VENSTAR®

RESIDENTIAL MODEL **T3800**

DIGITAL THERMOSTAT
Up To 4 Heat & 2 Cool Stages
Dual Fuel Capable
Time Period Programming

VOYAGER®

Simply connected.
Anytime. Anywhere.*

Optional accessories available, including Wi-Fi Z-Wave, & ZigBee

Skyport CLOUD SERVICES

OWNER'S MANUAL
AND
INSTALLATION INSTRUCTIONS

HEAT COOL & HEAT PUMP

CAUTION

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

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.

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LISTED
4Z95

Thermostat T3800
FC Tested to Comply with FCC Standards
FOR HOME OR OFFICE USE

Glossary of Terms

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

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

Deadband: The number of degrees the thermostat will wait, once a 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 regard 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, Program On).

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

Programmable Thermostat: A thermostat that has the capability of running Time Period Programming.

Reheat: Running the cooling and 2nd stage strip heaters at the same time in order to dehumidify the air without cooling down the room temperature.

Temperature Swing: Same as Deadband.

Time Period Programming: A program that allows the thermostat to automatically adjust the *heat setpoint* and/or the *cool setpoint* based on the time of the day.

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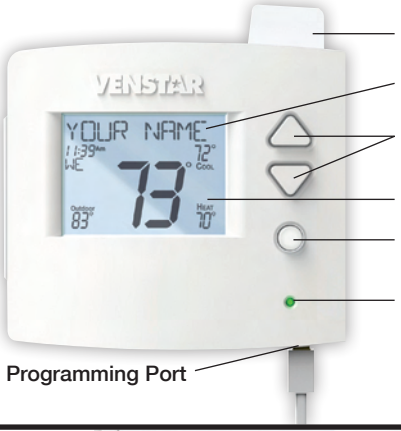
Get To Know Your Thermostat



Optional Wireless Module

Backlit, Scrolling Display

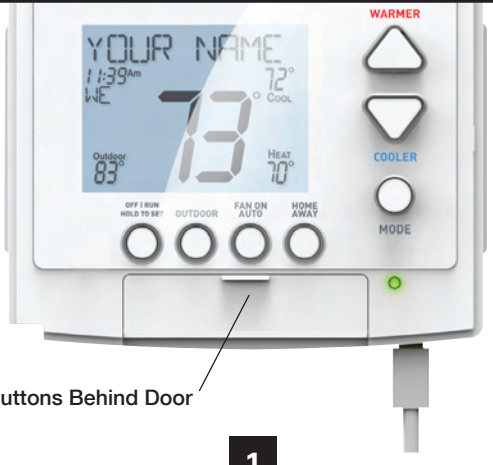
Backlit Cooler & Warmer Buttons

Backlit LCD Display

Mode Button

Heat or Cool Demand Indicator
Red = Heat, Green = Cool

Programming Port



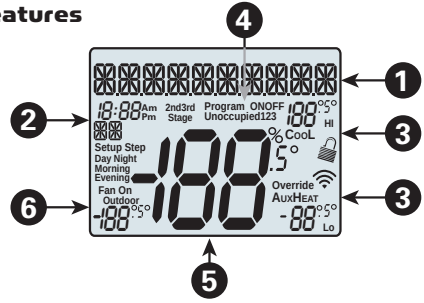
Setup Buttons Behind Door

Get To Know Your Thermostat

Setup Buttons

Get To Know Your Thermostat

Display Features



1. The scrolling display will be used to help you easily navigate the setup screens in the thermostat.

2. Clock with Day of the Week
   Indicates the current time and day. This clock is also used to program the time period schedules.

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

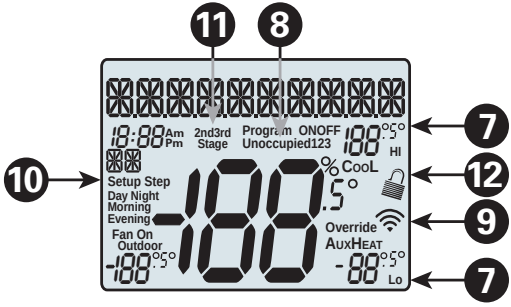
4. **Program** icon
   Indicates that Time Period Programming is running or is enabled to be set.

5. Room Temperature Display
   Indicates the current room temperature and displays the outdoor temperature when selected.

6. **Outdoor** icon
   Indicates the temperature displayed is from the optional outdoor sensor.

Get To Know Your Thermostat

Display Features



7 Desired Set Temperature
Indicates <u>desired</u> room temperature(s). Also displays the highest and lowest temperatures for the day.

8 Morning, Day, Evening & Night icons
Indicates the day part of the time period program.

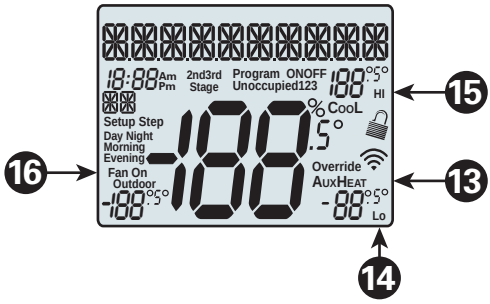
9 **Wi-Fi icons**
Indicates the thermostat is currently connected to the Local Area Network, via the optional Wi-Fi module.

10 **Setup Step** icon
Indicates the step number when the thermostat is in the setup mode.

11 **2nd and 3rd Stage** icons
Indicates what stage of cooling or heating is currently energized.

12 icon
Indicates the keypad has been locked.

Display Features



13 **AuxHeat** icon

Indicates 2nd stage electric strip heat is being used when the thermostat is programmed for Heat Pump operation. Only the Aux icon will appear during Cool to Dehumidify to indicate Reheat operation.

14 **Lo** icon

Indicates the lowest recorded outdoor temperature for the day.*

15 **Hi** icon

Indicates the highest recorded outdoor temperature for the day.*

16 **Fan On** icon

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

** Hi and Lo Temperatures for the day, reset at midnight.*

During Setup and Programming

Press the WARMER or COOLER buttons to modify the selection.
Press the MODE button to advance and <u>confirm</u> through the setup steps.

Setting the Clock and Day

Not available when Wi-Fi enabled

Press the SET CLOCK button. Adjust the clock using the WARMER or COOLER buttons. Press MODE to advance to the day setting. Adjust the day using the WARMER or COOLER buttons. Press the SET CLOCK button to confirm settings.

TIP: To adjust the time by hours press and hold the FAN button while pressing the WARMER or COOLER buttons.

Selecting the Heat or Cool Mode

Select mode by pressing the MODE button.

Heating Only - Only the heating operation will be controlled by the thermostat in this mode.

Cooling Only - Only the cooling operation will be controlled by the thermostat in this mode.

Heating or Cooling (Auto-Changeover) - 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

AUTO-CHANGEOVER MODE - Pressing the WARMER or COOLER buttons in Auto mode will adjust <u>both</u> the heat and cool setpoints simultaneously. To adjust heat and cool setpoints individually, choose HEAT mode to adjust the heat setpoint and COOL mode to adjust the cool setpoint, then return to AUTO mode.

HEAT OR COOL MODE - Pressing the WARMER or COOLER buttons in Heat or Cool mode will adjust only the heat **<u>or</u>** cool setpoints individually displayed.

Using the Fan Button

Fan On indicates constant fan operation. You may turn the fan on even if the thermostat is in the OFF mode. Pressing the FAN button toggles this feature on or off.

Viewing the Temperature Sensors

OUTDOOR TEMP - Press the OUTDOOR button to view the current outdoor temperature. The high and low temperatures for the day will also be displayed. The high and low temperatures reset at 12:00 am. Keep pressing the OUTDOOR button to return to normal operation.

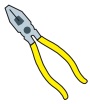
Note: If no outdoor sensor is connected, and there isn't outdoor temperature via Wi-Fi, then 2 dashes [- -] will appear with the first button press.

REMOTE/SUPPLY TEMP - Press the **Accessory Status** button to view linked wireless and wired sensors and other accessories. Press the **Accessory Status** button to return to the main screen. Setup step #77 selects the use of the wired remote temperature sensor.

Remove and Replace the old thermostat

To install the thermostat properly, please follow these step by step instructions. If you are unsure about any of these steps, call a qualified technician for assistance.

- Assemble tools: Flat blade screwdriver, wire cutters and wire strippers.



- Make sure your Heater/Air Conditioner is working properly before beginning installation of the thermostat.
- Carefully unpack the thermostat. Save the screws, any brackets, and instructions.
- Turn off the power to the Heating/Air Conditioning system at the main fuse panel. Most residential systems have a separate breaker for disconnecting power to the furnace.
- Remove the cover of the old thermostat. If it does not come off easily, check for screws.
- Loosen the screws holding the thermostat base or subbase to the wall and lift away.
- If you have a smart phone handy, take a photo of the wiring for future reference.
- Disconnect the wires from the old thermostat. Tape the ends of the wires as you disconnect them, and mark them with the letter of the terminal for easy reconnection to the new thermostat.
- Keep the old thermostat for reference purposes, until your new thermostat is functioning properly.

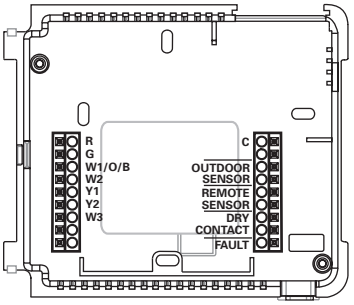
Wire Connections

If the terminal designations on your old thermostat do not match those on the new thermostat, **refer to the chart below or the wiring diagrams that follow.**

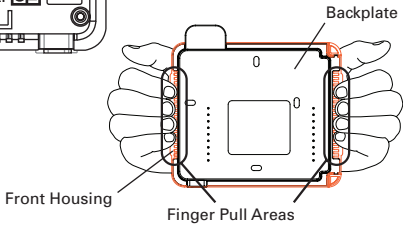
Wire from the old thermostat terminal marked	Function	Install on the new thermostat connector marked
G or F	Fan	G
Y1, Y	Cooling	Y1
W1, W	Heating	W1/0/B
Rh, R, M, Vr, A	Power	R
C	Common	C
O/B	Rev. Valve	W1/O/B*
W2	2nd Stage Heat	W2
Y2	2nd Stage Cooling	Y2
W3	3rd Stage Heat	W3
Ck1	Dry Contact Switch	DRY CONTACT
CKGND	Dry Contact Switch	DRY CONTACT

* O/B is used if your system is a Heat Pump.

The Voyager T3800 Thermostat Backplate



To remove the thermostat backplate: Using the Finger Pull Areas, pull the front housing away from the backplate.



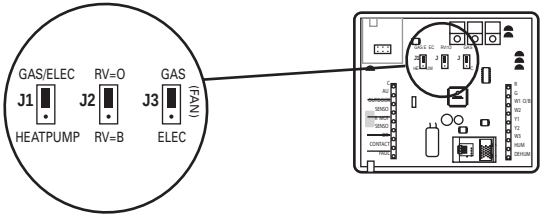
R	24 VAC return
G	Fan relay
W1/O/B	1st stage heat circuit
W2	2nd stage heat circuit
Y1	1st stage compressor relay
Y2	2nd stage compressor relay
W3	3rd stage heat circuit
C	24 VAC common

OUTDOOR SENSOR	Outdoor sensor connections
REMOTE SENSOR	Remote sensor connections
DRY CONTACT	Dry Contact connections
FAULT	Fault Input

IMPORTANT: This thermostat requires <u>both</u> R (24 VAC Return) and C (24 VAC Common) be connected to the backplate terminals.

Explanation of Thermostat Jumpers

Jumpers are located on the back of the thermostat



This jumper configures the thermostat to control a conventional gas/electric system or a heat pump. If your system is anything other than a heat pump, leave this jumper set for GAS/ELEC.*

**For some commercial heat pumps, this jumper will need to be set for GAS/ELEC. Consult the commercial heat pump literature.*

When J1 is configured to control a heat pump, this jumper (J2) must be set to control the appropriate reversing valve. If RV=O is chosen, the W1/O/B terminal will energize in cooling. If RV=B is chosen, the W1/O/B terminal will energize in heating.

When J1 is set for GAS/ELEC:
This jumper (J3) controls how the thermostat will control the Fan (G) terminal in heating mode. When GAS is chosen, the thermostat will not energize the Fan (G) terminal in heating. When ELEC is chosen the thermostat will energize the fan in heating.

When J1 is set for HEATPUMP:
This jumper (J3) defines the Aux Heat type. When GAS is chosen, the auxiliary heat will not be allowed to run during heat pump operation. When using a Dual Fuel system, set this jumper for GAS. When ELEC is chosen, up to two stages of auxiliary strip heat will be allowed to run.

Sample Wiring Diagrams

Conventional Heating and Cooling Systems

3 Wire, Heat Only
Residential & Commercial 1 Stage Heating with **no Fan.**

R	24VAC Power
C	24VAC Common
W1/O/B	1st Stage Heat

J1	=	Gas/Elec
J2	=	O (not used)
J3	=	Gas

4 Wire, Cool Only
Residential & Commercial 1 Stage Cooling.

R	24VAC Power
C	24VAC Common
Y1	1st Stage Cool
G	Fan

J1	=	Gas/Elec
J2	=	O (not used)
J3	=	Gas

5 Wire, 1 Stage Cooling, 1 Stage Heat
Residential & Commercial 1 Stage Cooling, with 1 stage **Gas Heat.**

R	24VAC Power
C	24VAC Common
W1/O/B	1st Stage Heat
Y1	1st Stage Cool
G	Fan

J1	=	Gas/Elec
J2	=	O (not used)
J3	=	Gas

5 Wire, 1 Stage Cooling, 1 Stage Heat
Residential & Commercial 1 Stage Cooling, with 1 stage **Electric Heat.**

R	24VAC Power
C	24VAC Common
W1/O/B	1st Stage Heat
Y1	1st Stage Cool
G	Fan

J1	=	Gas/Elec
J2	=	O (not used)
J3	=	Electric

8 Wire, 2 Stage Cooling, 3 Stage Heat
Residential & Commercial 2 Stage Cooling, with 3 stage **Gas Heat.**

R	24VAC Power
C	24VAC Common
W1/O/B	1st Stage Heat
W2	2nd Stage Heat
W3	3rd Stage Heat
Y1	1st Stage Cool
Y2	2nd Stage Cool
G	Fan

J1	=	Gas/Elec
J2	=	O (not used)
J3	=	Gas

Sample Wiring Diagrams

Heat Pump Systems

5 Wire, 1 Stage Cooling, 1 Stage Heat
Residential & Commercial **Heat Pump** with **'O' Reversing Valve**

R	24VAC Power
C	24VAC Common
W1/O/B	Reversing Valve
Y1	1st Stage Compressor (Cool or Heat)
G	Fan

J1	=	Heat Pump
J2	=	O
J3	=	Gas

6 Wire, 1 Stage Cooling, 2 Stage Heat
Residential & Commercial **Heat Pump** with **'O' Reversing Valve**

R	24VAC Power
C	24VAC Common
W1/O/B	Reversing Valve
Y1	1st Stage Compressor (Cool or Heat)
W2	Aux Heat
G	Fan

J1	=	Heat Pump
J2	=	O
J3	=	Electric

7 Wire, 2 Stage Cooling, 3 Stage Heat
Residential & Commercial **Heat Pump** with **'O' Reversing Valve.**

R	24VAC Power
C	24VAC Common
W1/O/B	Reversing Valve
W2	3rd Stage Heat
Y1	1st Stage Compressor (Cool or Heat)
Y2	2nd Stage Compressor (Cool or Heat)
G	Fan

J1	=	Heat Pump
J2	=	O
J3	=	Electric

Setup Step 24 is set to 2
(Number of Compressor Stages)

8 Wire, 2 Stage Cooling, 4 Stage Heat
Residential & Commercial **Heat Pump** with **'O' Reversing Valve.**

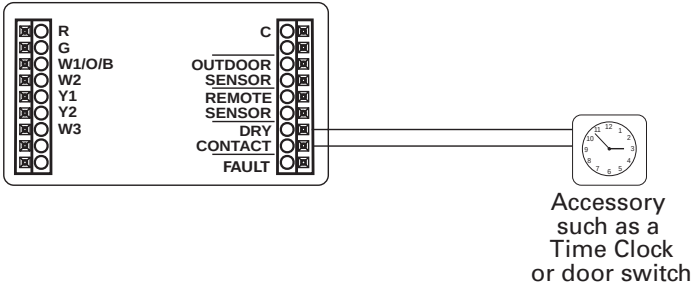
R	24VAC Power
C	24VAC Common
W1/O/B	Reversing Valve
W2	3rd Stage Heat
W3	4th Stage Heat
Y1	1st Stage Compressor (Cool or Heat)
Y2	2nd Stage Compressor (Cool or Heat)
G	Fan

J1	=	Heat Pump
J2	=	O
J3	=	Electric

Setup Step 24 is set to 2
(Number of Compressor Stages)

Sample Wiring Diagrams

Dry Contact



The Voyager thermostat has a diagnostic feature that enables testing of all outputs. This feature is contained in **Technician Setup.**

To enter Technician Setup, press and hold the SETUP button for 5 seconds until all the icons appear. Follow the next steps to view settings and test equipment.

1. Press MODE to view the version numbers of the thermostat.
2. Press MODE again to view the jumper settings and current state of the Dry Contact terminals.
3. Press MODE again and the scrolling display will read "TURN ON EQUIPMENT?" Press WARMER for Yes or COOLER for No.

   If Yes is chosen, press WARMER to turn on heat or COOLER to turn on Cooling. The scrolling display will read "NOTHING ON." Next:

   Press WARMER to turn on and cycle up through the heating stages. Press COOLER to turn the heating stages off. Press MODE to exit.

   Press COOLER to turn on and cycle down through the cooling stages. Press WARMER to turn the cooling stages off. Press MODE to exit.
4. Press MODE until "CALIBRATE SENSORS?" appears on the scrolling display. Press WARMER for Yes or COOLER for No. Press MODE to select which sensor to calibrate. Use WARMER or COOLER to modify your selection.

To exit Technician Setup at any time, press the SETUP button. Technician Setup will automatically exit after 10 minutes if no buttons are pressed.

User Setup: Backlight Operation

How to Change Settings in the Setup Screens

To enter Advanced Setup, press the SETUP button, then press MODE. Use the WARMER or COOLER buttons to adjust the value of your selection. Press MODE to advance to the next setup step. Press SETUP again to leave the setup screens.

Backlight (Setup Step 3)

The thermostat backlight may be set to be always on, on temporarily with any button press, on throughout the evening, or always off. (For always off, see Backlight Level)

Press the SETUP button, then press MODE repeatedly until the Backlight setup step appears. Use the WARMER or COOLER buttons to make selection. Press MODE to advance to the next step. Press SETUP to leave the setup screens.

Backlight Off - Backlight turns on with any button press and turns off after 8 seconds.

Backlight On - Backlight is on continuously.

Backlight 6pm to 6am - Backlight turns on at 6pm and turns off at 6am.

Backlight Intensity Level (Setup Step 4)

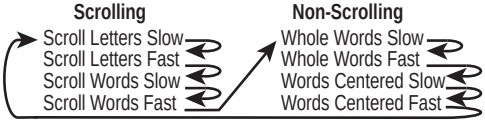
The backlight can be adjusted between always off and seven levels of brightness. **Press the SETUP button, then press MODE repeatedly until the Backlight setup step appears. Use the WARMER or COOLER buttons to adjust the brightness. Press MODE to advance to the next step. Press SETUP to leave the setup screens.**

Language (Setup Step 16)

Setup step instructions on the scrolling display can be set for English, Spanish, or French. **Press the SETUP button, then press MODE repeatedly until the Language setup step appears. Use the WARMER or COOLER buttons to make selection. Press MODE to advance to the next step. Press SETUP to leave the setup screens.**

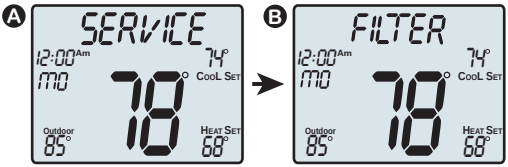
Scrolling Display Method (Setup Step 17)

This option allows the user to choose how the scrolling text is displayed. Options are:



Press the SETUP button, then press MODE repeatedly until the Scrolling Method setup step appears. Use the WARMER or COOLER buttons to make selection. Press MODE to advance to the next step. Press SETUP to leave the setup screens.

Example of "Whole Words Centered":



Vacation & Away Settings

The Vacation feature allows the thermostat to without use temporary, energy saving setpoints having to change regular programming.

The HOME/AWAY feature allows for a one button press to bring in your stored unoccupied settings. A subsequent press of the HOME/AWAY button restores the last used comfort settings.

Press the VACATION button to enter Vacation/Away programming.
Use the WARMER and COOLER buttons to choose the number of days desired to run the in Vacation/Away settings.

To confirm your settings and advance to the next step, press the VACATION button again. Choose the desired Vacation/Away Mode. Press the VACATION again to adjust the 'unoccupied' Cool setpoint. Press the VACATION button again and select the desired 'unoccupied' Heat setpoint.

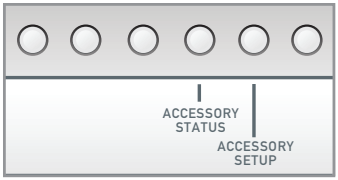
Press the VACATION button again to return to the main screen.
Both Vacation and Away use these same settings.
Vacation button use specifies a duration of days for these settings, whereas Away maintains these settings until the HOME/AWAY button is pressed again.

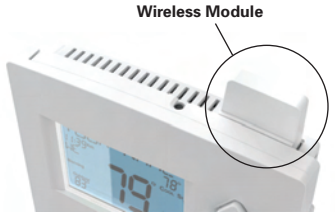
Emergency Heat

The Emergency Heat function is only available if your thermostat is set to control a Heat Pump.

To initiate the Emergency Heat feature, Press the EMERGCY button. During Emergency Heat operation the thermostat will turn on the fan and auxiliary stages of heat when there is a demand for heat. The 1st stage of heating and all stages of cooling will be unavailable. To exit Emergency Heat, press the EMERGCY button.

Wireless Module





The **Accessory Status** button allows the user to view the status of wired and wireless accessories. For many of the wireless devices this status includes: Battery Level, Signal Strength & Last Time Updated.

If there is an optional wireless module installed, the **Accessory Setup** button allows the user to link or connect wireless devices to the thermostat, or the thermostat to the network.

Voyager theremostats may use 1 of 4 different types of modules. They are:

1. Wi-Fi Module
2. Z-Wave Module
3. ZigBee Module
4. Venstar RF Module

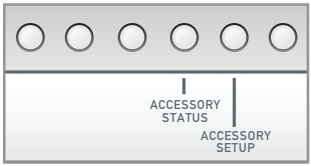
VENSTAR RF Module

Please follow the instructions included with the wireless accessory to start the linking process. The general instructions are below.

Press the Accessory Setup button to enter the linking/un-linking mode.
Press the Mode button to initiate the linking or un-linking process.
At any time press the Accessory Setup button to return to the main screen.

NOTE: A wired outdoor sensor is updated every 1 minute, a wireless outdoor sensor is updated every 5 minutes to conserve battery life.

Wi-Fi Module



Please follow the instructions included with the Wi-Fi module to connect to an Access Point or view status. The general instructions are below.

Wi-Fi Module

If the  is present on the display then the thermosat is connected to the Wi-Fi Access Point.

Press the **Accessory Status** button, then press either the Cooler button to view connected Wi-Fi devices, OR press the Warmer button to view the Wi-Fi status and settings.

Press the Mode button to step through the connected devices or the Wi-Fi status screens.

At any time press the **Accessory Status** button to leave the status screens.

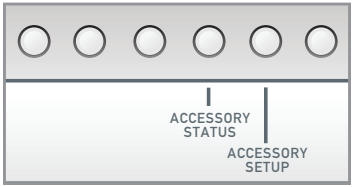
a. Wi-Fi status (connecting, connected with duration of connection, etc.)
b. Access point name
c. Signal strength
d. IP address
e. MAC address
f. Skyport status (connecting, connected with duration of connection, etc.)
g. Local API status (Enabled, Disabled)
h. Module version

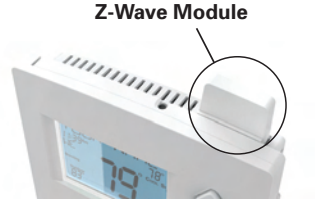
Press the Accessory Setup button to enter Wi-Fi or Skyport setup:
Press the Cooler button to configure Wi-Fi settings.

Smartphone Info here:

Press the Warmer button to join this thermostat to a Skyport account. If the theremostat is connected to Wi-Fi and the Internet, a Device ID will appear on the scrolling display of the thermostat. You will enter this code to add this thermostat to your Skyport account via a browser or the Skyport mobile app.

Z-Wave Module





Please follow the instructions included with the Z-Wave module to join the Network or view status. The general instructions are below.

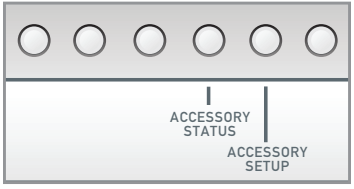
Z-Wave Module

Press the **Accessory Status** button to view the status of the thermostat's connection to the Network.

Press the **Accessory Setup** button to enter the Z-Wave Network setup: Press the Cooler button to join the Z-Wave Network and start the connection process on the Z-Wave controller.

Press the Warmer button to remove this thermostat from the Network. When prompted, press the Warmer button again to confirm thermostat removal from the Z-Wave network.

ZigBee Module



Please follow the instructions included with the ZigBee module to join the Network or view status. The general instructions are below.

ZigBee Module

Press the **Accessory Status** button to view the status of the thermostat's connection to the Network.

Press the **Accessory Setup** button to enter the ZigBee Network setup: Press the Cooler button to join the ZigBee Network and start the connection process on the Z-Wave controller.

Press the Warmer button to remove this thermostat from the Network. When prompted, press the Warmer button again to confirm thermostat removal from the ZigBee network.

User Setup - System Runtimes

These setup steps allow the user to monitor equipment runtimes and program service alerts. Service alerts are displayed in the scrolling marquee.

Runtime hours or days appear in the clock display.

Press and hold FAN to clear service alert messages from the scrolling marquee.

Service Filter Runtime (Setup Steps 5-6, 12-13)

Press the SETUP button, then press MODE repeatedly until the desired setup step appears. Use the WARMER or COOLER buttons to make selection. Press MODE to advance to the next step. Press SETUP to leave the setup screens.

Current Service Filter Runtime Hours (Setup Step 5) - This counter keeps track of the number of hours of fan runtime in the Heating mode, Cooling mode, and in stand alone Fan operation. Press FAN to reset.

Current Service Filter Calendar Days (Setup Step 6) - This counter displays the total number of calendar days that have elapsed since the counter was reset to help the user track Fan runtime. Press FAN to reset.

Set Service Filter Runtime Hours (Setup Step 12) - This timer allows the user to specify the number of hours the fan will run before the "Replace Filter" alert will be displayed. Press COOLER continuously until OFF is displayed to disable this alert.

Set Service Filter Calendar Days (Setup Step 13) - This timer allows the user to specify the number of calendar days that will elapse before the "Replace Filter" alert will be displayed. Press COOLER continuously until OFF is displayed to disable this feature.

User Setup - System Runtimes

To view, set, or reset System Runtimes, press the SETUP button, then press MODE. Press MODE to advance to the desired setup step. Use the WARMER or COOLER buttons to adjust the value of your selection. Press SETUP again to leave the setup screens.

Heating and Cooling System Runtime - Energy Watch

(setup steps 7-9)

Current Heat Runtime Hours (Setup Step 7) - This counter keeps track of the number of hours the system has run in Heating. Press OUTDOOR to reset.

Current Aux Strip Heat Runtime Hours (Setup Step 8) - This counter keeps track of the number of hours the system has run in Auxiliary Heating. This setup step is only available when the thermostat jumpers are configured for Heat Pump and Electric Heat. Press FAN to reset.

Current Cool Runtime Hours (Setup Step 9) - This counter displays the number of hours the system has run in Cooling. Press FAN to reset.

UV Lamp Runtime (setup steps 10, 14)

Current UV Lamp Calendar Days (Setup Step 10) - This counter displays the total number of calendar days that have elapsed to help the user track UV lamp runtime. Press OUTDOOR to reset.

Set UV Lamp Calendar Days (Setup Step 14) - This timer allows the user to specify the number of calendar days the UV Lamp will operate before the "Replace UV Lamp" alert will be displayed. Press COOLER continuously until OFF appears to disable this alert.

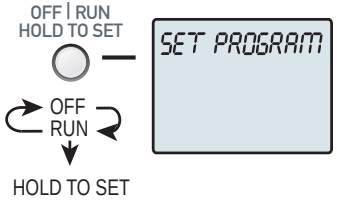
User Setup - Time Period Programming

To enter Time Period Programming screens, Press and hold PROGRAM until the scrolling prompt appears.

OFF - Time Period Program is off.

RUN - Time Period Program is running.

HOLD TO SET - Press and hold PROGRAM to make Time Period Programming changes.



Programming a Daily Schedule

Select Day of Week to program - Press the WARMER or COOLER buttons to choose the day of the week to be Press MODE to advance to the next step.

This thermostat features four programmable time periods per 24 hour day: Morning, Day, Evening, and Night. The start time for each time period is adjustable. The stop time for each time period is the start time for the next period.

Select Morning Mode - Press the WARMER or COOLER to select the desired mode, which includes OFF. You may be limited by the available modes in advanced Installer setup step#2. Press MODE to advance to the next step.

Select Morning Start Time - Press the WARMER or COOLER buttons to adjust the time of day desired. Press MODE to advance to the next step.

Select Morning Cool Setpoint - Press the WARMER or COOLER buttons to adjust the cool setpoint desired. Press MODE to advance to the next step.

Select Morning Heat Setpoint - Press the WARMER or COOLER buttons to adjust the heat setpoint desired. Press MODE to advance to the next step.

Repeat Mode, Start Time and Setpoint programming for Day, Evening, and Night.

Copy Current Day to Next - Press the WARMER button to Copy the current day's to program to another day. Press the WARMER or COOLER buttons to choose which day to copy to. Press MODE to confirm. Continue to press MODE to copy to more days. Press the COOLER button to program another day with a different schedule.

Program Another Day - Press the COOLER button to choose to program another day with a different schedule. Press MODE. Press the WARMER or COOLER buttons to choose the desired day. Press MODE to advance to the next step.

Press the PROGRAM Button to exit Time Period Programming

Installer Setup

How to Change Settings in the Setup Screens

To enter Advanced Setup, press the SETUP button, then press MODE. Use the WARMER or COOLER buttons to adjust the value of your selection. Press MODE to advance to the next setup step. Press SETUP again to leave the setup screens.

Selecting Your Time Period Schedule (setup step 1)

This thermostat may be configured to be programmable or non programmable.

7 Day Program - Allows all seven days to be programmed independently.

Non Program - No advanced time period programming available.

1 Day Program - Allows one 24 hour day to be programmed. This same schedule will be repeated everyday the program is set to run.

5/2 Day Program - Allows weekdays, Saturday, and Sunday to be programmed independently.

Selecting Your Available Modes (setup step 2)

Auto-Changeover - Allows the thermostat to turn on heating or cooling based on room temperature demand. Also allows the manual selection of HEAT only or COOL only and OFF.

Heat and Cool - Allows the thermostat to turn on heating or cooling depending on which one has been manually selected. Auto-Changeover is not available when this is selected.

Heat Only - Allows the thermostat to only turn on HEAT or OFF modes.

Cool Only - Allows the thermostat to only turn on COOL or OFF modes.

Setpoint Limits (setup step 18)

When this feature is set to ON, the heat and cool setpoints can be restricted to preset levels, set in steps 19 and 20.

Maximum Heat Setpoint (Setup Step 19) - (35˚ - 99˚).

Minimum Cool Setpoint (Setup Step 20) - (35˚ - 99˚).

Cycles Per Hour (setup step 21)

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 WARMER or COOLER buttons on the thermostat. Settings are No Limit, 2, 3, 4, 5, or 6.

Compressor Minimum Off Minutes (setup step 22)

This feature allows the user to set a minimum off time for the compressor. Settings are 5 mins., 3 mins., or 0 mins.

Minimum Heat/Cool Setpoint Difference (setup step 23)

This feature allows the user to set the minimum gap between Heat and Cool setpoints in **AUTO** mode. Select from 0 to 6. If setup step 2 is not set for **AUTO-CHANGEOVER**, this step will not appear.

Number of Compressor Stages (setup step 24)

This feature is for heat pump application only.

This feature allows the thermostat to control 1 or 2 compressor stages when configured for heat pump.

NOTE: When step 50 (Dual Fuel) is set to ON, this step will not appear and Compressor Stages will automatically be set to 2.

Deadband Settings (setup steps 25 - 34)

The Deadband is the number of degrees or minutes that the thermostat waits before it initiates the stages of heating or cooling.

1st Stage Deadband (Setup Step 25) - Specifies the minimum temperature difference between the room temperature and the desired setpoint before the first stage of heating or cooling is allowed to turn on. (1 - 6 degrees) For example, if the heat setpoint is 68˚ and the 1st Stage deadband is set to 2 degrees, the room temperature will need to reach **66**˚ before the heat turns on.

2nd Stage Deadband (Setup Step 26) - Specifies the additional minimum temperature difference after the first stage turns on before the second stage is activated. (0˚ - 10˚)

3rd Stage Deadband (Setup Step 27) - Specifies the additional minimum temperature difference after the second stage turns on before the third stage is activated. (0˚ - 10˚)

4th Stage Deadband (Setup Step 28) - *(Two Stage heat pump only)* - Specifies the additional minimum temperature difference after the third stage turns on before the final stage of strip heat is activated. (0˚ - 10˚)

Minutes Between 1st and 2nd Stage (Setup Step 29) - Specifies the *minimum* time (in minutes) after the first stage turns on before the second stage can turn on. (0˚ - 60˚)

Minutes Between 2nd and 3rd Stage (Setup Step 30) - Specifies the *minimum* time (in minutes) after the second stage turns on before the third stage can turn on. (0˚ - 60˚)

Delay Between 3rd and 4th Stage (Setup Step 31) - Specifies the *minimum* time (in minutes) after the third stage turns on before the final stage can turn on. (0˚ - 60˚)

Second Stage on Until Deadband (Setup Step 32) - Specifies whether second stage will turn off at first stage deadband or remain on until the room temperature demand is satisfied. Choose between Deadband or Setpoint.

Third Stage on Until Deadband (Setup Step 33) - Specifies whether third stage will turn off at second stage deadband or remain on until the room temperature demand is satisfied. Choose between Deadband or Setpoint.

Fourth Stage on Until Deadband (Setup Step 34) - Specifies whether fourth stage will turn off at third stage deadband or remain on until the room temperature demand is satisfied. Choose between Deadband or Setpoint.

Programming the Fan (setup steps 35 - 38)

(This feature not available on all models)

Fan Program (Setup Step 35) - This feature allows the fan to be programmed to turn on automatically for a specified amount of time during the day. If this feature is set to ON, the next three steps will appear.

Minutes of Fan Runtime Per Hour (Setup Step 36) - This setting specifies the number of minutes (0 - 60, in increments of 5) that the fan will run at the top of each hour.

Fan Program Start Time (Setup Step 37) - This setting specifies the hour of each day when the programmable fan feature will start.

Fan Program Stop Time (Setup Step 38) - This setting specifies the hour of each day when the programmable fan feature will stop. ***NOTE: Setting the Stop Hour equal to the Start Hour will cause the fan to run 24 hours a day.***

Fan Off Delay in Seconds (setup step 55)

This feature allows the user to increase the cooling or electric strip heating efficiency of the system. The thermostat may be programmed to continue running the fan after a call for cooling or electric strip heating has been satisfied. This delay can be set for 0, 30, 60, 90, or 120 seconds. If set to 0, the fan will not run after a call for cooling or electric strip heating has been satisfied.

Comfort Recovery (setup step 69)

With Comfort Recovery on, the thermostat will attempt to reach the Occupied setpoint temperature at the exact time programmed into the thermostat. Comfort Recovery, only works when the thermostat enters the Occupied mode from the Unoccupied mode. For example, if the Unoccupied program is set for 11pm at 65°F heating and 85°F cooling, and the Occupied program is set for 6am at 72°F heating and 75°F cooling, the thermostat will turn the system on before 6am in an effort to bring the temperature to its correct setting at exactly 6am. The thermostat learns from experience, so please allow 4-8 days after a program change or after initial installation to give Comfort Recovery time to adjust. If used with a heat pump, electric strip heat will be disabled while Comfort Recovery is active.

Lockout Heat Pump on Outdoor Temp (setup steps 46 - 47)

This feature stops the heat pump from running below a specified outdoor temperature, where the heat pump has become inefficient or could damage equipment. A local outdoor sensor must be used for this feature to work.

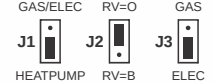
Lockout Heat Pump With Outdoor Temp (setup step 46) - When set to ON, the Heat Pump Lockout feature is enabled. When set to OFF, the heat pump will stage normally.

Heat Pump Lockout Temp (setup step 47) - (10˚ - 45˚) This step allows the user to set the temperature at which the heat pump will be locked out. Adjustable from 10 to 45 degrees Fahrenheit in five degree increments.

Auxiliary Heat Lockout (setup steps 48 - 49)

This feature allows the auxiliary heat for a heat pump (W2 and W3) to be locked out above a specific outdoor temperature. These steps will only appear if the thermostat jumper **J1** is set for **Heat Pump** and **J3** is set for **Electric Heat**. A local outdoor sensor must be used for this feature to work.

Jumpers are located on the back of the thermostat



Lockout Aux Heat With Outdoor Temp (Setup Step 48) - When set to ON, the Aux Heat Lockout feature is enabled. When set to OFF, Auxiliary Heat will stage normally.

Aux Heat Lockout Temp (Setup Step 49) - (20˚ - 75˚) This step allows the user to set the temperature at which Auxiliary Heat will be locked out. Adjustable from 20 to 75 degrees Fahrenheit. ***NOTE: This temperature setting cannot be lower than 5 degrees above the Heat Pump Lockout temperature.***

Control to Temp Source (setup step 39)

This feature allows the user to specify which temperature sensor source the thermostat will use to measure room temperature.

Thermostat: Uses the internal thermostat sensor only.

Remote Sensor: Uses wireless or wired sensors only.

Average Of Remote Sensor And Thermostat: Averages the temperatures of the remote sensor(s) and the thermostat.
NOTE: If a remote sensor is being used, the degree icon on the large room temperature display will blink.

Fahrenheit or Celsius (setup step 56)

This feature allows the thermostat to display temperature in Fahrenheit or Celsius.

Fault Type (setup step 72)

This step allows the FAULT terminal on the thermostat to be configured for three different settings:

NONE - Scrolling display shows 'FAULT / FFD' when a fault signal is active.

COMFORT ALERT - Fault alerts are controlled by the Comfort Alert accessory.

FFD - Economizer fault.

Dry Contact Operation (Setup Step 70 - 71)

Dry Contact Polarity (setup step 70)

Open (Normally Open) - The dry contact is open until the connected device closes the circuit.

'Idle'

'Active'

Closed (Normally Closed) - The dry contact is closed until the connected device opens the circuit.

'Idle'

'Active'

Dry Contact Use (setup step 71)

PAN - If PAN is selected when the dry contact is active, the thermostat will lockout the compressor terminal(s) and "SERVICE DRAIN PAN" will appear on the display.

VACATION - If VACATION is selected when the dry contact is active, the thermostat will be forced into AWAY/unoccupied settings.

Resetting the Thermostat to the Factory Default Settings

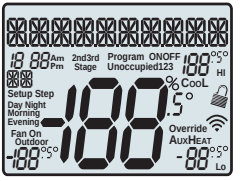
(for default values see page 34)

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 Time Period and Advanced Programming to the default settings. Any information entered prior to this reset may be permanently lost.

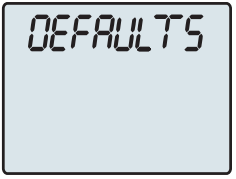
1. Press and hold SETUP for 5 seconds. All icons will appear on the display.

Keep pressing the SETUP button until you see this screen.



2. After all the icons appear, release SETUP. Press and hold OUTDOOR for 5 seconds. DEFAULTS will appear on the display.

Keep pressing the FAN button until you see this screen.

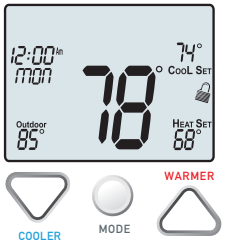


3. After DEFAULTS appears, release FAN. Press MODE to return to normal operation.

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 WARMER and COOLER buttons together. The icon will appear on the display, then release the buttons.

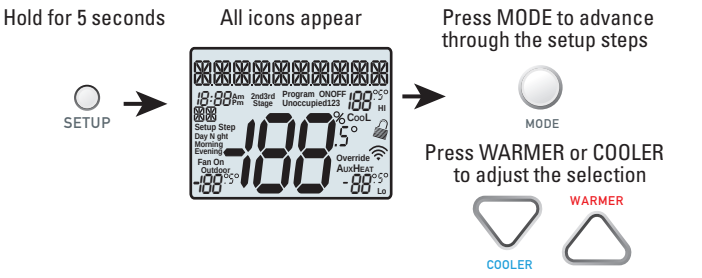
Press all three buttons in the order outlined above for keypad lockout



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

Installer Setup

To enter Technician Setup, press and hold the SETUP button for 5 seconds. After all the icons appear, press MODE. The version number of the thermostat will appear in the scrolling text. Press MODE to advance to the next step. Use the WARMER or COOLER buttons to adjust the value of your selection. To leave Technician Setup, press SETUP.



Technician Setup is for diagnostic and testing purposes and is intended for use by a qualified technician. ***See page 14*** ***for more detailed instructions.***

Technician Setup contains the following options:

- View the version number of the thermostat.
- View the jumper setting of **J1** (Gas/Electric or Heat Pump), **J2** (Reversing Valve: RV=O or RV=B), and **J3** (Fan: Gas or Electric) jumpers located on the back of the thermostat. (Remove thermostat from backplate for access)
- View the state of the Dry Contact and Fault terminals.
- Turn on equipment outputs for testing.
- Calibrate thermostat, remote, and humidity sensors.
- Control HUM output (On or Off)
- Control DEHUM output (On or Off)
- Control AUX output (On or Off)

Advanced Setup Table

Df = Factory Default Setting

Step#	Description	Pg#	Range	Df
1	Prog Mode	21	Non, 1, 5/2*, 7*	7
2	Available Modes	21	Heat/Cool/Auto/Off Heat/Cool/Off,Heat/Off, Cool/Off	Heat/Cool/ Auto/Off
3	Backlight	15	On, Off, 6pm-6am	Off
4	Backlight Level	15	Off-7 levels of brightness	Level 5
5	Current Service Filter Runtime Hours	18	0-1999	0
6	Current Service Filter Calendar Days	18	0-1999	0
7	Current Heat Runtime Hours	19	0-1999	0
8	Current Strip Heat Runtime Hours	19	0-1999	0
9	Current Cool Runtime Hours	19	0-1999	0
10	Current UV Lamp Calendar Days	19	0-1999	0
11	Current Humidifier Calendar Days	19	0-1999	0
12	Set Service Filter Runtime Hours	19	0-1950	0
13	Set Service Filter Calendar Days	19	0-720	0
14	Set UV Lamp Calendar Days	19	0-720	0
15	Set Humidifier Calendar Days	19	0-720	0
16	Language	15	English, Espanol, Francais	English
17	Scrolling Method	16	L-R Slow, L-R Fast, Word L-R Slow, Word L-R Fast Whole Word L Slow Whole Word L Fast Whole Word Ctr Slow Whole Word Ctr Fast	Whole Word Ctr Fast
18	Setpoint Limits	22	No, Use	No
19	Max Heat Setpoint	22	35˚ - 99˚	74˚
20	Min Cool Setpoint	22	35˚ - 99˚	70˚
21	Cycles Per Hour	22	No Limit, 2, 3, 4, 5, 6	6
22	Compressor Minimum Off Minutes	22	0, 3, 5	5
23	Min. Heat/Cool Setpoint Difference	22	0˚ - 6˚	2˚
24	Number Of Compressor Stages	22	1, 2	1
25	1st Stage Deadband	23	1˚ - 6˚	2˚
26	2nd Stage Deadband	23	0˚ - 10˚	2˚
27	3rd Stage Deadband	23	0˚ - 10˚	2˚
28	4th Stage Deadband	23	0˚ - 10˚	2˚
29	Minutes Between 1st and 2nd Stage	23	0 - 60	2
30	Minutes Between 2nd and 3rd Stage	23	0 - 60	2
31	Minutes Between 3rd and 4th Stage	23	0 - 60	2
32	2nd Stage Turnoff Point	23	Deadband, Setpoint	Deadband
33	3rd Stage Turnoff Point	23	Deadband, Setpoint	Deadband

cont. next page

Advanced Setup Table

Df = Factory Default Setting

Step#	Description	Pg#	Range	Df
34	4th Stage Turnoff Point	23	Deadband, Setpoint	Deadband
35	Fan Program	24	On, Off	Off
36	Minutes of Fan Runtime per Hour	24	0-60	0
37	Fan Program Start Time	24	12am - 12am	7am
38	Fan Program Stop Time	24	12am - 12am	9pm
39	Control to Temp Source	27	Tstat, Remote, Average	Tstat
40	Humidity Only With Heat	25	On, Off	Off
41	Fan With Humidity Demand	25	Fan on, Fan off	Fan Off
42	Humidity Setpoints	25	Auto, Manual	Manual
43	Cool To Dehumidify	25	Off, On	Off
43	Maximum Dehum Overcool	25	0˚ - 5˚	2˚
44	Reheat Operation W/Cool To Dehum.	25	On, Off	Off
46	Lockout Heat Pump W/Outdoor Temp	26	On, Off	Off
47	Heat Pump Lockout Temp	26	10˚ - 45˚	35˚
48	Lockout Aux Heat W/Outdoor Temp	26	On, Off	Off
49	Aux Heat Lockout Temp	26	20˚ - 75˚	20˚
50	Dual Fuel	26	On, Off, External	Off
51	Dual Fuel Safety Timer	27	On, Off	Off
52	Dual Fuel Changeover On Outdoor Temp	27	On, Off	On
53	Dual Fuel Balance Point	27	5˚ - 60˚	35˚
54	Dual Fuel Changeover Delay In Seconds	27	0 - 90	0
55	Fan Off Delay In Seconds	24	0, 120	0
56	F/C	27	Fahrenheit, Celsius	F
57	Aux Output Polarity	28	Open, Closed	Open
58	Aux Output	28	Time, Temp, Ext., Error Free Cooling, Venting	Time
59	Aux Output Program Days	28	1, 5/2, 7	1
60	Day Of Week To Program	28	M-M	MTWTFSS
61	Aux Output Start Time	28	12a - 12a	7a
62	Aux Output Stop Time	28	12a - 12a	9p
63	Copy	28	Yes, No	No
64	Aux Output Temp Source	29	Tstat, Outdoor, Ctrl, Ext.	Ctrl
65	Aux Output Trigger Point Temp	29	0˚ - 120˚	65˚
66	Aux Output Error Level	29	1 - 3	3
67	Free Cooling with A/C	30	Without A/C, with A/C	with A/C
68	Free Cooling Usable Temp	30	40˚ - 80˚	65˚
69	Comfort Recovery	24	On, Off	Off
70	Dry Contact Polarity	30	Open, Closed	Open
71	Dry Contact Use	30	Pan, Vacation	Vacation
72	Fault Type	30	None, Comfort Alert, EED	None

cont. next page

Advanced Setup Table

Df = Factory Default Setting

Step#	Description	Pg#	Range	Df
73	Humidity Polarity	25	Open, Closed	Open
74	Dehumidify only with Cooling	28	On, Off	On
75	Dehumidify Polarity	25	Open, Closed	Open
76	Press Fan To Clear All Messages	29	N/A	N/A
77	Wired Remote Sensor Type	7	Remote, Supply Air	Remote

Which steps #s should I remove?

Troubleshooting

- **SYMPTOM:** The air conditioning does not attempt to turn on.
  CAUSE: The compressor timer lockout may prevent the air conditioner from turning on for a period of time.
  REMEDY: Consult the Owner's Manual in the Installer Setup section to defeat the Cycles Per Hour *(page 22)*.
- **SYMPTOM:** The display is blank.
  CAUSE: Lack of proper power.
  REMEDY: Make sure the power is on to the furnace and that you have 24vac between **R & C.**
- **SYMPTOM:** The air conditioning does not attempt to turn on.
  CAUSE: The cooling setpoint is set too high.
  REMEDY: Lower the cooling setpoint or lower the cooling set-point limit. *See Setpoint Limits (page 22).*
- **SYMPTOM:** The heating does not attempt to turn on.
  CAUSE: The heating setpoint is set too low.
  REMEDY: Raise the heating setpoint or raise the heating set-point limit. *See Setpoint Limits (page 22).*
- **SYMPTOM:** When controlling a residential heat pump, and asking for cooling, the heat comes on.
  CAUSE: The thermostat reversing valve jumper is set for **"B".**
  REMEDY: Set the reversing valve jumper for **"O".**
- **SYMPTOM:** When calling for cooling, both the heat and cool come on.
  CAUSE: The thermostat equipment jumper is configured for **"HP"** and the HVAC unit is a Gas/Electric.
  REMEDY: Set the equipment jumper for **"Gas".**
- **SYMPTOM:** When the Program button is pressed, the display reads "DISABLED".
  CAUSE: Program mode is set to **"NON PROGRAM".**
  REMEDY: Set Program Mode (Setup 1) to **1, 5/2,** or **7 Day.**
  See Selecting Your Program Mode (page 21).

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remove?

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Warranty

One-Year Warranty - This Product is warranted to be free from defects in material and workmanship. If it appears within one 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.

Programming Worksheet - see page 23

DAY	PERIOD	START TIME	COOL	HEAT	
MONDAY	Morning				
	Day				
	Evening				
	Night				
TUESDAY	Morning				*Copy Mon to Tues* ☐ *No* ☐ *Yes*
	Day				
	Evening				
	Night				
WEDNESDAY	Morning				*Copy Tues to Wed* ☐ *No* ☐ *Yes*
	Day				
	Evening				
	Night				
THURSDAY	Morning				*Copy Wed to Thurs* ☐ *No* ☐ *Yes*
	Day				
	Evening				
	Night				
FRIDAY	Morning				*Copy Thurs to Fri* ☐ *No* ☐ *Yes*
	Day				
	Evening				
	Night				
SATURDAY	Morning				*Copy Fri to Sat* ☐ *No* ☐ *Yes*
	Day				
	Evening				
	Night				
SUNDAY	Morning				*Copy Sat to Sun* ☐ *No* ☐ *Yes*
	Day				
	Evening				
	Night				

Patent Pending

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