

HEX390

Heat Exchanger

with Digital or Manual Controller

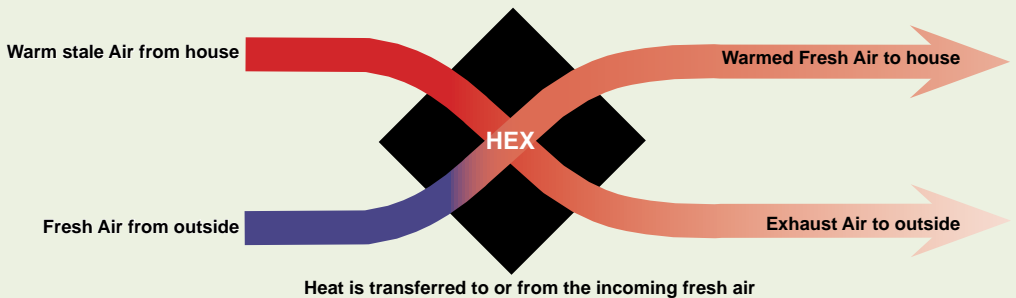


Digital controller

- **Operating Instructions** p2-4
- **Installation Instructions** p5-8
- **Setup Instructions (digi)** p9-12
- **Wiring Diagrams** p13-14



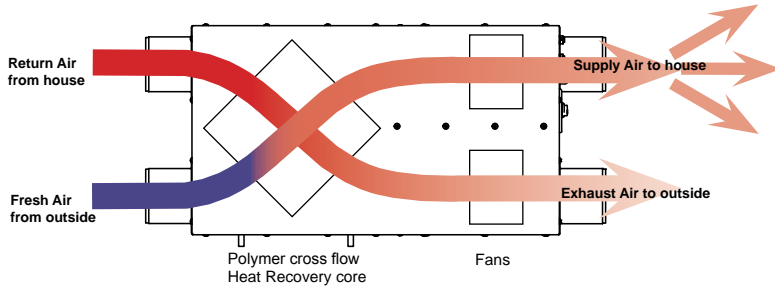
Manual controller



Cleaner, Warmer, Drier, Healthier Homes

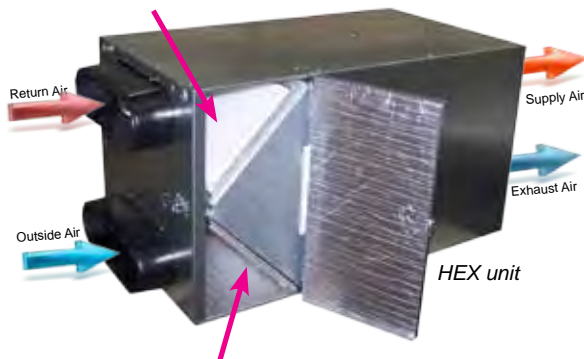
Congratulations on purchasing a HEX Energy Recovery Ventilation Unit

Operating Instructions



The unit is designed to recover heat from exhaust air, which in turn warms (or cools) the fresh outside air.

Return Air filter



Cleaning the unit's filters

The internal filters are designed as secondary filters (there should be extended surface filters cleaning the air before reaching the unit). However, when unit filters are heavily soiled, wash or replace the filter material.

To wash: use vacuum cleaner to remove excess dust, then wash in warm detergent treated water, keep filters flat or leave in frame to wash.

Manual Controller

User Operating Instructions

This unit has High / Medium / Low speeds which the homeowner can use to regulate the fresh air amount to suit the load. Typically:

- High where a number of people are living in the house and/or outside temperatures are moderate
- Medium less people in the house and/or colder outside temperatures
- Low mainly to keep air fresh in the home during extremely cold conditions.



3 speed switch

3 speed switch

The 3 speed switch has four settings:

- 0 - Off
- 1 - Low
- 2 - Medium
- 3 - High



Internal On/off thermostat (optional) For the manual controller, the optional thermostat can be set so the unit turns off if incoming air exceeds the set point (eg if thermostat is set to 30, the unit will turn off if the incoming fresh air is above 30°C).



Digital Controller

User Operating Instructions

Congratulations on purchasing a HEX, Heat Recovery Ventilator with Digital Controller. This controller allows the user to adjust fan speed from high to low (fan limits are set in the commissioning menu to suit the size of house and system layout).

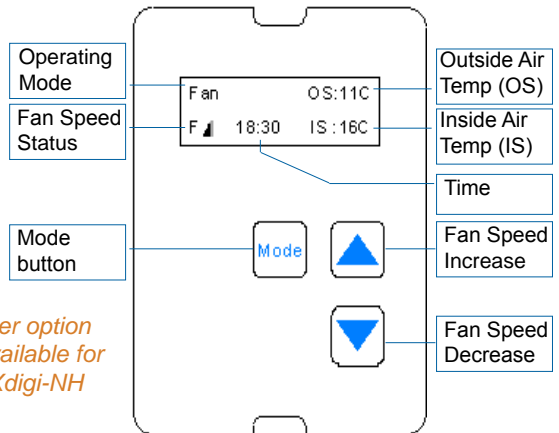
The controller will automatically shut down in summer if outside air temperature (OS) exceeds 27°C and home is warm.





There are a number of other features available at time of installation which will need to be discussed with the installer when the unit is commissioned (see Digital Controller Setup instructions p6-9). They include:-

- Optional supply air boost heater** (when heater fitted) is controlled automatically when outside air temp (OS) is less than 12°C and home is cold. This is indicated by “H” with bar symbol in the unit display. Heat is controlled over a proportional band so that as OS gets colder, heater output increases to maximum.

- Optional winter off mode** shuts down the fan automatically when outside temperature (OS) is less than 2°C. This is indicated by “winter” on the unit display.

*Heater option
not available for
HEXdigi-NH*



- Optional User System On/Off** is available in User Menu, indicated by “OFF” on unit display.
- Optional Filter Timer** measures the hours run by the fan and gives a flashing display when the filter needs to be cleaned/replaced.
- Clock function** has battery back-up in the event of a power failure. Time can be set/adjusted by pressing mode  and  buttons together until “Entering Menus” then “Set Clock” appears. Time can then be adjusted using up & down buttons, once correct time is set, press “mode” to save new setting.
- Optional Attic Damper Kit.** A diverting branch can be attached to divert the intake from the attic to the cooler outside air. Press mode  and  up arrow together. ‘Entering menus’ will display, hold until ‘DamPer is on’ or ‘DamPer is off’, then ‘Change damPer? ON’ or ‘Change damPer? OFF’ displays. Use the up arrow to change between the two settings.

Installation Instructions

These units must be installed by a suitably qualified tradesperson.

Electrical supply must be installed by a suitably qualified electrician as per the schematics on p13 (manual controller) and p14 & p15 (digital controller).

1. Plan layout, check required equipment:

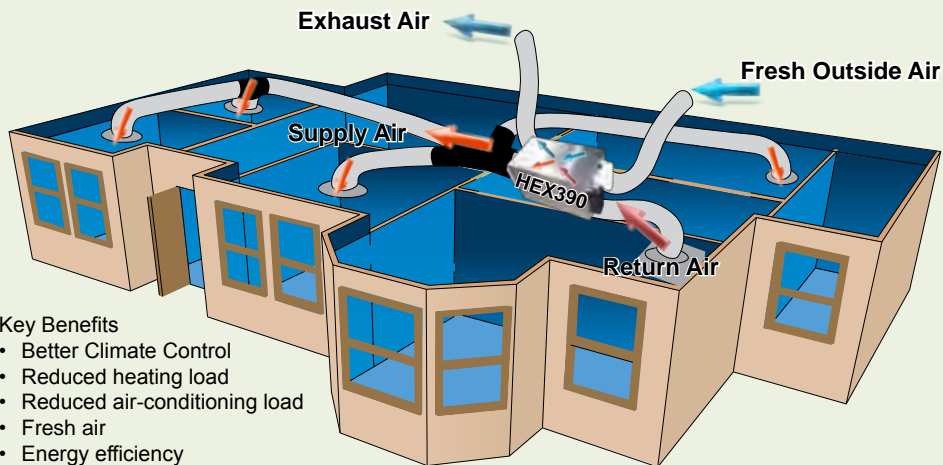
Supplied:

- HEX unit
- HEX attic box
- Triple rocker switch (inside attic box)
- Drain adaptor (inside HEX filter access door)

Required:

- Primary extended surface filters
- External inlet and outlet grilles
- Internal supply and return grilles
- Duct
- Tape
- 3 and 4 core wire
- Drain condensate hose

Balanced Pressure Ventilation



Key Benefits

- Better Climate Control
- Reduced heating load
- Reduced air-conditioning load
- Fresh air
- Energy efficiency
- Reduces condensation

- 2. Mount Unit** securely in ceiling space (eg use bungees to hang, or anti-vibration pad) where it can be readily connected to an electrical supply and is sufficiently high enough above the ceiling that a condensate drain can be run with a fall and P-trap to a suitable outlet (see drain installation over page). Once duct etc connected, unit needs to be level for drain to work properly.



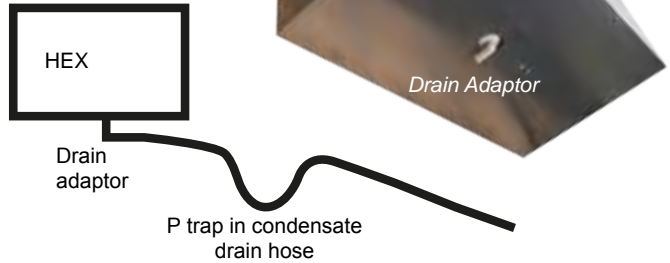
HEX hangers on top of unit

3. Drain installation

Drain adaptor (supplied inside HEX filter cover) is to be mounted to bottom of HEX unit. HEX unit must be level.

Attach drain adaptor onto hole on base of unit

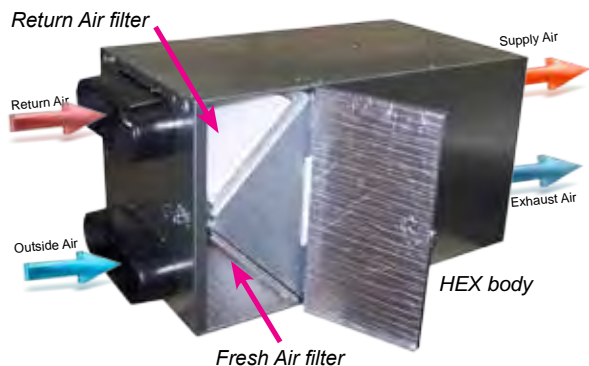
Condensate drain hose needs to be connected and shaped into a "P trap", as in diagram:



4. External inlet and exhaust - Mount Fresh Air inlet and Exhaust Air discharge away from each other, so that cross contamination is not possible, and as suits the home owner.

5. Internal return and supply - Mount supply air grilles as suits the homeowner, eg in the hallway and living areas. A hinged filter grille (eg PYHF400) can be used for return air. Mount return air grilles as suits the homeowner, eg one in the bathroom and one at the other end of the hall from supply grille.

6. Filters inside unit are secondary filters. Mount hinged filter grilles (eg PYHF400) or extended surface filters (eg FBP200) in ducting prior to unit for return air from house as well as fresh intake air.



7. Duct Attach insulated ducting to all spigots and Y branches securely, ensuring an airtight seal by using tape. Duct runs must be stretched and as straight as possible, with long radius bends to minimise airflow resistance. Ducting must be supported separately from the HEX unit. Ducts must be insulated.

8. Mount Attic box

Attic box can be mounted on the unit or anywhere in the attic. The hall controller - digital or manual 3 speed - will be shipped inside the attic box. Electrical supply must be installed by a suitably qualified tradesperson **as per the schematics on pages 13, 14 & 15.**



Terminate separately the grey & brown wires from the HEX unit

HEX Attic box

9. Thermostat for Digital Controller

The thermostat for the digital controller is placed into incoming fresh air flow, through the pre-drilled hole, and fixed with the cable tie. It is then plugged into the attic box as pictured above.



Temperature sensor mounted in fresh air inlet

Cat5 cable to digital wall controller

Temperature sensor wire plugs in here



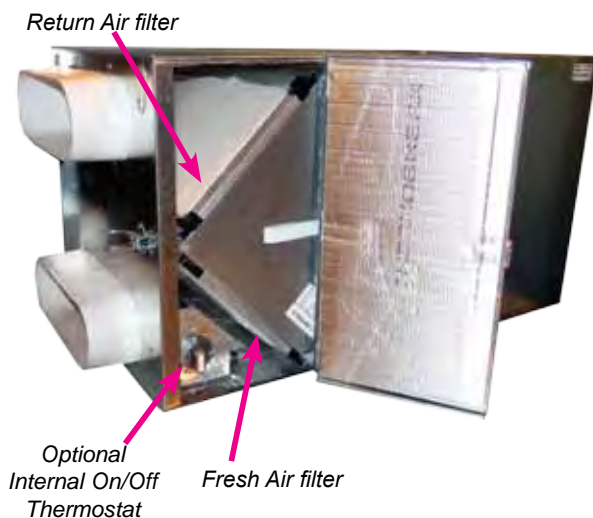
For digital controller, mount with pack glands downwards

10a. Internal On/Off thermostat (optional) Digital Controller:

If there is an internal On/Off thermostat, this should be disabled for digital controller, as the digital controller should control all airflows.

10b. Internal On/Off thermostat (optional) Manual Controller:

The optional thermostat can be set so the unit turns off if incoming air exceeds the set point (eg if thermostat is set to 30, the unit will turn off if the incoming fresh air is above 30°C).





11. Next step

Before commissioning the digital controller, consider the desired options for the situation & write them down eg on p12


Digital Controller

Setup Instructions


The Heat Recovery Digital Controller has a number of features available to customize the system to suit house size, layout and user preferences.

The Setup menu is accessed by pressing the  &  buttons together for about 5 seconds until the display reads 'Setup Menu'.

The controller comes preset with default factory settings, these can be reinstated using menu item 'Factory Reset' (number 14 on next pages). If the unit is not set up correctly to suit the house, performance may be reduced.

There are a number of options which can be scrolled through by pressing the Mode button  as below.

If no button is pressed within 5 seconds the controller automatically reverts to normal operation. Once a button is pressed a backlight will operate and remain on for 20 seconds after the last keystroke.

Press  button to toggle between Y/N (Yes/No) or other options, then press 'Mode' to advance through the menu.

Options are on following pages.

Display Key

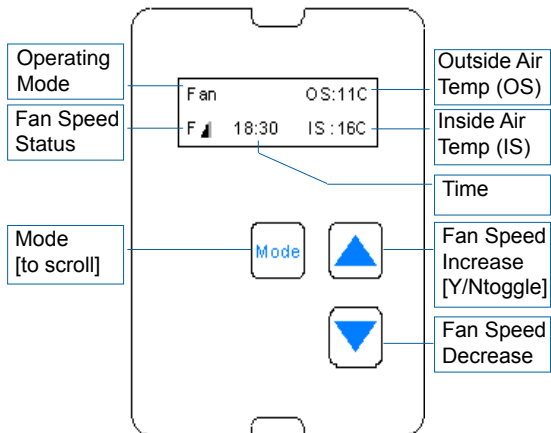
OS - Outside Air Temperature

IS - Inside Air Temperature





Winter - winter mode is on

H - Heater is fitted

Heater option not available for HEXdigi-NH



Please note: if settings are changed from recommendations, performance of the unit may be reduced.

-  Press up and down arrows together for 5 secs to get to Setup Menu
-  Press down arrow to go to previous menu
-  Use up arrow to change, then mode to advance through menu
-  Use Mode button to scroll through options











1. Heater Kit Y/N (default N). *Heater option not available for HEXdigi-NH*

If N - heater options are removed from all menus.

If Y - heater options are available in User menu - Heater On/Off for continuous or night heat (to times as set below) .

To set night heat option:

- press  up arrow to select **Y**, then:
- press  mode to display 'Heater Times' > display then changes automatically to show the current settings (default: Heater ON 19:00
Heater OFF 07:00) > display changes again to 'Change Times' Y/N (default N).
- At this point, use  then  to select **Y** & change the times.
 - Select desired **Heater ON** time in Hours:Mins using  or 
 - Select desired **Heater OFF** time in Hours:Mins using  or 
- **Heater Test** Y/N (default N)
 - change to Y, heater test will be performed. If there are any faults (including no heater connected), 'Heater Fault' will display. (See menu item **4.Fan Speed Heat** for possible Heater Fault causes.) To reset Heater Fault display, turn unit off.

2. Max Fan Speed (default 100%) – Range is 10% to 100% adjustable in 10% increments using up & down arrows.



For a large house set to a max of 100%.

3. Min Fan Speed (default 10%) – Range is 10% to 100% adjustable in 10% increments using up & down arrows.

For a large house set to a min of 50%

4. Fan Speed Heat (default 50%) – Range is 10% to 100% adjustable in 10% increments using up & down arrows. *Heater option not available for HEXdigi-NH*

Fan Speed Heat sets a minimum speed for the fan to ensure enough airflow for the heater to operate. There are many duct fan combinations, some more restrictive to airflow than others. Therefore, when setting up, the installer must check that the heater operates without 'Heater Fault' flashing on the display. 'Heater Fault' is triggered when the heater is operating but draws no current, this is most often due to insufficient airflow causing the airflow proving switch to cut off. If there is insufficient airflow, increase the 'Fan Speed Heat' setting. Heater fault may also be caused by manual reset thermal cutouts which may need to be reset.

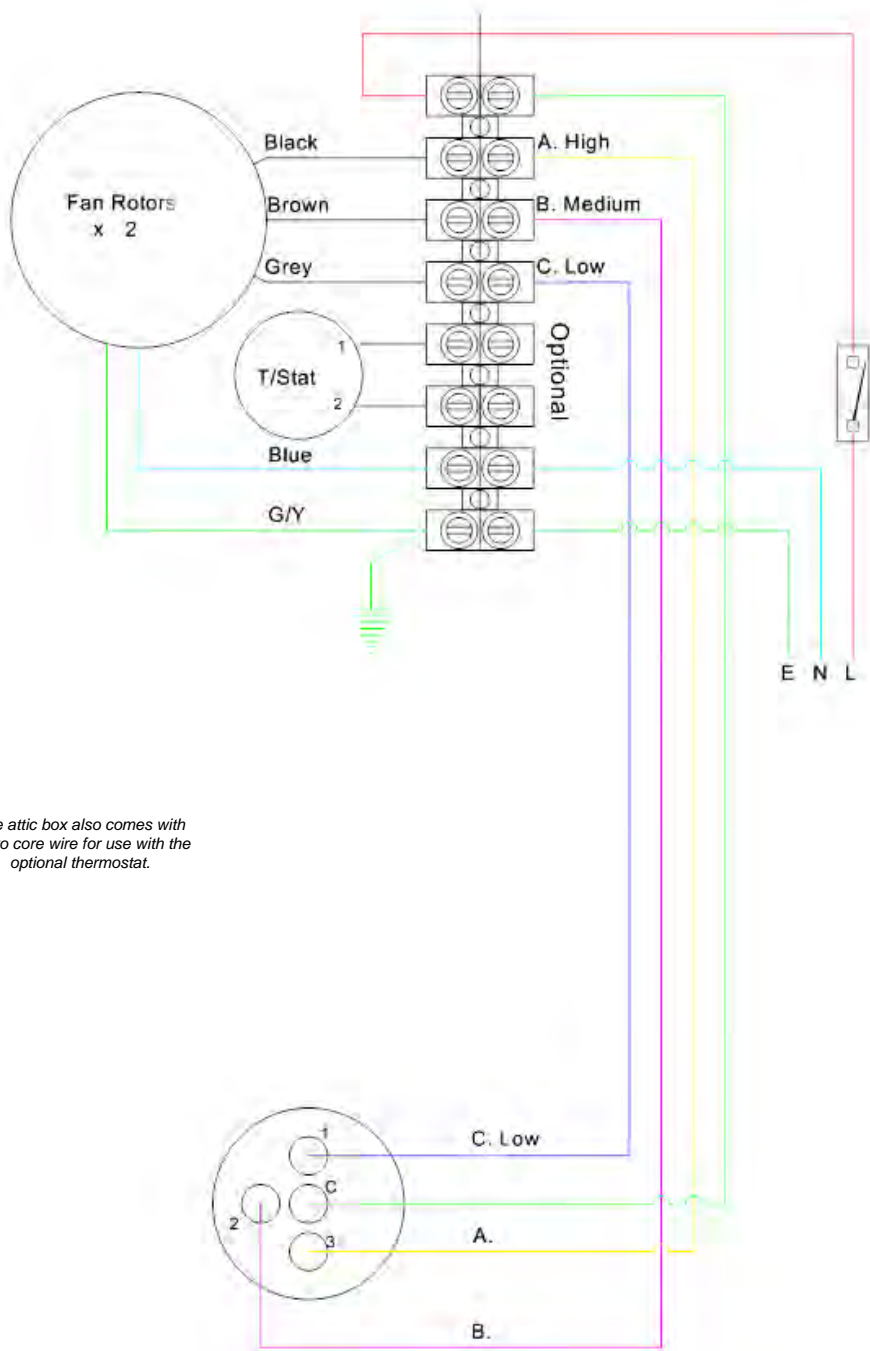
5. **Winter Mode** Y/N (default N). Winter mode shuts the system down when the outside air temperature gets below eg 2°C. If Winter Mode is on, another menu item will appear to allow adjustment of actual shut down temp: Range -2°C to +5°C.
6. **Filter Timer** Y/N (default N) – Controller counts hours run by the fan and when filter is due for a change the display flashes with 'Filter'. If filter timer set Y, another menu appears allowing filter period adjustment (240 day) (range 150 - 240 days). A further menu item will appear at user level once filtered timer timed out, allowing timer to be reset once filters are cleaned or replaced.
7. **I/Side Ref Temp** (default 18°C) Range 16-24°C. This is the reference temperature for the inside of the house, used for:
 - Heating – when house temp (IS) is lower than 18°C (default) and outside temp (OS) is lower than 12°C (default) the heater will operate (if fitted).
 - Summer – when house temp (IS) is higher than 18°C (default) and outside temp (OS) is higher than 27°C (default) the unit will shut-down. Heater option not available for HEXdigi-NH
8. **O/Side Ref Temp** (default 12°C) Range 8-16°C. This is the reference temperature for the outside air, below which heater operates (if fitted).
9. **O/Side Degree Offset** (default 0°C) this allows unit to be calibrated in the unlikely event that outside air temperature reads too high or low (adjustment range -10°C to + 10°C). Heater option not available for HEXdigi-NH
10. **I/Side Degree Offset** (default 0°C) - As above.
11. **Heat P/and** (default 5°C) Range 1-7°C. Heat Proportional Band - When heater is fitted and conditions call for its operation, heater will start heating at 20% when OS (outside) drops to reference temp (default 12°C), and will operate at 100% when temperature has dropped by a further (default) 5°C (ie when OS is 7°C). Heater option not available for HEXdigi-NH
12. **Summer Temp S/down** (default 27°C) Range 25°-35°C. When OS (outside temp) is greater than 27°C and IS (inside temp) is greater than 18°C, the system shuts down.
13. **User Sys** On/Off (default Off) - when On, user menu has option to turn system On/Off.
14. **Factory Reset** Y/N (default N). Yes defaults all menu items to factory default setting, these default settings are shown in brackets above.
 - **Optional Attic Damper Kit.** A diverting branch can be attached to divert the intake from the attic to the cooler outside air. Press mode  and  up arrow together until 'Entering menus' displays, hold until 'Damper is on' or 'Damper is off' displays. 'Change damper? ON' or 'Change damper? OFF' then displays. Use the up arrow to change between the two settings.

Installer's recommended settings:

1. **Heater Kit** Y/N
Heater option not available for HEXdigi-NH
Heater ON time: :
Heater OFF time: :
 2. **Max Fan Speed** %
 3. **Min Fan Speed** %
 4. **Fan Speed Heat** %
Heater option not available for HEXdigi-NH
 5. **Winter Mode** Y/N
If Y, shut down temp: °C
 6. **Filter Timer** Y/N
If filter timer Y: days
 7. **I/Side Ref Temp** °C
 8. **O/Side Ref Temp** °C
 9. **O/Side Degree Offset** °C
 10. **I/Side Degree Offset** °C
 11. **Heat P/band** °C
Heater option not available for HEXdigi-NH
 12. **Summer Temp S/down** °C
 13. **User Sys** On/Off
 14. **Factory Reset** Y/N
- **Optional attic damper kit installed** Y/N

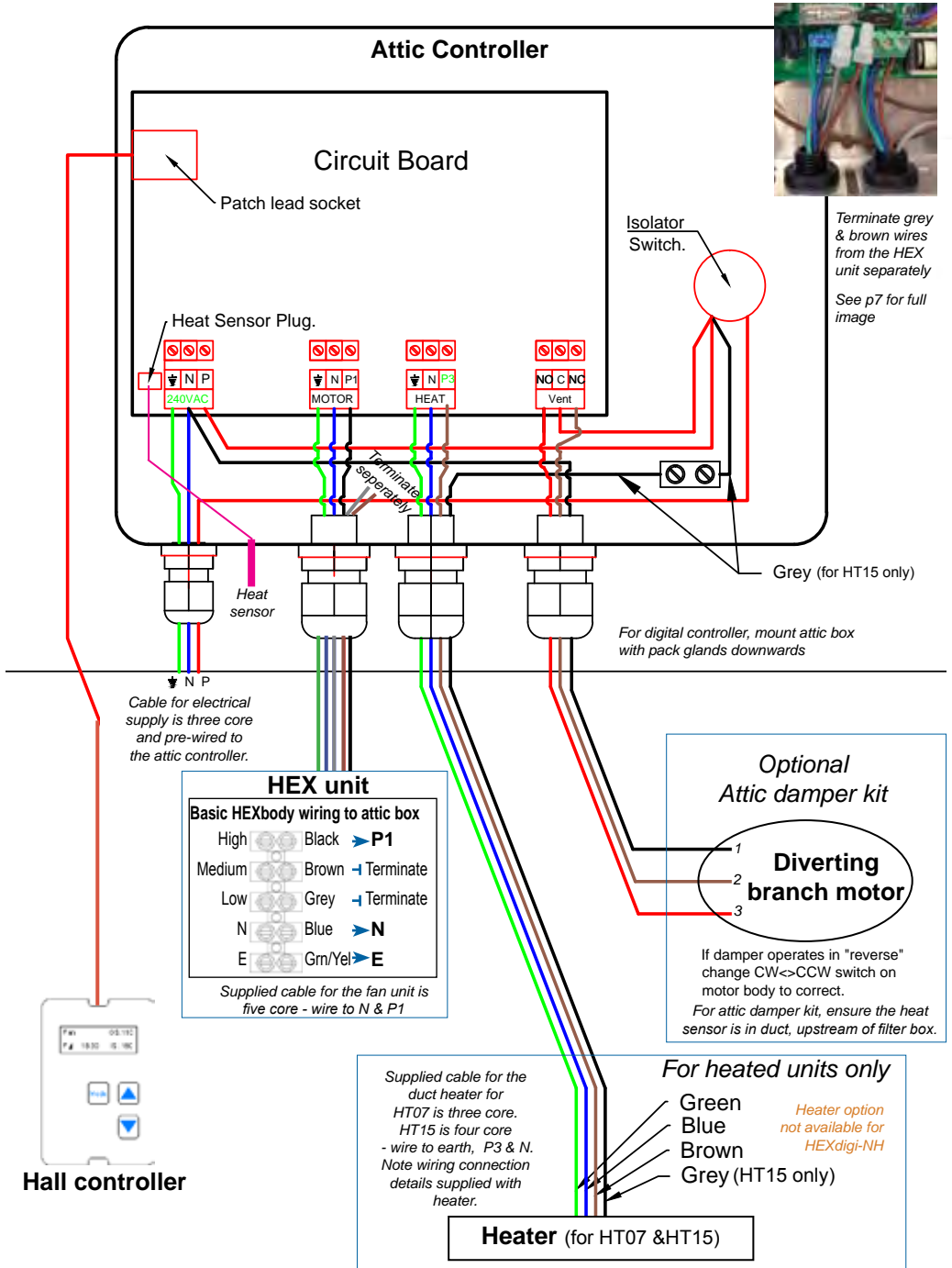
Installer Details:

Wiring for manual 3speed switch

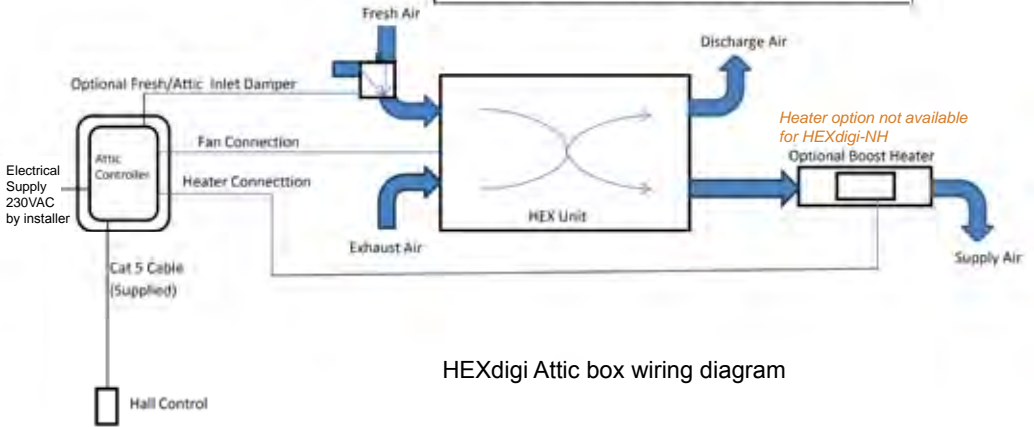


The attic box also comes with a two core wire for use with the optional thermostat.

Wiring for HEX digital controller



Hex Digital Controller Wiring Schematic



HEX Warranty

24 months manufacturing warranty from date of first retail purchase.

This HEX product, when delivered to you in new condition from a HEX authorized dealer and used in normal conditions, will be free from any defects in manufacturing, materials and workmanship for the periods set out above ("Warranty Period"):

Any faulty goods will be repaired or replaced via the HEX dealer.

This warranty is for the manufactured product, it does not include installation or removal.

WARRANTY RETURN

Upon installation, please send to the manufacturer, c/o PO Box 8358, Christchurch (on request by the dealer).

Purchaser: _____

Address: _____

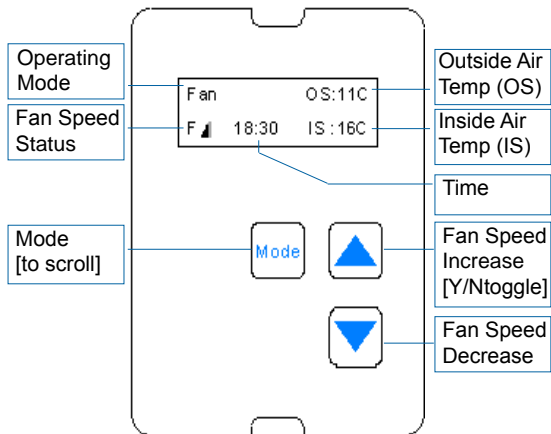
Description: HEX390 _____

Purchased from / Dealer: _____

Dealer invoice number: _____

Date of installation: _____

Installed by: _____



Display Key

OS - Outside Air Temperature

IS - Inside Air Temperature

Winter - Winter mode is on

H - Heater is fitted *Heater option not available for HEXdigi-NH*

