



SC3001 N/L

1 Heat/1 Cool
Manual Changeover
Hardwire

Programmable Electronic Thermostat

- 7-Day, 5-2-Day or 5-1-1-Day Programmable
- Configurable
- Single Stage Heat/Cool Systems
- Single Stage Heat Pump Systems
- Large Display With Backlight (SC3001L)
- Selectable Fahrenheit or Celsius
- Compatible with Gas, Oil, or Electric
- SimpleSet™ Field Programming
- Relay Outputs (minimum voltage drop in thermostat)
- Ideally Suited for:
 - Residential (New Construction/Replacement)
 - Light Commercial

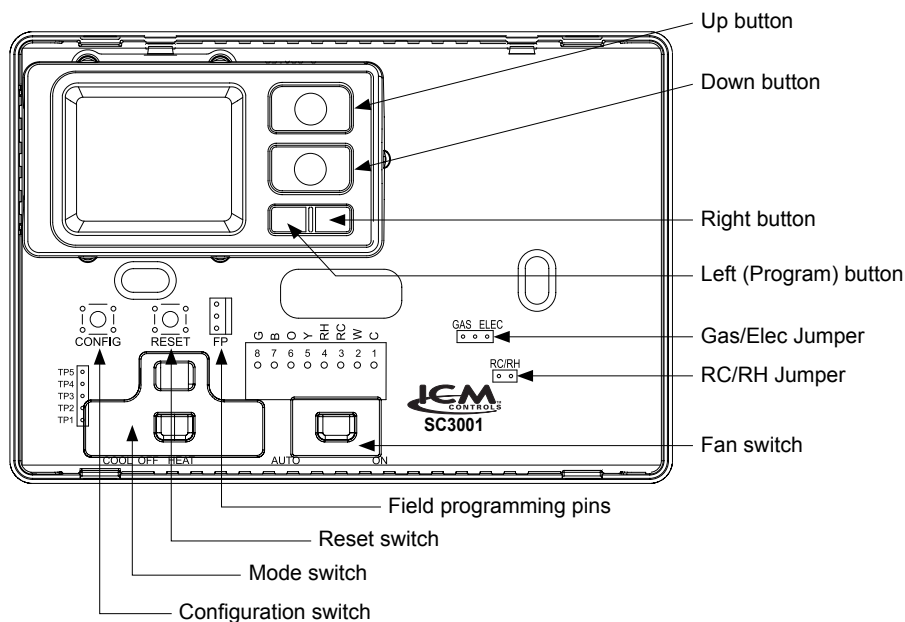


Installation, Operation & Application Guide

For more information on our complete range of American-made products – plus wiring diagrams, troubleshooting tips and more, visit us at www.icmcontrols.com



Parts Diagram



Specifications

- Electrical rating: • 24 VAC (18-30 VAC)
 - 1 amp maximum per terminal, 3 amp maximum total load
- Temperature control range: 45°F to 90°F (7°C to 32°C) Accuracy: ± 1°F (± 0.5°C)
- System configurations: 1-stage heat, 1-stage cool, heat pump, gas, oil, electric
- Timing: Anti-short Cycle: 4 minutes
- Backlight Operation (Note: with SC3001L only)
- Terminations: G, B, O, Y, RH, RC, W, C

Important Safety Information

- WARNING!** Always turn off power at the main power supply before installing, cleaning, or removing thermostat.
- This thermostat is for 24 VAC applications only; do not use on voltages over 30 VAC
 - Do not short across terminals of gas valve or system control to test operation; this will damage your thermostat and void your warranty
 - All wiring must conform to local and national electrical and building codes
 - Do not use air conditioning when the outdoor temperature is below 50 degrees; this can damage your A/C system and cause personal injuries
 - Use this thermostat only as described in this manual

Package Contents/Tools Required

- Package includes: SC3001 N/L thermostat on base, thermostat cover, wiring labels, screws and wall anchors, Installation, Operation and Application Guide
- Tools required for installation: Drill with 3/16" bit, hammer, screwdriver

To Remove Existing Thermostat

- ELECTRICAL SHOCK HAZARD** – Turn off power at the main service panel by removing the fuse or switching the appropriate circuit breaker to the OFF position before removing the existing thermostat.
1. Turn off power to the heating and cooling system by removing the fuse or switching the appropriate circuit breaker off.
 2. Remove cover of old thermostat. This should expose the wires.
 3. Label the existing wires with the enclosed wire labels before removing wires.
 4. After labeling wires, remove wires from wire terminals.
 5. Remove existing thermostat base from wall.
 6. Refer to the following section for instructions on how to install this thermostat.

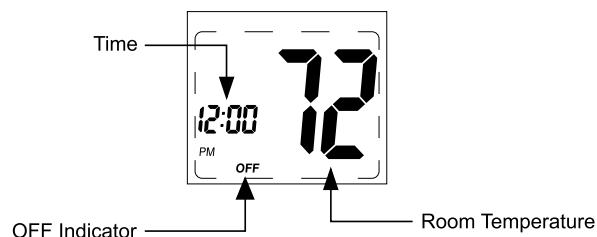
To Install Thermostat

- ELECTRICAL SHOCK HAZARD** – Turn off power at the main service panel by removing the fuse or switching the appropriate circuit breaker to the OFF position before removing the existing thermostat.
- IMPORTANT:** Thermostat installation must conform to local and national building and electrical codes and ordinances.
- ❖ Note: Mount the thermostat about five feet above the floor. Do not mount the thermostat on an outside wall, in direct sunlight, behind a door, or in an area affected by a vent or duct.

1. Turn off power to the heating and cooling system by removing the fuse or switching the appropriate circuit breaker off.
 2. To remove cover, pull gently at the seam at the top.
 3. Put thermostat base against the wall where you plan to mount it (Be sure wires will feed through the wire opening in the base of the thermostat).
 4. Mark the placement of the mounting holes.
 5. Set thermostat base and cover away from working area.
 6. Using a 3/16" drill bit, drill holes in the places you have marked for mounting.
 7. Use a hammer to tap supplied anchors in mounting holes.
 8. Align thermostat base with mounting holes and feed the control wires through slit in thermal intrusion barrier and into wire opening.
 9. Use supplied screws to mount thermostat base to wall.
 10. Insert stripped, labeled wires in matching wire terminals.
- CAUTION!** Be sure exposed portion of wires does not touch other wires.
11. Gently tug wire to be sure of proper connection. Double check that each wire is connected to the proper terminal.
 12. Place gas/elec jumper in correct position.
 - gas = gas/oil systems
 - elec = electric heat or heat pump systems
 13. Remove RC/RH jumper for 2-transformer systems.
 14. Non-heat pump jumper must be in Non-HP unless the system is a heat pump.
 15. Turn on power to the system at the main service panel.
 16. Configure thermostat to match the type of system you have.
 17. Replace cover on thermostat by snapping it in place.
 18. Test thermostat operation as described in "Testing the Thermostat".

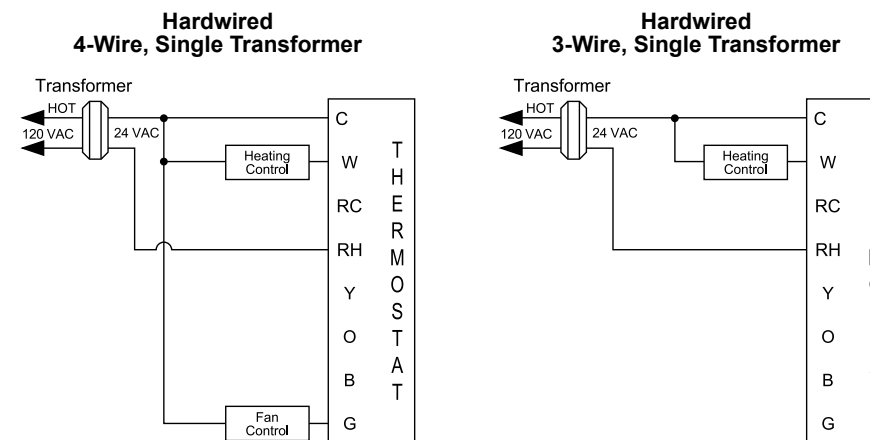
Starting the Thermostat

- CAUTION!** Do not use air conditioning when the outdoor temperature is below 50 degrees. This can damage your air conditioning system and cause personal injuries.
1. Move the Fan Auto/On switch to the Auto position.
 2. Move the Cool/Off/Heat switch to Cool or Heat, depending on the season.

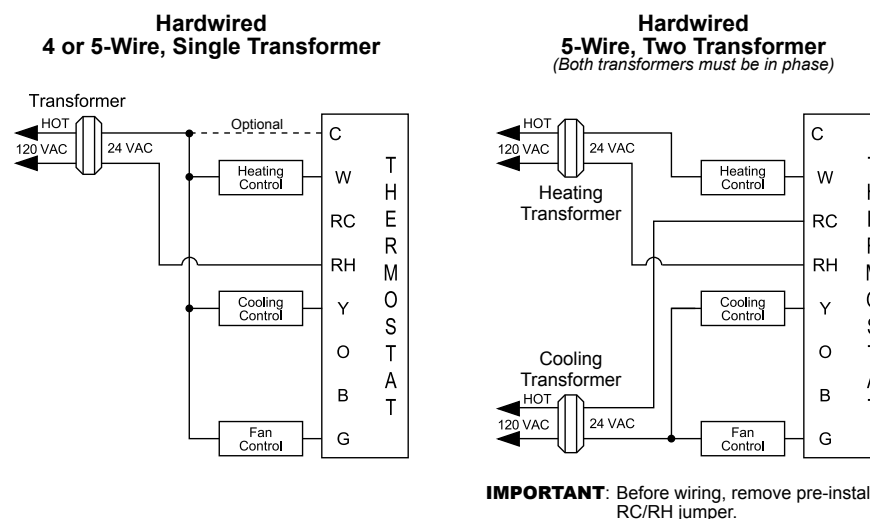


Wiring Diagrams

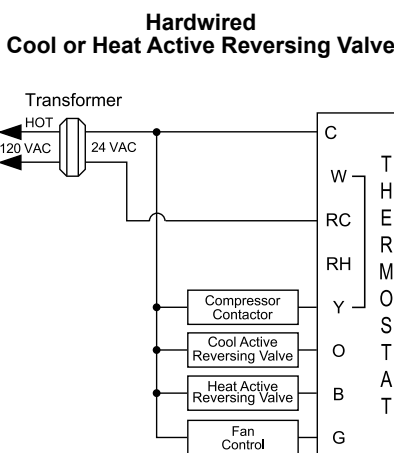
Heating Only



Heating/Cooling

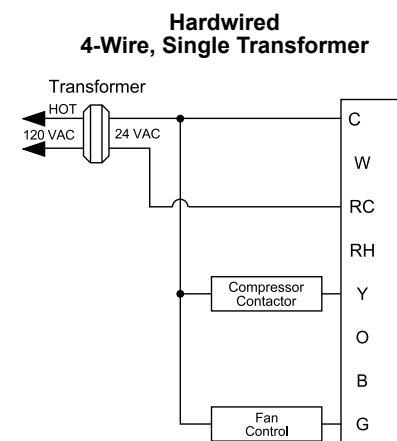


Heat Pump



❖ Note: Jumper must be installed between Y and W for heat pump systems

Cooling Only



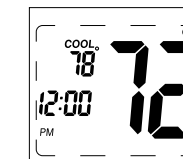
Testing the Thermostat

Once the thermostat is installed, it should be thoroughly tested.

CAUTION! Do not energize the air conditioning system when the outdoor temperature is below 50 degrees. It can result in equipment damage or personal injury.

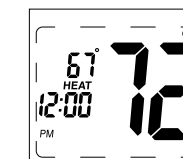
Cool Test

1. Slide system switch to Cool position. Cool mode screen is displayed.
2. Adjust set temperature so it is at least 5 degrees below room temperature.
3. Air conditioning should come on within a few seconds.
4. Adjust the set temperature 2 degrees above the room temperature and the A/C should turn off. There may be a fan delay on your system.
 - ❖ Note: There is a four minute delay to protect your compressor.



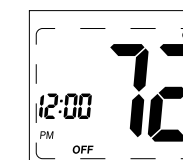
Heat Test

1. Slide system switch to Heat position. Heat mode screen is displayed.
2. Adjust the set temperature so it is at least 5 degrees above the room temperature.
3. Heat should come on within a few seconds.
4. Adjust the set temperature so it is 2 degrees below the room temperature and the heat should turn off. There may be a fan delay on your system.
 - ❖ Note: For heat pumps, there is a four minute delay to protect your compressor.



Fan Test

1. Slide Fan switch to On position.
2. Indoor fan turns ON.
3. Slide Fan switch to Auto position.
4. Indoor fan turns OFF.



Mode of Operation

The SC3001 N/L is a programmable, manual changeover, single stage heat, single stage cool thermostat. It functions with air conditioning, heat pumps, gas, oil or electric heat systems.

The thermostat activates the heating appliance when the room temperature is below the set heat temperature (by the differential temperature). The SC3001 N/L will stop outputting when the call for heat has been satisfied. With heat pumps, the thermostat will not let the compressor come on for 4 minutes after it turns off. This protects your compressor.

When the room temperature is greater than the set cool temperature (by the differential temperature), the cooling device is activated. The SC3001 N/L will stop outputting when the call for cooling is satisfied. The thermostat will not let the compressor come on for 4 minutes after it turns off. This protects your compressor.

The SC3001 N/L has four possible operating modes: OFF, Heat, Cool, and Program mode. In off mode, the thermostat will not turn on heating or cooling devices. The manual fan can be turned on in all operating modes using the fan button. In heat mode, the thermostat controls the heating system. In the cool mode, the thermostat controls the cooling system. In program mode, the thermostat will automatically be controlled by the set program. Program mode can function with heat mode and cool mode.

The program schedule can be overridden by changing the set temperature (UP or DOWN button). This puts the SC3001 N/L thermostat into a 2-hour temporary hold. After 2 hours, it will automatically return to the program schedule.

The SC3001 N/L also has a button lockout feature. This enables the thermostat to be set to the proper temperature and be locked so it cannot be tampered with.

Operating Modes

OFF Mode

- In this mode, the thermostat will not turn on the heating or cooling devices (manual fan can operate)
- OFF mode is also used to access setup and the program schedule

Cool Mode

- In this mode, the thermostat controls the cooling system
- Press the PROG button to enter and exit Program Cool mode
- In Program Cool mode, the thermostat will follow the program schedule that is stored in memory
- PROG displays when in Program mode

Heat Mode

- In this mode, the thermostat controls the heating system
- Press the PROG button to enter or exit the Program Heat mode
- In Program Heat mode, the thermostat will follow the program schedule that is stored in memory
- PROG displays when in Program mode

Hold Function

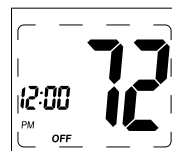
- For a temporary hold period, raise or lower set temperature to desired set temperature. The thermostat will automatically return to programmed set temperature after 2 hours.

Configuration Mode

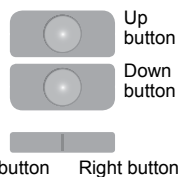
The configuration mode is used to set the **SC3001 N/L** to match your system.

To configure the **SC3001 N/L**, perform the following steps:

- Verify the **SC3001 N/L** is in the **OFF** mode.
Slide the system switch to the center position until off mode displays.
- Remove the cover of the thermostat by gently pulling near one of the corners at the top of the thermostat.
- Press the **CONFIG** button for 1 second while the **SC3001 N/L** is in **OFF** mode.



Press the **UP** or **DOWN** button to change settings within each screen.



Press the **RIGHT** button to advance to the next screen.

⚠️ **Note:** Pressing the **LEFT** button will return you to the previous screen.

To exit configuration mode, press the **CONFIG** switch for 1 second or slide the mode switch to heat or cool.

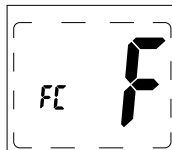
Configuration Mode Settings

The setup screens for Configuration Mode are as follows:

- Temperature Scale** (F or C) – Choose Fahrenheit or Celsius.

Press the **UP** or **DOWN** button to select.

Press the **RIGHT** button to advance to the next screen.



- Temperature Differential** (1°F to 5°F) (1°C to 3°C) – Set the number of degrees between your "setpoint" temperature and your "turn on" temperature.

Press the **UP** or **DOWN** button to set differential value.

Press the **RIGHT** button to advance to the next screen.

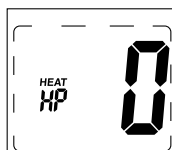


- Heat Pump and Non-Heat Pump** – Set to heat pump, or non-heat pump system. For heat pumps, there will be a compressor time delay for heating and cooling.

- 1 = Heat pump system
- 0 = Non-heat pump system

Press the **UP** or **DOWN** button to select.

Press the **RIGHT** button to advance to the next screen.



- Lockout** (0°F-8°F) (0°C-4°C) – Select the number of degrees set temperature can be changed during keypad lockout

Press the **UP** or **DOWN** button to select.

Press the **RIGHT** button to advance to the next screen.



- Maximum Heat Setpoint** (45°F to 90°F) (7°C to 32°C)

Adjust to control the maximum heat set temperature allowed.

Press the **UP** or **DOWN** button to select.

Press the **RIGHT** button to advance to the next screen.



- Minimum Cool Setpoint** (45°F to 90°F) (7°C to 32°C)

Adjust to control the minimum cool set temperature allowed.

Press the **UP** or **DOWN** button to select.

Press the **RIGHT** button to advance to the next screen.

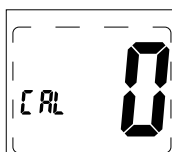


- Room Temperature Offset** (+9°F to -9°F) (+5°C to -4°C)

Adjust to calibrate displayed room temperature to match actual room temperature.

Press the **UP** or **DOWN** button to select.

Press the **RIGHT** button to advance to the next screen.

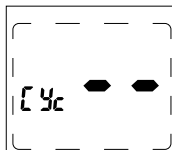


- Maximum Cycles Allowed Per Hour** (-, -, 2-6)

-- = as many as needed, 2-6 = maximum cycles/hour

Press the **UP** or **DOWN** button to select.

Press the **RIGHT** button to advance to the next screen.



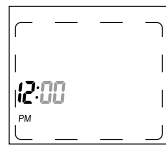
To exit configuration mode, press the **configuration** button for 2 seconds or slide the mode switch to heat or cool.

Setting the Time and Day of the Week

The time and day of the week must be set for your program schedule to operate correctly.

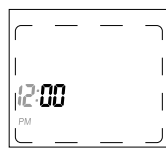
- Slide the system switch to the OFF position. You are in the OFF mode.
- Press and hold the **PROG** and **RIGHT** buttons (pressed simultaneously) for 6 seconds.
- Time displays (hour flashing).

Press the **UP** or **DOWN** button to adjust the hour.



- Press the **RIGHT** button once to select minutes (minutes flashing).

Press the **UP** or **DOWN** button to adjust the minutes.



- Press the **RIGHT** button once to select day of the week (TODAY flashing).

Press the **UP** or **DOWN** button to select current day of the week (01/Monday, 02/Tuesday, etc.).

⚠️ **Note:** At any time, press the **PROG** (left) button to return to the previous screen or press the **RIGHT** button to advance to the next screen.



Press the **PROG** button and **RIGHT** button (simultaneously) in for 2 seconds to lock values into memory and return to the OFF mode or press the **RIGHT** button once to enter programming.

Programming

Program Overview

The **SC3001 N/L** programmable thermostat has four periods (MORN, DAY, EVE, NITE) that are customizable for each day of the week. Each period will have a start time, heat temperature, and cool temperature. The **SC3001 N/L** monitors the day and time, while maintaining the specific conditions you have chosen for each period in your program.

Setting the program schedule:

- Slide the system switch to the center position. You are in **OFF** mode.
- Press and hold the **PROG** and **RIGHT** buttons (pressed simultaneously) for 6 seconds.
- Press the **RIGHT** button 3 times.
- Day 1-7 are blinking.



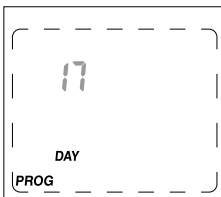
From this screen you have 2 options:

- Press the **RIGHT** button to begin programming all 7 days at one time, or
- Press the **UP** button to see the other programming options.

⚠️ **Note:** The days of the week shown on the display will be programmed simultaneously.

The screens are listed below.

Screen 1	1-7	SUN	MON	TUE	WED	THU	FRI	SAT
Screen 2	1-5		MON	TUE	WED	THU	FRI	
Screen 3	01		MON					
Screen 4	02			TUE				
Screen 5	03				WED			
Screen 6	04					THU		
Screen 7	05						FRI	
Screen 8	6-7	SUN						SAT
Screen 9	06							SAT
Screen 10	07	SUN						



From any of the screens above, you can press the **RIGHT** button to begin entering your program schedule. The days shown on the display will all be programmed simultaneously.

Once the **RIGHT** button is pressed, **MORN** blinks.

Use the **UP** or **DOWN** button to select a different period (**MORN**, **DAY**, **EVE**, **NITE**).

Press **RIGHT** button to advance to the next screen. Transition time **hour** blinks.

Use the **UP** or **DOWN** button to select a different hour.

Press **RIGHT** button to advance to the next screen. Transition time **minutes** blink.

Use the **UP** or **DOWN** button to select different minutes.

Press **RIGHT** button to advance to the next screen. **Heat set temperature** displays.

Use the **UP** or **DOWN** button to adjust the heat set temperature.

Press **RIGHT** button to advance to the next screen. **Cool set temperature** displays.

Use the **UP** or **DOWN** button to adjust the cool set temperature.

Repeat above steps to program the four periods per day.

When the program schedule is complete, press and hold the **PROG** and **RIGHT** buttons (pressed simultaneously) in for 2 seconds to return to the **OFF** mode.

Lockout Feature

The **SC3001 N/L** has a button lockout feature so the temperature adjustment is prohibited or limited. Select the appropriate lockout from Configuration Mode Settings (Setting 4) of this guide.

To activate the LOC feature:

- Simultaneously press the **PROG**, **RIGHT** and **UP** buttons for 10 seconds.

- LOC will display and the lockout function will be enabled.

To deactivate the LOC feature, repeat steps 1 and 2 above.



SimpleSet™ Field Programming

This feature is used for transferring configuration and program schedule from the master to the target thermostat. All thermostats for a job can be mounted and powered up. Configure and program one thermostat. This will be the master. The master will be used to copy the program to the rest of the thermostats.

Preparing the master to Send:

- The master must be powered by 24 VAC.
- Verify the master thermostat is in **OFF** mode. Slide system switch to center position.
- Remove cover of the master thermostat by gently pulling near one of the corners at the top of the thermostat.
- Press the **UP** and **DOWN** buttons and **CONFIG** switch simultaneously for 5 seconds.

⚠️ **Note:** Press the **UP** and **DOWN** buttons and **CONFIG** switch simultaneously for 5 seconds to exit from data transfer mode and to return the master to the **OFF** mode.

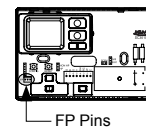
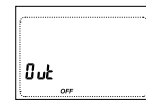
- Connect the master to the target using the 3 wire connector. Attach one end to the Master's FP pins and the other end to the Target's FP pins.

⚠️ **Note:** Target thermostat must be powered by 24 VAC for field programming to occur

When the connection has been made correctly, the master thermostat will power up and the target will count from 6 down to 1. It will then display **LOC** confirming the data has been saved in memory.

When all target thermostats have been completed, reinstall the master thermostat.

Press the **UP** and **DOWN** buttons and the **CONFIG** switch simultaneously for 5 seconds to exit from the data transfer mode and to return the master thermostat to the **OFF** mode.



Factory Preprogramming

The **SC3001 N/L** comes preprogrammed with the following schedule:

MONDAY	MORN	6:00 AM	DAY	8:00 AM	EVE	6:00 PM	NITE	10:00 PM
thru	HEAT	70°F	HEAT	62°F	HEAT	70°F	HEAT	62°F
SUNDAY	COOL	78°F	COOL	85°F	COOL	78°F	COOL	82°F

Personal Program Schedule

Use the following personal program schedule to record your settings:

MON	MORN	DAY	EVE	NITE
1	HEAT	HEAT	HEAT	HEAT
	COOL	COOL	COOL	COOL
TUE	MORN	DAY	EVE	NITE
2	HEAT	HEAT	HEAT	HEAT
	COOL	COOL	COOL	COOL
WED	MORN	DAY	EVE	NITE
3	HEAT	HEAT	HEAT	HEAT
	COOL	COOL	COOL	COOL
THU	MORN	DAY	EVE	NITE
4	HEAT	HEAT	HEAT	HEAT
	COOL	COOL	COOL	COOL
FRI	MORN	DAY	EVE	NITE
5	HEAT	HEAT	HEAT	HEAT
	COOL	COOL	COOL	COOL
SAT	MORN	DAY	EVE	NITE
6	HEAT	HEAT	HEAT	HEAT
	COOL	COOL	COOL	COOL
SUN	MORN	DAY	EVE	NITE
7	HEAT	HEAT	HEAT	HEAT
	COOL	COOL	COOL	COOL

Troubleshooting

Symptom	Remedy
No display	Check for 24 VAC at thermostat; display is blank when 24 VAC is not present Time and day of week must be reset after extended power loss
System fan does not come on properly	Verify wiring is correct, check Gas/Electric jumper position
All thermostat buttons are inoperative	Verify 24 VAC is present; unit locks out when 24 VAC is not present
No response with first button press	First button press activates backlight only
Program schedule activates at the wrong time	Check time (AM/PM) set on thermostat (see Setting the Time)
PROG displays solid	Thermostat functioning in program mode. Press PROG button to exit program mode
Heat or Cool not working	RC/RH jumper must be installed on single transformer systems For heat pumps, jumper must be between W and Y terminals
Thermostat turns on and off too frequently	Adjust temperature differential (see Configuration Mode Setting 2)
Thermostat does not follow program	Verify it is operating in program mode (PROG displays); check time (AM/PM); check if in 2 hour program override
Fan runs continuously	Slide FAN switch to auto to turn fan off
Room temperature is not correct	Calibrate thermostat (see Configuration Mode Setting 7)
LOC displays when any button is pressed	Thermostat has the button lockout function activated (see Lockout Feature, and Configuration Mode Setting 4)
Problem not listed above	Press Reset button once*

* **Reset Button Function:** Time and day are reset, configuration and program settings are unchanged.

ONE-YEAR LIMITED WARRANTY

The Seller warrants its products against defects in material or workmanship for a period of one (1) year from the date of manufacture. The liability of the Seller is limited, at its option, to repair, replace or issue a non-case credit for the purchase prices of the goods which are provided to be defective. The warranty and remedies set forth herein do not apply to any goods or parts thereof which have been subjected to misuse including any use or application in violation of the Seller's instructions, neglect, tampering, improper storage, incorrect installation or servicing not performed by the Seller. In order to permit the Seller to properly administer the warranty, the Buyer shall: 1) Notify the Seller promptly of any claim, submitting date code information or any other pertinent data as requested by the Seller. 2) Permit the Seller to inspect and test the product claimed to be defective. Items claimed to be defective and are determined by Seller to be non-defective are subject to a \$30.00 per hour inspection fee. This warranty constitutes the Seller's sole liability hereunder and is in lieu of any other warranty expressed, implied or statutory. Unless otherwise stated in writing, Seller makes no warranty that the goods depicted or described herein are fit for any particular purpose.



Patent No. - Design: 424,953

Patent No. - Thermal Intrusion Barrier: 6,597,275

Patent Pending - SimpleSet™ Target Programming Technology

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