Braeburn®

MODEL
5200

Premier Series
Universal 7 Day or 5-2 Day Programmable
2 Heat/2 Cool Heat Pump
Digital Thermostat

USER MANUAL

Compatible with low voltage multi-stage heat pump systems with up to two stages of heating and two stages of cooling. Not for use on single-stage heating or cooling systems.

READ ALL INSTRUCTIONS BEFORE PROCEEDING

WARNING!

Important Safety Information

- Always turn off power to the air conditioning or heating system prior to installing, removing, cleaning or servicing thermostat.
- Read this manual thoroughly prior to installing, programming or operating this thermostat.
- This thermostat is designed for use with a 24 Volt AC low voltage multi-stage heat pump system.
- Do not use this thermostat on systems with voltages higher than 30 Volts AC.
- This thermostat requires 24 Volt AC Power for normal operation and control of the heating or cooling system.
- The thermostat also requires two (2) properly installed "AA" alkaline batteries to retain clock settings in the event of loss of AC Power due to power outage or rolling blackouts.
- Wiring must conform to all building codes and ordinances as required by local and national code authorities having jurisdiction.
- Do not short (or jumper) across terminals on the gas valve or at the heating or cooling system control board to test the thermostat installation. This could damage the thermostat and void the warranty.
- Do not select COOL mode of operation if the outside temperature is below 50˚ F (10˚ C). This could possibly damage the controlled cooling system and may cause personal injury.
- This thermostat should only be used as described in this manual. Any other use is not recommended and will void the warranty.

CONTENTS

1 SPECIFICATIONS

- Electrical Rating: 24 Volt AC (18-30 Volt AC)
  1 amp maximum load per terminal
  3 amp maximum load (all terminals)
- Control Range: 45˚ - 90˚ F (7˚ - 32˚ C)
- Accuracy: +/- 1˚ F (+/- .5˚ C)
- AC Power: 18-30 Volt AC
- DC Back-Up Power: 3.0 Volt DC (2 AA Alkaline batteries included)
- Compatibility: Multi-stage heat pump systems with up to two stages of heating and two stages of cooling
- Terminations: R, Y1, Y2, W1, W2, E, G, O, B, L, C

2 INSTALLATION

2.1 Replacing Existing Thermostat

1. Always turn off power to the air conditioning or heating system prior to removing existing thermostat.
2. Remove the cover of your old thermostat and locate the wire terminals. Do not remove wires from terminals yet.
3. Using small pieces of masking tape, label wires prior to removal from terminals. Use the chart below to determine the new terminal designations for your new thermostat.

Old Terminal from Existing Thermostat	New Terminal for New Thermostat	Terminal Description
R, V-VR or VR-R	R	24 Volt AC
Y, Y1 or M	Y1	Stage 1 Cooling or Heating
Y2	Y2	Stage 2 Cooling
W1, W2 or W-U	W2	Stage 2 Heating
E	E	Emergency Heating
G or F	G	Fan Control
O or R	O	Reversing Valve (Cooling)
B	B	Reversing Valve (Heating)
L or X	L	System Status LED
C, X or B	C	24 Volt AC, Transformer Common

2 INSTALLATION *cont.*

2.1 Replacing Existing Thermostat *cont.*

4. After labeling and removing all wires from terminals, unscrew the existing thermostat sub-base from wall. Make sure to secure wires to prevent them from slipping back into the hole in the wall.

NOTE: *This thermostat is designed for use on low voltage 24 Volt AC multi-stage heat pump systems with up to two stages of cooling and requires a transformer common wire for proper installation. This thermostat is not for use on single stage heating or cooling systems.*

2.2 Installing Your New Thermostat

NOTE: *If you are installing this thermostat in a new installation be sure to locate the thermostat 4 to 5 feet above the floor in accordance with applicable building codes. Make sure to install the thermostat in a location that provides good airflow characteristics and avoid areas behind doors, near corners, air vents, direct sunlight or near any heat generating device. Installation in any of these areas could impact thermostat performance.*

1. Always turn off power to the air conditioning or heating system prior to installing your new thermostat.

2. Place system switch on front of thermostat to the **OFF** position.

3. Place fan control switch on front of thermostat to the **AUTO** position.

4. Remove front of thermostat body from sub-base by pressing release latch on bottom of front body.

5. Place the thermostat sub-base against wall in the desired thermostat location.

6. Guide thermostat wires through center hole in sub-base. Continue to hold sub-base against wall.

7. Mark placement of mounting holes as appropriate and drill using a 3/16" drill bit.

8. Gently tap supplied plastic anchors into the holes in the wall.

9. Place the thermostat sub-base against the wall in the desired location, making sure the mounting holes are aligned as appropriate and the thermostat wires are properly inserting through opening in middle of sub-base.

10. Fasten the sub-base to wall using supplied screws.

11. Connect wires to quick wiring terminal block as appropriate using the new terminal designations. Refer to *Wiring Diagram* section of this manual if required for assistance.

12. Make sure all of the wire connections are secure and are not touching any other terminal to prevent electrical shorts and potential damage to the thermostat.

13. Locate the auxiliary heat option switch, **AE-AG**, on the circuit board. For electric auxiliary heat units the switch should be set to the **AE** position. For units with gas or oil auxiliary heat, move the switch to the **AG** position. This will lock out the compressor stage 1 minute after a second stage heat call for maximum efficiency.

14. Locate the internal **°F / °C** switch on the circuit board. Using your finger, gently flip the switch toward the preferred temperature **°F / °C** scale.

15. Locate the internal programming switch on the circuit board. This switch configures the programming mode, either **5-2 DAY** (weekday-weekend), or full **7 DAY** programming. Using your finger, gently flip the switch towards the programming option which best suits your schedule.

16. Attach front body of thermostat to sub-base of thermostat being careful to align the terminal pins on the front body with the terminal block on the sub-base.

2 INSTALLATION *cont.*

17. Open front thermostat door and open battery compartment door.

18. Install two new "AA" alkaline batteries into battery compartment. Make sure to locate the positive (+) ends of the batteries and match them with the positive (+) terminals located in the battery compartment.

19. Close battery compartment.

20. Restore system power so you can test installation.

3 TESTING YOUR NEW THERMOSTAT

WARNING! ***Read BEFORE Testing***

- Do not short (or jumper) across terminals on the gas valve or at the heating or cooling system control board to test the thermostat installation. This could damage the thermostat and void the warranty.
- Do not select the **COOL** mode of operation if the outside temperature is below 50° F (10° C). This could possibly damage the controlled cooling system and may cause personal injury.
- This thermostat includes an automatic compressor protection feature to avoid potential damage to the cooling system from short cycling. This thermostat automatically provides a 5-minute delay after turning off the cooling or heating output to protect the compressor.

NOTE: *Test your thermostat prior to programming any user settings. Pressing the **RESET** button will erase any user entries for time of day, day of week, option settings and programming if previously programmed. This will return all user settings and return them to their default values. Remember, this will erase all programs entered by the user.*

1. Place the system switch in the **HEAT** position.

2. Press the ∧ button on the keypad until the setpoint temperature setting is a minimum of 3 degrees higher than the current room temperature. The heating system should start within several seconds. The fan may not turn on immediately due to the heating system built-in fan delay.

3. Place the system switch in the **OFF** position. The heating system should stop within several seconds. You must wait 5 minutes for the automatic compressor short cycle protection period to expire, or press the **RESET** button to bypass this feature for initial testing purposes. Pressing the **RESET** button will erase any user entries for time of day, day of week, option settings and programming if previously programmed.

4. Place the system switch in the **COOL** position.

5. Press the ∨ button on the keypad until the setpoint temperature is a minimum of 3 degrees lower than the current room temperature.

6. The cooling system should start within several seconds. Place the system switch in the **OFF** position. The cooling system should stop within 90 seconds (dependent on the setting of the Residual Cooling Fan Feature).

7. Place the fan switch in the **ON** position. The system blower should start.

8. Place the fan switch in the **AUTO** position. The system blower should stop.

4 PROGRAMMING USER SETTINGS

4.1 Default Thermostat Settings

Function	Status After Reset
Operation Mode	Normal Operating Mode
Temperature Hold	Extended and Temporary Hold Cleared
Clock	12:00 pm, Monday
Room Temperature	70˚ F (21.0˚ C), to be renewed within 5 seconds
Setpoint Temperature	According to system switch: 62˚ F (17.0˚ C) for Heat and Off 83˚ F (28.0˚ C) for Cool
Temperature Scale	˚F or ˚C dependent on switch setting
Operating Program	DAY program, Monday
Low Battery Warning	Off, to be renewed within 5 seconds
AC Interrupted Warning	Off, to be renewed within 5 seconds
First Stage Differential	0.5˚ F (0.25˚ C)
Second Stage Differential	2˚ F (1.0˚ C)
Residual Cooling	60 Seconds
Short Cycle Protection Timer	Reset
Efficient Recovery Mode	Reset
Output Relays	Off
Extended Hold	Indefinite
Keypad Lock	Unlocked
Adaptive Recovery Mode	Reset
Residual Cooling Fan Delay	60 Seconds
Filter Check Monitor	0 days-off
Recirculating Fan Timer	Reset with 120 minute off cycle
Outage Protection Timer	Reset

4.2 Setting Current Time of Day and Day of Week

NOTE: *It is important for you to set the current time of day (note AM/PM indicator in display), and the current day of week correctly to avoid problems with program execution.*

1. When in normal operating mode, press the **DAY/TIME** keypad button. The LCD display will be cleared except for the time, am/pm indicator and the day of the week. The hour portion of the time will flash.
2. Press the ∧ or ∨ button to set the current hour.
3. Press the **DAY/TIME** button again, the minute portion of the time will flash.
4. Press the ∧ or ∨ button to set the current minute.
5. Press the **DAY/TIME** button again, the day of the week indicator will flash.
6. Press the ∧ or ∨ button to set the current day of the week.

NOTE: *The thermostat will return to normal operating mode automatically after 15 seconds if no key is pressed. It will also return to normal operating mode immediately if the **RETURN** button is pressed.*

4.3 Setting Thermostat User Options

The default user options are compatible with most systems and applications. They are normally set at the time of installation and usually do not require any modification under normal operating conditions. If you desire to change these settings, simply follow the instructions below.

NOTE: *The first and second stage differential settings are the same for both the heating and cooling systems.*

4 PROGRAMMING USER SETTINGS *cont.*

4.3.1 *Setting the First and Second Stage Differentials*

First Stage Differential

The default setting is 0.5˚ F (0.25˚ C). The room temperature must change 0.5˚ F (0.25˚ C) from the setpoint temperature before the thermostat will initiate the system in heating or cooling.

1. In normal operating mode, press and hold the **RETURN** button for 4 seconds. The LCD display will show "**d1 x**", where "**x**" equals the ˚F / ˚C differential setting. This is the current temperature differential setting.
2. Press the ∧ or ∨ button to set the temperature differential to your desired setting of 0.5˚, 1˚, or 2˚ F (0.25˚, 0.5˚, or 1˚ C).

NOTE: *If at any time while in the options setting mode, you desire not to make any further changes, you can wait 15 seconds without pressing any keys to return to the normal operating mode.*

Second Stage Differential

The default setting is 2˚ F (1.0˚C). This means that the room temperature must change 2˚ F (1.0˚ C) in addition to the first stage differential setting before the thermostat will initiate the system in heating or cooling.

3. Press the **RETURN** button again and the LCD display will show "**d2 x**", where "**x**" equals the ˚F / ˚C differential setting. This is the current second stage differential setting.
4. Press the ∧ or ∨ button to set the second stage differential to your desired setting of 2˚, 3˚, 4˚, 5˚, or 6˚ F (1.0˚, 1.5˚, 2.0˚, 2.5˚, or 3.0˚ C).

4.3.2 *Setting Residual Cooling Fan Feature*

The default setting is 60 seconds. During the **COOL** mode of normal operation the fan will stay on for 60 seconds after the cooling system has satisfied the setpoint temperature and has turned of the compressor. This allows the system to provide higher efficiency during cooling operation.

5. Press the **RETURN** button again and the LCD display will show "**FAN xx**", where "**xx**" equals the fan delay time in seconds during the cooling mode of operation.
6. Press the ∧ or ∨ button to set the residual cooling fan delay to your desired setting of 0 (disabled), 30, 60, or 90 seconds.
7. Press the **RETURN** button again to return to set the extended hold time or wait 15 seconds and the thermostat will automatically return to normal operating mode.

4.3.3 *Setting the Extended Hold Time (see also section 5.3)*

The default setting is Long (indefinite) Hold. If the **HOLD** feature is activated, the current setpoint will be held until **HOLD** is released.

8. After pressing the **RETURN** button again, the display will show "**HOLD LG**", where **LG** is indefinite hold.

9. Press the ∧ or ∨ button to change the Extended Hold time from indefinite (**LG**) to 24 hours (**SH**).

10. Press the **RETURN** button again to set the Filter Check Monitor, or wait 15 seconds for the thermostat to return to the normal mode.

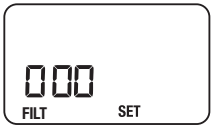
4.3.4 *Setting the Filter Check Monitor (see also section 5.4)*

The default setting is 0 days (monitor disabled).

11. After pressing the **RETURN** button again, the display will show "**FILT XXX SET**", where **XXX** is the Filter Monitor interval.

12. Press the ∧ or ∨ button to change the Filter Monitor interval to the desired value of 0 (disabled), 30, 60, 90, 120, or 180 days.

13. Press the **RETURN** button again to set the Recirculating Fan cycle, or wait 15 seconds for the thermostat to return to the normal mode.



4.3.5 *Setting the Recirculating Fan Cycle (see also section 5.7)*

14. After pressing the **RETURN** button again, the display will show "**XXX OC SET**", where **XXX** is the Recirculating Fan off cycle.

15. Press the ∧ or ∨ button to change the Recirculating Fan off cycle to the desired value of 120, 60, or 40 minutes.

16. Press the **RETURN** button again to return to the normal mode, or wait 15 seconds for the thermostat to return automatically.

4.4 *Setting Your Energy Saving Programs–Tips Before Starting*

- It is important for you to set the current time of day (note the AM/PM indicator in the display), and the current day of week correctly to avoid problems with program execution. This must be done prior to entering any program settings.
- The heating and cooling programs have both separate setpoint times and setpoint temperatures.
- This thermostat is preprogrammed with weekday and weekend times and temperatures recommended by the Environmental Protection Agency and the U.S. Department of Energy in their ENERGY STAR® program. These settings provide efficient energy savings during normal heating and cooling modes of operation. If you desire to use the settings in the table, no further programming is necessary. Review these time and temperature settings prior to establishing your personal program settings to maximize your savings, and minimize programming requirements.

4.4 Setting Your Energy Saving Programs *cont.*

	Weekday	Weekend
MORN	Time: 6:00 am Heat: 70˚ F (21˚ C) Cool: 75˚ F (24˚ C)	Time: 6:00 am Heat: 70˚ F (21˚ C) Cool: 75˚ F (24˚ C)
DAY	Time: 8:00 am Heat: 62˚ F (17˚ C) Cool: 83˚ F (28˚ C)	Time: 8:00 am Heat: 70˚ F (21˚ C) Cool: 75˚ F (24˚ C)
EVE	Time: 6:00 pm Heat: 70˚ F (21˚ C) Cool: 75˚ F (24˚ C)	Time: 6:00 pm Heat: 70˚ F (21˚ C) Cool: 75˚ F (24˚ C)
NIGHT	Time: 10:00 pm Heat: 62˚ F (17˚ C) Cool: 78˚ F (26˚ C)	Time: 10:00 pm Heat: 62˚ F (17˚ C) Cool: 78˚ F (26˚ C)

NOTE: *If the 7 day programming mode was selected using the slide switch on the circuit board during installation (section 2.2), the default program will use the weekday times and temperatures shown above for all 7 days. The programming mode can be switched between weekday-weekend and 7 day at any time by removing the thermostat from the base, and following steps 18-20 in section 2.2, then pressing the reset button. All settings must then be reentered starting with section 4.2.*

- Make sure you place the system switch in the **HEAT** or **COOL** modes of operation as appropriate. You should not enter a program in the **OFF** position.
- When you place the system switch in the **COOL** or **HEAT** modes of operation, the appropriate indicator will also appear in the LCD display when the system is running.
- When you place the system switch in the **OFF** mode the display will indicate **OFF**.

4.4.1 *Programming Overview For 7 Day Programming Mode (Programming switch set to 7 day - see installation section)*

You can select one of three Quick Program Groups of Individual Day programming to allow you to change the daily setpoint times and temperatures to meet your individual schedule needs. The Quick Program Groups can be used to set the main portion of your schedule, allowing you to later modify specific days of the week as required using the Individual Day programming capabilities.

Once you enter the program mode, you can select the Quick Program Group or Individual Day Programs as you desire.

See Section 4.4.2, Entering Your Program

Whole Week - allows you to program all seven days (M, TU, W, TH, F, SA, SU will show in display) at the same time. Then you can use individual day programming to fine tune your program for the few setpoint times or temperatures that you may wish to change.

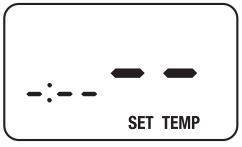
Weekday - allows you to program all the weekdays (M, TU, W, TH, F will show in display) at the same time. Then go to Weekend group mode to finish programming your weekend setpoint times and temperatures. Individual day programming can be used to fine tune your settings to match your daily needs.

Weekend - allows you to program all the weekend days (SA, SU will show in the display) at the same time. Again, individual day programming can be used to change specific setpoint times or temperatures.

Individual Days - allows you to program each day of the week individually to give you the greatest schedule flexibility. Often used to fine tune programming after initially programming the thermostat using Whole Week, Weekday, or Weekend groups.

4.4 Setting Your Energy Saving Programs *cont.*

IMPORTANT NOTE! When in group selection, the thermostat will check if all of the days of that group have the same program setpoint times and temperatures. If so, the time and temperature of the individual setpoint (***MORN, DAY, EVE, NIGHT***) will be displayed.

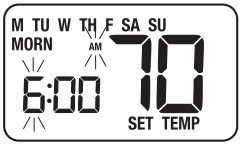


Otherwise, the individual setpoint time and temperature will be blanked. User is allowed to change the daily programs for this setpoint time and temperature by pressing the ∧ or ∨ button. This will reset all the daily programs of the group for that specific individual setpoint (***MORN, DAY, EVE, NIGHT***) time and temperature to the startup default for that setpoint. Continued pressing of the ∧ or ∨ button by the user will change setpoint time and temperature settings as desired.

4.4.2 *Entering Your Program*

1. Place the system switch in the **HEAT** mode of operation.

2. Press the **PROG** button to enter the Program setting mode. The **MORN** setpoint of the Whole Week Quick Program Group will be displayed. The display will show **M, TU, W, TH, F, SA, SU** to indicate the whole week is being programmed. The hour portion of the setpoint time and the **AM/PM** indicator will be flashing.



3. If you desire to use a different Quick Program Group or Individual Day program mode you can change by pressing the **DAY/TIME** button to select another group in the following sequence, **Whole Week - Weekday - Weekend - Monday - Tuesday - Wednesday - Thursday - Friday - Saturday - Sunday - Whole Week.**

4. Once you have finished your Quick Program Group or Individual Day selection. Press the ∧ or ∨ button to change the time to the desired hour in one hour increments, press **PROG** button. The minute portion of the setpoint time will begin flashing.

5. Press the ∧ or ∨ button to change the time to the desired minute in 10-minute increments, press the **PROG** button. The **SET TEMP** will begin flashing.

6. Press the ∧ or ∨ button to change the setpoint temperature to the desired setting in 1˚ F increments (0.5˚ C), press the **PROG** button. The thermostat will now display the **DAY** setpoint time and temperature. Again, you will see the hour portion of the setpoint time and the **AM/PM** indicator will be flashing.

7. Follow steps 4 through 6 to set the setpoint times and temperatures for the **MORN, DAY, EVE** and **NIGHT** setpoints for the Quick Program Group or Individual Day selection for the **HEAT** mode.

8. Place the system switch in the **COOL** mode of operation. The display will show **COOL**. Follow steps 2 through 6 to program the setpoint times and temperatures for the Quick Program Group or Individual Day selection for the **COOL** mode.

9. Repeat steps 3 through 8 for additional Quick Program Groups or Individual Day programming as required.

10. After completion of programming, wait 15 seconds or press **RETURN** to return to the normal mode.

NOTE: *To erase all entered programs, current time of day, day of week and other user settings, gently press the **RESET** button using a paper clip or a small pencil tip. This will return all thermostat settings to their default values.*

4.4 Setting Your Energy Saving Programs *cont.*

4.4.3 *Programming Overview For Weekday/Weekend Programming Mode (Programming switch set to 5-2 day - see installation section)*

Your thermostat contains separate Weekday and Weekend Program Groups that allow you to change the daily setpoint times and temperatures to meet your individual schedule needs.

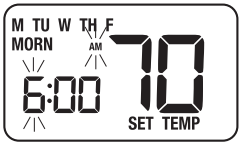
Weekday - allows you to program all the weekdays (M, TU, W, TH, F will show in display) at the same time. Allows programming times and temperature settings for four setpoints (MORN, DAY, EVE, & NIGHT) to meet your daily weekday schedule needs.

Weekend - allows you to program all the weekend days (SA, SU will show in display) at the same time. Again, allows programming times and temperature settings for four setpoints (MORN, DAY, EVE, & NIGHT) to meet your daily weekend schedule needs.

4.4.4 *Entering Your Program*

1. Place the system switch in the **HEAT** mode of operation.

2. Press the **PROG** button to enter Program setting mode. The **MORN** setpoint of the Weekday Program Group will be displayed. The display will show **M, TU, W, TH, F** to indicating the Weekday group is being programmed. The hour portion of the setpoint time and the **AM/PM** indicator will be flashing.



3. Press the ∧ or ∨ button to change the time to the desired hour in 1 hour increments, press the **PROG** button to save. The minute portion of the setpoint time will begin flashing.

4. Press the ∧ or ∨ button to change the time to the desired minute in 10-minute increments, press the PROG button to save. The **SET TEMP** will begin flashing.

5. Press the ∧ or ∨ button to change the setpoint temperature to the desired setting in 1˚ F increments (0.5˚ C), press the **PROG** button to save. The thermostat will now display the **DAY** setpoint time and temperature. Again, you will see the hour portion of the setpoint time and the **AM/PM** indicator will be flashing.

6. Follow steps 3 through 5 to set the setpoint times and temperatures for the **MORN, DAY, EVE** and **NIGHT** setpoints for the Weekday group in the **HEAT** mode.

7. After pressing the **PROG** button, you will enter the Weekend Program Group. The display will show SA, SU to indicate the Weekend group is being programmed. The hour portion of the **MORN** setpoint time and the AM/PM indicator will be flashing.

8. Follow steps 3 through 5 to set the setpoint times and temperatures for the **MORN, DAY, EVE** and **NIGHT** setpoints for the Weekend group in the **HEAT** mode.

9. Place the system switch in the **COOL** mode of operation. The display will show **COOL**. Follow steps 2 through 8 to program the setpoint times and temperatures for the Weekday and Weekend groups in the **COOL** mode.

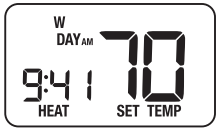
NOTE: *To erase all entered programs, current time of day, day of week and other user settings, gently press the **RESET** button using a paper clip or a small pencil tip. This will return all thermostat settings to their default values.*

5 ADDITIONAL OPERATION FEATURES

5.1 Review Set Temperature

1. Press and hold the ∧ or ∨ button. The current setpoint temperature will be displayed in the place of the current room temperature, and the indicator SET TEMP will be displayed.

2. The display will return to normal operating mode when the ∧ or ∨ button is released. Continuing to hold the ∧ or ∨ button for 3 seconds or longer will allow the user to temporarily override the current programmed setpoint (See *Temporary Program Override*).

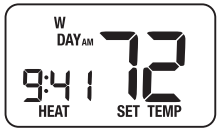


5.2 Temporary Program Override

1. Press and hold ∧ or ∨ button for 3 seconds. The entire display will flash once and the **SET TEMP** indicator will be displayed. Release the ∧ or ∨ button and press the ∧ or ∨ button again as desired to adjust the set temperature.

2. The display will return to normal operating mode after 15 seconds or you can press the **RETURN** button.

3. The program indicator (**MORN, DAY, EVE OR NIGHT**) will be flashing in the display, indicating that a Temporary Program Override is in effect. The Temporary Program Override will reset when the next setpoint time occurs, or after 4 hours – whichever comes first.

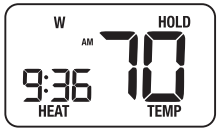


5.3 Extended Hold (Vacation) Mode

1. Press the **HOLD** button to bypass the program schedule. The current setpoint temperature will be held until **HOLD** is released, and **HOLD** and **TEMP** will show in the display.

2. Press the **HOLD** button again to return the thermostat to normal program operation.

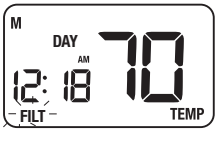
3. The hold period lasts until the hold is released as in step #2 above, or is limited to 24 hours if the default was changed in the User Options Settings (section 4.3.3).



5.4 Filter Check Monitor *(see section 4.3.4 for setting)*

The Filter Check Monitor displays a reminder for required filter replacement or cleaning, by flashing the **FILT** segment in the display. See instructions on your filter or heating/cooling unit for recommendations for interval setting.

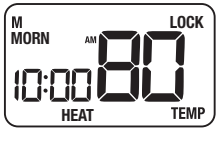
When the selected interval has been reached, and required cleaning or replacement has been performed, press the **RETURN** button in any normal mode to reset the timer and turn off the warning.



5.5 Locking the Keypad

To prevent accidental or undesired adjustment of the thermostat, the Keypad Lock feature disables the operation of the keypad, except for the backlight key. In order to lock the keypad, press and hold both ∧ and ∨ buttons together at the same time for 5 seconds. The **LOCK** segment in the display will flash once per second, and then appear continuously in the display. The keypad is now locked.

To unlock the keypad, press and hold the ∧ and ∨ buttons together at the same time for 1 second. The **LOCK** segment will disappear and the keypad will become unlocked.



5 ADDITIONAL OPERATION FEATURES *cont.*

5.6 Adaptive Recovery Mode (ARM™)

This thermostat is equipped with a special feature to maximize your energy savings by utilizing the most effective source of heating or cooling to meet your program needs during recovery from setback (or setup) temperatures. Our Adaptive Recovery Mode (ARM™) feature is designed to automatically calculate when to turn your first (heat pump) stage of your multi-stage heating or cooling system to meet your upcoming comfort setpoint temperature setting. While in normal operating mode, this feature will start calculating the start time for your first stage (heat pump) two hours prior to the upcoming comfort setpoint temperature. During this two hour time period it will monitor performance and control your system staging requirements. The second (auxiliary) stages of heating or cooling will be available during this 2-hour period if required to meet extraordinary heating or cooling requirements.

5.7 Recirculating Fan Feature (see section 4.3.4)

The Recirculating Fan Mode provides more even temperature distribution and improves indoor air quality by circulating air through the furnace filtration system more often. The Recirculating Fan Mode can be selected by moving the fan switch to the recirculate position (↻). If no call for heating or cooling occurs within the fan off cycle set in section 4.3.5, the fan will run for 12 minutes. The highest setting, 120 minutes (factory default), will run the fan least often – 9% minimum run time. The lowest setting, 40 minutes, will run the fan most often – 23% minimum run time. During any call for heating or cooling, fan control operates in the AUTO mode. The Recirculating Fan feature is available in the HEAT, OFF, or COOL mode.

5.8 Auxiliary Heat Fossil Fuel Switch

The Model 5200 is equipped with an auxiliary heat option switch which is set at installation for either an electric or fossil fuel (gas, oil or propane) auxiliary heat source. For heat pump units with an electric auxiliary stage, both the first and second stages of heating will run when a call for second stage heat is made. For heat pump units with a fossil fuel auxiliary stage, the first stage will be locked out one minute after a second stage heat call, and the second stage alone will be used.

5.9 Compressor Protection and AC Power Monitor

This thermostat includes an automatic compressor protection feature to avoid potential damage to the cooling system from short cycling. This thermostat automatically provides a 5-minute delay after turning off the cooling system output to protect the compressor. This protection is also present in the heat mode of operation on single stage heat pump systems to protect the compressor.

NOTE: *The installer can reset the thermostat and bypass the compressor protection features by pressing the **RESET** button. This will erase all entered programs, current time of day, day of week and other user settings and should only be used during installation for testing purposes or to reset a thermostat to regain normal operation. This will return all thermostat settings to their default values. The user will have to reprogram all of the erased settings.*

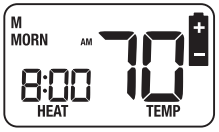
This thermostat also provides cold weather compressor protection by locking out the compressor stage (1st Stage) of heating for a period of time after a power outage greater than 60 minutes. The lockout period is one hour less than the outage time, up to a maximum of 12 hours. During that period of time, the auxiliary heat stage will still be available to maintain the setpoint temperature. The compressor lockout can be manually overridden at any time by moving the system switch to the **OFF** position momentarily, then back to the heat position.

During a power loss, the thermostat will display an outage warning. The system clock will continue to run, and all settings will be maintained until the outage period is over.

5.10 Low Battery Detection and Replacement

This thermostat requires two (2) properly installed "AA" alkaline batteries to provide power for the thermostat to properly control the system operation.

This thermostat is equipped with a low battery detection feature that constantly monitors the batteries during normal operating mode to determine whether they have sufficient power to provide proper operation.



When this feature determines that the battery status is low, a low battery indicator will appear in the display. It is recommended that the batteries be replaced immediately to maintain system operation and program settings.

Replacing the Batteries

1. Open the front cover and locate the battery compartment door.
2. Gently remove the two "AA" alkaline batteries located in the battery compartment.
3. Install two new "AA" alkaline batteries into battery compartment. Make sure to match the positive (+) ends of the batteries with the positive (+) terminals located in the battery compartment.
4. Close battery compartment and verify that the low battery indicator does not appear in the display.

5.11 Multi-Colored LED Status Indicators

The three multi-colored LED Status Indicator located on the front of your thermostat above the display will notify you of key system information.

AUX (Green): This will turn on when the auxiliary second stage of heating is active. The auxiliary stage of heating is usually the least economical stage of heat.

CHECK (Red): Indicator will activate when a malfunction occurs in the heat pump system. When the light is active, call a professional service technician to verify system performance and switch the system to Emergency Heat Mode if required to maintain room temperature.

EMER (Red): This indicator will light when you select Emergency Heat Mode of operation using the system selector switch. When you select Emergency Heat Mode, the heat pump stage of heat is turned off and the emergency (auxiliary) stage of heating is used to maintain the setpoint temperature.

5.12 Resetting the Thermostat

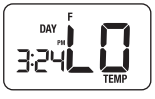
The Reset feature allows the user to completely reset the thermostat to register new manual switch settings.

1. To erase all entered programs, current time of day, day of week and other user settings, gently press the **RESET** button using a paper clip or a small pencil tip.
2. This will return all thermostat settings to their default values and register all new manual switch settings for proper operation.

6 TROUBLESHOOTING

SYMPTOM	POTENTIAL SOLUTION
Thermostat does not turn on heating or cooling system.	Check to see if **OFF** is shown in display. This indicates that the system is turned off at the thermostat. Move the system selector switch to the **HEAT** or **COOL** position. After the compressor short cycle protection 5-minute period expires the system should start within a minutes time. Compressor protection features may be in effect due to compressor short cycle conditions, power outages or rolling blackouts. See Compressor Protection Features section for full explanation of this feature. Heat pump may be malfunctioning. Review the **CHECK** status indicator light to see if it is. If the **CHECK** status indicator light is lit, call a professional service technician to confirm heat pump operation and provide necessary service. If heating is required you can slide the system switch to **EMER** setting which will start the Emergency Heat source to provide heating until the heat pump can be serviced.
Thermostat turns on heating instead of cooling, or cooling instead of heating.	Check thermostat wiring to make sure that the heating and cooling stages are connected to the correct terminals on the wiring terminal block. See *Installation* and *Wiring Diagram* sections of this manual.
Fan runs intermittently or when system is off.	Fan switch is in recirculate ( ) mode.

SYMPTOM	POTENTIAL SOLUTION
Thermostat will not follow program setpoints.	Check current time of day, day of week program settings. Make sure to verify **AM/PM** indicator is accurately displaying desired time settings. See *Setting Current Time of Day and Day of Week* section of this manual. Check to see if **OFF** is shown in display. This indicates that the system is turned off at the thermostat. Move the system selector switch to the **HEAT** or **COOL** position. After the compressor short cycle protection 5-minute period expires the system should start within several seconds. Verify your program setpoint time entries. The heating and cooling programs utilize the same setpoint times, but have individual setpoint temperatures for the **MORN, DAY, EVE** and **NIGHT** setpoints. See *Setting Your Energy Saving Program* section of this manual. Thermostat program has been temporarily overridden and program indicator is flashing in the display. Wait till next setpoint and the temporary override will expire or change setpoint temperature to desired comfort level. Thermostat program is in Extended Hold (Vacation) Mode and **HOLD** and **TEMP** is showing in display. Press **HOLD** button to release permanent hold and return the thermostat to normal program operation.
Thermostat turns heating or cooling system on too often or not often enough.	Increase or decrease first stage temperature differential setting as appropriate to provide the desired performance level. See *Setting Temperature Differential* and *Residual Cooling Fan Feature* section of this manual.
Thermostat turns on second (auxiliary) stage of heating or cooling too quickly or not quickly enough.	Increase or decrease second (auxiliary) stage temperature differential setting as appropriate to provide the desired performance level. See *Setting Temperature Differential* and *Residual Cooling Fan Feature* section of this manual.
Low battery indicator is shown in thermostat display.	Replace back-up batteries as soon as possible. See *Low Battery Detection and Replacement* section of this manual.
OFF is shown in thermostat display and heating or cooling system will not start. 	This indicates that the system is turned off at the thermostat. Move the system selector switch to **HEAT** or **COOL** position. After the compressor short cycle protection 5-minute period expires the system should start within several seconds.
The room is too warm or too cold.	See *Review Set Temperature* section of this manual to verify the current setpoint and make any modifications that are necessary.

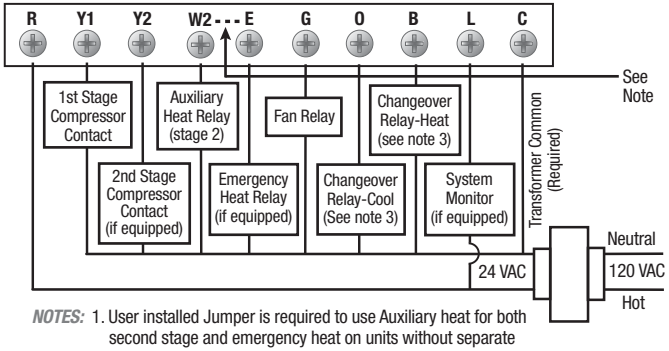
SYMPTOM	POTENTIAL SOLUTION
Thermostat display is blank.	It is possible that AC power is not present at the thermostat and the back-up batteries are fully discharged. Check fuse, circuit breaker and thermostat wiring as appropriate to verify AC power is available. Replace back-up batteries before reprogramming thermostat to make sure you have back-up power. See *Low Battery Detection and Replacement* and *Setting Your Energy Saving Program* sections of this manual. If AC Power is present, call a professional service technician to verify thermostat and system performance.
Thermostat will not allow me to program a setpoint temperature higher than 90˚ F (32˚ C).	This is above the normal thermostat temperature setting range of 45˚ to 90˚ F (7˚ to 32˚ C).
HI is shown in the thermostat display where the room temperature is normally displayed. 	The temperature sensed by the thermostat is higher than the 99˚ F (37˚ C) upper limit of the thermostats display range. The display will return to normal after the sensed temperature lowers within the 40˚ to 99˚ F (5˚ to 37˚ C) display range. Turn on the cooling system or use other methods to lower the temperature accordingly. This condition could occur from the system being turned off during an exceptionally warm period or upon installation when the thermostat has been stored for a long period of time in a warm vehicle or location prior to being installed. The thermostat is equipped with a mechanical high temperature safety switch that will turn off the system should the temperature exceed 99˚ F (37˚ C).
LO is shown in the thermostat display where the room temperature is normally displayed. 	The temperature sensed by the thermostat is lower than the 40˚ F (5˚ C) lower limit of the thermostats display range. The display will return to normal after the sensed temperature rises within the 40˚ to 99˚ F (5˚ to 37˚ C) display range. If the temperature in the controlled space seems to be normal, wait for the thermostat to acclimate to the correct room temperature. If the room seems to be colder than usual, turn on the heating system to raise the temperature as needed for comfort within the room. This condition could occur from the system being turned off during a cold weather period or upon installation when the thermostat has been stored for a long period of time in a cold vehicle or location prior to being installed. The thermostat should be allowed to warm up prior to installation to allow proper heating control once installed.
Thermostat will not allow me to program a setpoint temperature lower than 45˚ F (7˚ C).	This is below the normal thermostat temperature setting range of 45˚ to 90˚ F (7˚ to 32˚ C).

6 TROUBLESHOOTING *cont.*

SYMPTOM	POTENTIAL SOLUTION
Thermostat will not allow me to change the setpoint.	The Keypad is locked. Press both the ∧ or ∨ key together at the same time for one second to unlock (see section 5.5).
Fan continues to run all the time whether the system is on or off.	Check that the fan control switch is in the **AUTO** position. This will allow the fan to run only when the heating or cooling system is turned on and running. Check thermostat wiring to make sure that the fan control wiring is connected to the correct terminals on the wiring terminal block. See *Installation and Wiring Diagram* sections of this manual.
Fan continues to run in cooling mode when the system has turned off.	The Residual Cooling Fan Control Feature can allow up to a 90 second fan delay after cooling system shutdown for energy efficiency gains. The default setting is 60 seconds. This can be changed to disable this feature or shorten the time period if desired. See *Setting Residual Cooling Fan Feature* section of this manual.
The thermostat does not allow me to program each day separately.	Change from Weekday-Weekend to 7 Day Mode (see section 4.4).
System turns on prior to the end of a setback period.	Thermostat is in Adaptive Recovery Mode – see section 5.6.

7 WIRING DIAGRAM

Wiring Diagram for 2 Stage Heat, 2 Stage Cool Heat Pump Systems



NOTES: 1. User installed Jumper is required to use Auxiliary heat for both second stage and emergency heat on units without separate emergency heat and auxiliary heat terminals. DO NOT install jumper if both terminals are present.

2. Eliminate connection to Y2 for units with single stage cooling.

3. Make O or B connections as required by unit.

5 YEAR LIMITED WARRANTY

Store this booklet for future reference

ENERGY STAR

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Braeburn Systems LLC, as an Energy Star partner has determined that this product meets the Energy Star Guidelines developed by the U.S. Environmental Protection Agency & the U.S. Department of Energy for maximum energy efficiency.

Braeburn Systems LLC warrants each new Braeburn thermostat against any defects that are due to faulty material or workmanship for a period of five years after the original date of purchase by a professional service technician. This warranty and our liability does not apply to batteries, nor does it include damage to merchandise or the thermostat resulting from accident, alteration, neglect, misuse, improper installation or any other failure to follow Braeburn installation and operating instructions.

Braeburn Systems LLC agrees to repair or replace at its option any Braeburn thermostat under warranty provided it is returned postage prepaid to our warranty facility in a padded carton within the warranty period, with proof of the original date of purchase and a brief description of the malfunction. This limited warranty does not include the cost of removal or re-installation.

This warranty gives you specific legal rights and you may also have other rights that vary from state to state or province to province. Answers to any questions regarding our limited warranty may be obtained by writing our corporate offices.

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Montgomery, IL 60538

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