EMERSON Universal Thermostat Battery Powered or Hardwired with Common Instruction Manual

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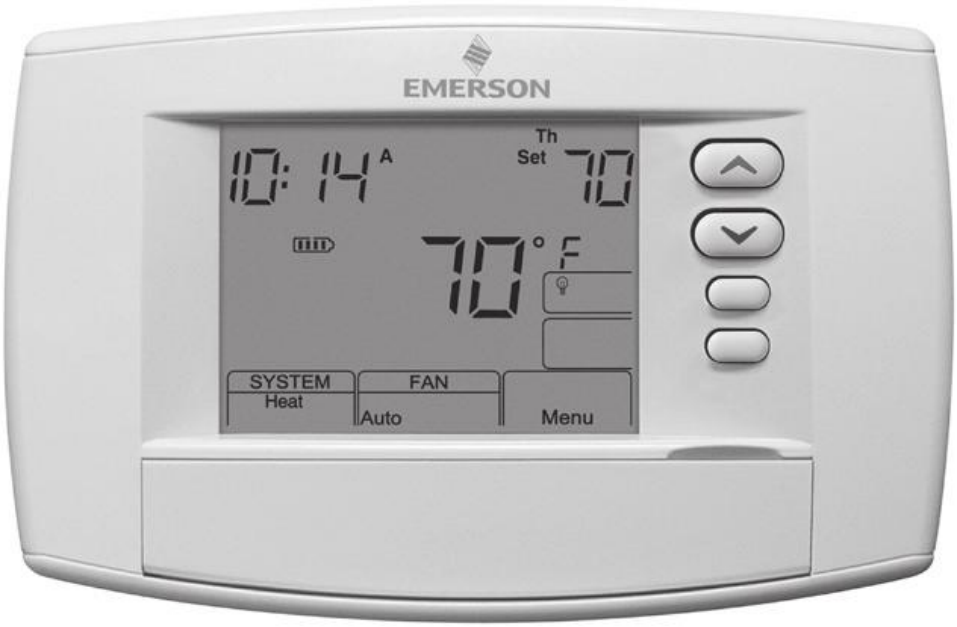
Universal Thermostat Battery Powered or Hardwired with Common



Optional Accessory: Wall
Cover-Up Plate F61-2663, 6 3/4” W x 4 1/2” H

Thermostat Applications	**Maximum Stages Heat/ Cool**
Conventional Gas, Oil, Electric (mV and 24V), Heat only, Cool only or Heat/Cool Systems	2/2
Heat Pump (Air Source or Geothermal) with Aux. Heat	2/1

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.
Refer to **www.thermostat-recycle.org** for information on disposing of products containing mercury.

SPECIFICATIONS

Electrical Rating:

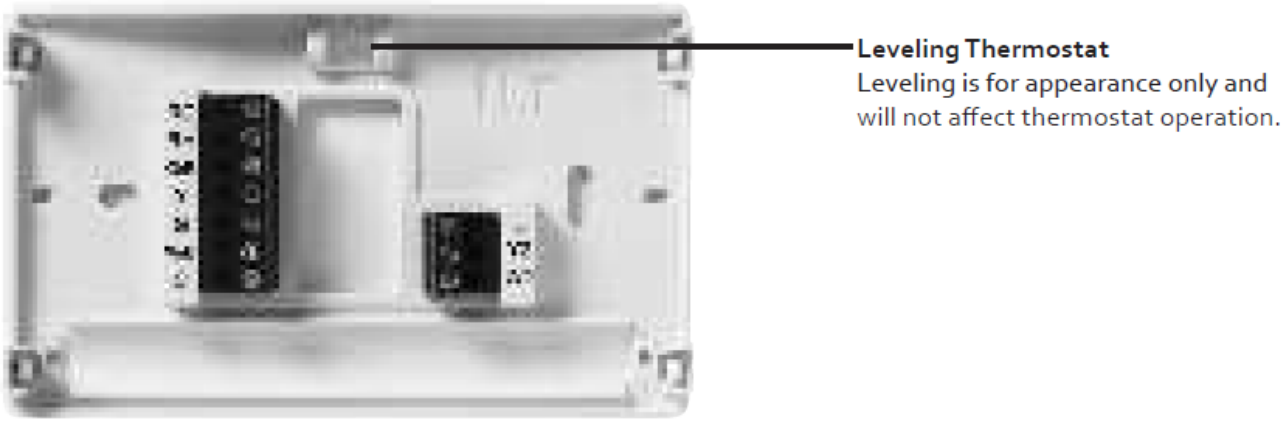
Battery Power ..... mV to 30 VAC, NEC Class II, 50/60 Hz
Input-Hardwire ..... 20 to 30 VAC, NEC Class II, 50/60 Hz
Terminal Load ..... 1.5 A per terminal, 2.5A maximum all terminals combined
Setpoint Range ..... 45° to 99° F (7° to 37° C)
Operating Ambient ..... 32°F to +105°F (0° to +41°C)
Display Temperature Range ..... 32°F to +99°F (0 to 37°C)
Operating Humidity ..... 90% non-condensing maximum
Shipping Temperature Range..... -20°F to + 150°F (-29° to +65°C)
Thermostat Dimensions..... 3-3/4” H x 6” W x 1-1/8” D

THERMOSTAT INSTALLATION

WIRING

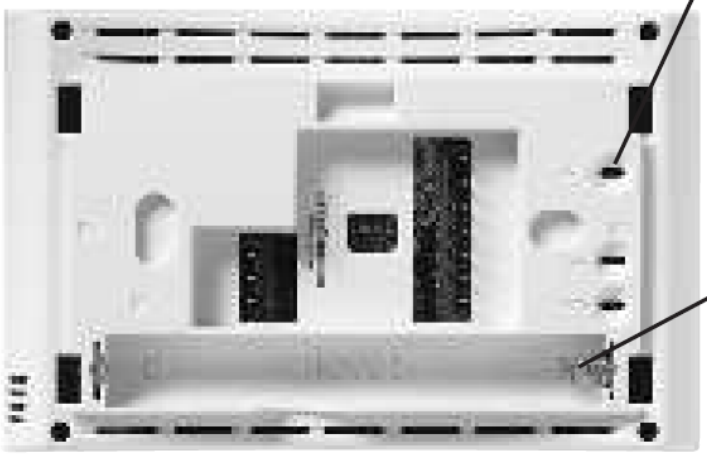
Refer to equipment manufacturer's instructions for specific system wiring information. After wiring, see INSTALLER MENU for proper thermostat configuration. Wiring table shown are for typical systems and describe the thermostat terminal functions. Wiring will change when dedicated emergency heat is on (See Installer Menu #15).

Terminal Designations	**Terminal Function**
RC	Power (24V) – Cooling
RH	Power (24V) – Heating
O/B 6 (not shown) – 3 wire zone valve	Reversing Valve or output for 3 wire zone valves Configur able as "O" or "B" Reversing Valve or 3 wire zone heat (po wer close)
Y	1st Stage Compressor (conventional or heat pump)
G	Fan Relay
W/E	1st Stage Heat (conventional); 1st Stage Auxiliary Heat (heat pump) Can operate as Eme rgency Heat only (See Installer Menu #15)
C	Common wire for 24V (optional with batteries)
L	Heat Pump Malfunction / Diagnostic terminal (input signal requires common)
Y2	2nd Stage compressor (conventional only)
W2	2nd Stage Heat (Conventional) Can operate as 1st Stage Auxiliary Heat (See Installer Me nu #15)



Precautions

- 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.
- 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.
- To prevent electrical shock and/or equipment damage, disconnect electrical 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 50°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.



RC/RH Jumper Wire
This thermostat electrically connects the RC and RH terminals so a jumper wire is not required. If the application provides a separate wire for RC and RH, clip the RC/RH jumper. This will isolate both terminals so they can be independently used.

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).

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 05 in the table below. Use Next and Back to navigate through menu items. Press or to change a menu setting.

TEST EQUIPMENT

Turn on power to the system.

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.

Heating System

1. Press the System button to select the Heat position. Heat Pumps only – if the auxiliary heating system has a standing pilot, be sure to light it.
2. Press to adjust thermostat setting to 1° above room temperature. The heating system should begin to operate and the thermostat will indicate Heat On.
3. For heat pumps with auxiliary- Press to adjust thermostat setting to 3° above room temperature. The auxiliary heat should begin to operate and the thermostat will indicate Heat On Aux.
4. Press to adjust thermostat setting 1° below room temperature. The heating system should stop operating and the Heat On icon will disappear.

Auxiliary System (only for heat pumps with auxiliary)

1. Press the system button to select the Aux position. This bypasses the heat pump and runs auxiliary only heat.
2. Press to adjust thermostat setting to 1° above room temperature. The auxiliary heating system should begin to operate and the thermostat will indicate Heat On Aux.
3. Press to adjust thermostat setting 1° below room temperature. The auxiliary heating system should stop operating and the Heat On Aux icon will disappear.

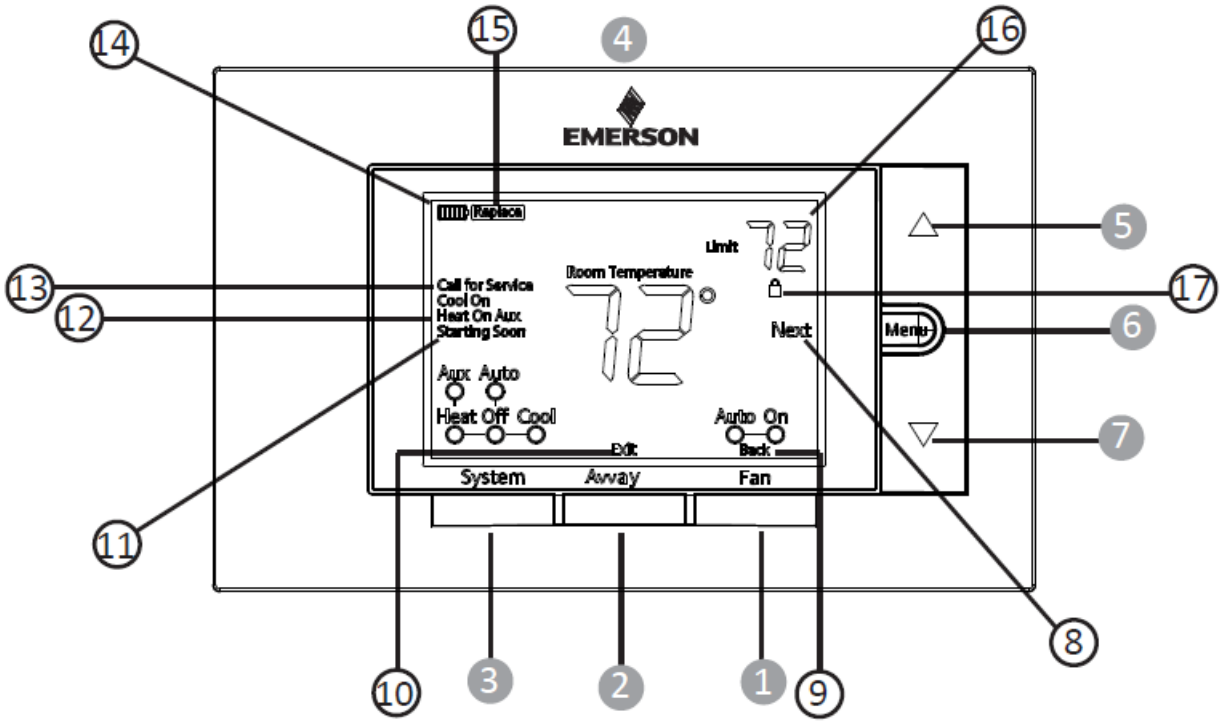
Cooling System

1. Press the System button to select the 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 Cool On icon will disappear.

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

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.


EMERSON
Replace
Limit
72
Room Temperature
72°
Call for Service
Cool On
Heat On Aux
Starting Soon
Aux Auto
Heat Off Cool
Auto On
Menu
Next
Exit
Back
System
Away
Fan
1
2
3
4
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17

THERMOSTAT BUTTONS AND SWITCHES	THE DISPLAY
1.) Fan Button	8.) **Next (Menu button)** is used to navigate within a menu
2.) Away Button (set a frequently used temperature)	9.) **Back (Fan button)** is used to navigate within a menu
3.) System Button	10.) **Exit (Away button)** returns to the home screen
4.) Backlight Button (located on the top of the thermostat)	11.) Thermostat is protecting the equipment from short cycling (5-minute delay)
5.) Raises Temperature Setting	12.) Indicates that the system is running in Cool, Heat or Auxiliary mode. (Heat Pump Only -The auxiliary will run in Heat mode when the heat pump cannot maintain the set temperature.)
6.) Access Menu Options	13.) SEE TROUBLESHOOTING
7.) Lowers Temperature Setting	14.) Battery status indicator
	15.) Replace battery indicator
	16.) Temperature setpoint
	17.) Appears when the keypad is locked (to prevent unwanted changes)

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 or 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 not set to Heat 2.) Loose connection to thermostat or system 3.) Heating System requires service or thermostat requires replacement	1.) Set thermostat to Heat. 2.) Verify thermostat and system wires are securely attached. 3.) Diagnostic: Set System to Heat and raise the set point 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 not set to Cool 2.) Loose connection to thermostat or system 3.) Cooling System requires service or thermostat requires replacement	1.) Set thermostat to Cool. 2.) Verify thermostat and system wires are securely attached. 3.) Diagnostic: Set System 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 05
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, 32 & 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 5.) If “Call for Service” is flashing, compressor self diagnostic is detecting an issue with the outdoor unit	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 ( ), If it’s OFF, try reset shown below. 5.) Contact a service person to verify the outdoor equipment is operating correctly

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.

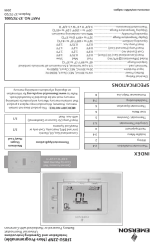
To conveniently reset only the schedule and user settings back to factory defaults, press Menu and Backlight buttons at the same time and hold until the display goes blank and resets.

WARNING: This product contains a chemical known to the state of California to cause cancer and birth defects and other reproductive harm.

EMERSON™

emerson.com/white-rodgers

Documents / Resources

	**EMERSON Universal Thermostat Battery Powered or Hardwired with Common** [pdf] Instruction Manual Universal Thermostat Battery Powered or Hardwired with Common, 1F85U-22NP

References

- White-Rodgers Brand | Emerson US
- Thermostat Recycling Corporation (TRC)