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PROGRAMMING AND APPLICATION GUIDE (SERVICEMAN'S MANUAL)

ComfortSense™ 7000 Series Model L7742U Touch Screen Programmable Thermostat

CONTROLS
506180-01
09/08

TP Technical Publications
Litho U.S.A.

⚠ IMPORTANT

Read this manual before programming this thermostat.

Use this thermostat only as described in this manual.

Shipping and Packing List

- 1 - ComfortSense™ Model L7742U touch screen, 7-day programmable thermostat
- 2 - Mounting screws (M3.5x25mm self-tapping screws)
- 2 - Wall Anchors
- 1 each - Installation Quick-Start Guide, Programming & Application Guide, Homeowner's Manual, Warranty card, Warranty Audit tag

⚠ CAUTION

This is a 24VAC low-voltage thermostat. Do not install on voltages higher than 30VAC.

Do not short (jumper) across terminals on the gas valve or at the system control to test installation. This will damage the thermostat and void the warranty.

⚠ IMPORTANT

In commercial applications, the ComfortSense Model L7742U thermostat can only be used with approved split-system matches, and those which meet the following installation criteria:

- installation uses 18 GAUGE thermostat wire or larger,
- thermostat wire run length DOES NOT EXCEED 300' (91m),
- load from any thermostat connection is LESS THAN 1 AMP.

If used with Harmony II® Zone Control System, consult Application Note H-04-5.

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NOTE - This thermostat is equipped with automatic compressor protection to prevent potential damage due to short cycling or extended power outages. The short cycle protection provides a 5-minute delay between heating or cooling cycles to prevent the compressor from being damaged.

⚠ WARNING

Always turn off power at the main power source by switching the circuit breaker to the OFF position before installing or removing this thermostat.

All wiring must conform to local and national building and electrical codes and ordinances.

Do not switch system to cool if the outdoor temperature is below 45°F (7°C). This can damage the cooling system.



ComfortSense™ Model L7742U Thermostat

Description

The ComfortSense™ Model L7742U thermostat is an electronic 7-day universal multi-stage programmable touch screen thermostat. It also offers enhanced capabilities which include humidification measurement and control, dew point adjustment control, dehumidification measurement and control, Humiditrol® Enhanced Dehumidification Accessory (EDA) capability, and equipment maintenance reminders. The 24VAC thermostat also features worry-free memory storage and a menu-driven display. This document supports heat pumps or non-heat pump units, with up to 4 stage heat / 2 stage cool heat pump (2 stages of heat pump heating and 2 stages of auxiliary backup heat are provided). Also, 2 stages of emergency heat are provided).

An optional outdoor temperature sensor (X2658) is required in applications with Humiditrol® EDA.

These instructions are intended as a general guide and do not supersede local codes in any way. Consult authorities having jurisdiction before installation.

Check equipment for shipping damage. If you find any damage, immediately contact the last carrier.

Dimensions

Screen dimensions: 3-7/16" (87 mm) width x 2-9/16" (65 mm) height

Case dimensions: 5-7/8" (149 mm) width x 4-9/16" (116 mm) height x 1-1/4" (31mm) depth

Features

Outdoor Temperature Sensor (optional)

The outdoor sensor may be required, especially when using Humiditrol® EDA applications. In addition to measuring and displaying outdoor temperature, the outdoor sensor provides dew point adjustment and control for all models. If used with this thermostat, the sensor enables optimal heating equipment operation via programmable balance points.

NOTE - The outdoor sensor uses standard thermostat wiring; it may be wired using two wires of a multi-wire cable.

When the outdoor sensor is connected, the temperature is displayed in the information display area (see figure 2).

NOTE - For proper operation of Humiditrol® EDA applications, the outdoor sensor (X2658) MUST be installed.

"L" Input

"L" input from the equipment is used to notify the user of an equipment fault by displaying "HVAC ERROR DETECTED" when one of the following conditions exist:

- "L" terminal is activated with 24VAC and Y1 has been activated for 5 minutes, OR,
- LSOM error signal is detected on "L" input and Y1 has been activated for 5 minutes.

NOTE - If system is in battery mode, the L terminal is not functional. The L input is used for diagnostic information purposes only, it is not intended to provide equipment protection.

Compressor Short Cycle Protection

A 5-minute compressor short cycle protection timer begins when a compressor output is de-energized. Also, if a power loss occurs, the system will go into compressor protection mode and display WAIT in the display if there is a cooling or compressor heating call.

Display Fields & Touch Screen Points

- A. Selection Tab** touch fields - Press to select: HOME (normal display), SCHEDULE (for programming), OPTIONS (to set alerts, service reminders, and other user and installer settings).

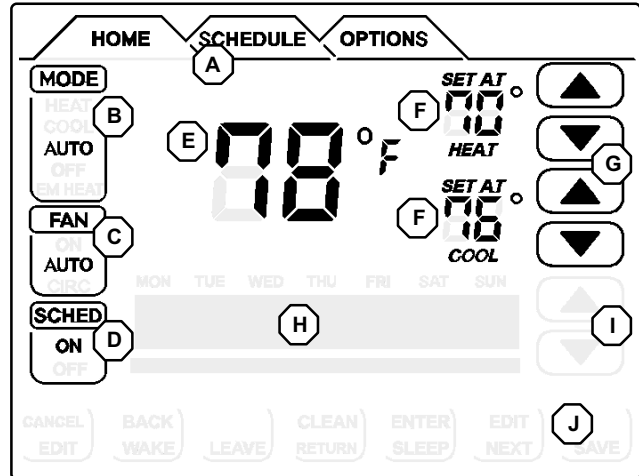


Figure 1. Touch screen active fields

- B. MODE** - press to cycle through HEAT, COOL, AUTO (autochangeover), OFF, EM HEAT (emergency heat).
- C. FAN** - press to cycle through ON, CIRC (circulate), AUTO.
- D. SCHED** (schedule) - press to change between ON and OFF.
- E.** Displays the room temperature.
- F.** Displays the current operation SET AT point; if in AUTOchangeover, both HEAT and COOL setpoints are identified.
- G.** Up/down arrow touch fields used for adjusting temperature up or down; if in AUTO (autochangeover) mode, 2 sets of up down arrows.

- H. Displays different information depending on the tab selected:
- HOME tab: displays outdoor temperature (if outdoor sensor Lennox P/N X2658 is installed), indoor relative humidity (RH), which mode is calling, hold settings information, service reminders.
 - SCHEDULE tab: displays the event being programmed;
 - OPTIONS tab: displays a scrolling list of installer- and user-adjustable parameters, including filter and service reminder periods, etc.
- I. Schedule time adjustment, User/Installer Settings arrows:
- HOME screen: not visible except when executing a HOLD SETTING)
 - SCHEDULE and OPTION screens: used to adjust schedule and option settings.
- J. Dynamic touch fields - not visible in HOME screen unless executing a HOLD SETTING. For SCHEDULE and OPTIONS settings, these boxes appear and change depending on the selection. See the schedule and options sections for details.

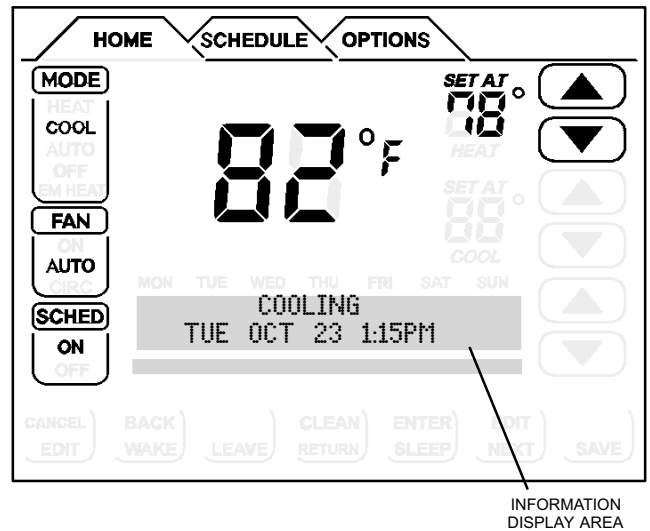


Figure 2. Home Screen

The menu tabs along the top of the screen are used to access the SCHEDULE screen (for program setup) and the OPTIONS screen (to access user/installer settings including, change to 24 hour clock, change Fahrenheit to Celsius, set filter and service reminders, and many other settings).

Equipment operation information appears in the boxes along the left side of the home screen to indicate fan operation setting, cooling or heating equipment operation setting, and whether or not scheduled programming is ON or OFF. From these boxes, users can change the unit's mode to HEAT, COOL, AUTO (autochangeover - default), EM HEAT (emergency heat for heat pump applications including dual fuel and HP with Electric Heat), or OFF.

Also, the user can change the fan between ON (fan runs continuously whether or not cool or heat equipment is running), AUTO (fan run time controlled the schedule), or CIRC (circulate - user sets percentage of fan run time).

The user can also decide whether or not to operate the unit per the programmable schedule, or in a non-programmable mode using the SCHED box.

Home Screen—Current Conditions & Temperature Settings

The HOME screen (figure 2) displays indoor temperature and outdoor temperature if the X2658 sensor is installed outdoors and turned on in user settings (outdoor sensor is required when humidity controlling features are implemented). Other system operational information, such as indoor relative humidity (if turned on in user settings), dehumidifying, cooling or heating, will alternately be displayed in the information display.

The home screen displays temperature and the temperature settings in large fonts. The INFORMATION DISPLAY shows the present day, time, and operational information in a smaller font.

Controlling the Heat/Cool Modes of Operation

Press the screen anywhere - the first press turns on the backlight.

MODE
HEAT
COOL
AUTO
OFF
EM HEAT

While in the HOME screen, press MODE field; repeated presses scroll through all the modes. AUTO (autochangeover) mode allows the thermostat to switch between Heating and Cooling, whichever mode is dictated by the indoor temperature. EM HEAT (emergency heat) bypasses the first stage of heating (any stage[s] of heat pump heating) and goes directly to the heat stage used for maximum heating to more quickly warm a very cold house.

When the indoor temperature decreases or increases, the HEATING or COOLING cycle will turn on based on the displayed mode. When the HVAC system is on, the information display (shown in figure 3) will display one or several operational messages (listed in the table below). If the out-

door sensor is connected, and is turned on in both installer and user settings, outdoor temperature will be included in the displays. The table below summarizes the information messages.

When the faults, errors, and service information displays appear, action boxes will appear under the second line entries, REMIND, CLEAR, SERVICE, or RESET. Press the box to perform the action.

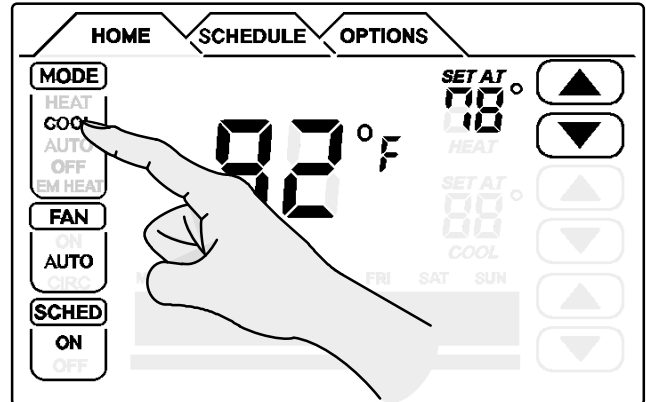


Figure 3. Home Screen

Information Displays:

Faults, Errors, and Service Information	Operating Information
TEMP SENSOR ERROR, MEMORY ERROR CALL FOR SERVICE	Top line: fault/error Bot. line: action
NO OUTDOOR SENSOR REMIND CLEAR SERVICE	Top line: fault/error Bot. line: action
REPLACE: MEDIA FILTER; UV LAMP; HUM PAD; METAL INSERT REMIND RESET	Top line: serv. req'd Bot. line: action
ROUTINE S'YS CHECK-UP REMIND RESET	Top line: serv. req'd Bot. line: action
NO OUTDOOR SENSOR, HUM SENSOR ERROR, HVAC ERROR DETECTED REMIND SERVICE	Top line: fault/error Bot. line: action
LOW BATTERY REMIND	Top line: fault/error Bot. line: action
	SET DATE/TIME Default DATE/TIME <MON JAN 1 12:00 PM> HEATING, COOLING, HUMIDIFYING, DE-HUMIDIFYING, SYSTEM OFF, OUTDOOR TEMP xxF, INDOOR RH x% MON SEP 24 3:00 PM SCHEDULE ON, SCHEDULE OFF, WAIT, FAN ON, FAN CIRC MON SEP 24 3:00 PM HOLD SETTING UNTIL PRESS SCHED TO RESUME PROGRAM MON SEP 24 3:00 PM
	[First time start up message] Top line: operation messages Bottom line: date & time Top line: add'l operation msgs Bottom line: date & time [Alternating messages during a held schedule]

Controlling the Fan Operation

Press the screen anywhere - the first press turns on the backlight.

FAN From the HOME screen press FAN field; repeated presses scroll through all the modes, AUTO, ON, and CIRC (circulate).

Fan Modes

Fan Modes (ON, AUTO and CIRC) can be changed either from HOME screen or from the SCHEDULE screen when programming the thermostat. The three settings work like this:

- If FAN mode displays AUTO on the HOME screen, this means that FAN is following the schedule.
- If FAN mode displays ON on the HOME screen, this means that the fan is NOT following the schedule and that the fan will run continuously until it is changed from the HOME screen.
- If FAN mode displays CIRC on the HOME screen, this means that the fan is NOT following the schedule and that the fan will cycle during periods of equipment inactivity. The cycle time is dependant on user settings FAN CIRCULATE (Page 7).

If FAN mode displays AUTO (HOME) and ON or CIRC was selected during scheduling for the current period, the thermostat will indicate the current fan mode in the information display (FAN ON or FAN CIRC).

In the CIRC mode, the user can cycle the fan for a programmed percentage of active time per hour, during periods of equipment inactivity (i.e., heating or cooling equipment not running). The fan is ON for 5 minutes at a time. The user may change the percentage of ON time that the fan is on (see FAN CIRCULATE [Page 7]):

Fan Program

The user can program the fan to be ON, AUTO, or CIRC during a program event period. While scheduling the event, if the fan is set to ON, it will remain on during the entire event. If it is set to CIRC, it will circulate during equipment inactivity per user programmable cycles (see FAN CIRCULATE, Page 7). If set to AUTO, the fan will come on with the equipment to serve the heating/cooling demand and go off accordingly. Using the fan continuously or circulating the fan during the occupied times may better improve the indoor air quality.

NOTE - When the HOME screen FAN mode is changed to ON or CIRC, whatever was scheduled is ignored - the fan will either be ON or it will CIRCULATE per the user-programmed intervals (USER SETTINGS - FAN CIRCULATE (Page 7). When FAN - AUTO is selected in the HOME screen, the schedule IS followed.

Controlling the Schedule

Press the screen anywhere - the first press turns on the backlight.

SCHED From the HOME screen press SCHED; repeated presses toggle the schedule ON and OFF. If ON, the system follows the program developed by the user (Page 6). If OFF, the system operates as a non-programmable thermostat—the user must make changes when desired. The autochangeover feature will continue to operate based on the manual user inputs.

Schedule Screen—Programming

Press the screen anywhere - the first press turns on the backlight.

Press the SCHEDULE tab along the top of the screen. The display changes to programming mode (figure 4) and shows the current settings. The thermostat may be programmed for two or four (default) events per day. The names for the events are: WAKE, LEAVE, RETURN, and SLEEP. The selected time for an event to occur is based on when you want the event to **begin**. Four events are common for working households.

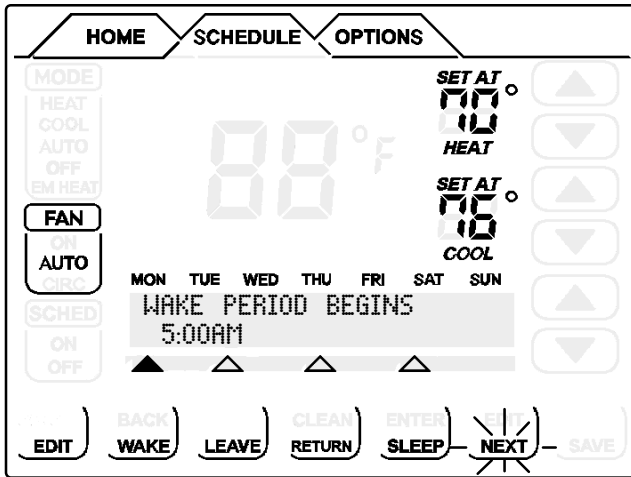


Figure 4. Schedule Screen

Programming may be performed in groups of days (5/2 or all 7) or individual days, as follows:

- A. MON TO SUN - allows every day to be set the same.
- B. MON TO FRI (weekday programming) and SAT TO SUN (weekend programming).
- C. MONDAY through SUNDAY allows individual days of the week to be programmed separately.

NOTE - After using one of the groups of days described above, the program does allow you to subsequently change individual days to suit your needs.

To select the groupings or individual days, scroll through the selections pressing NEXT.

Programming Complexity

The programming process for groups of days or individual days is the same, except in the amount of times required to go through the process.

Full Week—The least complex program is the full week “MON TO SUN” program, wherein the events for every day of the week are the same. This requires one time through the event programming process.

Work Week—Next in complexity to the full week program is the work week program wherein the events are set for a typical work week (MON TO FRI) and different events are set for the weekend (SAT TO SUN). This requires two times through the events.

Day by Day—Most complex because this requires going through the programming process 7 times.

Days & Events Programming process

Action	Display shows...
1 Press SCHEDULE tab	SCHEDULE screen
2 Press EDIT	UP/DOWN arrows on right-hand side of screen; EDIT changes to CANCEL
3 Press NEXT to highlight the desired grouping of days	Days change to match selected group, e.g. MON TUE WED THU FRI
4 Press an event: WAKE (default), LEAVE, RETURN, & SLEEP to select for programming	Filled triangle above event indicates which event is selected for change
5 Press UP/DOWN arrows to select desired temperature	After change is made, SAVE appears in the bottom right-hand of the screen
6 Press FAN repeatedly to select desired fan mode	Fan indicator displays selection (ON, AUTO, or CIRC)
7 Press UP/DOWN arrows to adjust start time for selected event	Information area displays start time
8 Repeat steps 4 - 7 for all remaining events.	
(If you selected other than MON TUE WED THU FRI SAT SUN), continue; otherwise, skip to step 11.	
9 Press NEXT for the next group or the next day	Days change to match selected group, e.g. SAT SUN
10 Repeat steps 3 through 8 for the remaining days, if necessary.	
11 Press SAVE when all events and days are programmed as desired	The changes are made and the schedule screen reappears.

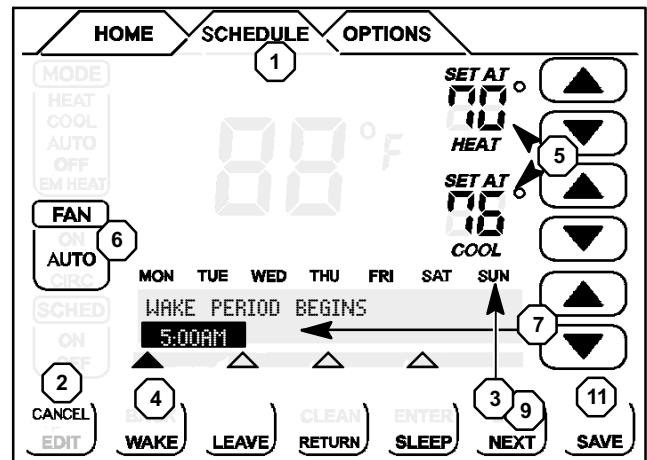


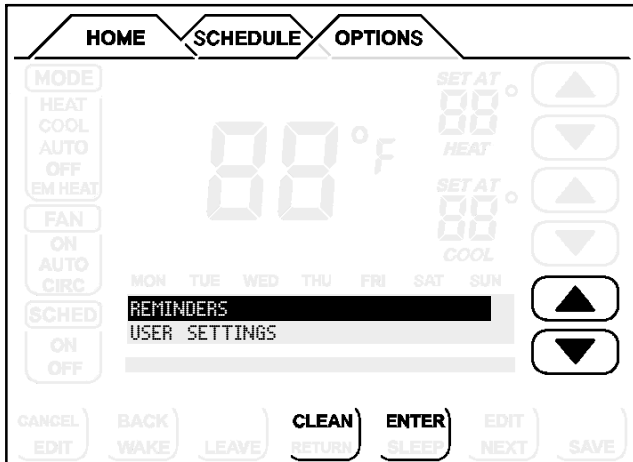
Figure 5. Programming days and events

Options screen—Reminders & User Settings

CLEAN button

When you select the OPTIONS tab, two buttons appear near the bottom of the screen labeled CLEAN and ENTER. Press the CLEAN button to deactivate the “touch” zones for 30 seconds. Clean the screen with a soft cloth and a mild glass cleaning solution.

The Options screen provides user and installer access to the various features for setup and access to the reminders.



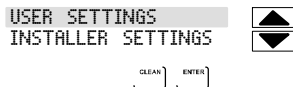
Reminders [OPTIONS TAB > REMINDERS > [ENTER]]

Set timers from 1 to 24 months in either calendar time or system run time. Reminders appear when it is time to service the following (for more details on REMINDERS, see Page 17):

REPLACE MEDIA FILTER DUE FRI FEB 15 08	REPLACE METAL INSERT DUE SUN SEP 14 08
REPLACE HUM PAD DUE FRI FEB 15 08	REPLACE UV LAMP DUE THU SEP 14 08
ROUTINE S/Y'S CHECK-UP DUE IN 2160 HOURS	CUSTOM REMINDERS DUE SUN APR 13 08

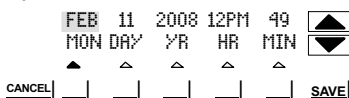
User Settings [OPTIONS TAB > USER SETTINGS > [ENTER]]

Press the OPTIONS tab; use the arrows to select USER SETTINGS. Press ENTER.



The following items are available for modifying. Follow the instructions for each parameter.

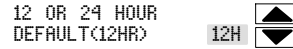
DATE/TIME—Set month, day, year, hour, and minute using DATE/TIME option. Select DATE/TIME; press ENTER. Small, filled up-arrow is selected column; use up/down arrows to adjust; press box below each small up-arrow to select each column. Adjust; press SAVE.



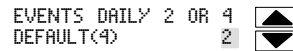
F/C—default is Fahrenheit; to change to Celsius, scroll to F/C; press ENTER. Use arrows to change to C; press SAVE.



12 OR 24 HOUR clock—default is 12H; to change, scroll to 12 OR 24 HOUR; press ENTER. Use arrows to change to 24H; press SAVE.



EVENTS DAILY 2 OR 4—default is 4; to change, scroll to EVENTS DAILY 2 OR 4; press ENTER. Use arrows to change to 2; press SAVE.

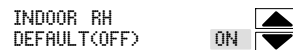


DISPLAY INFO—controls some of what is displayed in the field below the temperature and above the time on the HOME screen; it may display OUTDOOR TEMP, INDOOR RH (relative humidity), or neither if TEMP and RH are turned OFF. Scroll to DISPLAY INFO; press ENTER. Use arrows to select TEMP or RH; press ENTER.

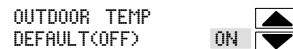


NOTE - When accessing the OUTDOOR TEMP option “OUTDOOR SENSOR REQUIRED” will display if not turned ON in the installer settings. The home screen will display “NO OUTDOOR SENSOR” if the physical sensor is not installed.

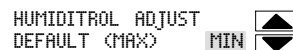
For INDOOR RH, use arrows to select ON or OFF; then press SAVE.



For OUTDOOR TEMP, select ON or OFF; then press SAVE.



HUMIDITROL ADJUST—If Humiditrol is enabled in the installer settings, then this adjustment affects overcooling operation. Overcooling ranges from 2°F below the **cooling** setpoint (MIN setting) down to 2°F above the **heating** setpoint (MAX setting). Halfway between the two settings is the MID setting. The default setting is MAX; to change to MID or MIN, scroll to HUMIDITROL ADJUST; press ENTER. Use arrows to scroll to MID or MIN; then press SAVE.



NOTE - Humiditrol does not function if the outdoor temperature is 95°F or greater nor when the indoor temperature is 65°F or less.

FAN CIRCULATE—As an option to running the fan all the time, CIRCulate allows the user to decide how much the fan will run during periods of equipment inactivity. The fan ON time is always set to 5 minutes. This option will cause

the fan to come on more or less frequently. The default is 35%; to change, scroll to FAN CIRCULATE; press ENTER. Use arrows to change to 15, 25, or 45%; press SAVE.

```
FAN CIRCULATE
DEFAULT<35%> 25%
15% (9 minutes fan run time per hour)
25% (15 minutes fan run time per hour)
35% (21 minutes fan run time per hour)
45% (27 minutes fan run time per hour)
```

COOLING LIMIT—default is 45°; to change to any degree between 45°F and 99°F, scroll to COOLING LIMIT; press ENTER. Use arrows to change to desired temperature; press SAVE.

```
COOLING LIMIT
DEFAULT<45°F> 55°F
```

HEATING LIMIT—default is 90°; to change to any degree between 45°F and 90°F, scroll to HEATING LIMIT; press ENTER. Use arrows to change to desired temperature; press SAVE.

```
HEATING LIMIT
DEFAULT<90°F> 85°F
```

SECURITY LOCK—default - no locks at all - this provides two methods of locking the thermostat - NO prevents others from making any changes at all or YES prevents others from making changes other than temperature setpoints. Scroll to SECURITY LOCK and press ENTER; ALLOW TEMP ADJUST screen appears; press box below YES or NO. The ENTER LOCK CODE screen appears.

```
ALLOW TEMP ADJUST
YES NO
ENTER LOCK CODE
0 0 0
SAVE
```

NOTE - If the user settings security code is forgotten or misplaced for some reason, the universal code "864" may be used to unlock.

To enter lock code, press box below each small up-arrow to select each column. Use up/down arrows to enter a number, then press the box below the next number and repeat to enter a 3-digit lock code; write down the number for future reference; press SAVE.

HUMIDITY SETTING—See separate sections - Humidify (Page 10) and Dehumidify (Page 11).

BACKLIGHT SETTING—default is POWER SAVE; scroll to BACKLIGHT SETTING; press ENTER. Use arrows to change to CONTINUOUS; press SAVE.

```
BACKLIGHT SETTING
DEF<SAVE> POWER SAVE
```

BACKLIGHT INTENSITY—default is 100%; scroll to BACKLIGHT INTENSITY; press ENTER. Use arrows to change to 20 to 100% in 20% increments; press SAVE.

```
BACKLIGHT INTENSITY
DEFAULT<100%> 80%
```

Options screen—Installer Settings

Installer Settings

[OPTIONS TAB > INSTALLER SETTINGS > [ENTER] [ENTER]]

Press OPTIONS tab, then use the arrows to select INSTALLER SETTINGS. Press ENTER twice.

```
INSTALLER SETTINGS
-----
CLEAN ENTER
```

NOTE - After the first "Enter", a note states "MUST BE SET BY QUALIFIED PERSON". Press Enter again to access installer settings.

The following items are available for modifying. Follow the instructions for each parameter.

SYSTEM SETUP—Sets the thermostat for operation with a heat pump or non-heat pump and defines the number of compressor stages and the number of backup heat stages. The default settings for the system are Non-heat Pump, Gas/Oil, 2 compressor stages, 2 indoor heat stages.

Use arrows to select from the list; then press ENTER.

```
SYSTEM SETUP
NON HEAT PUMP
HEAT PUMP
COMPRESSOR STAGES
INDOOR HEAT STAGES
```

For NON HEAT PUMP, use arrows to select backup heat: NO HEAT, GAS/OIL, or ELECTRIC; then press SAVE.

```
NON HEAT PUMP
NO HEAT
GAS/OIL
ELECTRIC
```

For HEAT PUMP, use arrows to select backup heat: NO BACKUP HEAT, DUAL FUEL (GAS/OIL), or ELECTRIC; then press SAVE.

```
HEAT PUMP
NO BACKUP HEAT
DUAL FUEL (GAS/OIL)
ELECTRIC
```

For COMPRESSOR STAGES, use arrows to select either 1 or 2 compressor stages; then press SAVE.

```
COMPRESSOR STAGES
2
```

For INDOOR HEAT STAGES, use arrows to select 1 or 2 indoor heat stages; then press SAVE.

```
INDOOR HEAT STAGES
2
```

OUTDOOR SENSOR—default NO. Balance points, Humiditrol, Dew Point Control require an outdoor sensor. This control sets the thermostat to test for and report outdoor temperature. Scroll to OUTDOOR SENSOR and press ENTER; use arrows to select YES; press SAVE.

```
OUTDOOR SENSOR
DEFAULT<NO> YES
```

NOTE - If outdoor sensor is not present and if user tries to select the options DISPLAY INFO -> OUTDOOR TEMP, LOW BALANCE POINT, HIGH BALANCE POINT, DEW POINT CONTROL, HUMIDITROL a message is displayed "OUTDOOR SENSOR REQUIRED" instead of scroll options for these menus. Information about installing the sensor is described on Page 16.

RESIDUAL COOL—default is zero seconds. This is the time, in seconds, that the fan runs after a call for cooling is satisfied in order to deliver any residual cooling ability from the coil and ductwork into the conditioned space. Scroll to RESIDUAL COOL; press ENTER. Use arrows to select seconds: 0, 30, 60, 90, and 120; press SAVE.

RESIDUAL COOL
DEFAULT<0S> 60S

LOW BALANCE POINT—default 25°F (heat pump only, and if outdoor sensor installed). If outdoor temperature is below programmed Low Balance Point, compressor heating is not allowed. The options are OFF or any point from -40°F to the High Balance Point setting in 1.0°F steps.

LOW BALANCE POINT
DEFAULT<25°F> 25°F

HIGH BALANCE POINT—default is 50°F (heat pump only, and if outdoor sensor installed). If outdoor temperature is above the High Balance point, then auxiliary heat is not allowed. The options are OFF or any point from the Low Balance Point up to 75°F in 1.0°F steps.

HIGH BALANCE POINT
DEFAULT<50°F> 45°F

DEADBAND—default is 4°F. The deadband setting is the minimum difference between the cooling and heating set-points. This setting is used in autochangeover mode to ensure smooth equipment operation and allows for flexibility in Humiditrol® EDA operation. The deadband is adjustable from 3 to 8°F.

DEADBAND
DEFAULT<4°F> 5°F

SMOOTH SET BACK—(SSR) default is ON. When enabled, SSR begins recovery up to 2 hours before the programmed time, such that the programmed temperature is reached at the corresponding programmed event time. Assume 12°F per hour for first stage gas/electric heating and 6°F per hour for first stage compressor based heating or cooling. With SSR disabled, the control will start a recovery at the programmed time. Scroll to SMOOTH SET BACK; press ENTER. Use arrows to select between ON or OFF. Press SAVE.

SMOOTH SET BACK
DEFAULT<ON> OFF

SSR STG2 LOCK OUT—default is 20 minutes. Second stage operation is not allowed until the last 20 minutes before the programmed start time. Use this setting to change the time. Scroll to SSR STG2 LOCK OUT; press ENTER. Use arrows to select minutes that 2nd stage will be locked out (20 to 120 min. in 10 min. increments). Press SAVE.

SSR STG2 LOCK OUT
DEFAULT<20MIN> 40MIN

CONTACT INFORMATION—default is CONTACT INSTALLING DEALER. This may be programmed with the dealer or technical service contact. Scroll to CONTACT INFORMATION; press ENTER. A cursor appears to the left of the first line. Use arrows to select letters, numbers, and special characters. When the first character is identified, press NEXT to advance to the next character; repeat to input the desired contact information. Press SAVE when finished.

CONTACT
INSTALLING DEALER

TEMPERATURE OFFSET—default is 0°F. This setting can be used to offset the displayed space temperature by up to +/- 5°F. This offset also applies to the control temperature. Scroll to TEMPERATURE OFFSET; press ENTER. Use arrows to select a new offset. Press SAVE.

TEMPERATURE OFFSET
DEFAULT<0°F> 3°F

HUMIDITY OFFSET—default is 0%. This can be used to offset the displayed and controlled space relative humidity (RH) by up to +/- 10% RH. Scroll to HUMIDITY OFFSET; press ENTER. Use arrows to select a new offset. Press SAVE.

HUMIDITY OFFSET
DEFAULT<0%> 2%

See separate section (Page 13) for details.

COMPRESSOR PROTECT—default is ON; it may be turned OFF, however, after one compressor cycle, it will revert back to ON. If the system is running in compressor protection, the home screen displays “WAIT” only if there is cooling or heating call for the compressor (Y1/Y2). If compressor protection is running and there is a demand for electric heating, the system waits for the compressor protection timer to expire. Scroll to COMPRESSOR PROTECT; press ENTER. Use up/down arrows to select OFF. Press SAVE.

COMPRESSOR PROTECT
DEFAULT<ON> OFF

DAYLIGHT SAVING TIME (DST)—default setting is ON (enabled). *Note: Beginning in 2007, DST will begin on the second Sunday in March and end the first Sunday in November. In the U.S., clocks spring forward from 1:59 a.m. to 3:00 a.m.; in fall, clocks fall back from 1:59 a.m. to 1:00 a.m.* If the community or state opts out of DST, turn this OFF. Scroll to DAYLIGHT SAVING TIME; press ENTER. Use up/down arrows to select OFF. Press SAVE.

DAYLIGHT SAVING TIME
DEFAULT<ON> OFF

HUMIDITY SETTING—See separate sections - Humidification (Page 10) and Dehumidification (Page 11).

STAGE DELAY AND DIFFERENTIAL SETTINGS—The differential or delay settings in the Installer Settings menu are:

```
STG DELAY TIMERS
STG 1 DIFF
STG 2 DIFF
STG 2 DELAY
STG 3 DIFF
STG 3 DELAY
STG 4 DIFF
STG 4 DELAY
H/C STGS LOCKED IN
STG 2 HP LOCK TEMP
```

See Page 13 for more stage delay and differential details.

CUSTOM REMINDERS—Two additional reminders may be created using a text message. This will appear in the list of reminders and the user can then select the time for the reminder to be displayed. Scroll to CUSTOM REMINDER 1 or 2. Press ENTER. To create a reminder, press EDIT.

CUSTOM REMINDER 1

BACK CLEAR CLEAN SLEEP EDIT

A cursor will appear on the second line. Use the arrows to scroll through letters, numbers and special characters. When the desired character appears, press NEXT to advance to the right by one character. Continue until the message is complete (up to 19 characters). When finished, press SAVE.

```
CUSTOM REMINDER 1
CLEAN OUTDOOR UNIT
```

RESET SETTINGS—To reset the ComfortSense™ Model L7742U thermostat to factory defaults, scroll to RESET SETTINGS.

⚠ IMPORTANT

This erases all programming and returns the thermostat to the factory conditions, including the installer settings. Use this only as a last resort.

With RESET SETTINGS selected, press ENTER. Press the box below YES to reset; RESETTING SETTINGS TO DEFAULTS appears briefly and then returns to the INSTALLER SETTINGS list.

```
RESET SETTINGS
YES NO
^ ^
| |
```

Hardware reset—a hardware reset may be performed if necessary. This procedure requires separating the thermostat from the base and shorting across points A and B as shown in figure 6.

All the settings will be restored from EEPROM.



Figure 6. Hardware Reset Points

ENERGY STAR DEFAULT—EPA ENERGY STAR® recommended setpoints for heating and cooling can help the household save energy. The following time and temperatures are preprogrammed into the control to conform to Energy Star requirements.

Table 1. ENERGY STAR® Setpoints

NOTE - Humidification and dehumidification are not part of the ENERGY STAR® program. A higher utility bill may occur when not using the setpoints in this table.	Time	Heating	Cooling
	Wake	70°F (21°C)	78°F (25°C)
	Leave	62°F (17°C)	85°F (29°C)
	Return	70°F (21°C)	78°F (25°C)
	Sleep	62°F (17°C)	82°F (28°C)

Scroll to ENERGY STAR DEFAULT; press ENTER. Press the box below YES to reset; ENERGY STAR SETTING appears briefly and then returns to the installer setting list.

```
ENERGY STAR DEFAULT
YES NO
^ ^
| |
```

SYSTEM TEST MODES—After the thermostat has been installed and set-up, the installer may run a system test function (accessed through the installer settings menu), to test all cooling, heating, Emergency Heating stages and FAN outputs. Scroll to SYSTEM TEST MODES and press ENTER; select TEST OUTPUTS and press ENTER.

```
SYSTEM TEST MODES
TEST OUTPUTS
```

SCROLL arrows move through a list of all signals, Y1 ON, Y1 OFF, Y2 ON, Y2 OFF, etc. With a signal displayed, press ENTER to start the test, (e.g. Y1 ON selected, press ENTER brings on Y1; Y1 OFF selected, press ENTER shuts off Y1. CANCEL, pressed at anytime during tests will return the previous screen and also disable any test and puts the thermostat back into normal mode.

⚠ CAUTION

In dual fuel system applications, do not turn on heat pump and furnace at the same time in system test mode.

All HVAC components can be tested to confirm the signals between thermostat and unit are being sent and received. *NOTES - After 5 minutes without a test being initiated, the test modes is disabled and system goes back to the normal mode (i.e. HOME screen).*

When in SYSTEM TEST MODE, the compressor minimum off timer is bypassed.

```
TEST OUTPUTS
OFF
Y1 ON
Y1 OFF
Y2 ON
Y2 OFF
W1 ON
W1 OFF
W2 ON
W2 OFF
FAN (G) ON
FAN (G) OFF
H ON
H OFF
D ON
D OFF
O ON (C) OFF
B ON (C) OFF
```

Humidification

INSTALLER SETTINGS

Humidification (adding moisture to air) is provided only when the thermostat is in **heat mode**. The humidification signal (H terminal) to the humidifier (off when the thermostat is in the COOL mode) controls humidification. When

the thermostat is powered, the H terminal is normally inactive (open circuit) in any mode (HEAT, COOL, OFF). When a humidification demand is present, H terminal and G terminal are energized (24V).

HUMIDITY SETTING—default OFF. **Installer settings must be turned on before the user will have control over the humidity.** The mode selected determines how the user can adjust the relative humidity (RH). The installer settings include BASIC, PRECISION, DEWPOINT, and OFF.

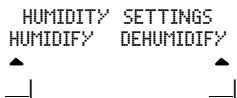
BASIC & PRECISION—these thermostat modes allow the user to control the relative humidity (RH) between 15 and 45%. The following conditions must be met for either mode to operate:

- humidification mode has been enabled, and
- the unit is in HEAT mode, and
- humidification demand exists (24V present at H), and

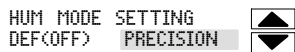
Additionally, the **BASIC** mode requires:

- heat demand exists (W energized [for gas heat, W may be energized with G de-energized]).

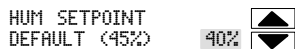
Scroll to HUMIDITY SETTINGS; press ENTER. Press the box below HUMIDIFY.



Use up/down arrows to select BASIC or PRECISION; press ENTER.



Default setting is 45% RH. Use up/down arrows to define what NEW SETPOINT IS (between 15 to 45%); then press SAVE.

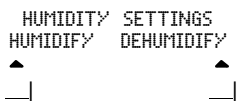


DEWPOINT—Dewpoint adjustment mode will change the humidification setpoint based on the outdoor temperature and a user-defined dew point adjustment setting.

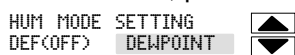
NOTE - In dew point adjustment mode, the humidification setpoint has no effect whatsoever on unit operation. Only the user-defined dew point adjustment setting affects operation per the following formula:

$RH_{\text{setpoint}} = \frac{\text{Outdoor Temp (}^{\circ}\text{F)}}{2} + \frac{2}{5} + RH_{\text{user dew point adjustment}}$
<p>Where: RH_{user dew point adjustment} cannot exceed +/-15% and RH_{setpoint} minimum is 15% and cannot exceed 45%.</p>

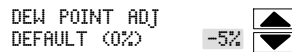
Scroll to HUMIDITY SETTINGS; press ENTER.



Press the box below HUMIDIFY. Use up/down arrows to select DEWPOINT; press ENTER.



Use up/down arrows to select NEW DEWPOINT ADJ setpoint (between +15 to -15%); then press SAVE.

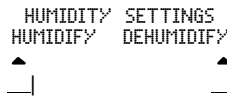


NOTE - Dewpoint adj available only when outdoor sensor is attached.

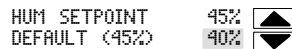
USER SETTINGS

BASIC & PRECISION—if set up by the installer settings for BASIC or PRECISION, this adjustment controls the relative humidity (RH) between 15 and 45%.

Scroll to HUMIDITY SETTINGS; press ENTER. Press the box below HUMIDIFY.

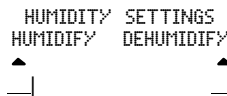


Use up/down arrows to change the humidity setpoint (between 15 and 45%); press SAVE.

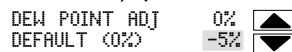


DEWPOINT—if set up by the installer settings for DEWPOINT, this adjustment (only when in heating mode) will change the humidification setpoint based on the outdoor temperature and a user-defined dew point adjustment setting. When humidifying, if condensation forms on the windows, the dewpoint should be adjusted in the range of -15 to -5%; if the home feels dry, set dewpoint upward in the range of +5 to +15%.

Scroll to HUMIDITY SETTINGS; press ENTER. Press the box below HUMIDIFY.



Use up/down arrows to change the dewpoint (between +15 and -15%); press SAVE.

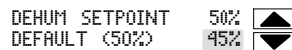


NOTE - Dewpoint adj available only when outdoor sensor is attached.

OFF—if OFF selected in installer settings for both humidify and dehumidify, this message appears when HUMIDITY SETTING is pressed:

HUMIDITY MODES OFF

If OFF is selected by the installer settings for HUMIDIFY but DEHUMIDIFY is on, the dehumidification menu appears (this setpoint adjust has NO effect on humidification):



Dehumidification

INSTALLER SETTINGS

Dehumidification (removing moisture from air) can occur only when the thermostat is in **cool mode**. When a dehumidification demand is present, a dehumidification signal (OVAC - open circuit) is present at the D terminal. This is used to reduce the speed of the indoor blower during dehumidification. At the same time, the Y1 and Y2 (if available) terminals become activated with 24VAC. The H terminal is inactive (OVAC - open circuit) during dehumidification.

NOTE - The D terminal is ALWAYS activated (24VAC) when the thermostat is in HEAT or OFF mode; it is only inactive (0VAC - reverse logic) during dehumidification.

Dehumidification adjustment will change the relative humidity (RH) setting between 45 to 60% RH (default setting is 50% RH). The lower the number, the more humidity will be removed from the air.

HUMIDITY SETTING—default OFF.

Installer settings must be turned on before the user will have control over the humidity.

The mode selected determines how the user can adjust the relative humidity (RH). The installer settings include BASIC, PRECISION, HUMIDITROL, and OFF.

Dehumidification Modes

In **BASIC** mode, dehumidification occurs if these conditions are met and signals are present at specific terminals:

- dehumidification has been enabled on installer settings, and
- the unit is in COOL mode, and
- dehumidification demand exists (RH above setpoint), and
- cooling demand exists (Y1 energized).

In **PRECISION** mode, dehumidification occurs if all BASIC conditions are true, except cooling demand may or may not be present. Maximum over cool from cooling set point is 2°F.

HUMIDITROL mode requires:

- outdoor sensor must be installed and setup
- dehumidification has been enabled on installer settings, and
- the unit is in COOL mode, (or if in AUTO, there has been at least one thermostat cooling call made prior to the dehumidification demand), and
- a dehumidification demand exists (RH above setpoint), and
- outdoor temperature is below 95°F, and
- indoor temperature is above 65°F, and
- the room temperature meets Humiditrol adjustment parameters as follows:
 - **MAX** adj. - Indoor temp > 2°F above heating setpoint
 - **MID** adj. - Indoor temp > $\frac{\text{HEAT SETPOINT} + \text{COOL SETPOINT}}{2}$
 - **MIN** adj. - Indoor temp > 2°F below cooling setpoint

Scroll to HUMIDITY SETTINGS; press ENTER. Press the box below DEHUMIDIFY.

```
HUMIDITY SETTINGS
HUMIDIFY  DEHUMIDIFY
  ▲          ▲
┌           └
```

Use up/down arrows to scroll to BASIC or PRECISION; press ENTER.

```
DEHUM MODE SETTING
DEF<OFF>  PRECISION
```

Default setting is 50% RH. Use up/down arrows to change the %RH; press SAVE.

```
DEHUM SETPOINT
DEFAULT <50%>  45%
```

USER SETTINGS

BASIC, PRECISION, HUMIDITROL—if set up by the installer settings for BASIC, PRECISION or HUMIDITROL, this adjustment controls the relative humidity (RH) between 45 and 60% (default 50%).

Scroll to HUMIDITY SETTINGS; press ENTER. Press the box below DEHUMIDIFY.

```
HUMIDITY SETTINGS
HUMIDIFY  DEHUMIDIFY
  ▲          ▲
┌           └
```

Use up/down arrows to change the humidity setpoint (between 45 and 60%); press SAVE.

```
DEHUM SETPOINT
DEFAULT <50%>  50%
                45%
```

OFF—if OFF selected in installer settings for both humidify and dehumidify, this message appears when HUMIDITY SETTING is pressed:

```
HUMIDITY MODES OFF
```

If OFF is selected by the installer settings for DEHUMIDIFY but HUMIDIFY is on, the humidification menu appears (this setpoint adjust has NO effect on dehumidification):

```
HUM SETPOINT
DEFAULT <45%>  45%
                40%
```

Humiditrol® Enhanced Dehumidification Accessory (EDA)

If a Humiditrol® EDA is present in the equipment at hand, then the ComfortSense™ Model L7742U thermostat must be configured to properly operate the Humiditrol® EDA as follows (see Figure 16 [Page 18] for the Humiditrol® EDA operation flowchart):

From the OPTIONS screen, select INSTALLER SETTINGS. Scroll to HUMIDITY SETTINGS and press ENTER; select DEHUMIDIFY.

```
HUMIDITY SETTINGS
HUMIDIFY  DEHUMIDIFY
  ▲          ▲
┌           └
```

Scroll to HUMIDITROL and press ENTER.

```
DEHUM MODE SETTING
HUMIDITROL
```

Set the dehumidification setpoint; then press SAVE.

```
DEHUM SETPOINT
DEFAULT <50%>  50%
                45%
```

Check the HUMIDITY SETTINGS in user settings to confirm that the user has control of the dehumidification setting.

The ComfortSense™ Model L7742U thermostat is now configured to operate the Humiditrol® accessory.

NOTE - Humiditrol® EDA operation requires use of an outdoor sensor. If sensor is not connected and Humiditrol® EDA is enabled, "OUTDOOR SENSOR REQUIRED" is displayed in the information display.

ComfortSense™ Model L7742U thermostat operation with Humiditrol enabled

Cooling only—Dehumidification will only occur if:

- a dehumidification demand is present,
- a cooling demand is not present,
- outdoor temperature is less than 95°F,
- indoor temperature is not cooler than 65°F or cooler than the heating setpoint + 2°F (IF the difference between cooling and heating setpoints is greater than the deadband).

In this case, 24 VAC is removed from the “D” terminal and “Y1 & Y2” terminal (if available) becomes activated with 24VAC. This will cycle the indoor variable speed motor to the dehumidification speed and cycle Y2 “ON” to the outdoor unit. Cooling calls have priority over Humiditrol® calls.

Heating only—Thermostat will cycle heating “ON” and “OFF” to maintain heating setpoint. Dehumidification functions are disabled.

Autochangeover—Dehumidification will only occur if a dehumidification demand is present, a cooling demand is not present, outdoor temperature is less than 95°F, indoor temperature is above 65°F and the indoor temperature is not cooler than 2°F above heating setpoint.

In this case, the 24 VAC is removed from the “D” terminal and the “Y1 & Y2” terminal (if available) becomes activated with 24VAC. This will cycle the indoor variable speed motor to the dehumidification speed and cycle Y2 “ON” to the outdoor unit. Cooling calls have priority over Humiditrol® calls. Humiditrol® mode is allowed to overcool up to 2°F above the heating setpoint.

Note: If the last thermostat demand was a heating demand, the thermostat does not require a cooling demand before Humiditrol® operation.

Humidification Sensor Fault

If the humidification sensor fault occurs, then the H terminal becomes inactive, and the D terminal goes to 24V.

NOTE - Dew point adjust is only available when an outdoor sensor is attached.

Other Humiditrol® EDA Notes:

If the outdoor sensor is disconnected while HUMIDITROL is enabled, the thermostat will not allow operation in dehumidification mode.

Set point range: 45 to 60% Relative Humidity (RH). Factory default - 50%.

Relative Humidity controls to within 2% on either side of RH set point.

When the “D” terminal is activated with 24VAC, dehumidification is inactive.

BASIC, PRECISION and HUMIDITROL modes are deactivated by default from the factory.

As a precaution, regardless of how low the heating setpoint has been set, Humiditrol® dehumidification is inhibited below 65°F indoor temperature.

Stage Delay & Differential Settings (Installer settings)

Press OPTIONS tab, then use the scroll arrows to select INSTALLER SETTINGS. Press ENTER.

INSTALLER SETTINGS

CLEAR ENTER

The following stage delay and differential settings are available for modifying. Follow the instructions for each parameter.

STAGE DELAY AND DIFFERENTIAL SETTINGS—The differential or delay settings in the Installer Settings menu are:

STG DELAY TIMERS (not on single stage models)
 STG 1 DIFF (all models)
 STG 2 DIFF (2 stage models)
 STG 2 DELAY (not on single stage models OR if timers turned off)
 STG 3 DIFF (2-stage heat pumps w/backup heat)
 STG 3 DELAY (not on single stage models OR if timers turned off)
 STG 4 DIFF (2-stage heat pumps w 2-stages backup heat)
 STG 4 DELAY (not on single stage models OR if timers turned off)
 H/C STGS LOCKED IN
 STG 2 HP LOCK TEMP

STG DELAY TIMERS—default ON. When ON, all stage delay timers (stages 2, 3, and 4) are enabled and will serve to bring on additional stage(s) of cooling or heating on a timed basis (default 20 minutes) in cases when the previous stage of heating or cooling will not raise or lower the room temperature to the set point in a given time.

When OFF is selected all stage delay timers are disabled. This means stages are changed based on the temperature and not their timer delays. Scroll to STG DELAY TIMERS; press ENTER.

STG DELAY TIMERS
 DEFAULT (ON) OFF

DIFFERENTIAL SETTINGS—The differentials below and shown in the figures 7 through 14 are defaults and are adjustable for different system setups.

STG 1 DIFF—Stage 1 differential is used in all thermostats. The default is 1.0°F but can be programmed between 0.5° and 8.0°F in 0.5°F increments.

Scroll to STG 1 DIFF; press ENTER. Select the desired differential. Press SAVE.

STG 1 DIFF
 DEFAULT(1.0°F) 0.5°F

STG 2 DIFF thru STG 4 DIFF (multistage models only). The default is 1.0°F but can be programmed between 0.5° and 8.0°F in 0.5°F increments.

Scroll to STG 2 DIFF (or 3 or 4); press ENTER. Select the desired differential. Press SAVE.

STG 2 DIFF
 DEFAULT(1.0°F) 0.5°F

2nd thru 4th STAGE DELAY timer (multistage models only). If STG DELAY TIMERS is turned ON, the default delay is 20 minutes but can be programmed from 5 to 120 minutes in 5-minute increments. If first stage fails to advance the ambient temperature toward the setpoint by 1.0°F in the programmed delay time, then the second stage is activated.

Scroll to STG 2 DELAY (or 3 or 4); press ENTER. Select the desired delay. Press SAVE.

STG 2 DELAY
 DEFAULT (20MIN) 5MIN

H/C STGS LOCKED IN—default NO (heat/cool stages are turned off separately). If changed to YES, heat/cool stages are turned off together (see figures 7 through 14). Scroll to H/C STGS LOCKED IN; press ENTER. Use arrows to select between NO or YES. Press SAVE.

H/C STGS LOCKED IN
 DEFAULT (NO) YES

STG2 HP LOCK TEMP—default OFF (heat pump stage 2 operates normally). Use this setting in dual fuel applications to lock in the 2nd stage compressor when the outdoor temperature is at or less than the LOCK TEMP set point. Scroll to STG2 HP LOCK TEMP; press ENTER. Use arrows to select a LOCK TEMP between -40 and 75°F. Press SAVE.

STG2 HP LOCK TEMP
 DEFAULT (OFF) 25°F

Configuration	Figure
Multi-stage Cooling for Heat Pump/Non-Heat Pump	7
Heating - Non-Heat Pump (1 or 2 stages)	8
Heating - Heat Pump with NO backup heat	8
Heating - Heat Pump w/electric heat (2-stage: 1compr/1backup)	8
Heating - Heat Pump w/electric heat (3 stage: 2compr/1backup)	9
Heating - Heat Pump w/electric heat (3 stage: 1compr/2backup)	9
Heating - Heat Pump w/electric heat (4 stage: 2compr/2backup)	10
Heating - dual fuel (2-stage: 1compr/1backup)	11
Heating - dual fuel (3 stage: 1compr/2backup)	12
Heating - dual fuel (3 stage: 2compr/1backup)	13
Heating - dual fuel (4 stage: 2compr/2backup)	14

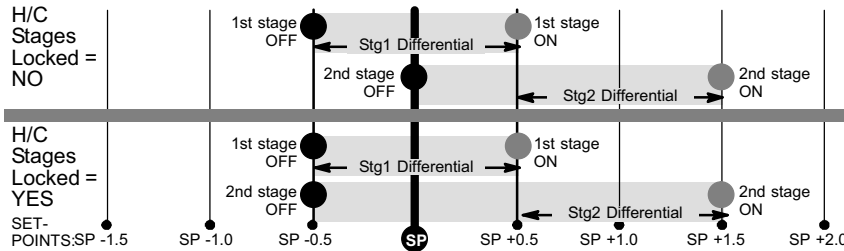


Figure 7. Cooling - 1 or 2 stages

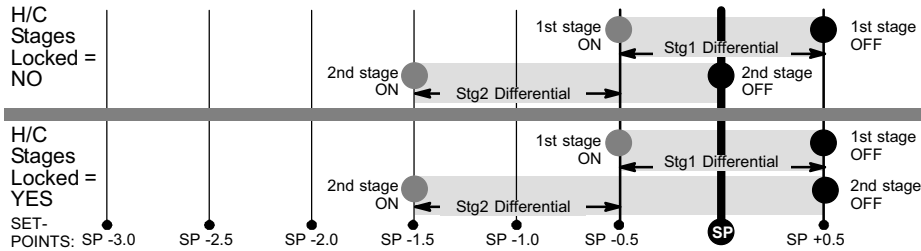


Figure 8. Heating - Non-Heat Pump or Heat Pump w/o backup heat - 1 or 2 stages

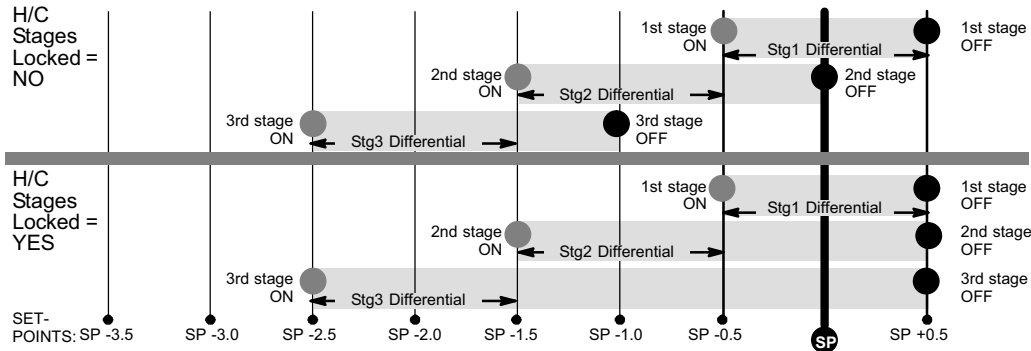


Figure 9. Heating - Heat Pump w/electric - 3 stage (2 compressor / 1 backup OR 1 compressor / 2 backup)

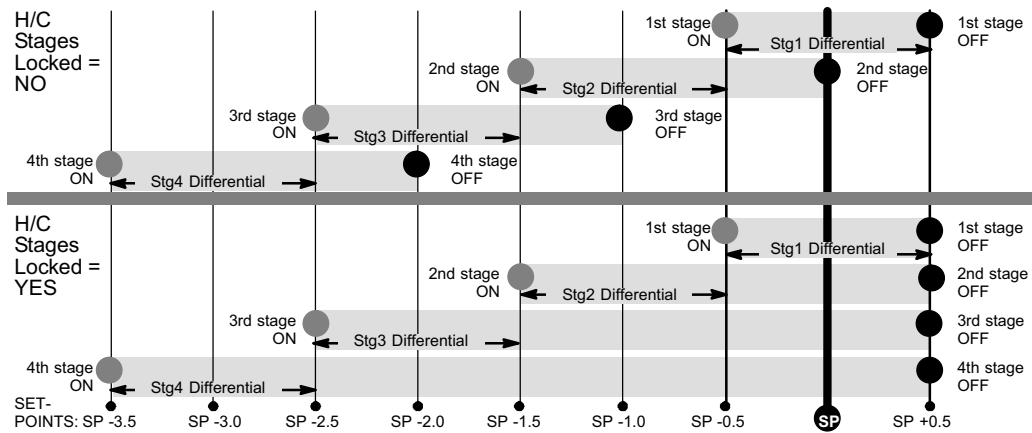


Figure 10. Heating - Heat Pump w/electric - 4 stage (2 compressor / 2 backup)

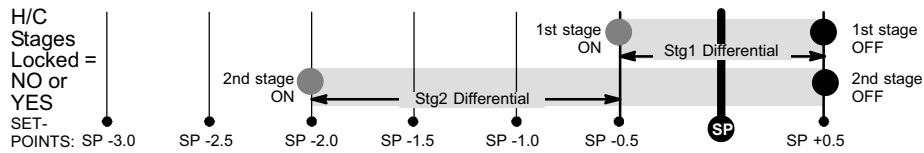


Figure 11. Heating - dual fuel - 2 stage (1 compressor / 1 backup)

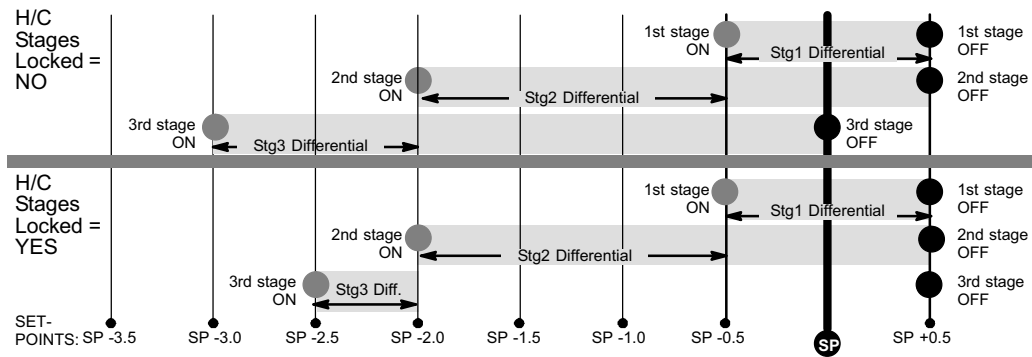


Figure 12. Heating - dual fuel - 3 stage (1 compressor / 2 backup)

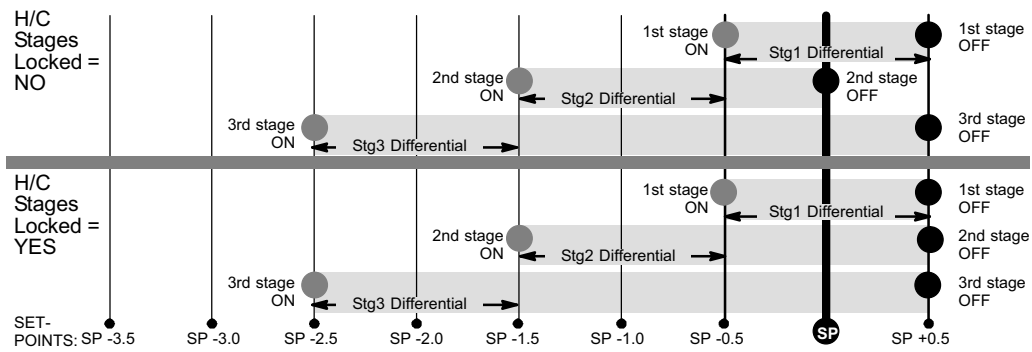


Figure 13. Heating - dual fuel - 3 stage (2 compressor / 1 backup)

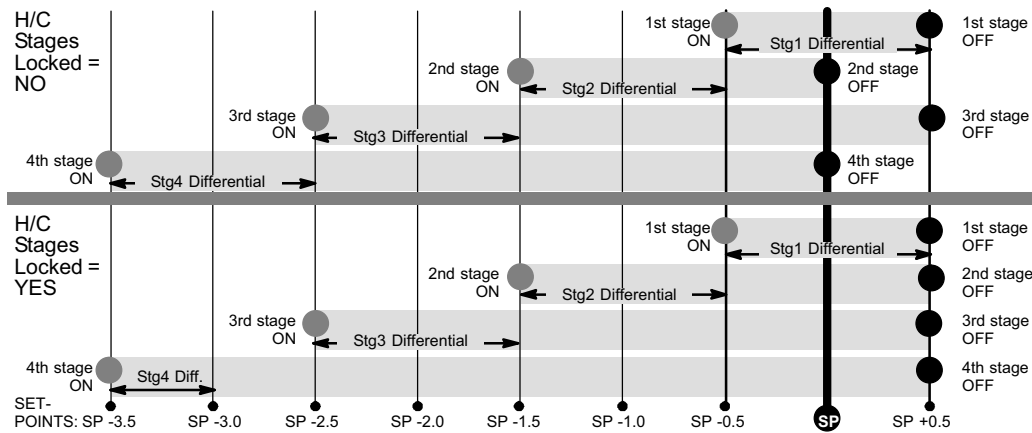


Figure 14. Heating - dual fuel - 4 stage (2 compressor / 2 backup)

Temporary Temperature Change—Pause the Schedule

Two types of temperature changes may be made: temporary (while in the SCHEDULE ON mode) or permanent (while in SCHEDULE OFF).

NOTE - If autochangeover is enabled at the time a temperature hold is invoked, the thermostat MAY CHANGE OVER from heating to cooling and vice versa, to maintain the temperature hold setpoint. The autochangeover deadband (minimum separation between the heat and cool set points) is still used to determine whether changeover occurs. This applies to all of the following hold modes.

Temporary Temperature Changes (schedule ON)

While the system is running with the schedule ON, any change to the temperature settings may be made for the default time (approximately 3 hours) or for as long or short a time as you wish. Therefore, following the procedure will set a HOLD on the schedule for a few hours or for up to 45 days. Figure 15 shows a typical screen set in the AUTO-changeover mode. If the SYSTEM were set in HEAT, COOL, or EM HEAT mode, only one set of arrows would appear near the top.

1. On the home screen, press the UP or DOWN arrow to adjust to the desired temperature.
2. A set of arrows appears to the right of the information display; use these arrows to adjust the hold period for as long as desired, or, if not changed, this setting will hold for approximately 3 hours.
3. Press SAVE.
4. After saving, ON in the SCHED field flashes, and the information display alternates between the following:

HOLD SETTING UNTIL
Wkd MMM DD HH:MM

and

PRESS SCHED TO
RESUME PROGRAM

5. After the 3 hours expires, the scheduled programming will resume, OR, press SCHED to cancel the hold.

Permanent Temperature Changes (schedule OFF - non-programmable operation)

To make a change for an undefined time span, the schedule must be turned OFF. The setpoint is maintained indefinitely.

1. From the home screen, press SCHED to turn the scheduled programming OFF.
2. Press the UP or DOWN arrow to set the temperature to the desired temperature.

The information display field continues to display the active mode, outdoor temperature, indoor relative humidity. Turning the schedule back ON (press SCHED box on home screen) will cancel a permanent hold and return to the event-programmed mode.

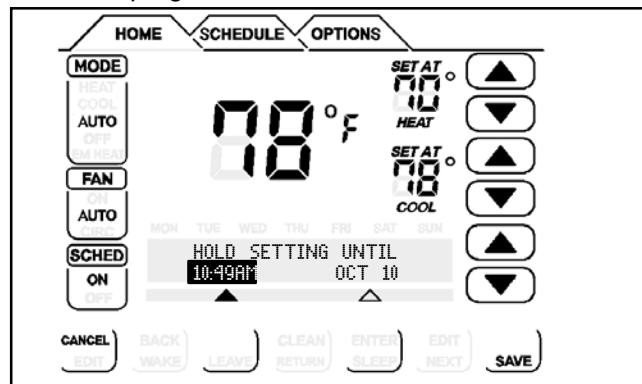


Figure 15. Setting a Hold on the Schedule

Optional Remote Outdoor Sensor

The outdoor sensor (X2658) may be required, especially when using Humiditrol® EDA applications. In addition to measuring and displaying outdoor temperature, the outdoor sensor provides dew point adjustment and control for all models. If used with this thermostat, the sensor enables optimal heating equipment operation via programmable balance points. The screen will display NO OUTDOOR SENSOR until the outdoor sensor is installed, the feature is turned on in the installer setup, and if the user turns it on in the DISPLAY INFO option in user setup. The outdoor temperature is displayed in the information display (lower center of the screen).

NOTE - For proper operation of Humiditrol® EDA applications, the outdoor sensor MUST be installed.

In many applications, the ComfortSense™ Model L7742U thermostat will display the temperature sensed by the remote outdoor sensor. With the heat pump system, the remote outdoor sensor helps determine when to turn on the second stage of heating for optimal comfort.

When the outdoor sensor is connected, the temperature displays in the information display area (below the indoor temperature display).

Installing Remote Outdoor Sensor

Install the remote outdoor sensor on a northern wall of the home, away from direct sunlight or other heat sources that may affect its sensitivity.

IMPORTANT

The outdoor sensor must be connected to operate a system with a Humiditrol® accessory.

Memory Protection

The thermostat stores all the information concerning its programming (state, mode, program information, last temperature measured) in a nonvolatile memory.

This function avoids the loss of the state of the thermostat when a power-down occurs. The only thing that might be lost is the clock, however, a lithium battery will remember clock information for as long as it has charge (approximately 30 days). When power down occurs (due to a power outage) the thermostat is able to switch off all relays. The O and B relay will maintain their last state.

Service Reminders

The user may turn on and turn off the following service reminders (all of which default to OFF) in either chronological time and/or run time and may be reset (to default) or delayed (snooze) at any time:

- Replace Media Filter
- Routine Sys (System) Check-up
- Replace Hum (Humidifier) Pad
- Replace UV Lamp
- Replace Metal Insert for Pure Air

NOTE - When chronological time is selected, the timer runs based on the calendar. When time is selected in run time, the timer runs based on the time the specific output is ON (e.g. Fan output for Media Filter).

When the reminder time (either calendar time or run time) has elapsed, the system displays a screen from which the user can either RESET or DELAY the reminder.

The user can reset the timer either before it has expired (i.e. reminder is set to 6 months and user decides to reset it to 6 months or change it to different value at the end of 4th month) or when the time has expired and a reminder message has been displayed.

When a reminder is turned off, the indicator will not be activated even if the timer is expired. Note that setting filter reminder to 0 (OFF) will not reset the timers, but will deactivate the filter indicator.

In the case of a power interruption:

- *lithium battery has charge*—the total accumulated time is maintained (i.e. the counter does not recycle to zero).
- *lithium battery has NO charge*—the due date of reminders is maintained.

Unit Part (Catalog) & Serial Numbers

A label on the back of the thermostat is visible through an opening in the back of baseplate. This identifies the Lennox Catalog Number, Part Number and Serial Number. Separate the baseplate from the thermostat to see additional manufacturing information.

Appendix A. Flow Diagrams and Wiring Diagrams

ComfortSense Model L7742U Thermostat / Humiditrol® EDA Logic Diagram

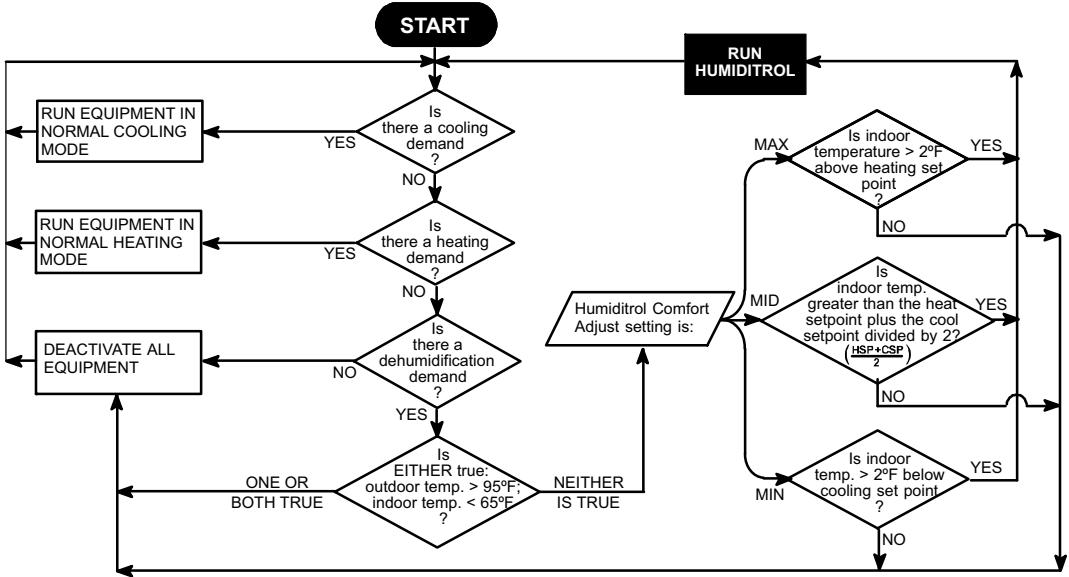


Figure 16. ComfortSense™ Model L7742U Thermostat Operation with Humiditrol® EDA Enabled

Dual Fuel Flow Diagram

LEGEND

- HBSP - High Balance Set Point
- LBSP - Low Balance Set Point
- ODT - OutDoor Temperature

NOTES

- LBSP and HBSP must not be set closer than 2°F
- 2nd stage lock in temperature -20°F to 75°F (OFF)

OUTDOOR TEMPERATURE AND BALANCE POINTS

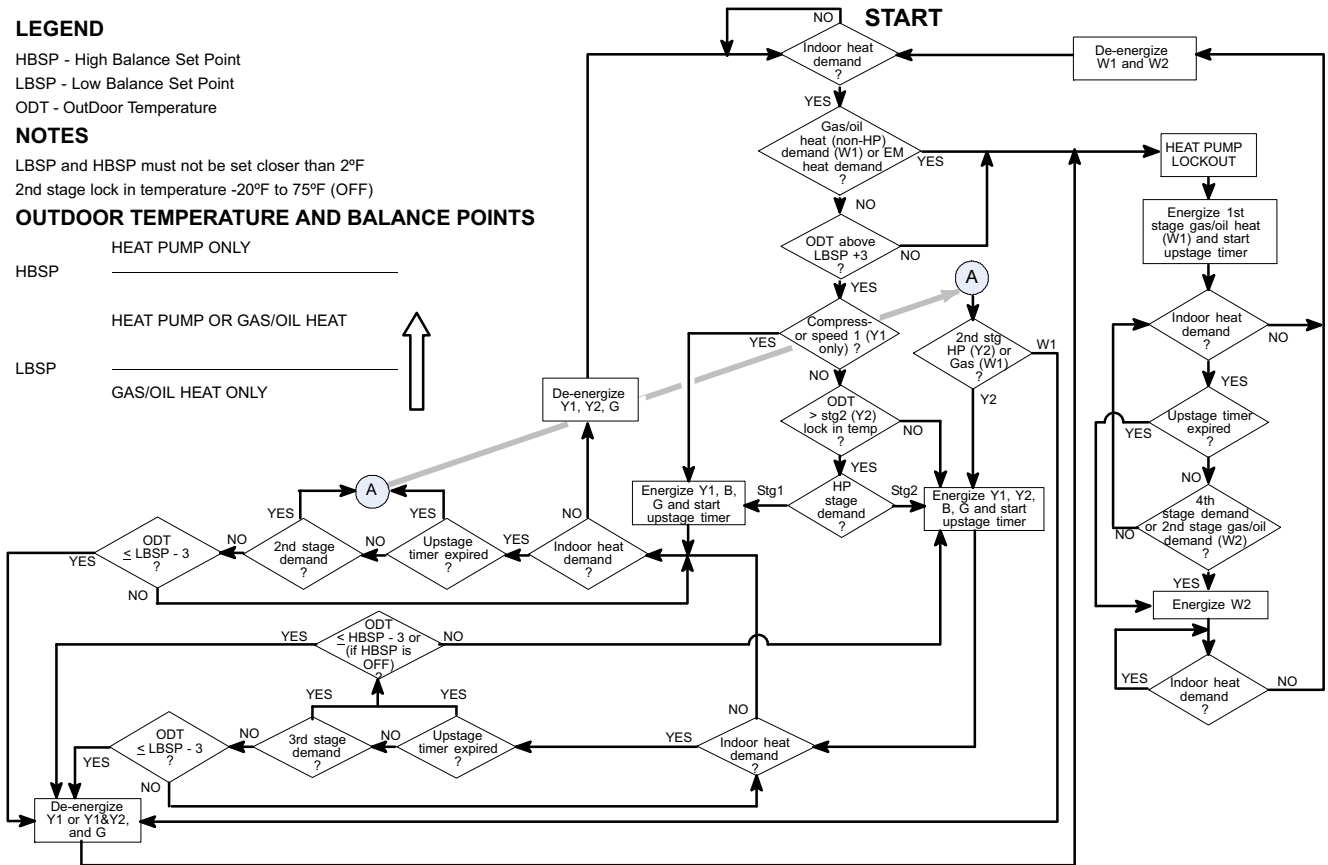
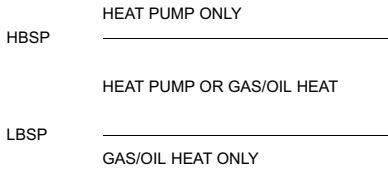


Figure 17. Dual Fuel Flowchart

Wiring Diagrams

Thermostat wiring connections with various units, including dual fuel, zone control, and applications that include the Humiditrol® Enhanced Dehumidification Accessory (EDA). See figures 18 and 19.

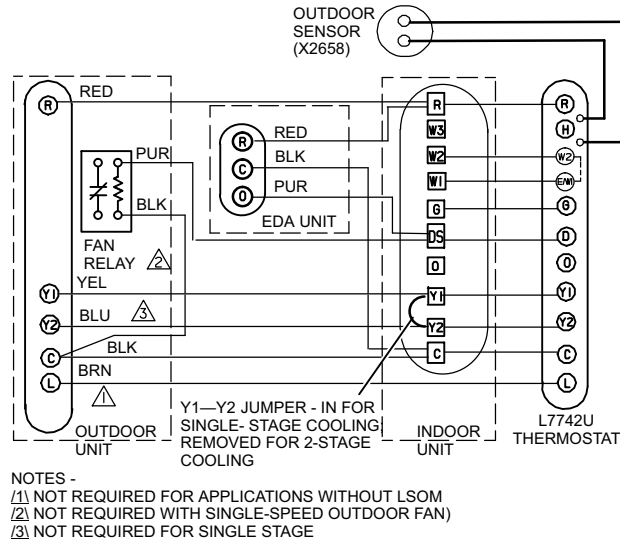


Figure 18. Typical Condensing Unit/Humiditrol® Accessory Wiring Diagram

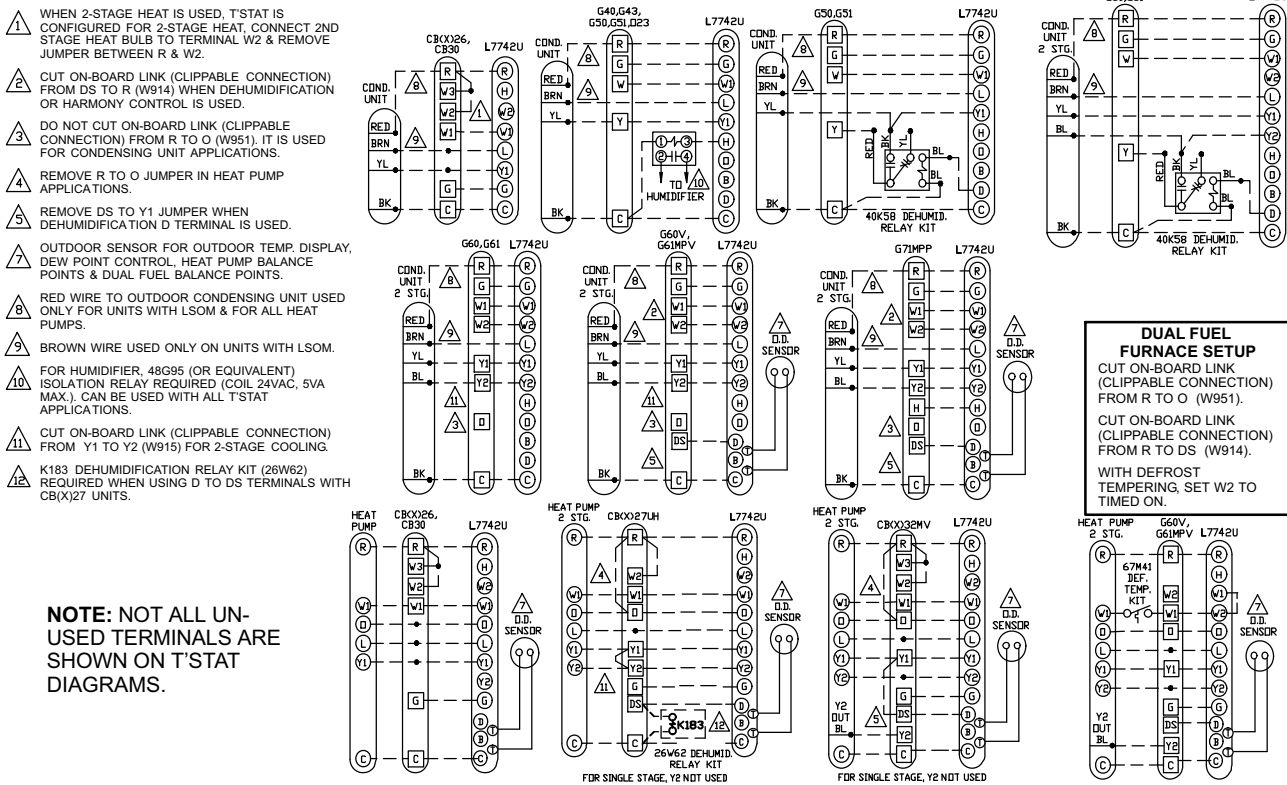


Figure 19. Thermostat Wiring Diagrams

Appendix B. Diagnostic Information and Hidden Menu Tables

Diagnostic Information Table

Message Type	Condition	Display Text (Screen1)	Display Text (Screen2)	Priority	System Action	Action to Clear / Recovery Condition
Error	AC power loss with battery (Battery Model Only)	No message			Thermostat can detect AC power loss and Stat. will operate with batteries.	When AC power recovers stat. can detect and will operate on AC.
Error	AC power loss without battery: AC power loss for greater than 250ms	No message			Super Cap Or Lithium Battery will remember the clock. All outputs will be off and O/B will remember the last state.	When AC power (or battery power) is restored, normal operation resumes.
Error	CPU memory error <i>Note: If this Error occurs the display goes blank and all relays are disabled.</i>	Not operate				
Error	ROM error <i>Note: If this Error occurs the display goes blank and all relays are disabled.</i>	Not operate				
Error	Hi temperature protection: ambient temp. exceeds 96F (35.6C)	No message			All stages of heat are turned off.	If temperature goes down, it will start working again.
Error	Local Temp Sensor error: local temp sensor reads out of range -40F to 158F	TEMP SENSOR ERROR CALL FOR SERVICE	Contact Info. Screen	0-Red Alert	Indoor temp is displayed as "EE" on the home screen. This will STOP all temperature related operation.	User have to call the number from contact information screen and have someone come and replace the stat. OR If the sensor read back to with in the normal operating range, the error message will be cleared. Start working again.
Error	EEPROM error (Power ON)	MEMORY ERROR CALL FOR SERVICE	Contact Info. Screen	0-Red Alert	System shall restore everything to Energy Star Default and operate. If lithium Bat OR Super Cap has Charge, it will remember the previous stored settings.	User shall call the dealer.
Error	EEPROM error (Operating)	MEMORY ERROR CALL FOR SERVICE	Contact Info. Screen	0-Red Alert	System shall operate in normal mode operation until power off.	User shall call the dealer.

table continued on next page

Message Type	Condition	Display Text (Screen1)	Display Text (Screen2)	Priority	System Action	Action to Clear / Recovery Condition
Error	Outdoor Sensor error with Humiditrol enable (OR ODT was used for balance point control only): outdoor sensor reads out of range (-50F to 180F)	NO OUTDOOR SENSOR REMIND SERVICE	See REMIND / SERVICE notes	1-Critical	No Humiditrol or Humidity operation is run. D terminal stays activated and other operation will keep working. The display of Outdoor sensor from HOME will be turned OFF. If user turns on the display from USER SETTINGS, this error is displayed again.	If the outdoor sensor reads a value within its normal range. (User can call the dealer to replace outdoor sensor)
Error	Outdoor Sensor error with Dewpoint control enable: outdoor sensor reads out of range (-50F to 180F)	NO OUTDOOR SENSOR REMIND SERVICE	See REMIND / SERVICE notes	1-Critical	No Dewpoint control or Humidity operation is run. D terminal stays activated and other operation will keep working. The display of Outdoor sensor from HOME will be turned OFF. If user turns on the display from USER SETTINGS, this error is displayed again.	If the outdoor sensor reads a value within its normal range. (User can call the dealer to replace outdoor sensor)
Error	Humiditrol and Dewpoint disable and Outdoor sensor reads out of range (installer setting OUTDOOR SENSOR is set to YES)	NO OUTDOOR SENSOR REMIND CLEAR SERVICE	See REMIND / CLEAR / SERVICE notes		The display of Outdoor sensor from HOME will be turned OFF. If user turns on the display from USER SETTINGS, this error is displayed again. NOTE: This error would not occur if the system is in Armchair programming.	If the outdoor sensor reads a value within its normal range. (User can call the dealer to replace outdoor sensor). User can also use CLEAR to erase the error.
Error	Low battery warning (when no 24Vac and system is working on batteries) : 30 days before battery is dead, the error should be detected.	LOW BATTERY REMIND	See REMIND notes	1-Critical	Message is displayed on the dot Part	User can hit REMIND to get rid of the message for 7 days. However, replacing battery is required.

table continued on next page

Message Type	Condition	Display Text (Screen1)	Display Text (Screen2)	Priority	System Action	Action to Clear / Recovery Condition
Error	Hum sensor error (With Humidifier or Dehumidifier): conditions are 0%: Stat will detect error 0-10%: Stat may detect error 10-90%: Normal operation 90-93%: Stat may detect error 93%: Stat will detect error	HUM SENSOR ERROR REMIND SERVICE	See REMIND / SERVICE notes	1-Critical	All the humidity operation will stop and the reading for humidity will not be valid. This message indicates something seriously wrong with the stat. The display of Indoor Humidity from HOME will be turned OFF. If user turns it on again, the error is displayed.	User calls the dealer and has a new sensor installed OR the sensor reads back in normal range.
Error	Hum sensor error (Without Humidifier or Dehumidifier): sensor reads out of range 0% to 100%	HUM SENSOR ERROR REMIND SERVICE	See REMIND / SERVICE notes	1-Critical	The reading for humidity will not be valid. This message indicates something seriously wrong with the stat. The display of Indoor Humidity from HOME will be turned OFF. If user turns it on again, the error is displayed.	User calls the dealer and has a new sensor installed OR the sensor reads back in normal range.
Error	L input detection	HVAC ERROR DETECTED REMIND SERVICE	See REMIND / SERVICE notes	1-Critical	Message is displayed on the dot Part. Outside UNIT may stop working.	If the L signal is removed, the message is cleared. OR User can call the dealer.
Reminders	Media Filter	REPLACE MEDIA FILTER REMIND RESET	See REMIND / RESET notes	2-Moderate	Displayed on both lines on HOME.	User either Hit RESET or REMINDER button on HOME
	UV Lamp	REPLACE UV LAMP REMIND RESET	See REMIND / RESET notes	2-Moderate	Displayed on both lines on HOME.	User either Hit RESET or REMINDER button on HOME
	Humidity Pad	REPLACE HUM PAD REMIND RESET	See REMIND / RESET notes	2-Moderate	Displayed on both lines on HOME.	User either Hit RESET or REMINDER button on HOME
	Routine sys check up	ROUTINE SYS CHECK-UP REMIND RESET	See REMIND / RESET notes	2-Moderate	Displayed on both lines on HOME.	User either Hit RESET or REMINDER button on HOME
	Metal Insert for Pure Air	REPLACE METAL INSERT REMIND RESET	See REMIND / RESET notes	2-Moderate	Displayed on both lines on HOME.	User either Hit RESET or REMINDER button on HOME
Status 2	Low battery warning (when 24Vac is present) Note: When battery "V" is low but we have 24Vac wires then it is low priority error	LOW BATTERY REMIND	See REMIND notes	3.5-Minor	Message is displayed on the dot Part.	User can hit REMIND to get rid of the message for 7 days. But replacing battery is required.

table continued on next page

Message Type	Condition	Display Text (Screen1)	Display Text (Screen2)	Priority	System Action	Action to Clear / Recovery Condition
Status 2	Initial Power Up OR recovery from power loss of more than the life of super cap or lithium battery (System does not know its Date/Time)	SET DATE/TIME Default DATE/TIME (MON JAN 1 12:00 PM)		3.5-Minor	Message is displayed on the dot Part.	User has to set the current date/time to get rid of this message. If higher priority Reminder or Error message occur then that message will be displayed first.
Status	Heating (only when system is in Heat Call)	HEATING Date/Time		3-Minor	Displayed on first line. Second line has Date/Time info on it	When call is ended OR when higher priority reminder/error occurs
Status	Cooling (only when system is in cool call)	COOLING Date/Time		3-Minor	Displayed on first line. Second line has Date/Time info on it	When call is ended OR when higher priority reminder/error occurs
Status	Auto (When in heat or cool call)	HEATING or COOLING Date/Time		3-Minor	Displayed on first line. Second line has Date/Time info on it	When call is ended OR when higher priority reminder/error occurs
Status	Humidifying (only when system is humidifying)	HUMIDIFYING Date/Time		3-Minor	Displayed on first line. Second line has Date/Time info on it	When call is ended OR when higher priority reminder/error occurs
Status	Dehumidifying (only when system is in dehumidifying)	DEHUMIDIFYING Date/Time		3-Minor	Displayed on first line. Second line has Date/Time info on it	When call is ended OR when higher priority reminder/error occurs
Status	System Off	SYSTEM OFF Date/Time		3-Minor	Displayed on first line. Second line has Date/Time info on it	When call is ended OR when higher priority reminder/error occurs
Status	Outdoor temperature (when selected User settings)	OUTDOOR TEMP XXF Date/Time		3-Minor	Displayed on first line. Second line has Date/Time info on it	Is user de-selects from User settings or higher priority reminder/error occurs
Status	Indoor Humidity (when selected from User settings)	INDOOR RH XX% Date/Time		3-Minor	Displayed on first line. Second line has Date/Time info on it	Is user de-selects from User settings or higher priority reminder/error occurs
Status	Schedule ON (User turns on the schedule)	SCHEDULE ON Date/Time		3-Minor	Message is displayed on first line for 3seconds.	Message will disappear after 3 seconds or if higher priority Error/Reminder occurs
Status	Schedule OFF (User turns off the schedule)	SCHEDULE OFF Date/Time		3-Minor	Message is displayed on first line for 3seconds.	Message will disappear after 3 seconds or if higher priority Error/Reminder occurs
Status	Temporary Hold On (User had set a Temporary hold on set points)	HOLD SETTING UNTIL Date/Time	PRESS SCHED TO RESUME PROGRAM	3-Minor	Message is displayed on the screen and system has a temporary hold on temperature.	Message will disappear when user hits SCHED or if higher priority Error/Reminder occurs
Status	Compressor Protection timer (5min) is running	WAIT		3-Minor	Message is displayed on the screen whenever compressor protection is running AND cooling/heating demand exists.	Message will disappear is compressor protection run expires OR there is no cooling or heating demand.

table continued on next page

Mes sage Type	Condition	Display Text (Screen1)	Display Text (Screen2)	Priority	System Action	Action to Clear / Recovery Condition
Status	FAN mode is set to AUTO on home (follow the schedule) and ON in the current period of schedule & (system is not heating or cooling)	FAN ON		3-Minor	Message is displayed on the first line of dot matrix	The Message goes away if 1 - User changes FAN mode from AUTO to ON or CIRC On home 2 - User changes FAN mode in the schedule from ON to something else
Status	FAN mode is set to AUTO on home (follow the schedule) and CIRC in the current period of schedule & (system is not heating or cooling)	FAN CIRC		3-Minor	Message is displayed on the first line of dot matrix	The Message goes away if 1 - User changes FAN mode from AUTO to ON or CIRC On home 2 - User changes FAN mode in the schedule from CIRC to something else

Hidden Menu Table

Setup	HEAT PUMP												NON HEAT PUMP						
	Gas /Oil	Gas/ Oil	None	Gas/ Oil	Gas/ Oil	None	Elec	Elec	None	Elec	Elec	None	G/O or Elec	G/O or Elec	None	G/O or Elec	G/O or Elec	None	
Comp. Stages	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	2
Indoor Heat Stgs	1	2	0	1	2	0	1	2	0	1	2	0	1	2	0	1	2	0	0
Total Heat Stgs	2	3	1	3	4	2	2	3	1	3	4	2	1	2	0	1	2	0	0
1st Heat Stage	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	W1	W1		W1	W1		
2nd Heat Stage	W1	W1		Y1+Y2	Y1+Y2	Y1+Y2	Y1+W1	Y1+W1		Y1+Y2	Y1+Y2	Y1+Y2		W1+W2			W1+W2		
3rd Heat Stage		W1+W2		W1	W1			Y1+W1+W2		Y1+Y2+W1	Y1+Y2+W1								
4th Heat Stage					W1+W2						Y1+Y2+W1+W2								
1st Em Heat Stage	W1	W1		W1	W1		W1	W1		W1	W1								
2nd Em heat Stage		W1+W2			W1+W2			W1+W2			W1+W2								
Cool Stages	1	1	1	2	2	2	1	1	1	2	2	2	1	1	1	2	2	2	2
1st Cool Stage	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1	Y1
2nd Cool Stage				Y1+Y2	Y1+Y2	Y1+Y2				Y1+Y2	Y1+Y2	Y1+Y2				Y1+Y2	Y1+Y2	Y1+Y2	
Indoor Heat Stgs	X	X		X	X		X	X		X	X		X	X		X	X		
Outdoor Sensor	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Residual Cool	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Low Balance Pt.	X	X		X	X		X	X		X	X								
High Balance Pt.	X	X		X	X		X	X		X	X								
Stg Delay Timers	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stg 1 Diff	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stg 2 Diff	X	X		X	X	X	X	X		X	X	X		X		X	X	X	X
Stg 2 Delay	X	X		X	X	X	X	X		X	X	X		X		X	X	X	X
Stg 3 Diff		X		X	X		X	X		X	X			X					
Stg 3 Delay		X		X	X		X	X		X	X			X					
Stg 4 Diff					X						X								
Stg 4 Delay					X						X								
H/C Stgs Locked In		X		X	X	X	X	X		X	X	X	X	X		X	X	X	X
Stg 2 Hp Lock Temp				X	X					X	X								
Humiditrol Adjust	If Dehumidification mode is not equal to HUMIDITROL.																		

LEGEND ■ HIDDEN MENU ITEM