EMERSON

1F75H-21PR (Programmable)

Installation and Operating Instructions

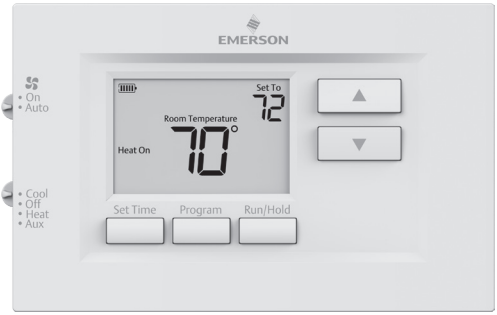
Heat Pump Thermostat

Battery Powered or Hardwired with Common

THERMOSTAT HELPER

Programming made Simple

See page 7



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

INDEX

Thermostat Applications	Maximum Stages Heat/ Cool
Single Stage Compressor, Heat Pump Systems (air source or geothermal) – 1 Stage Aux/Emergency Heat, Electric or Gas (Dual Fuel)	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	20 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)		
Rated Differentials (@ 6°F/ Hr):	Fast	Med	Slow
Heat Pump (Heat)	0.9°F	1.2°F	1.7°F
Heat Pump (Cool)	0.9°F	1.2°F	1.7°F
Auxiliary Heat	0.5°F	0.75°F	1.9°F
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		

PART NO. 37-7843001

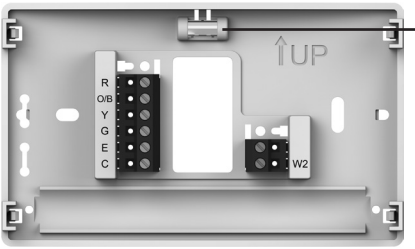
WIRING

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.

Terminal Designations	Terminal Function
R	Power (24V)
O/B	Changeover Terminal-Energized in Cool (O) or Heat (B) for Heat Pump or Damper Systems
Y	Heat and Cool Mode 1st Stage Compressor
G	Fan Relay
E*	Auxiliary only Heat Mode (Emergency Heat)
C	Common wire for 24V (optional with batteries)
W2*	Heat Mode – 2nd stage

*Cut W2/E jumper when separate heat sources are used for W2 and E.

IMPORTANT: For Dual Fuel Heat Pump applications, be sure to turn on the Duel Fuel Logic option (found in the Installer's Menu)



Leveling Thermostat
Leveling is for appearance only and will not affect thermostat operation.

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 handing or distorting components could cause the control to malfunction.

⚠ WARNING

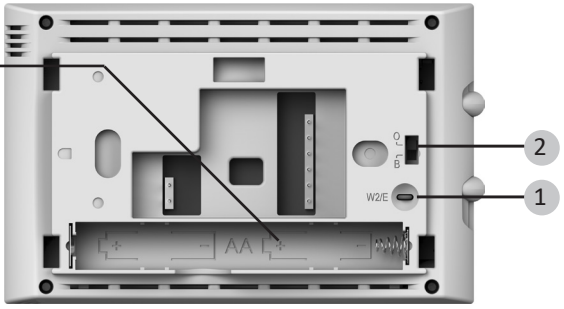
Do not use on circuits exceeding specified voltage. Higher voltage will damage control and could cause shock or fire hazard.

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 electrical power to system, at main fuse or circuit breaker box,until installation is complete.

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).



1.) W2/E Jumper Wire
This thermostat electrically connect the W2 and E terminals so that you do not need to do this with a jumper wire. If your system has separate W2 and E wires, clip the W2/E jumper located on the back of the thermostat. This will isolate both terminals so they can be used independently.

2.) 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.

INSTALLER MENU

To access the INSTALLER'S MENU set the system switch to the OFF position and then press and hold the temperature ▲ and ▼ buttons for 3 seconds. The display will show item **30** in the table below. Use the temperature ▲ and ▼ buttons by pressing them simultaneously to navigate through menu items. Press ▲ or ▼ to change a menu setting.

Installer's Menu # (Hold Menu 3 Seconds)	Description	Default Setting (flashing icons)	Settings (Press ▲ or ▼)
30 CR	**Heat Cycle Rate** (how often the heat will turn on)	**MEd**	**SLO – slow** **MEd – medium** **FAS – fast**
32 CR	**Aux Cycle Rate** (how often the auxiliary heat will turn on)	**MEd**	**SLO – slow** **MEd – medium** **FAS – fast**
35 CR	**Cool Cycle Rate** (how often the cooling will turn on)	**MEd**	**SLO – slow** **MEd – medium** **FAS – fast**
50 CL	**Compressor Lockout** (protects the compressor from short cycling)	**OFF**	**On** – 5 minute delay **OFF** – no delay
60 dF	**Duel Fuel Logic** (turn On when using gas as the auxiliary heat source)	**OFF**	**On- gas auxiliary heat** **OFF- electric auxiliary heat**
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 Non-Programmable)	**5**	**7** – 7 Day **5** – 5-1-1 Day **0** – Non Programmable
76 E	**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

(Installer Menu continued on next page)

INSTALLER MENU (Continued)

Installer's Menu # (Hold Menu 8 Seconds)	Description	Default Setting (flashing icons)	Settings (Press ▲ or ▼)
79	**Fahrenheit or Celsius**	**°F**	**°F** – Fahrenheit **°C** – Celsius
81	**Temperature Display Adjustment** (adjust the displayed "Room Temperature")	**0**	**-5 to +5**
83 dL	**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

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.) Move fan switch to On position. The blower should begin to operate.
2.) Move fan switch to Auto position. The blower should stop immediately.

Heating System

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

Auxiliary System

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

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 lockout feature is operating. There will be up to a 5 minute delay before the compressor turns on.(see INSTALLER MENU, item 50)*

⚠ CAUTION

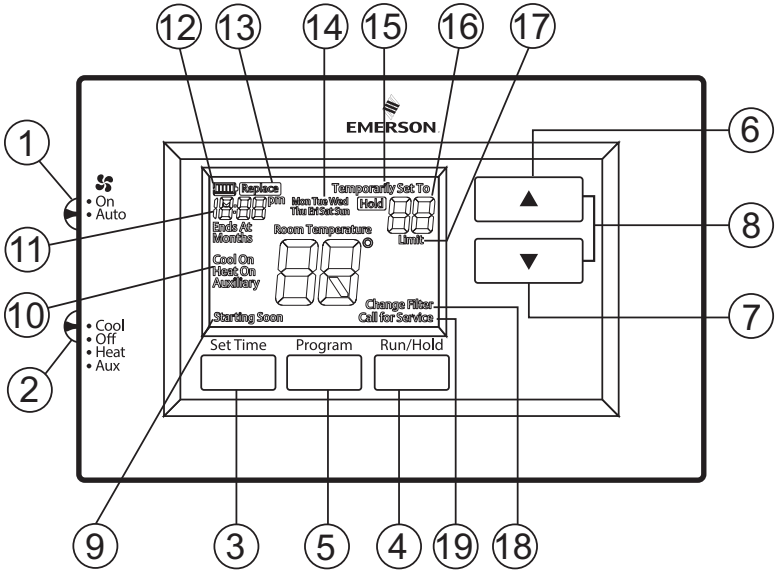
To prevent compressor and/or property damage, if the outdoor temperature is below 50°F, DO NOT operate the cooling system.

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.

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	9.) Thermostat is protecting the equipment from short cycling (5-minute delay)
2.) System Switch	10.) Indicates that the system is running in cool, heat or auxiliary mode (The auxiliary will run in Heat mode when the heat pump cannot maintain the set temperature.)
3.) Set Correct Time	11.) Displays the current time
4.) Hold a Permanent Temperature or Run Program	12.) Battery status indicator
5.) Access Programming	13.) Low battery indicator
6.) Raises Temperature Setting	14.) Day of the week used when programming a schedule
7.) Lowers Temperature Setting	15.) Permanent hold (bypassing the schedule)
8.) Access Menu Options	16.) Temperature setpoint
	17.) Displays when the thermostat setpoint has reached the maximum or minimum setting.
	18.) Displays change filter reminder
	19.) **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.

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.

THERMOSTAT SCHEDULE / PROGRAMMING

THERMOSTAT HELPER

For tips on programming your thermostat to receive optimal comfort, convenience and energy savings go to: **thermostathelper.com**

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

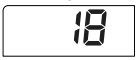
ENTERING YOUR PROGRAM

Set Current Time and Day

1. Press TIME button once. The display will show the hour only.

   EXAMPLE: 

2. Press and hold either ▲ or ▼ until you reach the correct hour and AM/PM designation (AM begins at midnight; PM begins at noon).
3. Press TIME once again. The display window will show the minutes only.

   EXAMPLE: 

4. Press and hold either ▲ or ▼ until you reach the correct minutes.
5. Press TIME once again. The display will show the day of the week.
6. Press ▲ or ▼ until you reach the current day of the week.
7. Press RUN/HOLD once. The display will show the correct time, day, room temperature and set-point temperature.

Enter Heating Program

1. Move the SYSTEM switch to HEAT.
2. Press PRGM once. "Mo Tu We Th Fr" (indicating weekday program) will appear in the

display. Also displayed are the currently programmed start time for the 1st heating period and the currently programmed temperature (flashing).
This display window shows that for the 1st weekday period, the start time is 6:00 AM, and 70° is the programmed temperature (this example reflects factory preprogramming).

3. Press ▲ or ▼ to change the displayed temperature to your selected temperature for the 1st heating program period.
4. Press PROGRAM once (the programmed time will flash). Press ▲ or ▼ until your selected time appears. The time will change in 15 minute increments. When your selected time is displayed, press PROGRAM again to return to the change temperature mode.
5. Press PROGRAM once. The currently programmed start time and setpoint temperature for the 2nd heating program period will appear.
6. Repeat steps 3 and 4 to select the start time and heating temperature for the 2nd heating program period.
7. Repeat steps 3 through 5 for the 3rd and 4th heating program periods.
8. Press PROGRAM once. "SA" (indicating Saturday program) will appear in the display, along with the start time for the 1st heating period and the currently programmed temperature.
9. Repeat steps 3 through 7 to complete Saturday heating programming.
10. Press PROGRAM once to change to SU (Sunday) heating programming and repeat steps 3 through 7 to complete Sunday programming.
11. When you have completed entering your heating program, press RUN/HOLD.

Enter Cooling Program

1. Move SYSTEM switch to COOL position.
2. Follow Enter Heating Program for entering your cooling program, using your selected cooling times and temperatures.

⚠ CAUTION

If the outside temperature is below 50°F, disconnect power to the cooling system before programming. Energizing the air conditioner compressor during cold weather may cause personal injury or property damage.

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.

(Troubleshooting continued on next page)

TROUBLESHOOTING (Continued)

Symptom	Possible Cause	Corrective Action
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 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 (denoted by 🔒 icon) 5.) Contact a service person to verify the 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 ▲, ▼ and **Set Time** buttons at the same time and hold until the display goes blank and resets.

HOMEOWNER HELP LINE: 1-800-284-2925

WHITE-RODGERS

emerson.com/white-rodgers

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