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Patent No. - Design: 424,953
Patent No. - Thermal Intrusion Barrier: 6,597,275
Patent Pending - SimpleSet™ Target Programming Technology

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LIAF020



SC3211L 2-Stage Heat/ 2-Stage Cool Manual Changeover Hardwired Programmable Electronic Thermostat

- 7-Day Programmable
- 2-Stage Heat Pump
- Manual Changeover
- SimpleSet® Target Programming
- Selectable °F or °C
- Relay Outputs (minimum voltage drop in thermostat)
- Ideally Suited for Residential
 - 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



Specifications	
Electrical rating:	
• 18-30 VAC	
• 1 amp maximum per terminal	
• 4 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:	2-stage heat, 2-stage cool, heat pump
Terminations:	R, C, Y1, Y2, W2, O, B, G, L, E

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
 - 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: SimpleComfort® SC3211L 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.

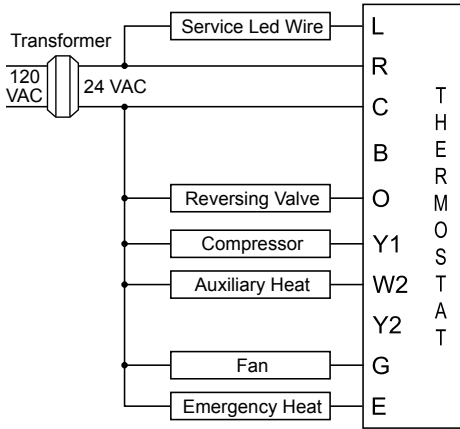
To Install Thermostat

-  **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, insert and twist a coin or screwdriver in the slots on the top corner of the thermostat.
 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 wire opening.
 9. Use supplied screws to mount thermostat base to wall.
 10. Insert stripped, labeled wires in matching wire terminals. See "Wiring Diagrams" section of this manual (Pages 4-5).
- 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. Replace cover on thermostat by snapping it in place.
 13. Turn on power to the system at the main service panel.
 14. Test thermostat operation as described in "Testing the Thermostat" (Page 12).

Wiring Diagrams

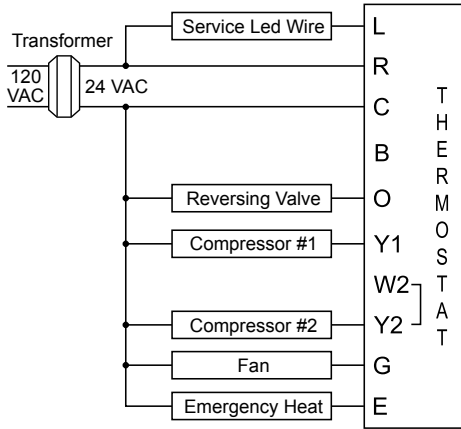
Single Compressor Cool Active Heat Pump – with electric backup



Note: For systems without emergency strip heat, a jumper wire should be placed between W2 & E.

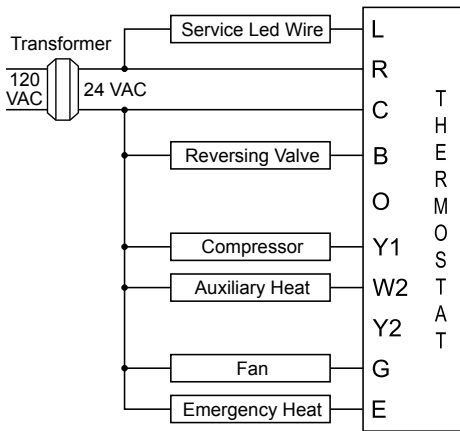
Dual Compressor Cool Active Heat Pump

NOTE: Place jumper between W2 and Y2



4

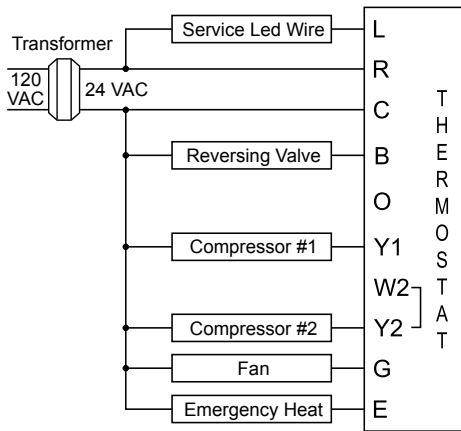
Single Compressor Heat Active Heat Pump – with electric backup



Note: For systems without emergency strip heat, a jumper wire should be placed between W2 & E.

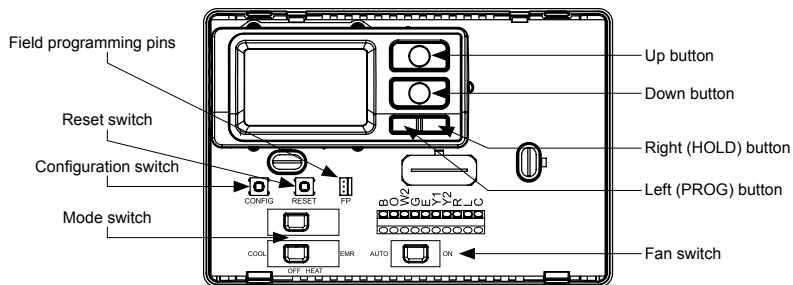
Dual Compressor Heat Active Heat Pump

NOTE: Place jumper between W2 and Y2



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Parts Diagram



Operation

The SimpleComfort® SC3211L thermostat has buttons that are used to:

- Adjust the setpoints of the thermostat
- Set the operation mode
- Program the schedule
- Enter vacation Hold
- Reset the thermostat
- Activate the program feature

Setting the Setpoint Temperature

1. With the system switch in **Heat**, **Emergency Heat** or **Cool**, the current temperature setpoint displays.
2. Press the **up** or **down** button until the desired temperature setpoint displays.
3. The new temperature setpoint is automatically saved in memory.

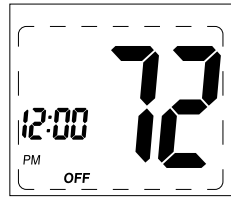
6

Configuration Mode

The configuration mode is used to set the SC3211L to match your heat pump system.

To configure the SC3211L, perform the following steps:

1. Verify the SC3211L is in the **OFF** mode.
Slide the system switch until off mode displays.
2. Remove the cover of the thermostat by gently pulling near one of the corners at the top of the thermostat.
3. Press the **CONFIG** button for 1 second while the SC3211L is in **OFF** mode.

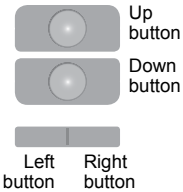


Press the **up** or **down** button to change settings within each screen.

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.

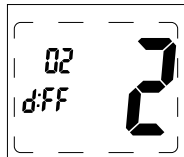
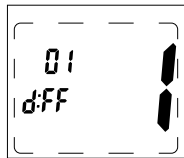
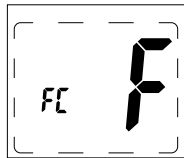


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Configuration Mode Settings

The setup screens for Configuration Mode are as follows:

1. **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.
2. **1st Stage 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.
3. **2nd Stage Temperature Differential (1°F to 5°F) (1°C to 3°C)**
Set the number of degrees between when stage 1 turns on and when stage 2 turns on.
Press the **up** or **down** button to set differential value.
Press the **right** button to advance to the next screen.



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4. Staged Off Outputs

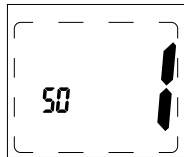
Select whether the outputs for heating and cooling are staged off independently or are satisfied simultaneously.

1 = outputs staged off independently

0 = outputs off simultaneously

Press the **up** or **down** button to set.

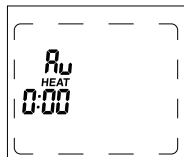
Press the **right** button to advance to the next screen.



5. **Auxiliary Delay ON** – (0-30 minutes) – Set the delay time in minutes for auxiliary heat to be locked out after a call for second stage. This extra savings feature is used to temporarily lock out auxiliary heat devices, allowing just heat pump to try to satisfy heat call.

Press the **up** or **down** button to select.

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



6. **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.



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

Adjust to control the maximum heat set temperature allowed.

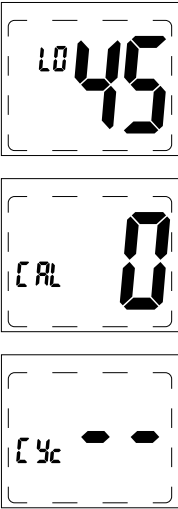
Press the **up** or **down** button to select.

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



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8. **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.
9. **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.
10. **Maximum Cycles Allowed Per Hour** (- -, 2-6)
- - = as many as needed, 2-6 = maximum cycles/hour
Press the **up** or **down** button to select.
- To exit configuration mode, press the **configuration** button for 2 seconds or slide the mode switch to heat or cool.



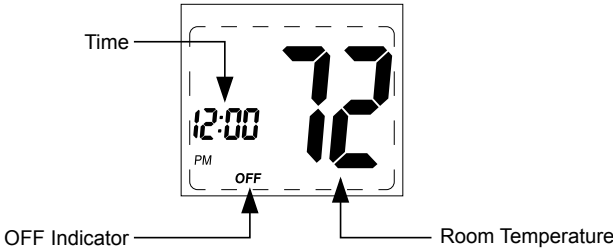
Operating Modes

- 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** (*PROG solid on display*) mode, the thermostat will follow the program schedule that is stored in memory
- 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** (*PROG solid on display*) mode, the thermostat will follow the program schedule that is stored in memory
- Emergency Heat Mode**
 - In this mode, the thermostat controls the heating system and the heat pump is disabled
 - Press the **PROG** button to enter or exit the **Program Emergency Heat** mode
 - In **Program Emergency Heat** (*PROG solid on display*) mode, the thermostat will follow the program schedule that is stored in memory
- Hold Functions**

When in **Programmable Cool**, **Programmable Heat** or **Programmable Emergency Heat**, you can lock in the present settings indefinitely by pressing the **Hold** button once (PROG flashes). Press **Hold** button again to exit **Hold** mode (PROG solid). 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.

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.



Setting the Time and Day of the Week

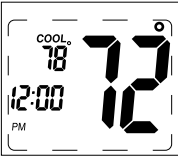
- The time and day of the week must be set for your program schedule to operate correctly.
1. Slide the system switch to the OFF position. You are in the OFF mode.
2. Press and hold the **PROG** button (left) and **HOLD** (right) buttons (simultaneously) in for 6 seconds.
3. Time displays (hour flashing).
Press the up or down button to adjust the hour.
4. Press the **HOLD** (right) button once to select minutes (minutes flashing).
Press the up or down button to adjust the minutes.
5. Press the **HOLD** (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 **HOLD** (right) button to advance to the next screen.
- Press the **PROG** button and **HOLD** button (simultaneously) in for 2 seconds to lock values into memory and return to the OFF mode or press the **HOLD** (right) button once to enter programming.



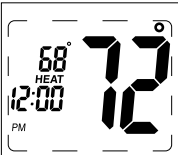
Testing the Thermostat

- 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**
 - Slide system switch to Cool position. Cool mode screen is displayed.
 - Adjust set temperature so it is 5 degrees below room temperature.
 - Air conditioning should come on within a few seconds.
 - 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**
 - Slide system switch to Heat position. Heat mode screen is displayed.
 - Adjust the set temperature so it is 5 degrees above the room temperature.
 - Heat should come on within a few seconds.
 - 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:** There is a four minute delay to protect your compressor.



- Fan Test**
 - Slide Fan switch to **On** position.
 - Indoor fan turns **ON**.
 - Slide Fan switch to **Auto** position.
 - Indoor fan turns **OFF**.



Program Overview

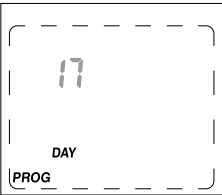
The **SC3211L** programmable thermostat has four periods (MORN, DAY, EVE, NITE) that are customizable for each day of the week. Each period will have a start time, heat temperature, and cool temperature. The **SC3211L** monitors the day and time, while maintaining the specific conditions you have chosen for each period in your program.

- Setting the program schedule:
1. Slide the system switch to the center position. You are in **OFF** mode.
2. Press and hold the **PROG** and **HOLD** buttons (pressed simultaneously) for 6 seconds.
3. Press the **HOLD** (right) button 3 times.
4. Day 1-7 are blinking.



- From this screen you have 2 options:
1. Press the **HOLD** (right) button to begin programming all 7 days at one time, or
2. 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 on Page 15, you can press the **HOLD** (right) button to begin entering your program schedule. The days shown on the display will all be programmed simultaneously.

Once the **HOLD** (right) button is pressed, **MORN** blinks.

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

Press **HOLD** (right) button to advance to the next screen. Transition time hour blinks.

Use the up or down button to select a different hour.

Press **HOLD** (right) button to advance to the next screen. Transition time minutes blink.

Use the up or down button to select different minutes.

Press **HOLD** (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 **HOLD** (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 **HOLD** buttons (pressed simultaneously) in for 2 seconds to return to the **OFF** mode.

Lockout Feature

The **SC3211L** has a button lockout feature so the mode cannot be changed and the temperature adjustment is limited. Select the appropriate lockout from Configuration Mode Settings (Step 6, Page 9) of this guide.

To activate the LOC feature:

1. Simultaneously press the **PROG, HOLD** and **UP** buttons for 10 seconds.
2. 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:

1. The master must be powered by 24 VAC.
2. Verify the master thermostat is in **OFF** mode. Slide system switch to center position.
3. Remove cover of the master thermostat by gently pulling near one of the corners at the top of the thermostat.
4. Press the **up** and **down** buttons and **CONFIG** switch simultaneously for 5 seconds.
5. The **OUT** screen displays indicating the master thermostat is ready to transfer data.
 - ** **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.
6. 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 **SC3211L** comes preprogrammed with the following schedule:

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

MONDAY 1	MORN		DAY		EVE		NITE	
	HEAT		HEAT		HEAT		HEAT	
	COOL		COOL		COOL		COOL	
TUESDAY 2	MORN		DAY		EVE		NITE	
	HEAT		HEAT		HEAT		HEAT	
	COOL		COOL		COOL		COOL	
WEDNESDAY 3	MORN		DAY		EVE		NITE	
	HEAT		HEAT		HEAT		HEAT	
	COOL		COOL		COOL		COOL	
THURSDAY 4	MORN		DAY		EVE		NITE	
	HEAT		HEAT		HEAT		HEAT	
	COOL		COOL		COOL		COOL	
FRIDAY 5	MORN		DAY		EVE		NITE	
	HEAT		HEAT		HEAT		HEAT	
	COOL		COOL		COOL		COOL	
SATURDAY 6	MORN		DAY		EVE		NITE	
	HEAT		HEAT		HEAT		HEAT	
	COOL		COOL		COOL		COOL	
SUNDAY 7	MORN		DAY		EVE		NITE	
	HEAT		HEAT		HEAT		HEAT	
	COOL		COOL		COOL		COOL	

Troubleshooting

Symptom	Remedy
No display	Verify 24 VAC is at thermostat
System fan does not come on properly	Verify wiring is correct
Program schedule activates at the wrong time	Check time (AM/PM) set on thermostat (see "Setting the Time," Page 14)
Thermostat turns on and off too frequently	Adjust temperature differential (see "Configuration Mode Settings," Page 8)
Thermostat does not follow program	Verify it is operating in Program mode (PROG solid in display); check time (AM/PM); check if in Hold mode (PROG flashes)
"PROG" flashes (in Hold mode)	Press Hold button to remove from Hold mode (PROG solid)
Fan runs continuously	Check Fan Auto/On switch, continuous fan operation in ON
Problem not listed above	Press reset button once*

* **Reset Button Function:** Time, day and program/non-program changed to last saved settings (saved after program or configuration change), configuration and program unchanged, ASC timer reset to 0.