

Installation, Start-Up, and Operating Instructions

NOTE: Read the entire instruction manual before starting the installation.

This symbol → indicates a change since the last issue.

SAFETY CONSIDERATIONS

Read and follow manufacturer instructions carefully. Follow all local electrical codes during installation. All wiring must conform to local and national electrical codes. Improper wiring or installation may damage the Light Commercial (LC) Thermidistat Control. Recognize safety information. This is the safety-alert symbol. ⚠ When you see this symbol on the equipment and in the instruction manual, be alert to the potential for personal injury. Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies a hazard which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **would** result in minor personal injury or product and property damage.

INTRODUCTION

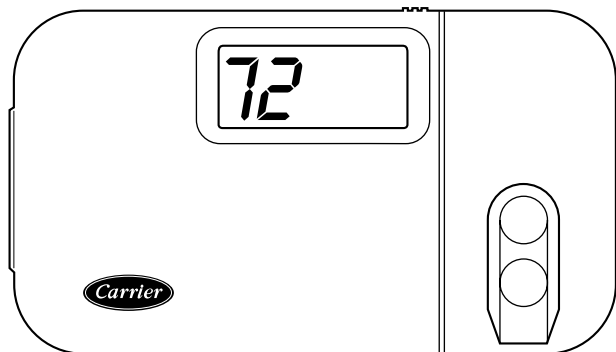
The LC Thermidistat Control is a 7-day programmable, wall-mounted, low-voltage control which combines temperature and humidity control in a single unit. It provides separate set points for heating and cooling, and adds dehumidification with separate set points for occupied and unoccupied periods. The dehumidification output provides direct control of humidity. During power loss an internal memory stores programs and settings for unlimited time, and the clock continues to run for at least 8 hours. Batteries are not needed. This is an IAQ (Indoor Air Quality) friendly control that will provide continuous fan operation in the occupied mode. Building owners no longer have to be concerned about complying with code required ventilation levels, the LC Thermidistat Control does it automatically when in the occupied mode. No longer is an additional relay needed for continuous fan operation, it is a built-in feature of the LC Thermidistat Control.

NOTE: If continuous fan operation and/or outdoor air ventilation is not required, or in a small packaged heat pump application, then the Residential Thermidistat Control is recommended.

FEATURES

- One control for temperature and dehumidification
- 7-day programmable
- Occupied and unoccupied modes (provides continuous fan in occupied mode)
- No batteries needed, stores programs and settings for an unlimited time and clock runs for at least 8 hours without power
- Indoor humidity display
- Outdoor temperature display
- Auto changeover automatically switches between heating and cooling
- Smart Recovery helps system deliver the desired temperature when expected

- Holiday mode is used for extended unoccupied times; may be temporarily overridden to restore comfort schedule
- Clean filter indicator shows when it is time to change filters
- Easy-to-read backlit LCD display



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HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)
4-3/8	7-3/8	1-3/8

Fig. 1—Light Commercial Thermidistat Control

INSTALLATION CONSIDERATIONS

POWER

Note that this control does not require batteries and is not [0081][008d]power stealing.[0081][008d] It does require 24vac (R and C terminals) of the low-voltage transformer to be connected to it for proper operation. The control will not operate without these 2 connections.

DEHUMIDIFICATION EQUIPMENT AND CONNECTIONS

On Rooftop units equipped with the MoistureMi\$er and without the Energy\$Recycler accessory, (62AQ); a field supplied relay must be used to control the MoistureMi\$er function (recommend relay HN61KK324). The relay coil is connected to the dehumidification output of the thermidistat and the contacts control the MoistureMi\$er solenoid. The contacts are to be wired between the MoistureMi\$er fuse and the low pressure switch.

On Rooftop units installed with the 62AQ accessory, the dehumidification output terminals on the thermidistat must be connected to the dehumidify input terminals on the 62AQ Energy\$Recycler. Additionally, if the SRT is equipped with optional MoistureMi\$er Dehumidification accessory, a relay in the Energy\$Recycler (HM) energizes the MoistureMi\$er solenoid to activate the enhanced dehumidification mode and a field supplied relay is not needed.

OUTDOOR TEMPERATURE SENSOR

Plan installation so that 2 wires can be run from LC Thermidistat Control to an outdoor location, preferably on the north side of the building or refer to Installation Instructions included with the outdoor temperature sensor for simplified connection. Sensor can be mounted to outdoor unit and existing control wires may be used for its connection. Details are provided in sensor instructions.

Table 1—Application Diagrams

APPLICATION	DIAGRAM
SRT with Economizer Durablade 2-Position Damper EconoMi\$er	Fig. 2 Fig. 3 Fig. 4
SRT With MoistureMi\$er With Energy\$Recycler With MoistureMi\$er and Energy\$Recycler	Fig. 5 Fig. 6 Fig. 6
SPP Two-Position Damper	Fig. 7

SRT—Small Rooftop Unit (3-12.5 Tons)
SPP—Small Package Product (1.5-5 Tons)

INSTALLATION APPLICATIONS

SMALL ROOFTOP UNIT (SRT) WITH ECONOMIZER (3-12.5 TONS)

To keep the outside air damper closed during the unoccupied periods, when the outside air is not usable for cooling or when in unoccupied heating mode, do the following:

- DURABLADE ECONOMIZER: Add relay HN61KK324 to circuit as shown in Fig. 2.
- TWO-POSITION OUTSIDE AIR DAMPERS: Add field supplied relay to circuit as shown in Fig. 3.
- ECONOMIZER: Add field supplied relay and load resistor to circuit as shown in Fig. 4.

SMALL ROOFTOP UNIT (SRT) WITH MOISTUREMISER (3-12.5 TONS)

- WITHOUT ENERGY\$RECYCLER (62AQ): A field supplied relay must be used to control the MoistureMi\$er function (recommend relay HN61KK324). The relay coil is connected to the dehumidification output of the thermidstat and the relay contacts control the MoistureMi\$er solenoid. The contacts are to be wired between the MoistureMi\$er fuse and the low pressure switch. (See Fig. 5.)
- WITH ENERGY\$RECYCLER (62AQ): The dehumidification output (DEHUM) terminal on the LC Thermidstat must be connected to the dehumidify input (HM) terminal on the 62AQ. The OC, W1, and W2 must also be connected between the LC Thermidstat and the TSTAT terminals on the 62AQ connection board. Additionally, W1 and W2 UNIT connections on the 62AQ board must be connected to the W1 and W2 terminals on the SRT. R, C, Y1, and G will connect directly from the LC Thermidstat to the terminals on the SRT. See Fig. 6 and the 62AQ Installation Instructions for further details.

SMALL PACKAGE PRODUCT (SPP) WITH TWO-POSITION DAMPER (1.5-5 TONS, NO HEAT PUMP) :

To keep the outside air damper closed during the unoccupied periods. Remove red wire going to actuator and install R1 relay contacts in series. (See Fig. 7.)

INSTALLATION

Step 1—Select LC Thermidstat Location

LC Thermidstat Control should be mounted:

- Approximately 5 ft (1.5m) from floor.
- Close to or in a frequently used room, preferably on an inside partitioning wall.
- On a section of wall without pipes or duct work.

The LC Thermidstat Control should not be mounted:

- Close to a window, on an outside wall, or next to a door leading to the outside.
- Exposed to direct light or heat from a lamp, sun, fireplace, or other temperature-radiating objects which could cause a false reading.

- Close to or in direct airflow from supply registers and return-air registers.
- In areas with poor air circulation, such as behind a door or in an alcove.

Step 2—Set DIP Switches

There is a 4 section DIP switch within the LC Thermidstat Control which must be properly set by the installer. It is easiest to set these 4 switches before the LC Thermidstat Control is mounted to the wall, so STOP and complete the following steps:

1. Open hinged LC Thermidstat Control cover.
2. Remove cover completely by gently snapping it apart at hinge.
3. Open LC Thermidstat Control by pressing back half of the right end of plastic case inward, while at the same time pulling front and back halves apart at the right end. The 2 halves will swing apart.
4. Snap hinge apart to completely separate the 2 halves.
5. Switches are located in upper right corner of circuit board. To change switch position, use corner of a small screwdriver to slide switch to opposite position. (See Fig. 9 and Fig. 10.)
6. After switches have been set, do not reassemble the 2 halves. The rear plastic will first be mounted to the wall.

SWITCH 1—NOT USED (Leave in off position)

SWITCH 2—NOT USED (Leave in off position)

SWITCH 3—SMART/CONVENTIONAL RECOVERY

Selects between conventional and smart recovery from setback. Conventional recovery changes to new set point at programmed time. Smart recovery, which is active in both heating and cooling, starts 90 min. earlier and smoothly adjusts set point so room will arrive at programmed temperature at programmed time.

NOTE: The occupied output is only energized at the preprogrammed time.

TO SET: OFF—for smart recovery. This is factory default.

ON—for conventional recovery.

SWITCH 4—INSTALLER TEST OFF/ON

Selects a special installer test mode which assists with startup and checkout. See Step 5, LC Thermidstat Control Start- and Checkout.

TO SET: OFF—for normal operation. This is factory default.

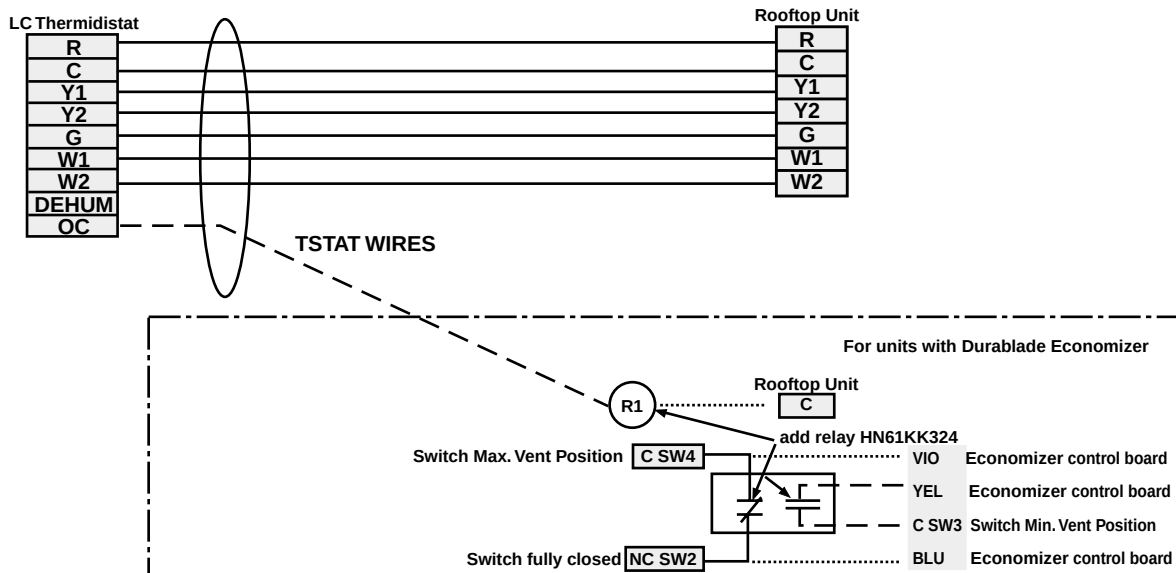
ON—for installer test mode.

Step 3—Install LC Thermidstat Control

⚠ WARNING

Before installing Light Commercial Thermidstat Control, turn off all power to equipment. There may be more than one power disconnect. Electrical shock can cause personal injury or death.

1. Turn off all power to equipment.
2. If an existing thermostat is being replaced:
 - a. Remove existing thermostat from wall.
 - b. Disconnect wires from existing thermostat, one at a time.
 - c. As each wire is disconnected, record wire color and terminal marking.
 - d. New or additional wire may be needed to accommodate added humidity outputs.
 - e. Discard or recycle old thermostat.



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Fig. 2—Typical Rooftop with Durablade Economizer (Closing Economizer during Unoccupied Modes)

⚠ WARNING

Mercury is a hazardous waste and **MUST** be disposed of properly.

3. Locate the LC Thermostat Control rear plastic. If it is not separated from the remainder of the LC Thermostat Control, refer to Step 2 under Installation.
4. Route wires through large hole in rear plastic. Level rear plastic against wall (for aesthetic value only—LC Thermostat Control need not be leveled for proper operation) and mark wall through 2 mounting holes.
5. Drill two 3/16-in. mounting holes in wall where marked.
6. Secure rear plastic to wall with 2 screws and anchors provided. Additional mounting holes are available for more secure mounting if needed. Make sure all wires extend through hole in mounting base.
7. Adjust length and routing of each wire to reach proper connector block and terminal on rear plastic with 1/4-in. extra length. Strip only 1/4 in. of insulation from each wire to prevent adjacent wires from shorting together when connected. See Fig. 11.
8. Match and connect equipment wires to proper terminals of each connector block. Remember R and C **must** be connected for proper operation.

NOTE: If installing with Energy\$Recycler, wire Energy\$Recycler per Fig. 6.

NOTE: See dashed line insertion (box) in above diagram if MoistureMi\$er equipped unit.

⚠ CAUTION

Improper wiring or installation may damage LC Thermostat Control. Check to make sure wiring is correct before proceeding with installation or turning on power.

9. Push any excess wire into wall and against rear plastic. Seal hole in wall to prevent air leaks. Leaks can affect operation.
10. Reattach LC Thermostat Control body to rear plastic by first reattaching hinge.
11. Close LC Thermostat Control assembly, making sure pins on back of circuit board align with sockets in connector.

12. Turn on power to equipment.

On power up, all display segments will light for 2 seconds. See Fig. 8. For the next 8 seconds, a 2-digit code appears on LED display which identifies LC Thermostat Control configuration:

CP—Commercial Product

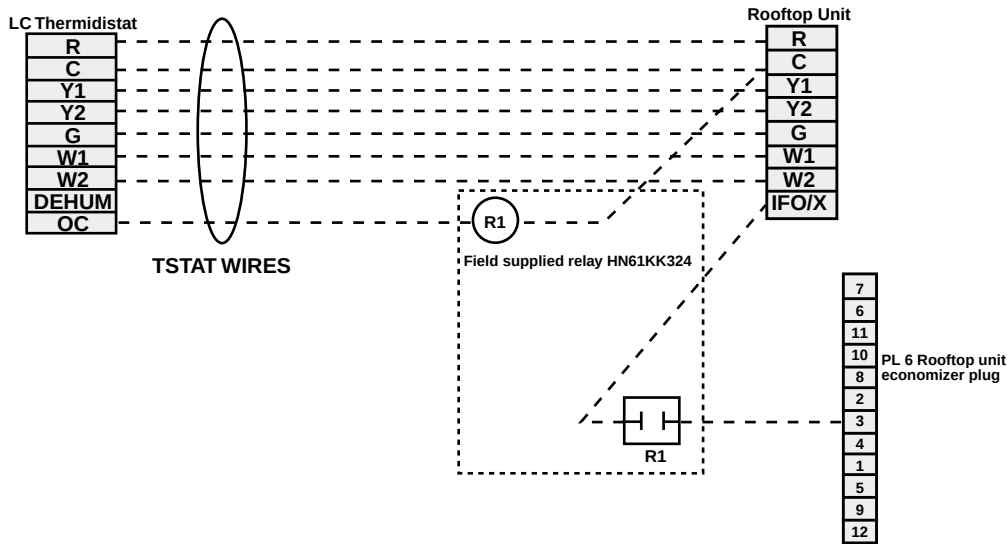
Step 4—Set Light Commercial Thermostat Control Configuration

Configuration options, like DIP switch settings, are intended to be selected at installation and normally are not modified by the homeowner. (See Fig. 9 and Fig. 10.) These options must be made as part of the installation. A special procedure allows entry into the configuration mode. While in configuration mode, up to 10 selections may be made. A description of each selection and how to use the configuration mode follows. CONFIGURATION OPTIONS — SUMMARY:

- Option 1—Anticipator adjustment
- Option 2—Clean filter timer adjustment
- Option 3—English/Metric selection
- Option 4—Fan (G) ON with W selection
- Option 9—Holiday heat set point
- Option 10—Holiday cool set point
- Option 11—Holiday dehumidification set point
- Option 13—Room temperature offset adjustment
- Option 14—Heat cool deadband adjustment
- Option 21—Keyboard lock

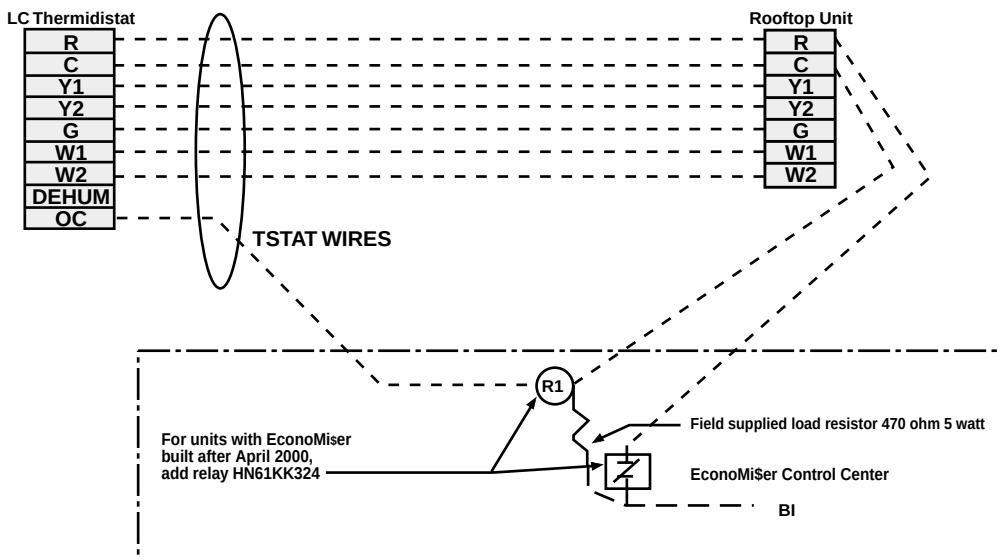
TO ENTER CONFIGURATION MODE: Press and hold FAN button for approximately 10 sec until COOL set point display indicates a flashing 1. (See Fig. 12.) The LC Thermostat Control is now in configuration mode. It will automatically exit this mode if no button is pressed for 3 min. Pressing HOLD/END button will exit configuration mode immediately.

WHILE IN CONFIGURATION MODE: The upper small (COOL set point) display indicates selected option number and large display indicates selection made within that option. One of these will be flashing. The up and down buttons are used both to move between available options and to make selection for each option. When option number (small display) is flashing, the up and down buttons allow for scrolling through the available options. After



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Fig. 3—Typical Rooftop with 2-Position Damper (25— or 100—)



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Fig. 4—Typical Rooftop with EconoMi\$er (Rev.-1) (Closing EconoMi\$er During Unoccupied Modes)

desired option number has been selected, press SET TIME/TEMP button once. The large display will now flash, indicating that up and down buttons now control available choices within that option. Each press of TIME/TEMP button switches between available option (small display) and available selections within each option (large display).

CONFIGURATION OPTIONS — SELECTION:

Option 1—Anticipator Adjustment

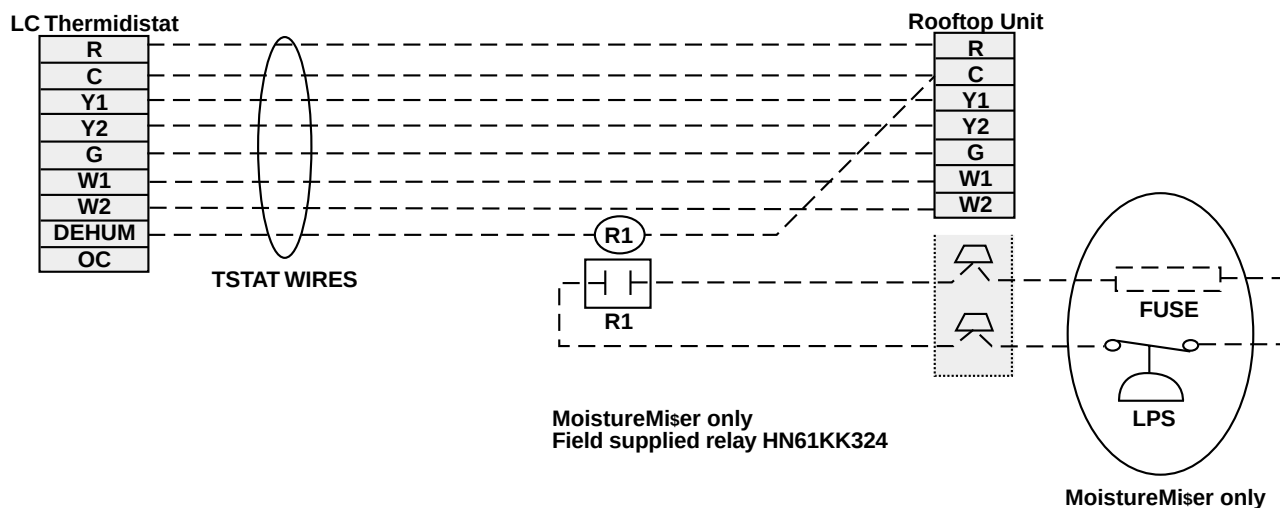
This adjustment controls sensitivity and cycle rate of LC Thermostat Control. Higher numbers decrease sensitivity and slow cycle rate. Lower numbers increase sensitivity and cycle rate. However, a limiting feature will not allow more than 4 cycles per hr, regardless of setting. Anticipator values can range from 1 to 9. Factory default is 3. This default selection provides optimum performance in nearly all installations. Try it first. Do not change setting unless there is evidence of need to do so. Unlike conventional anticipators, this setting is not determined by current draw. There is no need to measure, know, or compensate for current draw. There is also no droop with this LC Thermostat Control. Regardless of setting and number of stages, both heating and cooling will control to their respective set points.

TO ADJUST:

1. Enter configuration mode if not already there. The upper small (COOL set point) display will be flashing 1. If not, use up and down buttons to move it to 1.
2. Press SET TIME/TEMP button once to flash current selection of 1, 2, 3, 4, 5, 6, 7, 8, or 9 on large display. Factory default is 3.
3. Use up and down buttons to move between available choices.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit configuration mode.

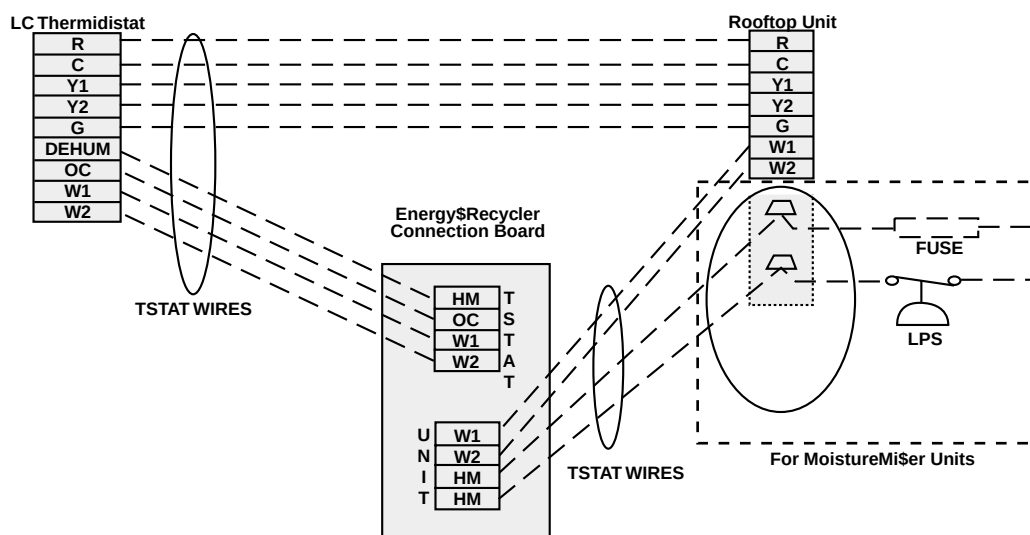
Option 2—Clean Filter Timer

Select hours of blower operation (heating, cooling, or fan) before CLEAN FILTER icon is displayed. With OFF selected, icon will never come on, disabling this feature. Time selection can range from 400 to 3600 hr by selecting numbers 1 through 9. (Time is 400 X number selected.) Factory default is 2 (800 hr). Recommended selections are: disposable filter—400 to 800 hr, media filter—1200 to 1600 hr, or electronic air cleaner—1600 to 2400 hr of blower operation.



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Fig. 5—Typical Rooftop with MoistureMiSer Option



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Fig. 6—Typical Rooftop With Energy\$Recycler Accessory

TO SELECT OR ADJUST:

1. Enter configuration mode if not already there. Use up and down buttons to make (now flashing) small display indicate 2.
2. Press SET TIME/TEMP button once to flash current selection of OF, 1, 2, 3, 4, 5, 6, 7, 8, or 9 on large display. Factory default is 2.
3. Use up and down buttons to move between available choices.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit configuration mode.

Option 3—English/Metric

Select between Fahrenheit and Celsius operation. Factory default is Fahrenheit.

TO SELECT OR ADJUST:

1. Enter configuration mode if not already there. Use up and down buttons to make (now flashing) small display indicate 3.

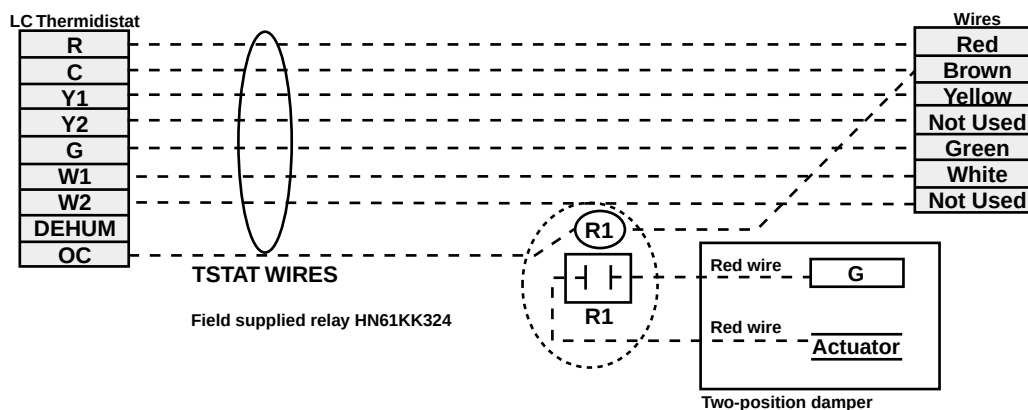
2. Press SET TIME/TEMP button once to flash current selection of F or C. Factory default is F.
3. Use up and down buttons to move between F and C on large display.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 4—Fan (G) On With W

This option determines whether fan (G) output is to be ON or OFF when any W (furnace or strip heat) output is ON. Most furnaces and fan coils manage their own blowers and do not require separate G signal. For these applications, select OFF. Some auxiliary heaters require separate G signal to turn on blower. In this case, select ON. Factory default is OF (off).

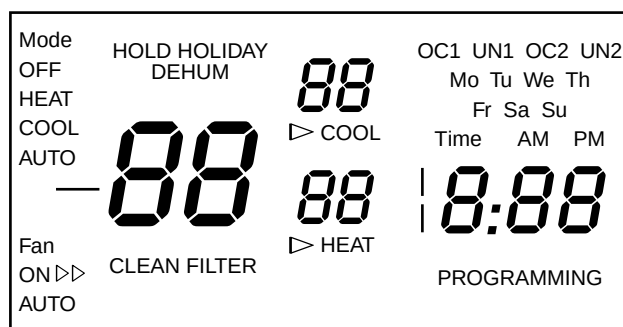
TO SELECT:

1. Enter configuration mode if not already there. Use up and down buttons to make (now flashing) small display indicate 4.



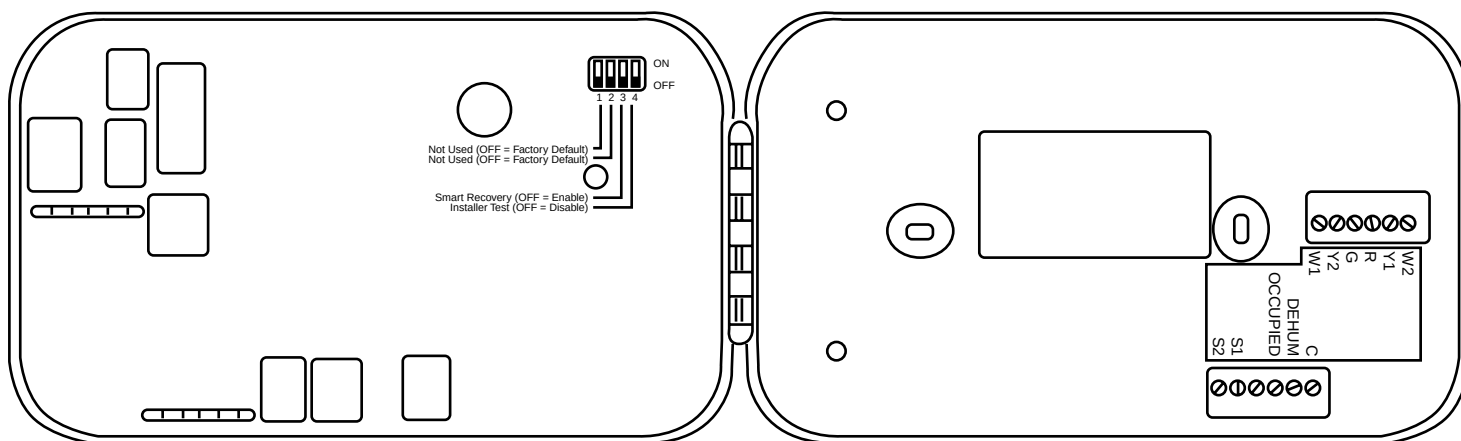
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Fig. 7—SPP (No Heat Pumps) with 2-Position Damper (Closing During Unoccupied Mode)



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Fig. 8—LC Thermidistat LCD on Power UP



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Fig. 9—LC Thermidistat Showing DIP Switches and Terminal Block Locations

2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to alternate between OF and ON on large display. Factory default is OF.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit configuration mode.

Option 9—Holiday Heat Set Point

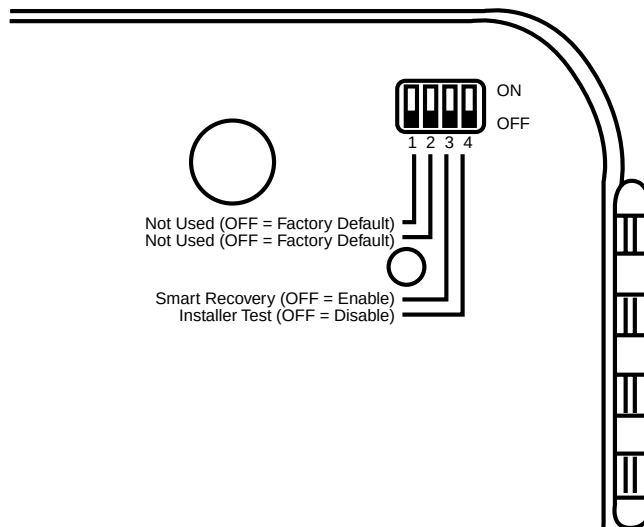
This option determines the HOLIDAY heating set point (40 to 90F minus deadband) when activated. When HOLIDAY is active, the heat set point changes to this value. However, at any time the user can temporarily override the HOLIDAY set point for up to a four-hour period by simply raising the temperature above this setting. At the end of the four-hour period (or until the next program period occurs), the override value will change back to the selected HOLIDAY heating set point value. Factory default is 60F.

TO SELECT:

1. Enter configuration mode if not already there. Use up and down buttons to make (now flashing) small display indicate 9.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to select desired temperature.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit configuration mode.

Option 10—Holiday Cool Set Point

This option determines the HOLIDAY cooling set point (40 to 90F minus deadband) when activated. When HOLIDAY is active, the cool set point changes to this value. However, at any time the user can temporarily override the HOLIDAY set point for up to a four-hour period by simply lowering the temperature below this



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Fig. 10—LC Thermidistat Control DIP Switches

setting. At the end of the four-hour period (or until the next program period occurs), the override value will change back to the selected HOLIDAY cooling set point value. Factory default is 85F.

TO SELECT:

1. Enter configuration mode if not already there. Use up and down buttons to make (now flashing) small display indicate 10.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to select desired temperature.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit configuration mode.

Option 11—Holiday Dehumidification Set Point

This option determines the HOLIDAY dehumidify set point (50 to 90

rh) when activated. When HOLIDAY is active the user can view the rh set point by pressing the HUMIDITY button; however, this value cannot be changed except through the installer software configuration mode. Factory default is 65

rh.

NOTE: This value can only be changed in the installer software configuration mode.

TO SELECT:

1. Enter configuration mode if not already there. Use up and down buttons to make (now flashing) small display indicate 11.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to select desired humidity.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit configuration mode.

Option 13—Room Temperature Offset Adjust

This option allows calibration (or deliberate miscalibrations) of room temperature sensor. There are various reasons why homeowners may want to have displayed temperature adjusted to a higher or lower value. The selected number is number of degrees, plus or minus, which will be added to actual temperature. The numbers can range between -5 and +5. Factory default is 0. This adjusted value will be used as actual temperature for both display and control action. For example; if 2 is selected then 72°F actual

will read 74°F. If set point is 72°F, the room will control to an actual temperature of 70°F which will be displayed and acted upon as if it were 72°F. The effect is that a positive number selection will make the room temperature lower and vice versa. The LC Thermidistat Control is calibrated within an accuracy of plus or minus 1 degree when shipped from the factory, so this adjustment will provide the best accuracy when set to 0.

TO SELECT:

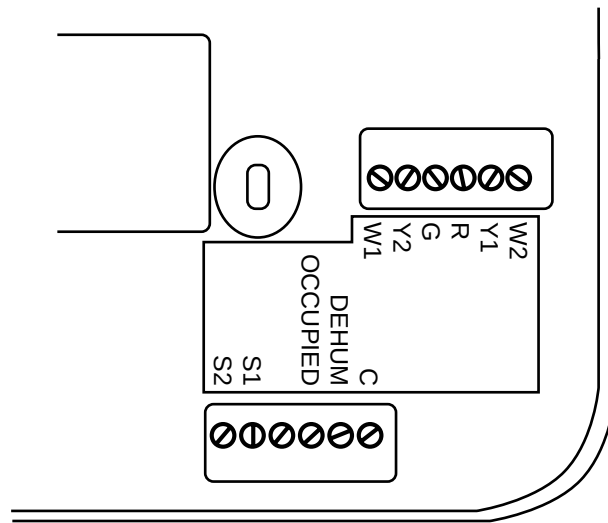
1. Enter configuration mode if not already there. Use up and down buttons to make (now flashing) small display indicate 13.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to move between -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, or 5 on large display. Factory default is 0.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit configuration mode.

Option 14—Heat/Cool Deadband Adjustment

This option selects the minimum difference between heating and cooling set points. A larger difference saves energy and a smaller difference decreases temperature difference between heating and cooling. Factory default is 2, which means cooling set point must be a minimum of 2 degrees above heating set point. An attempt to move them closer will result in one "pushing" the other to maintain the required difference. Depending on set points, moving deadband closer than 2 degrees may result in regular cycling between heat and cool when AUTO mode is selected. However, this cycling cannot occur more often than 1 transition every 10 min. The system has a built-in requirement that it cannot switch between heat and cool without a 10 min "off" time between the 2 operations. Specifically, to switch from one mode to the other, there must be no demand for the old mode and a demand for the new mode, and this must exist continually for 10 min before transition to the new mode will occur.

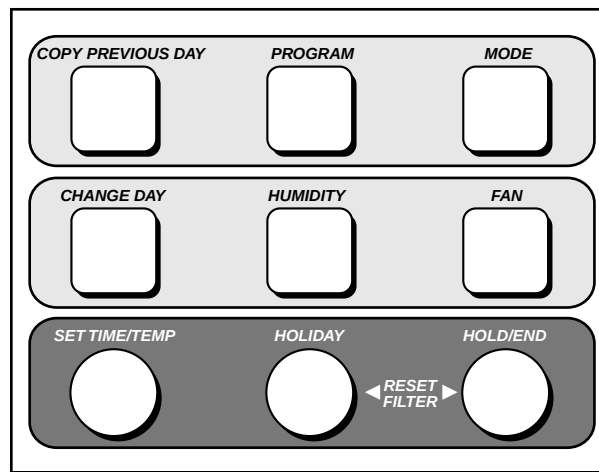
TO SELECT:

1. Enter configuration mode if not already there. Use up and down buttons to make (now flashing) small display indicate 14.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to move between 0, 1, 2, 3, 4, 5, and 6 on large display. Factory default is 2.



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Fig. 11—LC Thermidistat Terminal Blocks



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Fig. 12—LC Thermidistat Keypad

4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit configuration mode.

Option 21—Keypad Lock

This option allows the installer to disable the thermostat from being changed.

TO SELECT:

1. Enter Configuration mode. Use up and down set point buttons to make a small display (now flashing) indicate 21.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up and down set point buttons to move between OF and ON on large display. Factory default is OF, keypad is active.

NOTE: Once the keypad is locked the building manager can momentarily unlock the keypad by pressing the following keys sequentially; MODE, COPY PREVIOUS DAY, SET TIME/TEMP, and HOLD/END. The sequence must be completed within a 5-second period, and the keypad will be unlocked. The keypad will return to locked once the keypad is idle for a 2-min. period or immediately when exiting the Configuration mode.

4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press HOLD/END to exit Configuration mode.

Step 5—Conduct LC Thermidistat Control Start-Up and Checkout

The LC Thermidistat Control is designed with a built-in Installer Test capability. It allows easy operation of equipment without delays or set point adjustments to force heating or cooling. To enable Installer Test mode, move DIP switch 4 to ON position.

While in Installer Test mode, clock will display InSt. FAN button will control fan, and MODE button will control heating and cooling.

TO TEST FAN:

NOTE: In the test mode the fan is not tied to the occupied signal.

Fan button switches FAN icon between AUTO and ON. While ON is displayed, G output will be on, turning fan on. Allow up to 10 seconds after button is pressed for fan to turn on and off. On all 3 through 12.5 ton SRTs the fan continues to operate for a minimum of 30 seconds after G signal is removed.

NOTE: In other than the Test mode the fan will run continuously during the occupied periods. If auto fan is selected, the fan will come on with a heating or cooling call during the unoccupied periods and run continuously during the occupied periods. The fan icon AUTO will be lit if [0081][008d]auto fan[0081][008d] is selected and ON will be lit when the fan is on.

TO TEST COOLING AND DEHUMIDIFICATION:

Press MODE button until COOL icon turns on. Y1 cooling begins within 10 seconds and remains on for 4 min. Two min after Y1 comes on, the Y2 signal is energized for 2 min. At the end of 4-min. run, cooling stops and MODE reverts to OFF. At any time during 4-min. run time, cooling may be turned off by pressing MODE button until OFF appears. While cooling is on, successive presses of HUMIDITY button turns the dehumidify output on and off. While this output is active, the DEHUM icon will be energized.

TO TEST PRIMARY HEATING:

On installations without the Energy\$Recycler accessory.

Press MODE button until the Heat icon turns on. W1 heating begins within 10 seconds and remains on for 4 min. After 2 min. of W1 operation W2 will be energized for 2 min.

On installations with the Energy\$Recycler accessory.

Press MODE button until the Heat icon turns on. W1 heating begins within 10 seconds and remains on for 4 min. With the Energy\$Recycler the first stage of heat is the Energy\$Recycler in the heating mode when the outdoor temperature is above the balance point setting of the OAT-H (Outdoor Air Thermostat-Heating). With the outdoor air below the OAT-H setting, W1 will energize the Energy\$Recycler heating plus first stage heat from the rooftop. After 2 min. of W1 operation W2 will be energized for 2 min causing the first stage of heat in the rooftop unit to be energized when the outdoor air is above the OAT-H setting and the second stage of heat when the temperature is below the OAT-H setting.

At the end of 4-min. run, heating stops, and MODE reverts back to OFF. At any time during 4-min. run time, heating may be turned off by pressing MODE button until OFF appears. While heating is on, successive presses of HUMIDITY button turns Occupied output on and off. While this output is active, OC appears in cool set point display.

Step 6—Make Final Settings

Be sure to return DIP switch 4 back to OFF position to exit Installer Test mode. Assuming system is to be left in operation after installation is complete, use MODE button to select between HEAT, COOL, or AUTO to provide desired operation of heating, cooling, or both.

The default set points and programmed schedule are (ONLY ONE PERIOD IS PROGRAMMED):

OCCUPIED 1 = OCCUPIED 2 = 7:00 AM

COOL = 76 F;

HEAT = 72 F

DISPLAY WILL READ OC2

UNOCCUPIED 1 = UNOCCUPIED 2 = 5:00 PM

COOL = 85 F;

HEAT = 65 F

DISPLAY WILL READ UN2

If programmed schedule is to be used, make sure HOLD icon is off. It is turned on and off by the HOLD button.

If fixed temperatures are desired, use HOLD button to turn on HOLD icon. This will maintain set points, not allowing them to change with programmed schedule.

During unoccupied periods the FAN button may be used to select between AUTO (fan on only with equipment) and FAN (fan on continuously) fan modes. During occupied periods the fan is on continuously.

DEHUMIDIFICATION; Dehumidification is done only during cooling. A dehumidification set point is available to the owner in

both Occupied and Unoccupied times. It can range from 50 to 90 percent relative humidity. When actual humidity is higher than set point, a dehumidification demand exists. In the Occupied period, the LC Thermostat Control responds by activating its dehumidify output (DEHUM) turning on the compressor in the Energy\$Recycler unit; and when a call for cooling exists, energizing the MoistureMiser solenoid in the SRT (if the SRT is so equipped). The Energy\$Recycler compressor will be started in the Occupied mode even though a call for cooling does not exist; thus dehumidifying the outside air before it enters the building. In the Unoccupied period the LC Thermostat Control will only energize the MoistureMiser solenoid in the main unit.

However, if the humidity is below the set point in the Unoccupied period, an economizer mode will be initiated, bringing in outside air to cool the space as a first stage of cooling, provided the outdoor air thermostat in the Energy\$Recycler unit is below its set point.

HOLIDAY-A holiday selection is available specifically for times where the building will not be occupied for an extended period. For convenience, one button selects Holiday mode which is indicated by HOLIDAY icon on the LED display. Holiday mode also has an automatic hold, meaning that set points are not affected by the programmed schedule. While in Holiday mode, the system provides temperature and humidity protection for the building in all seasons, but not comfort.

HOLIDAY SET POINTS-The settings for HEAT, COOL, and DEHUM should have been done in the Configuration mode (Options 9, 10, and 11).

OVERRIDES/RESETS (Must Unlock Keypad)-To reset the clean filter icon and reset the timer, press the HOLD and HOLIDAY buttons simultaneously.

To override the heating or cooling set point, select temperature up or down button to raise or lower the temperature. This will change the set points until the next program period or 4 hours, whichever comes first.

FEATURES

Five-Minute Compressor Time Guard® Device—This timer prevents compressor from starting unless it has been off for at least 5 min. It can be defeated for 1 cycle by simultaneously pressing FAN mode button and UP button.

Fifteen-Minute Staging Timer—In multistage heating or cooling, this timer prevents any higher stage from turning on until preceding stage has been on for 15 min. This timer is not in effect if temperature difference is greater than 5°F (usually due to a large change in desired temperature).

Three-Minute Minimum On Time—In normal operation, when a stage turns on, it will not turn off for a minimum of 3 min.

Heat/Cool Set Points (Desired Temperature)—A minimum difference of 2°F is enforced between heating and cooling desired temperatures. This is done by allowing one setting to 'push' the other to maintain this difference. This difference is adjustable via Configuration Option 14.

Equipment On Indicators—When cooling equipment is on, a COOL icon preceded by a small triangle is displayed below cooling set point. While cooling equipment is delayed by the Time Guard timer, triangle will flash. The same is true for HEAT icon and its preceding triangle located under heating set point.

Dehumidify Output On Indicators—The DEHUM icon is on when the dehumidification output is energized.

Auto Changeover—When auto changeover mode is selected, a change from heat to cool (or vice versa) will not occur until an opposite mode demand has existed for 10 min. If set point is changed, the 10-min. requirement is deleted.

Power On Check—When AC power is first applied, all segments of LCD are turned on for 10 sec. Following this, the display will show CP (commercial product) to identify this control. (See Fig. 8.)

Error Codes—If the LC Thermostat Control cannot properly read room temperature, display will indicate two dashes (--) and all outputs (except fan, if on) will turn off.

E4—If LC Thermostat Control's internal memory fails, 'E4' will be displayed. Replace LC Thermostat Control.

E5—If LC Thermostat Control cannot properly read humidity, 'E5' will be displayed. Replace LC Thermostat Control.

Smart Recovery—With Smart Recovery selected (DIP Switch 3 is on), transition out of setback begins a fixed time period before selected recovery time and gradually adjusts room temperature so desired temperature will be achieved at selected recovery time. The fixed time period is 1.5 hours. It operates in both heating and cooling.

OPERATIONAL INFORMATION

Programming the LC Thermostat

The Light Commercial Thermostat has 4 program periods per day: Occupied 1 (OC1); Unoccupied 1 (UN1); Occupied 2 (OC2); Unoccupied (UN2). Each day can be programmed individually. To begin programming, press the PROGRAM button. This brings up the programming mode and places you in the current day and period. Successive presses of the PROGRAM button will move you through the four daily periods.

Before programming, fill out the schedule on the last page of the installation instructions.

WHILE PROGRAMMING:

Press the SET TIME/TEMP button to move between HEAT, COOL, and TIME settings, and use the UP and DOWN buttons to raise and lower the settings. The icons will flash to indicate they are ready to be adjusted. Use the CHANGE DAY button to move through the days of the week. The COPY PREVIOUS DAY button can be used to save time if identical times are desired.

To Program a Schedule:

1. Press the PROGRAM button successively until the desired programming period is displayed. The time icon will flash and the starting TIME for that period will be displayed.
2. Press the UP or DOWN buttons until the desired starting time is displayed.
3. Press the SET TIME/TEMP button to move between the time, heat and cool set points. The icon will flash when it is ready to be adjusted. Press the UP or DOWN buttons to adjust the heat and cool settings.
4. Press the PROGRAM button again to advance to the next programming period. Press the SET TIME/TEMP button to move between the settings. Adjust the start time, heat and cool settings for that period.
5. Repeat the above process for the last 2 programming periods.
6. Press the CHANGE DAY button to advance to the following day. A different program can be set for each day by repeating the above process. If the desired schedule is the same as the previous day, pressing the COPY PREVIOUS DAY button will install the identical program as the previous day.
7. Press the HOLD/END button to exit the programming schedule. Be sure the hold icon is not displayed.

LIGHT COMMERCIAL THERMIDISTAT CONTROL CONFIGURATION RECORD

Owner/Operator: _____

Installed Date: _____

Equipment Model No. / Date Code: _____

Thermidistat Model No. / Date Code: _____

A) Hardware Configuration

Switch 1 ☐ Not Used (OFF = Factory Default)
 Switch 2 ☐ Not Used (OFF = Factory Default)
 Switch 3 ☐ Smart Recovery (OFF = Enable)
 Switch 4 ☐ Installer Test (OFF = Disable)

B) Mode Settings

☐ Hold (On or Off)
☐ Mode (Off, Heat, Cool, Auto)
☐ Heating Set Point Value
☐ Cooling Set Point Value
☐ Fan (Auto or On)

C) Configuration options

1 ☐ Anticipator (1-9: factory default = 3)
 2 ☐ Clean Filter Timer (Off or 1-9: factory default = 2)
 3 ☐ Fahrenheit or Celsius (F or C: factory default = F)
 4 ☐ Fan (G) On with W (Off or On: factory default = Off)
 9 ☐ Holiday Heat Set Point (Range = 40 to 90°F: factory default = 60°F)
 10 ☐ Holiday Cool Set Point (Range = 40 to 90°F: factory default = 85°F)
 11 ☐ Holiday Dehumidification Set Point (Range = 50 to 90%rh: factory default = 65%)
 13 ☐ Room Temperature Offset (-5 to + 5: factory default = 0)
 14 ☐ Heat/Cool Dead Band Adjustment (0 to 6: factory default = 2)
 21 ☐ Keypad Lockout (Off or On: factory default = Off)
 (note: 5,6,7,8,12,15,16,17,18,19,20 not available)

D) Schedule

	OCCUPIED 1			UNOCCUPIED 1			OCCUPIED 2			UNOCCUPIED 2		
	TIME	HEAT	COOL	TIME	HEAT	COOL	TIME	HEAT	COOL	TIME	HEAT	COOL
Mon	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Tue	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Wed	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Thu	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Fri	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Sat	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Sun	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
*Dhum value%	OC1 = _____			UN1 = _____			OC2 = _____			UN2 = _____		

Note: *Press HUMIDITY button to enter and select "d hu" values for OC1/OC2 and UN1/UN2. Use HUMIDITY button to toggle between settings.

E) Error Code Reference

"- - " = Room Temperature Sensor Failure
 E4 = Nonvolatile Memory Failure
 E5 = Humidity Sensor Failure

A00094

