a metre of diffusers.
- **DO NOT** install sensors close to localised sources of heat, draughts, moisture or odours.
- Install the outside sensor on the south side of the house shielded from rain and strong wind close to the supply grille. (typically under the soffit).
- Install the roof sensor close to the roof air intake grille.
- Install the bedroom sensor in the most condensation prone occupied bedroom.
- Install the lounge sensor in the lounge or room with the home's primary heat source.
- Cluster the sensors as much as possible rather than spreading them out for good signal strength.
- Maintain a 1cm clearance around the sensors to allow for battery changes.
- Consider how home owners can safely get to the outside sensor to change the battery.

Sensors - Mounting

- If mounting to the wall ensure the sensor button is facing downwards. If mounting on soffit ensure the sensor button is facing the wall.
- Sensors come with adhesive backs on the battery cover which can bond well to most clean smooth surfaces.
- Clean surfaces with a clean cloth and alcohol, let dry, remove adhesive ring cover, press and hold the sensor to the surface for 5 seconds to bond.
- Ensure there is nothing within 1cm of the sensor so that it can be easily removed for battery changes.



- In the roof space: mount the sensor in an easy to spot location near the roof air intake vent. Do not stick directly to rough sawn timber - screw in a piece of smooth material to stick the sensor on.

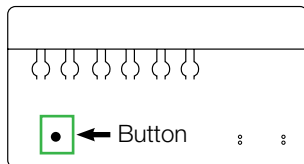
Install bedroom and lounge sensors on the wall to reduce the influence of roof temperatures.

INSTALLATION

The sensors must be paired in this order Roof, Bedroom, Lounge then Outside.

Sensor - Pairing

- Before starting the pairing process, ensure the touch screen is connected to the Ceiling Controller Box.
- Power on the Ceiling Controller Box and press and hold the button within 10 seconds.



- The controller will give a long beep and the sensors will be ready to pair.
- First pair the roof sensor by removing the battery and clear plastic battery insulator then reinsert the battery.
- After 3 seconds the LED on the front of the sensor will flash 3 times and the controller will beep.
- Replace the battery cover and mount the roof sensor with the adhesive back
- Turn on the touch screen to verify the roof sensors has been paired.
- The bedroom temperature reading will show 99°C to indicate the next sensor to be paired is the bedroom sensor.
- Go to the bedroom, put in the battery and hold the sensor up to the desired location and look for 3 flashes.
- If there are less than 3 flashes see the trouble shooting guide.
- Check the touch screen to see if the sensor paired successfully and which sensor to pair next.
- Remember, the pairing order is **Roof, Bedroom, Lounge then Outside.**

Ceiling Controller

Locations

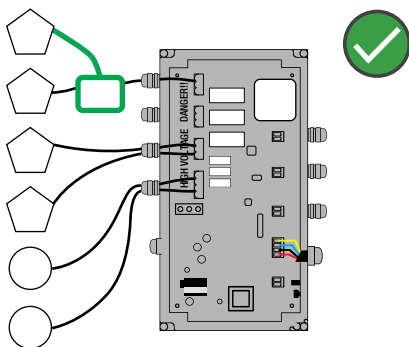
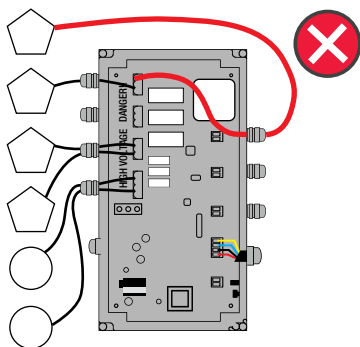
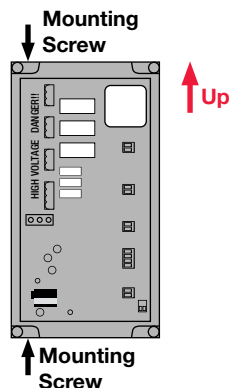
- Mount the ceiling controller on the lower half of the roof cavity.
- Make sure mains supply has been isolated before making any electrical connection.
- Locate the ceiling controller central to planned sensor location - favouring any sensors that may have concrete or brick walls in the way.
- Ensure the ceiling controller is in a location with good Wi-Fi signal strength.
- Avoid mounting near large metal bodies e.g. hot water cylinders, antennas, heat pump AHU, switch panels, etc.

CAUTION: Avoid running TSC data cables in parallel with mains cables. If this is unavoidable, try to keep at least a 0.2m distance.

INSTALLATION

Connection

1. Mount the ceiling controller using the mounting holes on the side with damper connection and transformer. Ensure the white sensor receiver module is facing upwards.
2. Thread the TSC cable through the cable gland, wire to the connector and plug into the ceiling controller (refer to wiring diagram, page 6).
3. Connect all peripherals: fans and dampers.
4. Make sure the earth spade on the fan is connected to the earth block in the ceiling controller.
5. Make sure all cable glands are tightly fastened and secured to the ceiling controller.
6. **DO NOT** cross cables over the PCB to reach for apertures on the far side. Use an AC fan junction box or AC damper junction box (FANxxxx) if there are not enough apertures on the controller box (FANxxxx).



Fans

- Suspend fans away from bedrooms, if possible, more than 4m away.

Diffusers

- Install diffusers in living spaces (e.g. bedrooms and living rooms).
- Where possible, install diffusers within 2m of windows and keep away from doorways.
- **DO NOT** install diffusers in wet areas (e.g. bathrooms, kitchens and laundries).
- **DO NOT** install diffusers within 1m of smoke alarms and walls, or security sensors and walls.
- **DO NOT** install near the doorway.

Grilles

- Install make-up air grille in soffit and away from sources of moisture or strong odours. Sources of moisture may include: outdoor gas burner, bathroom or kitchen outlet grille, lawn, pools, or other outdoor areas where water might collect.

INSTALLATION

Ducting

- Keep ducting paths as short and as straight as possible (ducts can be cut or extended).
 - Make sure there is at least 1m of straight duct between the recovery ventilator and the first bend or branch.
 - Take appropriate safety measures when cutting hazardous building materials.
 - Plan the installation as per **Installation Preparation**.
 - Wind duct tape 3 times around duct and spigots for a secure connection.
 - **DO NOT** put excessive strain on taped connections.
 - Excess duct should be cut to keep the ducting path as short and straight as possible.
 - Make sure the outer sleeve of the acoustic duct is taped thoroughly so air cannot leak out.
1. Cut a hole in the soffit and install the make-up air grille.
 2. Lay out fans, filters, intake grilles, branches and ducts in the roof cavity. Make sure there are suspension points for the fans and intake grilles.
 3. Cut holes for the diffusers using the cardboard templates provided.
 4. Tape ducts to diffusers and install diffusers.
 5. Pull ducts taught, cut off excess and tape to branches, fans, filters and grilles.
 6. Suspend the fan no more than 300mm above the roof insulation and ensure it does not make direct contact with any framing.
 7. Secure the intake grille, or filter for an SV02AD, to ensure the system cannot suck up the roof insulation.

Touch Screen Controller

- Install inside only.
 - Mount on an inner wall at eye level.
 - **DO NOT** install in wet/damp areas (i.e. laundry or bathrooms), on hot surfaces, in convection currents, or exposed to direct sunlight.
 - Ensure at least 0.2m between TSC cable and mains wires to avoid signal interference.
 - **DO NOT** install near any localised heat source.
1. Remove the magnetically attached mounting plate from the TSC by leveraging it with a flat-head screwdriver.
 2. Cut an opening on the wall for the flush box and mount it.
 3. Screw the mounting plate onto the flush box. Ensure you can see the arrow and it is pointing upwards.
 4. Run the TSC cable from the roof cavity down to the flush box.
 5. Wire the 6-way connector to the cable and plug into the TSC.
 6. Hold onto the edge of the controller and line up the arrow and magnets on the back of the TSC with the mounting plate
 7. Gently push the controller into the mounting plate until they snap together.



- Strong magnetic force between mounting plate and controller could cause jamming of finger or skin.

COMMISSIONING AND TESTING

Caution

Ensure all connections are firmly in place and the ceiling controller's lid is fastened before switching on the mains supply.

1. Power on the system and navigate to the ADVANCED SETTINGS page. (refer to pages 15-16).
2. Login as INSTALLER Password: ***freshair***
3. Check the KIT SETTINGS and modify as per the installation. Ensure POSITIVE is selected under SYSTEM. Press the Save button to apply changes.
4. Navigate to the SENSOR READINGS page and make sure all sensor readings are displaying correctly.
5. Navigate to the TESTING MODE page. Step through the different configurations and complete the Inspection Checklist

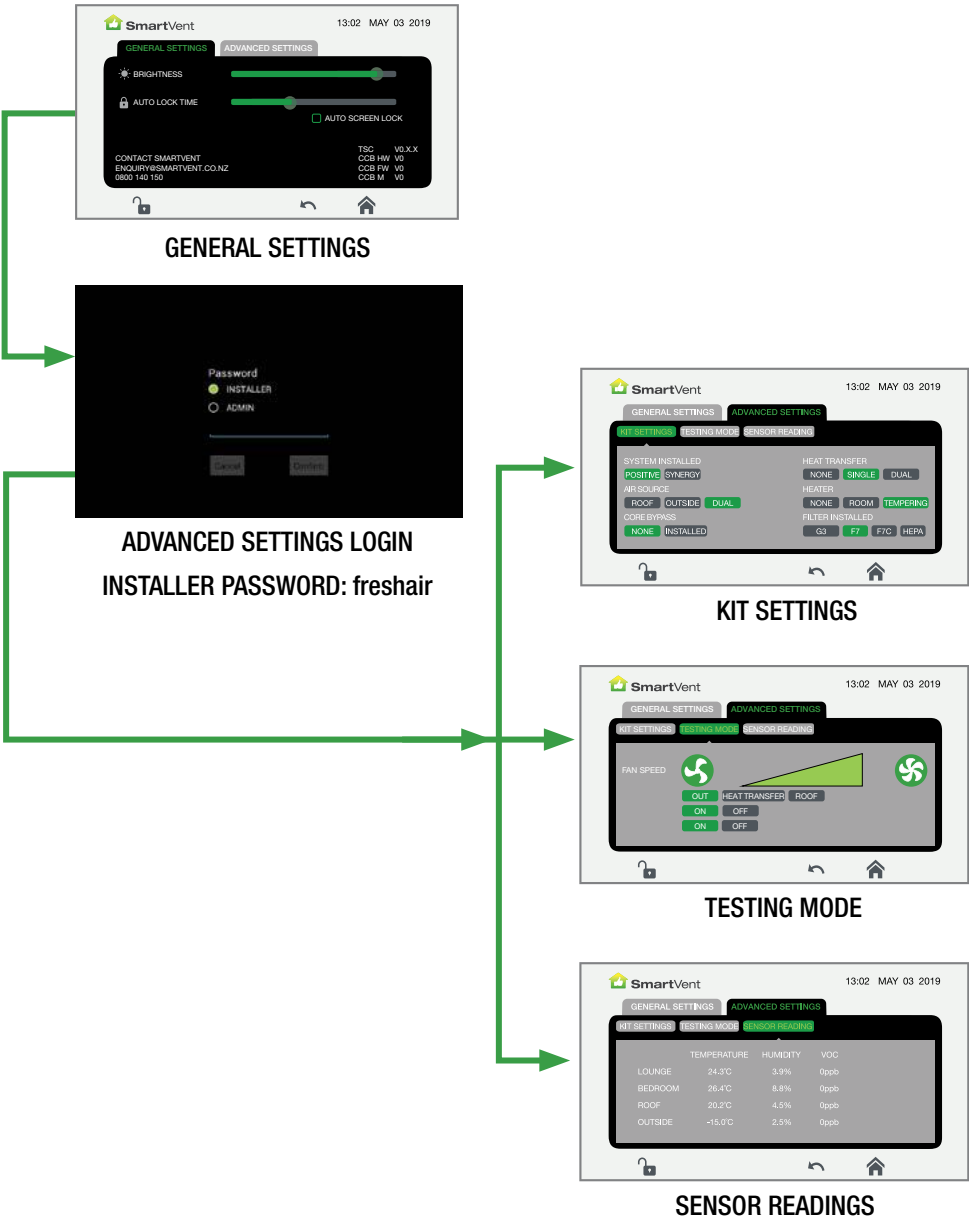
Inspection Checklist

- ☐ Fan operates on all speeds. Put fan onto high speed to continue inspection.
- ☐ Dampers switch over and system draws air from the correct locations (If installed).
- ☐ There are no leaks in the ducting.
- ☐ Lounge diffuser openings are between 5-10mm and does not whistle.
- ☐ Bedroom diffusers openings are between 3-5mm and does not whistle.
- ☐ Navigate to the HOME page and make sure there are no Error Codes present.
- ☐ Ensure the time and date is correct. If it is not, navigate to TIME-DATE setting page and set the correct time and date.

Note: Diffusers can be wound open or closed. Diffusers can be opened up slightly more than recommended if they whistle.

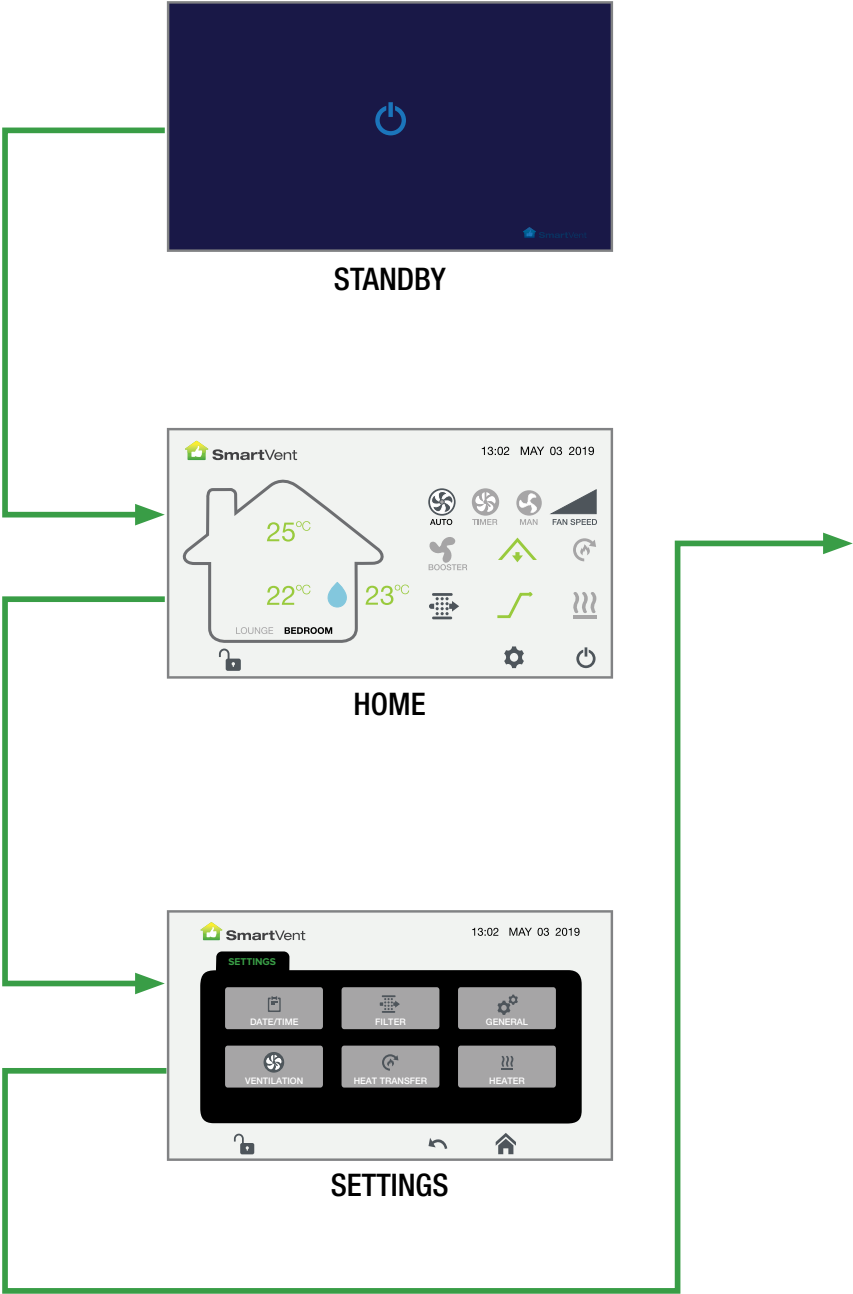
COMMISSIONING AND TESTING

Screens and Navigation



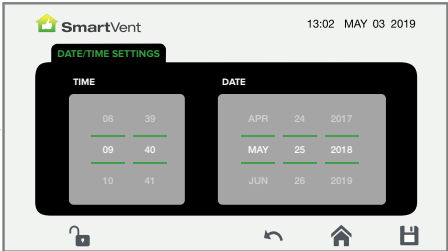
COMMISSIONING AND TESTING

Screens and Navigation

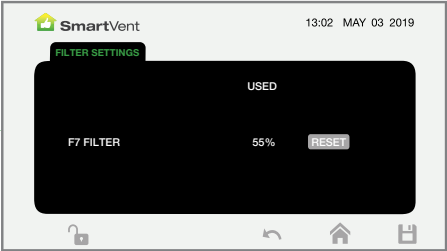


COMMISSIONING AND TESTING

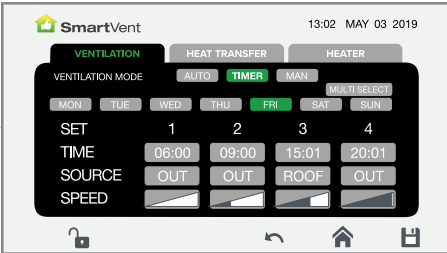
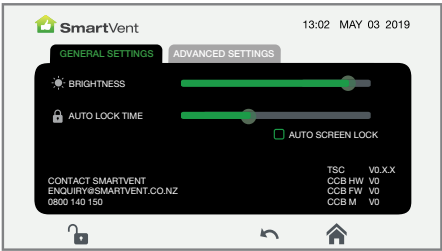
Screens and Navigation



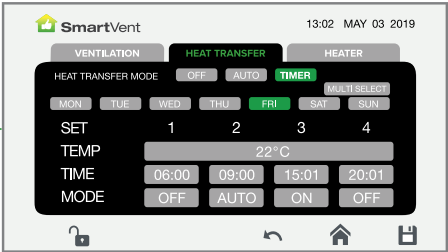
TIME-DATE



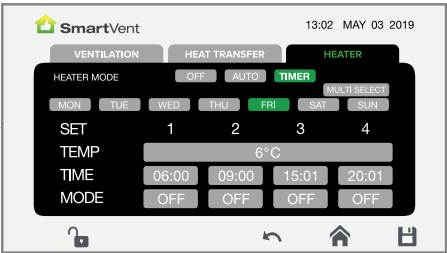
FILTER



VENTILATION



HEAT TRANSFER¹⁾



HEATER¹⁾

1) Only available if selected in ADVANCED SETTINGS

MAINTENANCE

F7 and HEPA Filters

The filters will require changing when the Filter Icon turns Red. Navigate to the FILTER page to see which filters are at 100% and replace them.

After replacing the filter select “RESET” next to the filter that has been replaced and tap the Save button.

Filter Grade	Order Code	Typical Life
F7	DCT2093	12 months
F7 Carbon	DCT2277	6 months
HEPA (Carbon)	DCT2278	6 months

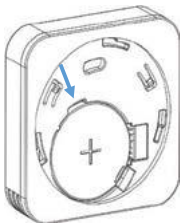
Caution: When switching to a different grade of filter, remember to modify the KITS SETTINGS to get the correct filter change reminder.

Replace Sensor Battery

The original battery provided with sensors is expected to last between 2 to 5 years or more.



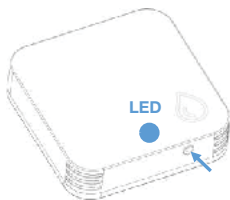
- 1** **Step 1**
Turn the unit **counter-clockwise** gently. The lid should separate from the unit with an audible click. The battery compartment lid will remain adhered to the wall/ceiling.



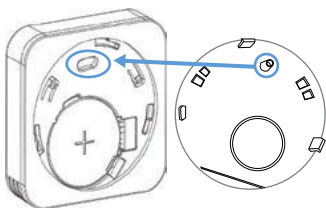
- 2** **Step 2**
Leverage the CR2032 coin cell from the compartment using a small tool as shown in image. Then insert the replacement battery back into the compartment.



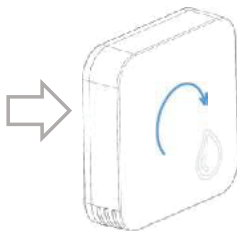
- 3** **Step 3**
Insert the replacement battery back into the compartment.



- 4** **Step 5**
Wait >3sec. Press the small button on the underside of the unit and observe the LED should flash once. (if not, see troubleshooting guide)



- 5** **Step 6**
Replace the unit back onto the battery compartment lid. Turn the unit **clockwise** gently. Locking the unit on the lid.



Note: Alignment guide must be inserted into the alignment slot when putting the battery cover on.

TROUBLESHOOTING

Refer to the User Manual's Troubleshooting section for more information.
Or contact SmartVent for support on 0800 140 150 if below does not resolve the issue.

Sensor flashes less than 3 times when pairing

Ensure ceiling controller is powered on.

Poor signal strength

- Move the sensor closer to the controller box.
- Shift the sensor to avoid or reduce the number of obstructions (e.g. walls and furniture) between the sensor and controller box.
- Avoid concrete and brick walls between the sensor and controller box.
- Do not put sensor or controller box on top of or very close to metal.

Residual charge

- Press the button on the sensor with the battery removed to discharge before inserting the battery again.

Sensor - battery check

- Check the sensor battery is working by pressing the button on the sensor - the LED will flash once.
- If the LED doesn't flash replace the battery with a fresh one.
Note: it is possible for depleted batteries to show sufficiently high voltages when unloaded.

Pairing window timed out

- The pairing window is 4 minutes. If it takes longer than 4 minutes to get from one location to another then bring along a paired sensor (i.e. roof sensor).
- Press the button on the sensor to restart the '4-minute pairing window'.
- The pairing window will end when the TSC is turned off.

Replacing sensors

If a sensor was paired to the wrong location simply swap their locations.

If a sensor is damaged and needs to be replaced:

- Ensure the Controller box has been powered on for more than 20 seconds
- Press and hold the button on the box for 5 seconds until it beeps long followed by a short.
- The roof sensor is now ready for re-pairing. Cycle through the sensor to be paired by turning the TSC off and on OR pressing the button on the ceiling controller quickly and you will hear a short beep.
- Order is: Roof, Bedroom, Lounge then Outside, and cycle again will exit pairing mode.
- Check the TSC to see which sensor is in pairing mode (it will show 99°C)
- Pair by inserting a fresh battery into a new sensor.
- Once a sensor is paired the pairing window will close.
Repeat above steps if replacing multiple sensors.

TROUBLESHOOTING

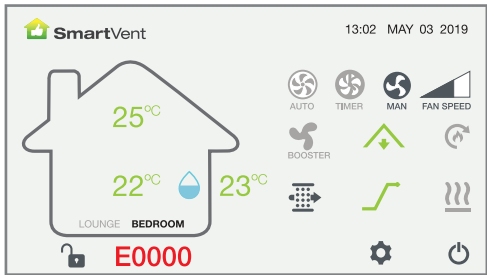
AC fan relay outputs low speed all the time regardless of what the UI says

System configuration may have been set to EC fan type - Contact Tech support

EC fan only works when in low speed - at any other speed the power is disconnected

System configuration may have been set to AC fan type - Contact Tech support

ERROR CODES



Error codes will appear on the Home Page when there is an electronic fault in the system. If there are multiple faults the error codes will cycle to the next code every 5 seconds.

Code	Description	Actions
E0000	Communication Error Between TSC and Ceiling Controller	Ensure connection between touch screen controller and ceiling controller is correct and secure, and cable is not damaged.
E0001	Clock Error	Change the time on the TSC.
E1080	Outside Sensor Com Failure	1. Check the sensor battery is working by pressing the button on the sensor - the LED will flash once. 2. If the LED doesn't flash replace the battery with a fresh one - see sensor maintenance for how to change the battery.
E1180	Roof Sensor Com Failure	
E1280	Lounge Sensor Com Failure	
E1380	Bedroom Sensor Com Failure	
E4002	Sensor Pairing Not Initiated	Turn off the power to the ceiling controller for 30 seconds and begin sensor pairing process.

Contact SmartVent for support on 0800 140 150 if you see error codes not listed above or the actions above do not clear the errors.

TECHNICAL SPECIFICATIONS

Item	Data
Operating Voltage/Frequency	220-240 VAC 50Hz
Switching Voltage	240V AC max
Switching Current	5A max resistive load
Controller Operating Temperature	0 to 50°C
Controller Operating Humidity	5-90% non condensing
Sensor Radio Frequency	868MHz
Sensor Operating Temperature	-20°C to 70°C
Sensor Operating Humidity	5-90% non condensing
Sensor Temperature Accuracy	±0.5%
Sensor Relative Humidity Accuracy	±5% at 10-30°C, 40-80% RH
Measurement Resolution - Sensor	0.1°C / 0.1% RH
Measurement Resolution - Controller Display	1°C
Wi-Fi Radio Frequency	2.4GHz
Live Output Isolation	Relay
Output Control	Relay
Display	7" colour touch screen
Safety Approval	AS/NZS 60335.1: 2020 +A1
EMC Approval	IEC CISPR 14-1 2020 ETSI EN 300 220-2 V3.2.1

Specifications are subject to change without notice.



Distributed by Simx Limited
PO Box 14347, Panmure, Auckland, New Zealand.
Technical Support (09) 259 1662 | e: sales@simx.co.nz | w: www.simx.co.nz

PUB1767 2302