



Pro1 Technologies

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# T721i



### 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)	Yes
Multi-Stage Systems	Yes
Heat Only Systems	Yes
Cool Only Systems	Yes
Millivolt	No

### Power Type

Hardwire (24V Common Wire)

**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.

### WIFI

Frequency Range.....2.4 Ghz ISM radio band  
WIFI Module.....Supporting 802.11 B/G/N Standards

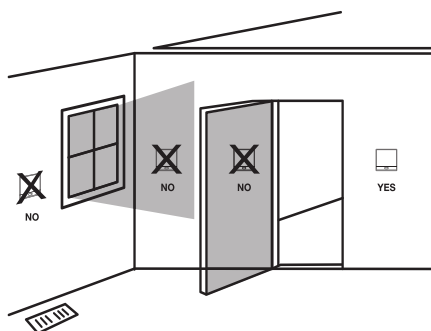
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### Wall Installation

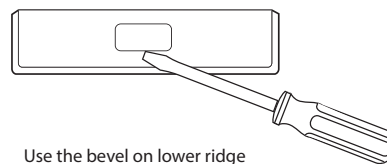
The thermostat should be installed approximately 4 to 5 feet above the floor. Select an area with average temperature and good air circulation. Pick an installation location that is easy for the user to access. The temperature of the location should be representative of the building.



### Do not install thermostat 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

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

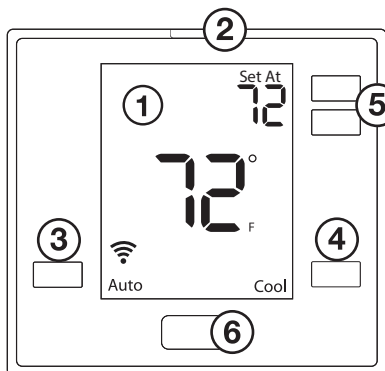
All of our thermostats use the same universal magnetic badge. Visit the company website to learn more about our free private label program.

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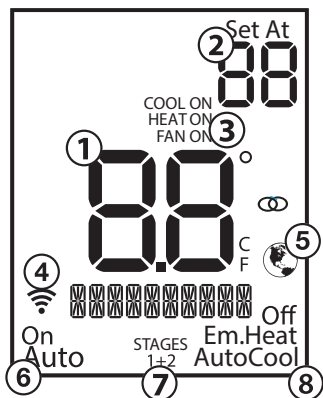
Rev. 2224

## THE POWER OF PARTNERSHIP

### Thermostat Quick Reference

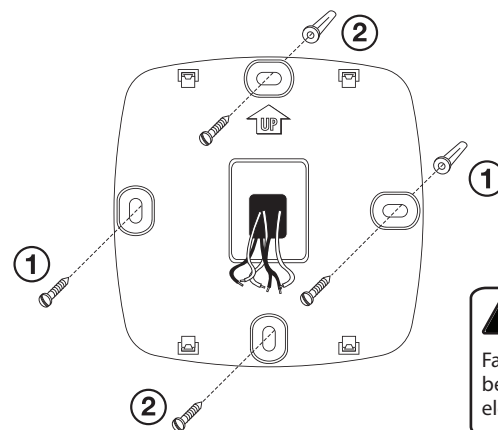


- 1 LCD Display
- 2 Glow in the dark light button
- 3 Fan Button
- 4 System Button
- 5 Temperature Setpoint Buttons
- 6 Private Label Badge



- 1 Indicates the current room temperature
- 2 **Setpoint:** Displays the selected setpoint temperature.
- 3 **System Operation Indicators:** The COOL ON, HEAT ON or FAN ON will display when the COOL, HEAT, or FAN is on. **The compressor delay feature is active if these are flashing.**
- 4 **WIFI Indicator:** Shown when connected to WiFi.
- 5 **Globe:** Globe is displayed if an energy efficient temperature has been selected.
- 6 **Fan:** Indicates the current fan setting.
- 7 **Stages:** +1 will appear in the display when the first stage of heat or cool is on. +2 will appear for the second stage of heat.
- 8 **System:** Indicates current system mode setting.

### Subbase Installation



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

### ⚠ Electrical Hazard

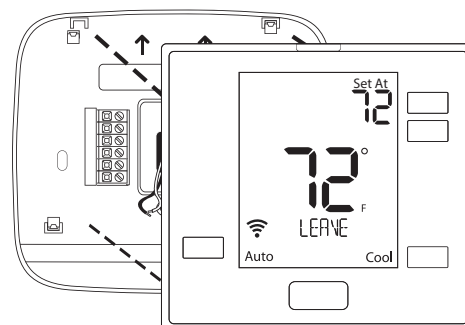
Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.

### ⚠ 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.

**NOTE:** To ensure a solid fit between the thermostat and subbase:  
1. Mount subbase on a flat wall.  
2. Use provided screws.  
3. Ensure drywall anchors are flush with wall.  
4. Push wires into wall.

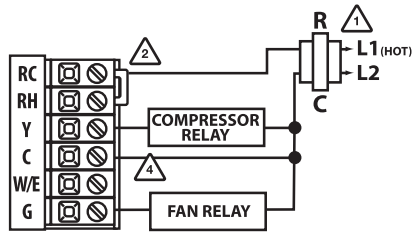
### Mount Thermostat



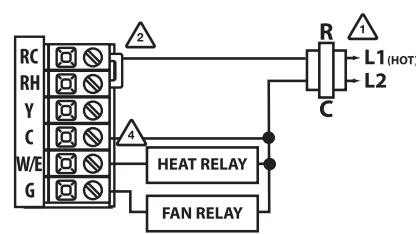
Align the 4 tabs on the subbase with corresponding slots on the back of the thermostat, then push gently until the thermostat snaps in place.

- 1 Power Supply
- 2 Factory-installed jumper, remove only when installing on 2-transformer system.
- 3 Use either O or B terminals for changeover valve.
- 4 A 24 VAC 500mA common connection is required with this thermostat.

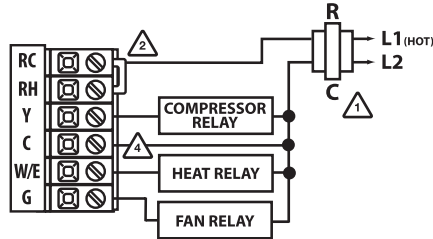
Typical Cool-Only System



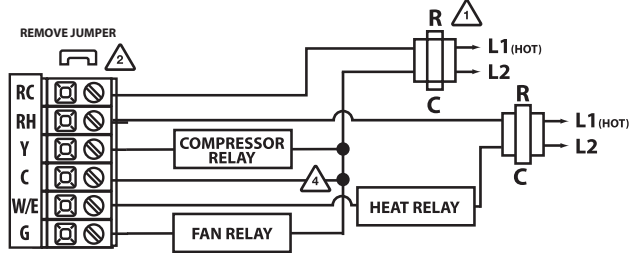
Typical Heat Only System



Typical 1H/1C System: 1 Transformer



Typical 1H/1C System: 2 Transformer



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Wiring

Wiring Chart

For all systems, the following terminals are wired according to whether you have a single or dual transformer system as shown:

	RH	RC	C	G
<b>SINGLE TRANSFORMER SYSTEM</b>	24 VAC HOT JUMPER SHOULD REMAIN INSTALLED		24 VAC Common 500mA	Blower / Fan
<b>DUAL TRANSFORMER SYSTEM</b>	24 VAC-Heat *REMOVE PROVIDED JUMPER	24 VAC-Cool *REMOVE PROVIDED JUMPER	24 VAC Common 500mA *FROM COOL TRANSFORMER	Blower / Fan

\*FAILURE TO REMOVE PROVIDED JUMPER ON DUAL TRANSFORMER INSTALLATIONS COULD CAUSE SEVERE DAMAGE TO HVAC SYSTEMS

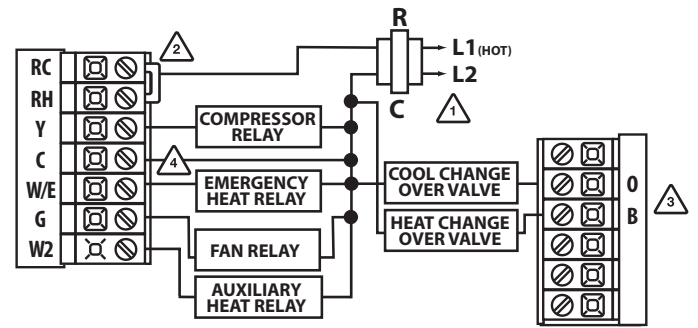
<b>O Terminal</b>	Heat pump changeover valve-- Energized during cooling
<b>B Terminal</b>	Heat pump changeover valve-- Energized during heating

**Note:** Devices such as a float switch that mechanically break circuits should be installed so that they break the control wire (Y) not the power (R). Interrupting the power circuit will shut off power to the thermostat completely and not allow it to operate.

If using in Heat Pump without Auxiliary or Emergency heat application, please see wiring diagram on previous page.

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Typical 2H/1C Heat Pump System



Replacement Thermostat Wiring

- 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.
- Loosen the terminal block screws. Insert wires then retighten terminal block screws.
- Place nonflammable insulation into wall opening to prevent drafts.
- This thermostat requires a 24V common wire to the C terminal.

**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.

**Installation Tip** Max Torque = 6in-lbs.

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.

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Technician Setup Menu

To enter tech setup:

- Press and hold the + and - buttons for 3 seconds.
- Press and hold the TECH button for 3 seconds.
- Configure the installer options as desired using the table below. Use the + or - buttons to change settings and the lower left and right buttons to move from one step to another.
- To exit tech setup: press and hold the + and - buttons for 3 seconds, or wait 60 seconds.

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Room Temperature Calibration	0 CALIBRATE	You can adjust the room temperature display to read 4° above or below the factory calibrated reading.	0
Compressor Short Cycle Delay	07 COMP DELAY	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.	ON
Cooling Swing	0.8 COOL SWING	The cooling swing setting is adjustable from 0.2° to 2°. A swing setting of 0.5° will begin cooling at approximately 0.5° above the setpoint and stop approximately 0.5° below the setpoint.	0.8
Heating Swing	0.8 HEAT SWING	The heating swing setting is adjustable from 0.2° to 2°. A swing setting of 0.5° will begin heating at approximately 0.5° below the setpoint and begin approximately 0.5° above the setpoint.	0.8
Heat Pump	07 HEAT PUMP	ON - Configured to operate heat pump system. OFF - Configured to operate conventional system See page 5 for terminal designations.	ON

Swing Setting Tip

Temperature swing, sometimes called differential or cycle rate, can be customized for this individual application. For most applications choose a swing setting that is as wide as possible without making the occupants uncomfortable.

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## Technician Setup Menu

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
System Set You can configure the system switch for the particular application. Heat - Off - Cool, Heat - Off, Cool - Off, Heat - Off - Cool - Auto. Note: Emergency Heat is available in heat pump mode only.	SYSTEM SET Off Em.Heat AutoCool	Use the $\left[ \rightarrow \right]$ or $\left[ \leftarrow \right]$ buttons until the desired application is flashing. AUTO = (Auto Changeover)	Heat Off Cool
Emergency Heat Stages <small>(Only displayed if Emergency Heat is set to ON)</small> This feature controls the number of stages in Emergency Heat mode. It only appears if the Technician Setup Step for HEAT PUMP is ON.	1 E HEAT STAGE	Use the $\left[ \rightarrow \right]$ or $\left[ \leftarrow \right]$ key to select 1-stage or 2-stage operation.	1
Dual Fuel Auxiliary for Heat Pump <small>(Only displayed if Heat Pump is set to ON)</small> For Dual Fuel applications (Gas/Fossil fuel Auxiliary Heat), turn this setting ON to LOCKOUT the Heat Pump (Y) when Auxiliary Heat (W2) is on. If desired- This can also be used with Electric Auxiliary.	OF DUAL FUEL	OFF will allow Y(1st stage of Heat) and W2 (Aux Heat) to run together if called for. ON Will de-energize Y terminal 45 seconds after a call for Auxiliary Heat (W2).	OFF
Satisfy Setpoint This feature allows the thermostat to keep multiple stages of heat energized until setpoint is satisfied.	OF SAT ISFY SP	Use the $\left[ \rightarrow \right]$ or $\left[ \leftarrow \right]$ key to turn ON or OFF.	OFF
Staging Delay This feature allows a delay to occur when a second stage is needed. This allows the previous stage extra time to satisfy setpoint.	OF STG DELAY	Use the $\left[ \rightarrow \right]$ or $\left[ \leftarrow \right]$ key to select OFF, 5, 10, 15, 30, 45, 60, or 90 minutes.	OFF
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	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 $\left[ \rightarrow \right]$ and $\left[ \leftarrow \right]$ buttons to change the setting.	OFF
Heating Setpoint Limit This feature allows you to set a maximum heat setpoint value. The setpoint temperature cannot be raised above this value.	90 HEAT L IMIT	Use the + and - buttons to select the maximum heat setpoint.	90
Cooling Setpoint Limit This feature allows you to set a minimum cool setpoint value. The setpoint temperature cannot be raised above this value.	50 COOL L IMIT	Use the + and - buttons to select the minimum cool setpoint.	50

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## WIFI Setup

The following WIFI Technician steps are intended for viewing information and resetting your WIFI connection. They are not typically necessary for installation or initial setup.

1. Press and hold the + and - buttons together for 3 seconds.
2. Press and hold the WIFI Button on the lower left.
3. Use the + or - buttons to change settings and the lower left and right buttons to move from one step to another. To exit tech setup: press and hold the + and - buttons for 3 seconds or wait 60 seconds.

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
WIFI SSID This displays the WIFI Firmware Identification Number which can be used for trouble shooting. If the thermostat is not connected to WIFI it will display "WIFI IDLE".	55 10 FWD 1500	N/A	N/A
Firmware This displays the Thermostat Firmware Identification Number which can be used for trouble shooting.	F4 9909 14	N/A	N/A
Reset WIFI This step resets the WIFI connection when needed allowing you to reconnect to a new local WIFI network.	YES WIFI RESET	Hold the $\left[ \rightarrow \right]$ button for three seconds and you will be returned to the home screen. WIFI RESET will not be displayed.	YES

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## Technician Setup Menu & WIFI Setup

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
F or C Select F for Fahrenheit temperature read out or select C for Celsius read out.	F OR C	F for Fahrenheit C for Celsius	F
Display Light The display light can be configured to operate 2 different ways. To come on when Any Key is pressed, or stay on ALL of the time.	OF DISP L IGH T	ON - light always on OFF - light on when any button is pressed	OFF

### 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: 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.

## WIFI Setup

### Operation of the FAN & SYSTEM button when connected to WIFI and running a programmable schedule from the app:

When the set at temperature is changed while an app schedule is running, the thermostat will enter a temporary hold, and the Fan and System buttons change to RUN and HOLD for 15 seconds. If you wish to enter PERMANENT HOLD press the HOLD button at this time.

If you don't press the HOLD button when the HOLD icon appears the thermostat will remain in temporary hold for 4 hours.

When connected to WIFI you may also have the ability to turn programming ON or OFF by pressing and holding the FAN button for 3 seconds.

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## WIFI Setup & Specifications

### WIFI Reset Process

This step resets the WIFI connection when needed for applications like replacing WIFI routers, changing networks, or any other time you might need to disconnect and reconnect your thermostat to a local WIFI network.

1. Enter the WIFI Menu and cycle through the steps until you get to the **RESET WIFI** setting.
2. Hold the + button for three seconds.
3. You will now be automatically returned to the home screen and "WIFI RESET" network will be displayed indicating the thermostat is no longer connected to the local WIFI network. You will need to recommission the thermostat to control your system from the PRO1 Connect App.

### 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  
 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

### WIFI

Frequency Range..... 2.4 Ghz ISM radio band  
 WIFI Module..... Supporting 802.11 B/G/N Standards

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