701

Installation Manual

INSTALLATION MANUAL

This manual covers the following models:

- 701

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

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Power Type

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

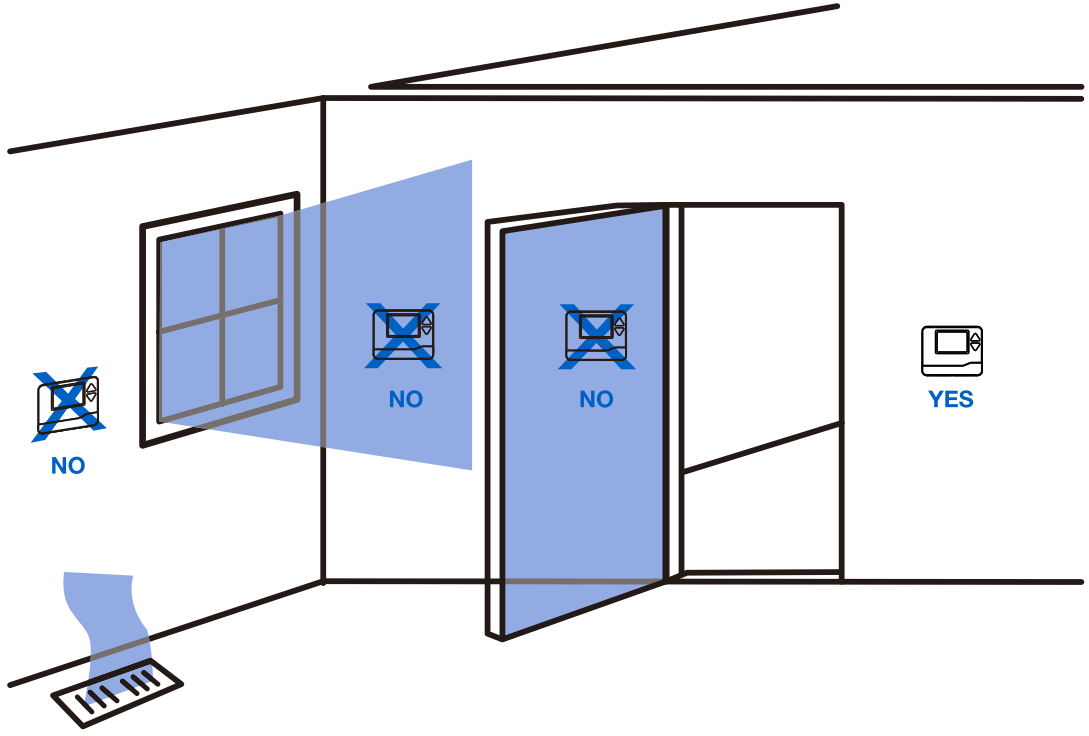
A trained, experienced technician must install this product.

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

INSTALLATION TIPS

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.



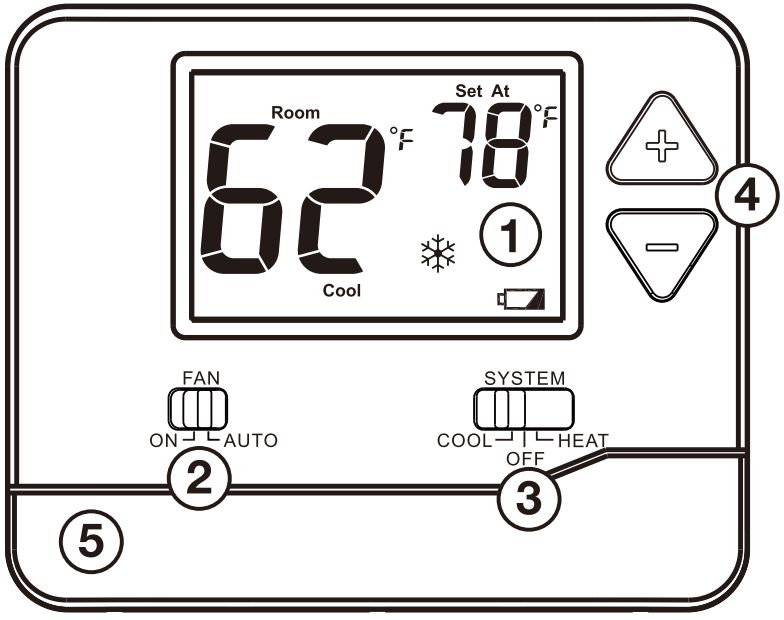
Do not install thermostat in locations:

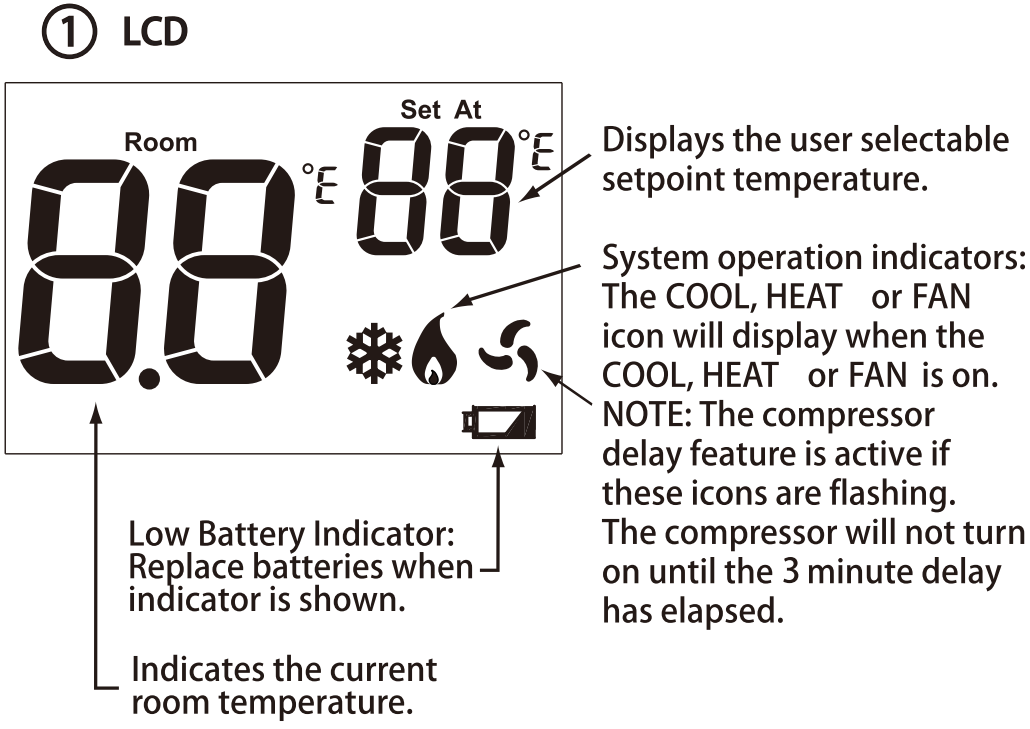
- Close to hot or cold air ducts
- That are in direct sunlight
- With an outside wall behind the thermostat
- In areas that do not require conditioning
- Where there are dead spots or drafts (in corners or behind doors)
- Where there might be concealed chimneys or pipes

Tip

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

Getting to know your thermostat





1. LCD Display
2. Fan Switch
3. System Switch
4. Temperature Setpoint Buttons
5. Easy change battery door

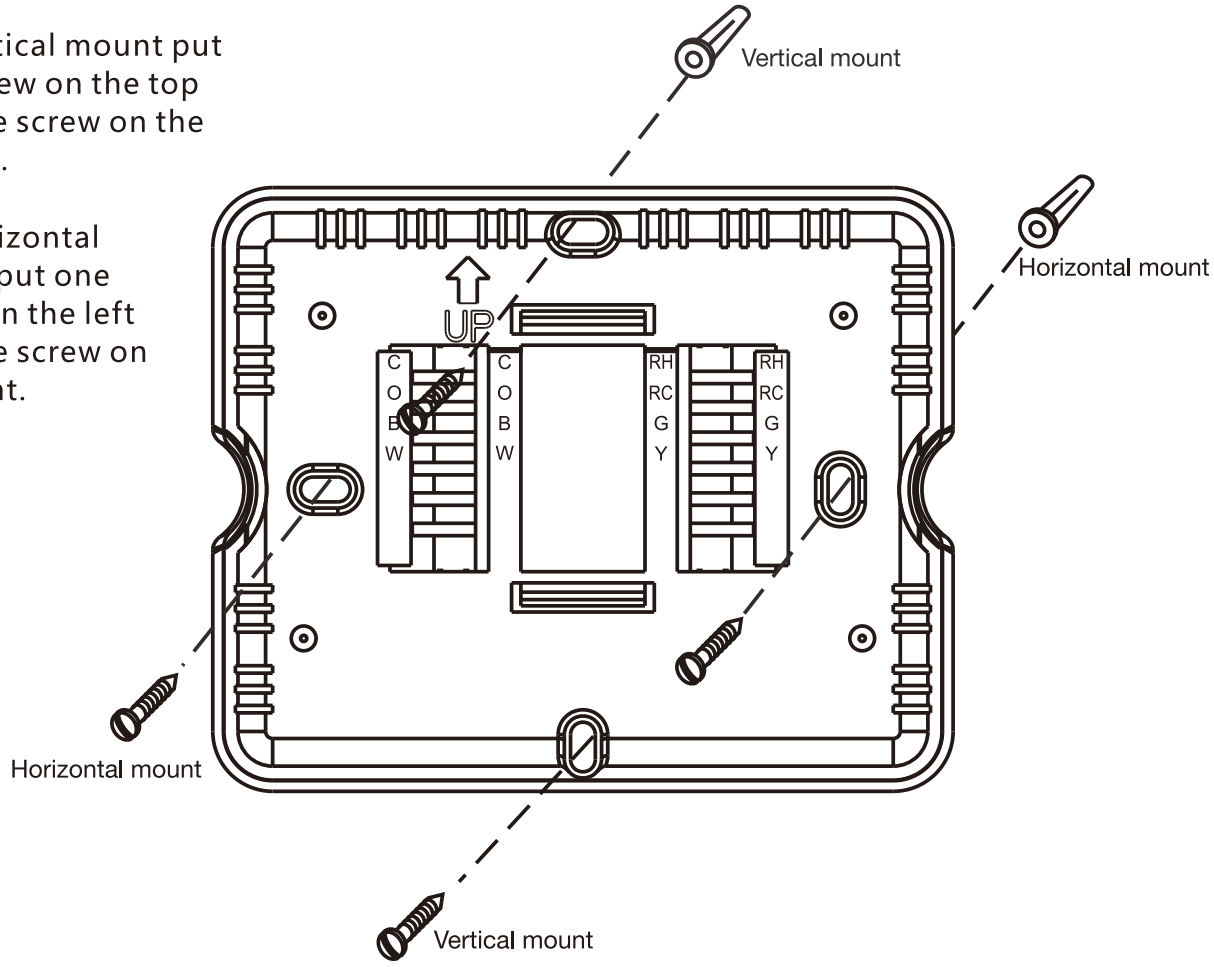
SUBBASE INSTALLATION

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

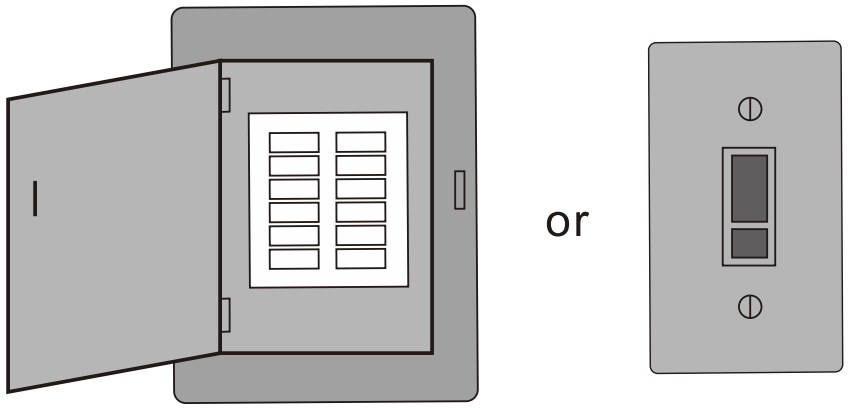
Mercury Notice:
All of our products are mercury free. However, if the product you are replacing contains mercury, dispose of it properly. Your local waste management authority can give you instructions on recycling and proper disposal.

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

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



1 Turn Off the Power of Your Heating/Cooling System



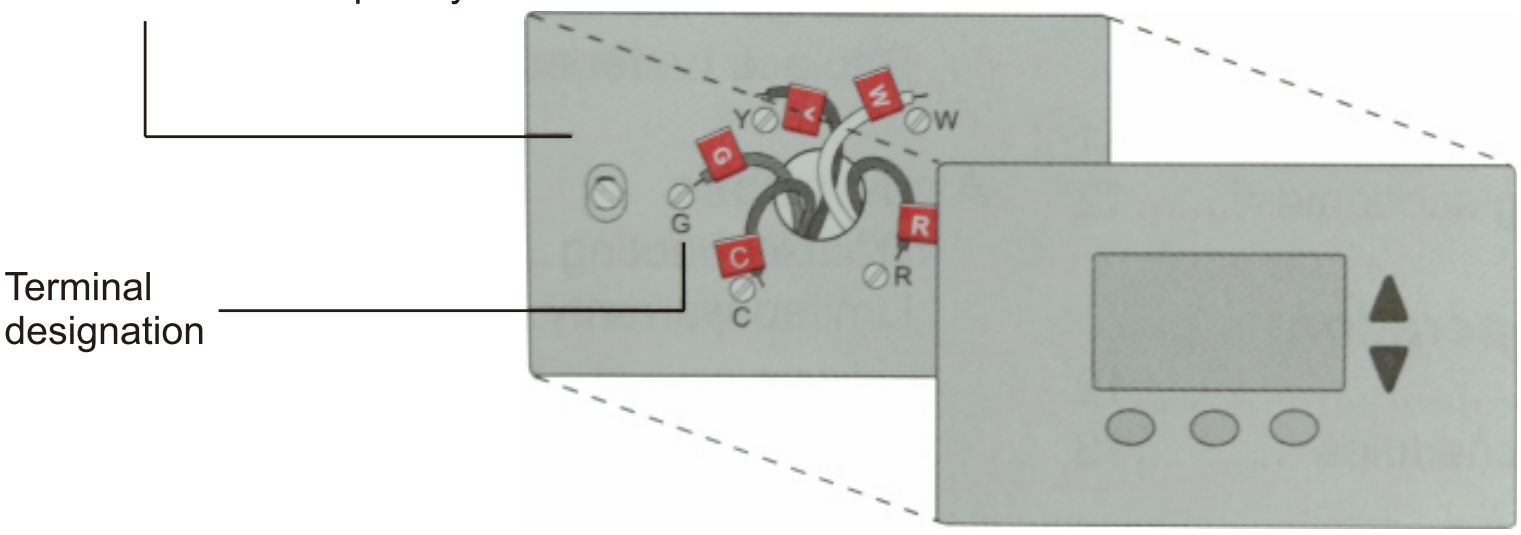
Circuit breaker box

Heating/cooling system power swich

2 Remove Old Thermostat -(If Any)

Remove the old thermostat , but leave the 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.

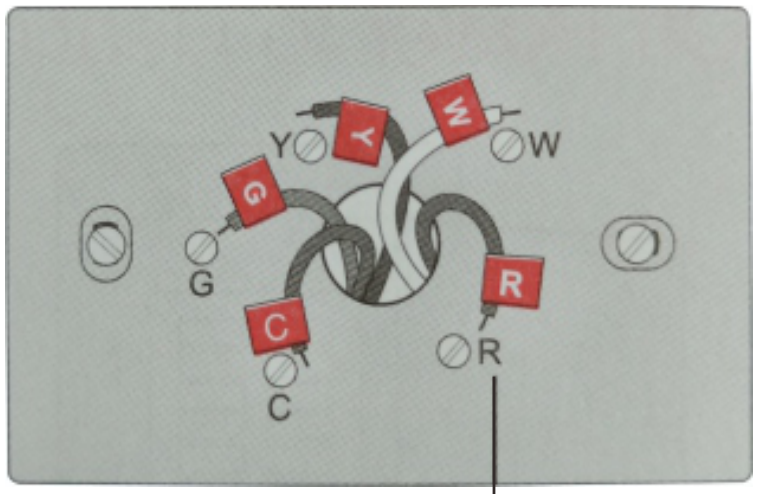
Wiring Labels
Apply these wiring labels to each wire with the appropriate terminal designation as you remove it from the existing thermostat.

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								

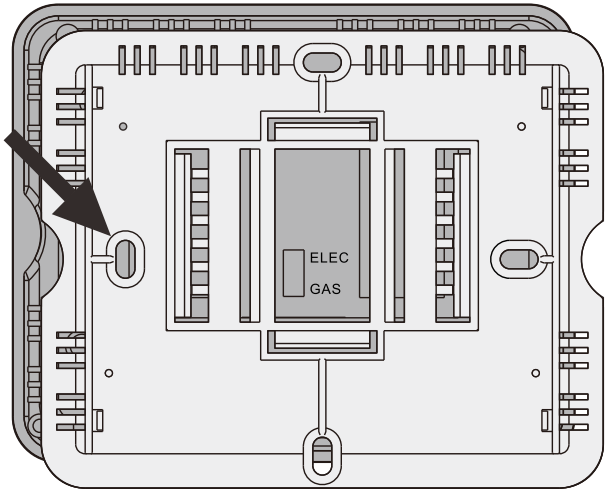
Wire Labels



Terminal designation

4 Separate Wallplate from New Thermostat

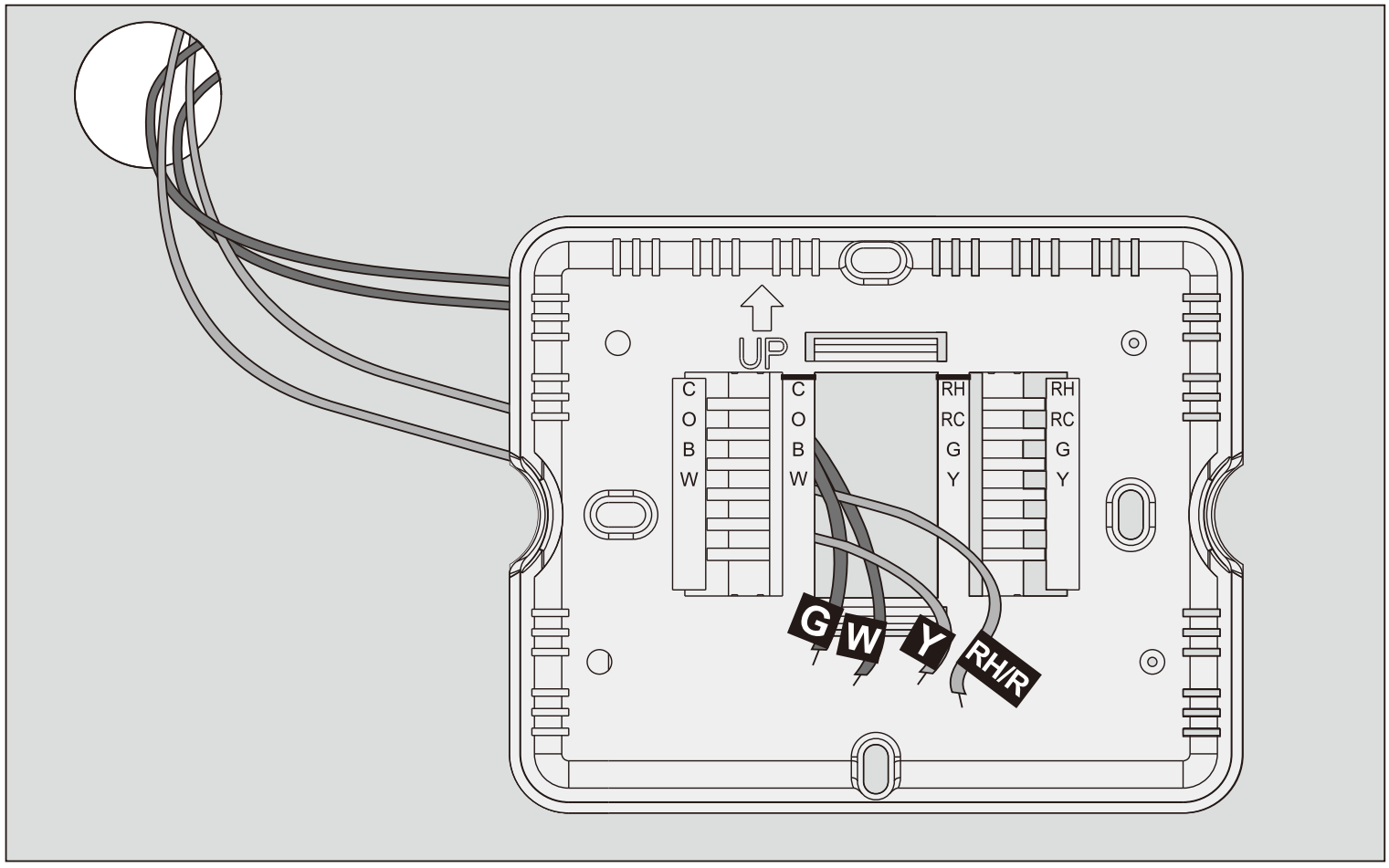
Remove the wallplate from the new thermostat and mount onto the wall.



Wallplate

5 Mount New Wallplate

Mount the new wallplate using the included screws and anchors.

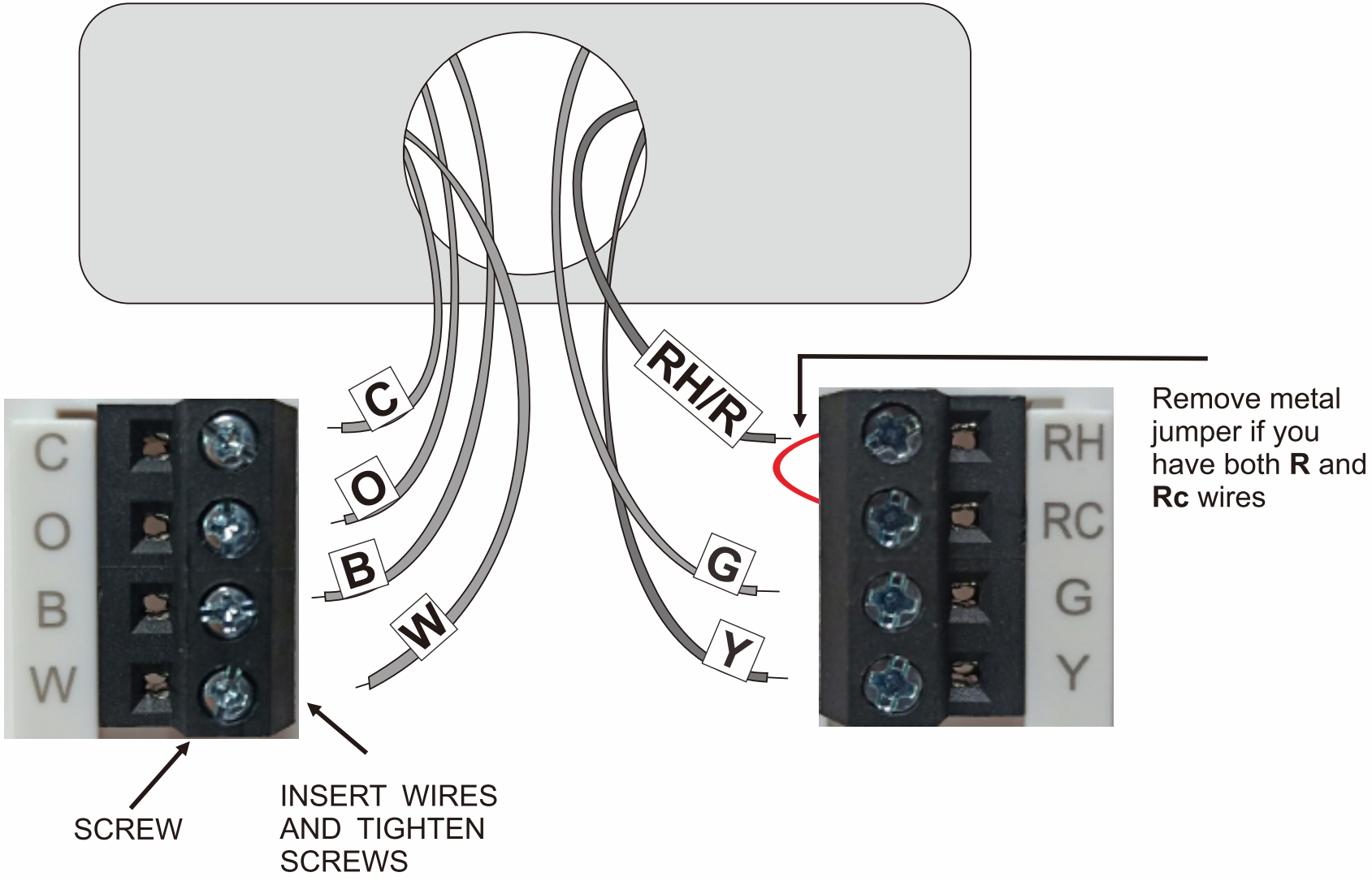


Drill 3/16-in. holes for drywall
Drill 3/16-in. holes for plaster

6 Connect Wires

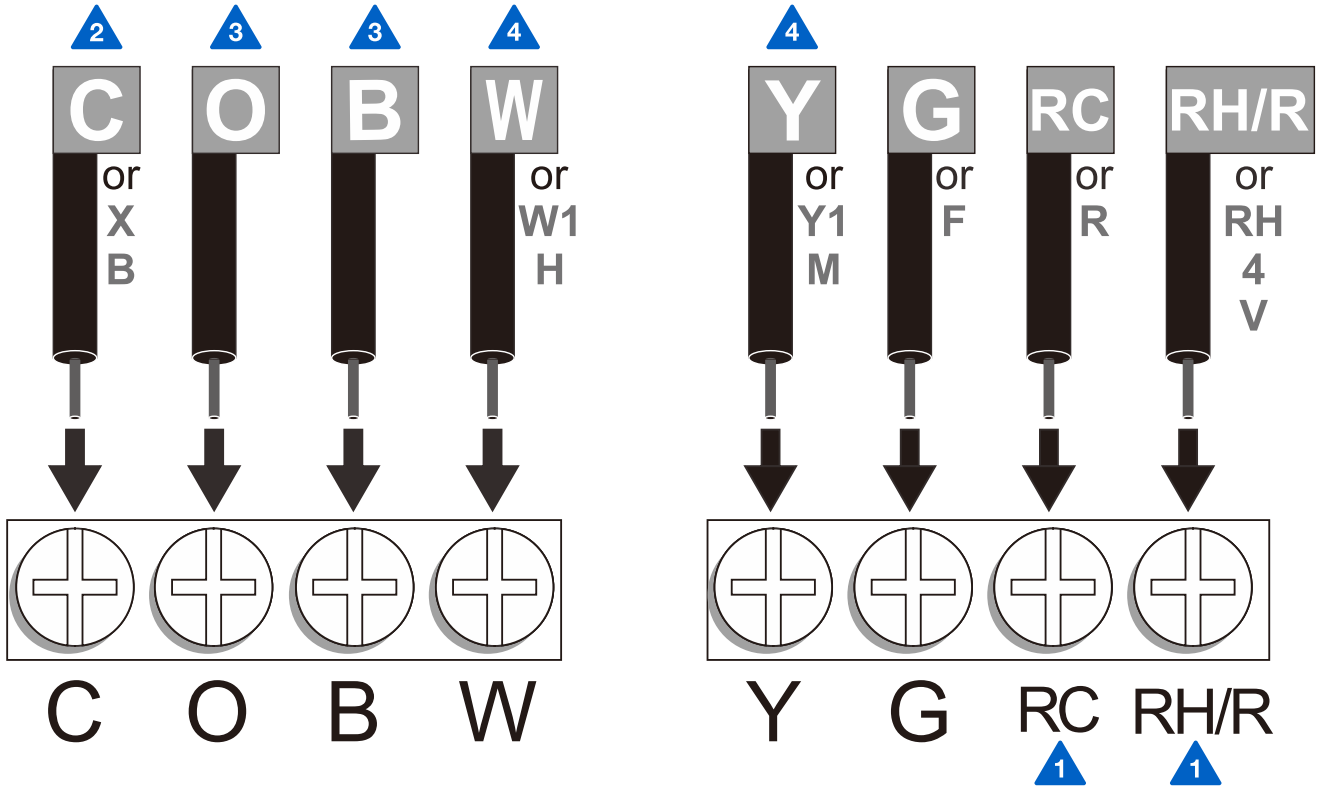
Simply match wire labels to the letters on the thermostat.

If labels do not match the letters on the thermostat, check “Alternate Wiring (Conventional Systems)” on page 9 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 the wires will be connected to both **RC** and **RH/R** terminals, remove the metal jumper.
2. If there is a **C** or **X** wire available , connect with the **C** terminal . If there is no **C** or **X** wire , there is no need to connect with the C terminal.
3. If you <u>have</u> a **heat pump** without auxiliary/backup heat connect **O** or **B**, <u>not</u> both. If you do <u>not have</u> a **heat pump**, <u>do not</u> connect **B**. Wrap bare end of wire with electrical tape.
4. Place a jumper (piece 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

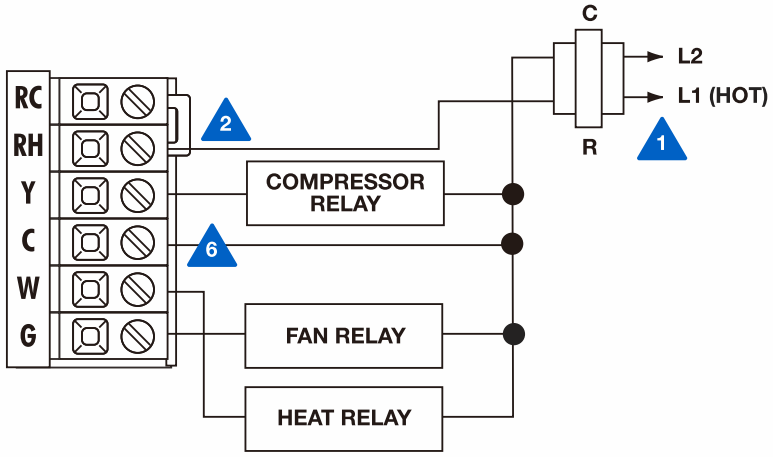
Use shielded or non-shielded 18 - 22 gauge thermostat wire.

C terminal

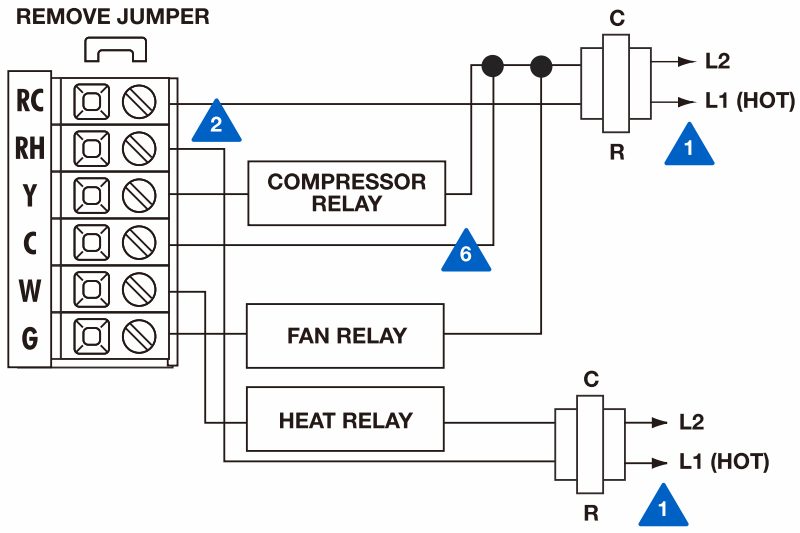
The C (common wire) terminal does not have to be connected when the thermostat is powered by batteries.

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

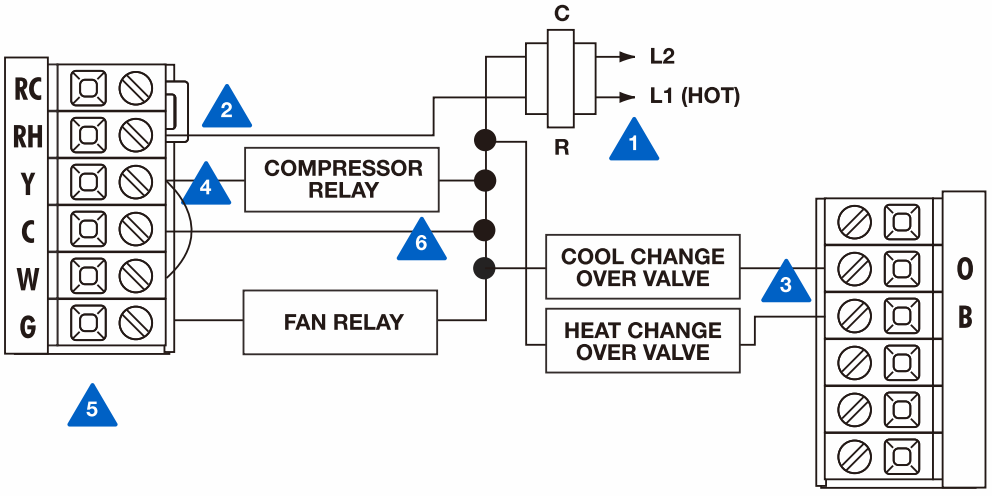


Typical 1H/1C system: 2 transformer

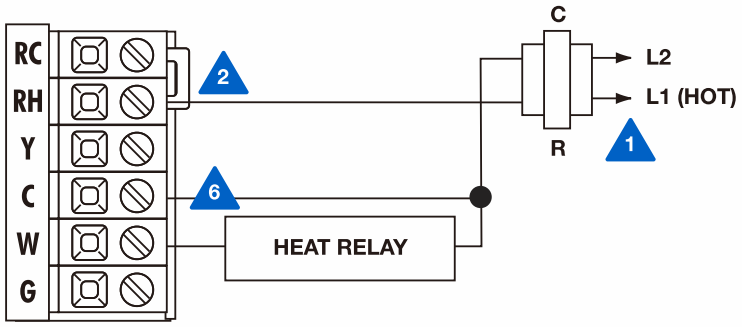


WIRING

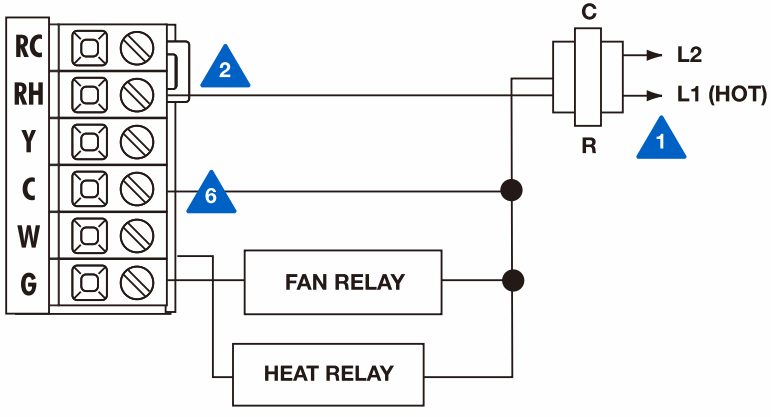
Typical 1H/1C heat pump system



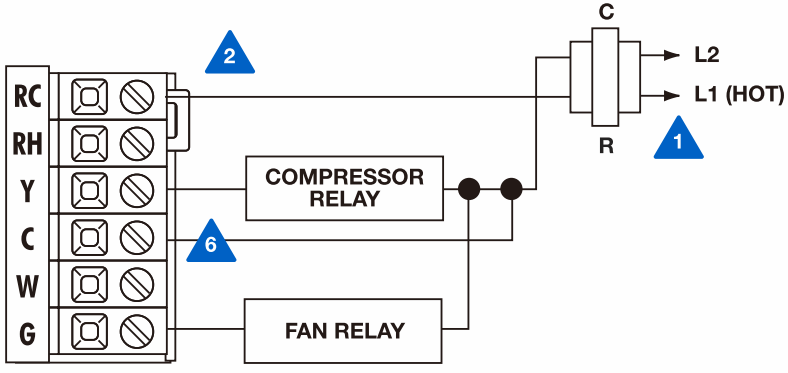
Typical heat-only system

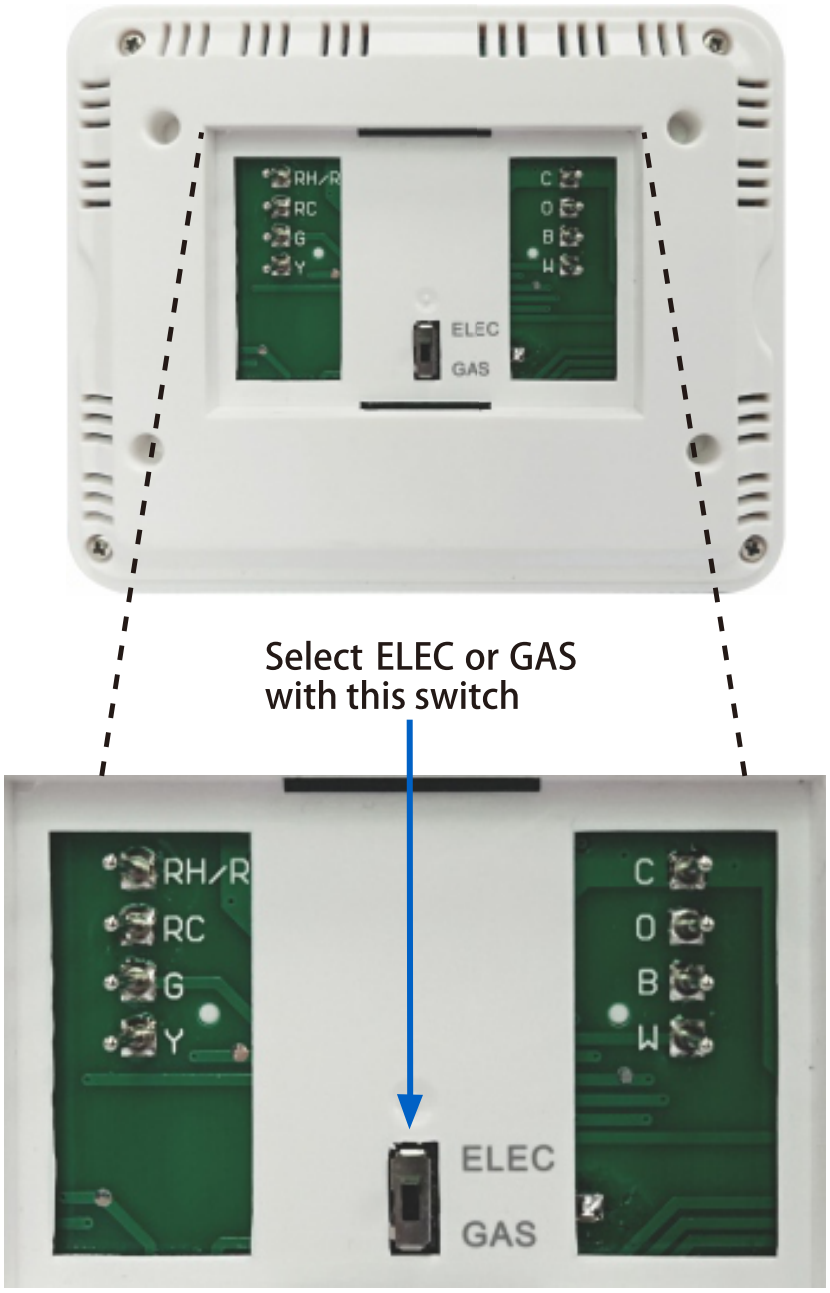


Typical heat-only system with fan



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

Adjusting the Temperature Swing

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. There are separate swing settings for heat and cool. Follow the steps below to adjust the SWING setting for heat or cool:

1. Select HEAT or COOL with the system switch.
2. Hold down the ▲ and ▼ keys together for 3 seconds.
3. Use the ▲ or ▼ key to adjust the swing. The swing is adjustable from ±0.2° F to ±2° F. For example: A swing setting of 0.5° F will turn the cooling on at approximately 0.5° F above the setpoint and turn the cooling off at approximately 0.5° F below the setpoint. The factory default for cooling is 0.5° F and 0.4° F for heating.
4. Wait approximately 10 seconds for the thermostat to return to normal operation.

Adjusting Room Temperature Calibration, Fahrenheit/Celsius Display , and Compressor Delay

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 ready -4° F to +4° F above or below the factory calibrated reading. Follow the steps below to adjust the temperature reading:

1. Select OFF with the system switch.
2. Hold down the ▲ and ▼ keys together for 3 seconds.
3. Use the ▲ key to adjust the room temperature display.
4. Then press ▼ to access the F (Fahrenheit) or C(Celsius) setting, use ▲ to select.
5. Press ▼ again to acess the DELAY selection, the compressor delay will not allow the compressor to be turned on for 3 minutes after the last time the compressor was on. Use the ▲ to select ON or OFF(ON:the Y terminals will turn off for at least 3 minutes). Wait approximately 15 seconds , or slide the system switch to return to normal operation.

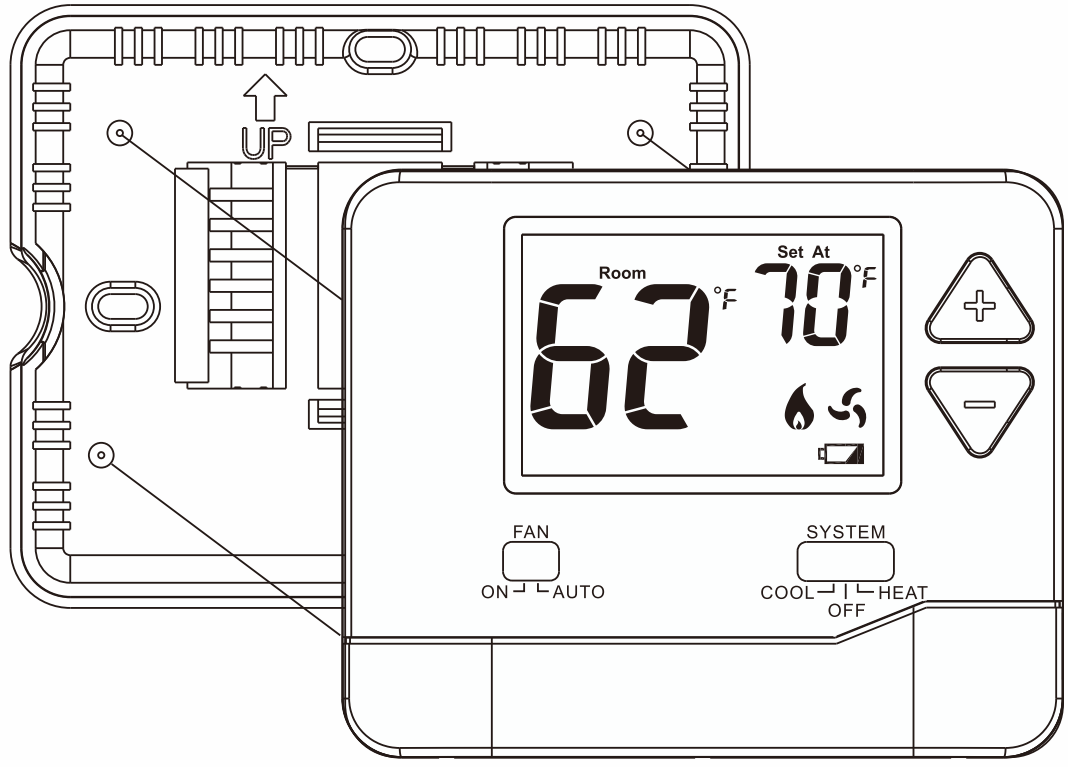
Tip

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.

MOUNT THERMOSTAT & BATTERY INSTALLATION

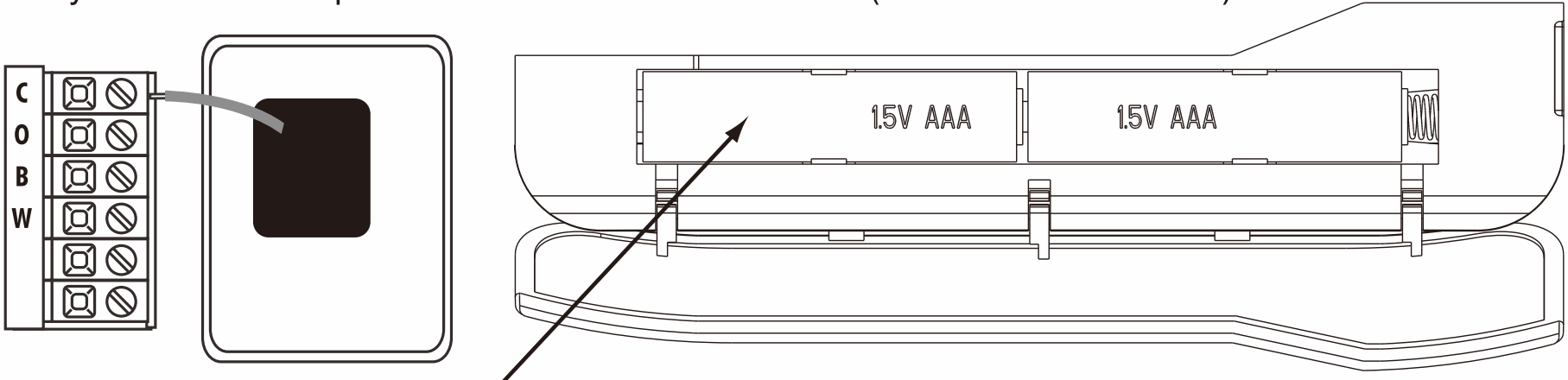
Mount Thermostat

Align the 4 tabs on the **subbase** with the 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).



Insert 2 AAA Alkaline batteries

SPECIFICATIONS & CONTACT INFORMATION

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 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) 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

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