# 3201

## Operation Manual

# INSTALLATION MANUAL

## Thermostat Applications Guide

| Description | |
|---|---|
| Gas or Oil Heat | Yes |
| Electric Furnace | Yes |
| Heat Pump (No Aux. or Emergency Heat) | Yes |
| Heat Pump (with Aux. or Emergency Heat) | No |
| Multi-stage Systems | No |
| Heat Only Systems | Yes |
| Heat Only Systems - Floor or Wall Furnaces | Yes |
| Cool Only Systems | Yes |
| Millivolt | Yes |

## THERMOSTAT QUICK REFERENCE Page



## Power Type

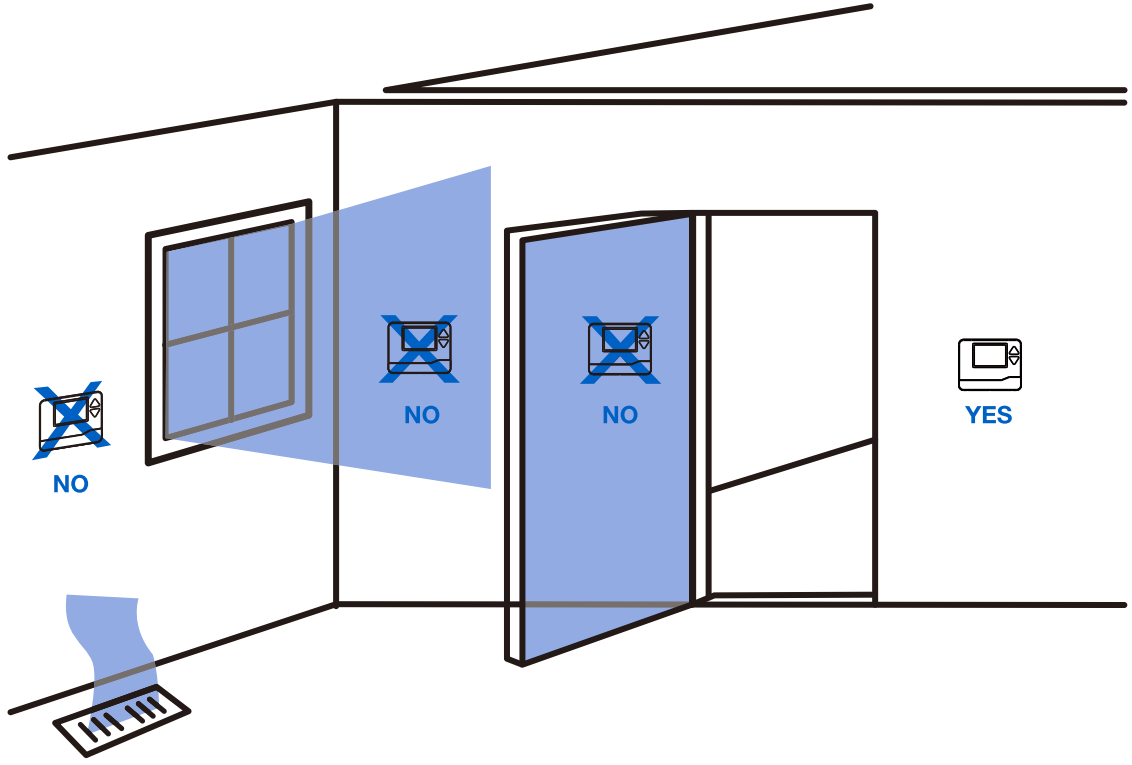
Battery Power
Hardwire (Common Wire)
Hardwire (Common Wire) with Battery Backup

**A trained, experienced technician must install this product.**

Carefully read these instructions. You could damage this product or cause a hazardous condition if you fail to follow these instructions.

## Wall locations

The thermostat should be installed approximately 4 to 5 feet above the floor. Select an area with average temperature and good air circulation.




**Do not install** thermostat in locations:

- Close to hot or cold air ducts
- That are in direct sunlight
- With an outside wall behind the thermostat
- In areas that do not require conditioning
- Where there are dead spots or drafts (in corners or behind doors)
- Where there might be concealed chimneys or pipes

## Tip

Pick an installation location that is easy for the user to access. The temperature of the location should be representative of the building.

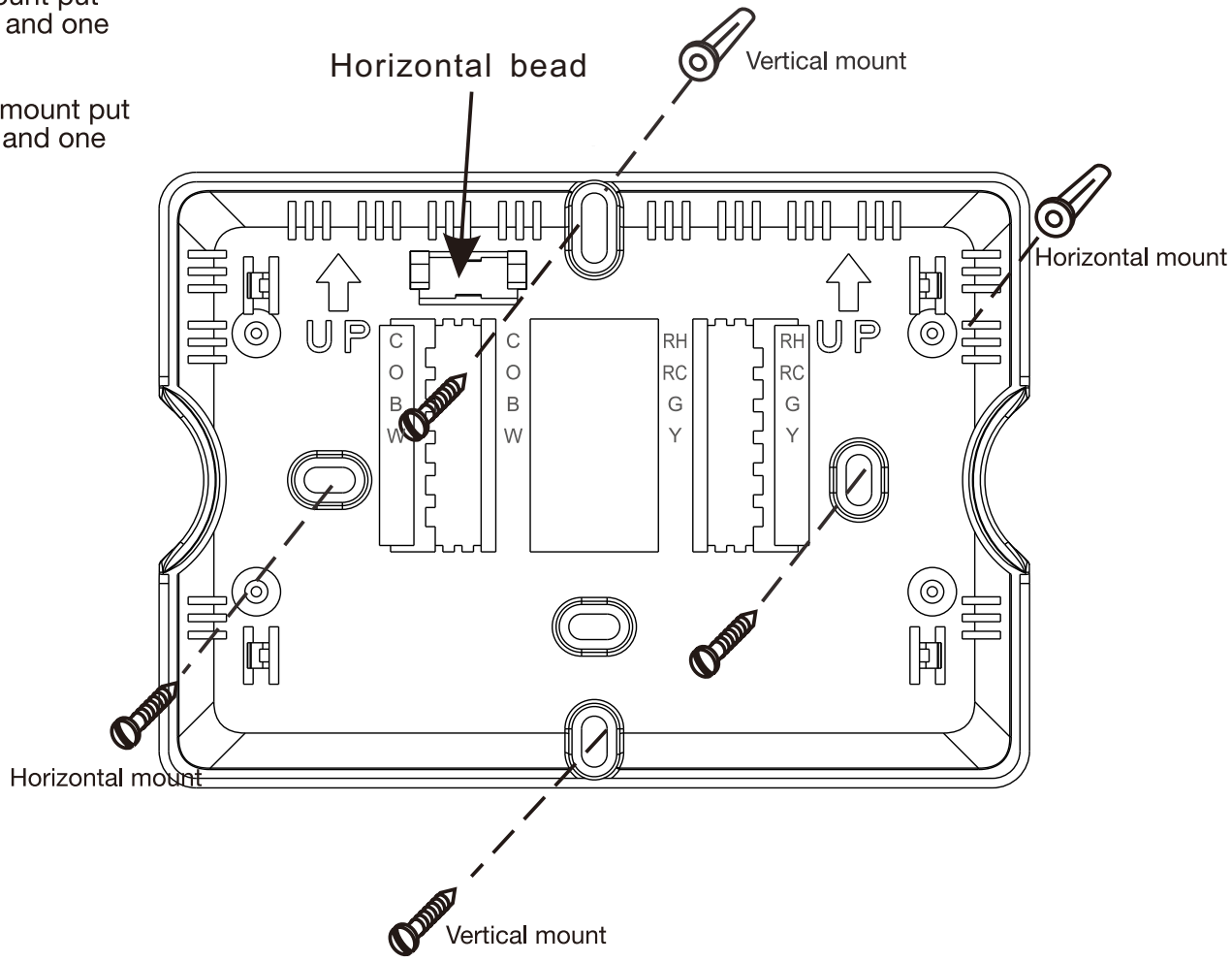
# Installation Tips

**Caution:**
**Electrical Hazard**
Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.

**Mercury Notice:**
All of our products are mercury free. However, if the product you are replacing contains mercury, dispose of it properly. Your local waste management authority can give you instructions on recycling and proper disposal.

For vertical mount put one screw top and one screw bottom.

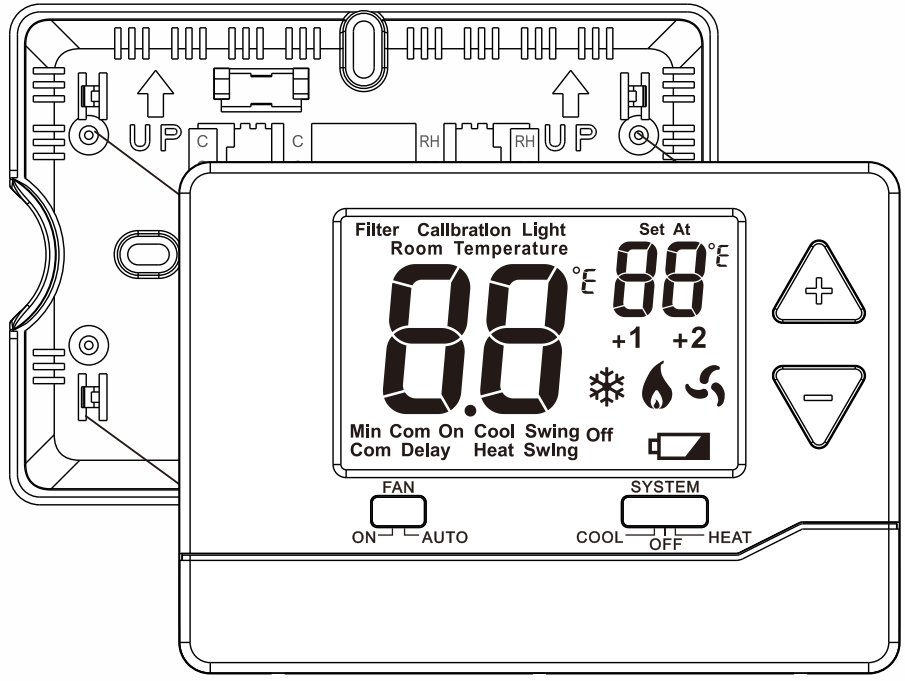
For horizontal mount put one screw left and one screw right.



# Installation Tips

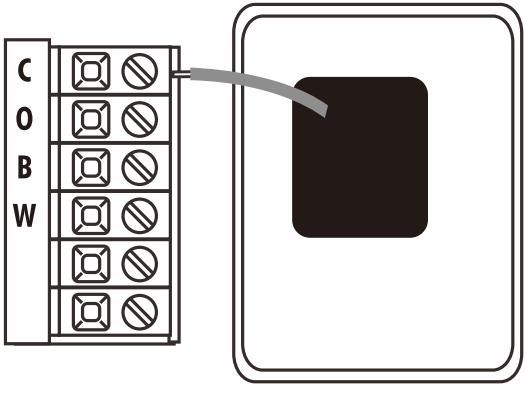
## Mount Thermostat

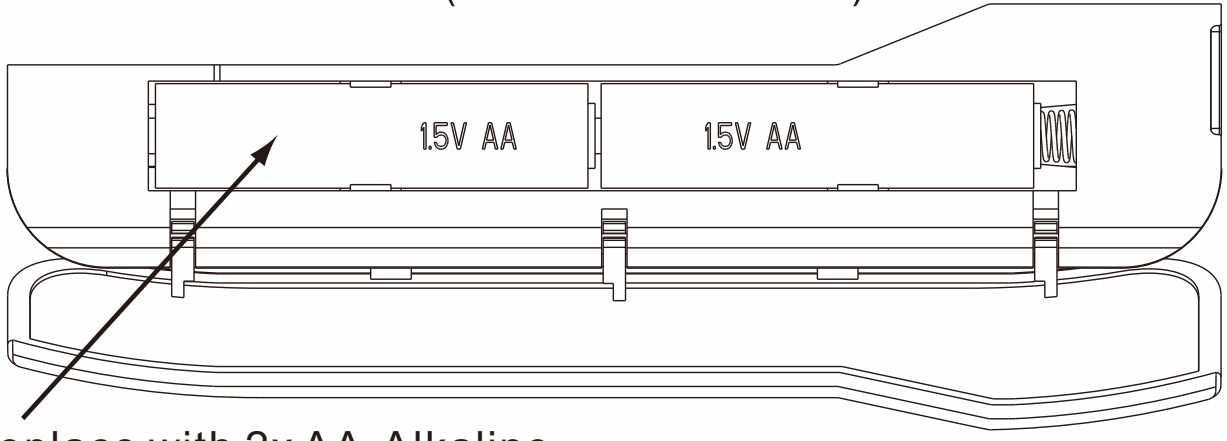
Align the 4 tabs on the **subbase** with corresponding slots on the back of the thermostat, then push gently until the thermostat snaps in place.




## Battery Installation

Battery installation is optional if thermostat is hardwired (**C** terminal connected).




Replace with 2x AA Alkaline. Batteries. High quality Alkaline batteries are recommended.

# THERMOSTAT QUICK REFERENCE

## Getting to know your thermostat

**1 LCD Display**

See page 6 for details about this display read out.

**2 Fan Switch**

Select **ON** or **AUTO**. **ON** will run the fan continuously. **AUTO** will cycle the fan on only when the heating or cooling system is on.

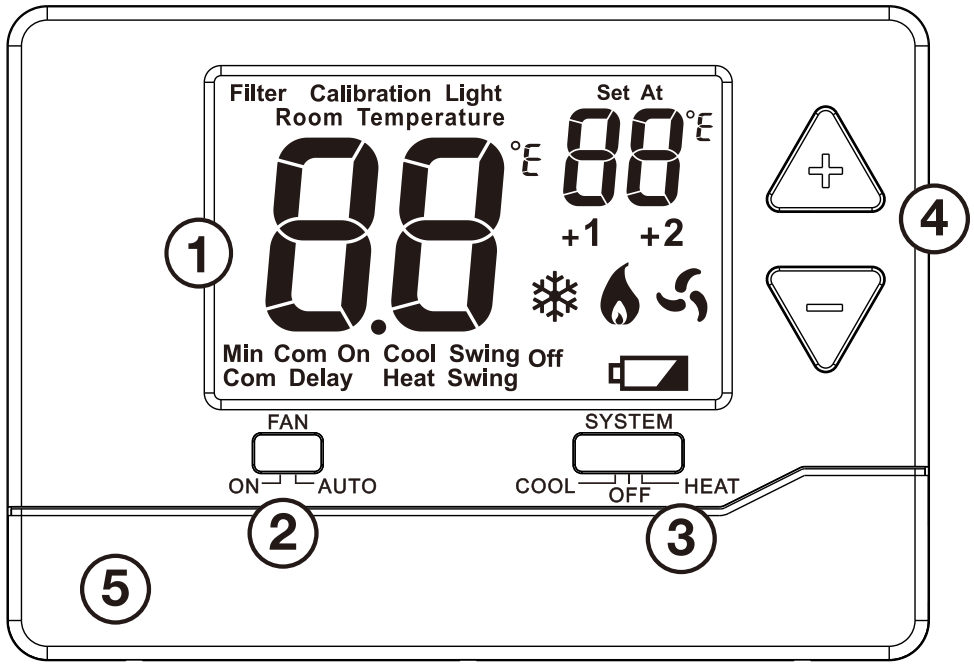
**3 System Switch**

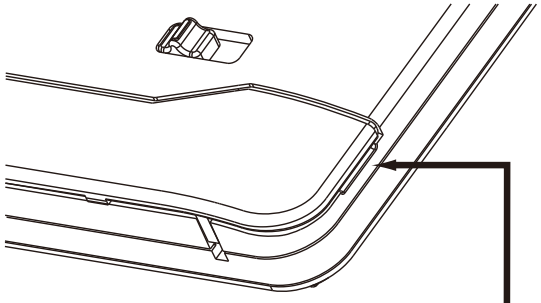
Selects the operation mode on your **HEAT** system. Selecting **HEAT** turns on the heat mode. Selecting **COOL** turns on the cool mode. Selecting **OFF** turns both heating and cooling off.

**4 Temperature Setpoint Buttons**

Press the + or - buttons to select the desired room temperature.

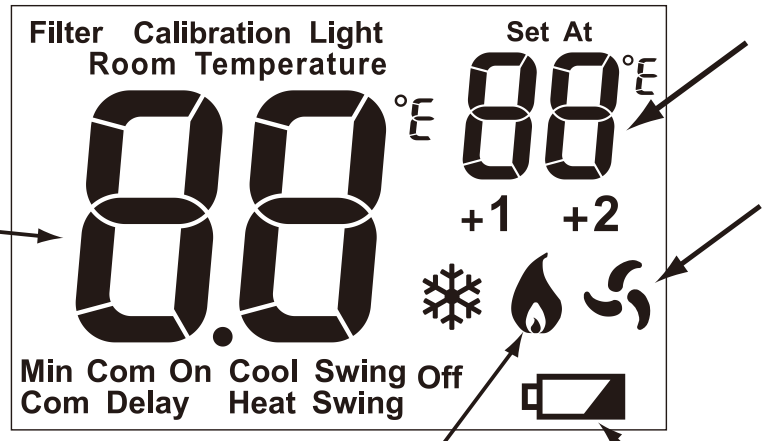
**5 Easy Change Battery Door**



Use the finger bevel on the lower portion of the thermostat to open the easy access battery door.

## LCD




Indicates the current room temperature.

Displays the user selectable setpoint temperature.

NOTE: The compressor delay feature is active if these icons are flashing. The compressor will not turn on until the 3 minute delay has elapsed.

System operation indicators: The COOL, HEAT or FAN icon will display when the COOL, HEAT or FAN is on.

Low Battery Indicator: Replace batteries when indicator is shown.

## Battery Door Information

**Caution:**

When the battery icon appears replace your 2x AA batteries immediately. Failure to do so may result in your heating & cooling system becoming inoperable. Freezing or overheating can occur.

# THERMOSTAT QUICK REFERENCE

## Terminal Designations

RH------- ----24VAC(system power supply)HEAT=RH  TO W

RC----------COOL= RC to Y  FAN=RC TO  G

C----------Common24VAC (system power supply)

W---------- HEAT

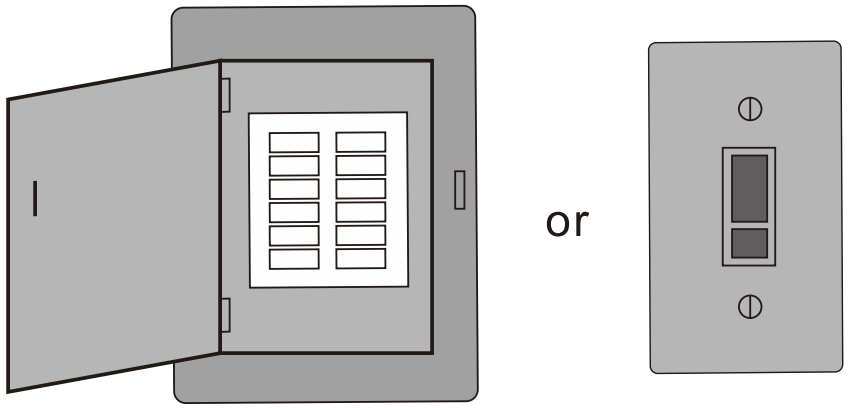
Y---------- COOL

G----------FAN

B----------REV VALVE HEAT

O----------REV VALVE COOL

## 1 Turn Off Power to Heating/Cooling System



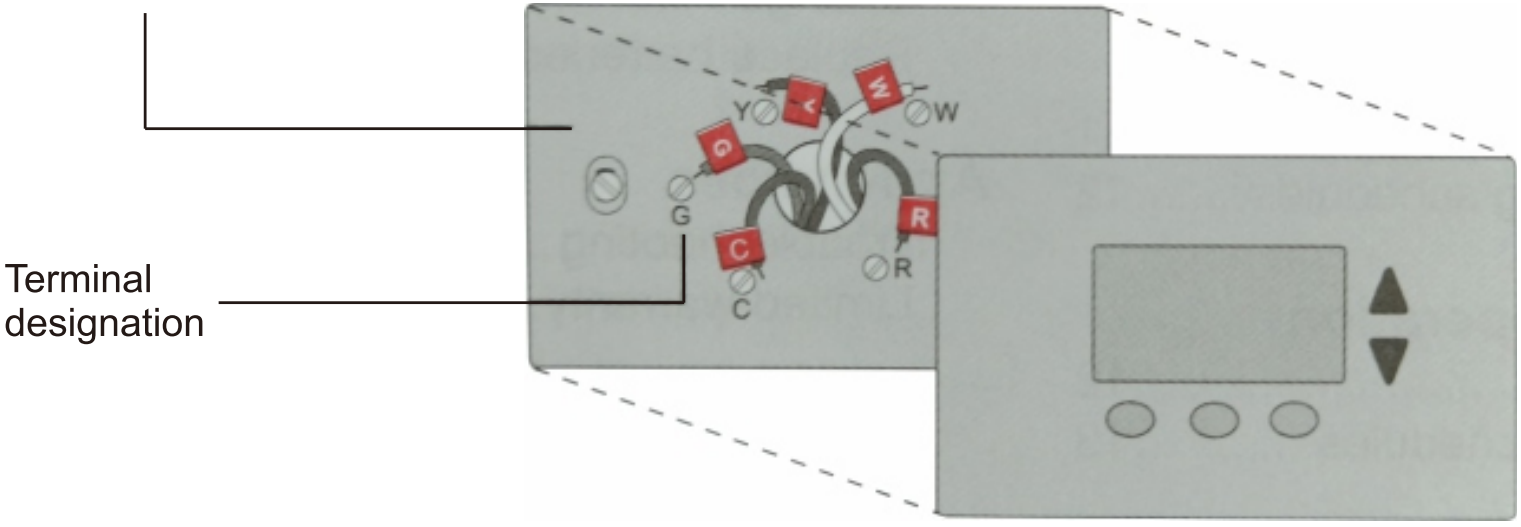

Circuit breaker box

Heating/cooling system power swich

## 2 Remove Old Thermostat

Remove old thermostat but leave wallplate with wires attached.

Do not remove wallplate yet




Terminal designation

# WIRING

## 3 Label Wires with Tags

Label the wires using the supplied wire labels as you disconnect them.

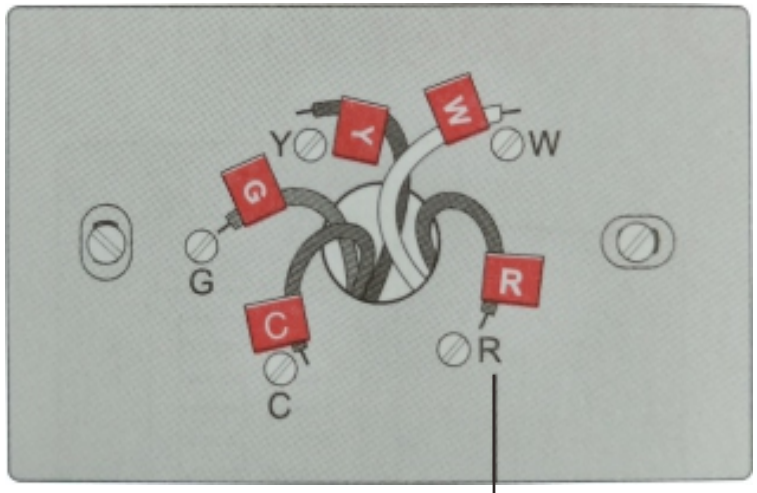
**Wiring Labels**
Apply these wiring labels to each wire with the appropriate terminal designation as you remove it from the existing thermostat.

**Étiquettes de fils**
Lorsque vous retirez les fils des bornes du thermostat existant, collez ces étiquettes sur chaque fil correspondant à la lettre de la borne.

**Rótulos para los cables**
Coloque estos rótulos, con la designación de las termina - les, en cada cable al remover los cables del termostato actual.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| B | B | Y2 | Y2 | C | C | E | E | F | F |
| G | G | H | H | L | L | O | O | P | P |
| R | R | RC | RC | RH | RH | T | T | U | U |
| V/VR | V/VR | W | W | W1 | W1 | W2 | W2 | W3 | W3 |
| X | X | X1 | X1 | X2 | X2 | Y | Y | Y1 | Y1 |
| AUX | AUX | | | | | | | | |

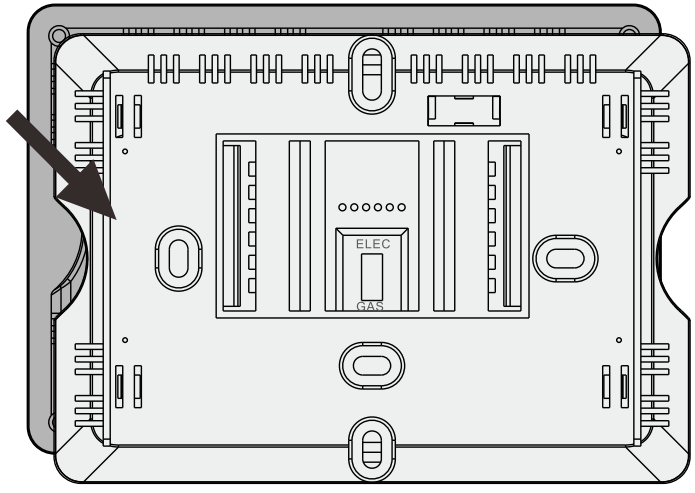
Wire Labels




Terminal designation

## 4 Separate Wallplate from New Thermostat

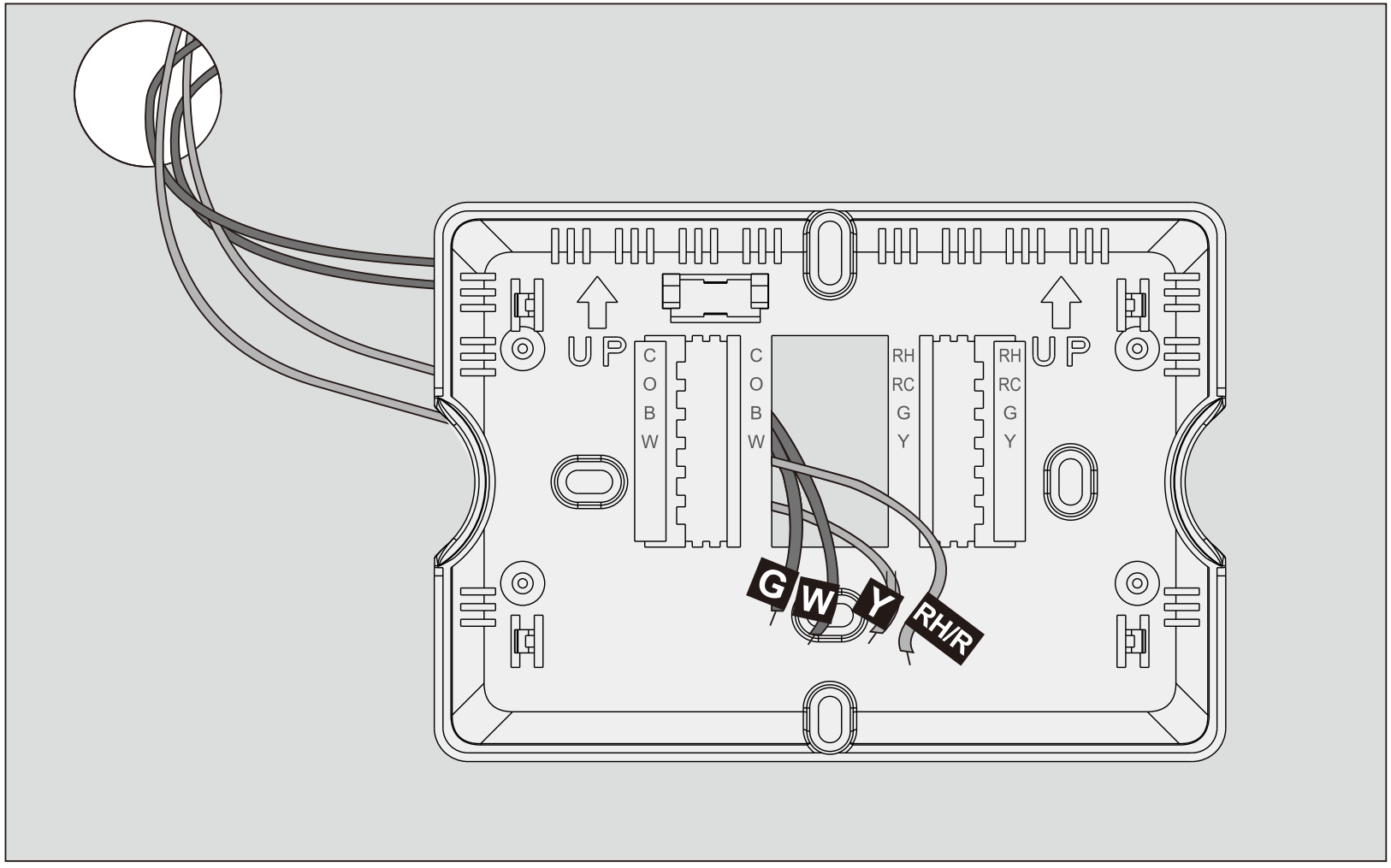
Remove wallplate from the new thermostat and mount onto wall.




Wallplate

## 5 Separate Wallplate from New Thermostat

Mount the new wallplate using the included screws and anchors.

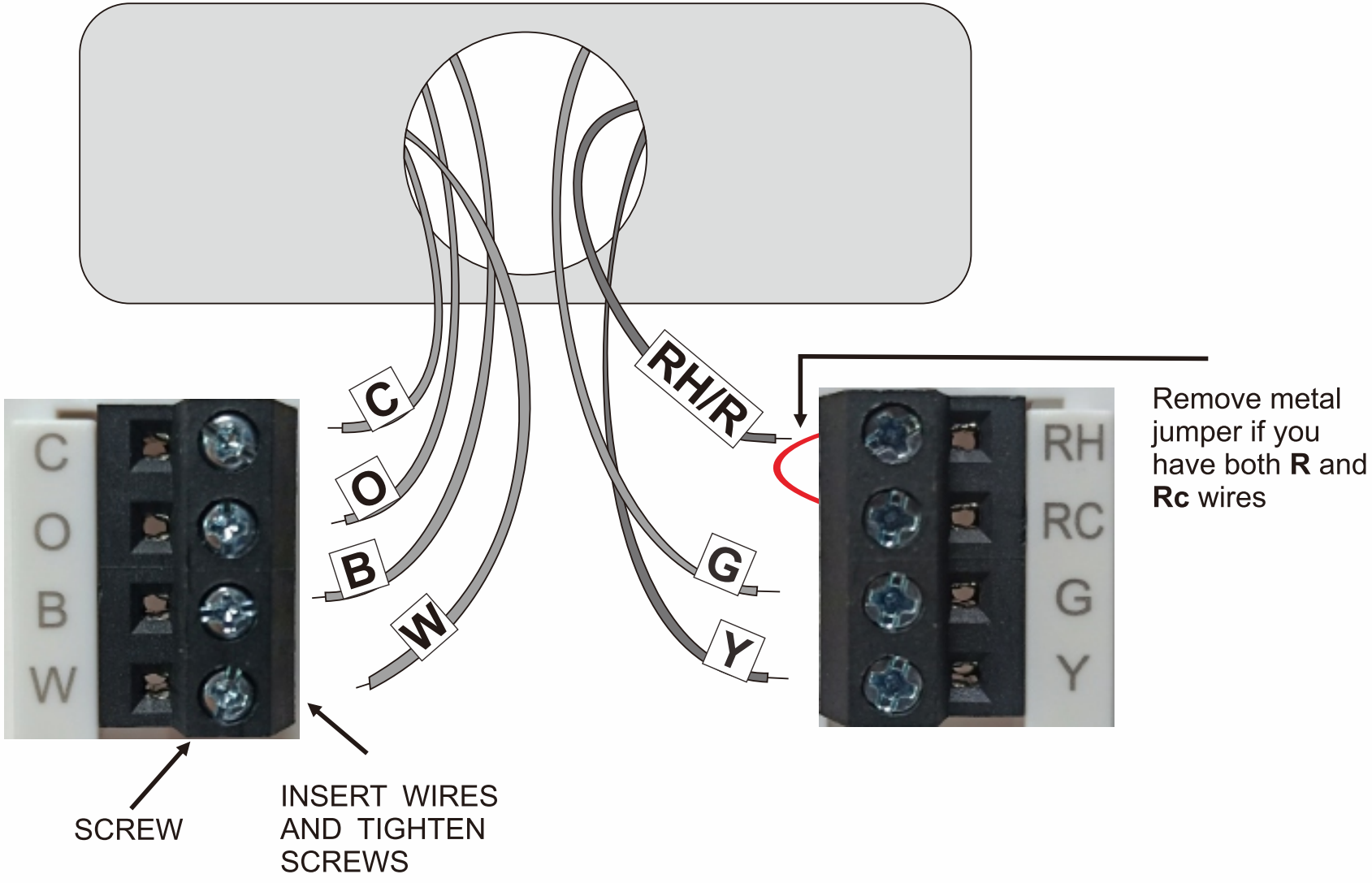



Drill 3/16-in. holes for drywall
Drill 3/16-in. holes for plaster

## 6 Connect Wires

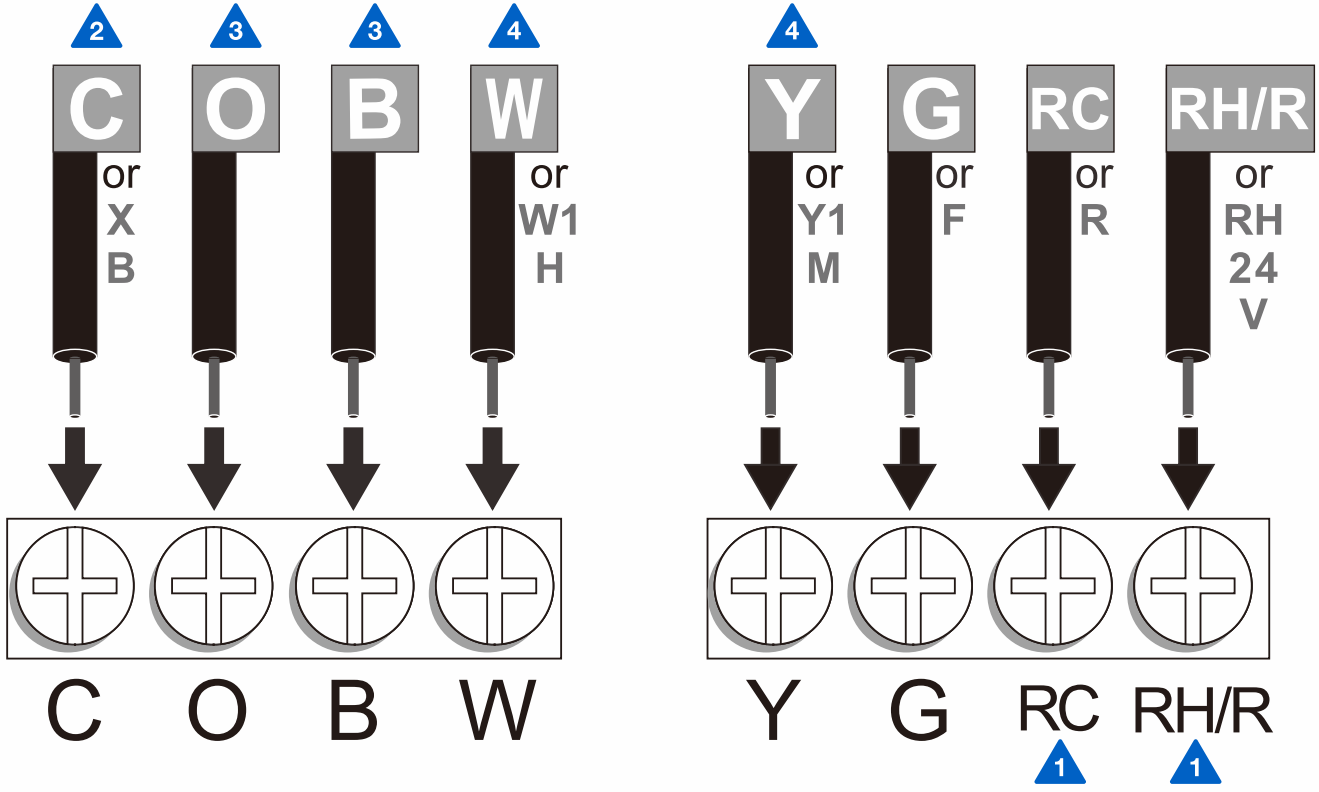
Simply match wire labels.

If labels do not match letters on the thermostat, check “Alternate Wiring (Conventional Systems)” on page 13 and connect to terminal as shown (see notes, below).



## Alternate Wiring (Conventional Systems)

If labels do not match letters on the thermostat, check the chart below and connect to terminal as shown here (See notes, below).




1. If wires will be connected to both **RC** and **RH/R** terminals, remove metal jumper.
2. If there has **C** or **X** wire available then you can connect with **C** terminal, if there is no **C** or **X** wire then no need to connect with C terminal.
3. If you <u>have</u> a **heat pump** without auxiliary/backup hear connect **O** or **B**, <u>not</u> both. If you do <u>not have</u> a **heat pump**, do not connect **B**. Wrap bare end of wire with electrical tape.
4. Place a jumper (plece of wire) between **Y** and **W** if you are using a heat pump without auxiliary/backup heat

# WIRING

**Caution: Electrical Hazard**
Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.

**Warning:**
All components of the control system and the thermostat installation must conform to Class II circuits per the NEC Code.

## Wiring

1. If you are replacing a thermostat, make note of the terminal connections on the thermostat that is being replaced. In some cases the wiring connections will not be color coded. For example, the green wire may not be connected to the **G** terminal.
2. Loosen the terminal block screws. Insert wires then retighten terminal block screws.
3. Place nonflammable insulation into wall opening to prevent drafts.

## Terminal Designations

W Heat relay G Fan relay Y Compressor relay

O Heat pump changeover valve energized in cooling

RC Transformer power for cooling

RH Transformer power for heating

B Heat pump changeover valve energized in heating

C Common wire from secondary side of cooling system transformer or for heat only system transformer

## Tips:

### RH & RC terminals

For single transformer systems, leave the jumper wire in place between RH and RC. Remove jumper wire for two transformer systems.

### Heat pump systems (With No AUX or Emergency Heat)

If wiring to a heat pump, use a small piece of wire (not supplied) to connect terminals W and Y.

### Wire specifications

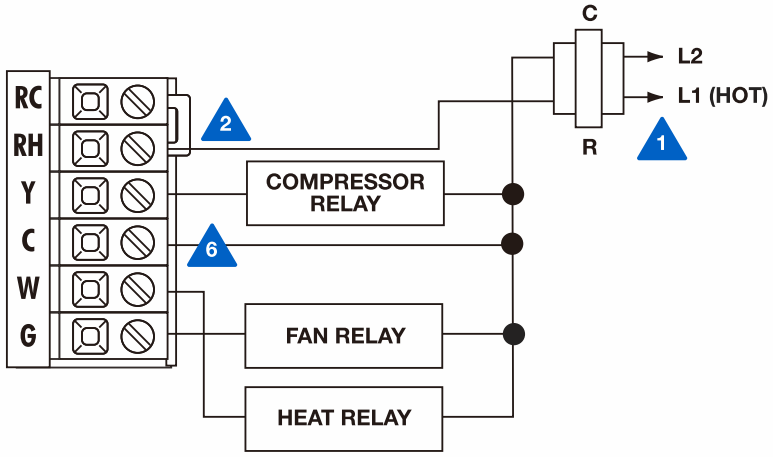
Use shielded or non-shielded 18 - 22 gauge thermostat wire.

### C terminal

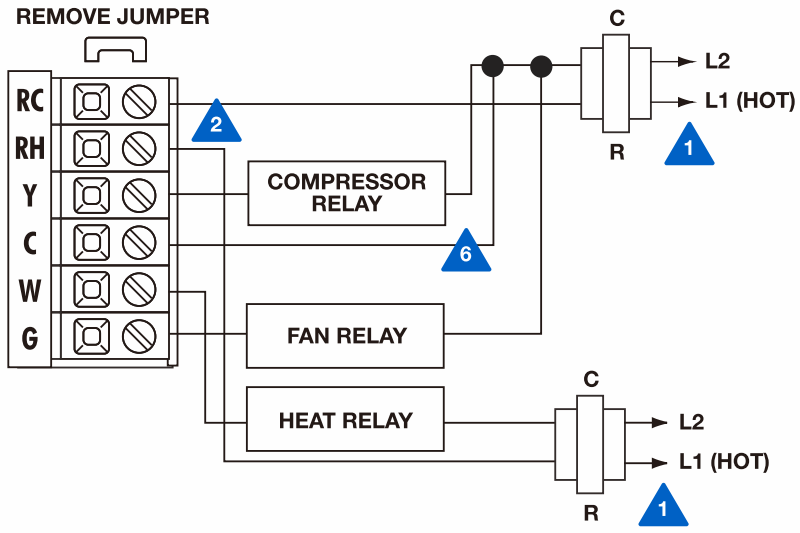
The C (common wire) terminal does not have to be connected when the thermostat is powered by batteries.

1. Power supply
2. Factory-installed jumper. Remove only when installing on 2-transformer systems.
3. Use either O or B terminals for changeover valve
4. Use a small piece of wire (not supplied) to connect W and Y terminals
5. Set fan operation switch to electric
6. Optional 24 VAC common connection when thermostat is used in battery power mode

## Typical 1H/1C system: 1 transformer

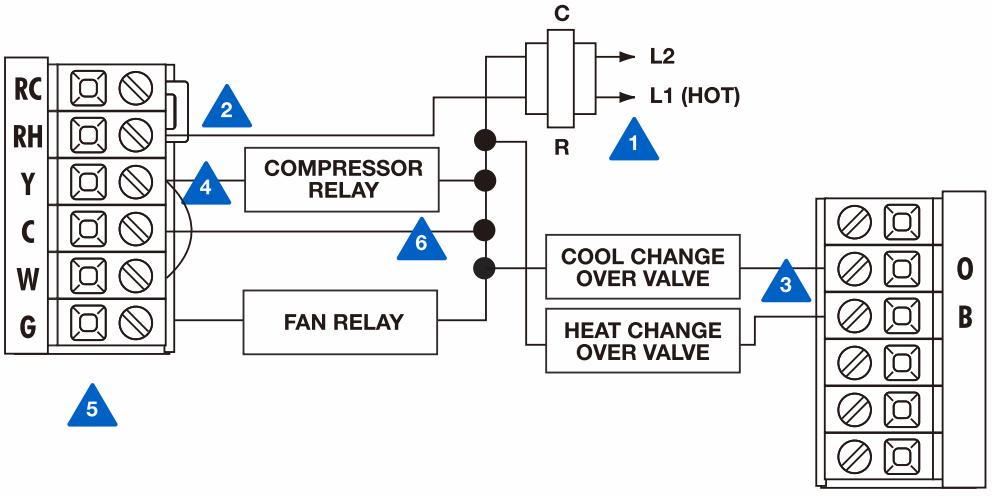



## Typical 1H/1C system: 2 transformer

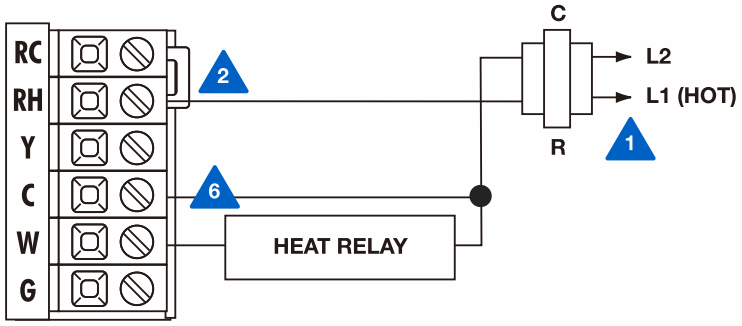


# WIRING

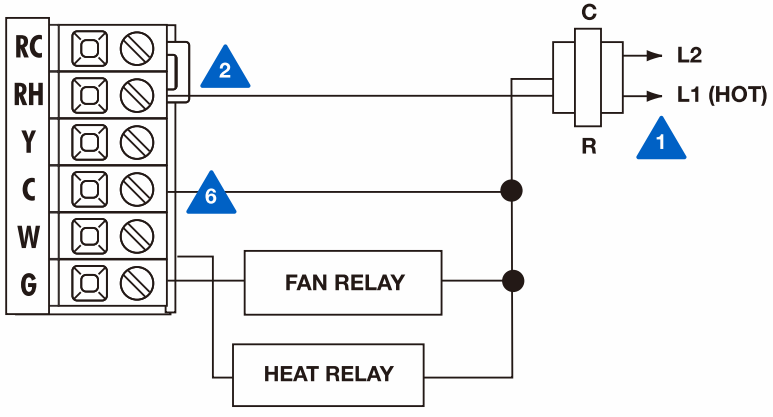
## Typical 1H/1C heat pump system



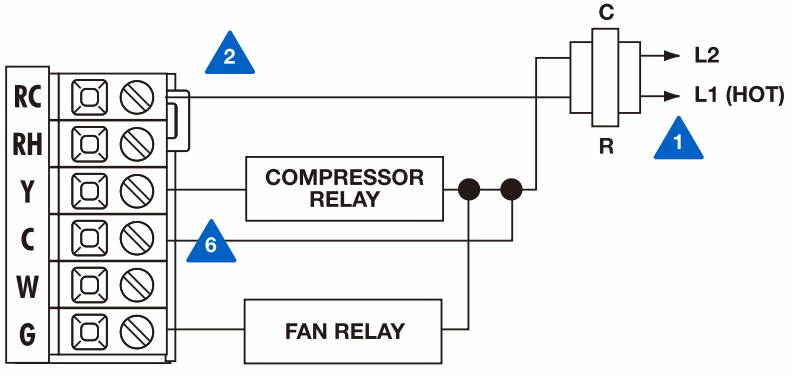

## Typical heat-only system

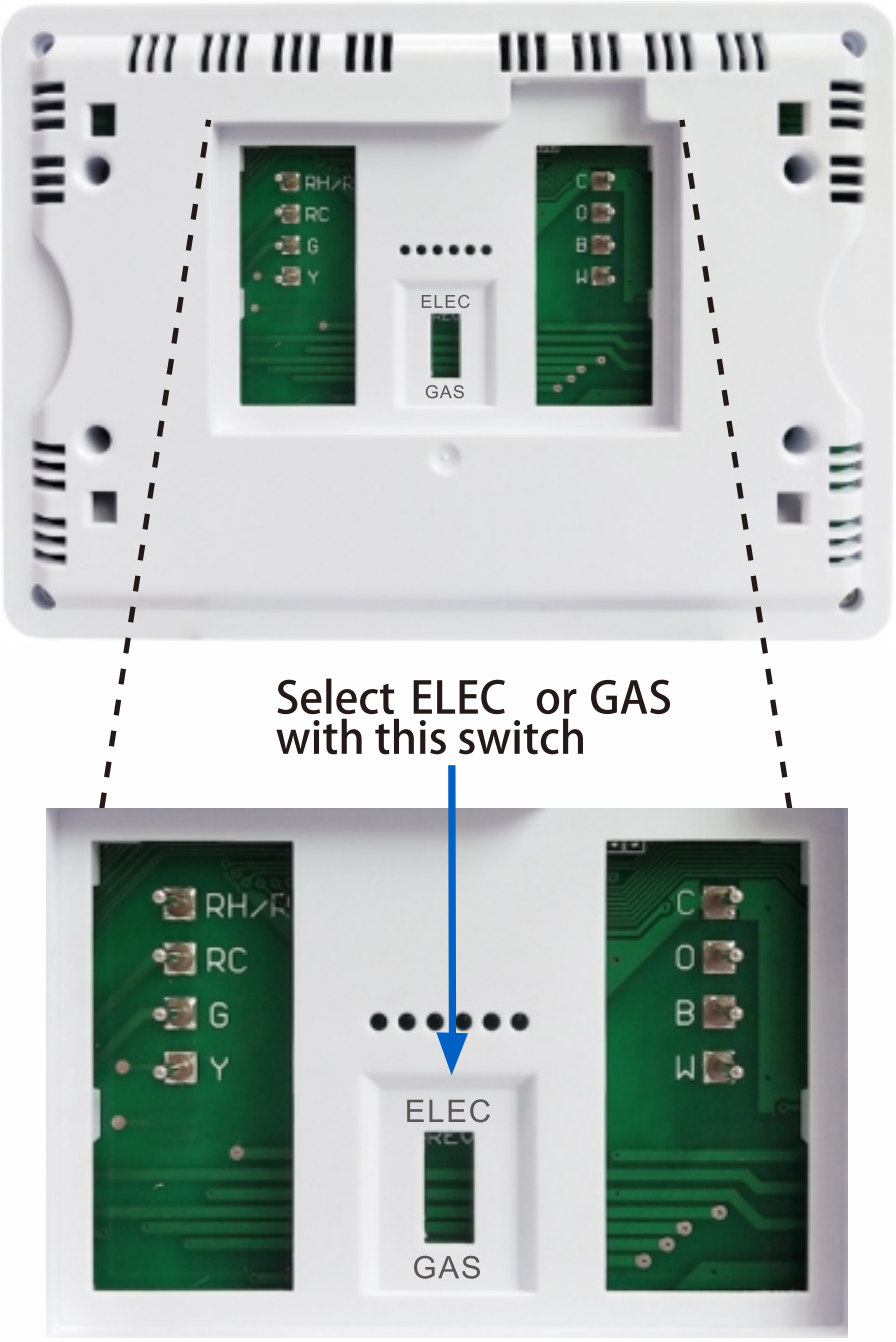



## Typical heat-only system with fan




## Typical cool-only system






## Gas or Electric Setup

**Gas:** For systems that control the fan during a call for heat, put the fan operation switch to the **GAS** position.

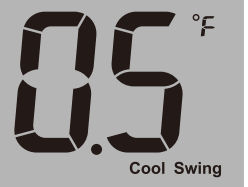
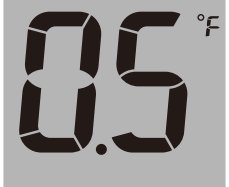
**Electric:** The thermostat operation switch should be put in the **ELEC** position. This setting allows the thermostat to operate the fan when the fan relay is connected to the **G** terminal.

# TECHNICIAN SETUP

1. Select OFF with the system switch, hold down the “+”and “-” buttons together for 3 seconds to access
2. Press - to go to the next option
3. Press + to select the parameters you want to modify
4. To exit,move system switch or wait for 10 seconds.

| Tech Setup Steps | | LCD Will Show | Adjustment Options | Default |
|---|---|---|---|---|
| Room Temperature Calibration | This feature allows the installer to change the calibration of the room temperature display. For example, if the thermostat reads 70˚ and you would like it to read 72˚ then select +2. |  | You can adjust the room temperature display to read up to 4˚ above or below the factory calibrated reading. |  |
| F or C | Select for Fahrenheit temperature read out select C for Celsius read out. |  | F for Fahrenheit C for Celsius |  |
| Compressor Short Cycle Delay | The compressor short cycle delay protects the compressor from short cycling. This feature will not allow the compressor to be turned on for 3 minutes after it was last turned off. |  | Selecting ON will not allow the compressor to be turned on for 3 minutes after the last time the compressor was switched off. Select OFF to remove this delay. |  |

1. Set the thermostat system switch to the desired position (COOL or HEAT).
2. Press and hold “+”and “-”together for 3 seconds.
3. Use “+”and “-” to adjust desired swing setting (The display reads in tenths of a degree.)
4. To exit,move system switch or wait for 10 seconds.

| Tech Setup Steps | | LCD Will Show | Adjustment Options | Default |
|---|---|---|---|---|
| Cooling Swing (SYSTEM COOL) | The swing setting, often called“cycle rate”, “differential” or “anticipation” is adjustable. A smaller swing setting will cause more frequent cycles and a larger swing setting will cause fewer cycles. |   | The cooling swing setting is adjustable from 0.2˚ to 2˚. For example: A swing setting of 0.5˚ will turn the cooling on at approximately 0.5˚ above the setpoint and turn the cooling off at approximately 0.5˚ below the setpoint. |   |
| Heating Swing (SYSTEM HEAT) | The swing setting, often called“cycle rate”, “differential or “anticipation” is adjustable. A smaller swing setting will cause more frequent cucles and a larger swing setting will cause fewer cycles |   | The heating swing setting is adjustable from 0.2˚ to 2˚. For example: A swing setting of 0.4˚ will turn the heating on at approimately 0.4˚ below the setpoint and turn the heating off at approximately 0.4˚ above the setpoint. |   |

## Tip

Temperature swing, sometimes called differetial or cycle rate, can be customized for this individual application. For most applications choose a swing setting that is as long as possible without making the occupants uncomfortable.

# SPECIFICATIONS

## Specifications

| | |
|---|---|
| The display range of temperature | 41°F to 95°F (5°C to 35°C) |
| The control range of temperature | 44°F to 90°F (7°C to 32°C) |
| Load rating | 1 amp per terminal, 1.5 amp maximum all terminals combined |
| Display accuracy | ± 1°F |
| Swing (cycle rate or differential) | Heating is adjustable from 0.2°F to 2.0°F<br>Cooling is adjustable from 0.2°F to 2.0°F |
| Power source | 18 to 30 VAC, NEC Class II, 50/60 Hz for hardwire (common wire)<br>Battery power from 2 AAA Alkaline Energizer batteries |
| Operating ambient | 32°F to +105°F (0°C to +41°C) |
| Operating humidity | 90% non-condensing maximum |
| Dimensions of thermostat | 4.72”W x 3.86”H x 0.98”D |

# Operation Manual