SEELEY INTERNATIONAL

INSTALLATION MANUAL

Braemar Ecostar THD3/THMD5 Gas Ducted Heater

Braemar®
HEATING COOLING

THIS HEATER IS TO BE INSTALLED BY AN AUTHORISED PERSON ONLY

ALWAYS read the operating instructions before operating the appliance.

DO NOT place articles on or against this appliance.
DO NOT use or store flammable materials near this appliance.
DO NOT spray aerosols in the vicinity of this appliance while it is in operation.
DO NOT operate this appliance with panels, covers or guards removed.

This Braemar gas ducted heater must be installed in accordance with these instructions, local gas fitting regulations, municipal building codes, electrical wiring regulations, Australian Standard AS/NZS 5601 Gas Installations and any other relevant statutory requirements.

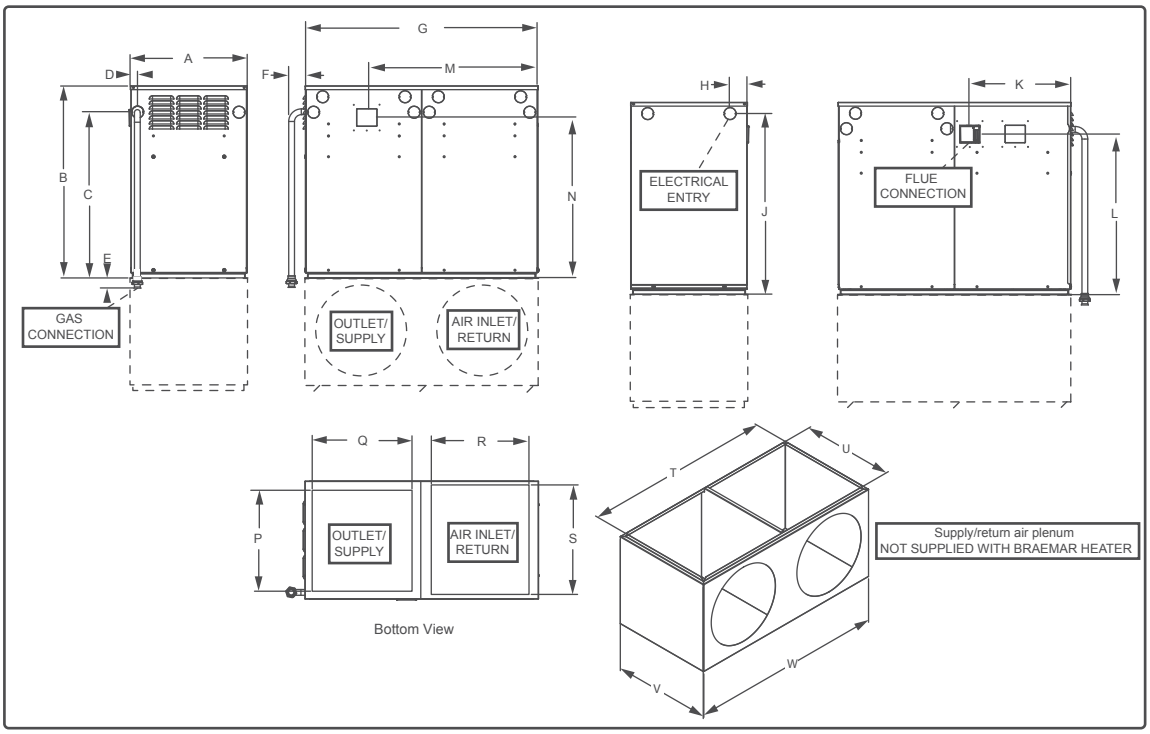
This heater must not be installed downstream from an evaporative cooler, air washer or indoor unit of a refrigerated system. This heater is not suitable for installation in a marine environment.

Gas Type: Refer label alongside gas inlet.
Gas Consumption: Refer data label on underside of appliance lid.

UNPACKING THE HEATER

Remove the plastic wrap and cardboard transport cover. Check that the heater model and gas type are as required - model details are provided on the specification label on the end panel of the heater, gas type is given on the label next to the gas inlet. Report any transit damage within 7 days - do not install the heater if it is damaged.

Heater Model	Dimension (mm)																				
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W
THD315/THD320 THMD516/THMD520	385	635	550	25	35	55	770	55	600	330	530	565	530	330	340	340	350	745	365	395	770
THD330 THMD530	510	650	540	25	35	90	880	80	600	330	545	680	545	450	345	405	475	925	530	565	950



MINIMUM FLUE CLEARANCES

75mm
- From a drain pipe or soil pipe.

300mm
- From any other flue terminal, cowl, or combustion air intake.
- Below eaves, balconies, and other projections.
- Horizontally from an openable window, door, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation.

500mm
- From electricity meter or fuse box.
- From a return wall or external corner.
- Horizontally from any building structure or obstruction facing a terminal.

1000mm
- From a gas meter.
- From a mechanical air inlet, including a spa blower.
- Vertically below an openable window, on-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation.

1500mm
- Horizontally in the direction of discharge from an openable window, door, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation.

Refer also: AS/NZS 5601 Gas Installations

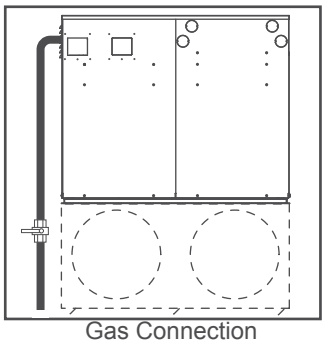
ELECTRICAL CONNECTION

- Electrical wiring & fittings must be installed by a licensed Electrician.
- Seeley International recommends that all Braemar gas ducted heaters are wired with a dedicated circuit from the distribution board with a separate circuit breaker.
- Wiring must be installed in accordance with the relevant electrical standards & regulations.
- The electrical supply must be 240V 50Hz.
- A suitable 10A 3-pin 240V GPO must be fitted adjacent to the heater.
- Ensure that the polarity of the power supply is correct.

IMPORTANT
ENSURE THAT POLARITY OF POWER SUPPLY IS CORRECT

GAS CONNECTION

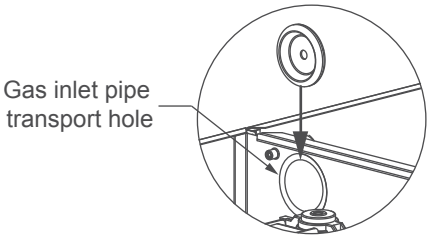
- All gas supply piping must be installed by a licensed gas fitter in accordance with Standard AS/NZS 5601 Gas Installations.
- Gas connection point:
  All models - 3/4" BSP female flare nut.
- Gas supply piping must be sized to ensure a minimum gas pressure of 1.13 kPa for natural gas appliances or 2.75kPa for propane appliances at the inlet to the heater with the heater and all other gas appliances operating at maximum gas rate. Detailed pipe sizing information is contained in Standard AS/NZS 5601 Gas Installations.
- The maximum gas rate for the heater is located on the specification label on the underside of the heater lid.
- An AGA approved gas cock/manual shut-off valve must be fitted in the gas supply line adjacent to the heater (outside the heater cabinet) to enable isolation of the heater for maintenance and/or servicing.
- Ensure that all air is purged from gas line.
- Ensure that there are no gas leaks.



Gas Connection
All Models

GAS INLET PIPE

- Remove gas inlet pipe from inside the heater.
- Fit grommet supplied, to gas inlet pipe transport hole.



HEATER INSTALLATION

- Remove old heater from supply/return air plenum and discard.
- Check supply/return air plenum structural integrity. If plenum is damaged the plenum will need to be removed and a TH or THM ducted heater will need to be installed.

Installing thermistor preperation (THMD5 ONLY)

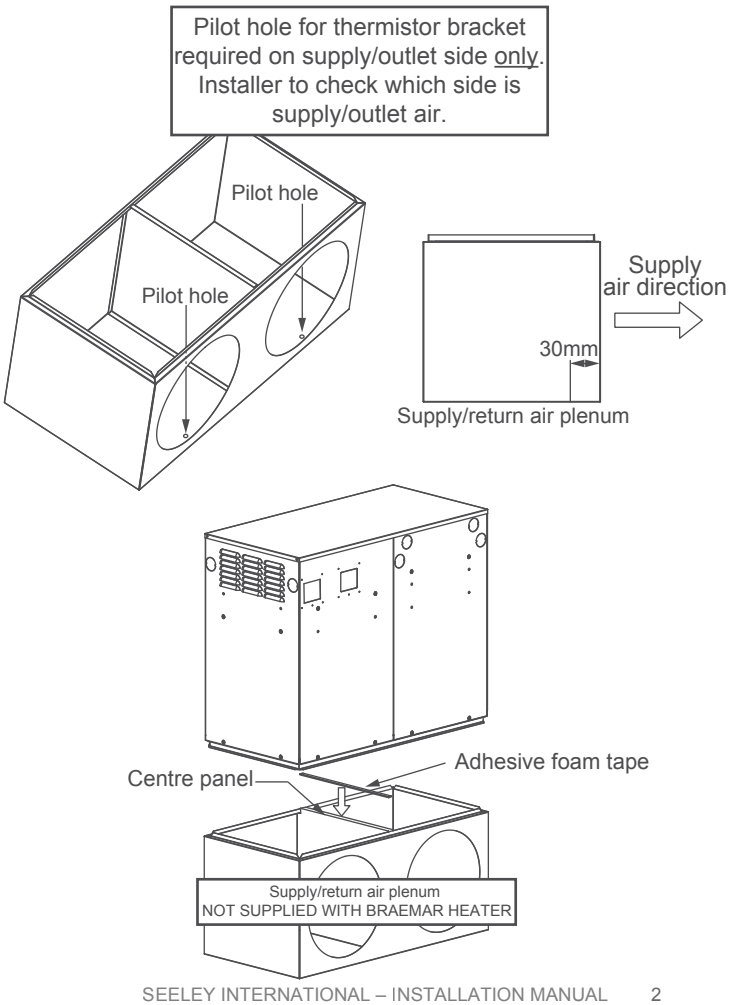
Thermistor location is CRITICAL to the correct operation of the heater.

- Drill 2.5mm pilot hole in the centre of plenum supply air cutout 30mm from inside face.

Attaching heater to supply/return air plenum

- Place strip of adhesive foam tape supplied in heater along top of supply/return air plenum centre panel.
- Lower heater onto supply/return air plenum.

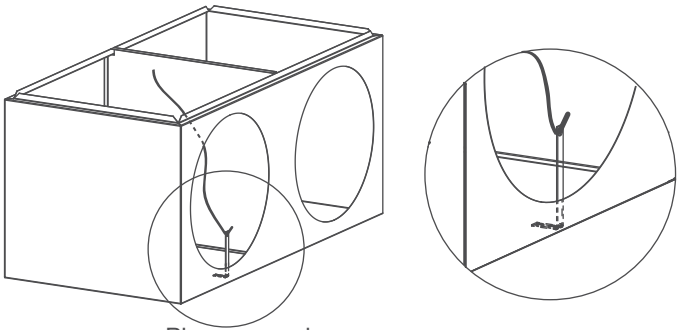
ENSURE FAN END OF HEATER IS LOCATED OVER RETURN AIR SIDE OF PLENUM.



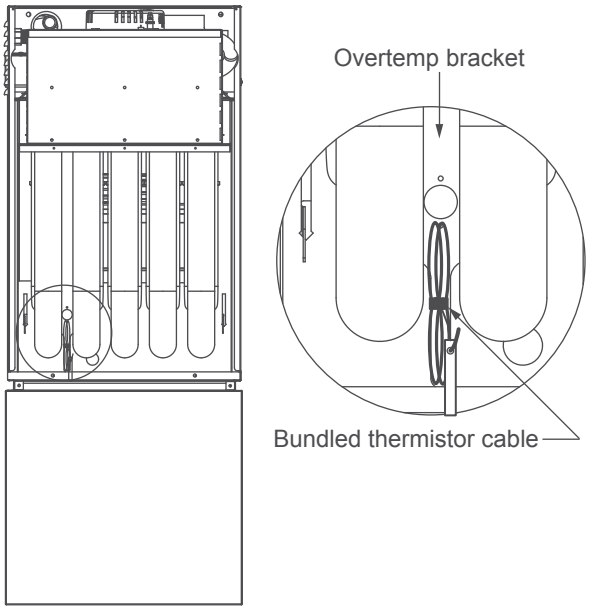
Installing Thermistor (THMD5 ONLY)

Thermistor location is CRITICAL to the correct operation of the heater

- Remove heat exchanger end panel and heat shield.
- Carefully detach the bundled thermistor cable from the overtemp bracket.
- Feed thermistor cable and bracket down to supply/return air plenum base panel.
- Secure thermistor bracket using screw provided into previously drilled pilot hole with long fold towards supply air cutout.



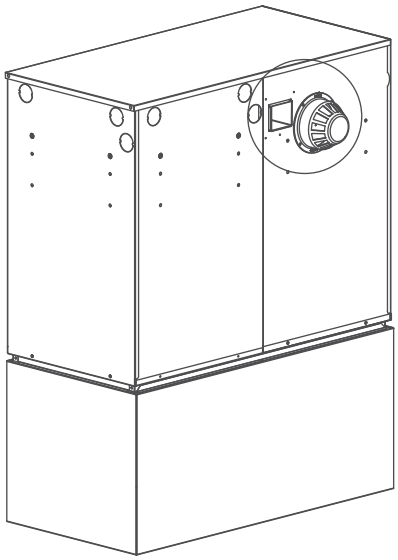
Plenum supply air cutout



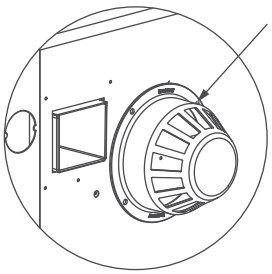
Flue connection

THD3 - Powder coated die cast flue terminal

- Attach powder coated die cast flue terminal to heater over flue outlet, fixing in place using screws supplied with heater.
- A flue guard kit is available P\No 079073



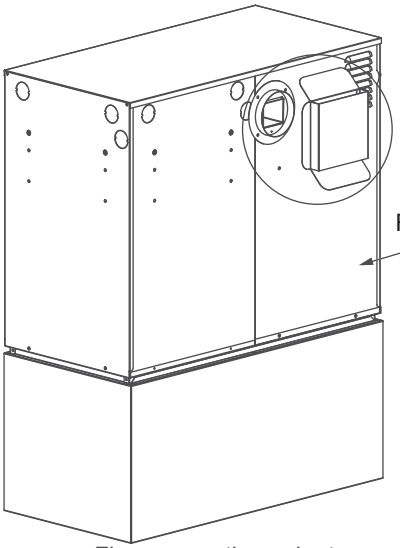
THD3 FLUE



THMD5 - Powder coated metal flue terminal

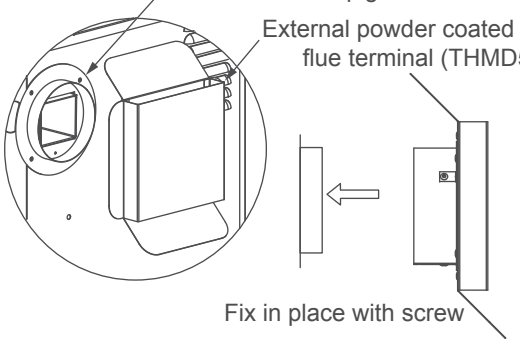
- Attach flue connection spigot to heater over flue outlet using screws supplied with heater.
- Attach powder coated metal flue terminal to flue connection spigot, fixing in place using screw supplied with heater.
- A flue guard kit is available P\No 079073

THMD5
When reversing the flue outlet the flue outlet panel must be relocated to the other side of heater to ensure the combustion air inlet louvres are on the same side as the flue terminal.



THMD5 FLUE

Flue outlet panel



THERMOSTAT LOCATION

THD3 - 2-wire thermostat or Braemar SCC

THMD5 - SCC (to achieve 5.2 star rating)

The wall control should be located central to the main living area approximately 1.5m above floor level. The main living area should be confirmed with the occupants.

Wall control placement is critical to ensure correct functioning of the heating system. The following points must be taken into account:

- Avoid direct sunlight.
- Avoid mounting on external walls.
- Avoid mounting near heat sources such as stoves, TV sets etc.
- Do not locate in the air stream from an outlet register.
- Do not locate in draughty areas.
- Do not locate in hallways.
- Do not locate adjacent to return air grille.
- Always fill cable entry hole in wall.

24V "manual" digital thermostat (THD3 ONLY)

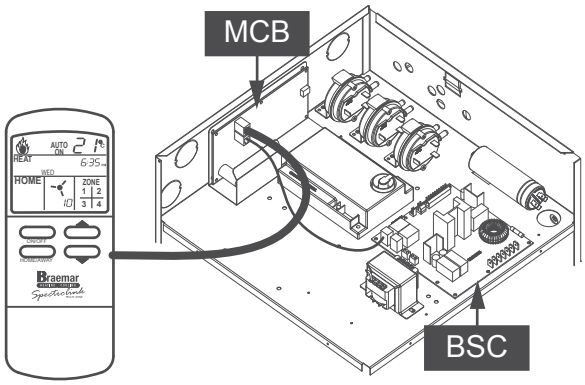
THD series heaters can all be used with a standard 2-wire type manual digital thermostat. Connect a low voltage 2-wire loom between the thermostat and "T/STAT" on the BSC circuit board. Note that with Braemar THD3 series heaters zoning and evaporative or refrigerated cooler operation is not possible with these thermostats.

Braemar Spectrolink Comfort Control (SCC)

- A 20m loom is supplied with the heater for connnection directly between the heater and the SCC.
- Feed the wiring loom through the large hole in the SCC mounting bracket and attach the mounting bracket to the wall.
- Plug the wiring loom into the socket on the SCC and carefully slide the SCC into the mounting bracket.

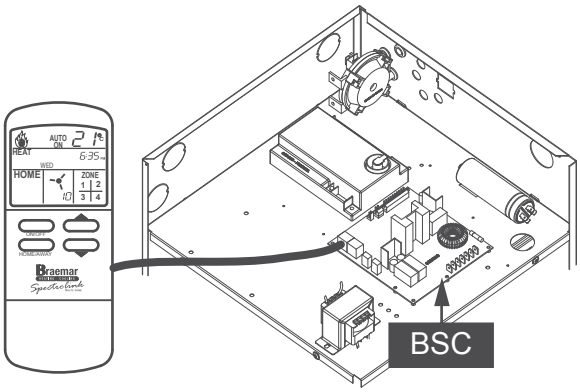
SCC connection THMD5

- The SCC is connected directly to the MCB (note that this is different to Braemar TH heaters where the SCC is connected to the BSC).



SCC connection THD3

- The SCC is connected directly to the BSC.



COMMISSIONING THD3 - INSTALLER OR COMMISSIONING AGENT

Installation checks

- Check for gas leaks - rectify any leaks found.
- Check that the flue system is connected, sealed and installed with appropriate clearances.
- Check that thermostat is wired correctly and installed in a suitable location.
- Check that the heater is level in both directions

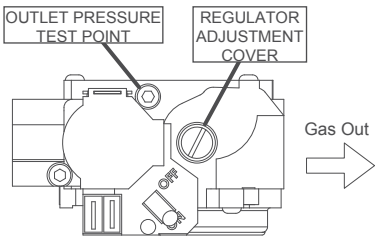
Gas pressure checks

- Connect a manometer to the outlet pressure test point on the gas valve.
- Start the heater.

THD3

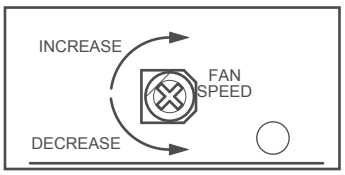
Run heater and check pressure at outlet test point, adjust if necessary:

- All natural gas models:	875 +/- 50 Pa
- Propane models:	
- THD3/15/20	2500 +/- 200 Pa
- THD330	1900 +/- 200 Pa



Set maximum fan speed

- Turn the heater on at the thermostat and allow to run for 5-10 minutes to reach operating temperature.
- Check the air flow from all outlets.
- If required, adjust the fan speed by turning the trimpot located on the BSC board (alongside the 10 pin connector).
- Fully clockwise = fan speed 10
- Fully anti-clockwise (3/4 turn) = fan speed 7



COMMISSIONING THMD5- INSTALLER OR COMMISSIONING AGENT

Installation checks

- Check for gas leaks - rectify any leaks found.
- Check that the flue system is connected, sealed and installed with appropriate clearances.
- Check that thermostat is wired correctly and installed in a suitable location.
- Check that the heater is level in both directions.

Gas pressure checks

- Connect manometer to outlet pressure test point on gas valve.
- Start heater as described in Owner's Manual.
- Wait 30 seconds after heater lights to ensure heater has reached high gas rate.

Check high gas

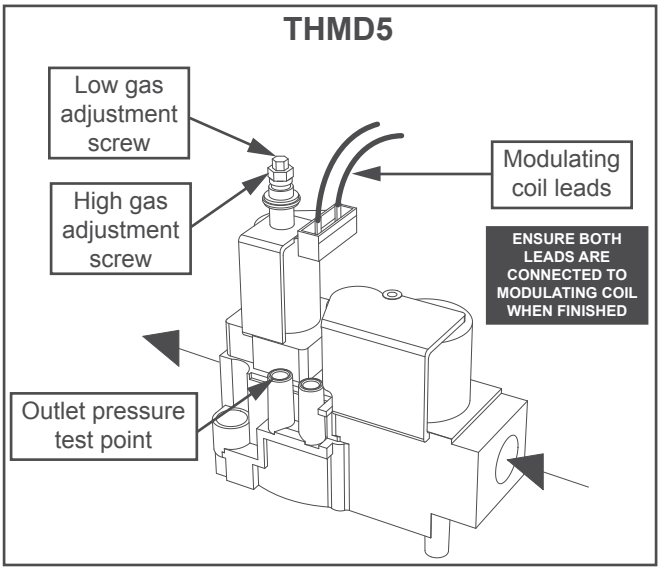
- High gas pressure:
  - Natural Gas Nominal 875 Pa (825 to 925 Pa)
  - Propane Nominal 2250 Pa (2050 to 2450 Pa)
- Adjust only if outside this range
- USE LARGE HIGH GAS ADJUSTMENT SCREW - hold small adjustment screw still

Check low gas

- Remove one lead from modulating coil (LOW VOLTAGE, 0-17 Vdc)
- Low gas pressure:
  - Natural Gas Nominal 100 Pa (90 to 110 Pa)
  - Propane Nominal 180 Pa (170 to 190 Pa)
- Adjust only if outside this range
- USE SMALL LOW GAS ADJUSTMENT SCREW - hold large adjustment screw still

Re-check high gas

- Re-connect lead to modulating coil
- High gas pressure:
  - Natural Gas Nominal 875 Pa (825 to 925 Pa)
  - Propane Nominal 2250 Pa (2050 to 2450 Pa)
- Adjust only if outside this range
- USE LARGE HIGH GAS ADJUSTMENT SCREW - hold small adjustment screw still



SYSTEM SETUP

Note that the settings below can only be adjusted within the first hour of powering the SCC. After that, disconnect the SCC loom, discharge the SCC capacitor then re-connect the loom.

Set the time & day (SCC thermostat)

- With the SCC in OFF mode, press and hold SET
- Use the UP/DOWN arrows to adjust the time, press SET when satisfied
- Use the UP/DOWN arrows to adjust the day, press SET when satisfied

Set the heater & cooler type (SCC thermostat)

- With the SCC in OFF mode, press SET & AC MODE simultaneously.
- **THD3** use the UP/DOWN arrows to adjust the heater type to HEAT 3 (factory default), press SET when satisfied
- **THMD5** use the UP/DOWN arrows to adjust the heater type to HEAT 4, press SET when satisfied
- Use the UP/DOWN arrows to adjust the cooler type, press SET when satisfied
  - COOL 1 = evaporative (factory default)
  - COOL 2 = refrigerated (THMD5 only)

Set maximum fan speed (THMD5 ONLY)

- Press and hold SET and press FAN
- Check the air flow from all outlets
- If required, adjust the fan speed (7, 8, 9 or 10) using the UP/DOWN arrows. Press SETwhen satisfied.

Balance the air flows

- With the heater running and all outlets open, adjust balancing dampers to achieve a suitable air flow from each outlet.

Programming the thermostat (SCC thermostat)

- Discuss auto program requirements with the customer
- To enter programming mode press and hold SET with the SCC in AUTO mode
- Use the UP/DOWN arrows to adjust the day or group of days to be programmed then press SET - system goes to WAKE time period
- Adjust time, temperature, zones and fan speeds:
  - Use UP/DOWN arrows to adjust start time then press SET
  - Use UP/DOWN arrows to adjust required temperature then press SET
  - System will go to next time period
- Repeat setting procedure for AWAY, HOME and SLEEP time periods

Explain system operation to customer

- Explain the operation of the system to the customer/home owner.
- Hand the operating instructions and warranty card to the customer/home owner.

DIAGNOSTIC CODES THD3

SCC thermostat required
(refer service manual for full instructions)

Code No	Description	Shut down type	SCC display
1	P-100 closed at start	L1	Reset, 1
2	P-100 failed to close	L1	Reset, 2
3	P-100 open during run	SSD	Normal
7	Ignition failure	L1	Reset, 7
9	Internal memory failure	L2	Reset, 9
10	HX OT1 opened	SSD/L1	Normal
11	EFS shutdown	SSD/L1	Normal
19	HX OT2 open at start	L2	Reset, 19

DIAGNOSTIC CODES THMD5

SCC thermostat required
(refer service manual for full instructions)

	Code No	Description	Shut down type	SCC display
	1	P-25/50 closed at start	L1	Reset, 1
	2	P-25/50 failed to close	L1	Reset, 2
	3	P-25/50 open during run	SSD	Normal
*	4	Thermistor > 70oC during run	SSD	Normal
	5	Thermistor not connected or short circuit	L1	Reset, 5
	7	Ignition failure	L1	Reset, 7
	9	Internal memory failure	L2	Reset, 9
*	10	HX OT1 opened	SSD/L1	Normal
*	11	EFS shutdown	SSD/L1	Normal
	12	P-75/100 closed at start	L1	Reset, 12
	13	P-75/100 failed to close	L1	Reset, 13
	14	P-75/100 open > 30 sec during run	SSD	Normal
	15	Thermistor in cool location in duct	SSD	Normal
	16	Thermistor not installed in outlet duct	1ST DC16►L1 2ND DC16►L2	Reset, 16 Reset, 16
	19	HX OT2 open at start	L2	Reset, 19

* Shut down type dependent on current operating status.

SSD Safety shut down: Reset not required.

L1 Lockout 1: User reset from SCC (press RESET twice), or Manual t/stat off-on-off-on - wait 5 seconds at each state, or Power off - power on.

L2 Lockout 2: Reset from SCC service mode only

MODULATING CIRCUIT BOARD (MCB) LED INDICATORS THMD5

Status	LED 1 GREEN	LED 2 RED	LED 3 RED	LED 4 RED	LED 5 RED
Power on Heater off	On	Off	Off	Off	Off
100% gas	On	On	On	On	On
75% gas	On	On	On	On	Off
50% gas	On	On	On	Off	Off
25% gas	On	On	Off	Off	Off
P-100% closed at start	On	Off	Off	Off	Flash 1s on/1s off
P-75% closed at start	On	Off	Off	Flash 1s on/1s off	Off
P-25/50% closed at start	On	Flash 1s on/1s off	Flash 1s on/1s off	Off	Off
P-100% failed to close	On	Off	Off	Off	Flash 2s on/2s off
P-75% failed to close	On	Off	Off	Flash 2s on/2s off	Off
P-25/50% failed to close	On	Flash 2s on/2s off	Flash 2s on/2s off	Off	Off
P-100% open during run	On	On	On	On	Flash 1s on/1s off
P-75% open during run	On	On	On	Flash 1s on/1s off	Off
P-25/50% open during run	On	Off	Off	Off	Off
Invalid dipswitch setting	On	Flash 1s on/1s off	Flash 1s on/1s off	Flash 1s on/1s off	Flash 1s on/1s off

Heaters are supplied pre-set to the following dipswitch settings

Heater model	SW 1	SW 2	SW 3	SW 4
THMD516N	OFF	OFF	OFF	**ON**
THMD520N	OFF	OFF	**ON**	OFF
THMD530N	OFF	OFF	**ON**	**ON**
THMD520LPG	**ON**	OFF	**ON**	OFF
THMD530LPG	**ON**	OFF	**ON**	**ON**

Example
THMD520N

TROUBLE SHOOTING & DIAGNOSTICS

If the heater fails to start, try the following:

No power.
- Is green LED on BSC circuit board on?
- Plug in heater supply lead
- Turn on power
- Turn on circuit breaker

No gas supply.
- Min' supply pressure
  - 1.13 kPa (NG)
  - 2.75 kPa (LPG)
- Has gas meter been installed?
- Turn gas on at gas meter

Thermostat not connected
- Connect "manual/2-wire" thermostat to "MAN T/STAT" terminals on circuit board
  Connect Braemar Spectrolink CC to "CC" terminals on circuit board

No thermostat communication.
- Check for "YES" on SCC display when first powered

Thermostat not calling for heat
- Adjust set point above current room temperature.
- Check LED's - centre LED (red) on steady

Combustion fan does not start
- Check that the fan is not blocked or jammed

No spark
- Check flue cowl is installed correctly
- Check wiring to pressure switch is not dislodged

Spark but no ignition
- Check gas valve on/off switch is set to ON
- Check flame roll-out switch is closed (press red button)

Room fan does not start
- Check room fan wiring connected correctly

All checks OK but still does not start
- Disconnect power, wait 5 minutes and start again

If the heater still does not start or operate correctly after running through these troubleshooting and diagnostic checks contact:

WARRANTY SERVICE: 1300 650 644
TECHNICAL SUPPORT: 1300 650 399

Please have your appliance model number, serial number, and any displayed fault codes available prior to calling.

SAFETY INSTRUCTIONS

Employers and Employees Responsibility

The installation and maintenance of gas ducted heating units, particularly at height, has the potential to create Occupational Health and Safety issues for those involved. Installers are advised to ensure they are familiar with relevant State and Federal legislation, such as Acts, Regulations, approved Codes of Practice and Australian Standards, which offer practical guidance on these health and safety issues. Compliance with these regulations will require appropriate work practices, equipment, training and qualification of workers. Seeley International provides the following information as a guide to contractors and employees to assist in minimising risk.

Risk Assessment

A risk assessment of all hazardous tasks is required under legislation. A risk assessment is an essential element that should be conducted before the commencement of work, to identify and eliminate the risk of falls and other risks, or to minimise these risks by implementing control measures. This does not need to be a complicated process - it is a matter of assessing the job to be done and considering what actions are necessary so the person doing the job does not injure themselves.

This should be considered in terms of:

- What are the chances of an incident occurring?
- What could the possible consequences be?
- What can be done to reduce, or better still, eliminate the risk?

Some points to consider

Some points to consider when working on or in a roof

- What is the best and safest access to the roof and working areas?
- What condition is the roof in? Should the roof structure and surface be checked?
- Does the worker have appropriate footwear?
- Are all power cables/extension leads safe and appropriately rated?
- Are all ladders, tools and equipment suitable and in good condition?
- Where ladders are to be used, is there a firm, stable base for them to stand on? Can they be tied or secured in some way at the top?
- Is there a roof anchor to attach a harness and lanyard to? If so, instruction should be issued for the use of an approved harness or only suitably trained people used.
- Are all tools and materials being used, prevented from slipping and falling onto a person at ground level? Is the area below the work area suitably protected to prevent people entering this area?
- Does the work schedule take into account weather conditions, allowing for work to be suspended in high winds, thunder storms/lightning or other types of weather giving wet, slippery surfaces?
- Is there an on-going safety check system of harnesses, ropes, ladders and access/lifting equipment, and any anchor points on roofs before the commencement of work?
- Is there a system which prevents employees from working on or in roofs if they are unwell or under the influence of drugs or alcohol?
- Are there any special conditions to consider i.e. excessive roof pitch, limited ground area, fragile roof, electrical power lines?

SEELEY SERVICE

Warranty Service
Australia 1-300-650-644
seeleyinternational.com

It is the policy of Seeley International to introduce continual product improvement. Accordingly, specifications are subject to change without notice. Please consult with your dealer to confirm the specifications of the model selected.

Braemar®
HEATING COOLING