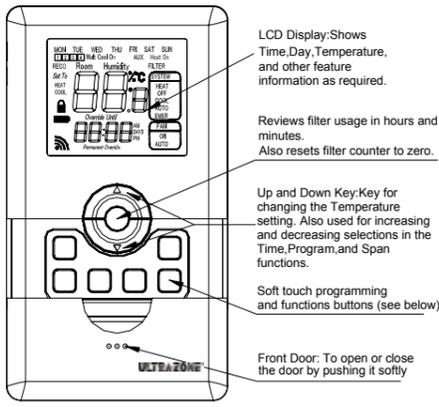


Wireless Thermostat Owners Manual

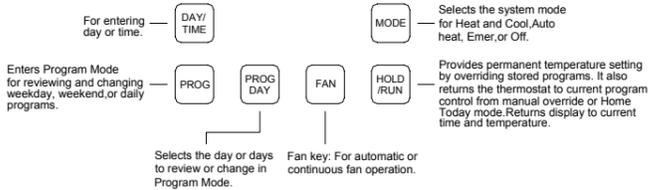
Model : EWT-3900



LCD Display: Shows Time, Day, Temperature, and other feature information as required.
 Reviews filter usage in hours and minutes. Also resets filter counter to zero.
 Up and Down Key: Key for changing the Temperature setting. Also used for increasing and decreasing selections in the Time, Program, and Span functions.
 Soft touch programming and functions buttons (see below)
 Front Door: To open or close the door by pushing it softly

FEATURES

Structure of thermostat and explanation for the keypads



We are pleased you have selected one of our broad line of wall thermostats. Our products are manufactured to high quality standards and are designed for years of service.

REMOVE THE MYLAR LABEL FROM THE LCD DISPLAY WINDOW.

ARMCHAIR PROGRAMMING

1. You can program your thermostat prior to installation by following these instructions and starting at the configuration menu. This can be done while you relax in your favorite chair and is a very good way to familiarize yourself with all the functions of your thermostat.

The following time and temperature settings are pre-programmed into the thermostat:

Program Number	Time	Temperature in °F (°C)	
		Heat	Cool
1	6:00 am	68° F (20° C)	78° F (26° C)
2	8:00 am	60° F (16° C)	85° F (29° C)
3	4:00 pm	68° F (20° C)	78° F (26° C)
4	10:00 pm	60° F (16° C)	82° F (28° C)

COMPRESSOR PROTECTION

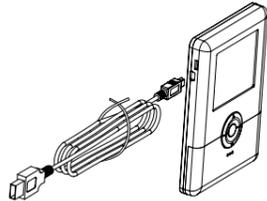
2. The thermostat provides a 4 minute delay after shutting of the heating or cooling system before it can be restarted. This feature will prevent damage to your compressor caused by rapid cycling. Note that this delay also applies to the heating system control. It does not provide a delay when there are power outages. You can select the function on or off at the configuration.

TEMPERATURE RANGE

3. This thermostat can be programmed between 45°F and 95°F (7°C and 35°C). However, it will display room temperatures from 30°F to 99°F (0°C and 37°C). "HI" will be displayed if the temperature is higher than 99°F (37°C), and "LO" will be displayed if the temperature is lower than 30°F (0°C). This thermostat will automatically cutoff in Heat mode if the temperature rises above 95°F (35°C), and automatically cutoff in Cool mode if the temperature drops below 45°F (7°C).

POWER SUPPLY

4. The thermostat is supplied with a Li-battery. You can charge the Lithium battery through a USB cable (included) connected to a PC. During the charge process the battery icon will flash on and off.



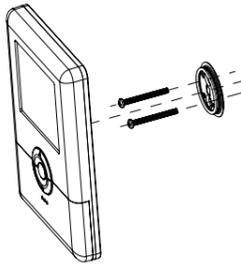
Note: The Lithium battery should be charged over 12 hours for the first 3 times to properly condition the battery.

INSTALLATION

What You Need

This thermostat includes two #8 slotted screws and two wall anchors for mounting. To install your thermostat, you should have the following tools and materials.

- Slotted Screwdriver(s)
- Small Philips screwdriver
- Hammer
- Electric drill and 3/16" bit



OPERATION

Fan Operation

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

1. Turn on power to system.
2. Press FAN key to ON mode. The blower should begin to operate.
3. Move FAN key to AUTO mode. The blower should stop immediately

Heating System

1. Press the SYSTEM key until HEAT shows on the LCD display. If the auxiliary heating system has a standing pilot, be sure to light it.
2. Press to adjust thermostat setting to 2 (1°C) above room temperature. The heating system should begin to operate. The display should show "STG1". However, if the setpoint temperature display is flashing, the compressor lockout feature is operating (see Configuration menu, item 5).
3. Adjust temperature setting to 4 (2°C) above room temperature. If your system configuration is set at MS2, HP2 or HP1, the auxiliary heat system should begin to operate and the display should show "STG1+2".
4. Press to adjust the thermostat below room temperature. The heating system should stop operating.

Emergency System

EMER bypasses the Heat Pump to use the heat source wired to terminal E on the thermostat. EMER is typically used when compressor operation is not desired, or you prefer back-up heat only.

1. Press the SYSTEM key to select HEAT mode, then press the EMER key. "EMER" will show on the display.
2. Press to adjust thermostat setting above room temperature. The Aux. heating system will begin to operate. The display will show "STG1" "EMER" to indicate that the Aux system is operating.
3. Adjust temperature setting to 4 (2°C) above room temperature. The auxiliary heat system should begin to operate and the display should show "STG1+2".
4. Press to adjust the thermostat below room temperature. The Aux. heating system should stop operating.

Cooling System

1. Press SYSTEM key to select the Cool mode.
2. Press to adjust thermostat setting below room temperature. The blower should come on immediately on high speed, followed by cold air circulation. The display should show "STG1".
3. Adjust temperature setting to 4 (2°C) below room temperature. The second stage cooling should begin to operate and the display should show "STG1+2"
4. Press to adjust the temperature setting above room temperature. The cooling system should stop operating.

CONFIGURATION MENU

INSTALLER/CONFIGURATION MENU				
Step	Press Button	Displayed (Factory Default)	Press up or down key to select	Comments
1	PROG	SS1	SS1, HP2, HP1	Selects Single stage, Multi-stage, or Heat Pump (Single stage or 2-stage) System Configuration
2	PROG	(FAN)HE	HG	Select GAS/ ELECTRIC (Only can select by STD2 or SS1)
3	PROG	RECO(OF)	ON	Recovery function ON or OFF
4	PROG	(SPAN)2	1,3	Span(one stage)
5	PROG	BLIT(ON)	OF	BackLight
6	PROG	(SP2)2	1,3	Span(Two Stage)
7	PROG	(TEMP)F	C	Selects temperature display ° F or ° C
8	PROG	HOUR(12)	24	Selects time format display 12hours or 24hours
9	PROG	COHP(OF)	ON	Selects Compressor Lockout OFF or ON
10	PROG	CANL(1)	1-10	Communication channels
11	PROG	FACT(0)	1	Select 1, all the setting will go back to factory default

The configuration menu allows you to set certain thermostat operating characteristics to your system or personal requirements. Set SYSTEM mode to OFF, then simultaneously press PROG keys to enter configuration menu. The display will show the first item in the configuration menu. The configuration menu table summarizes the configuration options. An explanation of each option follows. Press the PROG key to change to the next menu item. To exit the menu and return to the program operation, press Hold/Run Key. If no keys are pressed within fifteen Seconds, the thermostat will revert to normal operation.

1) Single Stage, Multi-stage or Heat Pump System Configuration

This control can be configured for Heat Pump or two stage heat/one stage cool multi-stage operation. The display indicates "STD2" (default for multi-stage mode) in the display. The Multi-stage configuration can be toggled to "SS1" or "HP1" by pressing the up or down key. In Multi-stage configuration, EMER mode is useless.
 2) This thermostat is configured from the factory to operate a heat/cool, fossil fuel (gas, oil, etc.), forced air system. It is configured correctly for any system that DOES NOT require the thermostat to energize the fan on a call for heat. If you system is an electric heat or heat-pump system that requires the thermostat to turn on the fan on a call for heat, locate the HE/HG in the menu and SELECT the HE position. This will allow the thermostat to energize the fan immediately on a call for heat. If you are unsure if the heating/ cooling system requires the thermostat to control the fan, contact a qualified heating and air conditioning service person. When the thermostat is configured for Heat Pump, the thermostat will always power the circulator fan on a call for heat in the HEAT mode. The HE/HG must be set to match the type of Auxiliary heat your system uses for proper operation in the EMERGENCY mode.

All wiring diagrams are for typical systems only. Refer to equipment manufacturers' instructions for specific system wiring information.

3) Select Energy Management Recovery OFF or ON

Your thermostat is set from the factory to gradually recover the room temperature from an energy saving program to your comfort program. Therefore, the thermostat may turn your system on several minutes prior to your programmed start time.

4) Fast or Slow Cycle Selection (one stage)

5) Select Backlight function OFF or ON

6) Fast or Slow Cycle Selection (two stage)

7) Select °F or °C Readout. When you change this parameter the thermostat will reset to its default settings and you will have to re-program it. Changes the display readout to Centigrade or Fahrenheit as required
 8) Selects time format display 12hours or 24hours
 9) Select Compressor Lockout COMP OFF or ON
 Selecting COMP ON will cause the thermostat to wait 4 minutes before turning on the compressor if the heating and cooling system loses power. It will also wait 5 minutes minimum between cooling and heating cycles. This is intended to help protect the compressor from short cycling. Some newer compressors already have a time delay built in and do not require this feature. Your compressor manufacturer can tell you if the lockout feature is already present in their system. When the thermostat compressor time delay occurs it will flash the set point for about 4 minutes.
 10) This mode is used to set the communication channels. The thermostat and controller must be re-matched after changing channels.

11) Select "1" to restore factory default settings. This will require the thermostat and controller to be re-matched.

Setting Time And Day

Remove the mylar label covering the LCD display window before operating thermostat.

- Initial display after power-up. The temperature will update after a few seconds.

EXAMPLE: Set the Thermostat to the current time of 9:43 a.m. on Saturday Refer to Figure below.

- During time and day setting mode, the temperature

Step	Press	Display Reads
Step 1	DAY/TIME	■ Press Day/Time key. The current hour and AM or PM indicator are flashing. ■ Press to change the hour. Note AM/PM
Step 2	DAY/TIME	■ Press Day/Time key again. The current min is flashing. ■ Press to change the min.
Step 3	DAY/TIME	■ Press Day/Time key. The current week is flashing. ■ Press to change the week.

After 30 seconds, the thermostat will return to normal automatically.

Manual Programming

- Your thermostat can be programmed for weekdays and weekends, or have unique programs for all 7 days. Use Weekday / Weekend Programs or 7-day Programming to enter or revise programs to match your Personal Program Schedule. The same steps are used when entering programs for the first time, or revising programs entered during Auto Programming.
- Familiarize yourself with Manual Programming, so that you can easily modify your programs as your comfort needs change. The example below demonstrates the Manual Programming method.

NOTE:

1. The program time can be set in 10-minute increments, and remains the same for both Heat and Cool programs.
2. The program temperature can be set in increments of 1°F (1°C).
3. The Heat setpoint can not be set higher than the Cool set point, and the Cool set point can not be set lower than the Heat set point.
4. When setting the program time, note the AM/PM indicator.
5. With the Auto Recovery feature enabled, you do not need to set your comfort program times early. Auto Recovery will determine how early to turn your system on, so that the room is comfortable at the program time.

Weekday/Weekend Programming

Step	Press	Display Reads
Step 1	PROG DAY	■ Normal display of time, temperature, and day of the week.
Step 2	PROG	■ Program indicator(1) is displayed. ■ Mon to Fri is displayed.
Step 3	PROG	■ The Program hour and AM or PM indicator are flashing. Press to change the hour. ■ Note AM/PM
Step 4	PROG	■ Press again to change to the minute position. The period minute will be flashing. ■ Press to change the minute

Step 5

- Press again to change to the program COOL set temperature. The period program will be flashing.
- Press to change the temperature.
- Note HEAT/COOL

Step 6

- Press again to change to the program HEAT set temperature. The period program will be flashing.
- Press to change the temperature.
- Note HEAT/COOL

Weekday program 1 is complete.

Step 7

- Press PROG to move to program 2,3, and 4 and follow the same steps.

- Use to insert or change time and temperature of other programs.

- Selects weekend days Sat, Sun for same set of 4 programs each weekend day.
- Follow steps 2-4 to enter programs.

Similar to weekday programming.

- to insert weekend programs.

Similar to weekday programming.

- to insert individual programs.

NOTE: Another approach to programming is to first program all weekdays Mon through Fri and Sat and Sun as same programs. Then, display and change the programs of only those days which will have different programs.

Temporary Manual Override

To temporarily change the current set temperature without affecting your program:

- Press up or down key for less than 1 second to enter Manual Override mode.
- Press up or down to change to your desired new temperature.
- Press to RUN normal mode or wait 20 seconds for it to return automatically.
- The current program number will flash to signify the Temporary Override.
- At the next program change, the Temporary Override is canceled, and the next program temperature becomes the setpoint temperature.
- To end the Temporary Manual Override:
 ■ Press HOLD key twice. This will return the set temperature to the current program set temperature.

NOTE: The Auto Season Changeover feature will not operate while the thermostat is in Temporary Manual Override. Refer to the Auto Season Changeover feature for more information.

Permanent Override or a Designated Day Override

To hold your Manual Override for vacation or Until a Designated Day.

- Press to make the current program temperature the HOLD temperature. HOLD will be displayed on the LCD, and the Program number will disappear.
- Follow the Temporary Manual Override instructions above to change the Permanent Manual Override temperature.
- You can confirm the held set temperature by pressing for less than 1 second.
- Press again. Hold day will be displayed on the LCD and the clock will disappear.
- Press Day/Time key to adjust override days.
- Follow the Permanent Override instructions above to change the Designated Day Manual Override temperature.

To end Override:

Under Permanent Override press the Hold key twice. Under a Designated Day Override press the Hold key once. The thermostat will return to the current program, and the HOLD display will be canceled.

NOTE: The Auto Season Changeover feature will not operate while the thermostat is in permanent Manual Override. Refer to the Auto Season Changeover feature for more information.

Auto Season Changeover

When the System Selector is in AUTO position, the thermostat will automatically change between Heating and Cooling systems, depending on your program. We recommend keeping your programmed heating and cooling temperature at least 2°F (2°C) apart to allow the Auto Season Changeover to occur when the appropriate temperature span has been reached. There is a Designated Day Override or Permanent Override. However, these overrides are not energy saving settings. Auto Season Changeover will still function in Override mode, as this is a comfort setting.

For example, you may have the following temperatures programmed at a given time: Heat Set Temp=68°F, Cool Set Temp=78°F

If the room temperature rises above 78°F, then the thermostat will automatically change to cool mode and turn on the air conditioner.

Likewise, the thermostat will automatically change to heat mode and turn on heat when the room temperature falls below 68°F.

Filter Monitor

Your thermostat also keeps a record of the number of days your filter has been in use. To maximize your system's performance and energy efficiency, change or clean your filter regularly.

- When the total fan run time reaches 400 hours, you need clean or change your system's filter, "FILTER" will continue to display until the counter is set back to zero.
- Press to review total filter usage. "Filter" displays.

Then show the filter Monitor counter. After 20 seconds, the display will return to normal mode, or you can hit RUN to exit immediately. The Filter Monitor will display up to 100 Days of usage. In this example, the counter is at 10 Days.

- To reset the Filter Monitor counter, depress FILTER for 3 seconds when the filter monitor day shows. The display will blink, and the counter will be reset to zero.

Auto Recovery

Auto Recovery calculates how early to turn your system back on, so that the room temperature is already comfortable by the start of the comfort temperature program period. Auto Recovery works in both Heat and Cool modes.

- When the thermostat is in Auto Recovery mode, the display will alternate "RECO" with time, and the program indicator will flash.
- Auto Recovery can be disabled by menu setting.
- Auto Recovery will not operate if Permanent hold or Temporary hold is in operation.
- Auto Recovery can be canceled manually if HOLD is pressed during the recovery process.
- Auto Recovery will be canceled and change to the next period.

Keyboard lock

The keyboard can be locked to prevent unauthorized changes to the thermostat.

To lock or unlock the keyboard, press and hold the Run key for 3 seconds. The keyboard is locked. when LOCK appears on the display.

- All keys are locked. Any time a key is pressed, LOCK will appear on the display for 1 second.

Error Mode

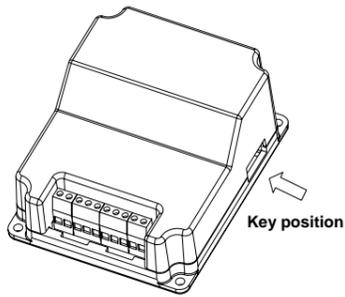
If the thermostat is unable to control your system due to an unexpected problem, the thermostat will enter Error Mode. In this condition, the thermostat flashes "E1", "E2" on the LCD display, and shuts off your system..

LCD display	information	LCD display	information
E1	Sensor Error	E2	System switch Error

Low Battery Warning

Your thermostat has a battery warning system. When the batteries are first detected to be weak, the first stage low battery warning is indicated by battery symbol flashing on the LCD display. At your earliest convenience, you need to charge the batteries through USB. During the charging process the battery icon will flash one by one. When the battery charge completes, the battery icon will disappear.

EWT-3900 Series Controller manual



EWT-3900 Series Controller

GENERAL

The EWT-3900 Series wireless set is designed to control the room temperature in industrial, commercial and residential environments. It includes an EWT-3900 Series Wireless Thermostat and an EWT-3900 Series Controller. Wireless data communication between the thermostat and controller enables temperature control.

Read This Before Installing Controller

OPERATION

The EWT-3900 Series Controller receives the signal from the Wireless Thermostat without any wires and controls the cooling and heating equipment.

YOUR THERMOSTAT REPLACES

Description	
Heat Pump (No Aux. or Emergency Heat)	Yes
Heat Pump (with Aux. or Emergency Heat)	Yes
Standard Heat & Cooling Systems	Yes
Two Stage Heat & Two Stage Cool	Yes
Standard Heat Only Systems	Yes
Millivolt Heat Only Systems— Floor or Wall Furnaces	Yes
Standard Central Air Conditioning	Yes
Gas or Oil Heat	Yes
Electric Furnace	Yes
Hydronic (Hot Water) Zone Heat-2 Wires	Yes
Hydronic (Hot Water) Zone Heat-3 Wires	No

This Thermostat will NOT control 110/220Volt systems.

POWER SUPPLY

The EWT-3900 Series Controller must be powered by 24 VAC.

MATCHING

The thermostat and controller will work only when they match successfully, and realize 1-1 control.

Step 1 (Controller): Power on the controller, press the Match key for less than one second (The key is on the right side of the controller, don't press the key long). The controller will attempt to register matching data from the thermostat. The unit should finish registration within 1 minute, if the controller hasn't received the matching data in 1 minute, the controller matching data will reset back to the previous settings automatically.

Step 2 (Thermostat): Press "MODE" key to "OFF" mode, then press "PROG" key for 3 seconds until the screen changes to menu setting. Press "PROG" key until LCD displays "CRES", use up key to change the parameter to "01" and the thermostat will match automatically.

Matching is now finished.

TESTING

Similar to menu setting.

Step 1 Press the "PROG" key, until it displays "TEST", change the parameter to "02" by pressing the "up" key. The relays will open one by one.

Step 2 Testing is finished, press the "RUN" key to exit the setting state.

Note: This item is only for testing, not for normal output. If the wires are left connected this test may be dangerous.

NOTE: The distance between the thermostat and controller should be longer than 1m, if not it may fail to communicate, requiring a return to the first step.

In the event that the Thermostat and Controller haven't matched, press and hold the key on the right side of the controller for at least 3 seconds. Relays will open and close one by one. The program will exit testing after 3 cycles. This test can be terminated by pressing and holding the button on the side for 3 seconds.

Technical Data

Power	AC24V±10% , 50/60Hz
Working environment	0 ~ 50
Range	5 ~ 95%RH(non-condensing)
Shell	Fire retardant PC ABS
Dimension	116×98×45 mm (HxWxD)
Connection interface	Each terminal capable of accepting 2 x 1.5 mm ² or 1 x 2.5mm ² wires , electric heating type:1 x 4 mm ² wires
Wireless carrier wave frequency	433MHz
Communication baud rate	2.4 kbps
Wireless channels	1~10 channels
Communication distance	Beeline distance 30m in the field (The distance will shorten if through walls and floors)

COMPRESSOR PROTECTION

The thermostat provides a 4 minute delay after shutting of the heating or cooling system before it can be restarted. This feature will prevent damage to your compressor caused by rapid cycling. Note that this delay also applies to the heating system control. It does not provide a delay when there are power outages. You can select the function of "on" or "off" from the configuration.

THERMOSTAT OUTPUT

Standard Terminal Outputs:

Refer to equipment manufacturers' instructions for specific system wiring information. You can configure the controller for use with either multi-stage electric heat systems or multi-stage gas systems. When configured for electric heat, the G terminal (blower/fan) will be energized on a call for heat. This thermostat is designed to operate a single-transformer system. If you have a two-transformer system, cut and tape off one transformer. If the transformer safety circuits are in only one of the systems, remove the transformer of the system with NO safety circuits. If required, replace the remaining transformer with a 75VA Class II transformer. After disconnecting one transformer, the two commons must be connected together. Use the terminal output information below to help you wire the thermostat properly for your multi-stage system. After wiring see CONFIGURATION section for proper thermostat configuration.

THERMOSTAT TERMINALS	
SYSTEM	Multi-stage
C*	24 Volt (Common)
R	24 Volt Emergency (hot)
E/W1	Heat mode 1st stage
W2	No output
Y1	Cool Mode 1st stage
Y2	No output
G	Blower/Fan Energized on call for Cool (and Heat if configured to Electric Heat)
O	No output
B	No output

Heat Pump Terminal Outputs

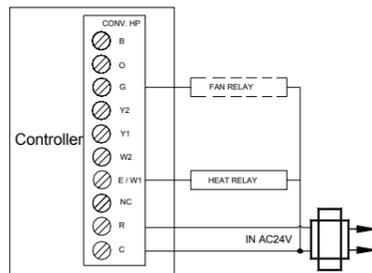
Refer to equipment manufacturers' instructions for specific system wiring information. You can configure the thermostat for use with the following heat pump system types: Single stage compressor system; gas or electric backup. This thermostat is designed to operate a single-transformer system. If you have a two-transformer system, cut and tape off one transformer. If transformer safety circuits are in only one of the systems, remove the transformer of the system with NO safety circuits. If required, replace remaining transformer with a 75VA Class II transformer. After disconnecting one transformer, the two commons must be connected together.

Use the terminal output information below to help you wire the thermostat properly for your heat pump system. After wiring, see CONFIGURATION section for proper thermostat configuration.

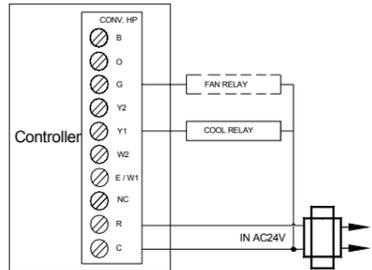
THERMOSTAT TERMINALS (HEAT PUMP)		
SYSTEM	Heat Pump 1	Heat Pump 2
C*	24 Volt (Common)	
R	24 Volt Emergency (hot)	
E/W1	Emergency Mode 1st stage	
W2	HP 1 and Emergency 2nd stage	
Y1	Heat and Cool mode 1st stage (compressor)	
Y2	No output	
G	Blower/Fan Energized on call for Heat and Cool Set GAS/ELEC switch for Emergency mode	
O	Energized in Cool Mode	
B	Energized in Heat Emergency mode	

WIRING

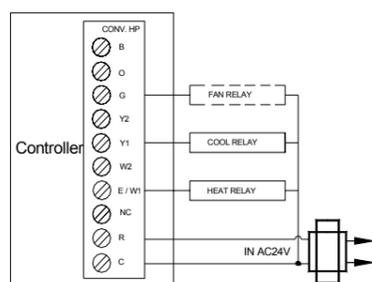
Heat only system



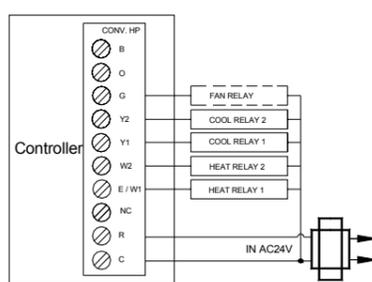
Cool only system



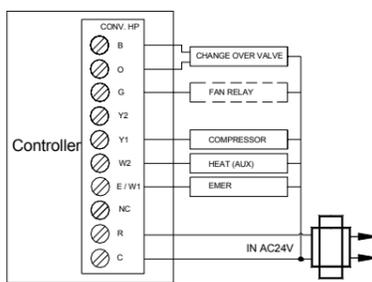
1-stage cooling , heating system for normal mode



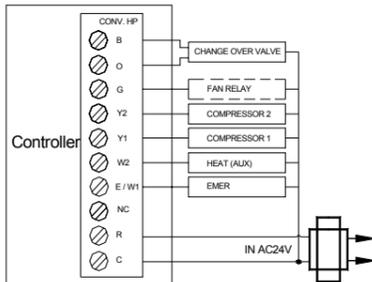
2-stage cooling , heating system for normal mode



1-stage cooling, heating system for heat pump

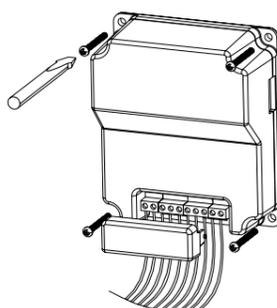


2-stage cooling, heating system for heat pump



INSTALLATION

Installation guide



What You Need

This thermostat includes two #8 slotted screws and two wall anchors for mounting. To install your controller, you should have the following tools and materials.

- Slotted Screwdriver(s)
- Small Philips screwdriver
- Hammer
- Electric drill and 3/16" bit

CAUTION:

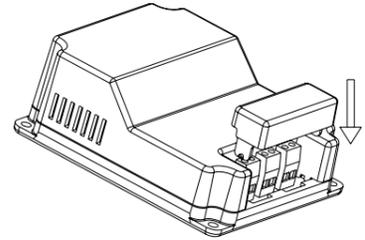
To prevent electrical shock and/or equipment damage, disconnect electric power to the system at the main fuse or circuit breaker box until installation is complete.

WARNING

Do not use on circuits exceeding specified voltage. Higher voltage will damage the control and could cause shock or fire hazard. Do not short out terminals on gas valve or primary control to test. Shorts or incorrect wiring will damage thermostat and could cause personal injury and/or property damage.

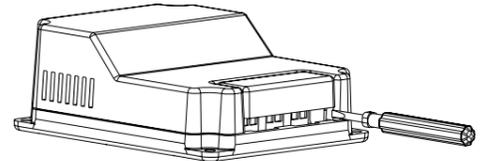
Transparent cover installation:

Press the transparent cover down as shown, until it snaps in place.



Transparent cover removal:

Insert the screwdriver between the transparent cover and black cover and gently pry it up.



TROUBLESHOOTING

Problem	Solution
SCRAMBLED OR DOUBLE DISPLAY (numbers over numbers)	1. Remove clear mylar sticker.
NO DISPLAY	1. Charge Li-battery
ENTIRE DISPLAY DIMS	1. Charge Li-battery
PROGRAM DOES NOT CHANGE AT YOUR DESIRE SETTING	1. Check that the time is set properly to "AM" or "PM" 2. Check that the thermostat is not in "HOLD" mode. 3. Check for the correct day settings.
AUTO/FAN DOES NOT TURN ON	1. Change HE/HG parameter to opposite setting . 2. The thermostat may be in the AUTO Mode. Look for "AUTO" on the LCD display. If the Heat and Cool program temperature are close, then the thermostat requires a larger room temperature change before changing from Heat or Cool. 3. There may be as much as 4 minute delay before the Heat or Cool system turns on. Wait and check. (Compressor protection delay). 4. Check your circuit breakers and switches to ensure there is power to the system. 5. Make sure your furnace blower door is closed properly.
ERRATIC DISPLAY	1. Replace unit.
CONTROLLER NO OUTPUT	1. Check if the thermostat is working, and if the power is supplied to the controller. 2. Check if the communication is correct, the controller will close all the relays if there is no data received in 30 minutes. 3. Match the thermostat and the controller again.
COMMUNICATION FAILED	1. Check if the thermostat is working, if the thermostat is effective, and if the power is supplied to the controller. 2. The distance between the thermostat and controller should be longer than 1m, shorter than 100m in the field. 3. Match the thermostat and the controller again.

If you experience any other problems, call us for technical assistance.