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User's Manual
8403-060

Menu Driven
Display 1120-445A

I. CONTROLLER OPERATION

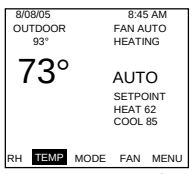


Figure1

ADJUSTING TEMPERATURE (Temporary Override when in Programmable mode)

1. Before you can adjust the temperature, a MODE must be selected. If you are already in a Heating or Cooling mode, then skip to step 5.
2. To select a MODE, use the keypad arrows to scroll to MODE, and then press the center button ■ on the key pad to enter the operating mode menu.
3. Select the desired mode by scrolling up or down, with the arrows ▲▼, and then press the center button ■ on the keypad to enter into that mode.
4. You are now returned to the Main Menu and Figure 1 is a similar view. NOTE: Outdoor temperature is only displayed if an outdoor sensor is installed.
5. To increase the temperature set point, use the arrow up button ▲. To decrease the set point, use the arrow down button ▼. Press the center button ■ on the key pad for the new set point to be effective.

SETTING DATE AND TIME

1. From the Main Menu, scroll to MENU and press the center button ■ on the keypad.

2. Select SET DATE AND TIME
3. If your area observes daylight savings time, select AUTO DAYLIGHT SAVING, scroll to ON, then press the center button ■ to save. You will be returned to the select SET DATE AND TIME menu. Scroll to SET DATE AND TIME and press the center button ■ on the keypad.
4. SET MONTH by using the up and down arrows ▼▲, and then press the center button on the keypad to save the month.
5. SET DAY by using the up and down arrows ▼▲, and then press the center button on the keypad to save the day.
6. SET YEAR by using the up and down arrows ▼▲, and then press the center button on the keypad to save the year.
7. SET HOUR by using the up and down arrows ▼▲, and then press the center button on the keypad to save the hour.
8. SET MINUTE by using the up and down arrows ▼▲, and then press the center button ■ on the keypad to save the minute.
9. Date and Time are now set. You can return to the Main Menu by pressing the left arrow key to return to the previous menu.

TIME CLOCK RETENTION DURING POWER LOSS

The time clock setting will be maintained for approximately 8-hours during a power outage. If outage lasts longer than 8-hours only the time clock would need to be reset, all other settings are retained in permanent memory until changed by installer/user. If power comes on even momentarily during the first 8-hours of outage a new 8-hour period is started from that point.

HOLD SETTING -- Vacation & Permanent (In Programmable mode only)

This section describes the HOLD functions. You can program the controller to hold the temperature for a period of time. If you want to hold the temperature for a few hours or a few weeks, your controller can accommodate your schedule.

VACATION HOLD (In Programmable mode only)

1. From the Main Menu, scroll to MENU and press the center button ■ on the keypad.
2. Select HOLD → VACATION
3. First, the controller prompts you for a temperature to hold. If you are in AUTO MODE you will be prompted for both a heat setting and a cool setting. Use the up and down arrows keys ▼▲ to select the desired temperature and press the center button on the keypad.
4. Next it will prompt you for a date and time that you wish to return to programmed operation. Returning to the Main Screen, you will notice that in the upper part of the screen is alternating HOLD TIL *date and time you specified* and the actual date and time.
5. To cancel this hold, scroll to CANCEL HOLD from the Main Menu and press the center button ■.

PERMANENT HOLD (In Programmable mode only)

1. From the Main Menu, scroll to MENU and press the center button ■ on the keypad.
2. Select HOLD → PERMANENT
3. First, the thermostat prompts you for a temperature to hold. If you are in AUTO MODE you will be prompted for both a heat setting and a cool setting. Use the up and down arrows keys ▼▲ to select the desired temperature and press the center button on the keypad.
4. Returning to the Main Screen, you will notice that in the upper part of the screen is alternating PERMANENT HOLD and the actual date and time.
5. You can adjust to permanent hold temperature at will, and the temperature you select will remain until the permanent hold is canceled.
6. To cancel this hold, scroll to CANCEL HOLD from the Main Menu and press the center button ■. This will revert to the programmed settings.

FAN OPERATION

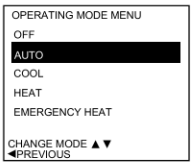
The controller can operate the fan in three ways:

AUTO (on only during heating and cooling calls)
ON (always on)
PROGRAMMED FAN (fan follows the program set in the program screen) (In programmable mode only)

NOTE: When set for 2 business events per day and the fan is set to PROGRAMMED FAN, the fan will run and the Ventilation output (A) will be on when in the OCCUPIED (Active) time.

1. From the Main Menu, scroll to MENU and press the center button on the keypad ■.
2. Select FAN.
3. Select the operation you desire as described above.

CHANGING MODES



1. From the main screen select MODE.
2. Select the operating mode you need and press the center button ■.

NOTE: If selecting EMERGENCY HEAT, the backlight color will change from blue to red indicating that Auxiliary heat is operating instead of the heat pump compressor. Auxiliary/emergency heat is significantly more expensive to operate than the heat pump compressor, and should not be selected unless the heat pump compressor is not operational. Available in HEAT PUMP configuration only.

FAHRENHEIT OR CELSIUS

1. From the Main Menu, scroll to MENU and press the center button ■ on the keypad.
2. Select SETTINGS → SCREEN SETTINGS → FAHRENHEIT OR CELSIUS
3. Select which scale you prefer.

12 OR 24 HOUR CLOCK

Within this menu option, you can change the timed displayed by your controller to 24 Hour time (Military Time).

1. From the Main Menu, scroll to MENU and press the center button ■ on the keypad.
2. Select SETTINGS → SCREEN SETTINGS → 12 OR 24 HOUR CLOCK
3. Select which time base you prefer.

CONTRAST ADJUSTMENT

You can change the contrast level of your controller screen to be displayed to your preference.

1. From the Main Menu, scroll to MENU and press the center button on the keypad.
2. Select SETTINGS → SCREEN SETTINGS → CONTRAST
3. Use the up and down arrows ▼▲ to increase or decrease the contrast level.
4. Press the center button to accept the new setting.

BACKLIGHT ON TIME

This controller has a two color backlight feature. Anytime a button is pressed, the blue backlight stays on for a certain amount of time. A red backlight is visible if you are selecting Emergency Heat mode. You can adjust the amount of time the backlight stays on in the menu options.

1. From the Main Menu, scroll to MENU and press the center button ■ on the keypad.
2. Select SETTINGS → SCREEN SETTINGS → BACKLIGHT ON TIME
3. You can change the backlight on time by using to up and down arrows ▼▲. 30, 60, 90, 120, and ON (all the time) are your choices. Press the center button to save the new backlight on time.

CLEARING SERVICE MESSAGES

This controller gives you an indication to replace your air filter, service your humidifier, UV lamps, or service you equipment in intervals determined by the installer. When it is time to replace your air filter, a message will appear on the top line of your controller to CHANGE AIR FILTER. If this message appears it can be cleared by highlighting the CANCEL ALARM, on the bottom line, and pressing the center button ■ on the keypad. This will clear the message until the next interval.

SERVICE NEEDED

NOTE: This only applies to controllers configured for Heat Pump and not used with CS2000-Series Energy Control Monitors. Only qualified maintenance staff should attempt the following procedure.

1. If the L input is connected to the L terminal in the heat pump 24V control panel the SERVICE NEEDED screen will appear and change to RED if the heat pump has locked out for a refrigerant pressure safety condition.
2. Touch any of the 5 buttons and the display will change for 10-seconds to read REFRIGERANT PRESSURE LOCKOUT -- CHECK SYSTEM AND RESET SYSTEM LOCKOUT.
3. The display will then return to the normal operating screen, and a manual reset of the lockout circuit can be done by switching

the MODE to OFF, and then back to the operating mode, typically AUTO.

4. If step 3 is not done within 10-minutes the display will automatically return to the SERVICE NEEDED screen in RED.

II. PROGRAMMING YOUR CONTROLLER (programmable models only)

PROGRAMMING A DAY OR A SERIES OF DAYS

After selecting the programming screen, you have the option of programming everyday, weekdays, weekends, or individual days. Once you've selected a certain day to program, a screen appears that allows you to set the time, heat setting, cool setting, and fan operation for each event.

1. From the Main Menu, scroll to MENU and press the center button ■ on the keypad.
2. Select PROGRAM
3. Select PROGRAMMABLE.
4. You can program each day differently by going through each day and personalizing them. Or, you can program everyday the same by scrolling to EVERYDAY. Or, you can program the weekdays or weekends the same by selecting the appropriate menu item.

5. To program everyday the same, select EVERYDAY and then press the center button ■.
6. Using the right arrow button ►, highlight the WAKE time, and change to desired time by using the up and down arrow ▼▲ buttons. Move to the next entry by using the right arrow button ►. To change the HEAT set point, use the up and down arrows.

Continue this process until all settings are to your liking.

7. The FAN setting will only be used if the Fan is set to PROGRAMMED. If the Events are set to 2 per day in the Business mode, the fan will be ON and the Ventilation output (A) will be ON when the time is in the OCCUPIED (Active) state. In the Unoccupied (IDLE) state, the fan will run in the operating mode set by the program.
8. To save these setting, scroll to SAVE, and press the center button ■.

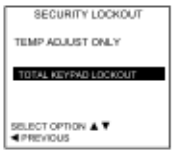
COPYING A PROGRAM FROM ONE DAY TO ANOTHER

In the PROGRAM menu, there is an option to COPY. The option can be used to copy the program from one day to another day. After COPY is selected, the controller will prompt you for which day to copy from. Next, it will prompt you for which day to copy the program to. After these selections, it will then confirm what is being copied to where. At this point you have the option of canceling the copy process, by pressing ◄ to return to the copy menu, or saving what you have by pressing the center button ■. The SAVED screen will appear returning you to the copy menu. Pressing ◄ will return you to the PROGRAM menu. Pressing ◄ again will return you to the MAIN MENU.

SECURITY LOCKOUT

This controller has the option to set security features to lockout everything but the adjustment of the temperature or a total keypad lockout.

1. From the Main Menu, scroll to MENU and press the center button ■ on the keypad.
2. Select SECURITY LOCKOUT.
3. Select whether you want to lockout everything but TEMP ADJUST ONLY or TOTAL KEYPAD LOCKOUT.



4. Either selection will bring you to the Enter Pin Number screen.
5. Using the up and down arrows ▼▲, select a pin number to lock out the thermostat. The right arrow ► moves you to the next pin digit.

6. Once you've entered the 4-digit pin number, press the center button ■ to save the pin. The screen will display LOCKED and return to the main Screen.
7. Once you return to the Main Screen, in the upper left of the screen will alternate between LOCKED and the date and time.
8. If you selected TEMP ADJUST ONLY, you will only be able to adjust the set point temperature. Any other operation will require the pin number to unlock the controller.
9. Once unlocked, you'll have to set a pin number again to lockout the thermostat again.

AUTO CHANGEOVER

With auto changeover, the controller automatically switches itself from heating to cooling, or vise versa, based on the setpoints. When setting up the controller you have to enter both a cooling setpoint and a heating setpoint. The controller will also prevent the user from setting the cooling setpoint lower than the heating setpoint. Mode is set to AUTO for this operation to work.

MENU → SETTINGS → AUTO CHANGEOVER

Auto Changeover Time - This setting sets the minimum off time before the controller can change from one mode to another. Default is 10 minutes. Range is from 5-120 minutes in 5 minute increments. Pressing the Right and Left buttons together for 3 seconds will over ride this delay for one cycle.

Auto or Manual Change – Default is AUTO. If MANUAL is chosen, you will need to change from heating to cooling or vise versa. When MANUAL is set, AUTO is removed from the MODE screen as a choice.

INTERMITTENT FAN

MENU → SETTINGS → INTERMITTENT FAN

Temperature conditions can vary widely between the controller location and extremities of the space the controller serves. This air stratification problem can be especially pronounced during mild outdoor conditions when long periods elapse between space conditioning demands from the controller. This intermittent fan operation can also improve the performance of air cleaning or special filtration systems that locate the cleaning or filtration media at the return air side of the fan.

1. If the FAN hasn't been on for an hour, the fan will start cycling based on these times. Default is OFF. The first screen is the amount of time you want the fan to be energized. Ranges are OFF, or 5-20 minutes in 5 minute increments.

2. After entering this time and pressing the center button ■, the next screen is the amount of time the fan is OFF. Ranges are 0 minutes, or 5-40 minutes in 5 minute increments.
3. After entering this time and pressing the center button ■ you will be returned to the Setting Menu screen.

4. Fan ON and OFF cycles will continue until the fan has been energized by a call for heating or cooling.

SERVICE INFORMATION

MENU → SETTINGS → SERVICE INFORMATION

These screens help an installer or contractor to have a good understanding of what problems might be occurring before arriving for service. The options are TEMPERATURE and INPUTS. The TEMPERATURE will display the internal sensor temperature, the Room temperature and the reading from the Outdoor thermistor. INPUTS displays the status of the controller control lines. (W1/E, W2, Y1, Y2, G, O/B, A, Y0/D)

WARNING: Before installing controller, turn off all power to unit. There may be more than one power disconnect. Electrical shock can cause personal injury or death.

INSTALLER

INFORMATION / ADVANCED FEATURES

SAFETY CONSIDERATIONS

Improper wiring or installation may damage controller. Wiring must conform to local and national electrical codes

INTRODUCTION

The controller is a wall mounted, 24VAC low-voltage controller which maintains room temperature by controlling the operation of a heating and air conditioning system. Batteries are not required; temperature and mode settings are preserved with the power off.

INSTALLATION CONSIDERATIONS

The controller requires no batteries. The controller is not a power stealing device and MUST have both R and C connected.

INSTALLATION

IV. CONTROLLER LOCATION

Controller should be mounted:

- Approximately 5 ft. (1.5m) from floor.
- Close to or in a frequently used room, preferably on an inside partitioning wall.
- On a section of wall without pipes or duct work.

Controller should NOT be mounted:

- Close to a window, on an outside wall, or next to a door leading to the outside.
- Exposed to direct light and heat from a lamp, sun, fireplace, or other temperature-radiating object which may cause a false reading.
- Close to or in direct airflow from supply registers and return-air grilles.
- In areas with poor air circulation, such as behind a door or in an alcove.

V. INSTALL CONTROLLER

1. Turn off all power to unit.
2. If an existing thermostat is being replaced:
   A. Remove existing thermostat from wall.
   B. Disconnect wires from existing thermostat, one at a time. Be careful not to allow wires to fall back into the wall.
   C. As each wire is disconnected, record wire color and terminal marking.
   D. Discard or recycle old thermostat.

   NOTE: Mercury is a hazardous waste and MUST be disposed of properly.
3. Separate the front and back pieces of plastic.
4. Route thermostat wires through hole in back piece of plastic. Level plastic against wall (for aesthetic value only - thermostat need not be leveled for proper operation) and mark wall through 2 mounting holes.
5. Drill two 3/16-in. mounting holes in wall where marked.
6. Secure back plastic to wall with 2 anchors and screws provided making sure all wires extend through hole in plastic.
7. Use minimum of 22-gauge wiring, 18-gauge is recommended, for basic controller wiring. Shielded twisted pair should be used for optional remote indoor and outdoor sensors. Connect wires to proper terminal of the connector block in the front plastic.
8. Push any excess wire back into wall. Excess wire inside the controller plastic case can interfere with proper air flow across the temperature sensor. Seal hole in wall to prevent air leaks. Leaks can affect operation.
9. Snap front and back pieces of plastic together.
10. Turn on power to the unit.

VI. INSTALLER SETTINGS

NOTE: These options are intended to be used by the installer. End users are not advised to change or modify any of these settings. Doing so may make your equipment stop working properly and/or may void the warranty of the controller as well as the equipment hooked up to the controller. To access the installer setting menu, the mode must be set to OFF. Then, press both the up and down arrows keys at the same time for at least 5 seconds to enter the installer screen.

MODEL CONFIGURATION

Options to select from:
HEAT COOL/**HEAT PUMP,**
SINGLE STAGE/**MULTI STAGE**,
ECONOMIZER/**NO ECONOMIZER**
CS2000A INSTALLED..YES OR **NO**
PROGRAMMABLE/NONPROGRAMMABLE
BOLD items are default

NOTE: - If CS2000A is installed, the controller will inhibit all outputs except the Y0/D when there is no 24Vac applied to the L input on the thermostat. When the CS2000A is not installed, the L input is the Lock out signal from the heat pump.

ACCESSORIES

Each of these options has settings for Cumulative Run Time and Calendar Time. Messages will flash at the top of the Main screen when these events are met to alert the owner that it is time service these options.

Air Filter - Cumulative Run Time default is 1000 hours and Calendar Time is 3 months. Values can range from 400-3600 hours for Cumulative Run Time (in 100 hour increments), or Calendar Time can be set to OFF, or 1-48 months (in 1 month increments).

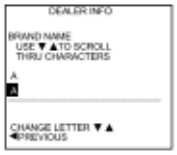
Humidifier - Cumulative Run Time default is 0 hours (OFF) and Calendar Time is OFF. Values can range from 400-3600 hours for Cumulative Run Time (in 100 hour increments), or Calendar Time can be set to OFF, or 1-24 months (in 1 month increments).

UV Lamp - Cumulative Run Time default is 0 hours (OFF) and Calendar Time is OFF. Values can range from 400-12000 hours for Cumulative Run Time (in 100 hour increments), or Calendar Time can be set to OFF, or 1-48 months (in 1 month increments).

Air Cleaner - Cumulative Run Time default is 0 hours (OFF) and Calendar Time is OFF. Values can range from 400-3600 hours for Cumulative Run Time (in 100 hour increments), or Calendar Time can be set to OFF, or 1-24 months (in 1 month increments).

INPUT DEALER INFO

Contractors are able to input Brand Name, Unit Model Number, Contractor Name, and Contractor Phone number into these screens. This way, the owner could give this information to the contractor so that he would know what system the owner has prior to the service visit.



1. Scroll to the info you want to enter and press the center button ■.
2. Enter the information by scroll through the characters using the up & down arrows ▼▲. Once the character you want is set, press the right arrow ► to move to the next space and begin entering another character.
3. Once you've completed filling out the field, press the center button ■ to save the entry and return to the INPUT DEALER INFO screen. Repeat this process for all fields you want saved.
4. Once all fields have been entered, scroll to SAVE and press the center button ■.

FAN WITH HEAT OPTION

Options are ON or OFF. This selection determines whether G (fan) output is to be ON or OFF when W (auxiliary heat) output is ON. Default is ON.

DEHUMIDIFICATION CONTROL

If your system is equipped with dehumidification circuit, this output controls that function.

OCCUPIED ONLY
FULL TIME DEHUMIDIFY
NONE
DIFFERENTIAL

To adjust the Set Point for Dehumidification, Select the RH from the Main menu. The values can be selected and adjusted from that screen. Range is 45-95%, default is 60%.
NOTE: Humidity can be displayed even if not being actively controlled.

OCCUPIED ONLY - Turns on the D output when the room humidity is above the set humidity level only during the OCCUPIED (ACTIVE) time.

FULL TIME DEHUMIDIFY - Turns on the D output when the room humidity is above the set humidity level all the time.
NONE – Neither is active.
DIFFERENTIAL – Sets the difference between the dehumidification set-point and when this sequence turns off. Range is 5-40%, default is 5%.

REVERSING VALVE OPTION - Option of the reversing valve (O/B output) being on when in cooling or heating. Default is HEATING.

RESTORE DEFAULTS - This will allow you to revert to the factory default settings. The configuration settings (HEAT COOL / HEAT PUMP, MULTI/SINGLE, and ECONOMIZER/NOECONOMIZER are NOT reset by this command. Also, accessory internal settings are not reset when using Default Reset.

OFFSETS

TEMPERATURE OFFSETS
This option allows calibration (or deliberate miscalibration) of the room temperature sensor(s). There are various reasons why the displayed temperature would be adjusted to a higher or lower value. **NOTE:** Do not adjust for 30 minutes after installation because board may be heated by handling. The selected number is the number of degrees, plus or minus, which will be added to actual temperature. The numbers can range between -5˚ and +5˚. Default values are set to 0˚ offset.
Temperature Offset
Remote Indoor Offset (if sensor is attached)
Outdoor Offset (if sensor is attached)

HUMIDITY OFFSET
This option allows calibration of the humidity sensor. Adjustments can range between -10% and +10%. Default is 0% offset.

ANTICIPATOR
This adjustment controls the sensitivity and cycle rate of the controller. Higher numbers decrease the cycle rate. Lower numbers increase the cycle rate. Default value is 0, and the range is 0-9.

DIFFERENTIAL
This adjustment will vary the number of degrees, from the set point, before a call for heating or cooling is made. Adjustments can range between 1˚ and 4˚ differential. Default is 2˚ offset. (If your set point is 70˚F in heating, your thermostat will not call for heat until the temperature is 68˚F, with a 2˚ differential). 3rd stage Cool differential is the same as 2nd stage cool differential. Third stage heat differential in HEAT PUMP is the AUX setting.

CYCLES PER HOUR
This feature will not allow more than the specified number of equipment cycles per hour. Values can range from 4 to 8 Factory default setting is 6. (or 1 cycle every 10 minutes.). This default selection will provide optimum performance in nearly all installations.

PROGRAM SETTINGS

SMART RECOVERY
Smart recovery is a feature of your controller designed to save energy by gradually adjusting temperatures. When it's time for a programmed temperature change, smart recovery begins working in advance, turning the
system on and off as needed to slowly adjust the indoor temperature. During these transition periods, you may notice that the actual temperature and your temperature setting don't match. That's smart recovery in action, adjusting temperatures in small increments for greater energy efficiency. This is more energy efficient than simply allowing the system to operate at full capacity until the desired temperature has been met. Smart Recovery helps avoid excessive use of auxiliary heat when recovering from night setback in the heating mode.

EVENTS PER DAY
This is where you can set the number of events per day. (An event is a period of time scheduled with a certain heating and cooling setpoint.) For instance if you are away from your home from 8am to 5pm, make this period of time an event and set the thermostat at an energy saving setting. You have the option of setting the events per day to 4-RESIDENTIAL (4 events), 2-RESIDENTIAL (2 events) or 2-BUSINESS (2 events). Default is 2 – BUSINESS.

4-RESIDENTIAL (Default) 2-RESIDENTIAL 2-BUSINESS

SMART HEAT STAGING (HEAT PUMP ONLY)
This will allow the controller to engage in 3rd stage heating if needed. Options are ON or OFF. Default is OFF. Range for this are 0-120 minutes in 5 minute increments, if set to ON. 45 minutes is the default time. This is the time before the electric heat is engaged.

COOLING LOCKOUT
When an outdoor temperature sensor is installed, you can set it up so cooling option doesn't energize if the outdoor temperature is below a certain temperature. Ranges for this are NONE (default), 40˚F , 45˚F, 50˚F, or 55˚F.

ELECTRIC HEAT LOCKOUT
When an outdoor temperature sensor is installed, you can set it up so the electric heat option doesn't energize if the outdoor temperature is above a certain temperature. Ranges for this are NONE (default), 5˚F to 60˚F in 5˚ increments.

HEAT PUMP LOCKOUT
When an outdoor temperature sensor is installed, you can set it up so the Heat pump will not operate when the outdoor temperature is below a set temperature. Ranges for this are NONE (default), 5˚F to 50˚F in 5˚ increments.

TEST MODE
When test mode is selected, the system can be operated in any of the available operational modes for 30 minutes. The system will run the set mode regardless of the temperature set point and room temperature. The display will flash a red screen as a reminder that you are in the test mode.

RESET TO DEFAULTS
Selecting Reset to Defaults will set all of the options to the factory default setting with the exception of the configuration settings. The configuration settings and the accessory internal settings need to be set and reset individually.

TEMPERATURE RANGE

This is accessed from the Installer Settings menu and regulates the maximum Heat and minimum Cool settings the thermostat can be adjusted to. The factory default for occupied set-points is 74°F for Cooling and 70°F for Heating. The factory default for the minimum Cooling allowed is 70°F and the factory default for the maximum Heating is 72°F.

When operated in Auto changeover mode there is a default minimum differential of 2°F between Cooling and Heating, so if Cooling was adjusted down to the 70°F minimum it will force Heating to 68°F.

To access and make any changes to the Maximum Heat or Minimum Cool settings use the following procedure:

1. Set Mode to Off
2. Press center button to SAVE, screen will say SAVED.
3. Simultaneously press the up and down arrows for 5 seconds until Installer Setting screen appears.
4. Use up or down arrows to scroll the menu to Temperature Range, it is on the 2nd screen.
5. Press center button to access the Maximum Heat and then Minimum Cool screens making changes as desired.
6. Press center button to SAVE, screen will say SAVED and then exit out of the Installer Menu using left arrow to get back to the normal operating screen.
7. Change Mode to Heat, Cool or Auto as desired.

OUTDOOR SENSOR

If the system is equipped with an optional outdoor temperature sensor, Bard PN 8403-061(1125-2), it is possible to allow the controller to operate the heat pump system in the most efficient manner possible. By setting the COOLING LOCKOUT, ELECTERIC HEAT LOCKOUT, and the HEAT PUMP LOCKOUT you can avoid running the heat pump when the outdoor temperature is too low to operate efficiently. You can also avoid running the electric heat when the outdoor temperature is high enough to allow the heat pump to maintain a comfortable temperature.

COOLING LOCKOUT is defaulted to NONE which is disabled.
Selectable range is from 40˚-55˚ in 5˚ increments.
ELECTRIC HEAT LOCKOUT is defaulted to NONE which is disabled.
Selectable range is from 5˚-60˚ in 5˚ increments.
HEAT PUMP LOCKOUT is defaulted to NONE which is disabled.
Selectable range is from 5˚-50˚ in 5˚ increments. OPERATION: If compressor is turned off due to outdoor temperature going below set-point while the compressor is operating it will stay off until the room thermostat set-point is reached even if the temperature at the outdoor temperature rises above the outdoor sensor setting. The next operating cycle will be based on what the temperature is at the outdoor sensor at time of call for heating.
The OUTDOOR sensor is connected to the OD and GND terminals on the controller, and when connected, the outdoor temperature is automatically displayed on the controller screen.

REMOTE INDOOR SENSOR

Allows selection of the optional remote sensor, Bard PN 8403-062(1125-50), to determine indoor temperature. (**NOTE:** If no Remote Indoor Sensor is connected during initial configuration process, the Remote Indoor Sensor selection does not display in the Installer Menu. If a Remote Indoor Sensor is connected at a later date, the controller will recognize the connection, and the selection step will automatically be added to the Installer Menu.) Options are REMOTE SENSOR ONLY, AVERAGE WITH STAT, and NO REMOTE SENSOR. Selecting REMOTE SENSOR ONLY, allows the indoor sensor to take control of temperature sensing(if connected). Selecting AVERAGE WITH STAT, will average the temperature of the on-board sensor to the indoor sensor, and selecting NO REMOTE SENSOR, will use the on-board temperature sensor.
The REMOTE SENSOR is connected to the ID and GND on the controller terminals.

24V CONTROL WIRING

All excess wire should be pushed back into the wall as far as possible. Excess wire inside the thermostat plastic case may interfere with the air flow across the temperature sensor.

THERMOSTAT CONNECTIONS

C – 24V Common for Control Circuit
R – 24V Supply for Control Circuit
W1/E – E Heat/ First Stage Heat
W2 – Second Stage Heat
O/B – Reversing Valve - energized in HEAT mode(B is default)
Y1 – 1st Stage Compressor / Cooling / Heating
Y2 – 2nd Stage Compressor / Cooling / Heating
Y0/D – Economizer / Dehumidifier output*
A – Ventilation Output
G – Fan
L – Input for CS2000A or compressor fault
A+, B – Not Used.
GND – Ground **
OD – Outdoor Temperature Sensor **
ID – Indoor Temperature Sensor **

*Controller must be configured for “No Economizer” for dehumidification control to be active

**Shielded twisted pair should be used for remote Indoor and Outdoor Sensors to avoid any possible interference from other electrical systems or other external sources. The shield (drain) should be connected to 24V Common (C) at the controller.

For specific 24V control circuit wiring refer to the Bard Low Voltage Control Circuit Wiring manuals or the equipment installation instructions packaged with each piece of equipment.