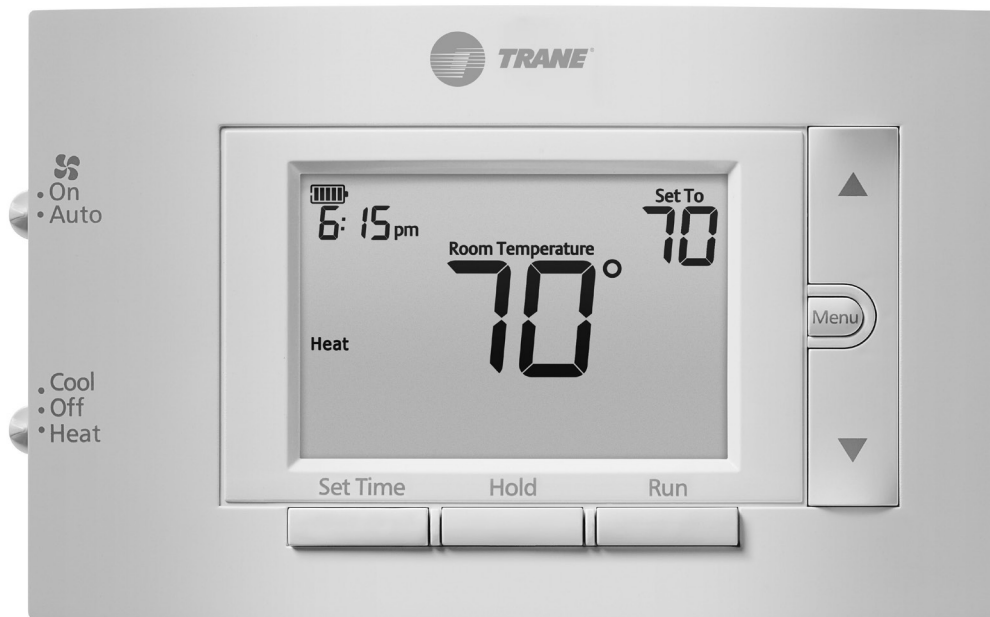




TRANE®

Trane XR202 Programmable Thermostat TCONT202AS11MA Installation and User Guide



ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES

IMPORTANT — This Document is customer property and is to remain with this unit.

These instructions do not cover all variations in systems or provide for every possible contingency to be met in connection with the installation. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to your installing dealer or local distributor.

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1. Safety

WARNING

FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR OPERATING THIS CONTROL COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

This information is intended for use by individuals possessing adequate backgrounds of electrical, mechanical, HVAC and experience. Any attempt to repair a HVAC system may result in personal injury and/or property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

LIVE ELECTRICAL COMPONENTS!

During installation, testing, servicing, and troubleshooting of this product, it may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

Do not use on circuits exceeding specified voltage. Higher voltage will damage control and could cause shock or fire hazard.

Do not short out terminals on gas valve or primary control to test. Short or incorrect wiring will burn out thermostat and could cause personal injury and/or property damage.

CAUTION

To prevent electrical shock and/or equipment damage, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.

To prevent compressor and/or property damage, if the outdoor temperature is below 55°F, **DO NOT** operate the cooling system. Do not allow the compressor to run unless the compressor oil heaters have been operational for six hours and the system has not been operational for at least five minutes.

ATTENTION: MERCURY NOTICE

This product does not contain mercury. However, this product may replace a product that contains mercury.

Mercury and products containing mercury must not be discarded in household trash. Do not touch any spilled mercury. Wearing non-absorbent gloves, clean up any spilled mercury and place in a sealed container. For proper disposal of a product containing mercury or a sealed container of spilled mercury, place it in a suitable shipping container. Refer to www.thermostat-recycle.org for location to send the product containing mercury.

2. Product Specifications

SPECIFICATION		DESCRIPTION	
Product Models		TCONT202	
Product		XR 202	
Size		3-3/4" x 6" x 1-1/8 (HxWxD)	
Configurations		Heat / Cool	
Maximum Number of Stages		1H, 1C	
Operating Temperature		32°F to 105°F (0 to +41°C) / 90% RH Non Condensing	
Shipping Temperature Range		-20 to 150°F (-29 to +65°C)	
Input Power (DC)		Two 1.5V AA Alkaline	
Input Power (AC)		20 - 30 VAC, NEC Class II, 50/60 HZ	
Wire Usage		18 AWG	
System Modes		Heating, Cooling, Off	
Fan Modes		Auto, On	
Cooling Setpoint Temperature Range		45°F to 99°F, 1°F resolution	
Heating Setpoint Temperature Range		45°F to 99°F, 1°F resolution	
Temperature Display Range		32°F to 99°F, 1°F resolution	
Minimum Cycle Off Time Delay		Compressor: 5 minutes, Indoor Heat; 1 minute	
Terminal Load		1.0A per terminal, 1.5A maximum all terminals combined	
Operating Ambient		32°F to +105°F (0° to +41°C)	
Shipping Temperature Range		-20°F to +150°F (29° to +65°C)	
RATED DIFFERENTIALS			
	FAST	MEDIUM	SLOW
Heat (@ 6°F/Hr)	0.5°F	0.75°F	1.9°F
Cool (@ 6°F/Hr)	0.9°F	1.2°F	1.7°F
THERMOSTAT APPLICATION GUIDE			
Thermostat Applications			Maximum Stages Heat/Cool
Gas, Oil, Electric, (mV and 24V), Heat Only, Cool Only or Heat/Cool Systems			1/1

3. General Information

3.1 Overview

The 202 is a programmable push button single stage thermostat with a 3.5" backlit display. The 202 features a scheduling mode that can operate a 7-day program, 5-1-1 program or operate in a non-programmable mode.

3.2 Contents

- 1-Thermostat
- 1-Sub-base
- 2-Phillips slotted head mounting screws
- 2-Nylon Drywall Anchors
- 1-Installation Guide / User Guide

3.3 Accessories

Wall Cover Plate (BAYCOVR200A)

4. Installation

4.1 Location

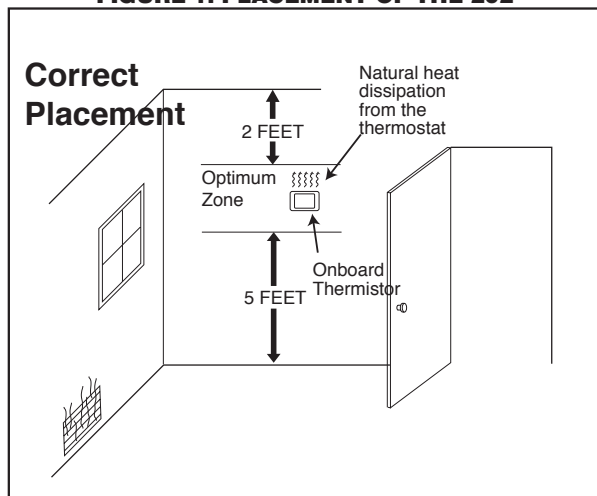
The 202 is designed for installation in climate controlled living spaces. Place the unit in a central location with good circulation.

For proper temperature sensing, avoid exposing the 202 to heat radiated from lamps, sun light, fireplaces or any other radiant heat source.

Avoid locations close to windows, behind doors or alcoves with poor air circulation, adjoining outside walls, or doors that lead to the outside.

Select a location that prevents the 202 from being directly exposed to air currents from supply registers or ceiling fans.

Mount the Control on a section of interior wall that does not contain hot or cold water pipes or duct work.

FIGURE 1. PLACEMENT OF THE 202

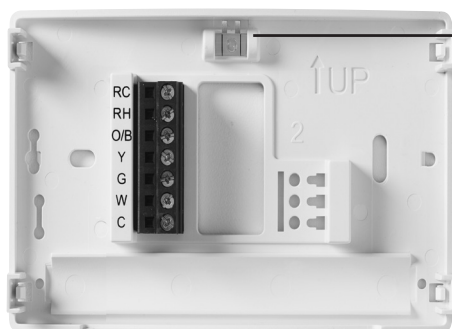
4.2 Mounting / Installation

Follow these steps to mount the 202 Control to the wall.

1. Turn OFF all power to heating and cooling equipment.
2. If an existing thermostat is being replaced:

- a. Record color and terminal marking of each wire.
 - b. Disconnect the wires from the existing thermostat being careful not to allow them to fall back into the wall.
 - c. Remove the existing thermostat from the wall.
3. Pull the thermostat body off the thermostat base. Forcing or prying on the thermostat will cause damage to the unit.
 4. Move base over hole in wall and mark mounting hole locations on wall using base as template. (See Fig. 1)
 5. Move base out of the way. Drill mounting holes. If you are using existing mounting holes pull thermostat wire bundle through the hole in the thermostat base. Mount sub-base to wall. Leveling is for appearance only and will not affect thermostat operation.
 6. Connect wires to terminal block on base using appropriate wiring diagram.
 7. Push excess wire into wall and plug hole with a fire resistant material (such as fiberglass insulation) to prevent drafts from affecting thermostat operation.
 8. Two "AA" alkaline batteries are included in the thermostat at the factory with a battery tag to prevent power drainage
 9. Remove the battery tag to engage the batteries

4.3 Battery Location

FIGURE 2.

Battery Location

Premium AA alkaline batteries are required when C-wire is not available. When C-wire is available, the batteries provide a back-up source of power (this will maintain the clock in the event of a power outage).

O/B Terminal Switch

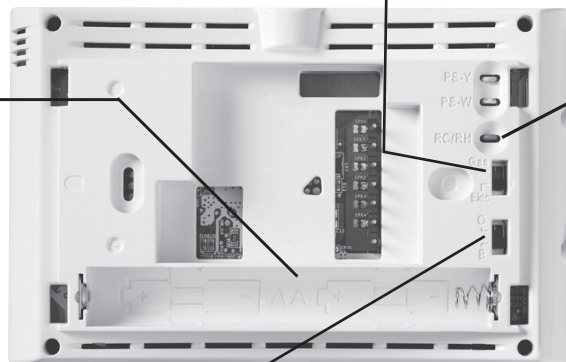
The O/B switch on this thermostat is factory set to the O position. This will accommodate the majority of heat pump applications, which require the changeover relay to be energized in Cool. If the heat pump being installed requires a B terminal, to energize the changeover relay in Heat, the O/B switch must be moved to the B position. To enable single stage heat pump operation a jumper must be field installed between Y and W. The 202 does not support auxiliary heat.

4.4 Battery Replacement

To replace batteries, set system to **OFF**, remove thermostat from wall and install the batteries in the rear along the top of the thermostat (see Figure 1). For best results, use a premium brand "AA" alkaline battery such as Duracell® or Energizer®. If the home is going to be unoccupied for an extended period (over 3 months) and "⬇️" is displayed the batteries should be replaced before leaving.

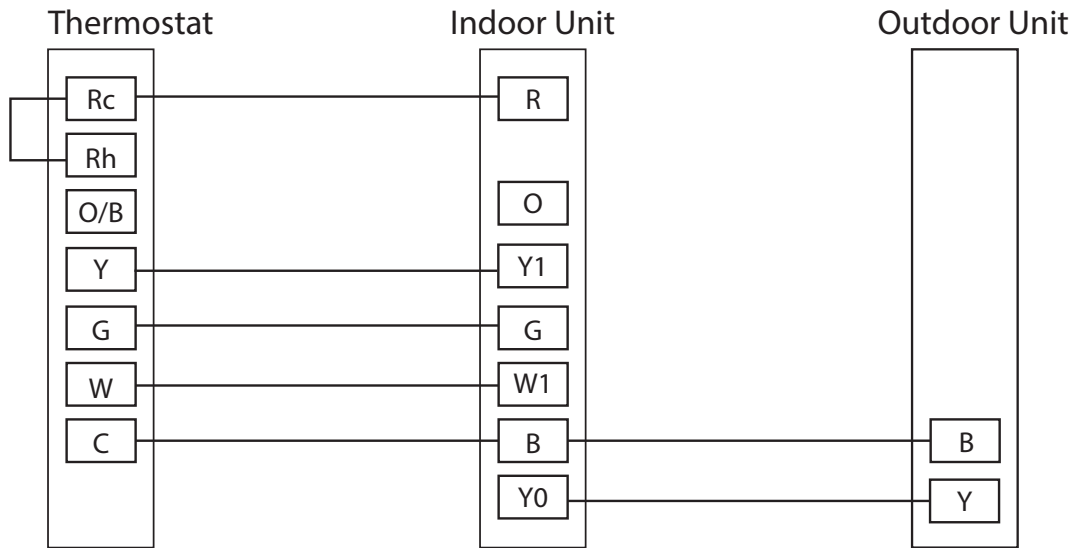
IMPORTANT:

- Do not exceed the specification ratings.
- All wiring must conform to local and national electrical codes and ordinances.
- This control is a precision instrument, and should be handled carefully. Rough handling or distorting components could cause the control to malfunction

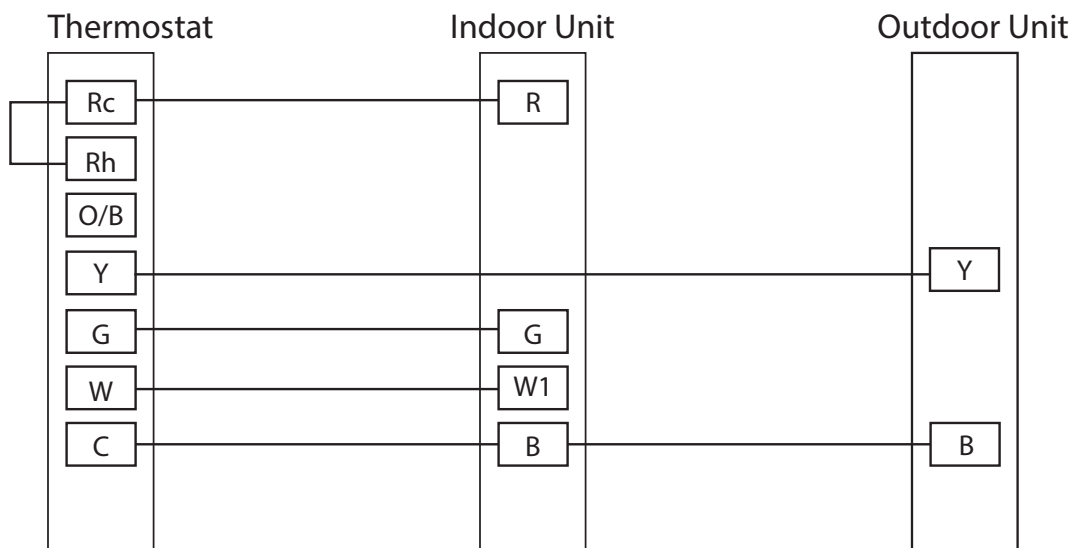


4.5 Wiring Diagrams

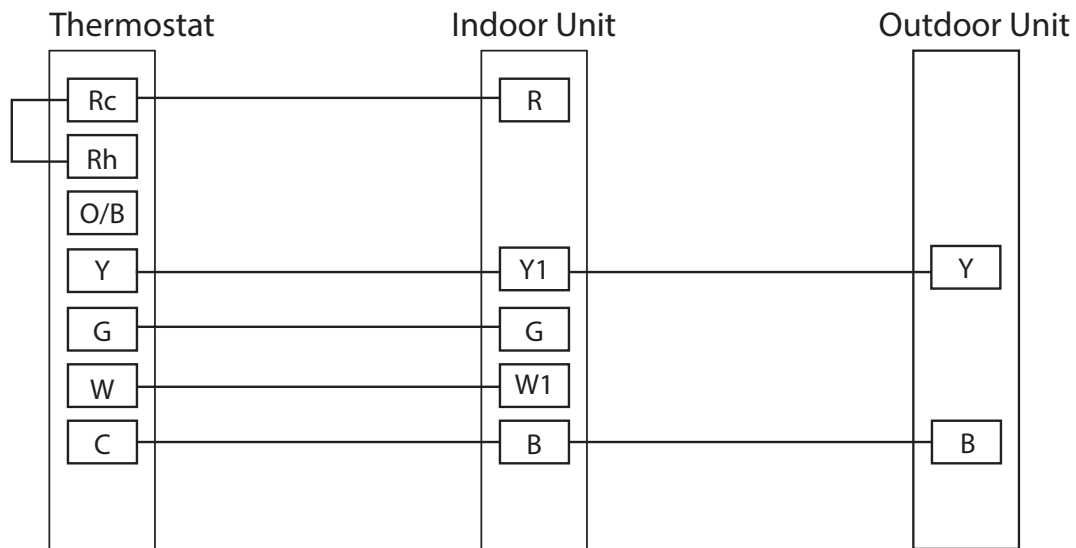
Cooling with TAM7/TAM9 (24V Mode)



Cooling with GAF2-S



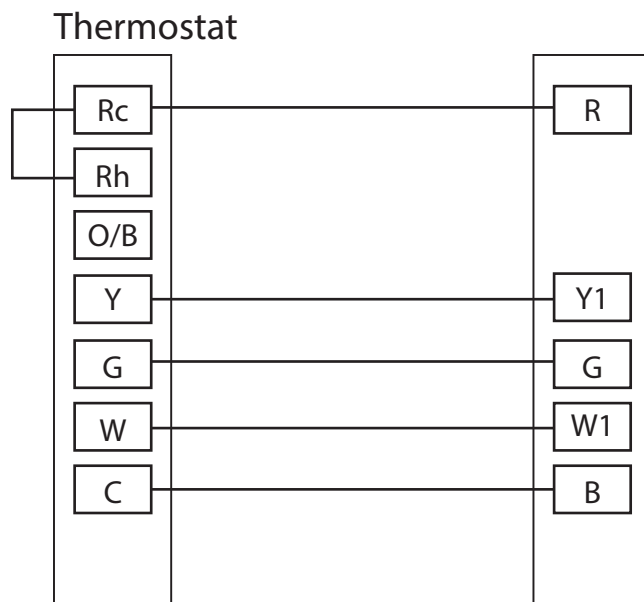
Cooling with S9V2 Furnace



NOTES:

1) Wire third party condensate overflow switches between Y of the thermostat and Y1 of the airflow control board

Heat Cool Package with Variable Speed Blower

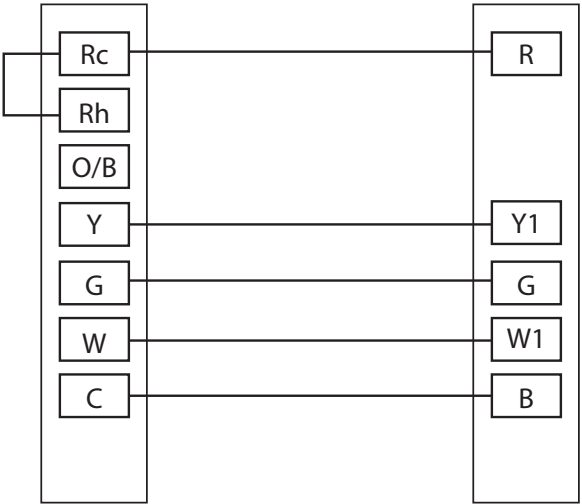


NOTES:

1) Wire third party condensate overflow switches between Y of the thermostat and Y1 of the airflow control board

Heat/Cool Package

Thermostat



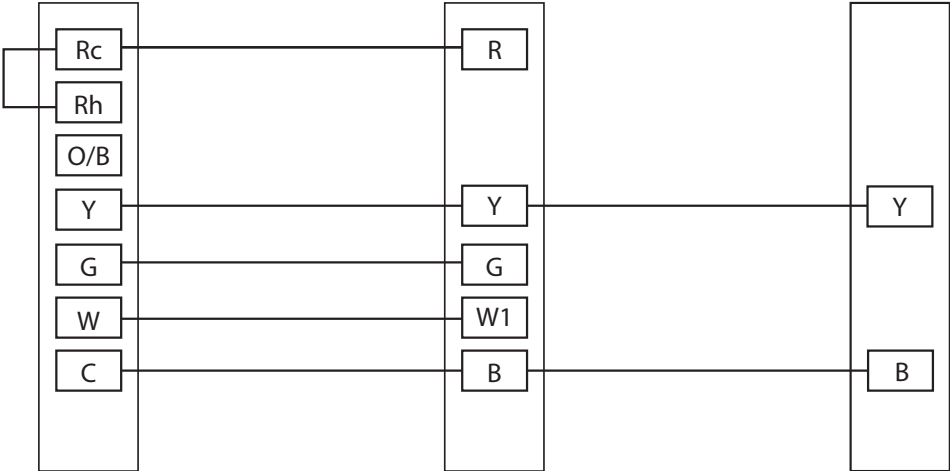
NOTES:
1) Wire third party condensate overflow switches between Y of the thermostat and Y1 of the airflow control board

Cooling with TEM6 or Variable Speed Gas Furnace

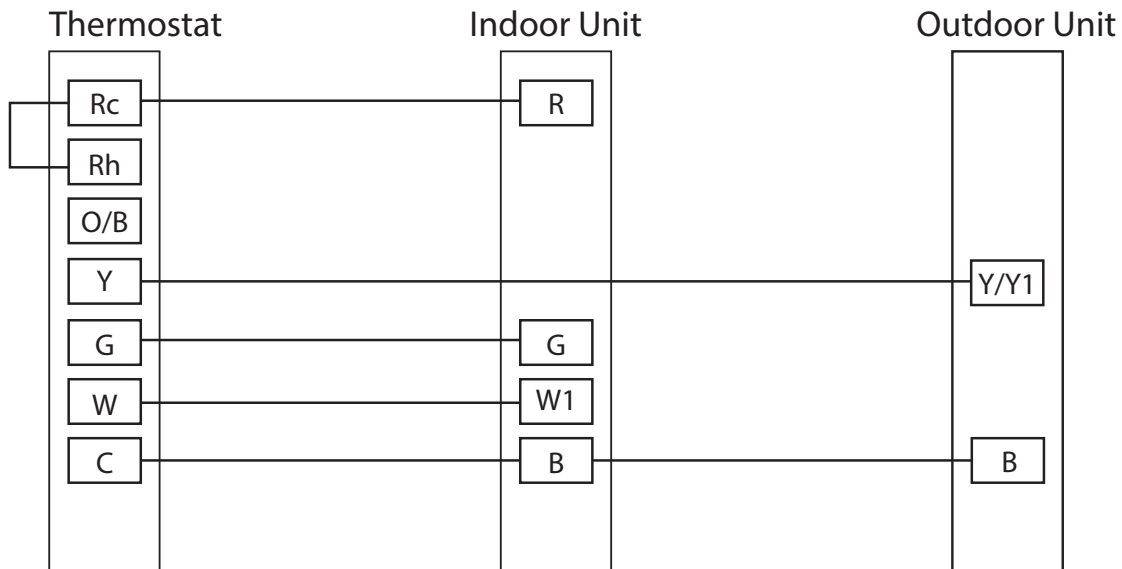
Thermostat

Indoor Unit

Outdoor Unit



Cooling with GAT2, GAM2 & TEM3, 4



4.6 Installer Menu

To prevent changes that may affect system performance, this thermostat has an INSTALLER MENU and a USER MENU. The INSTALLER MENU provides access to every option, while the USER MENU provides access to items that will not affect system performance. To access the INSTALLER MENU press the **Menu** button for 8 seconds. The display will show item 30 in the table below. Use **Next** and **back** to navigate through menu items. Press **▲** or **▼** or to change a menu setting.

INSTALLER MENU (HOLD MENU 8 SECONDS)	DESCRIPTION	DEFAULT (FLASHING ICONS)	SETTINGS (PRESS ▲ OR ▼)
30 	Heat Cycle Rate (how often the heat will turn on)	MEd	SLO – slow MEd – medium FAS – fast
35 	Cool Cycle Rate (how often the cooling will turn on)	MEd	SLO – slow MEd – medium FAS – fast
50 	Compressor Lockout / Minimum Off Time (protects the compressor from short cycling)	On	On – 5 minute delay OFF – no delay
65	Maximum Heat Limit (maximum set point for heat mode)	99	47 to 99
66	Minimum Cool Limit (minimum set point for cool mode)	45	45 to 97
74	Schedule Type (set as either 7-Day, 5-1-1 Day or NonProgrammable)	5	7 – 7 Day 5 – 5-1-1 Day 0 – Non Programmable
76 	Early Start (starts heating or cooling early so your programmed temperature is reached by the programmed time)	OFF	On – start early OFF – start at program period time
79	Fahrenheit or Celsius	°F	°F – Fahrenheit °C – Celsius
81	Temperature Display Adjustment (adjust the displayed “Room Temperature”)	0	-5 to +5
83 	Continuous Display Light (keep the backlight always on – “C” wire required)	OFF	On – always on OFF – momentarily
86	Change Air Filter (set up a monthly reminder)	OFF	1 to 12 – reminder time (months) OFF – no filter reminder
99 	Keypad Lock (prevent unwanted changes to the thermostat)	OFF	On – disable buttons OFF – all buttons are active

5. Test Modes

Turn on power to the system.

5.1 Fan Operation

If your system does not have a G terminal connection, skip to Heating System.

- 1.) Press the fan button to select the On position. The blower should begin to operate.
- 2.) Press the fan button to select the Auto position. The blower should stop immediately.

5.2 Heating System

- 1.) Move System Switch to Heat position.
- 2.) Press **▲** to adjust thermostat setting to 1° above room temperature. The system should begin to operate and the thermostat will indicate Heat On.
- 3.) Press **▼** to adjust thermostat setting to 1° below room temperature. The heating system should stop operating and the thermostat should indicate Heat.

5.3 Cooling System

- 1.) Move System Switch to Cool position.
- 2.) Press **▼** to adjust thermostat setting 1° below room temperature. The blower should come on immediately on high speed, followed by cold air circulation. The thermostat will indicate Cool On. There can be up to a 5 minute delay, (see INSTALLER MENU, item 50).
- 3.) Press to adjust thermostat setting to 1° above room temperature. The cooling system should stop operating and the thermostat will indicate Cool.

Note: If Starting Soon is shown on the display, the compressor lock-out feature is operating. There will be up to a 5 minute delay before the compressor turns on (see INSTALLER MENU, item 50).

⚠ CAUTION

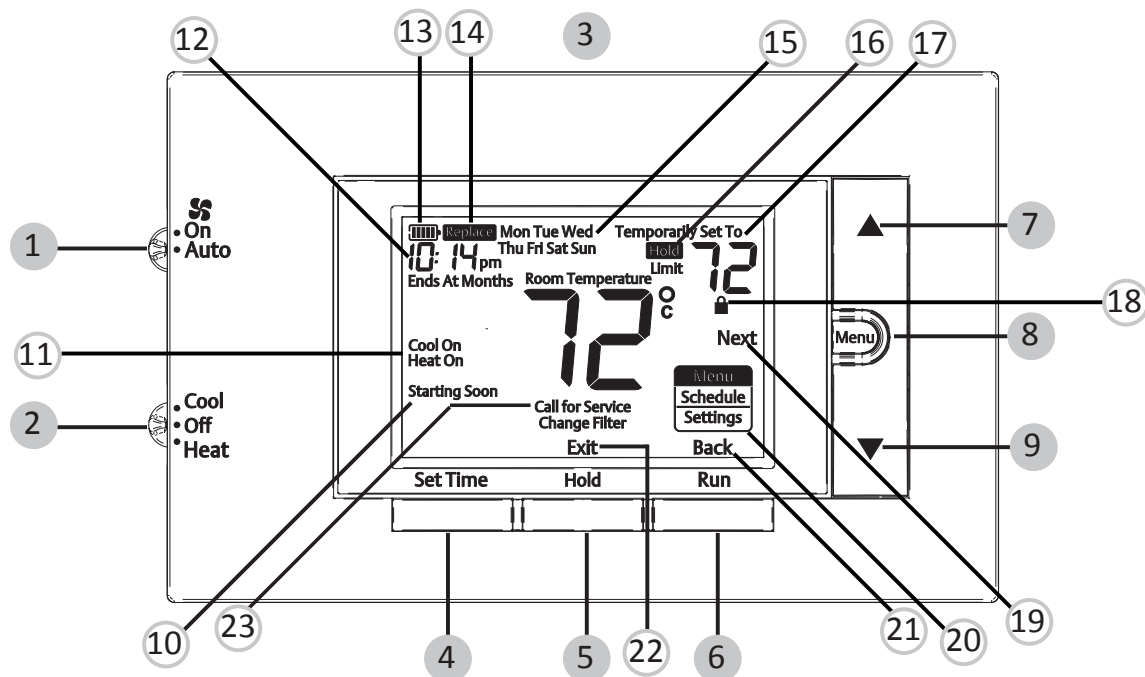
To prevent compressor and/or property damage, if the outdoor temperature is below 55°F,
DO NOT operate the cooling system.

Do not allow the compressor to run unless the compressor oil heaters have been operational
for 6 hours and the system has not been operational for at least 5 minutes.

6. THERMOSTAT OVERVIEW

Before you begin using your thermostat, you should be familiar with its features, display and the location/operation of the thermostat buttons and switches.

THERMOSTAT BUTTONS AND SWITCHES	THE DISPLAY
1.) Fan Switch	10.) Thermostat is protecting the equipment from short cycling (5-minute delay)
2.) System Switch	11.) Indicates that the system is running in cool or heat
3.) Backlight Button (located on the top of the thermostat)	12.) Displays the current time
4.) Set Correct Time	13.) Battery status indicator
5.) Hold a Permanent Temperature	14.) Low battery indicator
6.) Cancels Hold – Returns to Programmed Schedule	15.) Day of the week used when programming a schedule
7.) Raises Temperature Setting	16.) Permanent hold (bypassing the schedule)
8.) Access Menu Options	17.) Temperature setpoint
9.) Lowers Temperature Setting	18.) Appears when the keypad is locked (to prevent unwanted changes)
	19.) Next (Menu button) is used to navigate within a menu
	20.) Access the schedule and customize thermostat features
	21.) Back (Run button) is used to navigate within a menu
	22.) Exit (Hold button) returns to the home screen
	23.) SEE TROUBLESHOOTING



Whenever “ Replace” appears in the display, new premium brand AA alkaline batteries should be installed. If the house will be unoccupied for an extended period and either “ ” or “ Replace” is displayed, install new batteries before leaving.

6.1 User Menu

To customize thermostat settings, press the Menu button from the home screen. Use the ▲ or ▼ buttons to highlight Settings and press Next. Use Next and Back to navigate through menu items. Press ▲ or ▼ to change the setting.

USER'S MENU # (PRESS MENU BUTTON AND RELEASE)	DESCRIPTION	DEFAULT SETTING (FLASHING ICONS)	SETTINGS (PRESS ▲ OR ▼)
01	Schedule Type (set as either 7-Day, 5-1-1 Day or Non Programmable)	5	7 – 7 Day 5 – 5-1-1 Day 0 – Non-programmable
02	Early Start (starts heating or cooling early so your programmed temperature is reached by the programmed time)	OFF	On – start early OFF – start at program period time
03	Fahrenheit or Celsius	°F	°F – Fahrenheit °C – Celsius
04	Temperature Display Adjustment (adjust the Room Temperature)	0	-5 to +5
05	Continuous Display Light (keep the backlight always on – “C” wire required)	OFF	On – always on OFF – momentarily
06	Change Air Filter (set up a monthly reminder)	OFF	1 to 12 – reminder time (months) OFF – no filter reminder

6.2 Thermostat Operation

Set Current Time and Day

Note: Time icons will flash at initial power up or after a reset.

- 1.) Press Set Time
- 2.) Use ▲ or ▼ to adjust the hour
- 3.) Press Next to advance to set the minutes and day of the week
- 4.) Press Exit when finished.

The default program is 5-1-1 Day, but can be setup as a 7-Day or Non-Programmable thermostat (refer to the User Menu above)

- Hold Temperature (bypassing the schedule) – With the System switch set to Heat or Cool, momentarily press the Hold button. Hold will be displayed. Use ▲ or ▼ to adjust the temperature. The thermostat will hold the room temperature at the selected setting until you press Run to start program operation again.
- Program Override (Temporary Hold) – Press ▲ or ▼ until the desired temperature is displayed. The thermostat will override the schedule until the next programmed time period with a minimum override of 2 hours. Then the thermostat will automatically revert to the program.
- Keypad Lockout – To prevent unwanted changes, the buttons can be disabled. To turn this feature On, press and hold ▲ and the Menu button until the icon appears. To turn Off, press and hold ▲ and the Menu button for 3 seconds. Scheduling

6.3 Energy Saving Factory Schedule

This thermostat is programmed with the energy saving settings shown in the table below for all days of the week.

	P1/WAKE	P2/ LEAVE	P3/RETURN	P4/SLEEP
Heating Schedule	6:00 AM - 70°F	8:00 AM - 62°F	5:00 PM - 70°F	10:00 PM - 62°F
Cooling Schedule	6:00 AM - 78°F	8:00 AM - 85°F	5:00 PM - 78°F	10:00 PM - 82°F

Note: Thermostat can be programmed on or off the subbase

6.4 Modify the Heating Schedule

- 1.) Slide the system switch to Heat
- 2.) Press Menu
- 3.) Press Next to enter the schedule
- 4.) The time icons will flash – use ▲ or ▼ to set the time for the start of a period
- 5.) Press Next – the set point icons will flash – use ▲ or ▼ to set the temperature for the current period
- 6.) Continue to press Next to advance through all periods (P1/Wake, P2/Leave, P3/Return, P4/Sleep) for all days of the week.

Note: Press Back to return to the previous setting. Once all days of the week have been programmed the thermostat will display End. Press Exit at any time to save changes and return to home screen.

6.5 Modify the Cooling Schedule

- 1.) Slide the system switch to Cool
- 2.) Repeat steps 2-6 from the heating schedule

6.6 Thermostat Settings

Resetting the Thermostat or Thermostat Settings

If the thermostat has good batteries, but has a blank display or does not respond to key presses, the thermostat should be reset by

removing the batteries for 2 minutes. This reset will not change the menu settings or program. If the condition persists after reinstalling the batteries, replace the thermostat.

To conveniently reset only the schedule and user settings back to factory defaults, press Menu and Backlight buttons at the same time and hold until the display goes blank and resets.

7. Troubleshooting

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
No Heat/ No Cool/ No Fan (common problem)	1.) Blown fuse or tripped circuit breaker 2.) Furnace power switch to OFF 3.) Furnace blower compartment door panel loose or not properly installed 4.) Loose connection to thermostat or system	1.) Replace fuse or reset breaker 2.) Turn switch to ON 3.) Replace door panel in proper position to engage safety interlock or door switch 4.) Tighten Connections
No Heat	1.) System Switch not set to Heat 2.) Loose connection to thermostat or system 3.) Heating System requires service or thermostat requires replacement	Verify thermostat and system wires are securely attached. Diagnostic: Set System Switch to Heat and raise the setpoint above room temperature. Within five minutes the thermostat should make a soft click sound and "Heat On" should appear on display. This sound indicates the thermostat is operating properly. If the thermostat does not click, try the reset operation listed below. If the thermostat does not click after being reset, contact your heating and cooling service person or place of purchase for a replacement. If the thermostat clicks, contact the furnace manufacturer or a service person to verify the heating system is operating correctly.
No Cool	1.) System Switch not set to Cool 2.) Loose connection to thermostat or system 3.) Cooling System requires service or thermostat requires replacement	Verify thermostat and system wires are securely attached. Diagnostic: Set System Switch to Cool and lower setpoint below room temperature. Same procedures as diagnostic for "No Heat" condition except set the thermostat to Cool and lower the setpoint below the room temperature. There may be up to a five minute delay before the thermostat clicks in Cooling if the compressor lock-out option is selected in the installer menu. (see INSTALLER MENU, item 50)
Heat, Cool or Fan Runs Constantly	Possible short in wiring, thermostat, heat, cool or fan system	Check each wire connection to verify they are not shorted or touching other wires. Try resetting the thermostat. If the condition persists contact your HVAC service person.
Thermostat Display & Thermometer Disagree	Thermostat display requires adjustment	Display can be adjusted +/-5°. See User Menu item 04
Furnace (Air Conditioner) Cycles Too Fast or Slow (narrow or wide temperature swing)	The location of the thermostat and/or the size of the Heating System may be influencing the cycle rate	Digital thermostats provide precise control and cycle faster than older mechanical models. The system turns on and off more frequently but runs for a shorter time. If you would like to increase cycle time, choose SLO for slow cycle in the Installer menu. (Reference menu items 30 & 35) If an acceptable cycle rate is not achieved, contact your HVAC service person.
"Call for Service" icon appears on displayed	1.) Heating system is not able to heat the space to within 10 degrees of the setpoint within 2 hours 2.) Cooling system is not able to cool the space to within 10 degrees of the setpoint within 2 hours 3.) If "--" is displayed for the Room Temperature, a replacement thermostat is needed 4.) None of the buttons operate on the thermostat	1.) See corrective action for "No Heat" 2.) See corrective action for "No Cool" 3.) Replace thermostat 4.) Make sure keypad lockout is not turned on (denoted by )



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