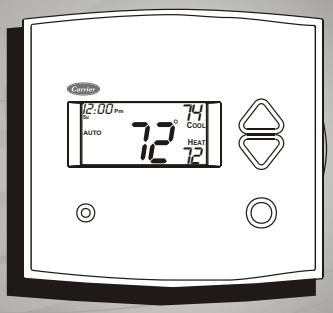
# OWNER'S MANUAL

COMMERCIAL
THERMOSTAT
P/N 33CS400-01

Carrier

## DIGITAL THERMOSTAT
NON-PROGRAMMABLE

HEAT COOL & HEAT PUMP




- **3 Configurable Outputs**
- **Control up to 3 Heat & 2 Cool Stages**
- Backlit Display & Button Legends
- Aux Heat Indicator
- Dry Contact Equipped
- Set Point Limiting
- Remote Sensor Ready
- Outdoor Sensor Ready
- Accepts EZ Programmer™
- Accepts Optional Humidity Module: Controls Humidification, Dehumidification and Reheat
- Accepts Optional IR Remote Control

***Accepts the OPTIONAL HUMIDITY MODULE***

- Use with most Air Conditioning & Heating Systems including: 1 or 2 Stage Electric Cooling & 3 Stage Gas Heating, Heat Pump, Electric or Hydronic Heat.

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**Carrier Corporation 04/06**

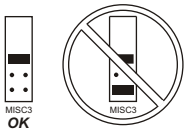
## CAUTION

Follow the Installation Instructions before proceeding. Set the thermostat mode to “OFF” prior to changing settings in setup or restoring Factory Defaults.

## CAUTION

NEVER PUT MORE THAN ONE JUMPER ON THE SAME MISC JUMPER BLOCK!

THIS MAY DAMAGE YOUR THERMOSTAT.




***NOTE:*** Due to variations in environmental conditions, it is not always possible to achieve the desired humidification or dehumidification setpoint.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

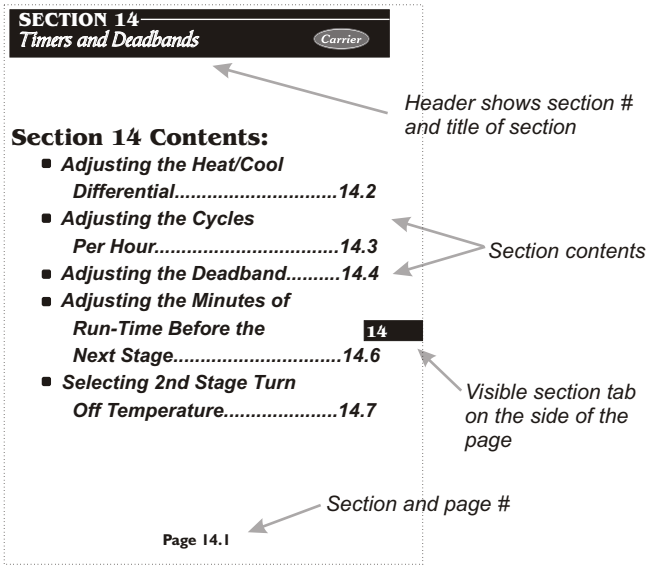
c UL us LISTED 4Z95

Thermostat 33CS400-01
Tested to Comply with FCC Standards
FOR HOME OR OFFICE USE

# How to Use This Manual

**The Table of Contents divides the thermostat features into sections making it easier to quickly find information.**

**The first page of each section contains a more detailed list of the contents within that section, such as the example page shown below.**




*In addition, this manual also has an Index to help you find any information regarding this thermostat quickly.*

# Glossary of Terms

**Auto-Changeover:** A mode in which the thermostat will turn on the heating or cooling based on room temperature demand.

**Configurable Output Jumper:** Using jumpers on the thermostat you can configure the MISC1, MISC2, and MISC3 terminals to control humidification, dehumidification, and 2nd stage cooling.

**Cool Setpoint:** The warmest temperature that the space should rise to before cooling is turned on (without regards to deadband).

**Deadband:** The number of degrees the thermostat will wait, once setpoint has been reached, before energizing heating or cooling.

**Dehumidify:** To reduce the amount of moisture in the air.

**Differential:** The forced temperature difference between the *heat setpoint* and the *cool setpoint*.

**Heat Setpoint:** The coolest temperature that the space should drop to before heating is turned on (without regards to deadband).

**Humidify:** To increase the amount of moisture in the air.

**Icon:** The word or symbol that appears on the thermostat display.

**Mode:** The current operating condition of the thermostat (i.e. Off, Heat, Cool, *Auto*).

**Non-Programmable Thermostat:** A thermostat that does not have the capability of running the *Time Period Programming.*

**Temperature Swing:** *Same as Deadband.*

# Table of Contents

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# Section 1 Contents:



***Note:*** *Following the instructions in this section will allow you to operate your thermostat using the factory default settings. These settings are depicted in the illustrations throughout this manual.*

# Selecting the Heat or Cool Mode



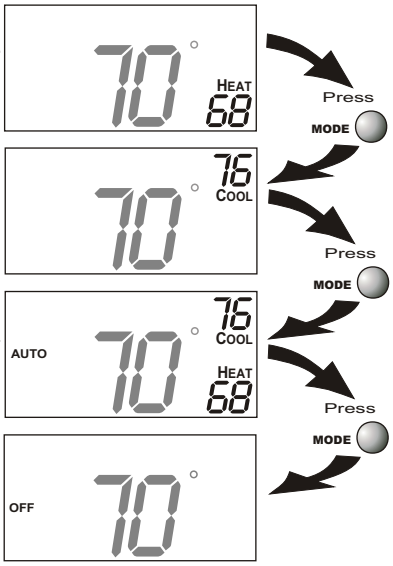
## Select Mode by Pressing the MODE Button

***Heating Only***
*The **HEAT** setting indicates the temperature the room has to reach before the furnace will turn on to heat the room.*

***Cooling Only***
*The **COOL** setting indicates the temperature the room has to reach before the air conditioner will turn on to cool the room.*

***Heating or Cooling***
***AUTO** will automatically select heat or cool based on room temperature demand.*

***Off***
***OFF** indicates both heating and air conditioning systems are turned off.*



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## 1 *Selecting Your Desired Temperature (adjusting the setpoints)*

**AUTO MODE**

Pressing the UP or DOWN buttons in Auto mode will adjust **both** the heat and cool set temperatures simultaneously.


Adjust the desired set temperature with the

buttons.

**HEAT OR COOL MODE**

Pressing the UP or DOWN buttons in Heat **or** Cool mode will adjust only the heat **or** cool set temperature.


Adjust the desired set temperature with the

buttons.

## *Using the Fan Button*


Press FAN 

**Fan On** indicates constant fan operation. If Fan On is selected the fan will run continuously at all times, except in Off, **and** will only run if there is a heating or cooling demand in Unoccupied periods. Pressing the FAN button toggles this feature on or off.

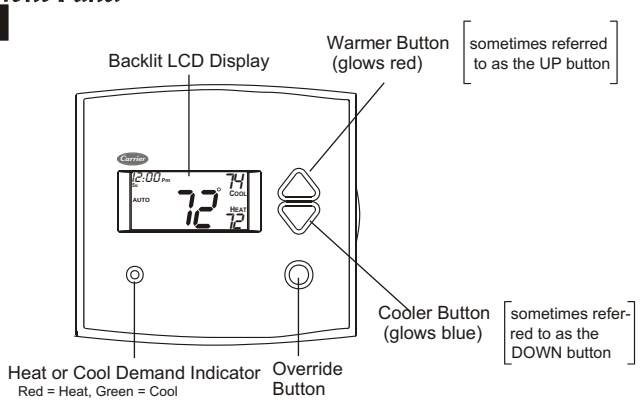
**SECTION 2**
*Getting to Know Your Thermostat*

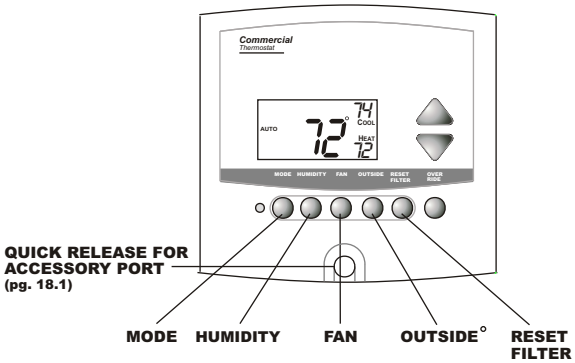
2

## Section 2 Contents:

# Front Panel

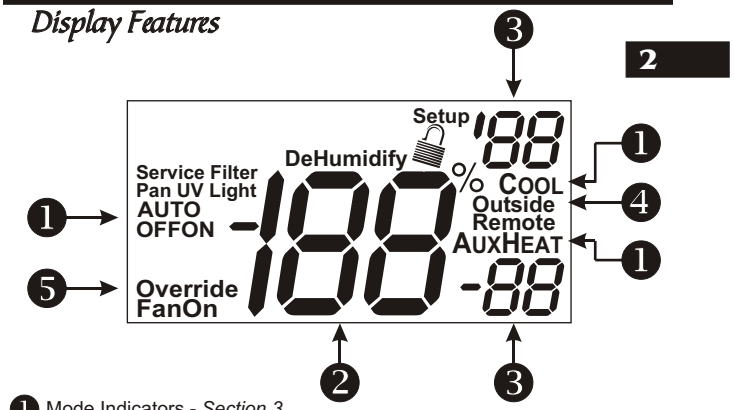
## 2



## *Display Features*






1 Mode Indicators - *Section 3*
Selects the operational mode of the equipment.
**HEAT** - Indicates the heating mode.
**COOL** - Indicates the air conditioning mode.
**AUTO** - Indicates the system will automatically changeover between heat and cool modes as the temperature varies.
**OFF** - Indicates heating and cooling is turned off.

2 Room Temperature Display - *Section 4*
Indicates the current room temperature and displays the outside temperature when selected.

3 Desired Set Temperature - *Section 3/4*
Indicates desired room temperature(s). Also displays the daily maximum and minimum outside temperatures.

4 **Outside** icon - *Section 4*
Indicates the temperature displayed is from the optional outside sensor.

5 **Override** icon - *Section 5*
Indicates the Unoccupied mode of the thermostat is being overriden for up to 4 hours.

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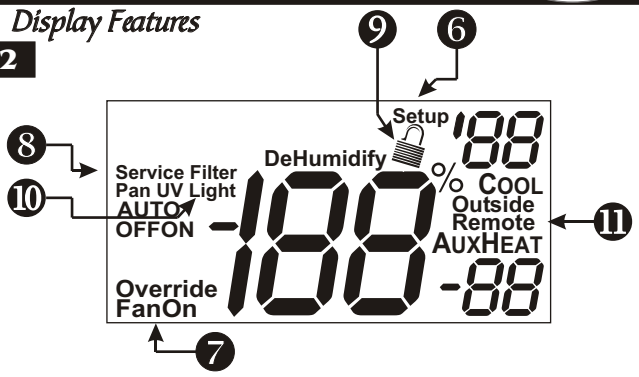
# Display Features

**2**




6 **Setup** icon - *Sections 6-15*
Indicates the thermostat is in the setup mode.

7 **Fan On** icon - *Section 6*
Indicates constant, continuous fan operation. When **Fan On** is not lit - indicates the fan will only operate when necessary to heat or to cool.

8 **Service Filter** icon - *Section 15*
Appears when the filter should be serviced under normal conditions. Adjustable from 0 - 1950 hours of blower operation.

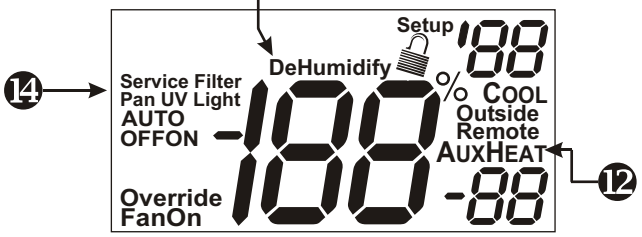
9 icon - *Section 7*
Indicates keypad has been locked.

10 **UV Light** icon - *Section 10/15*
Appears when the UV bulb should be serviced under normal conditions. Adjustable from 0 - 1950 days of operation.

11 **Remote** icon - *Pages 4.2, 13.3 & 17.3*
Indicates the remote sensor reading of the thermostat is being viewed.

## *Display Features*






**12** **AuxHeat** icon - *Page 12.4*
Indicates 2nd stage electric strip heat is being used when the thermostat is programmed for Heat Pump operation.

**13** **Humidify/DeHumidify** icon - *Sections 8-9*
Indicates the system is currently humidifying/dehumidifying the air.

**14** **Service Pan** icon - *Section 14*
Indicates that a sensor (accessory) has detected the condensate drain pan is full and the compressor (Y1) has been locked out.

3

# Section 3 Contents:



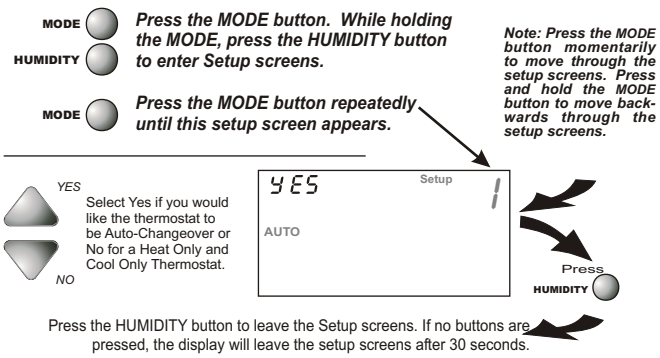
***Note:*** *During setup & programming pressing the UP or DOWN buttons will modify the flashing selection.*

# *Manual or Auto-Changeover Thermostat*

3

When the very simplest operation is desired, this thermostat may be configured to be a manual heat and cool thermostat. Follow the step below.

The thermostat may be programmed to function as a Heat Only or Cool Only thermostat by selecting 'NO' in the setup screen below. This will lockout the Auto-Changeover screen and only allow the Off, Heat, and Cool screens to be accessed.



## *Operating Mode when the Thermostat is Configured to be:*

**3** MANUAL-CHANGEOVER - If the thermostat is configured to be Manual-Changeover, the following screens will be available by pressing the MODE button.

### *Select the Mode by Pressing the MODE Button*

***Heating Only***

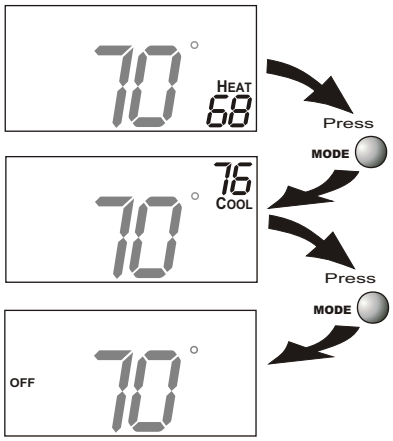
*The **HEAT** setting indicates the temperature the room has to reach before the furnace will turn on to heat the room.*

***Cooling Only***

*The **COOL** setting indicates the temperature the room has to reach before the air conditioner will turn on to cool the room.*

***Off***

***OFF** indicates both heating and air conditioning systems are turned off.*



# Operating Mode when the Thermostat is Configured to be:



AUTO-CHANGEOVER - If the thermostat is configured to be Auto-Changeover, the following screens will be available by pressing the MODE button.

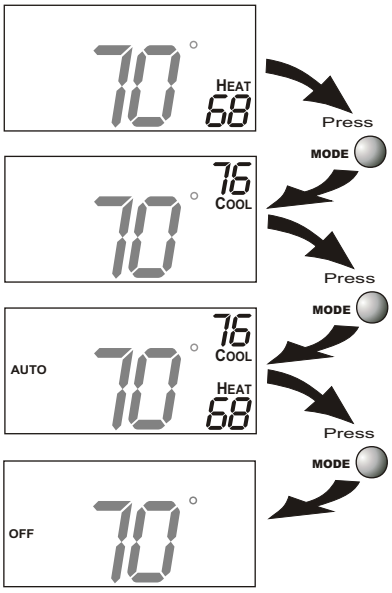
### Select the Mode by Pressing the MODE Button

***Heating Only***
*The **HEAT** setting indicates the temperature the room has to reach before the furnace will turn on to heat the room.*

***Cooling Only***
*The **COOL** setting indicates the temperature the room has to reach before the air conditioner will turn on to cool the room.*

***Heating or Cooling***
***AUTO** will automatically select heat or cool based on room temperature demand.*

***Off***
***OFF** indicates both heating and air conditioning systems are turned off.*



# *Selecting Your Desired Temperature (adjusting setpoints)*

**3**

**AUTO MODE**

Pressing the UP or DOWN buttons in Auto mode will adjust **both** the heat and cool set temperatures simultaneously. For more information on this see page 12.2.


Adjust the desired set temperature with the

buttons.

---

**HEAT OR COOL MODE**

Pressing the UP or DOWN buttons in Heat **or** Cool modes will adjust only the heat **or** cool set temperature.


Adjust the desired set temperature with the

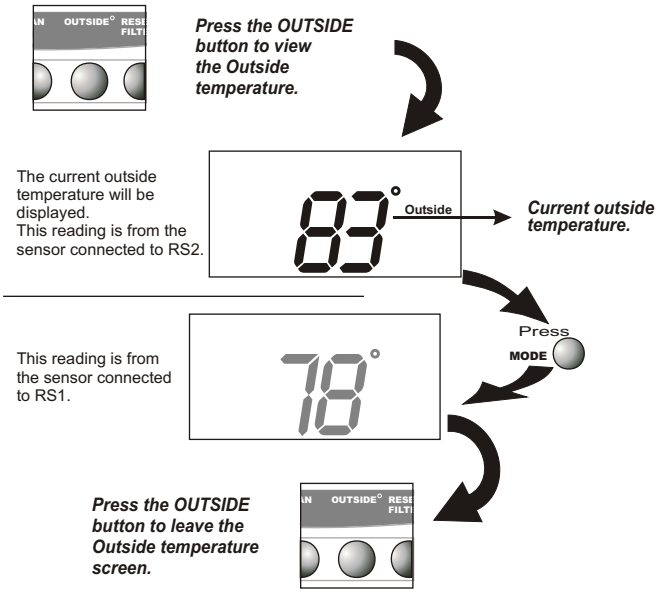
buttons.

## Section 4 Contents:

# Viewing the Outside Temperature

4

Requires an outside sensor (optional accessory) to be installed (*see page 13.2 for wiring instructions*). To read the temperature from the outside sensor, press the OUTSIDE button. The display will then show the current outside temperature.



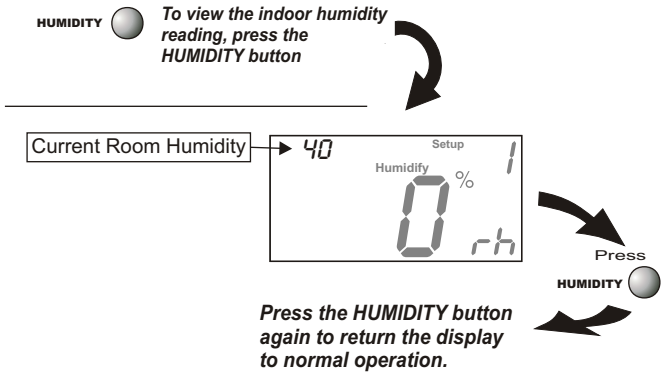

***Note: If no sensors are connected 2 dashes [- -] will appear on the display.***

## *Viewing the Indoor Humidity*



Requires the Humidity Module (optional accessory) to be installed. To display the current humidity at the thermostat, press the HUMIDITY button. The display will then show the current indoor humidity along with the humidification setpoint (*Section 8*).

***Note:*** The humidity reading will not appear unless the Humidity Module has been installed. If the Humidity Module has not been installed dashes will appear in place of the humidity reading.




NOTE: Due to variations in environmental conditions, it is not always possible to achieve the desired humidification or dehumidification setpoint.

# SECTION 5
## *Override Operation*

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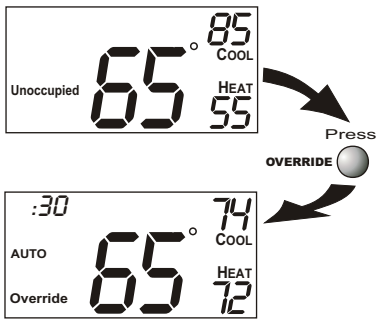
### *Overriding the Normal Operation*

The OVERRIDE button may only be used when the Dry Contact has forced the thermostat into the Unoccupied mode.

**Unoccupied Operation -** During a Dry Contact forced unoccupied period pressing the OVERRIDE button will temporarily force the thermostat into the mode it was in before the Dry Contact forced it into the Unoccupied mode.
For example: If the thermostat was in the Auto mode and the Dry Contact forced the thermostat into the Unoccupied mode, then pressing the OVERRIDE button will force the thermostat back into the Auto mode.
The remaining override time will be displayed in the upper left hand corner of the display. The override timer can be set up to a maximum of four (4:00) hours, in increments of 30 minutes. If the timer has been set for the maximum time, the next press of the OVERRIDE button will reset the timer, returning the thermostat to the Unoccupied mode.
To adjust the setpoints for the Unoccupied mode, see page 15.4.



**SECTION 6**
*Programming the Fan Operation*

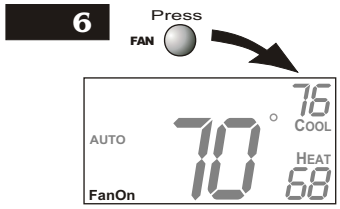
## Section 6 Contents:

6

## Using the Fan Button

When the fan is set for automatic operation it will energize any time there is a call for heating or cooling, otherwise the fan will remain off. Pressing the FAN button will energize the fan and display the **FanOn** icon on the thermostat display. To operate the fan in the automatic mode, press the FAN button again and the FanOn icon will disappear.

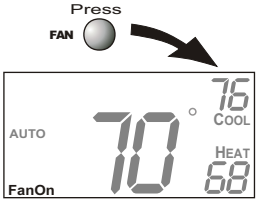
6




**Fan On** indicates constant fan operation. If Fan On is selected the fan will run continuously at all times, except in Off, **and** will only run if there is a heating or cooling demand in Unoccupied periods. Pressing the FAN button toggles this feature on or off.

## Smart Fan Operation

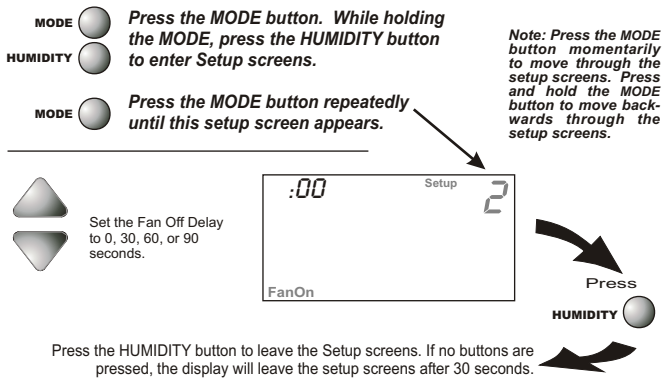
This feature allows the fan to run continuously in Heat, Cool or Auto mode, and automatically de-energize during dry contact initiated Unoccupied periods (*see page 14.3*), except when necessary to heat or cool. To use this feature, place the thermostat in the Heat, Cool or Auto mode. Next, press the FAN button to display the **FanOn** icon (*see below*).



# Setting the Fan-Off Time Delay

To increase cooling efficiency of your unit, the thermostat may be programmed to continue running the fan after a call for cooling has been satisfied. This delay may be set for 30, 60, or 90 seconds. If the Fan Off Delay is set for zero seconds, the fan will not energize after a call for cooling has been satisfied.

6



## Section 7 Contents:

## Turning On/Off the Backlight

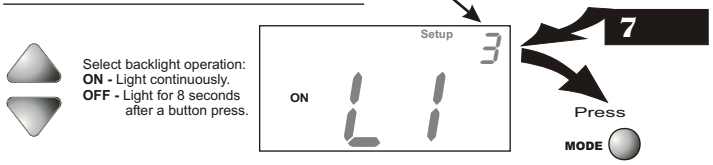
MODE
HUMIDITY

***Press the MODE button. While holding the MODE, press the HUMIDITY button to enter Setup screens.***

MODE

***Press the MODE button repeatedly until this setup screen appears.***

***Note: Press the MODE button momentarily to move through the setup screens. Press and hold the MODE button to move backwards through the setup screens.***




Select backlight operation:
**ON -** Light continuously.
**OFF -** Light for 8 seconds after a button press.

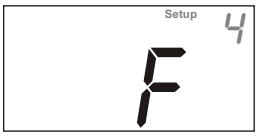
Press
MODE

## Programming the Thermostat to Display Temperature in Fahrenheit or Celsius

C

Select thermostat operation in degrees **F**ahrenheit or **C**elsius.

F



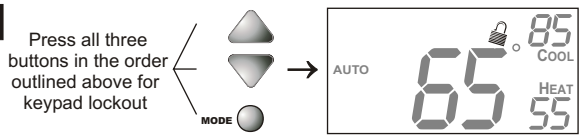

Press
HUMIDITY

Press the HUMIDITY button to leave the Setup screens. If no buttons are pressed, the display will leave the setup screens after 30 seconds.

## *Locking/Unlocking the Keypad*

To prevent unauthorized use of the thermostat, the front panel buttons may be disabled. To disable, or 'lock' the keypad, press and hold the MODE button. While holding the MODE button, press the UP and DOWN buttons together. The icon will appear on the display, then release the buttons.

**7**

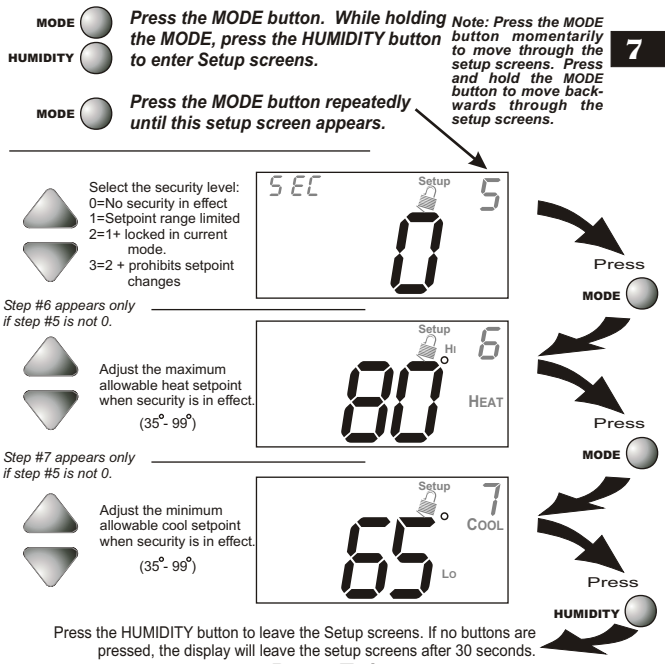



To ***unlock*** the keypad, press and hold the MODE button. While holding the MODE button, press the UP and DOWN buttons together. The icon will disappear from the display, then release the buttons.

# Programming a Security Level

When a security level has been programmed, the thermostat will allow limited adjustment to the setpoints (*steps # 6 and 7*). In security levels 2 and 3, the thermostat is forced into the Program On mode. To disable the security feature, set the value in step #5 to 0; this will cause steps # 6 and 7 not to appear.





# Section 8 Contents:





***NOTE: The humidification functions described in this section will only be available if a Humidity Module has been properly installed.***

***Disclaimer:***
*The manufacturer of this thermostat cannot be liable for misinstallation, improper connection or improper programming of the humidity functions of this thermostat that may result in water damage or mold growth.*

*Additionally, the manufacturer of this thermostat is not responsible for the fitness of the humidifier and/or installation of said humidifier connected to this thermostat. Furthermore, the maintenance of the humidifier components, including but not limited to, the filters and pads are not the responsibility of the thermostat manufacturer.*

*The Humidifier Service icon is only a suggestive reminder and should not take the place of the humidifier manufacturer's required maintenance requirements and schedule.*

# *Installing the Humidity Module*

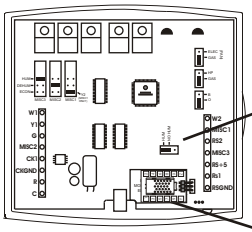
To install the Humidity Module the thermostat must be detached from the back plate. Plug the Humidity Module into the Humidity Module connector as shown in Figure 2 below. Follow the detailed instructions included with the Humidity Module accessory. Once the Humidity Module has been installed, you must adjust the Humidity jumper setting to HUM as shown in Figure 1 below. This will allow you to access the humidification and dehumidification setup steps.

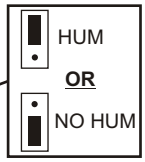
**For proper humidity operation, this jumper must be set for HUM.**



**Figure 1**

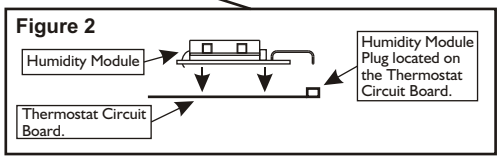
**Back of 33CS400-01**






**Install the Humidity Module**
**(see Humidity Module Instruction Sheet for more detailed information).**

**Figure 2**

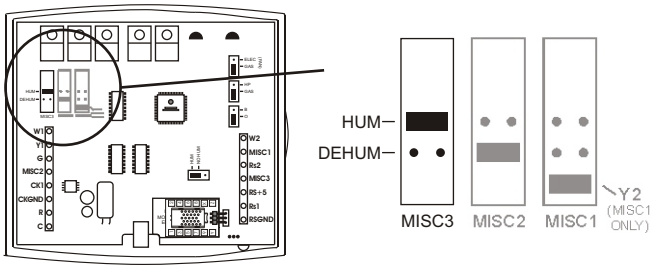


## *Setting a Thermostat Jumper for Humidity Operation*

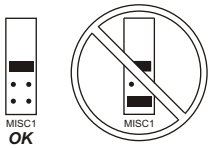
To control a MISC output for humidification, place the MISC1, MISC2, or MISC3 jumper on the terminal labeled HUM (*see diagram below*). This will supply 24VAC to the selected MISC terminal based on the humidification programming in the following pages. Only one of the three outputs (MISC1, MISC2, or MISC3) is required to have this jumper. *For more information regarding the MISC1, MISC2, and MISC3 outputs, please see Section 16.*

**8**

*In the diagram below, the MISC3 jumper has been set for HUM (humidify) operation.*




**IMPORTANT CAUTION**



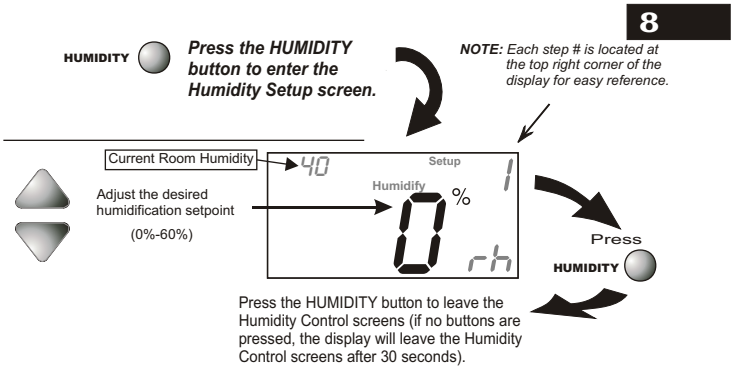

***NEVER PUT MORE THAN ONE JUMPER ON THE SAME MISC JUMPER BLOCK!***

***THIS MAY DAMAGE THE THERMOSTAT AND VOID YOUR WARRANTY***

# *Adjusting the Humidification Setpoint*

If your HVAC unit is equipped with a humidification system and the Humidity Module has been installed, the thermostat will provide power to the appropriate terminal on the backplate of the thermostat when the humidity in the home falls below the setpoint you have chosen. The value for this setpoint ranges from 0% to 60%.

NOTE: Due to variations in environmental conditions, it is not always possible to achieve the desired humidification or dehumidification setpoint.




***Humidification Notes:*** *Press the button to set the humidity setpoint to 0% for no humidification operation.*

You cannot set the dehumidify setpoint any lower than the humidify setpoint; a 5% differential is forced between the humidify and dehumidify setpoints.

# Section 9 Contents:





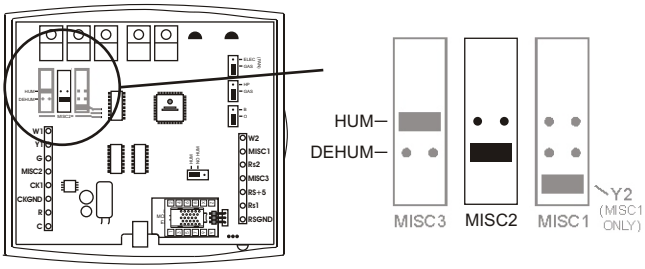
***NOTE: The dehumidification functions described in this section will only be available if a Humidity Module has been properly installed. For instructions on installing the Humidity Module please see page 8.2.***

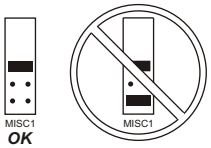
# *Setting a Thermostat Jumper for Dehumidification Operation*

To control a MISC output for dehumidification, install the Humidity Module and place the Humidity Jumper on HUM (*see page 8.2*). Then place the MISC1, MISC2, or MISC3 jumper on the terminal labeled DEHUM (*see diagram below*). This will supply 24VAC to the selected MISC terminal based on the programming in the following pages. Only one of the three outputs (MISC1, MISC2, or MISC3) is required to have a jumper. *For more information regarding the MISC1, MISC2, and MISC3 outputs, please see section 16.*

**9**

*In the diagram below, the MISC2 jumper has been set for DEHUM (dehumidification) operation.*




**IMPORTANT CAUTION**

***NEVER PUT MORE THAN ONE JUMPER ON THE SAME MISC JUMPER BLOCK!***

***THIS MAY DAMAGE THE THERMOSTAT AND VOID YOUR WARRANTY***

# Adjusting the Dehumidification Setpoint

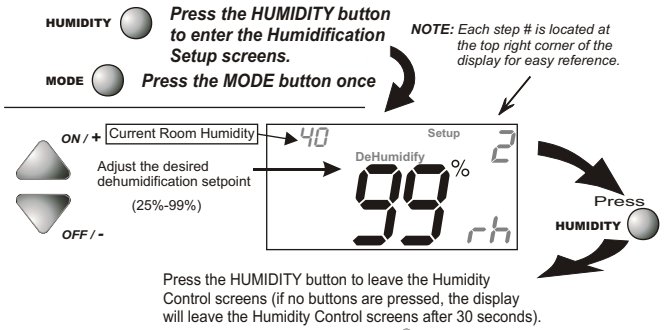
**Dehum Terminal:** If a MISC terminal selected for DEHUM operation (*see page 9.2)* then the thermostat will provide power to this terminal the when the humidity in the home is above the setpoint you have chosen. See page 9.6 for detailed programming instructions. To utilize this feature your HVAC unit must be equipped with a DEHUM terminal.

**Cool to Dehumidify:** If the thermostat is programmed for Cool to Dehumidify operation, then the thermostat will energize the cooling system any time the humidity in the home is above the setpoint you have chosen. See page 9.4 for detailed programming instructions.

In each case, when the indoor humidity falls below the setpoint you have selected, Cool to Dehumidify and the MISC terminal will be de-energized. The value for this setpoint ranges from 25% to 99%.

9

NOTE: Due to variations in environmental conditions, it is not always possible to achieve the desired humidification or dehumidification setpoint.



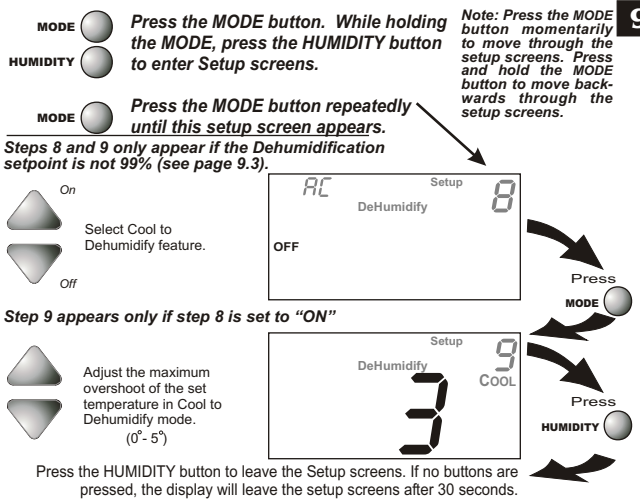

***Dehumidification Notes:*** *Press the button to set the dehumidification setpoint to 99% for no dehumidification operation. This will lockout Advanced Setup steps 8 and 9 (see page 9.4).*

You cannot set the dehumidify setpoint any lower than the humidify setpoint; a 5% differential is forced between the humidify and dehumidify setpoints.

# Using Your Air Conditioner to Dehumidify

If Cool to Dehumidify is on and the Humidity Module is installed, the thermostat has the ability to initiate a cooling cycle for advanced dehumidification operation. When the thermostat detects the humidity percentage is above the setpoint for dehumidification, and heating or cooling is not on, the thermostat will force the compressor to run with the fan, thus reducing moisture in the air. The green LED will blink once every eight seconds to indicate this is taking place. This feature will also allow you to adjust the cooling overshoot of the setpoint, from 0° to 5° (adjustable in step #9). *For Example: If the cooling overshoot is set for 3°F and the cooling setpoint is set for 74°F, then as long as the room temperature reads between 71°F and 74°F this feature will energize the compressor and fan to dehumidify the air.*






***Dehumidification Notes:*** *The thermostat must be in the Cool or Auto mode for the Cool to Dehumidify feature to be available.*

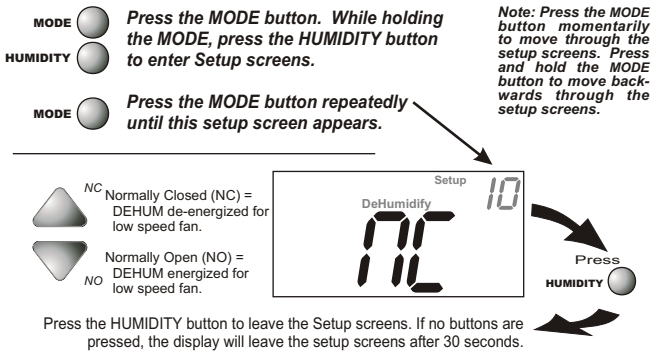
# Using the Dehum Terminal

If you configure a MISC output jumper for DEHUM, it may be programmed to operate in one of two ways:

1) **Normally Closed** (NC): The thermostat will de-energize the DEHUM terminal to allow the fan to run in low speed when there is a call for 1st stage cooling and the room humidity is greater than the dehumidification setpoint.

2) **Normally Open** (NO): The thermostat will energize the DEHUM terminal to allow the fan to run in low speed when there is a call for 1st stage cooling only and the room humidity is greater than the dehumidification setpoint.



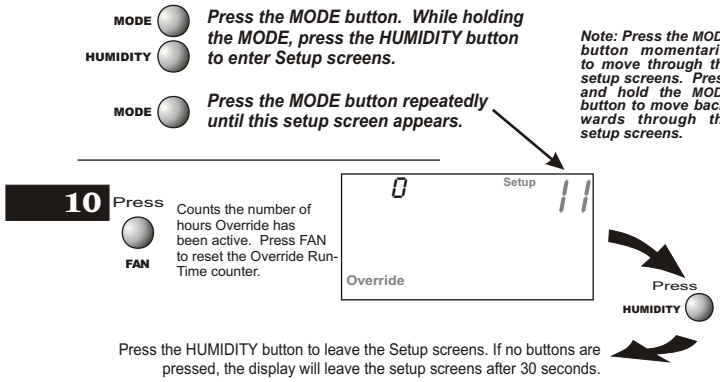



***Dehumidification Notes:*** The DEHUM terminal will "release" and allow the fan to operate normally if there is call for 2nd stage cooling or if the call for Cooling and/or Cool to Dehumidify has been satisfied.

# Section 10 Contents:

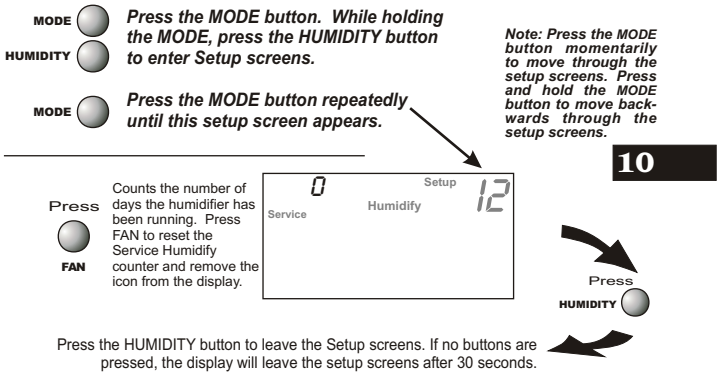
## *Viewing the Override Operation Run-Time*

This display will track the number of hours that your thermostat has been operating in the Override mode (*see page 5.1*). Press the FAN button to reset the counter.



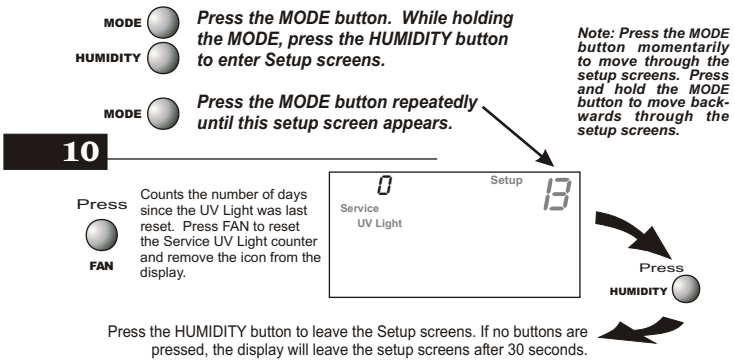
# *Viewing the Humidification Run-Time*

After your humidification system has been operating for the number of days set in step #12 below, the Service Humidify icon will appear. This counter keeps track of the number of days since the Service Humidify icon was reset.



## *Viewing the UV Light Run-Time*

After the UV light has been operating for the number of days set in step #13 below, the Service UV Light icon will appear. This counter keeps track of the number of days since the UV light icon was last reset.



**SECTION 11**
*Electric Heat and Heat Pump Operation*

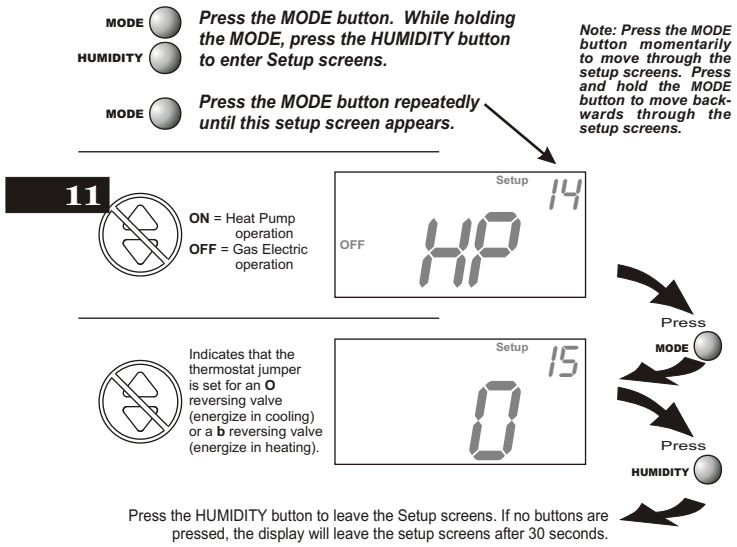
Carrier

# Section 11 Contents:

Carrier

# *Viewing the Heat Pump and Reversing Valve Jumper Settings*

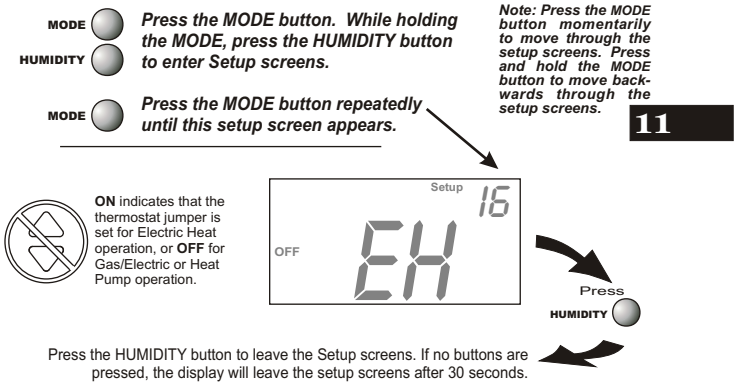
Steps 14 and 15 are 'Read Only' and may only be set with the jumpers on the circuit board of the thermostat.



# *Viewing the Electric Heat Jumper Setting*

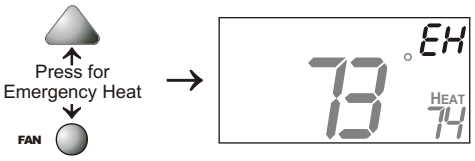
Placing the jumper on ELEC will cause the thermostat to turn on the fan immediately any time there is a heat demand. Since most gas furnaces control the fan, this feature should be off unless it is necessary for the thermostat to energize the fan with first stage heat.

Step 16 is 'Read Only' and may only be set with the jumpers on the circuit board of the thermostat.



## Using Emergency Heat

***ENTER EMERGENCY HEAT:*** Only available if you have a Heat Pump installed. To initiate the Emergency Heat feature, press the FAN button. While holding the FAN button press the UP button. The Cool setpoint display will read 'EH' (emergency heat).




**11**

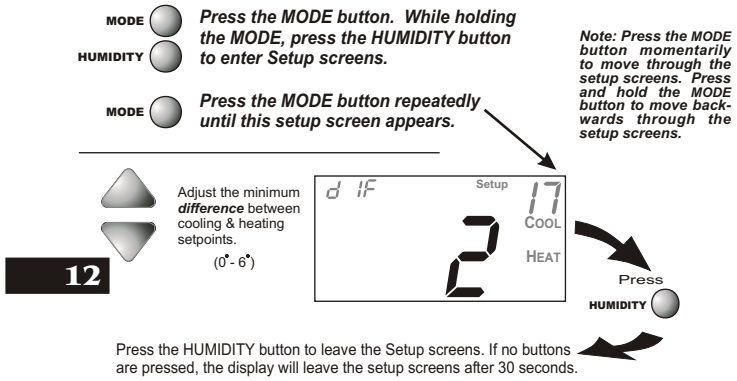
***OPERATION:*** During Emergency Heat operation the thermostat will turn on the fan and the 2nd stage of heat when there is a demand for heat. Also during Emergency Heat the 1st stage of heating or cooling will be unavailable.

***EXIT EMERGENCY HEAT:*** Follow the same steps as entering Emergency Heat by pressing the FAN and UP buttons. During Emergency Heat, only OFF and HEAT modes are available by pressing the MODE button.

# Section 12 Contents:

## *Adjusting the Heat/Cool Differential*

The Heat and Cool setpoints will not be allowed to come any closer to each other than the value in this step. This minimum difference is enforced during Auto-Changeover operation.

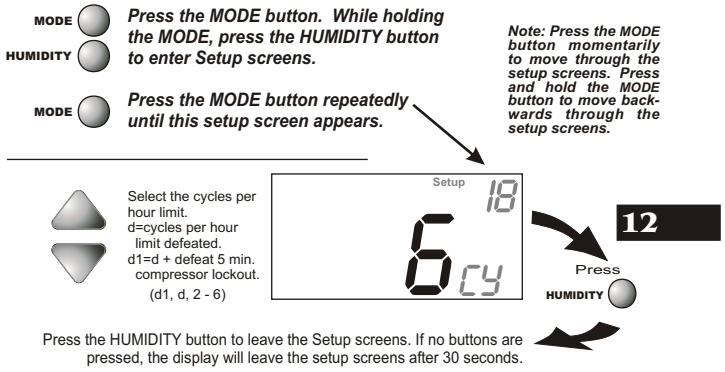





***Note:*** *To increase the spread between the heating and cooling setpoints, press the MODE button until only the heat setpoint is displayed. Adjust the desired setpoint. Wait two seconds after adjusting the set point so the thermostat can accept the change. Press the MODE button until only the cool setpoint is displayed. Adjust the desired setpoint. Wait two seconds after adjusting the set point so the thermostat can accept the change. Press the MODE button again to enter the Auto-Changeover mode where both the heat and cool setpoints are displayed.*

## *Adjusting the Cycles Per Hour*

The Cycles Per Hour setting may limit the number of times per hour your HVAC unit may energize. For example, at a setting of 6 cycles per hour the HVAC unit will only be allowed to energize once every 10 minutes. The Cycles Per Hour limit may be overridden and reset by pressing the UP or DOWN buttons on the thermostat.



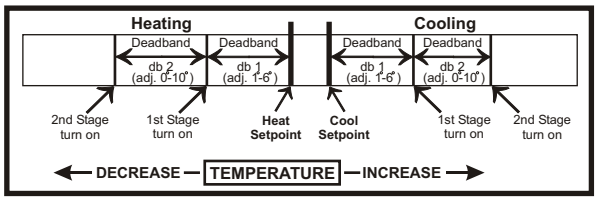
## *Adjusting the Deadband*

MULTI-STAGE OPERATION - Controls up to two Heat and two Cool stages.

The **2nd Stage** of heat or cool is turned on when:
(**A**) The 1st Stage has been on for the two minutes.

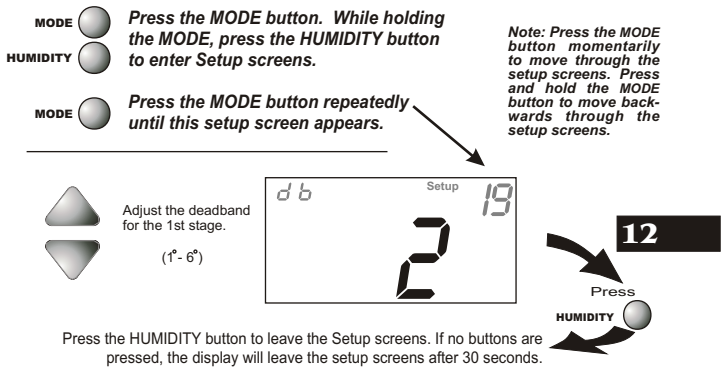
**And**

(**B**) The temperature spread from the setpoint is equal to or greater than: *the setpoint plus the 1st stage deadband (step #19, next page), plus two degrees.*



# *Adjusting the Deadband*

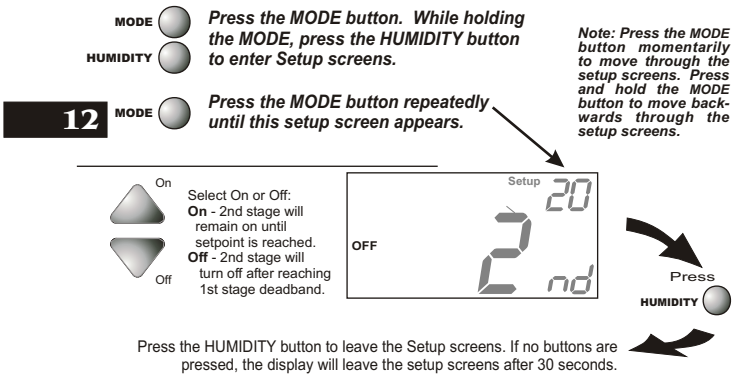
For more detailed information, please see the explanation on the previous page.



# Selecting 2nd Stage Turn Off Temperature

If ON is selected, the second stage of cooling or heating will remain energized until the thermostat reaches the setpoint on the thermostat display.

If OFF is selected, the second stage of cooling or heating will turn off after reaching the 1st stage deadband (*see page 12.4 for more information).*



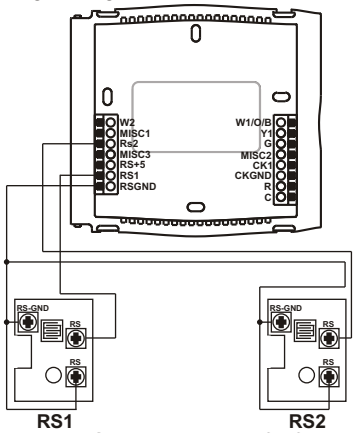

# Section 13 Contents:

## *Installing the Remote Sensors*

One wired or up to eight wireless remote sensors may be installed on the thermostat (RS1) to control the temperature in another room. If more than one wireless sensor is used on RS1, the thermostat will average the sensors to determine the displayed temperature reading. One wired or wireless remote sensor may be installed to read the outside temperature (RS2). If a sensor is connected to RS1 and is programmed to control the thermostat, the degree icon on the thermostat will blink once per second to indicate that a remote sensor reading is being displayed. The wired sensor can be connected to the thermostat with **up to 150' of 18 ga., 300' of 20 ga., or 450' of 22 ga. unshielded, thermostat wire.** The wired sensor can be connected to the thermostat using a two or three wire installation. If a two wire installation is required, then RS+5 must be connected to RSGND (*see below*).

This wire ***MUST*** be completely separated from the thermostat or any other control wiring and must ***NOT*** be in the same conduit as high voltage wiring.






*See the Remote Sensor accessory for further details.*

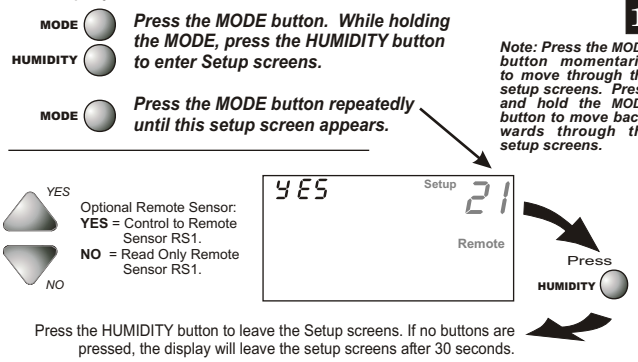
# Controlling or Reading the Remote Temperature (RS1)

The thermostat may be programmed to only READ the remote sensor, or to CONTROL to the remote sensor. Refer to Advanced Setup step #21, below.

**Read Only Sensor (RS1):** If step #21 is set to only READ to the remote sensor, this temperature may be viewed by pressing the OUTSIDE° button on the thermostat and then pressing the MODE button (*see page 4.2*).

**Control Sensor (RS1):** If step #21 is set to CONTROL to the remote sensor, the thermostat will ignore the reading of its internal temperature sensor and only display the temperature reading from the remote sensor. The degree icon on the thermostat will blink once per second to indicate that a remote sensor reading is being displayed.





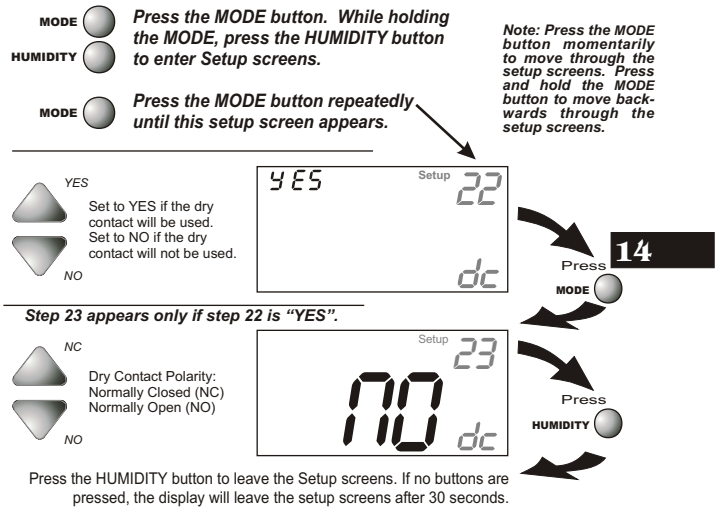
# SECTION 14
## *Programming the Dry Contact*

## Section 14 Contents:

## *Dry Contact Operation*

If the dry contact is going to be used, select YES in step #22 below; if the dry contact is not going to be used, select NO. in step #22 below.

DRY CONTACT POLARITY - The terminals may be set to be Normally Open (NO) or Normally Closed (NC) in step #23. If NO is selected the dry contact will operate when it is forced closed. If NC is selected, the dry contact will operate until it is forced open.



# *Dry Contact Programming*

OVERRIDE OR SERVICE THE CONDENSATE DRAIN PAN - If Override is selected in step #24 (*below*), when the dry contact is energized the thermostat will be forced into or out of Unoccupied setpoints (*next page*) depending on the polarity of the Dry Contact. If Service Pan is selected, when the dry contact is energized the thermostat will lockout Y1 (compressor) and write Service Pan on the display.

MODE
HUMIDITY

***Press the MODE button. While holding the MODE, press the HUMIDITY button to enter Setup screens.***

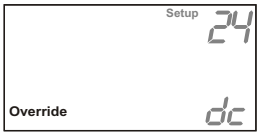
MODE

***Press the MODE button repeatedly until this setup screen appears.***

***Note: Press the MODE button momentarily to move through the setup screens. Press and hold the MODE button to move backwards through the setup screens.***

***Step 24 appears only if step 22 is "YES".***

*Service Pan*
Select Service Pan to lockout Y1 when the dry contact is energized.
Select Override to enable Override setpoints when the dry contact is energized.
*Override*

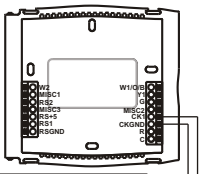



Press
HUMIDITY

Press the HUMIDITY button to leave the Setup screens. If no buttons are pressed, the display will leave the setup screens after 30 seconds.

***NOTE:*** *If Service Pan is selected and the dry contact was closed at least once, the Service Pan icon will remain on the display to alert the user that a problem has occurred. This icon will be cleared once a button is pressed.*

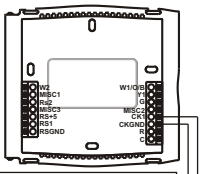
**Override**




**Connect wires to a time clock or other device to force the thermostat into or out of Unoccupied.**

**OR**

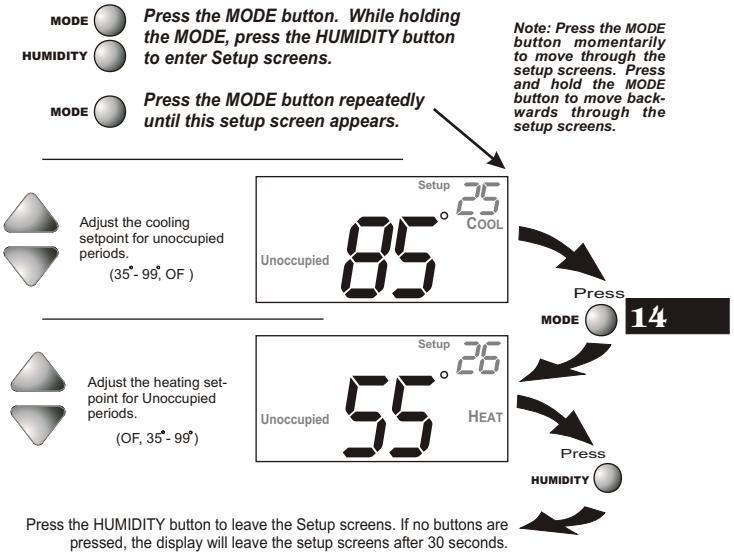
**Service Pan**




**Connect wires to a device that will complete the circuit between CK1 and CKGND when the Condensate Drain Pan is full.**

## *Dry Contact Programming*

UNOCCUPIED SETPOINTS - If Override is selected in step #24 (*see previous page*), when the dry contact is energized the thermostat will be forced into or out of Unoccupied setpoints. To adjust the Unoccupied setpoints follow the setup steps below.



## *Random Start Operation*

This feature causes a 2 to 30 second delay before energizing the thermostat outputs after any of these events:

**Loss of Power to the thermostat:** When power to the thermostat is interrupted and then restored, Random Start will lockout the outputs of the thermostat for a random amount of time. This delay helps to keep multiple thermostats from energizing their outputs at the same time after a power outage.

**Closure of the Dry Contact to force Heat, Cool or Auto Modes:** If step #24 (*page 14.3*) is programmed for Override, then Random Start will lockout all outputs of the thermostat for a random amount of time when a Dry Contact closure occurs (*depending on step #23, page 14.2*). This delay helps to keep multiple thermostats from energizing their outputs each time the Dry Contact is used.

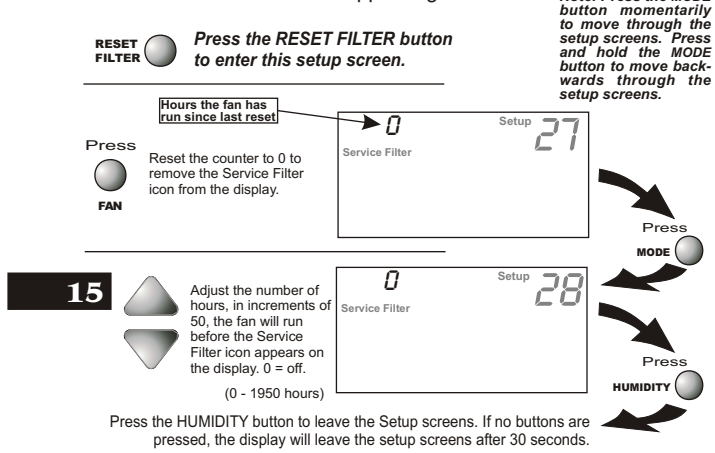
## Section 15 Contents:

Carrier

# *How to Set and Reset the Service Filter (Fan Run-Time) Alert*

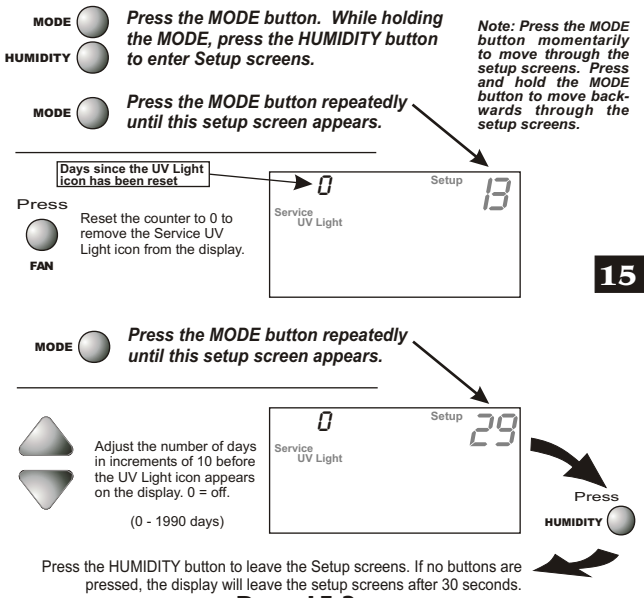
This counter keeps track of the number of hours of fan run-time whether the fan is energized in the Heating or Cooling modes, or in stand alone fan operation. The Service Filter icon will appear after the preset number of hours of fan run-time in step #28 (*below*) has been achieved. Setting this counter to zero in step #28 will prevent the Service Filter icon from ever appearing.

***Note: Press the MODE button momentarily to move through the setup screens. Press and hold the MODE button to move backwards through the setup screens.***



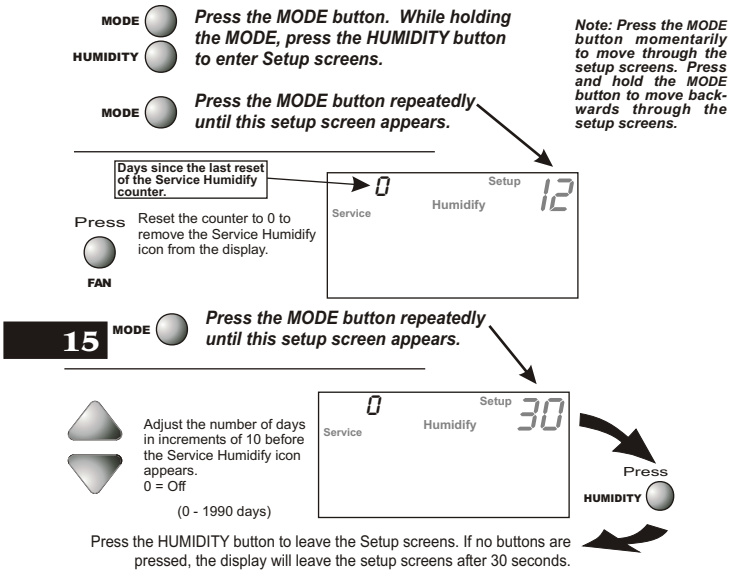
# *How to Set and Reset the UV Light Run-Time Alert*

This counter keeps track of the number of days since the UV Light counter has been reset. The UV Light icon will appear after the number of days has been achieved, as shown in step #29 (*below*). Setting the counter to zero in Step #29 will prevent the Service UV Light icon from ever appearing.



# *How to Set and Reset the Humidifier Run-Time Alert*

This counter keeps track of the number of days since the Service Humidify icon was last reset; this icon will appear after the number of days set in step #30 (*below*) has elapsed. Setting this counter to zero in step #30 will prevent the Service Humidify icon from ever appearing.

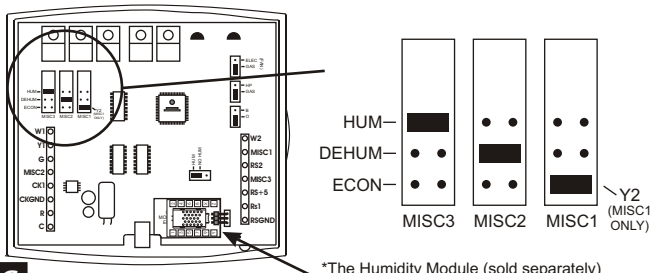



*The humidifier run-time alert does not take the place of any humidifier manufacturer's recommended maintenance plan; it only serves as a helpful reminder.*

# Section 16 Contents:

## *Configuring the Jumpers*

For additional flexibility, your thermostat has three configurable outputs. These outputs are designed to have different functions depending on how the jumpers are set (*below*).
Each output, labeled MISC1, MISC2, and MISC3 may be set for one of the four choices available.
In the diagram below, the MISC3 jumper has been set for HUM* (humidification) operation, the MISC2 jumper has been set for DEHUM* (dehumidification) operation, and the MISC1 jumper has been set for Y2 (second stage cooling) operation.



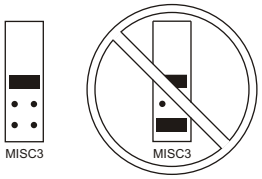

*The Humidity Module (sold separately) must be installed to operate a humidification and/or dehumidification system.



**CAUTION**

***NEVER PUT MORE THAN ONE JUMPER ON THE SAME MISC JUMPER BLOCK!***

***DOING SO MAY DAMAGE YOUR THERMOSTAT.***



# *Explanation of Jumper Settings*

## HUM JUMPER SETTING

***If the jumper for MISC1, MISC2, or MISC3 is set to HUM, the corresponding MISC screw terminal on the backplate will control a humidification system.***

HUMIDIFICATION OPERATION - SECTION 8

If your HVAC unit is equipped with a humidification system and the Humidity Module (sold separately) has been installed, the thermostat will provide power to the MISC1, MISC2, or MISC3 terminal of the thermostat when the humidity in the home falls below the humidity setpoint you have chosen. The value for this setpoint ranges from 0% to 60%. If no humidity is desired or if a humidification system has not been installed, set the value to 0%.

## DEHUM JUMPER SETTING

***If the jumper for MISC1, MISC2, or MISC3 is set to DEHUM, the corresponding MISC screw terminal on the backplate will be connected to the dehumidification terminal of a furnace board.***
***NOTE: Not all furnaces have a dehumidification terminal.***

DEHUMIDIFICATION OPERATION - SECTION 9

If your HVAC unit is equipped with a dehumidification system the thermostat will operate in one of two ways.

1) **Normally Closed** (NC): The thermostat will **de-energize** the MISC1, MISC2, or MISC3 terminal of the thermostat (this MISC terminal is connected to the DEHUM terminal on your furnace) to allow the fan to run in low speed when the humidity in the home is above the dehumidify setpoint you have chosen and there is a call for 1st stage cooling.

2) **Normally Open** (NO): The thermostat will **energize** the MISC1, MISC2, or MISC3 terminal of the thermostat (this MISC terminal is connected to the DEHUM terminal on your furnace) to allow the fan to run in low speed when the humidity in the home is above the dehumidify setpoint you have chosen and there is a call for 1st stage cooling.

# Explanation of Jumper Settings (continued)

## Y2 JUMPER SETTING

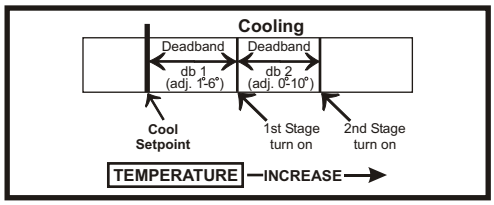
***If the jumper for MISC1 is set to Y2 the MISC1 screw terminal on the backplate will control a second stage of cooling.***

Y2 OPERATION - SECTION 12.4

The **2nd Stage** of heat or cool is turned on when:
(**A**) The 1st Stage has been on for the two minutes.

**And**

(**B**) The temperature spread from the setpoint is equal to or greater than: *the setpoint plus the 1st stage deadband (step #19, page 12.5), plus two degrees.*



## Section 17 Contents:

# *Resetting the Thermostat to the Factory Default Settings* (for default values see page 19.1)

If, for any reason, you desire to return all the stored settings back to the factory default settings, follow the instructions below.

***WARNING: This will reset all Advanced Programming to the default settings. Any information entered prior to this reset may be permanently lost.***

**1**

MODE

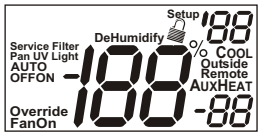
Place the thermostat in the OFF mode.


**2**

MODE

FAN

Press and hold the MODE button. While holding the MODE button, press and hold the FAN button for 5 seconds. All icons will appear on the display.




**3**

FAN

After all of the icons appear, release the MODE and FAN buttons. Then press and hold the FAN button for 5 seconds.


**4**

MODE

After the letters **Fd** appear on the display (Factory Default), release the FAN button. Press the MODE button **once** to return to normal operation.

# *Calibrating the Temperature and Humidity Sensors*

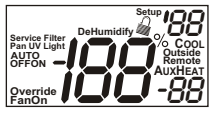
Under normal circumstances it will not be necessary to adjust the calibration of the temperature and humidity sensors. If calibration is required, please contact a trained HVAC technician to correctly perform the following procedure.

**1** MODE

Place the thermostat in the OFF mode.


**2** MODE FAN

Press and hold the MODE button. While holding the MODE button, press and hold the FAN button for 5 seconds. All icons will appear on the display.




**3** PRESS TWICE

**THERMOSTAT SENSOR**

Press the UP and DOWN buttons at the same time twice. The thermostat temperature will be displayed and may be calibrated using the UP or DOWN buttons.


CALIBRATE

**4** MODE

**REMOTE SENSOR**

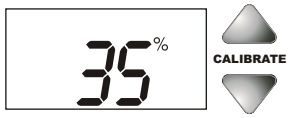
Press the MODE button once. The remote sensor temperature will be displayed and may be calibrated using the UP or DOWN buttons. If a remote sensor is not installed, only dashes will appear.


CALIBRATE

**5** MODE

**HUMIDITY SENSOR**

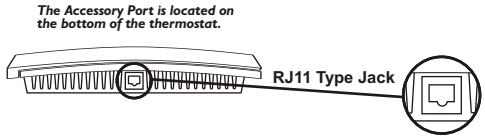
Press the MODE button once. The relative humidity at the thermostat will be displayed and may be calibrated using the UP or DOWN buttons.




CALIBRATE

After calibration is complete, press the MODE button **once** to return to normal operation.

ACCESSORY PORT - The RJ11 Jack is used to connect the P374-2700 to the IR Receiver P/N P374-0431 for wireless communication or the EZ Programmer P/N P374-0432 for easy downloading or uploading of thermostat information.




IR RECEIVER / REMOTE CONTROL (optional accessory) - When the IR Receiver is connected, the thermostat can be controlled using an IR Remote Control. The thermostat may also interface with other wireless systems in your home. For more information see the instruction sheet for the IR Receiver P/N P374-0431.

EZ PROGRAMMER (optional accessory) - When the EZ Programmer is connected, the thermostat Time Period Programming and Advanced Setup Programming can be stored into the EZ Programmer's memory. This information can then be uploaded to other P374-2700 thermostats. For more information see the instruction sheet for the EZ Programmer P/N P374-0432.

# SECTION 19
## *Advanced Setup Table*

Carrier

| Step# | Description | Pg# | Range | Df* |
|---|---|---|---|---|
| 1 | Auto-Changeover Thermostat | 3.2 | Yes/No | Yes |
| 2 | Fan Off Delay | 6.3 | 0, 30, 60, 90 | 0 |
| 3 | Thermoglow Backlight | 7.2 | Auto/On/ Off | Au-to |
| 4 | F or C | 7.2 | F/C | F |
| 5 | Security Level | 7.4 | 0 - 3 | 0 |
| 6 | Max Heat Setpoint | 7.4 | 35˚- 99˚ | 80˚ |
| 7 | Min Cool Setpoint | 7.4 | 35˚- 99˚ | 55˚ |
| 8 | Cool to Dehumidify | 9.4 | On/Off | Off |
| 9 | Maximum Dehum Overshoot | 9.4 | 0˚- 5˚ | 3˚ |
| 10 | DEHUM Terminal Polarity | 9.5 | NO/NC | NC |
| 11 | Override Run-Time | 10.2 | read only | - - |
| 12 | Reset Service Humidify Icon | 10.3 | read only | - - |
| 13 | Reset UV Light Icon | 10.5 | read only | - - |
| 14 | Heatpump Jumper Setting | 11.2 | read only | - - |
| 15 | Reversing Valve Jumper Setting | 11.2 | read only | - - |
| 16 | Electric Heat | 11.3 | read only | - - |
| 17 | Minimum Heat/Cool Differential | 12.2 | 0˚- 6˚ | 2˚ |
| 18 | Cycles Per Hour | 12.3 | d1, d 2-6 | 6 |
| 19 | Deadband/Temp. Swing 1st Stage | 12.5 | 1˚- 6˚ | 2˚ |
| 20 | 2nd Stage turn off at setpoint | 12.6 | On/Off | On |
| 21 | Thermostat control to RS1? | 13.3 | Yes/No | Yes |
| 22 | Dry Contact Operation | 14.2 | Yes/No | No |
| 23 | Dry Contact Polarity | 14.2 | NO/NC | NO |
| 24 | Dry Contact Programming | 14.3 | Override/ Service Pan | Ove rride |
| 25 | Unoccupied Cool | 14.4 | 35 - 99 | 85 |
| 26 | Unoccupied Heat | 14.4 | 35 - 99 | 55 |
| 27 | Reset Service Filter Icon | 15.2 | read only | - - |
| 28 | Service Filter Run Time Set | 15.2 | 0 - 1950 | 0 |
| 29 | UV Light Run-Time Set | 15.3 | 0 - 1990 | 0 |
| 30 | Service Humidify Run-Time Set | 15.4 | 0 - 1990 | 0 |

***Df = Factory Default Setting**
































# Section 21
## *Warranty*

Carrier

Five-Year Warranty - This Product is warranted to be free from defects in material and workmanship. If it appears within five year from the date of original installation, whether or not actual use begins on that date, that the product does not meet this warranty, a new or remanufactured part, at the manufacturer's sole option to replace any defective part, will be provided without charge for the part itself provided the defective part is returned to the distributor through a qualified servicing dealer.

THIS WARRANTY DOES NOT INCLUDE LABOR OR OTHER COSTS incurred for diagnosing, repairing, removing, installing, shipping, servicing or handling of either defective parts or replacement parts. Such costs may be covered by a separate warranty provided by the installer.

THIS WARRANTY APPLIES ONLY TO PRODUCTS IN THEIR ORIGINAL INSTALLATION LOCATION AND BECOMES VOID UPON REINSTALLATION.

LIMITATIONS OF WARRANTIES – ALL IMPLIED WARRANTIES (INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY) ARE HEREBY LIMITED IN DURATION TO THE PERIOD FOR WHICH THE LIMITED WARRANTY IS GIVEN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE MAY NOT APPLY TO YOU. THE EXPRESSED WARRANTIES MADE IN THIS WARRANTY ARE EXCLUSIVE AND MAY NOT BE ALTERED, ENLARGED, OR CHANGED BY ANY DISTRIBUTOR, DEALER, OR OTHER PERSON WHATSOEVER.
ALL WORK UNDER THE TERMS OF THIS WARRANTY SHALL BE PERFORMED DURING NORMAL WORKING HOURS. ALL REPLACEMENT PARTS, WHETHER NEW OR REMANUFACTURED, ASSUME AS THEIR WARRANTY PERIOD ONLY THE REMAINING TIME PERIOD OF THIS WARRANTY.

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR:

1. Normal maintenance as outlined in the installation and servicing instructions or owner's manual, including filter cleaning and/or replacement and lubrication.
2. Damage or repairs required as a consequence of faulty installation, misapplication, abuse, improper servicing, unauthorized alteration or improper operation.
3. Failure to start due to voltage conditions, blown fuses, open circuit breakers or other damages due to the inadequacy or interruption of electrical service.
4. Damage as a result of floods, winds, fires, lightning, accidents, corrosive environments or other conditions beyond the control of the Manufacturer.
5. Parts not supplied or designated by the Manufacturer, or damages resulting from their use.
6. Manufacturer products installed outside the continental U.S.A., Alaska, Hawaii, and Canada.
7. Electricity or fuel costs or increases in electricity or fuel costs for any reason whatsoever including additional or unusual use of supplemental electric heat.
8. ANY SPECIAL INDIRECT OR CONSEQUENTIAL PROPERTY OR COMMERCIAL DAMAGE OF ANY NATURE WHATSOEVER. Some states do not allow the exclusion of incidental or consequential damages, so the above may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.