



T805

Pro1 Technologies

P.O. Box 3377
 Springfield, MO 65808-3377
 Toll Free: 888-776-1427
 Web: www.pro1iaq.com
 Hours of Operation: M-F 9AM - 6PM Eastern

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

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.

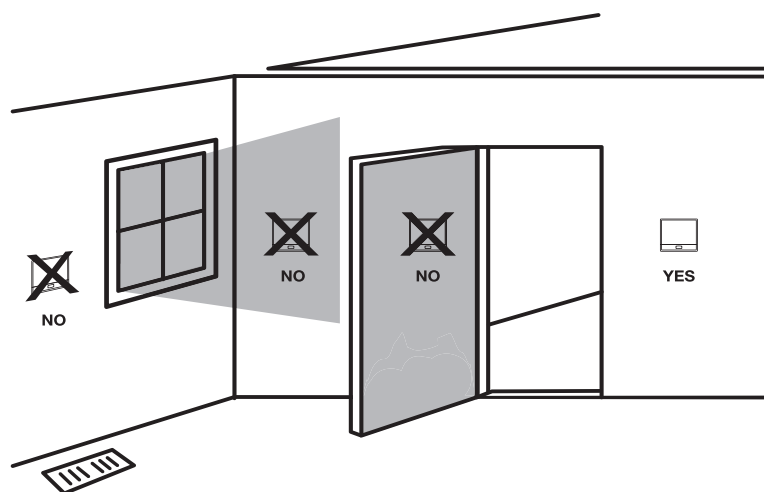
Una version en espanol de este manual se puede descargar en la pagina web de la compania.

Table of Contents

	Page
Installation Tips	2-4
Thermostat Quick Reference	5-8
Wiring	9-10
Wiring Diagrams	11-12
Technician Setup Menu	13-17
Programming	18-22
Features	23
Specifications	24

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 these 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

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.

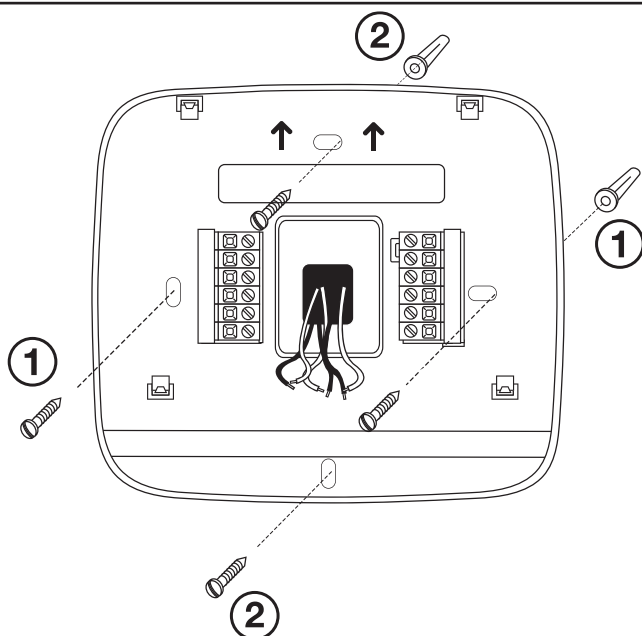
1 © U.S. Registered Trademark. Patents pending
 Copyright © 2019 All Rights Reserved.

Rev. 1915

THE POWER OF PARTNERSHIP

Installation Tips

Subbase Installation



- Horizontal Mount** For horizontal mount put one screw on the left and one screw on the right.
- Vertical Mount** For vertical mount put one screw on the top and one screw on the bottom.

Installation Tip: Electrical Hazard

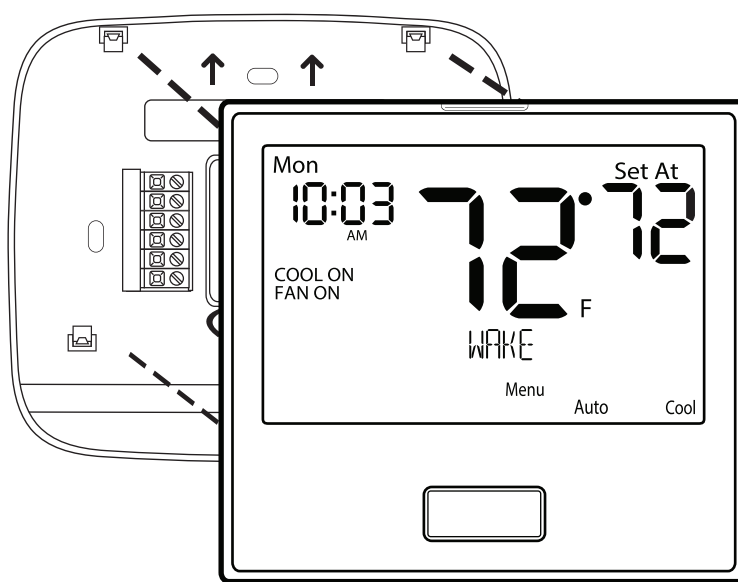
Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.

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



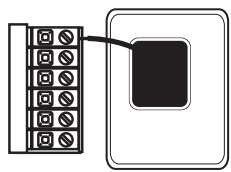
Align the 4 tabs on the subbase with corresponding slots on the back of the thermostat, then push gently until the thermostat snaps in place.

Note: To ensure a solid fit between the thermostat and the subbase:

1. Mount subbase to a flat wall
2. Use screws provided
3. Drywall anchors should be flush with the wall
4. Wires should be pushed into the wall

Battery Installation

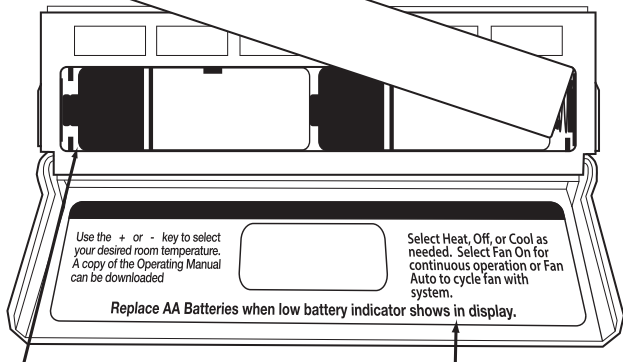
Battery installation is recommended even if the thermostat is hardwired (C terminal connected). When the thermostat is hardwired and batteries are installed, the thermostat will activate a compressor delay of 5 minutes when it detects a power outage from the hardwired power supply.



Important:

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

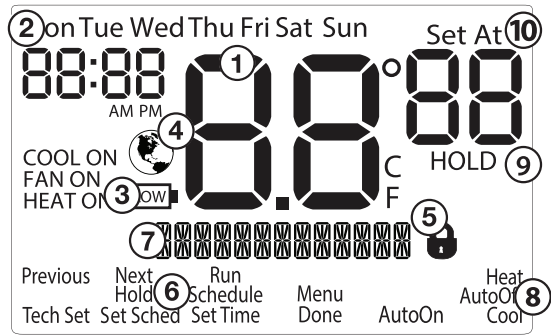
To release battery cover press finger bevel on the left side and lift the cover to access batteries.



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

Simple operating instructions are found on the back of the battery door.

Getting to know your thermostat



- ① **Displays the current room temperature**
- ② **Time and day of the week**
- ③ **Low Battery Indicator:** Replace batteries when this indicator is shown.
- ④ **Energy Efficient Globe:** Indicates efficient setpoint temperature.
- ⑤ **Keypad Lockout:** Lock the thermostat
- ⑥ **Program Menu Options:** Show different options during programming.
- ⑦ **Program Time Periods - Residential:** Uses 4 time periods - WAKE, RETURN, LEAVE & SLEEP.
- ⑧ **System Operation Indicators:** If these or the Fan indicator are flashing, it means that the system is in a delay of some type (compressor delay, cooling fan delay, staging delay).
- ⑨ **Hold:** is displayed when the thermostat program is permanently overridden.
- ⑩ **Setpoint:** Displays the user selectable setpoint temperature.

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 the terminal block screws.
3. Place nonflammable insulation into the wall opening to prevent drafts.



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 Tips

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.

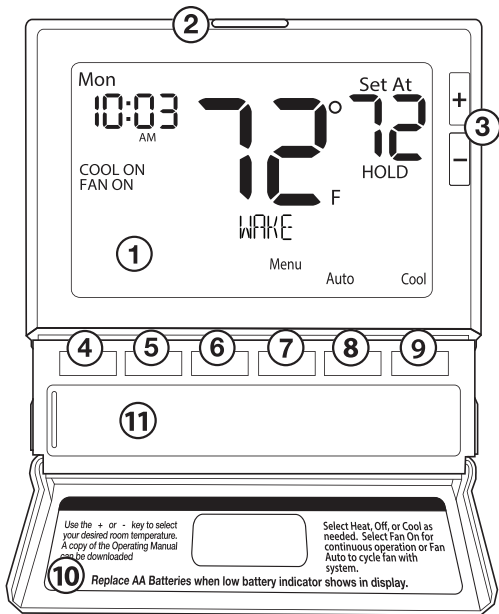
Wiring

Terminal Designations

This thermostat is shipped from the factory to operate a conventional heating and cooling system. This thermostat may also be configured for a heat pump system.

Terminal	1 Heat 1 Cool Conventional System	1 Heat 1 Cool Heat Pump System
RC	Transformer power (cooling)	Transformer power (cooling)
RH	Transformer power (heating)	Transformer power (heating)
C	Transformer common	Transformer common
B	N/A	Changeover valve energized in heating
O	N/A	Changeover valve energized in cooling
G	Fan relay	Fan relay
W	Heat Relay	N/A
Y	Compressor Relay	1st Stage of heat and cool

Getting to know your thermostat



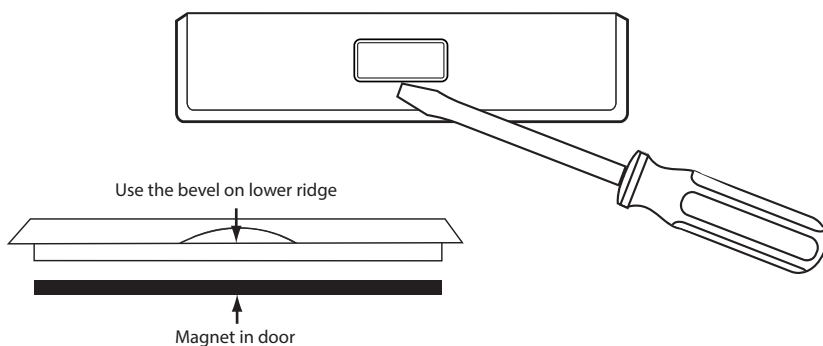
- 1 LCD Display
- 2 Glow in the dark light button
- 3 Setpoint buttons
- 4-6 Program buttons
- 7 Menu button
- 8 Fan button
- 9 System button
- 10 Button/battery access door
- 11 Battery cover

Important

The low battery icon is displayed when the AA battery power is low. Whenever the thermostat detects low battery voltage from the AA batteries, the low battery icon will begin flashing on the screen for 21 days (if the batteries are not changed). If the batteries are not changed 22 days after the thermostat detects low battery voltage, the thermostat screen will only show the flashing battery icon until buttons are pressed. If the batteries are not changed 43 days after the thermostat detects low battery voltage, the thermostat screen will only show the flashing battery icon until buttons are pressed and the set points will offset to 85°F/29°C in cooling and 55°F/13°C in heating. At this stage, set point changes can be made temporarily but, the set points will change back to defaulted values after a 4-hour period. The thermostat will continue to perform this low battery flashing, temperature offset condition until the internal voltage threshold is reached. When the thermostat internal voltage threshold is reached, all relays will be opened and the thermostat will become inoperable until new batteries are installed.

About The Badge

All of our thermostats use the same universal magnetic badge. Visit the company website to learn more about our free private label program.



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 in the well of the battery door. The badge should pry off easily. **DO NOT USE FORCE.**

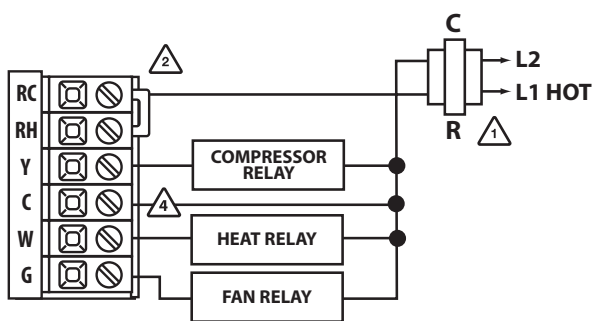
Wiring Diagrams

- 1 Power supply
- 2 Factory-installed jumper. Remove only when installing on 2-transformer systems

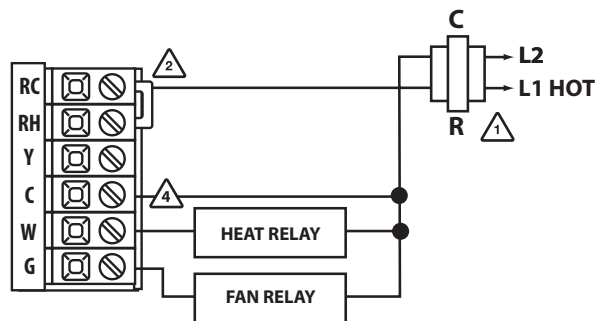
Wiring Diagrams

- 3 Use either O or B terminals for changeover valve
- 4 Optional 24 VAC common connection when thermostat is used in battery power mode

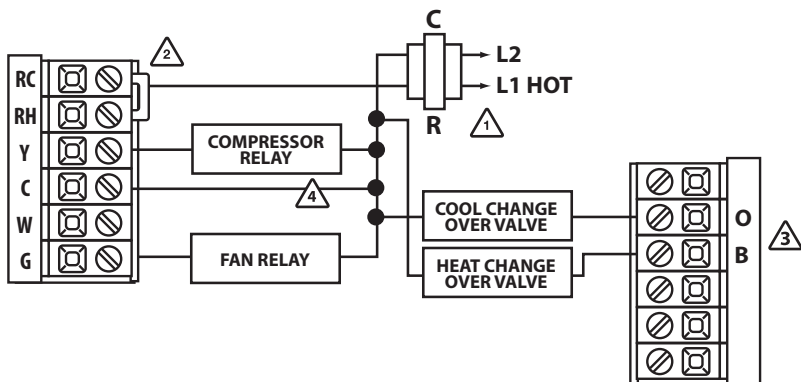
Typical 1H/1C System: 1 Transformer



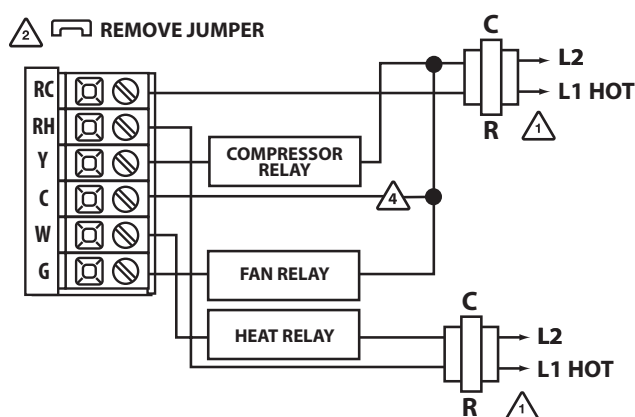
Typical Heat-Only System With Fan



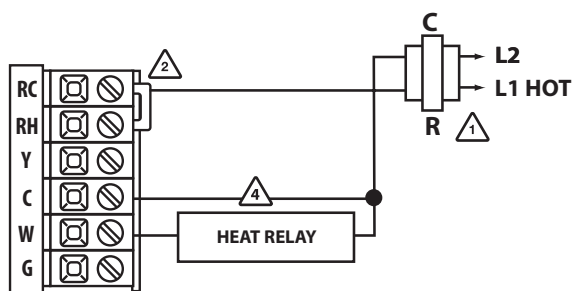
Typical 1H/1C Heat Pump System



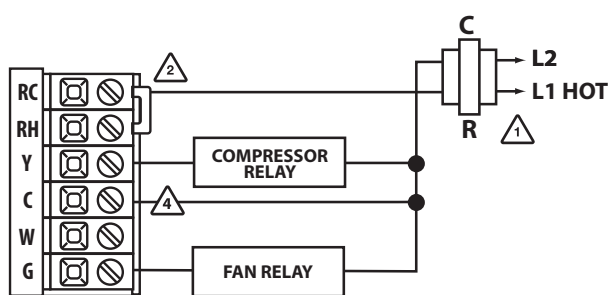
Typical 1H/1C System: 2 Transformer



Typical Heat-Only System



Typical Cool-Only System



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

1. Press the **MENU** button.
2. Press and hold the **TECH SET** button for 3 seconds. This 3 second press is designed so that homeowners do not accidentally access the installer settings.
3. Scroll through the installer options as desired using the table below.

Use the **+** or **-** keys to change settings and the **NEXT** or **PREV** key to move from one step to another.

Note: Only press the **DONE** key when you want to exit the Technician Setup options.

4. Press the **DONE** key to exit.

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Filter Change Reminder	OF F ILTER	You can adjust the filter change reminder from "OFF" to 2000 hours of runtime in 50 hour increments.	OFF
Room Temperature Calibration	0 CAL IBRATE	You can adjust the room temperature display to read up to 4° above or below the factory calibrated reading.	0°F
Cooling Swing	0.5 COOL SW ING	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.	0.5°

Swing Setting 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 .5 degrees for heating and the thermostat is set at 70°F, the first stage will turn on at approximately 69.5°F. The second stage will turn on at 69°F. The second stage will turn off at 69.5°F and the first will turn off at 70.5°F.

Technician Setup Menu

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Keypad Lockout	OF KEY LOCKOUT	Use the + and - buttons to select OFF, BASIC, PART, FULL OF - OFF= keypad lockout has been disabled. BA - BASIC = basic keypad lockout locks the menu key. PA - PARTIAL= partial keypad lockout, which locks all the keys except the setpoint keys. FU - FULL= full keypad lockout, which locks out all the keys.	OFF
Heat Setpoint Limit	HE HEAT L IM IT	Use the + or - key to select the maximum heat setpoint and the minimum cooling setpoint.	90°F
Cool Setpoint Limit	CO COOL L IM IT	Use the + or - key to select the minimum cooling setpoint.	44°F
°F or °C	OF F OR C SET	°F for Fahrenheit °C for Celsius	°F
12 or 24 Hour Clock	12 CLOCK SET	Use the + or - key to select 12 or 24 hour clock.	12H

Contractor Call Number Note

If contractor call number is selected ON, the phone number entered 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.

Technician Setup Menu

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Display Light	dl ALWAYS ON LIT dl HARDWARE ONLY	The display light can be configured to stay on all the time or turn on when any key is pressed. There are LOW and HIGH selections for continuous ON selection. NOTE: The thermostat will need to be hardwired in order for the LOW and HIGH display light functions to work properly. "ALWAYS ON LIT" will alternate in the text field with "HARDWARE ONLY" when HIGH is selected. These prompts will alternate every three seconds. If the thermostat is hardwired this feature will default to LOW.	OFF If Battery Powered LOW If Hardwired
Contractor Call Number	OF PHONE NUMBER	This feature allows you to put your phone number in the display. You can choose ON or OFF. Notes: If contractor call number is selected ON, the phone number entered 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.	OFF
Humidity Pad Reminder	OFF HUMIDITY PAD	Enables a reminder for the user to change the humidity pad.	OFF
UV Lamp Reminder	OFF UV LAMP	Enables a reminder for the user to change the UV light bulb.	OFF
IAQ Cell Reminder	OFF IAQ CELL	Enables a reminder for the user to change the IAQ Cell after 25,000 hrs.	OFF

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Heating 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.	0.4 HEAT SWING	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 0.5° above the setpoint.	0.4°
Heat Pump When turned on the thermostat will operate a heat pump. EM. Heat will show as an option in the system switch tech setting. Use the $\left[\pm \right]$ and $\left[\square \right]$ button to adjust.	OF HEAT PUMP	OFF configures the thermostat for conventional systems. ON configures the thermostat for heat pump systems.	OFF
System Set You can configure the system switch for the particular application. Heat - Off - Cool, Heat - Off, Cool - Off, Heat - Off - Cool - Auto.	SYSTEM SET AutoOff Heat Cool	Use the $\left[\pm \right]$ or $\left[\square \right]$ buttons until the desired application is flashing. AUTO = (Auto Changeover)	OFF
Electric or Gas Fan Operation Select GAS to have the system control the fan during a call for heat, select Electric to have the thermostat control the fan during a call for heat. Note: If heat pump is set to "ON" this step will not show, and will default to ELECTRIC.	GAS FAN SET	Use $\left[\pm \right]$ and $\left[\square \right]$ buttons to change the setting.	GAS
Minimum Compressor On Time 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.	OF MIN COMP ON	You can set the minimum compressor run time to "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. Use the $\left[\pm \right]$ and $\left[\square \right]$ buttons to change the setting.	OFF

Keypad Lockout Note: The selected keypad lockout functionality must be activated after exiting tech setup. If you do not perform this procedure, all keys will function freely. To lock the keypad hold down the $\left[\pm \right]$ and $\left[\square \right]$ keys for 3 seconds. You will see a lock in the display. To unlock the display hold down the $\left[\pm \right]$ and $\left[\square \right]$ keys for 3 seconds.

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
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 5 minutes after it was last turned off.	ON COMP DELAY	Selecting "ON" will not allow the compressor to be turned on for 5 minutes after the last time the compressor was on. Select "OFF" to remove this delay. Use the $\left[\pm \right]$ and $\left[\square \right]$ buttons to change the setting.	ON
Cooling Fan Delay The cooling fan delay setting will delay the fan from coming on in cool mode and keep it running after the compressor shuts off for a short time to save energy in some systems.	OF COOL FAN DL	You can set the cooling fan delay to OFF, 10, 30, 60 or 90 seconds. If 10, 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.	OFF
Program Options You can configure this thermostat to have a 7 day program, a 5+1+1 program or No program. Note: If 7d is selected, in set schedule you will program all seven days individually. If 5d is selected, in set schedule you will program Monday - Friday together and Saturday and Sunday individually. If 0d is selected the thermostat becomes non-programmable and the Set Schedule button goes away in Menu.	5d PROGRAM	Use the $\left[\pm \right]$ and $\left[\square \right]$ button to select 7d for 7 day, 5d for 5+1+1, or 0d for non-programmable.	5d
Pro Recovery This feature will start heating and cooling early to bring the building temperature to its programmed setpoint by the beginning of the WAKE, RETURN and OCCUPIED time periods.	ON PRO RECOVERY	Use the $\left[\pm \right]$ or $\left[\square \right]$ key to select on or off.	ON

Programming

Set Time

Follow the steps below to set the day of the week and current time:

1. Press the **MENU** button.
2. Press **SET TIME**.
3. Day of the week is flashing. Use the $\left[+ \right]$ or $\left[- \right]$ key to select the current day of the week.
4. Press **NEXT**.
5. The current hour is flashing. Use the $\left[+ \right]$ or $\left[- \right]$ key 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 are now flashing. Use the $\left[+ \right]$ or $\left[- \right]$ key to select current minutes.
8. Press **DONE** when completed.

Programming

All our programmable thermostats are shipped with an energy saving default program. You can customize this default program by following the instructions in the **set program schedule section** starting on page 22.

Your thermostat can be programmed to have each day of the week programmed uniquely (7 days), all the weekdays the same with a separate program for Saturday and a separate program for Sunday (5+1+1), or non-programmable.

This thermostat has a programmable fan feature, which allows you to run the fan continually during any time period.

Reminders

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 holding down the set time/run sched button for 3 seconds. Resetting an expired reminder can be done without entering tech setup, by holding down the set time/run sched button for 3 seconds from the home screen.

Programming

Set Program Schedule For Four Time Periods

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 is displayed and the **WAKE** icon is shown. You are now programming the **WAKE** time period for the weekday setting.
4. Time is flashing. Use the $\left[+ \right]$ or $\left[- \right]$ key to make your time selection for the weekday **WAKE** time period.
Note: If you want the fan to run continuously during this time period, select **ON** with the **FAN** key. I
5. Press **NEXT**.
6. The setpoint temperature is flashing. Use the $\left[+ \right]$ or $\left[- \right]$ key to make your setpoint selection for the weekday **WAKE** period.
7. Press **NEXT**.
8. Repeat steps 4 through 7 for the weekday **LEAVE** time period, for the weekday **RETURN** time period, and for the weekday **SLEEP** time period.

Saturday:

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

Sunday:

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

Factory Default Program				
Day of the Week	Events	Time	Setpoint Temperature (HEAT)	Setpoint Temperature (COOL)
Weekday	Wake	6 AM	70°F (21°C)	78°F (26°C)
	Leave	8 AM	62°F (17°C)	85°F (29°C)
	Return	6 PM	70°F (21°C)	78°F (26°C)
	Sleep	10 PM	62°F (17°C)	82°F (28°C)
Saturday	Wake	6 AM	70°F (21°C)	78°F (26°C)
	Leave	8 AM	62°F (17°C)	85°F (29°C)
	Return	6 PM	70°F (21°C)	78°F (26°C)
	Sleep	10 PM	62°F (17°C)	82°F (28°C)
Sunday	Wake	6 AM	70°F (21°C)	78°F (26°C)
	Leave	8 AM	62°F (17°C)	85°F (29°C)
	Return	6 PM	70°F (21°C)	78°F (26°C)
	Sleep	10 PM	62°F (17°C)	82°F (28°C)

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.

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

Monday:

1. Select **HEAT** or **COOL** with the **SYSTEM** key.
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 is displayed and the **WAKE** icon is shown. You are now programming the **WAKE** time period for that day.
4. Time is 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. If you want to use **IAQ** mode during this time period, select **IAQ** with the **FAN** key.
5. Press **NEXT**.
6. The setpoint temperature is 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, for that day's **RETURN** time period, and for that day's **SLEEP** time period.

Repeat steps 4 through 8 for the remaining days of the week.

A Note About Auto Changeover:

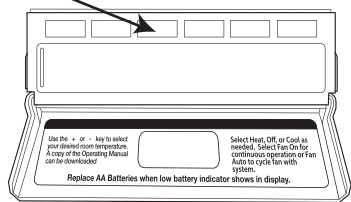
In Auto you have the ability to switch between Auto Heat or Auto Cool by pressing the system key. This can be done once the current mode has reached its setpoint. For example: in Auto Heat, the heat setpoint must be satisfied before the thermostat will allow you to switch to Auto Cool. You can switch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

Features

Filter Change & Other Reminders

If the filter change reminder is enabled, you will see a reminder in the display when your air filter needs changed. The reminder will be shown in the display after your system has run long enough to require an air filter change.

Resetting The Filter Change Reminder: When the reminder is displayed, you should change your air filter and reset the reminder by holding down the 3rd button from the left side of the thermostat for 3 seconds.



This thermostat also has other maintenance reminders (UV lamp, and IAQ Cell), that are reset with the same procedure.

Temporary & Permanent Hold Feature

Temporary Hold: The thermostat will display **HOLD** and **RUN SCHED** on the bottom of the screen when you press the **+** / **-** or fan key. If you do nothing, the temperature will remain at this setpoint temporarily for 4 hours. The program will resume after the temporary hold is over.

Permanent Hold: With a temporary hold set, If you press the **HOLD** key at the bottom of your screen, you will see **HOLD** appear below the setpoint temperature in the display. The thermostat will now permanently stay at this setpoint and can be adjusted using the **+** or **-** keys.

To Return To Program: Press the **RUN SCHEDULE** key at the bottom of the screen to exit temporary and permanent holds.

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
- 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 AA 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 4.3" H x 0.9" D