

Braeburn®

MODEL

5200

*Premier Series
7-Day Programmable
2-Heat/2-Cool & Heat Pump
Digital Thermostat*

OWNERS 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

**2 YEAR
LIMITED
WARRANTY**

**Store this
booklet for
future reference**



Braeburn



Money Isn't All You're Saving

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.

Quick Reference/Installation Guide

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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 single stage systems or other systems with voltages higher than 30 Volt AC.
- This thermostat requires 24 Volt AC power for normal operation and control of the heating or cooling system.
- This thermostat also requires two (2) properly installed "AA" alkaline batteries to retain user settings and programs 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.

1 FEATURES

- Contemporary styling with large display
- 7 Day Programming Flexibility
- AC Powered with Battery Back-up (2 AA Alkaline batteries included)
- Relay Outputs for Maximum Compatibility
- Easy Access Front Battery Door
- Pre-programmed for quick installation
- Meets Title 24 and Energy Star (Energy Saving Guidelines)
- Vacation "HOLD" Mode
- Compressor Short Cycle Protection
- Adjustable 1st & 2nd Stage Temperature Differentials
- Residual Cooling Fan Delay
- Efficient Recovery Mode (ERM™)
- Low battery indication
- Multi-colored LED Status Indicators
- Quick Wiring Terminal Block
- High Temperature Safety Switch

2 SPECIFICATIONS

- Electrical Rating: 24 Volt AC (18-30 Volt AC)
2 amp maximum load per terminal
4 amp total 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, W2, E, G, O, B, L, C

3 INSTALLATION

3.1 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
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

3 INSTALLATION cont.

3.1 Replacing Existing Thermostat cont.

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

NOTE: This thermostat is for use on low voltage 24 Volt AC multi-stage heat pump systems with up to two stages of heating and 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.

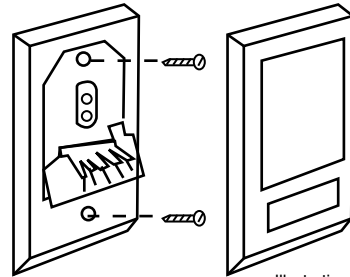
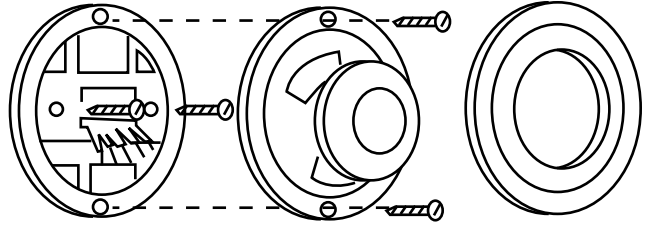


Illustration of round and rectangular mechanical thermostat exploded views.

3.2 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 **OFF** position.
3. Place fan control switch on front of thermostat to **AUTO** position.
4. Remove front of thermostat body from rear body by pressing release latch on bottom of front body.
5. Place the thermostat rear body (mounting plate) against wall in the desired thermostat location.
6. Guide thermostat wires through center hole in rear body. Continue to hold rear body against wall.

3 INSTALLATION *cont.*

3.2 Installing Your New Thermostat *cont.*

- Mark placement of mounting holes as appropriate and drill using a 3/16" drill bit.
- Gently tap supplied plastic anchors into the holes in the wall.
- Place the thermostat rear body (mounting plate) 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 rear body.
- Fasten the rear body (mounting plate) to wall using supplied screws.
- 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.
- 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.
- Attach front body of thermostat to rear body of thermostat being careful to align the terminal pins on the front body with the terminal block on the rear body.
- Open front thermostat door and open battery compartment door.
- 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.
- Close battery compartment.
- Restore system power so you can test installation.

4 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 **COOL** mode of operation if the outside temperature is below 50° F (10° C). This could possibly damage the controlled cooling system & 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 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: *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.*

4 TESTING YOUR NEW THERMOSTAT *cont.*

- Place the system switch in the **HEAT** position.
- Press the \wedge 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.
- Place the system switch in the **OFF** position. The heating system should stop within several seconds.
- 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 & programming if previously programmed.
- Place the system switch in the **COOL** position.
- Press the \vee button on the keypad until the setpoint temperature is a minimum of 3 degrees lower than the current room temperature.
- 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).
- Place the fan switch in the **ON** position. The system blower should start.
- Place the fan switch in the **AUTO** position. The system blower should stop.

5 PROGRAMMING

5.1 Default Thermostat Settings

Function	Status After Reset
Operation Mode	Normal Operating Mode
Temperature Hold	Permanent 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, Emergency Heat and Off 85° F (29.0° 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	1° F (0.5° 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

5.2 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.*

- When in normal operating mode, press **DAY/TIME** keypad button. 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.



5 PROGRAMMING *cont.*

5.2 Setting Current Time of Day and Day of Week *cont.*

2. Press the \wedge or \vee buttons to set the current hour.
3. Press **DAY/TIME** button again, the minute portion of the time will flash.
4. Press the \wedge or \vee buttons to set the current minute.
5. Press **DAY/TIME** button again, the day of the week indicator will flash.
6. Press the \wedge or \vee buttons 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 **RESUME** button is pressed.

5.3 Setting Temperature Differential and Residual Cooling Fan Feature

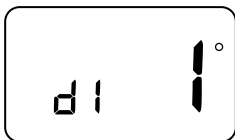
The default settings for the first and second stage differentials and residual cooling fan delay settings are compatible with most systems and applications. This is normally set at time of installation and usually does not require any modification under normal operating conditions. If you feel that the first or second stage of your system is turning on too often, or you wish to change the fan delay settings, simply follow the instructions below.

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

5.3.1 Setting First Stage Differential

The default setting is 1° F (0.5° C). The room temperature must change 1° F (0.5° C) from the setpoint temperature before the thermostat will initiate the system in heating or cooling.

1. In normal operating mode, press & hold **RESUME** button for 4 seconds. LCD display will show "d1 x°", where "x" equals the °F / °C differential setting. This is the current first stage differential setting.



2. Press the \wedge or \vee buttons to set the first stage differential to your desired setting of 1°, 2°, or 3° F (0.5°, 1.0°, or 1.5° C).

NOTE: If you do not desire to change the second stage differential "d2" setting you can wait 15 seconds and the thermostat will automatically return to the normal operating mode. Otherwise, you can press **RESUME** button twice to skip the second stage differential setting and proceed to the residual cooling fan feature setting and refer to step 6 below. Pressing the **RESUME** button three times will skip the second stage differential setting and residual cooling fan feature setting and automatically return you to normal operating mode.

5.3.2 Setting 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.

5 PROGRAMMING *cont.*

5.3 Setting Temperature Differential and Residual Cooling Fan Feature *cont.*

5.3.2 Setting Second Stage Differential *cont.*

3. Press **RESUME** 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 \wedge or \vee buttons 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).

5.3.3 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 off the compressor. This allows the system to provide higher efficiency during cooling operation.

5. Press **RESUME** 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 \wedge or \vee buttons to set the residual cooling fan delay to your desired setting of 0 (disabled), 30, 60, or 90 seconds.

7. Press **RESUME** button again to return to normal operating mode or wait 15 seconds and the thermostat will automatically return to normal operating mode.

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

5.4 Setting Your Energy Saving Programs

5.4.1 Tips Before Starting

- 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. This must be done prior to entering any program settings.
- Both the heating and cooling programs use the same setpoint times, but allow different setpoint temperatures.
- This thermostat is pre-programmed with setpoint times and temperatures recommended by the U.S. Environmental Protection Agency & 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. Review these time and temperature settings prior to establishing your personal program settings to maximize your savings, & minimize programming requirements.

Daily Setpoint	Time	Heat Temperature	Cool Temperature
MORN	6:00 am	70°F (21.0° C)	78°F (26.0° C)
DAY	8:00 am	62°F (17.0° C)	85°F (29.0° C)
EVE	6:00 pm	70°F (21.0° C)	78°F (26.0° C)
NIGHT	10:00pm	62°F (17.0° C)	82°F (28.0° C)

- Make sure you place the system switch in the **HEAT** or **COOL** modes of operation as appropriate. The thermostat will not allow you to enter a program in the **OFF** position. The **EMER** (Emergency Heat) mode will be considered the same as the **HEAT** mode of operation for programming purposes. We do not recommend programming in the **EMER** mode.
- When you place the system switch in the **COOL**, **OFF**, **HEAT** or **EMER**, modes of operation, the appropriate indicator will also appear in the LCD display when the system is running.

5.4.2 Using Quick Program Groups or Individual Day Programming

You can select one of three Quick Program Groups or 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 program mode, you can select the Quick Program Group or Individual Day Programs as you desire.

See **5.4.3 Entering Your Program** section

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 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.

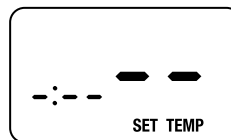
5.4 Setting Your Energy Saving Programs *cont.yt*

5.4.2 Using Quick Program Groups or Individual Day Programming *cont..*

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.

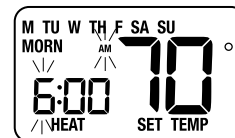
IMPORTANT NOTE! *When in group selection, the thermostat will check if all of the days of that group have the same program setpoint times and temperatures. If so, the time and temperature of the individual setpoint (MORN, DAY, EVE, NIGHT) will be displayed.*



Otherwise, the individual setpoint time and temperature will be blanked. User is allowed to change the daily programs for this individual setpoint time and temperature by pressing the \wedge or \vee buttons. 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 only. Continued pressing of the \wedge or \vee buttons by the user will change the setpoint time and temperature settings as desired.

5.4.3 Entering Your Program

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



- 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**.
- Once you have finished your Quick Program Group or Individual Day selection. Press the \wedge or \vee buttons 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.
- Press the \wedge or \vee buttons to change the time to the desired minute in 10-minute increments, press **PROG** button. The **SET TEMP** will begin flashing.

5 PROGRAMMING *cont..*

5.4 Setting Your Energy Saving Programs *cont.*

5.4.3 Entering Your Program *cont.*

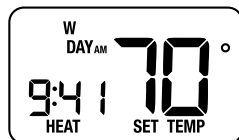
- If you desire to use a different Quick Program Group or Individual Day program mode you can change by pressing the **DAY/TIME** button to select another group in the following sequence, **Whole Week - Weekday - Weekend - Monday - Tuesday - Wednesday - Thursday - Friday - Saturday - Sunday - Whole Week**.
- Once you have finished your Quick Program Group or Individual Day selection. Press the \wedge or \vee buttons 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.
- Press the \wedge or \vee buttons to change the time to the desired minute in 10-minute increments, press **PROG** button. The **SET TEMP** will begin flashing.
- Press the \wedge or \vee buttons to change the setpoint temperature to the desired setting in 1° F increments (0.5° C), press **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.
- Follow steps 4 through 6 to set the setpoint times and temperatures for the **DAY, EVE** and **NIGHT** setpoints for the Quick Program Group or Individual Day selection for the **HEAT** mode.
- 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.
- Repeat steps 3 through 8 for additional Quick Program Groups or Individual Day programming as required.

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

6 ADDITIONAL OPERATION FEATURES

6.1 Review Set Temperature

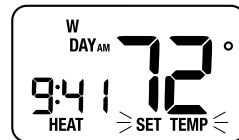
- Press and hold \wedge or \vee buttons. The current setpoint temperature will be displayed in the place of the current room temperature, and the indicator **SET TEMP** will be displayed.
- The display will return to normal operating mode when the \wedge or \vee buttons are released. Continuing to hold the \wedge or \vee buttons for 3 seconds or longer will allow the user to temporarily override the current programmed setpoint (See Temporary Program Override).



6 ADDITIONAL OPERATION FEATURES *cont..*

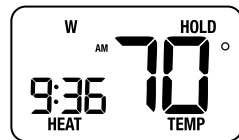
6.2 Temporary Program Override

- Press and hold \wedge or \vee buttons for 3 seconds. The entire display will flash once and the **SET TEMP** indicator will be flashing. Release the \wedge or \vee buttons and press the \wedge or \vee buttons again as desired to adjust the set temperature.
- The display will return to normal operating mode after 15 seconds or you can press **RESUME** button.
- 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.



6.3 Permanent Hold (Vacation) Mode

- Press the **HOLD** button to permanently bypass the program schedule. The current setpoint temperature will be held permanently and **HOLD** and **TEMP** will show in the display.
- Press the **HOLD** button again to return the thermostat to normal program operation.
- You can view or change your setpoint at any time using the \wedge or \vee buttons (see Review Set Temperature or Temporary Program Override).



6.4 Efficient Recovery Mode (ERM™)

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 Efficient Recovery Mode (ERM™) 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.

REMEMBER, this thermostat includes an automatic compressor protection feature to avoid potential damage to the heat pump system from short cycling (See Compressor Protection).

6.5 Compressor Protection

This thermostat includes an automatic compressor protection feature to avoid potential damage to the heat pump system from short cycling. This thermostat automatically provides a 5-minute delay after turning off the heating or cooling heat pump output to protect the compressor.

6 ADDITIONAL OPERATION FEATURES

CONTINUES ON PAGE 11

6 ADDITIONAL OPERATION FEATURES *cont..*

6.5 Compressor Protection *cont.*

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 re-program all of the erased settings.

6.6 High Temperature Safety Switch

While the thermostat is in the **HEAT** mode of operation (selector switch in the **HEAT** position), the thermostat will mechanically turn-off if the room temperature raises higher than 99°F (37° C). There is also a software feature that will automatically turn-off the thermostat in **HEAT** mode if the temperature raises higher than 93° F (34° C).

WARNING! Read *BEFORE* proceeding

Press **RESET** button using a paper clip or a small pencil tip. This will reset the thermostat and return all settings to their default values. Verify your thermostat is controlling your system, see *Testing Your New Thermostat*. If the problems still persist, call a professional service technician immediately to verify proper system operation.

6.7 Changing Fahrenheit (°F) to Celsius (°C)

1. Release the front thermostat body from the rear thermostat body by pressing the release latch on the bottom of the thermostat.
2. Gently separate the two thermostat halves and turn the front thermostat body over exposing the rear view of the circuit board.
3. Locate the internal °F / °C switch on the circuit board.
4. Using your fingers, gently flip the switch towards the preferred temperature °F / °C scale.
5. **Reattach** the front thermostat body by locating the top mounting lugs and swinging the thermostat down until the release latch locks.
6. Press the **RESET** button on the front of the thermostat using a paper clip or a small pencil tip. This will register the new temperature scale default.

NOTE: Resetting the thermostat by pressing the **RESET** button will erase all entered programs, current time of day, day of week and other user settings. This will return all Thermostat settings to their default values. Changing °F / °C temperature scale default should be done prior to installation and before any programming to avoid loss during reset step.

6.8 Low Battery Detection and Replacement

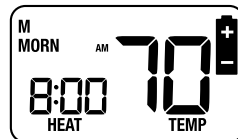
NOTE: This thermostat requires 24 Volt AC power for normal operation and control of the heating or cooling systems. This thermostat also requires two (2) properly installed "AA" alkaline batteries to retain user settings and programs in the event of loss of AC Power due to power outage or rolling blackouts.

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

6 ADDITIONAL OPERATION FEATURES *cont.*

6.8 Low Battery Detection and Replacement *cont.*

When this feature determines that the back-up batteries status is low, low battery indicator will appear in the display. The thermostat will continue to function normally if AC power is provided, but it is strongly recommended to change the back-up batteries as soon as possible to avoid possible program loss due to AC power outage or rolling blackouts. This thermostat requires 24 Volt AC Power for normal operation and control of the heating or cooling systems.



6.8.1 Replacing the Back-up Batteries

1. Open front thermostat door 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.

6.9 Resetting Thermostat

The Reset feature allows the user to completely reset the thermostat to register new manual °F / °C temperature scale switch settings.

1. To erase all entered programs, current time of day, day of week and other user settings, gently press **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 °F / °C temperature scale switch settings.

6.10 Multi-Colored LED Status Indicators



The three multi-colored LED Status Indicators 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.

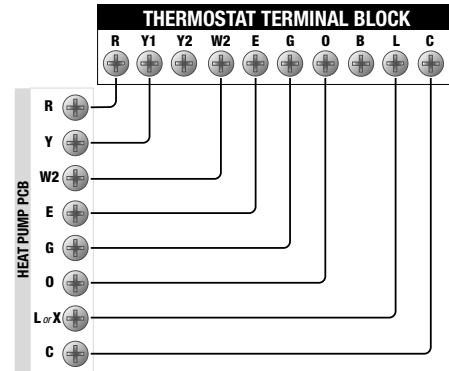
EMER(Red): This indicator will light when you select Emergency Heat Mode of operation using the system selector switch. When you select Emergency Heat Mode, the heat pump stage of heat is turned off and the emergency (auxiliary) stage of heating is used to maintain the setpoint temperature.

SYMPTOM	POTENTIAL SOLUTION
Thermostat does not turn on heating or cooling system.	<p>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.</p> <p>Compressor protection features may be in effect due to compressor short cycle conditions. See <i>Compressor Protection</i> section for full explanation of this feature.</p> <p>Heat Pump may be malfunctioning. Review the CHECK status indicator light to see if it is lit. 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.</p>
Thermostat turns on heating instead of cooling.	Check thermostat wiring to make sure that the heating and cooling stages are connected to the correct terminals on the wiring terminal block. See <i>Installation and Wiring Diagrams</i> sections of this manual.
Thermostat turns on 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 <i>Installation and Wiring Diagrams</i> sections of this manual.
Thermostat will not follow program setpoints.	<p>Check current time of day, day of week program settings. Make sure to verify AM/PM indicator is accurately displaying desired time settings. See <i>Setting Current Time of Day and Day of Week</i> section of this manual.</p> <p>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.</p> <p>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 <i>Setting Your Energy Saving Program</i> section of this manual.</p> <p>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.</p> <p>Thermostat program is in Permanent 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.</p>
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 <i>Setting Temperature Differential and Residual Cooling Fan Feature</i> section of this manual.

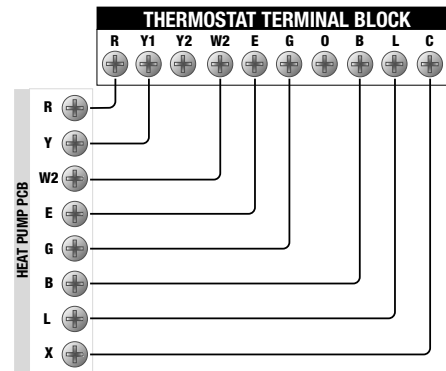
SYMPTOM	POTENTIAL SOLUTION
Thermostat turns on second (auxiliary) stage of heating or cooling too quickly or not quickly enough.	Increase or decrease second (auxiliary) stage temperature differential setting as appropriate to provide the desired performance level. See <i>Setting Temperature Differential and Residual Cooling Fan Feature</i> section of this manual.
Low Battery Indicator is shown in thermostat display.	Replace back-up batteries as soon as possible. See <i>Low Battery Detection and Replacement</i> 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 the HEAT or COOL position. After the compressor short cycle protection 5-minute period expires the system should start within several seconds.
	
Thermostat display is blank.	<p>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 re-programming thermostat to make sure you have back-up power. See <i>Low Battery Detection and Replacement</i> and <i>Setting Your Energy Saving Program</i> sections of this manual.</p> <p>If AC Power is present, call a professional service technician to verify thermostat and system performance.</p>
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.	<p>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.</p> <p>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).</p>
	

SYMPTOM	POTENTIAL SOLUTION
<p>LO is shown in the thermostat display where the room temperature is normally displayed.</p> 	<p>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.</p> <p>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.</p>
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).
Fan continues to run all the time whether the system is on or off.	<p>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.</p> <p>Check thermostat wiring to make sure that the fan control wiring is connected to the correct terminals on the wiring terminal block. See <i>Installation and Wiring Diagrams</i> sections of this manual.</p>
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 <i>Setting Residual Cooling Fan Feature</i> section of this manual.
The room is too warm or too cold.	See <i>Review Set Temperature</i> section of this manual to verify the current setpoint and make any modifications that are necessary.

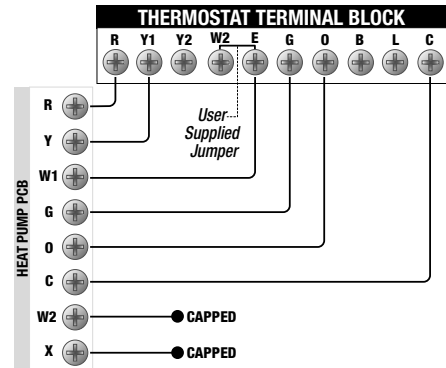
Typical Carrier, Bryant, Payne, Day & Night and Reliant Heat Pumps



Typical Coleman, Rheem and Ruud Heat Pumps

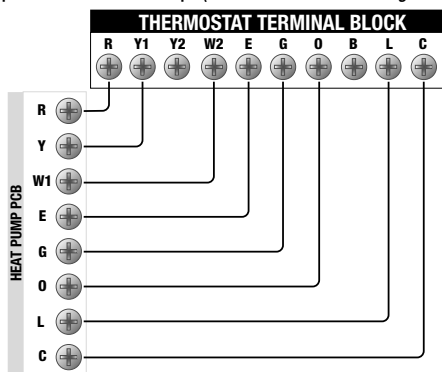


Typical Comfortmaker and Heil-Quaker Heat Pumps

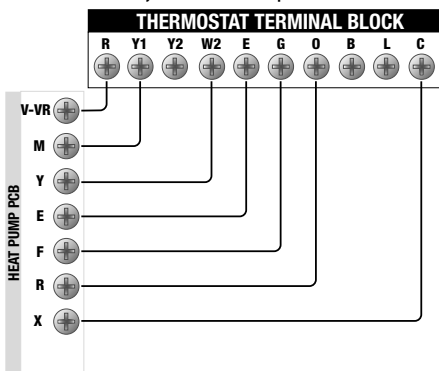


8 WIRING DIAGRAMS *cont.*

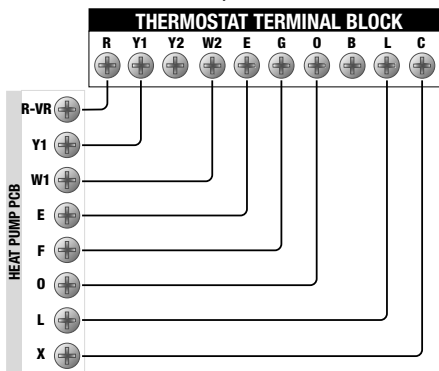
Typical **Lennox** Heat Pumps (also see other Lennox diagrams)



Typical **Lennox HP19, HP20** Heat Pumps

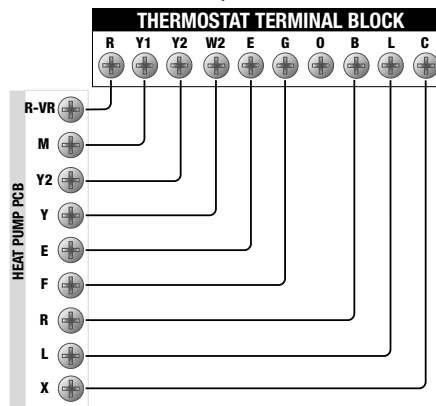


Typical **Lennox HP21** Heat Pump

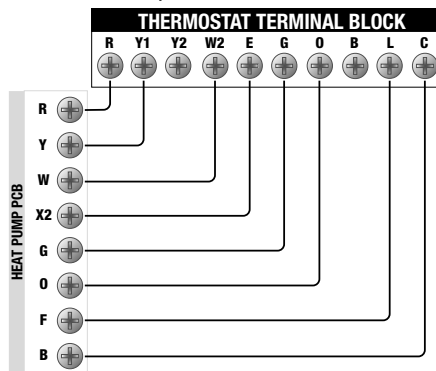


8 WIRING DIAGRAMS *cont.*

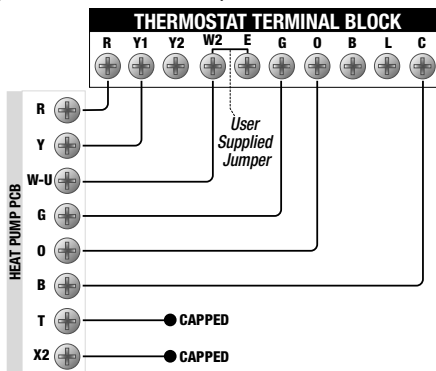
Typical **Lennox HP22** Heat Pump



Typical **Trane** Heat Pumps

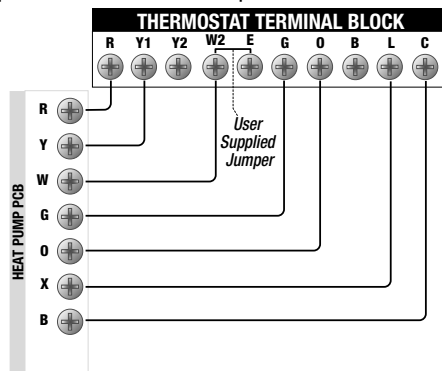


Typical **Weathertron** Heat Pumps



8 WIRING DIAGRAMS *cont.*

Typical York E1 Series Heat Pumps



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2 YEAR LIMITED WARRANTY

Braeburn Systems LLC warrants each new Braeburn thermostat against any defects that are due to faulty material or workmanship for a period of two 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.

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Attn: Warranty Department
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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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