CONTROLS

TOUCHSCREEN
CS7500
7-Day Programmable Thermostat

Bulletin No. 210744
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LENNOX®

RESIDENTIAL
PRODUCT SPECIFICATIONS

The CS7500 is an electronic 7-day, universal, multi-stage, programmable, touchscreen thermostat. It also offers enhanced capabilities including humidification / dehumidification / dewpoint measurement and control, Humiditrol® Enhanced Dehumidification Accessory (EDA), and equipment maintenance reminders.

- Easy to read 4.3 in. color screen (measured diagonally)
- LCD display with backlight shows the current and set temperature, time, inside relative humidity, system status (operating mode and schedules) and outside temperature (if optional outdoor sensor is used)
- Menu-driven programming guides user through the scheduling process showing only necessary information on each screen
- Touchscreen interaction
- Ergonomic design
- Smooth Setback Recovery starts system early to achieve setpoint at start of program period
- Compressor short-cycle protection (5 minutes, adjustable)
- Real-time clock keeps time during power failures and automatically updates to daylight savings
- Maintenance reminders let user know when to service or replace filters, PureAir® metal insert, humidifier pads, ultraviolet lamps, plus two user or installer defined custom reminders
- Up to three separate schedules for individual days of the week, week/weekend (5/2 day) or all 7-days the same with up to 4 time periods per day
- Temporarily override the program schedule as desired by time
- Programmable fan offers increased air quality when combined with a whole house air indoor air quality product
- Outside temperature display (with optional outdoor sensor) shows current outside temperature
- Permanent memory storage of programs
- Wallplate furnished

APPROVALS

- Factory preset program settings conform to EPA ENERGY STAR® recommended setpoints

WARRANTY

- Limited five years in residential applications

NOTE - Refer to Lennox Equipment Limited Warranty certificate included with unit for specific details.

4 Heat / 2 Cool
Universal Multi-Stage

APPLICATIONS

- Fully programmable thermostat provides universal system compatibility, precise comfort control and easy programmability
- Provides temperature control for gas, oil, electric and heat pumps for up to 4 heat / 2 cool multi-stage systems (includes dual fuel operation)
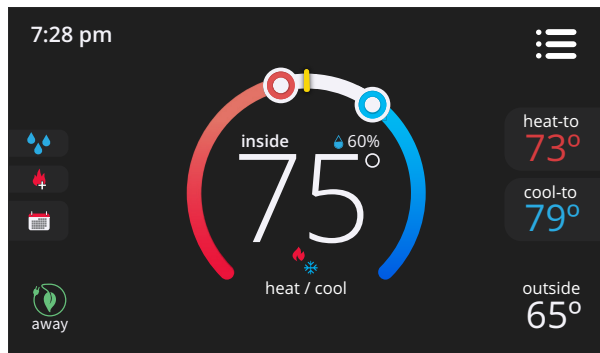
CONTENTS

USER SETTINGS

HOME SCREEN

⓪ Touch blank screen to turn on the backlight.

Temperature Settings
- Large display of current inside temperature (°F or °C)
- Heating and Cooling Setpoint Indicators on the round animated temperature band
- Current cooling setpoint temperature Button (cool-to)
- Current heating setpoint temperature Button (heat-to)

⓪ Touching the heat or cool setpoint indicators on the round temperature band, or touching the **heat-to** or **cool-to** buttons displays the heat or cool menu screens (see page 3).

⓪ Both heating and cooling setpoint indicators on the round temperature band and the **heat-to** and **cool-to** buttons are displayed if System is set to Heat/Cool mode.

Current Outside Temperature
- Displays current outside temperature in °F or °C (with optional Remote Outdoor Temperature Sensor)

Time Display
- Displays current time (supports daylight savings time changes)

Humidity Display
- Displays current inside relative humidity above current indoor temperature

Mode
- Displays current system operating mode below current indoor temperature (heat/cool, heat only, cool only, active schedule or off)

Menu Button ☰

⓪ Touch to display **menu** screen (see page 2).

Mode/Schedules

⓪ Touch current operating mode on home screen under temperature display to access **Select Mode** screen. (see page 3).

Away Mode Button away
⓪ Touch to display **away mode** screen (see page 3).

System Status Icons
- 💧 Humidification
- 💧 Dehumidification

⓪ Touching either icon will display **humidifying** or **dehumidifying** next to the icon.

- 🔥 Heating (waiting)
- ≋ Heating (system operating)

⓪ A plus (+) sign displayed next to the heating icon indicates the system is operating in emergency heat mode (heat pump systems only).
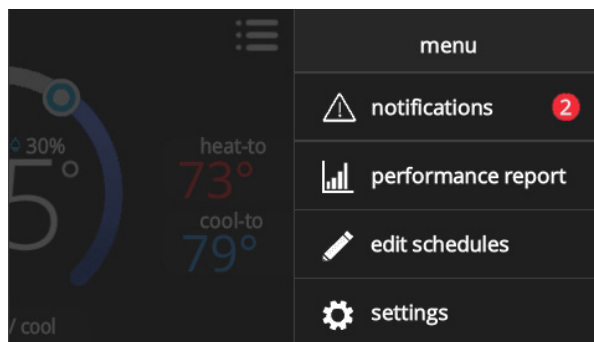
- ❄ Cooling (waiting)
- ≋ Cooling (system operating)

⓪ If **waiting** is displayed next to the heating or cooling icon, it indicates an active system delay.

- 📅 Schedule

⓪ Touching icon will display **transitioning next schedule setting** next to the icon.

MENU SCREEN

⓪ Touch each item to display the selected screen.

Notifications
- Displays system operating and service reminder messages (see page 4)

Performance Report
- Displays the number of hours each month the system has been operating (see page 4)

Edit Schedules
- Displays the schedules screen. Up to three separate schedules can be set (see page 4)
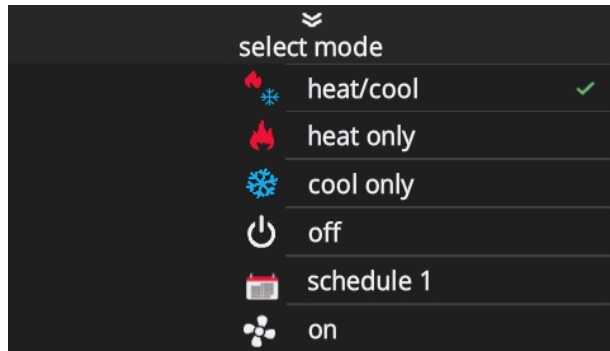
Settings
- Displays various user settings (fan, heat/cool, humidity, reminders, general, display) (see page 5)

⓪ Touch left side of screen to return to the Home Screen.

USER SETTINGS (continued)
SELECT MODE SCREEN

⊘ Touch current operating mode on home screen under temperature display to access **Select Mode** screen.

Select system mode, operate a specific schedule or change blower operation.

Select Mode
- Heat/Cool
- Heat Only
- Cool Only
- Off
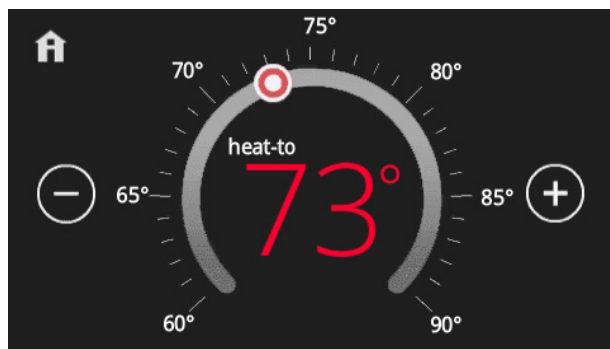- Emergency Heat (heat pump systems only)
- Schedule 1

⊘ If additional schedules are available they will be displayed.

- On
- Auto
- Circulate

⊘ A checkmark indicates which mode is active.

⊘ Scroll down to see all modes available on the screen.

HEAT MENU SCREEN

⊘ On the Home Screen, touching the heat setpoint indicators on the round temperature band, or touching the **heat-to** button displays the heat menu screen.

- Heating setpoint display
- Heating Setpoint Indicator on the round temperature band
- Plus (+) and Minus (−) buttons
- Home button (return to Home Screen)

⊘ Touch the red heat setpoint indicator on the round temperature band, or touch the **plus** or **minus** buttons to change the heating setpoint in one degree increments.

⊘ During a scheduled time period, touching either the setpoint indicator on the temperature band or the heat-to button will initiate a temporary override (see page 4)

COOL MENU SCREEN
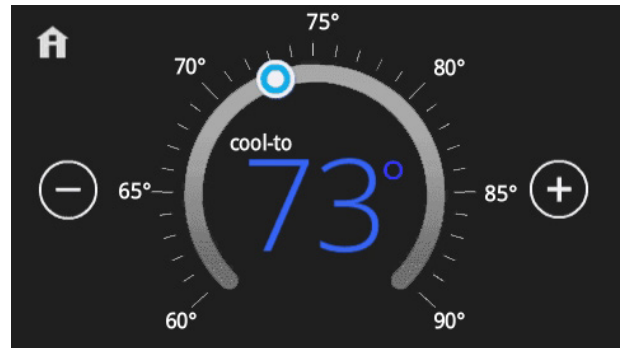
⊘ On the Home Screen, touching the cool setpoint indicators on the round temperature band, or touching the **cool-to** button displays the cool menu screen.

- Cooling setpoint display
- Cooling Setpoint Indicator on the round temperature band
- Plus (+) and Minus (−) buttons
- Home button (return to Home Screen)

⊘ Touch the blue cool setpoint indicator on the round temperature band, or touch the **plus** or **minus** buttons to change the cooling setpoint in one degree increments.

⊘ During a scheduled time period, touching either the setpoint indicator on the temperature band or the cool-to button will initiate a temporary override (see page 4)

AWAY SCREEN
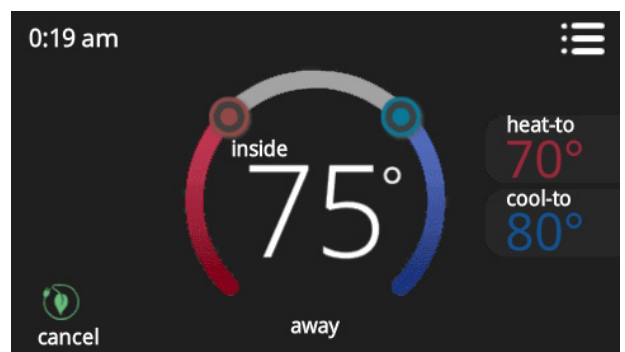
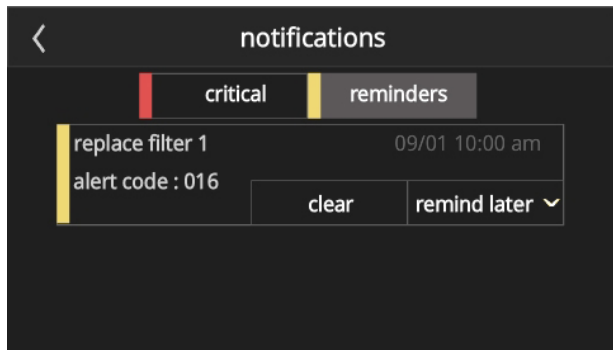Set heating or cooling setpoints during unoccupied periods.

- Heating and Cooling Setpoint Indicators on the round temperature band
- Current cooling setpoint temperature Button (cool-to)
- Current heating setpoint temperature Button (heat-to)
- Cancel Away Mode Button

⊘ Touch **cancel away** button to end away mode and return to current system operation.
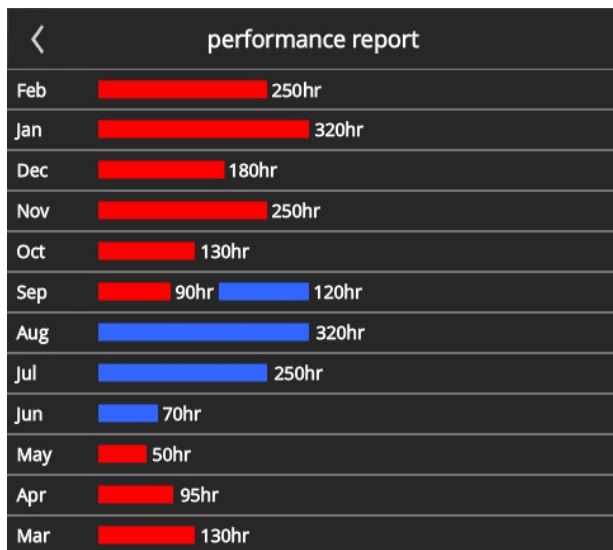
USER SETTINGS (continued)

NOTIFICATIONS SCREEN

notifications

| critical | reminders |

replace filter 1   09/01 10:00 am
alert code : 016
| clear | remind later ⌄ |

Displays faults, errors and service information.

> ⑦ If any faults, errors, or service information appears, buttons are displayed underneath the notification, **remind, clear, service,** or **reset**. Touch to select the desired action.

PERFORMANCE REPORT SCREEN

performance report

Feb	250hr
Jan	320hr
Dec	180hr
Nov	250hr
Oct	130hr
Sep	90hr 120hr
Aug	320hr
Jul	250hr
Jun	70hr
May	50hr
Apr	95hr
Mar	130hr

• Displays the number of hours each month the system has been operating in heating mode (red) or cooling mode (blue) in an easy-to-read graph.

EDIT SCHEDULES SCREEN

edit schedules

schedule 1   〉
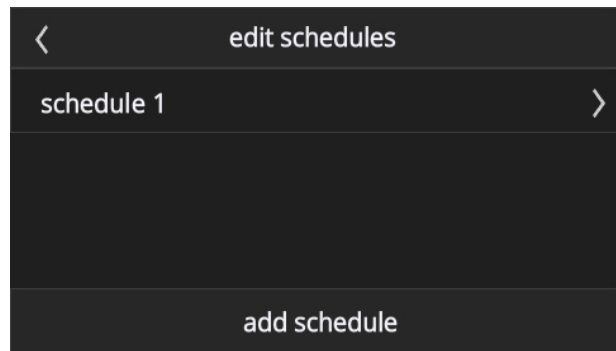
add schedule

Full 7 day programming.

Three separate schedules are available.
Individual programming for each day of the week or by specific groups of days:

• Monday through Sunday (7 individual days)

• Monday through Friday + Saturday and Sunday (5 + 2)

• Monday through Sunday (All days have same program)

• Up to 4 time periods per day (**wake / leave / home / night**)

• Select time screen displays hours, minutes and AM or PM

  • Scroll to select desired time in 15 minute increments for each time period

• System mode for each schedule (**heat/cool, heat only** or **cool only**)

• Fan setting can also be programmed for **on, auto** or **circulate** operation for each time period

• Individual schedules and time period can have custom names (rename) for easy identification

> ⑦ By default only one schedule is initially shown. Select **add schedule** to add up to two additional schedules. Touch and hold any schedule to delete it if not required.

> ⑦ If a fan mode is selected under the **select mode** screen, it will override any fan setting in individual schedules.

> ⑦ Use the keyboard tool to rename a schedule or time period (maximum 20 characters).

TEMPORARY OVERRIDE

> ⑦ During a timed schedule, touching the heat or cool setpoint indicators on the round temperature band, or touching the **heat-to** or **cool-to** buttons displays the temporary override screen.
>
> Preset 1 or 2 hours or indefinitely until the next scheduled time period. Displays the schedule hold on the home screen and the time it expires. Touch the "X" on the home screen to cancel the override and return to the current schedule.

USER SETTINGS (continued)

USER SETTINGS SCREEN

<	user settings	
✿	fan	auto >
🔥❄	heat/cool	>
💧	humidity	>
📅	reminders	>
🛠	general	>
▭	display	>

Fan
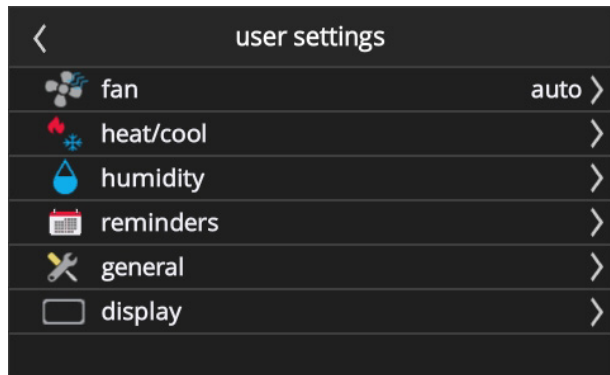
<	fan	
select fan mode		
on		
auto		
circulate		✓
circulate time 5min		
1min |———●————————| 30min		

- On
- Auto
- Circulate

> ⑦ If set to **auto**, fan operates only when equipment is operating and follows a selected schedule.
>
> If set to **on**, fan runs continuously until it is changed from the select mode.
>
> If set to **circulate**, fan follows a selected schedule and also cycles during period of inactivity. Off time is dependent on user setting (1 to 30 minutes). Slide control appears when **circulate** is selected.

> ⑦ In **auto** mode, fan can operate in **auto** mode, **on** mode or **circulate** mode if it is programmed as such for the current schedule.

Heat/Cool

<	heat / cool	
select heating mode		
normal		✓
comfort		
emergency heat		on ●
setpoint range		>
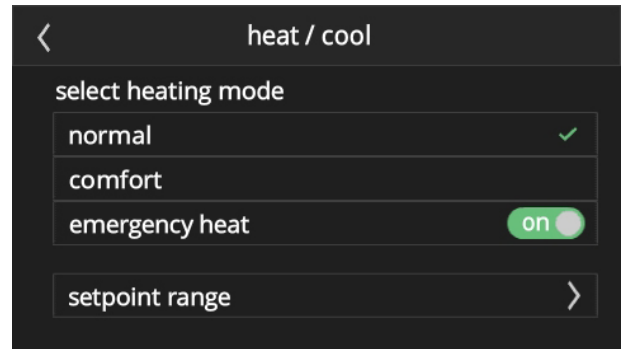
- Normal (heats home to desired temperature)
- Comfort (2-stage heating or cooling, 2nd stage is locked in until demand is satisfied)
- Emergency Heat (heat pump systems only)

> ⑦ Bypasses any stages of mechanical heat pump heating and operates secondary heat source directly for maximum heating.

- Setpoint Range:
  - Heating Limit, 90°F (default) adjustable (45 to 90°F)
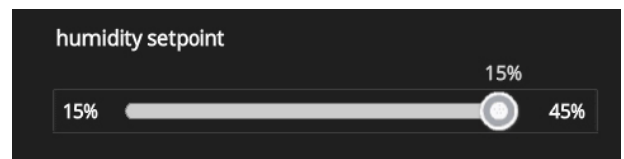 - Cooling Limit, 45°F (default) adjustable (45 to 99°F)

Cool Only
- Setpoint Range:
  - Cooling Limit, 45°F (default) adjustable (45 to 99°F)

Humidity

<	humidity	
humidify		on >
dehumidify		on >

- Humidify On
  - Setpoint - 45% (default) adjustable RH (15 to 45%)
- Dehumidify On
  - Setpoint - 50% (default) adjustable RH (35 to 60%)

humidity setpoint		
		15%
15% |————————————●——| 45%		

> ⑦ Selecting **humidify** or **dehumidify** displays a slider to adjust the desired levels.

USER SETTINGS (continued)

<u>USER SETTINGS SCREEN</u> (continued)

Reminders

<	reminder setting
media filter	expires on 04/21/15 >
humidity pad	expires on 07/01/15 >
routine sys check up	disable >
uv lamp	disable >
metal insert for pureair	disable >
custom reminder 1	expires on 01/01/16 >
custom reminder 2	disable >

Reminders notify user when routine maintenance is required.

· Media Filter
· Humidity Pad
· Routine System Checkup
· UV Lamp
· Metal Insert for PureAir
· Custom Reminder 1
· Custom Reminder 2

Reminders can be set to a preset date (3, 6, 12 or 24 months), a custom date, or disabled (default).

> ⓘ A custom reminder date (month, day and year) can be set using the **set date** screen. Touch reminder for access.

General

<	general
about	>
screen lock	>
data & time	>
language	>
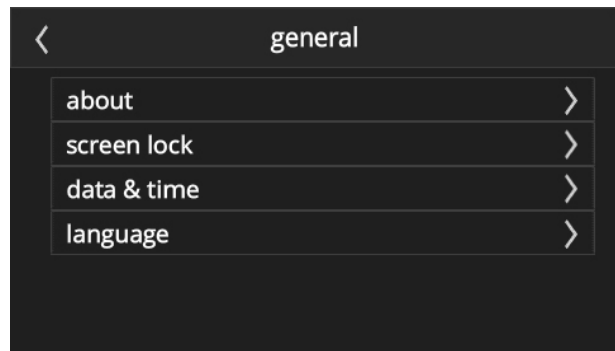
· About (thermostat and service information)
  · Thermostat Information
    · Model Number
    · Serial Number
    · Hardware Revision
    · Software Revision
  · Service Information
    · Name
    · Address
    · Phone
    · Email
    · Website
    · Number

> ⓘ Dealer can input their information during installer setup using the **keyboard** tool.

· Screen Lock (Prevents tampering with thermostat settings, 3-digit security code)
  · Unlocked (no security)
  · Partially (prevents tampering with the menu settings)
  · Locked (prevents tampering with the thermostat)
· Date & Time
  · 12 or 24 Hour setting
  · Daylight Savings - Enable or Disable (default)
  · Set Time
  · Set Date

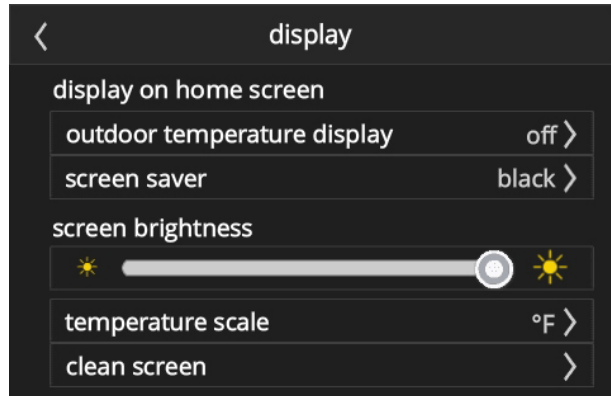> ⓘ Time and date can be set using the **set date** screen.

· Language
  · English
  · Spanish
  · Portuguese
  · French

USER SETTINGS (continued)

USER SETTINGS SCREEN (continued)

Display

- Outdoor Temperature Display
  - None
  - Sensor
- Screen Saver
  - Enable
    - Off
    - Black
  - Disable (default)

> ⑦ Default screen saver displays only the time, inside temperature, and outside temperature (if enabled). Touch the home screen to display all information.

- Backlight
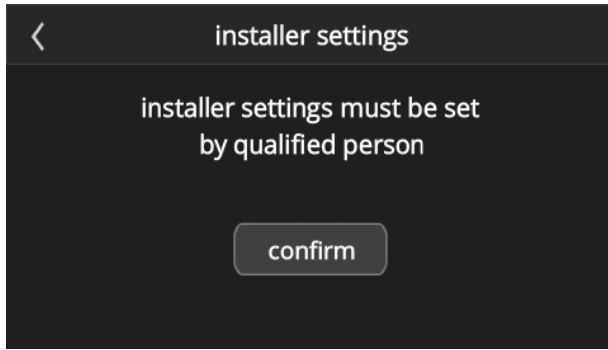 - Continuous On (default)
  - Energy Save
- Screen Brightness

> ⑦ Slide control allows screen brightness adjustment (0 to 100%).

- Temperature Scale
  - °F (default)
  - °C
- Clean Screen

> ⑦ 30 Second Countdown timer without affecting settings to allow cleaning of the display.

INSTALLER SETTINGS

From the Home Screen, touch **Menu**. Touch and hold **Settings** to access the Installer Settings Screen.

- System Setup
- Outdoor Sensor
- Residual Cool
- Low Balance Point
- High Balance Point
- Dead Band
- Smooth Set Recovery
- SSR (Smooth Setback Recovery) Stage 2 Lock Out
- Dealer Information
- Temperature Offset
- Humidity Offset
- Stage Delay Timer
- Stage 1 Diff
- Stage 2 Diff
- Stage 2 Delay
- Stage 3 Diff
- Stage 3 Delay
- Stage 4 Diff
- Stage 4 Delay
- H/C Stages Locked In
- Stage 2 HP Lock Temp
- Compressor Protect
- Humidity Setting
- Custom Reminder
- Reset Setting
- ENERGY STAR Default
- System Test Mode

INSTALLER SETTINGS SCREEN
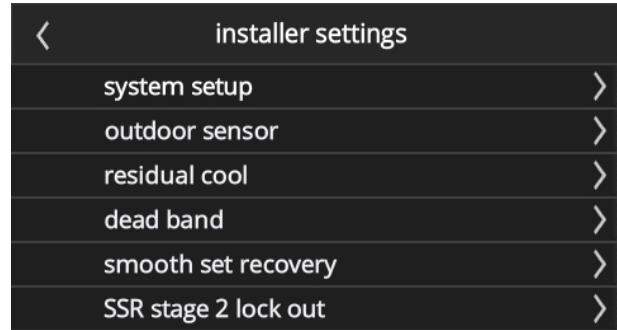
Scroll down to see all selections available on the screen.

System Setup
Compressor Setting
- Non-Heat Pump
- Heat Pump
- Compressor Stage, 1 (default) or 2

Indoor Unit Setting
- No Heat
- Gas/Oil
- Electric
- Indoor Heat Stage, 1 (default) or 2

Outdoor Sensor
- Yes (default)
- No

Residual Cool
- 0 (default), 30, 60, 90, 120 seconds

Low Balance Point (Multi-Stage Heat Pump)
- Enable or Disable (default)
- 25°F (default), adjustable -40°F to 48°F

High Balance Point (Multi-Stage Heat Pump)
- Enable or Disable (default)
- 50°F (default), adjustable 50°F to 75°F

Touch and hold **Enable** to access the Low or High Balance Point adjustments.

Deadband
- 3°F (default), adjustable (3 to 8°F)

Smooth Setback Recovery
- Enable or Disable (default)

SSR (Smooth Setback Recovery) Stage 2 Lockout
- 20 min. (default), adjustable (20 to 120 minutes) in 10 minute increments

INSTALLER SETTINGS (continued)

INSTALLER SETTINGS SCREEN (continue)

Dealer Information
- Name
- Address
- Phone
- Email
- Website
- Number

> ⑦ Use the keyboard tool to input dealer information (maximum 30 characters).

Temperature Offset
- 0°F (default), adjustable (-5 to 5°F). Offset displayed temperature ± 5°F

Humidity Offset
- 0% (default), adjustable (-10 to 10%)

Stage Delay Timer
- On (default) or Off

Stage 1 Differential
- 1.0°F (default), adjustable (0.5 to 8.0°F)

Stage 2 Differential
- 1.0°F (default), adjustable (0.5 to 8.0°F)

Stage 2 Delay
- 20 min. (default), adjustable (5 to 120 minutes) in 10 minute increments

Stage 3 Differential
- 0.5°F (default), adjustable (0.5 to 8.0°F)

Stage 3 Delay
- 20 min. (default), adjustable (5 to 120 minutes) in 10 minute increments

Stage 4 Differential
- -0.5°F (default), adjustable (0.5 to 8.0°F)

Stage 4 Delay
- 20 min. (default), adjustable (5 to 120 minutes) in 10 minute increments

H/C Stages Locked In
- Enable or Disable (default) turns heating stages off separately

Stage 2 HP Lock Temp
- Off (default) for dual-fuel (lock out 2nd stage compressor) applications, adjustable (-45 to 75°F)

Compressor Protect
- On (default) or Off

Humidity Setting
- Humidify
  - Normal, Max, Dewpoint Normal, Dewpoint Max, Off (default)
- Dehumidify
  - Normal, Max, Humiditrol (Min / Mid / Max), Auxiliary Dehumidifier, Off (default)

> ⑦ Dewpoint and Humiditrol settings are only available with optional remote Outdoor Temperature Sensor.

> ⑦ **Humidify Settings**
> **normal** setting is recommended for moderate climates. Operates the humidifier when there is a call for heating and humidification.
>
> **max** setting is recommended for drier climates. Operates the humidifier when there is a call for humidification only.
>
> **Dehumidify Settings**
> **normal** setting is recommended for moderate climates. Operates the dehumidifier when there is a call for cooling and dehumidification.
>
> **max** setting is recommended for humid climates. Operates the dehumidifier when there is a call for dehumidification only. May cool beyond desired setpoint by 2 degrees.

Custom Reminder
- Two custom reminders
- User defined reminders can be a custom text message (up to 20 alphanumeric characters)

Reset Setting
- Restores thermostat to original factory settings

Energy Saving Default
- Sets thermostat to conform to EPA ENERGY STAR® recommended setpoints:
  - Wake - 6 AM, 70°F Heat, 78°F Cool
  - Leave - 8 AM, 62°F Heat, 85°F Cool
  - Home - 5 PM, 70°F Heat, 78°F Cool
  - Night - 10 PM, 62°F Heat, 82°F Cool

System Test Mode
Installer run tests to check all cooling, heating, emergency heating and fan outputs. Tests confirm signals between thermostat and unit are being sent and received.

Test Outputs
- Y1 (1st stage cooling)
- Y2 (2nd stage cooling)
- W1 (1st stage heating)
- W2 (2nd stage heating)
- G (Fan)
- H (humidification)
- D (dehumidification)
- OB (reversing valve)

> ⑦ Touching the **OFF** button next to the test will change the status to ON and will enable the relay for that terminal. Touching again will turn the relay OFF.

FEATURES

SPECIFICATIONS
NOTE - For use with residential equipment only.

Order No. - 13H14

Temperature Setting Range
• Heating - 45 to 90°F
• Cooling - 45 to 99°F

Humidity Settings
• Operating range - 10 to 90% relative humidity
• Humidity setpoint (Humidification mode) - 15 to 45% relative humidity
• Humidity setpoint (Dehumidification mode) - 35 to 60% relative humidity

Power Supply
• 24VAC (18 to 30VAC maximum), 50/60Hz

Clock Accuracy
• ± 10 minutes per year

Terminals

4 heat / 2 cool multi-stage
• Tc - Sensor Common
• To - Outdoor Temperature Sensor
• H - Humidification Relay
• D - Dehumidification Relay
• W2 - 2nd Stage Heating (AC) or 4th Stage heating (Heat Pump)
• Y2 - 2nd Stage Heating or Cooling
• O - Reversing Valve (Cooling)
• B - Reversing Valve (Heating)
• C - Common 24VAC
• G - Fan
• W1 - 1st Stage Heating (AC or Emergency Heat) or 3rd Stage Heating (Heat Pump)
• Y1 - 1st Stage Heating or Cooling
• R - 24VAC power

Dimensions
• Thermostat (H x W x D) - 3-5/16 x 4-5/16 x 7/8 in. (84 x 110 x 22 mm)
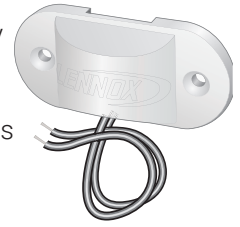• Wallplate (W x H) - 5-3/4 x 4-1/2 in. (146 x 114 mm)

Backup
• Non-volatile memory maintains all programming in the event of a power outage

Optional Accessories

Outdoor Temperature Sensor
• When installed outdoors, sensor (X2658) allows thermostat to display outdoor temperature

NOTE - Sensor is required for dual fuel operation if thermostat controls dual-fuel system operation. Also required with Humiditrol® applications and Humidity Settings / Humidity / Dewpoint operation.

LENNOX