CS7500
Commercial 7-Day Programmable Touchscreen Thermostat

COMMERCIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210752
February 2019
Supersedes January 2018

The CS7500 is an electronic 7-day, universal, multi-stage, programmable, touchscreen commercial thermostat.

Thermostat also features enhanced capabilities for commercial packaged rooftop units and split systems including remote temperature sensing, dehumidification and control, Humiditrol® Enhanced Dehumidification Accessory (EDA), economizer control 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, schedules and occupancy) 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
- Scheduled occupancy control (economizer operation) for fresh air ventilation
- Designed specifically for commercial applications to satisfy fresh air ventilation needs
- Remote Indoor Temperature Sensing with up to nine averaging sensors (room sensors must be field furnished)
- 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
- Holiday scheduling allows one-touch change to a pre-defined holiday or special events schedule without having to reprogram the thermostat
- 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



4 Heat / 2 Cool Universal Multi-Stage

APPROVALS

- FDD, ASHRAE and IECC Compliant
- Factory preset program settings conform to EPA ENERGY STAR® recommended setpoints

WARRANTY

- Limited two years

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

APPLICATIONS

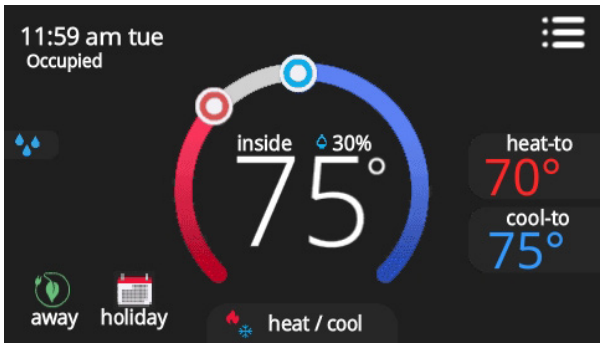
- Fully programmable thermostat provides universal system compatibility, precise comfort control and easy programmability
- Provides temperature control for gas, oil, electric and heat pumps for up to 4 heat / 2 cool multi-stage systems (includes dual-fuel operation)

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FEATURES

USER SETTINGS

HOME SCREEN



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)

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).

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)

Thermostat can display current discharge air temperature instead if sensor setting is set to “discharge”.

Time/Date Display
- Displays current time and day (supports daylight savings time changes)

Occupied/Unoccupied
- Displays Occupied or Unoccupied status (see page 6)

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

Touch to display **menu** screen (See page 2).

Mode/Schedules

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

Away Mode Button away

Touch to display **away mode** screen (See page 3).

Holiday Mode Button

Touch to access **holiday** schedule setting screen (See page 4).

System Status Icons
- Dehumidification

Touching the icon will display **dehumidifying** next to the icon.

- Heating (waiting)
- Heating (system operating)

A plus (**+**) sign displayed next to the heating icon indicates the system is operating in emergency heat mode (heat pump systems only).

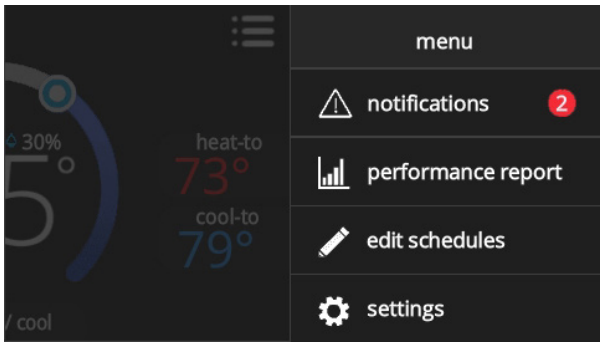
- Cooling (waiting)
- Cooling (system operating)

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

- Schedule 1, 2, etc.

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

MENU SCREEN



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)

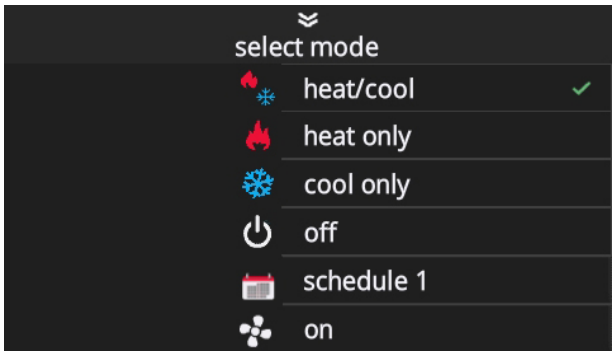
Edit Schedules
- Displays the schedules screen. Up to three separate schedules (and a holiday schedule) can be set (see page 4)

Settings
- Displays various user settings (fan, heat/cool, humidity, reminders, general, display) (see page 5)

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

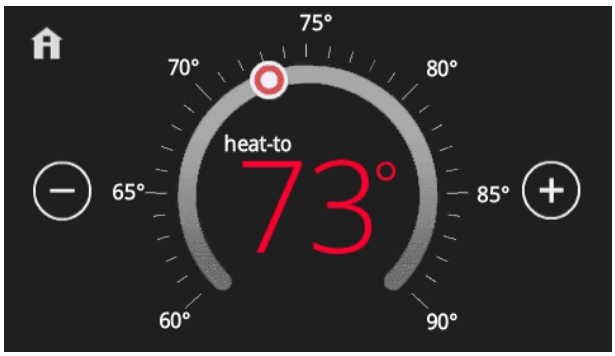
If additional schedules are available they will be displayed.

- On
- Auto
- Circulate

A checkmark indicates which mode is active.

Scroll down to see all modes available on the screen.

HEAT MENU SCREEN



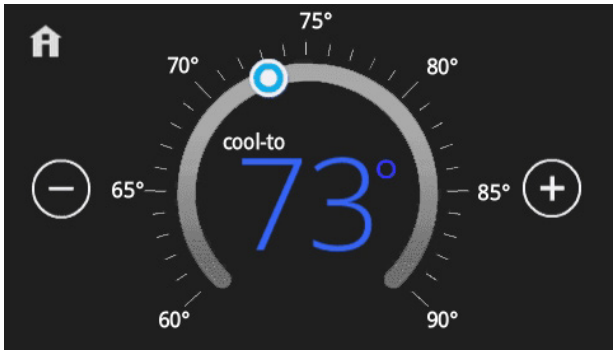
On the Home Screen, touching the heat setpoint indicators on the round temperature band, or touching the **heat-to** button displays the heat menu screen.

- 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



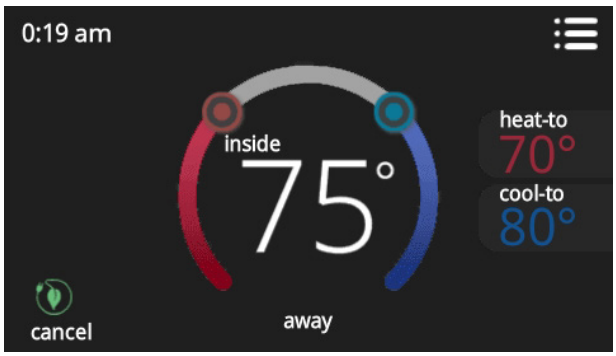
On the Home Screen, touching the cool setpoint indicators on the round temperature band, or touching the **cool-to** button displays the cool menu screen.

- 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



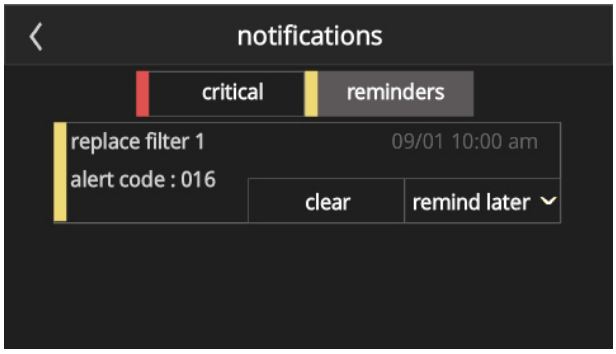
Set heating or cooling setpoints during unoccupied periods.

- 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)

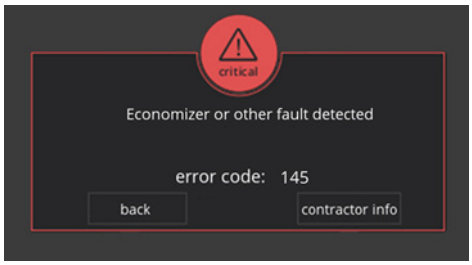
NOTIFICATIONS SCREEN



Displays faults, errors and service information.

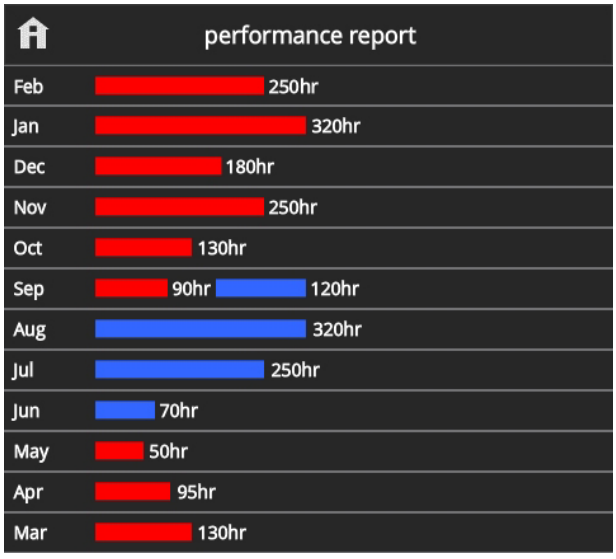
If any faults, errors, or service information appears, buttons are displayed underneath the notification, **remind, clear, service,** or **reset**. Touch to select the desired action.

FAULT DETECTION SCREEN



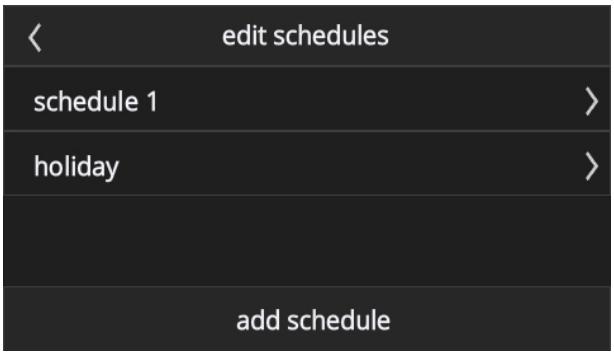
Displays detection of economizer faults generated by the rooftop unit's service relay, meets fault detection and diagnostics (FDD) regulations.

PERFORMANCE REPORT SCREEN



- 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



Schedules
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 (**OCC1 / UNOCC1 / OCC2 / UNOCC2**)
- Select time screen displays hours, minutes and AM or PM
  - Scroll to select desired time in 15 minute increments for each time period
- Occupancy setting for each time period (see page 6)
  - Occupied
  - Unoccupied
- 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

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.

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

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

Holiday
Allows setting schedules for specific holidays (during unoccupied periods). Has the same programming features as regular schedules.

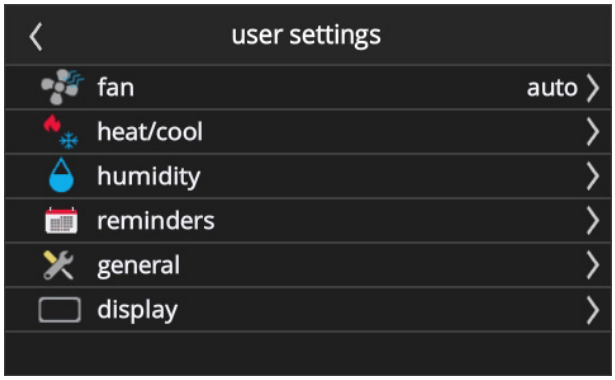
Temporary Override

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 HOLD 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



Fan



- On
- Auto
- Circulate

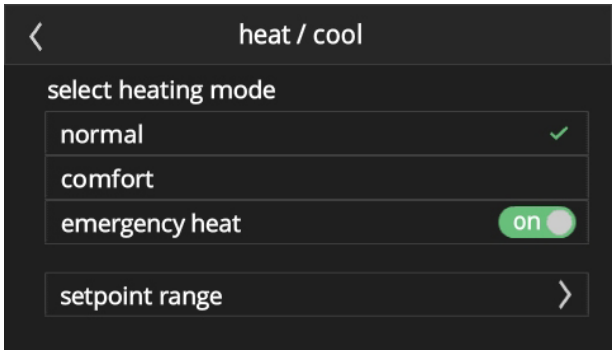
If set to **auto**, fan operates only when equipment is operating and follows a selected schedule.

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.

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



- Normal
- Comfort (2-stage heating or cooling)
- Emergency Heat (heat pump systems only)

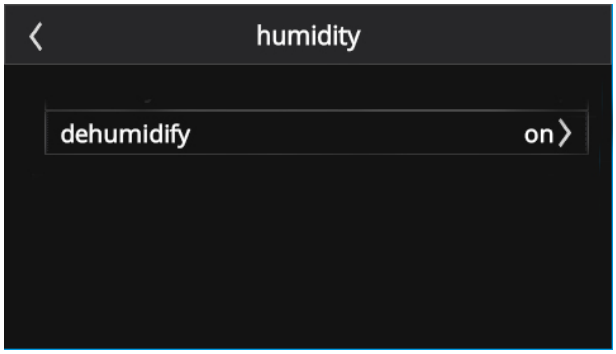
Bypasses any stages of mechanical heat pump heating and operates secondary heat source directly for maximum heating.

- 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)

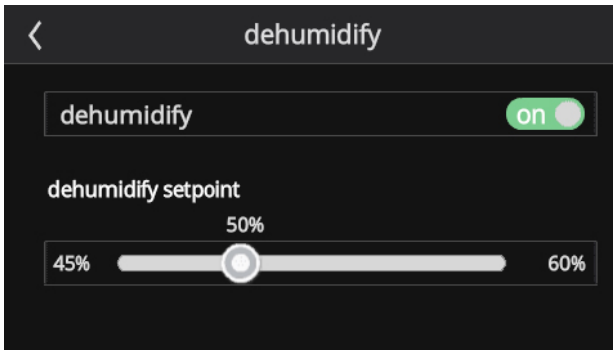
Humidity



- On or Off (default is Off)

Touch Dehumidify to turn On.

Dehumidify



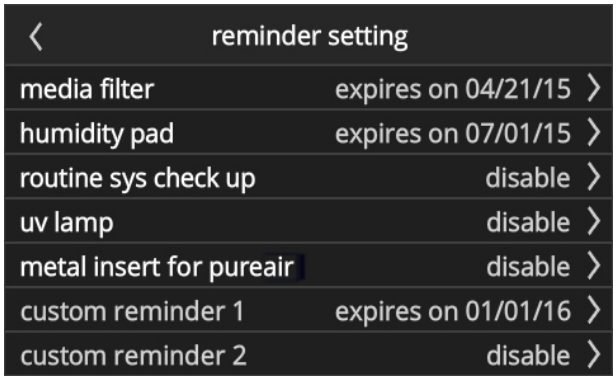
- Dehumidify On
  - Setpoint - 50% (default) adjustable RH (45 to 60%)

Use the slider to adjust the desired levels.

USER SETTINGS (continued)

USER SETTINGS SCREEN (continued)

Reminders



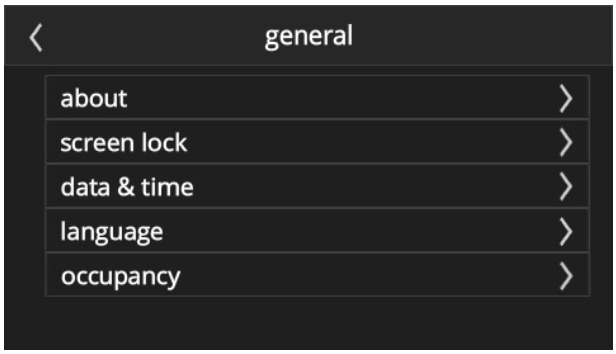
Reminders notify user when routine maintenance is required.

- 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



- About (thermostat and service information)
  - Thermostat Information
    - Model Number
    - Serial Number
    - Hardware Revision
    - Software Revision
  - Service Information
    - Name
    - Address
    - Phone
    - Email
    - Website
    - Number

Installer can input their contact 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
- Occupancy
  - Pre-Occupancy, 0 (default) to 4 hours
  - Post-Occupancy, 0 (default) to 4 hours

Occupancy

Sets the number of hours the system will energize the economizer dampers.

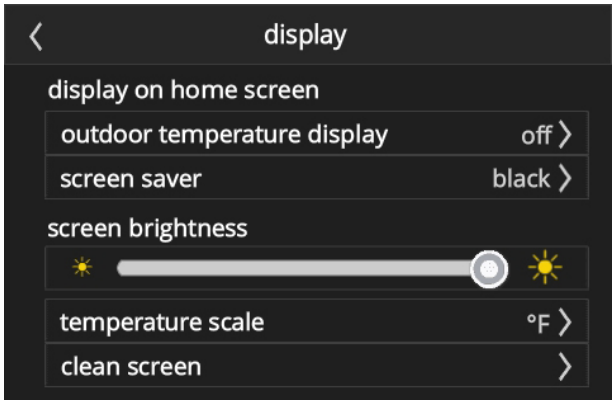
Pre-occupancy opens the economizer dampers early based on number of hours set.

Post-Occupancy keeps the economizer dampers open based on number of hours set.

USER SETTINGS (continued)

USER SETTINGS SCREEN (continued)

Display



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

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

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

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

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

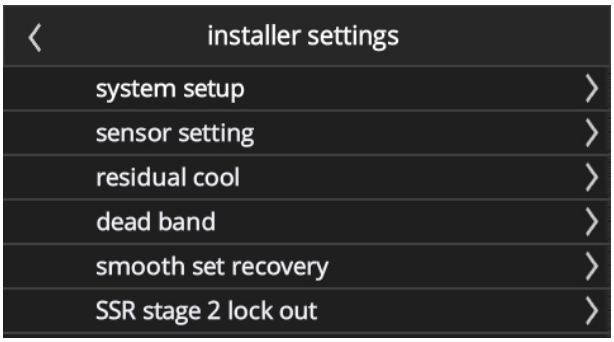
INSTALLER SETTINGS



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

- System Setup
- Sensor Setting
- Residual Cool
- Low Balance Point
- High Balance Point
- Dead Band
- Smooth Set Recovery
- SSR (Smooth Setback Recovery) Stage 2 Lock Out
- Contractor 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 Saving 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

Sensor Setting

Outdoor Sensor
- Outdoor
- Discharge
- No (default)

Indoor Sensor
- Remote 10K
- Remote 20K
- Internal (default)

Up to nine indoor (room) sensors may be connected in series for averaging. Sensors are not furnished and must be ordered separately.

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 25°F

High Balance Point (Multi-stage Heat Pump)
- Enable or Disable (default)
- 50°F (default), adjustable 27°F to 75°F

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

Deadband
- 2°F (default), adjustable (3 to 9°F)

Smooth Setback Recovery
- Enable or Disable (default)

INSTALLER SETTINGS (continued)

INSTALLER SETTINGS SCREEN (continued)

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

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

Use the keyboard tool to input installer 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 (default) or Disable 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
- Dehumidify
  - Normal, Max, Humiditrol (Min / Mid / Max), RTU/Auxiliary Dehumidifier, Off (default)

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.

rtu/auxiliary dehumidifier setting is used with Landmark® Humiditrol (if equipped).

NOTE - Humiditrol® settings are only available with optional remote Outdoor Temperature Sensor.

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:
  - OCC1 - 6 AM, 70°F Heat, 78°F Cool
  - UNOCC1 - 6 PM, 62°F Heat, 85°F Cool
  - OCC2 - 8 PM, 62°F Heat, 85°F Cool
  - UNOCC2 - 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)
- ECO (economizer)
- D (dehumidification)
- OB (reversing valve)

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.

SPECIFICATIONS

Order Number - 17G74

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

Humidity Settings
- Operating range - 10 to 90% relative humidity
- Humidity setpoint (Dehumidification) - 45 to 60% relative humidity, default 50%

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

Clock Accuracy
- ± 10 minutes per year

Terminals

4 heat / 2 cool multi-stage
- Ti - Remote Indoor (Room) Sensor
- Tc - Sensor Common
- To - Outdoor Sensor or Discharge Air Temperature Sensor
- Ec - Economizer/Time-of-Day/Occupied (output powered via R terminal)
- D - Dehumidification
- W2 - 2nd Stage Heating (AC) or 4th Stage heating (Heat Pump)
- Y2 - 2nd Stage Heating or Cooling
- O/B - Reversing Valve (Cooling/Heating)
- F - Economizer or other fault detection
- C - Common 24VAC
- G - Fan
- W1 - 1st Stage Heating (AC or Emergency Heat) or 3rd Stage Heating (Heat Pump)
- Y1 - 1st Stage Cooling (AC) or Compressor Output (Heat Pump)
- 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

Indoor Room Sensors

Remote non-adjustable, wall mount
- 20k (47W36)
- 10k (47W37)
- Up to five indoor (room) sensors may be connected in series for averaging

NOTE - Refer to installation instructions for additional details.
- Uses standard two-wire thermostat wire
- Room sensor wiring can be sized from 16 to 22 AWG depending on the application
- The maximum length of wire from the thermostat to the room sensor is 300 feet

Sensor Combinations

Remote sensors can be applied in any of the following combinations:
- One Sensor - (1) 47W36
- Two Sensors - (2) 47W37
- Three Sensors - (2) 47W36 and (1) 47W37
- Four Sensors - (4) 47W36
- Five Sensors - (3) 47W36 and (2) 47W37

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



NOTE - Sensor is required for dual fuel operation if thermostat controls dual-fuel system operation. Also required with Enhanced Dehumidification Accessory (EDA) applications.

Discharge Air Temperature Sensor (19L22)
- Remote non-adjustable duct mount temperature sensor
- When installed in the supply air duct, sensor allows the temperature to display the discharge air temperature

REVISIONS

Sections	Description of Change
Document	Updated model and catalog number. Minor changes to settings.

Visit us at www.Lennox.com
For the latest technical information, www.LennoxCommercial.com
Contact us at 1-800-4-LENNOX

NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.
Installation and service must be performed by a qualified installer and servicing agency.

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