



# SC1600L/VL

Manual Changeover  
Non-Programmable  
Battery

## Non-Programmable Electronic Thermostat

- Controls Single Stage Heating Systems
- Millivolt and Hydronic (water or steam) System Compatible
- Compatible with Gas and Oil Systems
- Backlit Display
- Mercury-Free, Environmentally Safe

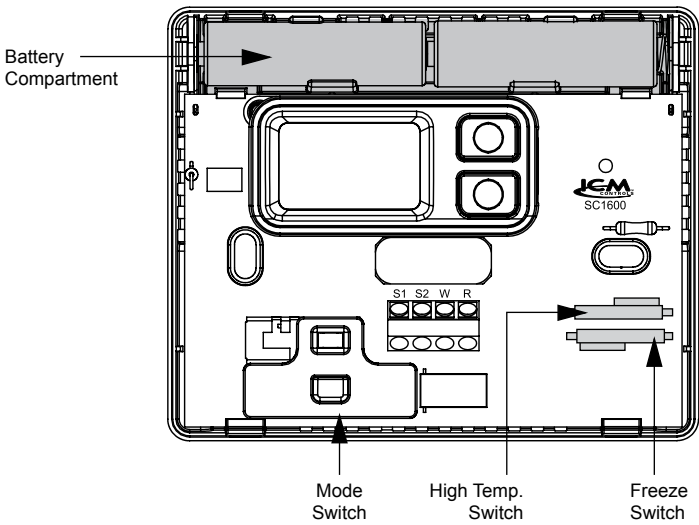


### Installation, Operation & Application Guide

For more information on our complete range of American-made products – plus wiring diagrams, troubleshooting tips and more, visit us at [www.icmcontrols.com](http://www.icmcontrols.com)



### Parts Diagrams



### Specifications

**Electrical rating:**

- Millivolt to 30 VAC/VDC
- DC Power: 3.0 VDC (2 “AA” alkaline batteries included)
- 1 amp maximum per terminal
- 2 amp maximum total load

**Temperature control range:** 45°F to 90°F    **Accuracy:** ± 1°F

**Back Light:** Not available on N and VN models

**Differential Range:** 1°F to 3°F

**System configurations:** 1-stage heat, gas, and oil

**Terminations:** R, W, S1, S2

### 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
- Use this thermostat only as described in this manual

### Package Contents/Tools Required

**Package includes:** SC1600 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.

### General Description

The **SC1600** thermostat is a digital, mercury-free, non-programmable, electronic thermostat.

- Compatible with single-stage heating systems
- Compatible as a master thermostat in zoned system applications
- **Freeze Protection Feature:** Protects pipes from freezing! If the room temperature drops to 40°F, the thermostat automatically turns on the heat; the thermostat must be in the Heat position; works even if the batteries are dead
- **System Customization:** Choose three available temperature differential settings

### 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 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.

### Replacing Wiring Labels

Replace the old labels with the enclosed new labels.

Old	New	Type
H, W, 4	W	Heating control
M, 4, RH, RS, R	R	Transformer, hot side
N/A	S1, S2	Optional remote sensor

### 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 system by removing the fuse or switching off the appropriate circuit breaker.
2. Move the **Off/Heat** switch into the **Off** position.
3. To remove cover, insert and twist a coin or screwdriver in the slots on the sides of the thermostat.
4. 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).
5. Mark the placement of the mounting holes.
6. Set thermostat base and cover away from working area.
7. Using a 3/16” drill bit, drill holes in the places you have marked for mounting.
8. Use a hammer to tap supplied anchors in mounting holes.
9. Align thermostat base with mounting holes and feed the control wires through wire opening.
10. Use supplied screws to mount thermostat base to wall.
11. Insert stripped, labeled wires in matching wire terminals. See “Wiring Diagrams” section of this manual.
12. **CAUTION!:** Be sure exposed portion of wires does not touch other wires.
12. Tighten screws on terminal block. Gently tug wire to be sure of proper connection. Double check that each wire is connected to the proper terminal.
13. Insert two fresh “AA” alkaline batteries into thermostat, oriented in the direction shown on the battery compartment.
14. Replace cover on thermostat by snapping it in place.
15. Turn on power to the system at the main service panel.

Installing and Changing Batteries

If your LCD is blank or displaying **LO BAT**, the batteries are not installed or need to be changed. We suggest you change the batteries at least once a year, or whenever the **LO BAT** warning displays.

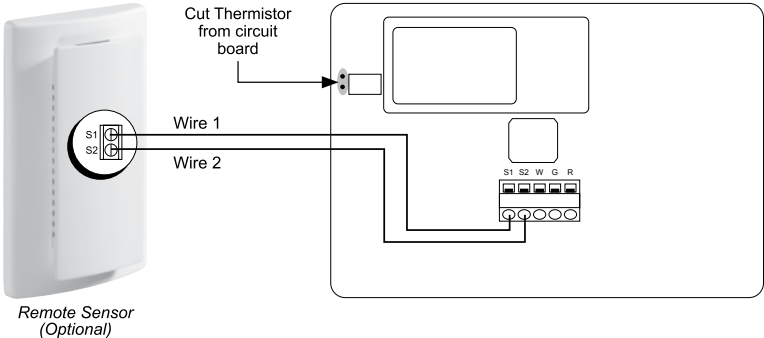
⚠️ **Note:** After installing new batteries, you have to reset the room temperature setting and the differential setting.

1. Move the **Off/Heat** switch into the **Off** position.
2. Remove the cover, and install the two “AA” alkaline batteries. Proper battery installation is important! Make sure the positive ends of the batteries match the positive terminals in the battery compartment.

If the display is on, the batteries are installed properly.

Remote Sensor Installation (Optional)

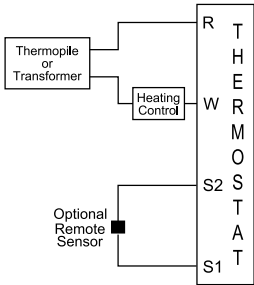
1. Remove cover from remote sensor housing.
2. Select an appropriate location for mounting the remote sensor.
3. Mount remote sensor unit using hardware provided.
4. Install two conductor shielded wires between remote sensor and thermostat. Shielded wire must be used. Do not run remote sensor wire in conduit with other wires.
  - **Wire 1** should run between the S1 terminal on the thermostat and the S1 terminal on the remote sensor
  - **Wire 2** should run between the S2 terminal on the thermostat and the S2 terminal on the remote sensor
  - Connect the shielding of the wire to the S2 terminal on the thermostat
5. Disable the main sensor on the thermostat by cutting it from the circuit board.



SC1600L/VL Wiring Diagrams

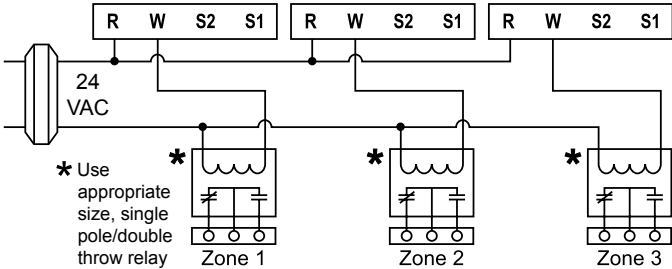
Heating Only

2-Wire, Single Transformer or Millivolt

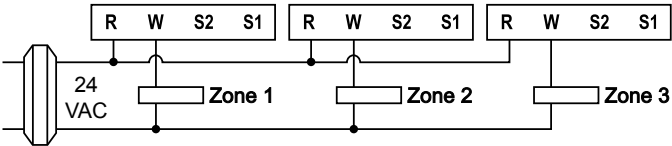


Zone Valve/Damper Motor System

3-Wire, Zone Valve/Damper Motor System



2-Wire, Zone Valve/Damper Motor System



⚠️ **Note:** Differential temperature may need to be increased for zone/damper systems.

Setting the Setpoint Temperature

1. Place **Off/Heat** switch in the **Heat** position.
2. Press the **down** or **up** button a single time to see the **current temperature** setting.
3. Press the **down** or **up** button until the **desired temperature** setpoint displays.
4. The new temperature setpoint is automatically saved in memory. After 5 seconds, the display returns to showing the current room temperature.

Setting the Temperature Differential

The default temperature differential is 1°. When your room temperature varies by 1°F, the thermostat turns on your system. If you notice your system turning on and off too frequently, increase the temperature differential.

1. Reset the thermostat by removing batteries for 10 seconds and then reinstall them.
2. For the first 10 seconds of operation, the temperature differential is displayed.
3. Press the **down** or **up** button to select desired setting.

Starting the Thermostat

1. Move the **Off/Heat** switch into the **Heat** position.

A Quick Test

Do not short jumper across terminals on the gas valve or at the system control to test installation.

**Action:** Set the **Off/Heat** switch to **Heat**; press the **up** button until the set temperature is 3°F above the room temperature.

**Result:** The heating system should turn on; there may be a time delay depending on your system.

**Action:** Press the **down** button until the set temperature is below the room temperature.

**Result:** The heating system should turn off.

If the above **test was successful**, you have a proper installation.

If the above **test was unsuccessful**, double check that the wires are securely connected and are connected to the proper terminals. Consult the troubleshooting section below.

Troubleshooting

Symptom	Remedy
The system is not turning on	Check batteries; display is blank when batteries are not present or are dead.
LCD is blank, or displaying <b>LO BAT</b>	Replace batteries, or make sure the existing ones are properly installed.
Thermostat turns on and off too frequently	Adjust temperature differential (see “Setting the Temperature Differential”).

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.



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