



THBF805 Master Vision
INSTALLATION MANUAL

Thermostat Application 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
Cool Only Systems	Yes
Millivolt	Yes

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Power Type

Battery Power

Hardwire (Common Wire)

Hardwire (Common Wire) with
Battery Backup

**This product must be installed
by a trained, experienced
technician.**

Failure to carefully follow these
instructions could create
hazardous conditions or cause
damage to the product.

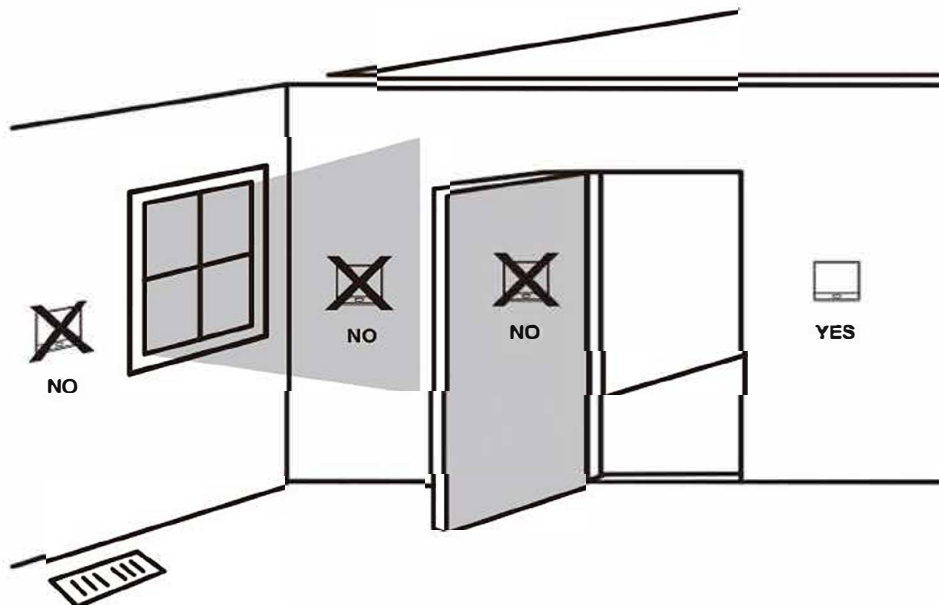
Specifications

The display range of temperature	32°F to 99°F (0°C to 40°C)
The control range of temperature.....	41°F to 90°F (5°C to 32°C)
Load rating.....	1 amp per terminal, 1.5 amp maximum all terminals combined
Swing (cycle rate or differential)	Heating is adjustable from 0.2° to 2.0° Cooling is adjustable from 0.2° to 2.0°
Power source	18 to 30 VAC, NEC Class II, 50/60 Hz for hardwire - Battery power from 2 AAA Alkaline batteries
Operating ambient	32°F to +105°F (0°C to +41°C)
Operating humidity	90% non-condensing maximum
Dimensions of thermostat	4.7"W x 4.4"H x 1"D

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.



Installation Tip

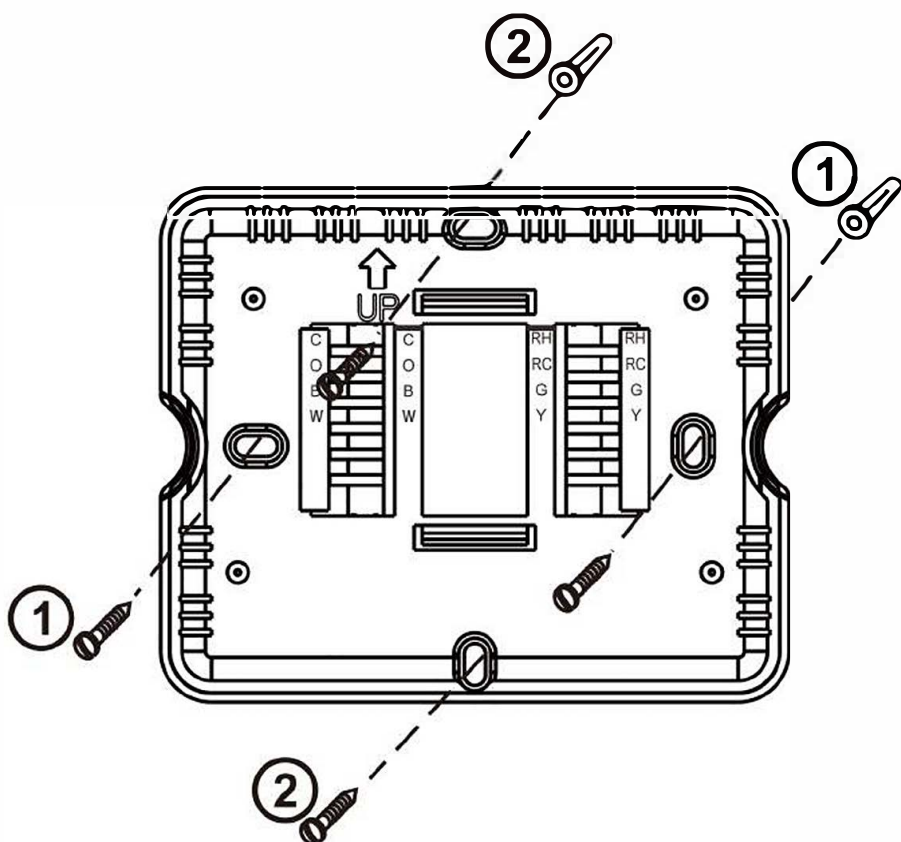
Pick an installation location that is easy for the user to access. The temperature of the location should be representative of the building.

Do not install thermostat:

- Near hot or cold air ducts
- In direct sunlight
- On an outside adjacent wall
- In areas that do not require conditioning
- Near dead spots or drafts (in corners or behind doors)
- Near concealed chimneys or pipes

Subbase Installation

- ① Horizontal Mount
- ② Vertical Mount



For a vertical mount, put one screw on the top and one screw on the bottom.
For a horizontal mount, put one screw on the left and one screw on the right.

Installation Tip: Electrical Hazard

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

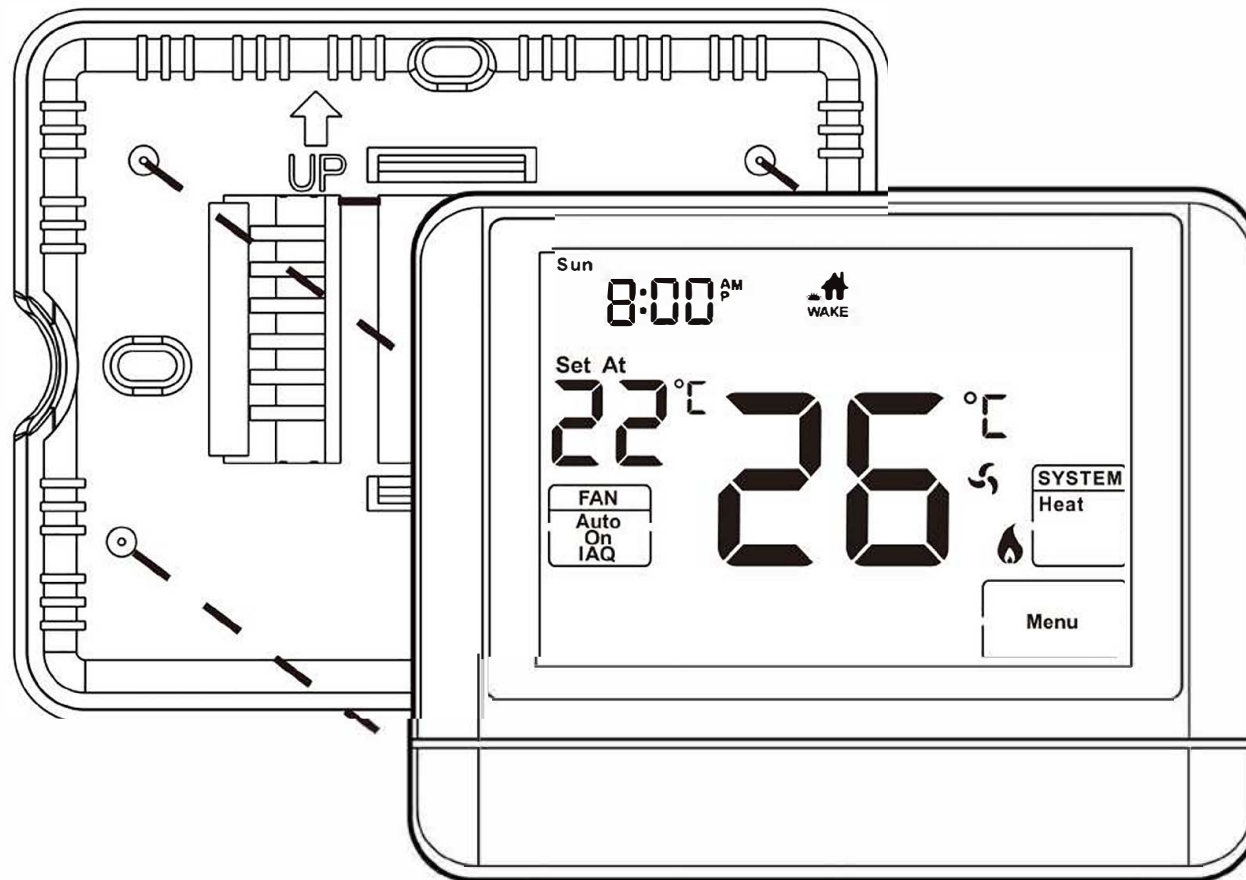
Mercury Notice

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.

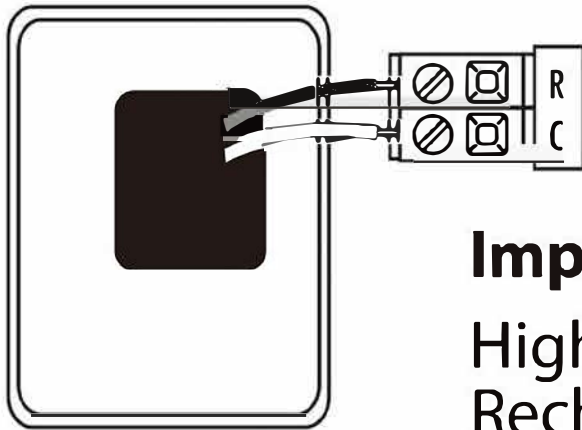
Installation Tips

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

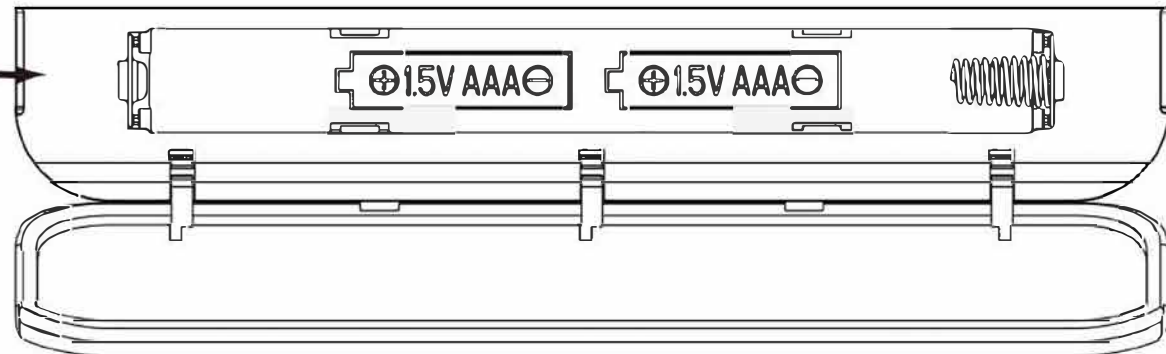


Battery installation is optional if thermostat is hardwired (R and C terminal connected to 24V power).

Important:

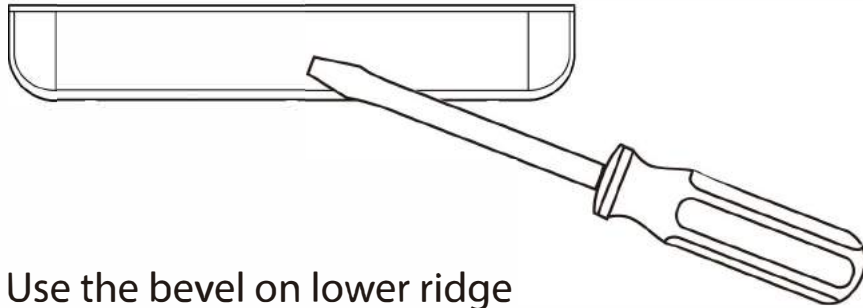
High quality alkaline batteries are recommended. Rechargeable batteries or low quality batteries do not guarantee a 1-year life span.

Insert 2 AAA alkaline batteries (included). High quality alkaline batteries are recommended.



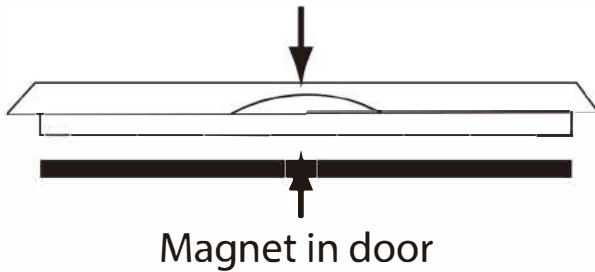
Installation Tips

About The Badge



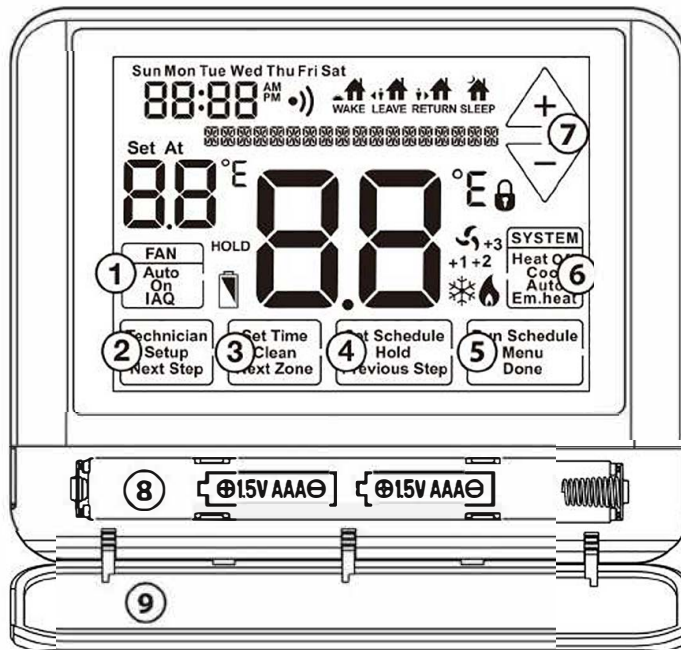
Gently slide a screwdriver into the bottom edge of the badge and turn the screwdriver counter clockwise. The badge is held on by a magnet in the well of the battery door and should pry off easily. **DO NOT USE FORCE.**

Use the bevel on lower ridge

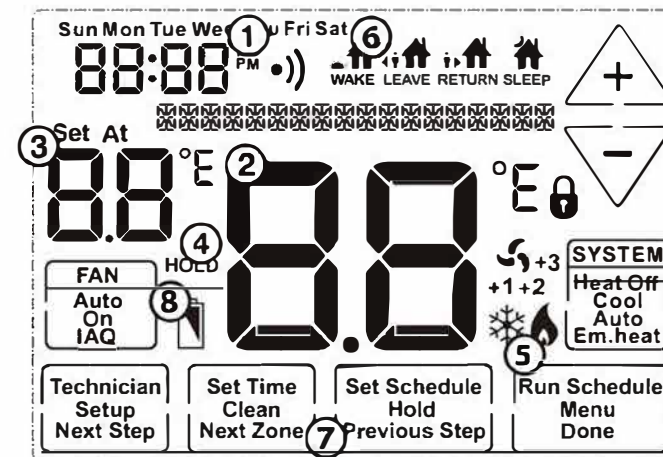


Magnet in door

Getting to know your thermostat



- ① Fan Buttons
- ② Next step Buttons
- ③ Set time Buttons
- ④ Program Buttons
- ⑤ Menu Buttons
- ⑥ System Buttons
- ⑦ Setpoint Buttons
- ⑧ Battery Cover
- ⑨ Button/Battery Access Door



- ① Days of the week and time
- ② Indicates the current room temperature
- ③ Displays the user selectable setpoint temperature
- ④ Hold is displayed when thermostat program is permanently overridden.
- ⑤ **System Operation Indicators:** The compressor delay is active if these are flashing.
- ⑥ **Programmable Time Periods:** Residential uses 4 time periods - **WAKE, RETURN, LEAVE** and **SLEEP**.
- ⑦ **Program Menu Options:** Shows different options during programming.
- ⑧ **Low Battery Indicator:** Replace batteries when this indicator is shown.

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

- C** Common wire from secondary side of cooling system transformer
- O** Heat pump changeover valve energized in cooling
- B** Heat pump changeover valve energized in heating
- W** Heat relay



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.

RH Transformer power for heating

RC Transformer power for cooling

G Fan relay

Y Compressor relay

Wiring 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.

C Terminal

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

Wire Specifications

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

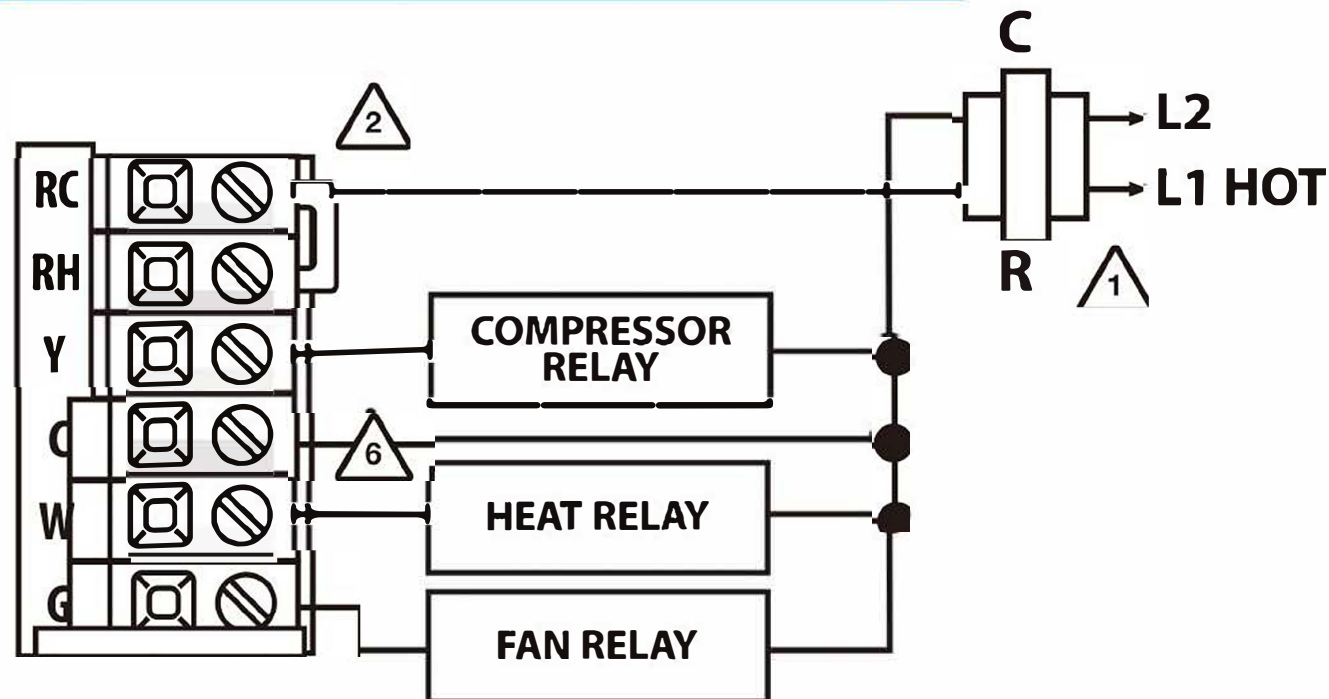


Installation Tip: Do not overtighten terminal block screws, as this can damage the terminal block. A damaged terminal block can keep the thermostat from fitting on the subbase correctly or cause system operation issues. **Max Torque = 6in-lbs.**

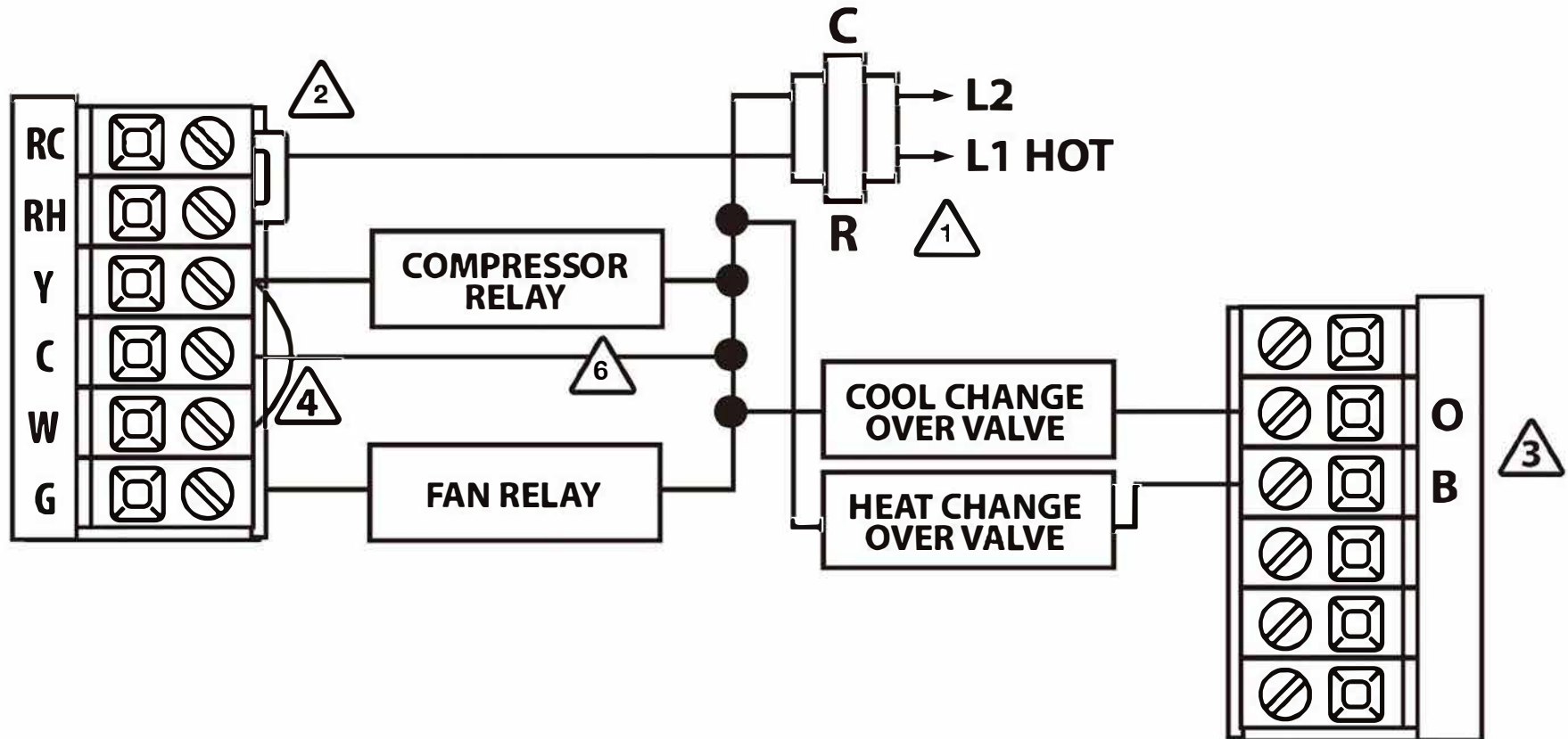
Wiring Diagrams

- 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 Heat Pump System 5



Technician Setup



1. Press MENU button
2. Press and hold **TECHNICIAN SETUP** button for 3 seconds. This 3 second delay is designed so that homeowners do not accidentally access the installer settings.
3. Configure the installer options as desired using the table below.
4. Use the or keys to change settings and the NEXT STEP or PREV STEP key to move from one step to another. Note: Only press DONE key when you want to exit the Technician Setup options.

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Filter Change Reminder	 The LCD display shows the text "FILTER OFF" at the top and "SE" in large digits below it.	You can adjust the filter change reminder from OFF to 2000 hours of runtime in 50 hour increments.	OFF
Room Temperature Calibration	 The LCD display shows the text "CALIBRATE" at the top and "0°C" in large digits below it.	You can adjust the room temperature display to read 4° above or below the factory calibrated reading.	0

Tech Setup Steps		LCD Will Show	Adjustment Options	Default
<p>Minimum Compressor On Time</p>	<p>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.</p>	<p>MIN COMP OF</p>	<p>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.</p>	<p>OFF</p>
<p>Compressor Short Cycle Delay</p>	<p>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.</p>	<p>COMP PROTECTS ON</p>	<p>Selecting "ON" will not allow the compressor to be turned on for 5 minutes after the last time the compressor was switched off. Select "OFF" to remove this delay.</p>	<p>ON</p>
<p>Cooling Swing</p>	<p>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.</p>	<p>COOL SWING 0.5°</p>	<p>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.</p>	<p>0.5</p>

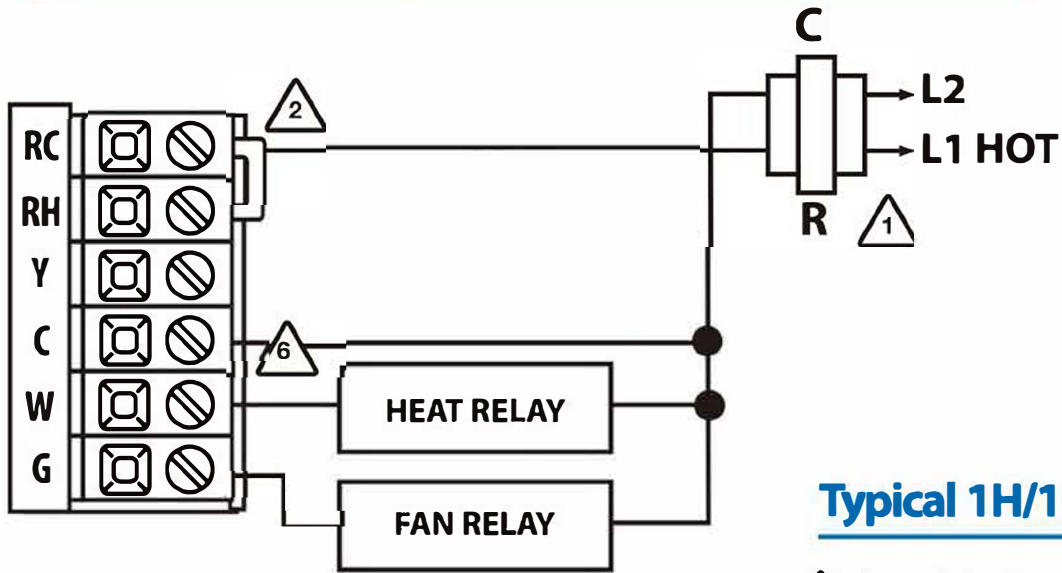
Technician Setup

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
<p>Heating Swing</p>	<p>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.</p>	<p>HEAT SWING</p> <p>04°C</p> <p>The heating swing setting is adjustable from 0.2° to 2°. For example: A swing setting of 0.5° will turn the heating on at approximately 0.5° below the setpoint and turn the heating off at approximately 0.5° above the setpoint.</p>	<p>0.4</p>
<p>Heating Temperature Setpoint Limit</p>	<p>This feature allows you to set a maximum heat setpoint value. The setpoint temperature cannot be raised above this value.</p>	<p>HEAT LIMIT</p> <p>32°C</p> <p>Use the <input type="button" value="-"/> or <input type="button" value="+"/> key to select the maximum heat setpoint.</p> <p>Range 5°C - 32°C</p>	<p>32°</p>
<p>Cooling Temperature Setpoint Limit</p>	<p>This feature allows you to set a minimum cool setpoint value. The setpoint temperature cannot be lowered below this value.</p>	<p>COOL LIMIT</p> <p>5°C</p> <p>Use the <input type="button" value="-"/> or <input type="button" value="+"/> key to select the minimum cool setpoint.</p> <p>Range 5°C - 32°C</p>	<p>5°C</p>

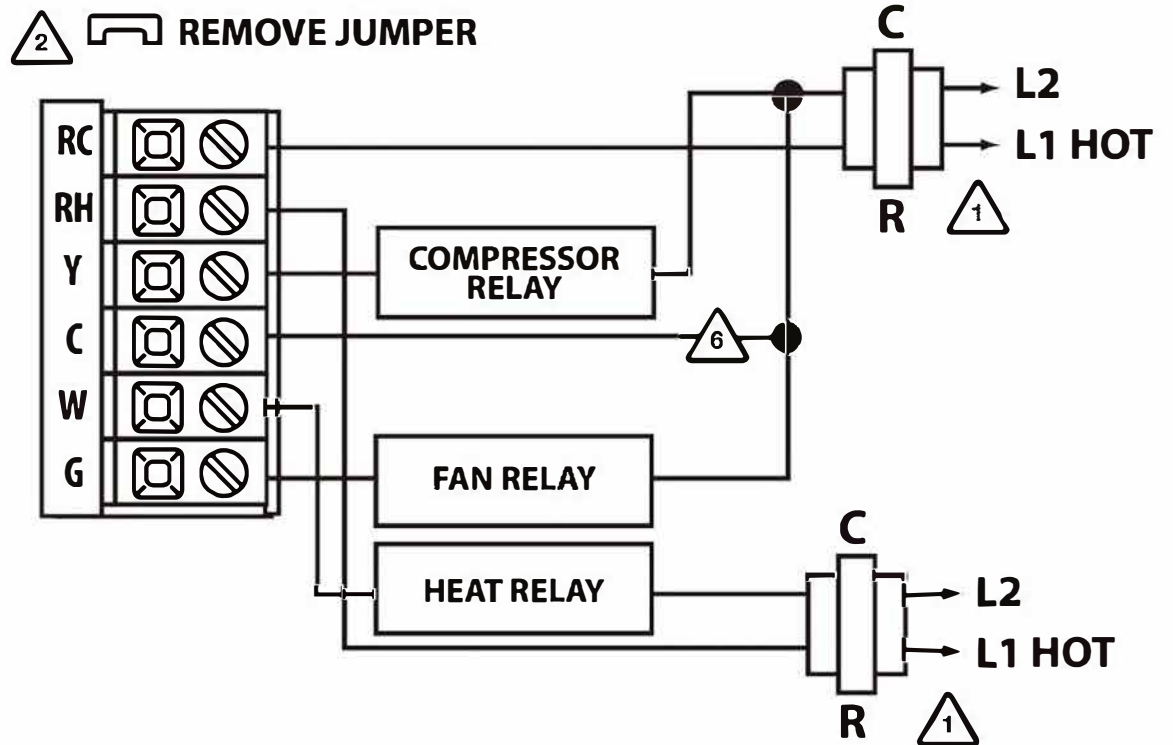
Tech Setup Steps		LCD Will Show	Adjustment Options	Default
F° or C°	Select F for Fahrenheit read out or select C for Celsius read out.		°F for Fahrenheit °C for Celsius	°C
12 or 24 Hour Clock	You can select either 12 or 24 hour clock setting.		Use the <input type="checkbox"/> - <input type="checkbox"/> or <input type="checkbox"/> + <input type="checkbox"/> key to select 12 or 24 hour clock.	12 Hour Clock

Wiring Diagrams

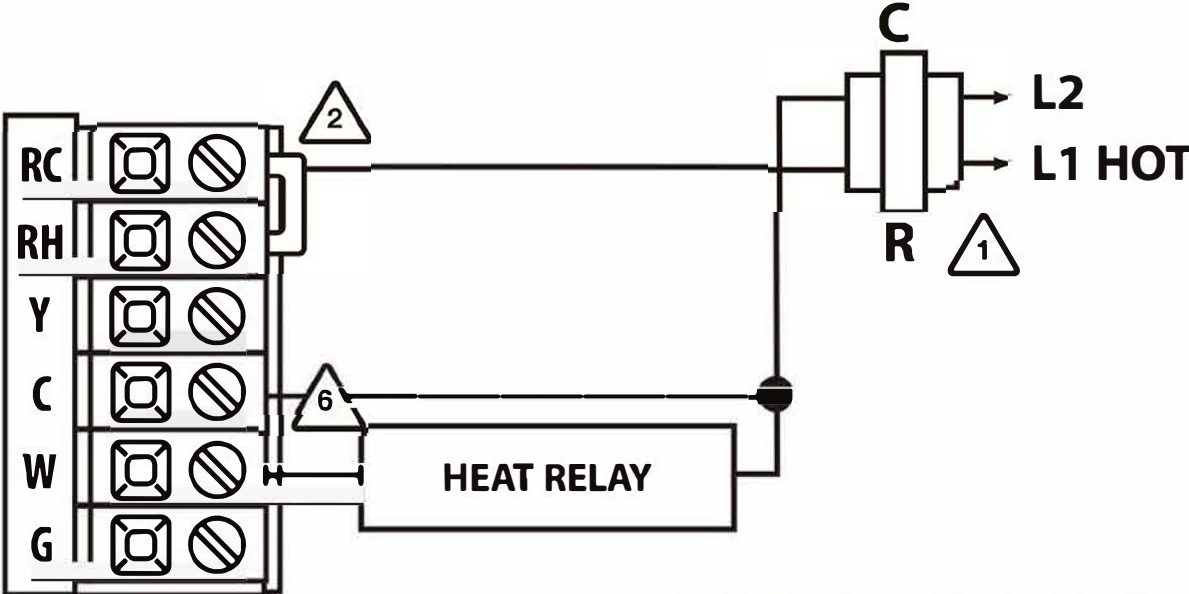
Typical Heat-Only System With Fan



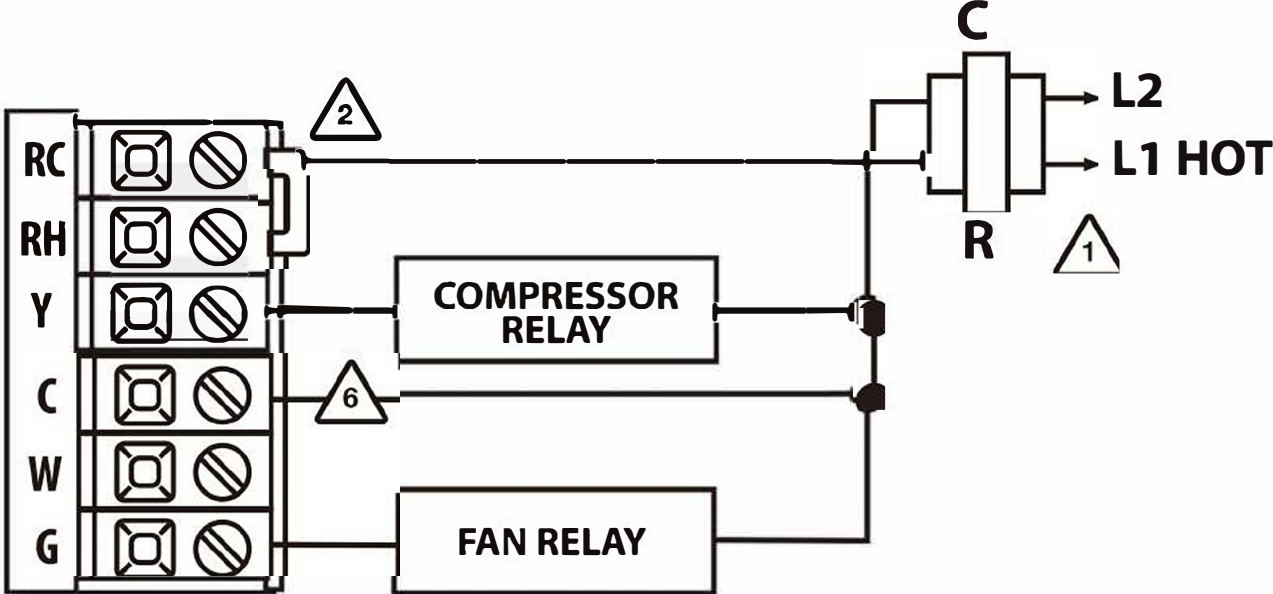
Typical 1H/1C System: 2 Transformer






Typical Heat-Only System






Typical Cool-Only System





Technician Setup

Tech Setup Steps		LCD Will Show	Adjustment Options	Default
Fan Operation	<p>Select GAS for systems that control the fan during a call for heat.</p> <p>Select ELEC to have the thermostat control the fan during a call for heat.</p>		<p>Gas</p> <p>or</p> <p>Elec</p>	GAS
Morning Recovery	<p>This feature will start heating early to bring the building temperature to its programmed setpoint by the beginning of the WAKE time period.</p>		<p>Use the <input type="checkbox"/>- or <input type="checkbox"/>+ key to turn on or off.</p>	ON
Program Options	<p>You can configure this thermostat to have a 7 day program, a 5+1+1 program or non-programmable.</p>		<p>Use the <input type="checkbox"/>- or <input type="checkbox"/>+ key to select 7d for 7 day, 5d for 5+1+1, or 0d for non-programmable.</p>	5d

Tech Setup Steps		LCD Will Show	Adjustment Options	Default
Display Light	<p>The display light can be configured to operate 2 different ways. To come on only when the light key is pressed, when any key is pressed, or stay on ALL of the time.</p>	<p>AUTO</p> 	<p>'AUTO' - Any key ON 'ON' - Always ON</p>	<p>AUTO</p>
Contractor Call Number	<p>Allows you to put your phone number in the display. Selecting "ON" will enable this feature. "OFF" will disable this feature.</p>	<p>PHONE NUM</p> 	<p>If selected on, you will see the input screen after pressing next step. Use the <input type="text" value="+"/> or <input type="text" value="-"/> keys to select the desired number and the FAN or SYSTEM key to move from one character to another. See Note on page 12 for operation.</p>	<p>OFF</p>
Beep	<p>When any key is pressed an audible beep will sound. There is an ON or an OFF.</p>	<p>BEEP</p> 	<p>If ON is selected the beep will sound. If OFF is selected, there is not sound.</p>	<p>ON</p>

Technician Setup

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
<p>System Switch</p>	<p>You can configure the system switch for the particular application: Heat - Off - Cool, Heat - Off, Cool - Off, Heat - Off - Cool-Auto Auto= Auto-changeover</p>	<p>Use the <input type="checkbox"/>- or <input type="checkbox"/>+ key until the desired application is flashing.</p> 	<p>HEAT OFF COOL</p>
<p>Cooling Fan Delay</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>	<p>COOL FAN DELAY</p> 	<p>OFF</p>
<p>Factory Default Reset</p>	<p>This step resets all settings to factory default.</p>	<p>NO RESET TO DEFAULT</p>	<p>Press YES to reset.</p>

Tech Setup Steps

LCD Will Show

Adjustment Options

Default

A Note About Keypad Lockout:

The function of activating your lockout choice takes place after you have exited tech setup. To lock or unlock the keypad hold down the MENU for 3 seconds.

Contractor Call Number 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 FAN button is held down for 3 seconds. To remove the phone number from the display, hold the fan button down for 3 seconds.

Set Time (If using programming)

1. Press the **MENU** button
2. Press **SET TIME**
3. Day of the week will be flashing. Use the or key to select the current day of the week.
4. Press **NEXT**
5. The current hour will be flashing. Use the or to select the current hour. when using 12-hour time, make sure the correct a.m. or p.m. choice is selected.
6. Press **NEXT**
7. Minutes will be flashing. Use the or key to select current minutes.
8. Press **DONE** when completed.

Set Program Schedule

To customize your 5+1+1 program schedule, follow these steps

Weekday:

1. Select **HEAT** or **COOL** with the system switch. **Note:** You have to program heat and cool each separately.
2. Press the **MENU** button (If menu does not appear first press **RUN SCHED**)
3. Press **SET SCHED**. Note: Monday-Friday will be displayed and the **WAKE** icon will be shown. You are now programming the wake time period for the weekday setting.
4. Time will be flashing. Use the or key to make your time selection for the weekday **WAKE** time period. If you want the fan to run continuously during this time period, select **ON** with the fan key.
5. Press **NEXT**
6. The setpoint temperature will be flashing. Use the or key to make your setpoint selection for the weekday wake period.
7. Press **NEXT**
8. Repeat steps 4 thru 7 for weekday **LEAVE** time period, for weekday **RETURN** time period, and for weekday **SLEEP** time period.

Continued on next page...

Saturday:

Repeat steps 4 thru 7 for the Saturday **WAKE** time period, **LEAVE** time period, **RETURN** time period, and for the Saturday **SLEEP** time period.

Sunday:

Repeat steps 4 thru 7 for the Sunday **WAKE** time period, **LEAVE** time period, **RETURN** time period, and for the Sunday **SLEEP** time period.

To customize your 7 Day Program schedule, follow these steps:

1. Select **HEAT** or **COOL** using the system key. **Note:** You have to program heat and cool each separately.
2. Press **MENU**
3. Press **SET SCHED**. **Note:** Monday will be displayed and the **WAKE** icon will be shown. You are now programming the **WAKE** time period for that day.
4. Time will be flashing. Use the or key to make your time selection for that day's **WAKE** time period. **Note:** If you want the fan to run continuously during this time period, select **ON** with the **FAN** key.
5. Press **NEXT**.
6. The setpoint temperature will be flashing. Use the or key to make your setpoint selection for that day's **WAKE** period.
7. Press **NEXT**.

8. Repeat steps 4 through 7 for that day's **LEAVE** time period, **RETURN** time period, and **SLEEP** time period.

Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

Repeat steps 4 thru 7 for the remaining days of the week.

Programming

All of our programmable thermostats are shipped with an energy saving pre-program. Your thermostat can be programmed to have all the weekdays the same, a separate program for Saturday, and a separate program for Sunday. There are four time periods for each program (**WAKE, LEAVE, RETURN, SLEEP**).

Factory Default Program				
Day of the Week	Events	Time	Setpoint Temperature (HEAT)	Setpoint Temperature (COOL)
Weekday	Wake	6 AM	70°F (21°C)	75°F (24°C)
	Leave	8 AM	62°F (17°C)	83°F (28°C)
	Return	6 PM	70°F (21°C)	75°F (24°C)
	Sleep	10 PM	62°F (17°C)	78°F (26°C)
Saturday	Wake	6 AM	70°F (21°C)	75°F (24°C)
	Leave	8 AM	62°F (17°C)	83°F (28°C)
	Return	6 PM	70°F (21°C)	75°F (24°C)
	Sleep	10 PM	62°F (17°C)	78°F (26°C)
Sunday	Wake	6 AM	70°F (21°C)	75°F (24°C)
	Leave	8 AM	62°F (17°C)	83°F (28°C)
	Return	6 PM	70°F (21°C)	75°F (24°C)
	Sleep	10 PM	62°F (17°C)	78°F (26°C)



A Note About Auto Changeover:

If the thermostat is set to Auto, you have the ability to switch between Auto Heat or Auto Cool by pressing the System key. This can be done once the current mode has reached its setpoint. For example: If in Auto Heat, the heat setpoint must be satisfied before the thermostat will allow you to switch to Auto Cool. You can switch out of Auto by holding down the System key. To get back into Auto, you must toggle the System key to Auto.



A Note About Programmable Fan:

The programmable fan feature will run the fan continuously during any time period it is programmed to be on. This is the best way to keep the air circulated and to eliminate hot and cold spots in your building.



Reminders Note:

Once a Reminder has been turned on and set, the elapsed time can be checked by navigating to its tech setup step. The elapsed time will then appear in the text field. It can also be reset at that time by a press and hold of the third button from the left for 3 seconds. Resetting an expired Reminder can be done without entering tech setup, by a press and hold of the 3rd button from the left for 3 seconds.