



This manual covers TopTech models:  
**TT-N-851**

## 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)	Yes
Multi-stage Systems	Yes
Heat Only Systems	Yes
Heat Only Systems	Yes
Cool Only Systems	Yes
Millivolt	Yes

## Power Type

Battery Power

Hardwire (Common Wire)

Hardwire (Common Wire) with Battery Backup

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Una versión española de este manual puede ser descargada en [totech.pro1iaq.com](http://totech.pro1iaq.com)

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

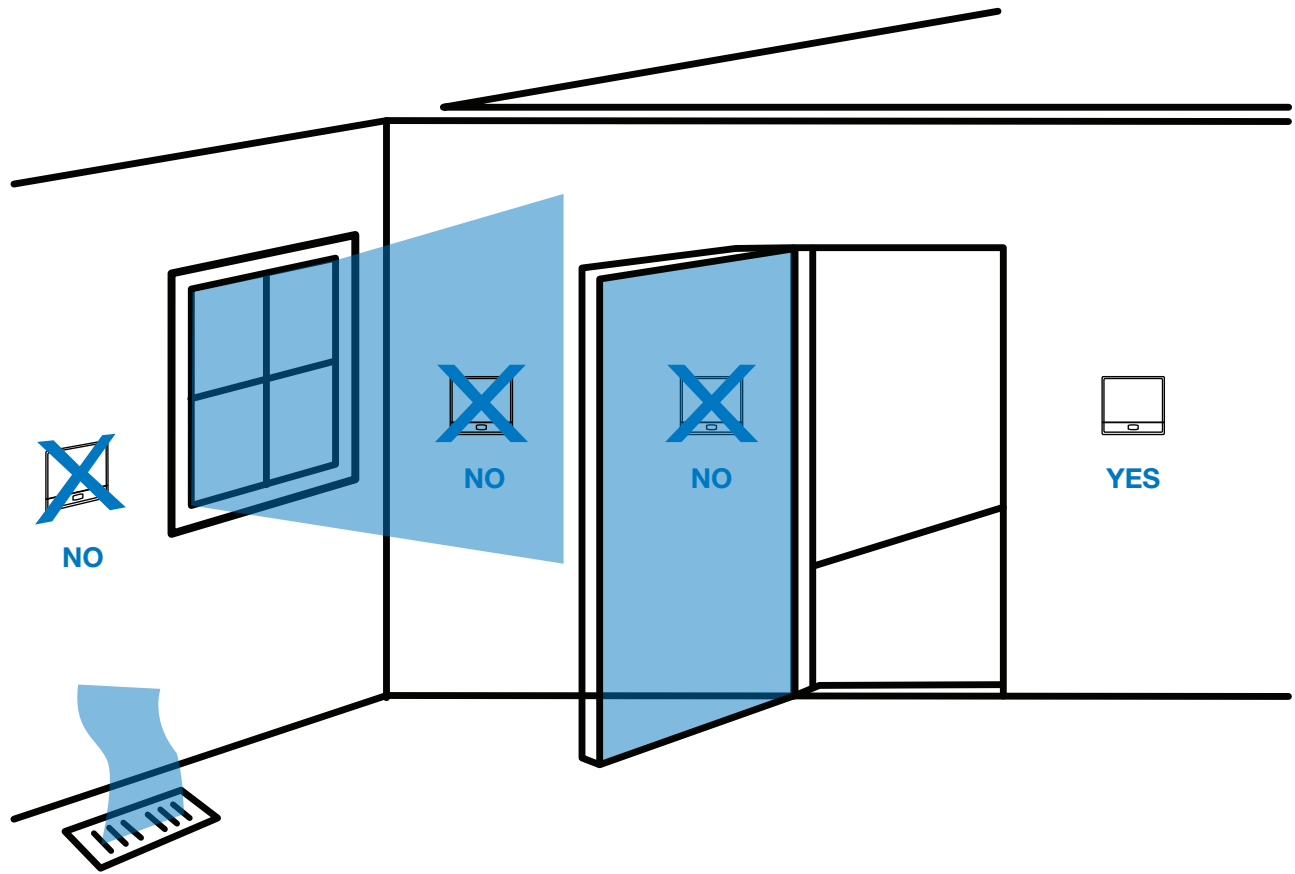
Carefully read these instructions. You could damage this product or cause a hazardous condition if you fail to follow these instructions.

## Need Help?

For assistance with this product please visit <http://totech.pro1iaq.com> or call our Customer Care Center toll-free at **1-888-776-1427** during normal business hours (Mon-Fri 9 AM - 6 PM Eastern)

## 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.



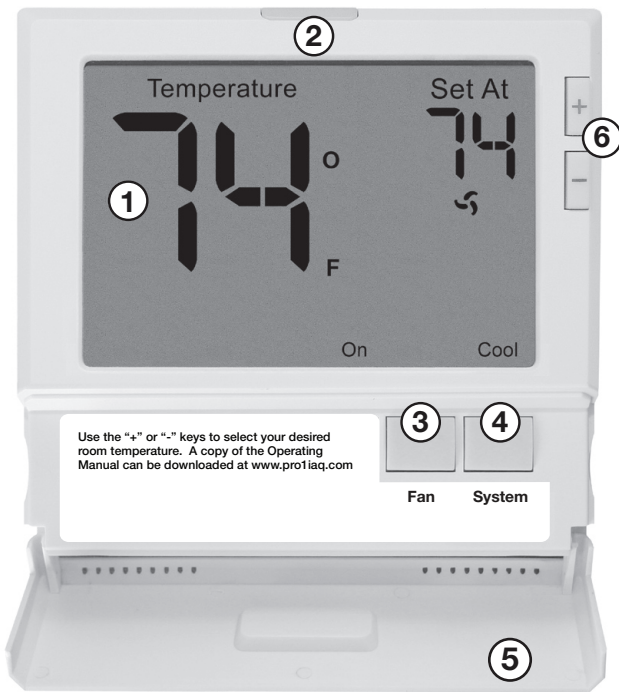
**Do not install** thermostat in locations:

- 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
- Where appliances could radiate heat

## TopTech 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

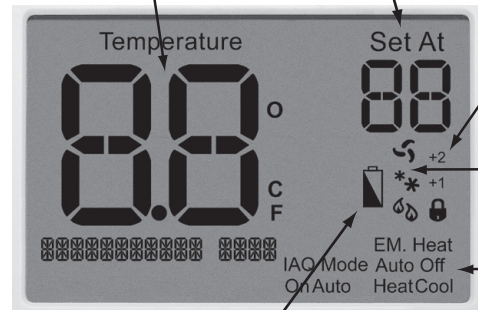


- ② Light Button (Glow in the dark)
- ③ Fan Button
- ④ System Button
- ⑤ Button Access Door
- ⑥ Temperature Setpoint Buttons

#### ① LCD

Indicates the current room temperature.

Displays the user selectable setpoint temperature.



+1 will appear in the display when second stage of heat or cool is on. +2 will appear for third stage of heat.

**COOL** **HEAT** **FAN**

**System operation indicators:** The **COOL**, **HEAT** or **FAN** icon will display when the **COOL**, **HEAT** or **FAN** is on. NOTE: The compressor delay feature is active if these icons are flashing. The compressor will not turn on until the 5 minute delay has elapsed.

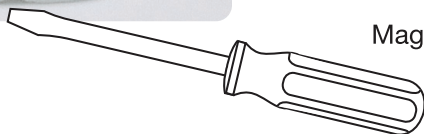
**Low Battery Indicator:** Replace batteries when this indicator is shown.



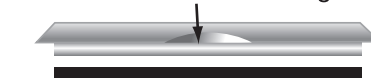
#### Important:

The low battery indicator is displayed when the AA battery power is low. If the user fails to replace the battery within 21 days, the thermostat display will only show the low battery indicator as a final warning before the thermostat becomes inoperable. The batteries are located on the back of the thermostat.

### Removing the dealer imprinting badge



Use the bevel on lower ridge



Magnet in door

Gently slide a screwdriver into the bottom edge of the badge. Gently turn the screwdriver counter clockwise. The badge is held on by a magnet. The badge should pry off easily. **Do not use force.**

#### TopTech Tip

All TopTech thermostats use the same universal magnetic badge. Visit our website at [toptech.pro1iaq.com](http://toptech.pro1iaq.com) to learn more about our dealer imprinting programs



### Caution: Electrical Hazard

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

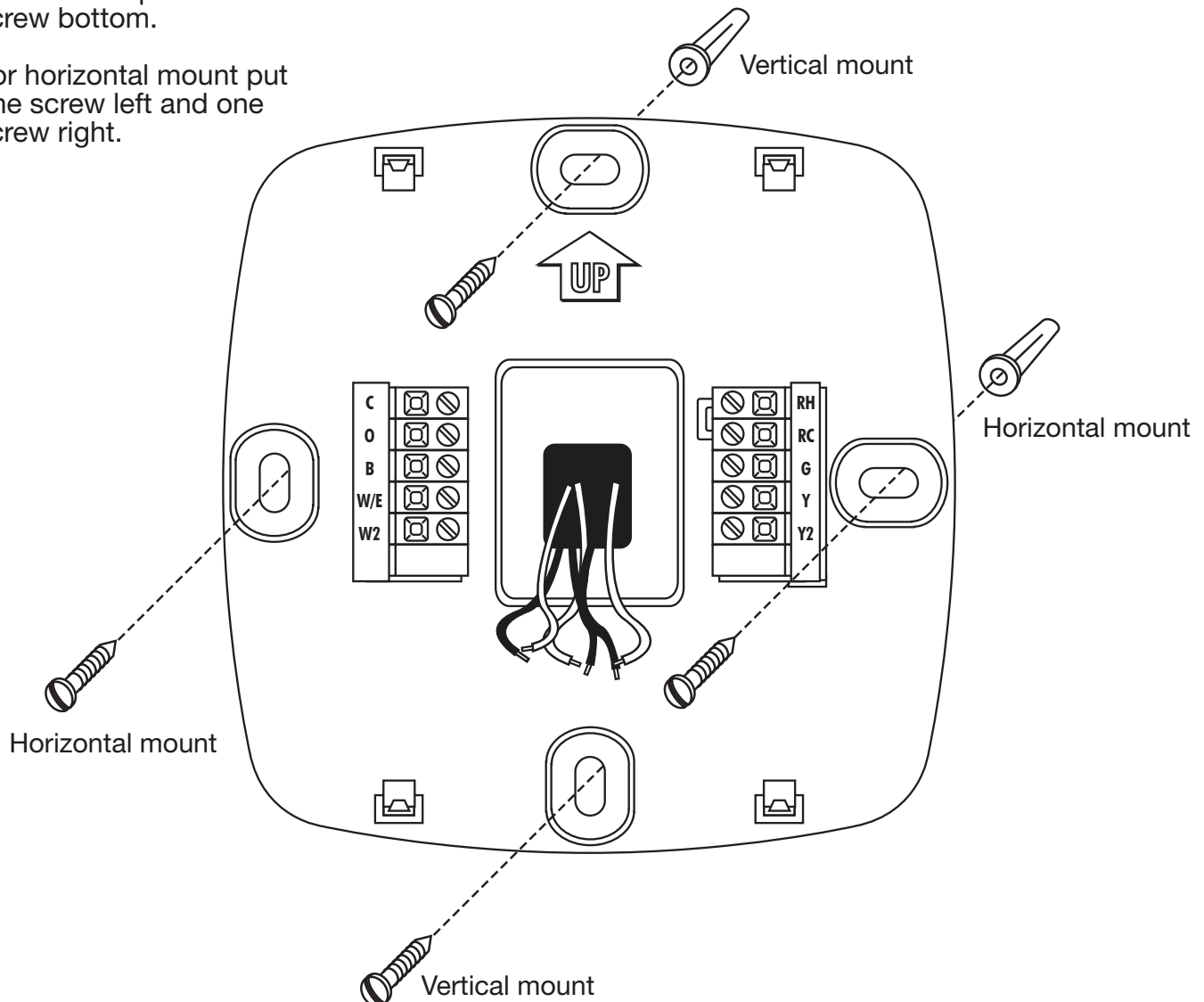


### Mercury Notice:

All of TopTech's 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.



## 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.



### Warning:

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

### Wire specifications

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

## Terminal Designations

This thermostat is shipped from the factory to operate a conventional heating and cooling system. This thermostat will also operate a heat pump system. See the “heat pump” configuration step on page 8 of this manual to configure the thermostat for heat pump applications.

Terminal	2 Heat 2 Cool Conventional System	2 Heat 2 Cool Heat Pump System	3 Heat 2 Cool Heat Pump System
<b>RC</b>	Transformer power (cooling)	Transformer power (cooling)	Transformer power (cooling)
<b>RH</b>	Transformer power (heating)	Transformer power (heating)	Transformer power (heating)
<b>C</b>	Transformer common	Transformer common	Transformer common
<b>B</b>	Energized in heating	Heat pump changeover valve energized in heating	Heat pump changeover valve energized in heating
<b>O</b>	Energized in cooling	Heat pump changeover valve energized in cooling	Heat pump changeover valve energized in cooling
<b>G</b>	Fan relay	Fan relay	Fan relay
<b>W/E</b>	First stage of heat	Emergency heat relay	Emergency heat relay
<b>Y</b>	First stage of cool	First stage of heat & cool	First stage of heat & cool
<b>Y2</b>	Second stage of cool	Second stage of cool	Second stage of cool & second stage of heat
<b>W2</b>	Second stage of heat	Auxiliary heat relay, second stage of heat	Auxiliary heat relay, third stage of heat

## TopTech Tip

### C terminal

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

### Note:

In many systems with no emergency heat relay a jumper can be installed between E and W2.

## Technician Setup Menu

This thermostat has a technician setup menu for easy installer configuration. To set up the thermostat for your particular application:

1. Press and hold **+** & **-** button for 3 seconds. This 3 second delay is designed so that homeowners do not accidentally access the installer settings.
2. Configure the installer options as desired using the table below.
3. Use the **+** or **-** keys to change settings and the **SYSTEM** or **FAN** key to move from one option to another. **Note:** To exit the Technician Setup options press and hold the **+** & **-** keys for 3 seconds.

### Tech Setup Steps

Filter Change Reminder	Room Temperature Calibration	Minimum Compressor On Time	Compressor Short Cycle Delay	Cooling Swing	Heating Swing	Keypad Lockout
This feature will flash <b>FILT</b> in the display after the elapsed run time to remind the user to change the filter. A setting of <b>OFF</b> will disable this feature.	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.	This feature allows the installer to select the minimum run time for the compressor. For example, a setting of 4 will force the compressor to run for at least 4 minutes every time the compressor turns on, regardless of the room temperature.	The compressor short cycle delay protects the compressor from "short cycling". This feature will not allow the compressor to be turned on for 5 minutes after it was last turned off.	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 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.	Keypad lockout allows you to configure the thermostat so that none or some of the keys do not function.
LCD Will Show						
Adjustment Options						
You can adjust the filter change reminder from <b>OFF</b> to 2000 hours of runtime in 50 hour increments.	You can adjust the room temperature display to ready -4°F to +4°F above or below the factory calibrated reading.	You can select the minimum compressor run time from "off", "3", "4", or "5" minutes. If 3, 4, or 5 is selected, the compressor will run for at least the selected time before turning off.	Selecting <b>ON</b> will not allow the compressor to be turned on for 5 minutes after the last time the compressor was on. Select <b>OFF</b> to remove this delay.	The cooling swing setting is adjustable from ±0.4°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 heating swing setting is adjustable from ±0.4°F to ±2°F. For example: A swing setting of 0.5°F will turn the heating on at approximately 0.5°F below the setpoint and turn the heating off at approximately 0.5°F above the setpoint.	Pick <b>PA</b> or <b>FU</b>  <b>PA</b> = partial keypad lockout, which locks all the keys except the <b>+</b> or <b>-</b> keys.  <b>FU</b> = Full keypad lockout, which locks out all the keys.  Note: Keypad lockout instructions are below.
Factory Default Settings						
OFF	0 °F	OFF	ON	0.5 °F	0.4 °F	NA

Note: To lock the keypad hold down the **SYSTEM** and **FAN** keys for 3 seconds. You will see a lock in the display. To unlock the keypad hold down **SYSTEM** and **FAN** keys for 3 seconds.

TECH SETUP  
STEPS CONTINUED  
ON THE NEXT PAGE



## Tech Setup Steps (Continued from the previous page)

Heating Temperature Setpoint Limit	Cooling Temperature Setpoint Limit	°F or °C	Fan Operation	Display Light	Contractor Call Number On or Off	Contractor Call Number
This feature allows you to set a maximum heat setpoint value. The setpoint temperature cannot be raised above this value.	This feature allows you to set a minimum cool setpoint value. The setpoint temperature cannot be lowered below this value.	Select <b>F</b> for Fahrenheit temperature read out or select <b>C</b> for Celsius read out	Select <b>GAS</b> for systems that control the fan during a call for heat.  Select <b>ELEC</b> to have the thermostat control the fan during a call for heat.	The display light can be configured to come on when any key is pressed or only when the light key is pressed.	Allows you to select whether or not you want to add your phone number to the thermostat display.  You can choose <b>ON</b> or <b>OFF</b>	Allows you to put your phone number in the display.
LCD Will Show						
Adjustment Options						
Use the <b>+</b> or <b>-</b> key to select the maximum heat setpoint.	Use the <b>+</b> or <b>-</b> key to select the minimum cool setpoint.	°F for Fahrenheit °C for Celsius	<b>GAS</b> or <b>ELEC</b>	<b>OFF</b> configures display light to come on only with the light key, which will save battery power.  <b>ON</b> configures the display light to come on when any key is pressed.	If selected <b>ON</b> , you will see the input screen after pressing <b>SYSTEM</b> key and moving to the next step..	Use the <b>+</b> key to step through each number left to right and the <b>-</b> key to cycle through each of the numbers.
Factory Default Settings						
90 °F	44 °F	°F	GAS	ON	OFF	0000000000

**Note:** If Contractor Call Number is selected **ON**, your phone number will show in the display if there has been a continuous call for heating or cooling for 24 hours or if the light button is held down for 3 seconds. To remove the phone number from the display, hold the light button down for 3 seconds.

TECH SETUP  
STEPS CONTINUED  
ON THE NEXT PAGE



### A Note About Auto Changeover:

Auto changeover will switch between heating and cooling as needed. It is very important to make sure the cooling setpoint temperature is at least 3° above the heating setpoint temperature and that the heating setpoint temperature is at least 3° below the cooling setpoint temperature.

## Tech Setup Steps (Continued from the previous page)

Beep	Heat Pump	System Switch	Gas Auxiliary for Heat Pump	Stages of Heat	Cooling Fan Delay
<p>When any key is pressed an audible beep will sound.</p> <p>You can choose <b>ON</b> or <b>OFF</b></p>	<p>When turned on the thermostat will operate a heat pump.</p> <p><b>1.</b> EM.Heat will show as an option in the system switch.</p> <p><b>2.</b> Y will be first stage of heat &amp; cool, W/E will be emergency heat relay &amp; W2 will be auxiliary heat relay.</p>	<p>You can configure the system switch for the particular application:</p> <p>Heat - Off - Cool, Heat - Off, Cool - Off, Heat - Off - Cool-Auto</p> <p><b>Note: EM. Heat</b> will show if in heat pump mode.</p>	<p>This option will turn the heat pump off 45 seconds after the auxiliary heat relay turns on.</p> <p>For 2 heat applications, the first stage will turn off 45 seconds after the auxiliary stage turns on.</p> <p>For 3 heat applications, the first and second stage will turn off 45 seconds after the auxiliary stage turns on.</p>	<p>You can configure the thermostat to operate a 3 stage heat pump system.</p> <p>2H 2C = 2 heat, 2 cool 3H 2C = 3 heat, 2 cool</p>	<p>The cooling fan delay setting will delay the fan from coming on in cool mode and keep running after the compressor shuts off for a short time to save energy in some systems.</p>
LCD Will Show					
Adjustment Options					
<p>If <b>ON</b> is selected the beep will sound. If</p> <p><b>OFF</b> is selected, there is no sound.</p>	<p><b>OFF</b> configures the thermostat for non heat pump systems</p> <p><b>ON</b> configures the thermostat for heat pump systems</p>	<p>Use the <b>+</b> or <b>-</b> key until the desired application is flashing.</p>	<p>For heat pump systems that are "dual fuel" (use a gas furnace for auxiliary stage heat) you can turn this feature on to turn off the heat pump when the auxiliary stage of heating has been called for.</p>	<p>Use the <b>+</b> or <b>-</b> key to change between 2 heat and 3 heat.</p> <p>2 heat will use Y1 as first stage and W2 as auxiliary.</p> <p>3 heat will use Y1 as first stage, Y2 as second stage and W2 as auxiliary.</p>	<p>You can select the Cooling Fan Delay from "Off" "15" "30" "60" or "90" seconds. If 15 30 60 or 90 is selected the fan will not turn on for that many seconds when there is a call for cool and will run for that many seconds after satisfying a call for cool.</p>
Factory Default Settings					
ON	OFF	Heat - Off - Cool	OFF	2 Stages	OFF

## TopTech Tip

The second stage will turn on at 2x the swing setting. The second stage will turn off when 1x the swing is reached. For example, if the swing setting is .8 degrees for heating and the thermostat is set at 70°F, the first stage will turn on at approximately 69.2°F. The second stage will turn on at 68.4°F. The second stage will turn off at 69.2°F and the first will turn off at 70.8°F. If third stage is used, it will turn on at 3x the swing and turn off at approximately 2x the swing.

# INSTALLATION MANUAL

## MOUNT THERMOSTAT & BATTERY INSTALLATION

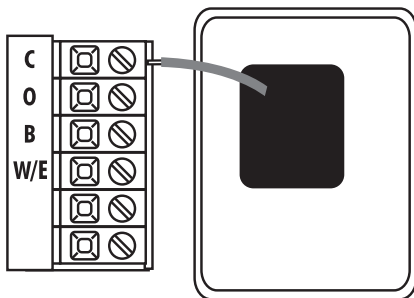
### Mount Thermostat

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).



On the back of the thermostat insert 2 AA Alkaline batteries (included).

### Specifications

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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 AA Alkaline batteries
Operating ambient .....	32°F to +105°F (0° to +41°C)
Operating humidity .....	90% non-condensing maximum
Dimensions of thermostat .....	4.7"W x 4.4"H x 1.1"D

### Contact Us

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