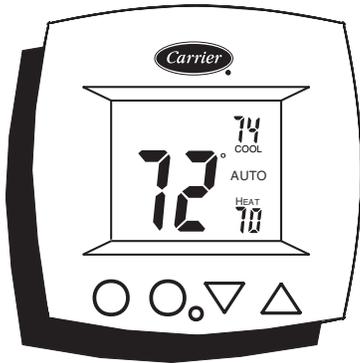




# Installation Instructions

## DIGITAL THERMOSTAT 53DFST2-NP

### Heat Cool and Cooling Only



### PROGRAMMABLE

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**IMPORTANT:** Follow *Installation Instructions* carefully.

**CAUTION:** DISCONNECT POWER TO THE SYSTEM BEFORE INSTALLING THE NEW THERMOSTAT. SERIOUS PERSONAL INJURY COULD RESULT.

This device complies with Part 15 of the FCC rules. Operation is subject to the following 2 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.

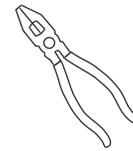
#### STEP #1 PREPARATION

A. Proper installation of the thermostat will be accomplished by following these step by step instructions. If you are unsure about any of these steps, call a qualified technician for assistance.

B. Assemble tools:



Flat Blade  
Screwdriver



Wire Cutter  
and Stripper

C. Carefully unpack the thermostat. Save the screws, bracket, and instructions.

D. Turn off the power to the system at the main fuse panel. Most systems have a separate breaker for disconnecting power to the indoor and outdoor units.

#### STEP #2 WIRE CONNECTIONS

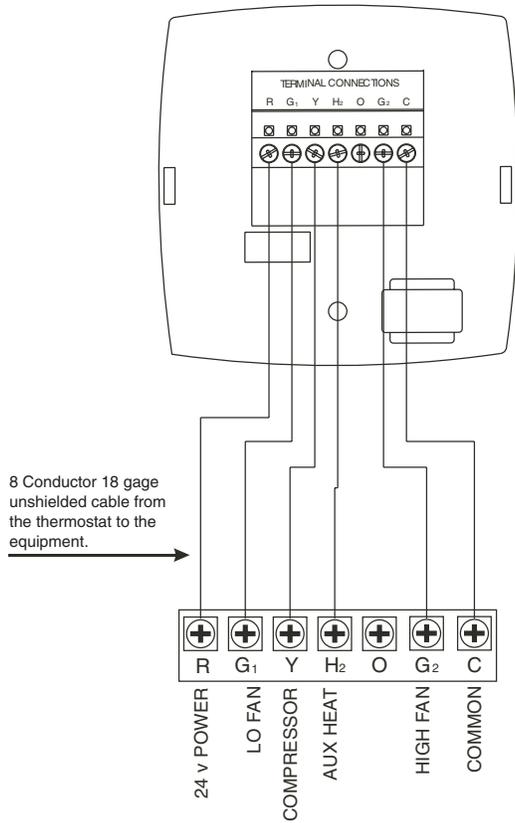
Refer to the chart below, or the wiring diagram that follows for thermostat functions and corresponding thermostat connectors.

FUNCTION	INSTALL ON THE NEW THERMOSTAT CONNECTOR MARKED
Lo Fan	G1
Compressor	Y
Heating	H2
24 v Power	R
Common	C
Rev. Valve	O*
Hi Fan	G2

\*Not applicable for use with Duct-Free Split heat pump systems.

## Sample Wiring Diagram

## HEAT-COOL COOLING ONLY



NOTE: For cooling only applications, H2 connection is not required.

## STEP #3 TEST OPERATION

- A. Turn the power on to the HVAC (heating, ventilation, and air conditioning) system.
- B. Press the Mode button until the **HEAT** icon appears on the display. Press the Up or Down buttons until the set point temperature is 2 degrees **above** room temperature. The unit will turn on and supply heat and the fan will turn on and run continuously in low speed. Now increase the heat set point to 4 degrees above room temperature. The fan will run continuously in medium speed. Finally, increase the heat set point to 6 degrees above room temperature. The fan will run continuously in high speed.
- C. Press the Mode button until the **COOL** icon appears on the display. Press the Up or Down buttons until the set point temperature is 10 degrees **below** room temperature. The heat will turn off. Within 5 minutes the unit will turn on and supply cool air.
 

**NOTE:** Most equipment has a time delay between cycles. This feature is defeatable on the thermostat. See the Advanced Setup section.

## Advanced Setup

- MODE Press the Mode button. While holding the Mode button, press the Override button for 10 seconds to enter Setup screens.
- OVERRIDE Setup screens.

NOTE: Each step number is located at the top right corner of the display for easy reference.

IMPORTANT: Be sure to press and hold the override button with the Mode button for a full ten seconds.

Adjust the time of day clock.

Tip: To change by hours, press and hold the override button in and press the up or down buttons.

Select the day of the week.

Display On

Select display operation, Full Display (On) or Minimal display (Off).

Display Off

Select Fan operation, Fan On, Fan Auto, or Fan Off

On

Select Heat Pump, On or Off.

Off

NOTE: Step 5 is not applicable for use with Duct-Free Split Heat Pump Systems.

Adjust the deadband from 1 to 6 degrees F. (1° to 6°F)

Adjust the minimum difference between cooling and heating set points. (0° to 6°F)

Select the cycles per hour limit. d=cycles per hour limit defeated. d1=d - defeat 5 min. Compressor lockout. (d, d1, 2-6)

On

Select the display backlight always On, or Off after 8 seconds.

Off

C

Select thermostat operation in degrees Fahrenheit or Celsius.

F

Press the Mode button. While holding the Mode button in, press the Override button to exit the Setup screens. If no buttons are pressed, the display will exit the setup screens after 60 seconds.

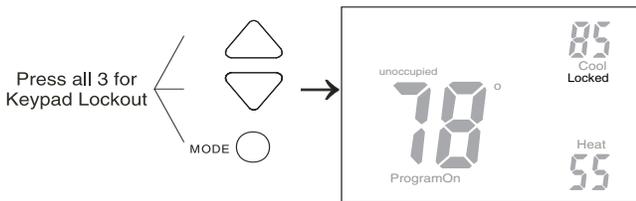
**Advanced Setup Table**

STEP NO.	DESCRIPTION	RANGE	FACTORY DEFAULT
1	Time of day clock set	24 hour	12:00 Am
2	Day of the week	Su - Sa	Mo
3	Display Blanking	Off / On	On
4	Fan Operation	Auto / On	Auto
5	Heat Pump*	Off / On	On
6	Deadband or Temperature swing	1 - 6 F	2 F
7	Forced minimum difference heat/cool	0 - 6 F	2 F
8	Cycles per hour	d, d1, 2 - 6	6
9	Thermoglow™ backlight	Off / On	On
10	Fahrenheit or Celsius	F / C	F

\*Not applicable for use with Duct-Free Split Heat Pump systems.

**About Advanced Features and Operation**

- **MINIMUM HEAT/COOL SET POINT DIFFERENCE** — The Heat and Cool set points will not be allowed to come any closer to each other than the value set in the Advanced Setup section, *Step 6*. This minimum difference is enforced during Auto changeover and Program On operation.
- **ENERGY SAVING SMART FAN** — If a manual fan speed is selected, the fan will run continuously at all times, except when in Off mode, and will only run if there is a heating or cooling demand in unoccupied periods.
- **OVERRIDE** — Press the Override button during a programmed, Unoccupied period to force the thermostat into the Occupied 1 period, temporarily, for up to 4 hours. If the Override button is pressed during an Occupied period, the thermostat will be forced into an Unoccupied period and the Occupied period (1, 2 or 3), it was forced out of will be turned off, only for that day.  
During Override periods the set points may be adjusted, but they will not be remembered after Override period ends.
- **KEYPAD LOCK** — 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, simultaneously press the Up and Down buttons. The **Locked** icon will appear on the display.



To **unlock** the buttons, again press and hold the Mode button. While holding the Mode button, simultaneously press the Up and Down buttons. **Locked** will disappear from the display.

- **DISPLAY BLANKING** — The thermostat display may be configured in Advanced Setup section, *Step 3*, to always be visible as normally expected,

or may be selected Off. When selected Off, only the time of day will appear until a button is pressed. When a button is pressed the full, normal display will appear and then revert to display the time of day only, after approximately 10 seconds.

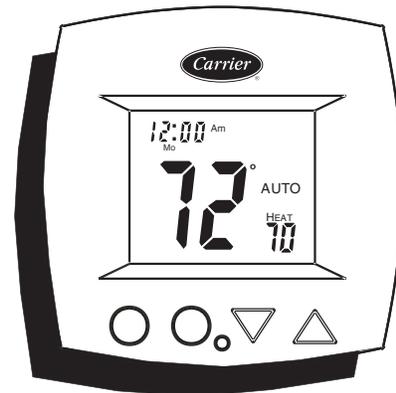
- **DUAL SET POINT BEHAVIOR** — The adjustable set point range is: 35 to 99 degrees in Fahrenheit and 7 to 35 degrees in Celsius. When in the modes Heat or Cool, this adjustable range is unhampered. When adjusting any Auto mode, including programming Occupied and Unoccupied set points, the thermostat will not allow the Heat set point to get closer to the Cool set point than the value programmed as the minimum difference in the Advanced Setup section, *Step 7*.

When entering the Auto mode from Cool mode, the Heat and Cool set point temperatures will remain spread apart by the amount that they were adjusted, prior to entering Auto mode.

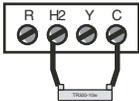
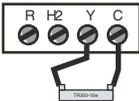
For example: If the Cool set point was set to 80 F while in the Cool mode and the Heat set point was adjusted to 70 F while in the Heat mode, upon entering the Auto mode the Cool and Heat set points would be 80 F and 70 F. **Both** set point temperatures would then move up and down together, (in this example spread by 10 degrees), by pressing the Up or Down buttons.

To move the Heat and Cool set points closer together, enter the Cool or Heat mode by pressing the Mode button, then adjust the set point(s) closer together. Heat is limited to how close it can come to Cool in the Advanced Setup section, *Step 7*.

- **FACTORY DEFAULTS** — Before restoring factory defaults, set thermostat to OFF mode. If, for any reason it is desirable to return all stored settings back to the factory default settings, press the Mode button. While holding the Mode button in, press the Down button for 2 seconds. All icons will appear. Press and hold the Override button until **Fd** appears. All icons will appear. Press and hold in the Fan button until **Fd** appears. This resets all factory settings. **To calibrate room temperature**, see the Calibration section on page 4.



## TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
When not using a common wire the air conditioning equipment tries repeatedly to turn on, but cannot. At times the display dims or disappears.	There is not enough power available to "power share."	Connect a 270 ohm, 10 watt power resistor <b>at the unit</b> as shown below. <i>For Problem A/C</i>  <i>For Problem Heat</i> 
The air conditioning does not attempt to turn on.	The compressor timer lockout may prevent the air conditioner from turning on, for a period of time.	See the Advanced Setup section to defeat the cycles per hour and compressor timeguard.
The display is blank.	Lack of proper power.	Check for 24 vac between R and C.
The air conditioning does not attempt to turn on.	The cooling set point is set too high.	Press the down arrow until the cooling set point is 10 degrees lower than the room temperature.
The heating does not attempt to turn on.	The heating set point is set too low.	Press the up arrow until the heating set point is 10 degrees higher than the room temperature.
The strip heater turns off well before reaching set point.	Heat pump is incorrectly selected "on" in the Advanced Setup.	Select heat pump "off" during Advanced Setup programming. See the Advanced Setup section.

## CALIBRATION

**CALIBRATION:** Every thermostat is calibrated before it leaves the factory. Under normal circumstances there will never be a need to recalibrate the thermostat. To accommodate *special needs*, the thermostat may be recalibrated following these steps:

1. While holding the Mode button in, press the down button for 5 seconds. After all the icons in the display appear, release the buttons.
2. Press the Mode button twice.
3. Press the up or down buttons until the flashing number equals the current room temperature.
4. Press the Mode button to return to normal operation.