

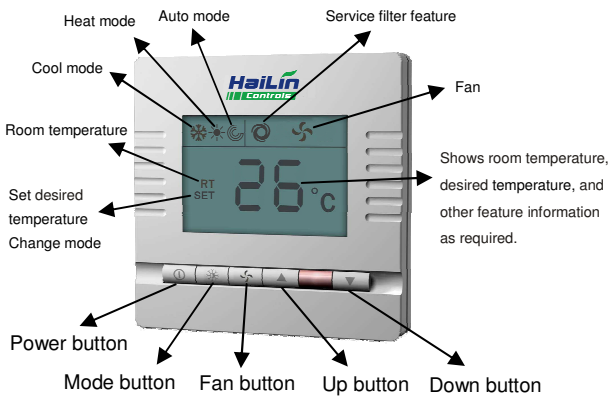
## NON-PROGRAMMABLE DIGITAL THERMOSTAT



HL-ESNC-023-SC / HL-ESND-023-SC

HL-ESNC-024-SC / HL-ESND-024-SC

- Large, Easy To Read Display
- Blue Backlight
- Fahrenheit or Centigrade
- Cool Heat and Automatic Heat/Cool Changeover
- Keypad Lock
- Auto Restart



### Specification

Set-Point Range: 5℃~35℃ (41°F~95°F )

Operating difference: ± 1℃

Switch current rating: < 2 A

Sensing element : NTC

Display: LCD

Power supply:

HL-ESNC-023/ HL-ESND-023: 220V AC± 10%, 50Hz






HL-ESNC-024/ HL-ESND-024: 24V AC, 50Hz

Dimension: 86 × 86 × 35 mm ( W × H × D )







Housing: ABS Flame Retardant

### Basic Operation






#### Power ON/OFF

- ☞ To turn the thermostat on, press “”. Mode symbol (,  or ), “RT”, and room temperature will be displayed.
- ☞ To turn the thermostat off, press “” again. There is no any display on LCD and no any output.

#### Select Mode

- ☞ **Cool Setting:** Press “”, the “SET” icon will flash, until the “” is displayed, it will be confirmed automatically after 6 seconds;
- ☞ **Heat Setting:** Press “”, the “SET” icon will flash, until the “” is displayed, it will be confirmed automatically after 6 seconds;
- ☞ **Auto Setting:** Press “”, the “SET” icon will flash, until the “” is displayed, it will be confirmed automatically after 6 seconds.

#### NOTE:


- ☞ Heating Mode: When the heating temperature is higher than the current room temperature, it will display “” and the thermostat will turn on; otherwise, it will flash “” and the thermostat will turn off;
- ☞ Cooling Mode: When the cooling temperature is lower than the current room temperature, it will display “” and the thermostat will turn on; otherwise, it will flash “” and the thermostat will turn off;
- ☞ Auto Mode: It will display “” and the working mode active status refers to the cool and the heat working mode, when does not satisfy the above condition, the thermostat will have no output and will stop.

#### Select Desired Temperature

- ☞ Press the UP or DOWN buttons until the desired heating or cooling temperature set point is displayed.
- ☞ Press the MODE button to select the second temperature setting (either HEAT or COOL)



#### Setting fan operation

Press the Fan button to switch between ON and AUTO fan settings.

“” on indicator will be displayed on LCD. When the ON mode is selected, the fan runs continuously for improved air circulation.

When the AUTO mode is selected, the fan runs only as needed to maintain the desired indoor temperature.

#### Service filter feature

- ☞ The thermostat reminds you when it's time to change or clean the filter by displaying the “” indicator.
- ☞ Hold the Fan button down for approximately 5 seconds after you have changed or cleared your filter to reset the timer. Then the “” will be turned off and filter timer cleared manually.

#### Checking the outdoor temperature

- ☞ Hold the Mode button down for approximately 5 seconds.
- ☞ Outdoor temperature will be displayed for about 5 seconds.

**NOTE:** If “E2” is displayed, the thermostat does not include the outdoor temperature function or the function is not properly check with your dealer if you are unsure.

(Only used in **HL-ESND-023** and **HL-ESND-024** model)

### OPERATIONAL INFORMATION

#### Compressor Timeguard

- ☞ This timer prevents the compressor from starting unless it has been off for at least 5 minutes. It can be defeated for 1 cycle by simultaneously pressing the FAN mode button and the UP button.( Option 12 default setting is 3 )

#### Minimum On Time

- ☞ In normal operation, when a stage turns on, it will not turn off for a minimum of 3 minutes. (Option 13 default setting is 3)

#### Auto Changeover

- ☞ When the 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 20 minutes. If the set point is changed, the 20 minute requirement is deleted. Auto mode may be disabled. (Option 14 default setting is 20 )

#### Heat On and Cool On Icons

- ☞ When a heating or cooling demand exists, the HEAT ON or COOL ON icon will either remain on or flash. If flashing, the equipment is temporarily prevented from turning on by one of the timers. While the icon remains on without flashing, the equipment is on.

#### Error Codes

E1 — If the thermostat cannot properly read room temperature, and it needs to be adjusted, E1 will be displayed.

E2 — If the thermostat cannot properly read outdoor temperature, and it needs to be adjusted, E2 will flash alternately with room temperature.

F1— Keypad is locked.

### Set Thermostat Configuration

- ☞ Configuration options are intended to be selected at installation and normally should not be modified by the home owner. These options are not discussed in the Homeowner's Guide and therefore must be made as part of the installation. A special procedure allows entry in to the configuration mode. The thermostat will automatically exit this if no button is pressed for 90 seconds.
- ☞ An explanation for each of these and how to enter the configuration mode follows.

#### To enter the configuration mode

- ☞ **Turn off the thermostat, hold the fan button down for approximately 15 seconds. After 15 seconds, Option “01” will appear in the display.**

#### OPTION 01 – OUTDOOR SENSOR SETTING

- ☞ This option is used to choose whether the outdoor sensor exists. If the thermostat connected the outdoor sensor, set this option ON, otherwise set OF.

#### TO ADJUST:

- Enter configuration mode (if not already there).
- Use Up and Down buttons to display Option 01.The “SET” icon should be off.
- Press Mode button once. The “SET” icon will be come on. The display now shows Option 01 setting.
- Use Up and Down buttons to move between the available Option 01 choices of ON or OF. Factory default is OF.
- Press Mode button again to return to Option 01. The SET icon will now be off.
- Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

#### OPTION 02 – CLEAN FILTER TIMER

- ☞ This option selects the number of hours of blower operation (Heating, cooling, or fan).Time selection can be from 400 to 3600 hours by selecting numbers from 1 to 9. (Time is 400 X number selected.) Factory default is 2 (800 hours).Recommended selection are : disposable filter 800 hours, media filter 1200 to 1600 hours, or electronic air cleaner 1600 to 2400 hours of blower operation.

#### TO ADJUST:

- Enter configuration mode (if not already there).
- Use Up and Down buttons to display Option 02.The “SET” icon should be off.
- Press Mode button once. The “SET” icon will be come on. The display now shows Option 02 setting.

- Use Up and Down buttons to move between the available Option 02 values 1 to 9. Factory default is 2.
- Press Mode button again to return to Option 02. The “SET” icon will now be off.
- Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

#### OPTION 03 –FAHRENHEIT/ CELSIUS SELECTION

- ☞ This option selects Fahrenheit or Celsius operation.

#### TO ADJUST:

- Enter configuration mode (if not already there).
- Use Up and Down buttons to display Option 03.The “SET” icon should be off.
- Press Mode button once. The “SET” icon will be come on. The display now shows Option 03 setting.
- Use Up and Down buttons to move between the available Option 03 choices of F (Fahrenheit) or C (Celsius). Factory default is C.
- Press Mode button again to return to Option 03. The SET icon will now be off.
- Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

#### OPTION 04 –G (FAN) ON WITH W/W1 OUTPUT

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

#### TO ADJUST:

- Enter configuration mode (if not already there).
- Use Up and Down buttons to display Option 04.The “SET” icon should be off.
- Press Mode button once. The “SET” icon will be come on. The display now shows Option 04 setting.
- Use Up and Down buttons to move between the available Option 04 choices of ON or OF. Factory default is OF.
- Press Mode button again to return to Option 04. The “SET” icon will now be off.
- Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

#### OPTION 05 –INDOOR SENSOR SELECTING

- ☞ To use this function, option 01 must be set to be On and an outdoor sensor must be connected. Select ON, outdoor sensor will be replaced the building sensor and OPTION 08 will not work. Factory default is OF.

#### TO ADJUST:

- Enter configuration mode (if not already there).
- Use Up and Down buttons to display Option 05.The “SET” icon should be off.
- Press Mode button once. The “SET” icon will be come on. The display now shows Option 05 setting.
- Use up and down buttons to move between the available Option 05 choices of ON or OF. Factory default is OF.
- Press Mode button again to return to Option 05. The “SET” icon will now be off.
- Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

#### OPTION 06 –ROOM TEMPERATURE OFFSET

- ☞ This option allows calibration (or deliberate miscalibration) of room temperature sensor. There are various reasons why the home owners want to adjust the displayed temperature. The selected number is the number of degrees, plus or minus, which will be added to the actual temperature. The number 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, 72F actual will read 74F. If set point is 72, the room will control to an actual value of 70 which will be displayed and acted upon as if it were 72. The effect is that a positive number selection will make the room temperature lower and vice versa. This thermostat is factory calibrated within an accuracy of plus or minus 1F, so this adjustment will provide the best accuracy when set to 0.

#### TO ADJUST:

- Enter configuration mode (if not already there).
- Use Up and Down buttons to display Option 06.The “SET” icon should be off.
- Press Mode button once. The “SET” icon will be come on. The display now shows Option 06 setting.
- Use Up and Down buttons to move between the available Option 06 choices of -5 through +5 in 1 step. Factory default is 0.
- Press Mode button again to return to Option 06. The “SET” icon will now be off.
- Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

#### OPTION 07 –AUTO MODE ON/OFF SELECTION

- ☞ This option allows the installer to enable or disable AUTO mode

(automatic changeover between heat and cool). When disabled, AUTO icon does not appear when successive presses of MODE button are used to move between HEAT and COOL. Factory default is ON (AUTO mode enabled).

**TO ADJUST:**

1. Enter configuration mode (if not already there).
2. Use Up and Down buttons to display Option 07.The “SET” icon should be off.
3. Press Mode button once. The “SET” icon will be come on. The display now shows Option 07 setting.
4. Use Up and Down buttons to move between the available Option 07 choices of ON or OF. Factory default is On.
5. Press Mode button again to return to Option 07. The “SET” icon will now be off.
6. Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

**OPTION 08—COOLING LOCKOUT**

☞ An outdoor air sensor is required for this function. In OF mode, cooling is available regardless of outdoor temperature. In ON mode, cooling will not be initiated if the outdoor air temperature is below 55°F(12℃). If the compressor is already operating and the outdoor air temperature drops below 55F, the compressor will continue to operate until the cooling cycle has completed. If the mode has been set to ON and the outdoor air sensor fails, E2 error will be displayed.

**TO ADJUST:**

1. Enter configuration mode (if not already there).
2. Use Up and Down buttons to display Option 08.The “SET” icon should be off.
3. Press Mode button once. The “SET” icon will be come on. The display now shows Option 08 setting.
4. Use Up and Down buttons to move between the available Option 08 choices of ON or OF. Factory default is OF.
5. Press Mode button again to return to Option 08. The “SET” icon will now be off.
6. Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

**OPTION 09—KEYPAD LOCKOUT**

☞ In OF (off) mode, the keypad is not locked out and has full functionality. In ON mode, the keypad is locked out and press any key;“F1” will be displayed. To unlock the keypad, the user must press and hold the up and down buttons simultaneously for approximately 5 seconds. The“F1” is turned off and the keypad will remain unlocked as long as the user presses a button at least every 30 seconds or for the entire duration of the installer test mode. If keypad remains idle for 30seconds and the installer test mode is not in operation, the keypad will return to the locked state.

**TO ADJUST:**

1. Enter configuration mode (if not already there).
2. Use Up and Down buttons to display Option 09.The “SET” icon should be off.
3. Press Mode button once. The “SET” icon will be come on. The display now shows Option 09 setting.
4. Use Up and Down buttons to move between the available Option 09 choices of ON or OF. Factory default is OF.
5. Press Mode button again to return to Option 09. The “SET” icon will now be off.
6. Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

**OPTION 10 – HEAT/ COOL SETPOINT(DESIRED TEMPRATURES)**

☞ A minimum difference of values is enforced between heating and cooling setpoints. For example, if 2 is selected, Heating setpoint is 23, Cooling minimum setpoint should be 25. Factory default is 2.

**TO ADJUST:**

1. Enter configuration mode (if not already there).
2. Use Up and Down buttons to display Option 10.The “SET” icon should be off.
3. Press Mode button once. The “SET” icon will be come on. The display now shows Option 10 setting.
4. Use Up and Down buttons to move between the available Option 10 values 1 to 9. Factory default is 2.
5. Press Mode button again to return to Option 10. The “SET” icon will now be off.
6. Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

**OPTION 11—O (REVERSING VALVE) ON WITH HEAT OR COOL SELECTION**

☞ This selection determines whether the reversing valve is energized in the heating or cooling mode. Factory default is C, energized in cooling. Use up and down buttons to change between H and C.

**TO ADJUST:**

1. Enter configuration mode (if not already there).

2. Use Up and Down n buttons to display Option 11.The “SET” icon should be off.
3. Press Mode button once. The “SET” icon will be come on. The display now shows Option 11 setting.
4. Use Up and Down buttons to move between the available Option 11 choices of C (Cooling) or H (Heating). Factory default is C.
5. Press Mode button again to return to Option 11. The “SET” icon will now be off.
6. Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

**OPTION 12 – COMPRESSOR PROTECTION**

☞ In normal operation, when a stage turns on and then it turns off, it must keep off status at least for the setting time. This function avoids compressor or other equipment frequent turn on/off. Factory default is 3 minutes.

1. Enter configuration mode (if not already there).
2. Use Up and Down buttons to display Option 12.The “SET” icon should be off.
3. Press Mode button once. The “SET” icon will be come on. The display now shows Option 12 setting.
4. Use Up and Down buttons to move between the available Option 12 values 0 to 12. Factory default is 3.
5. Press Mode button again to return to Option 12. The SET icon will now be off.
6. Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

**OPTION 13 –MINIMUM ON TIME**

☞ In normal operation, when a stage turns off and then it turns on, it must keep on status at least for the setting time. This function avoids compressor or other equipment frequent turn on/off. Factory default is 3 minutes.

1. Enter configuration mode (if not already there).
2. Use Up and Down buttons to display Option 13.The “SET” icon should be off.
3. Press Mode button once. The “SET” icon will be come on. The display now shows Option 13 setting.
4. Use Up and Down buttons to move between the available Option 13 values 0 to 5. Factory default is 3.
5. Press Mode button again to return to Option 13. The SET icon will now be off.
6. Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

**OPTION 14 – AUTO MODE CONFIGURATION**

☞ When the 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 the setting time. If the set point is changed, the setting time requirement is deleted. Auto mode may be disabled. Factory default is 20 minutes.

1. Enter configuration mode (if not already there).
2. Use up and down buttons to display Option 14.The “SET” icon should be off.
3. Press Mode button once. The “SET” icon will be come on. The display now shows Option 14 setting.
4. Use up and down buttons to move between the available Option 14 values 0 to 20. Factory default is 3.
5. Press Mode button again to return to Option 14. The SET icon will now be off.
6. Use Up and Down buttons to select another Option, or press Power button to exit configuration mode.

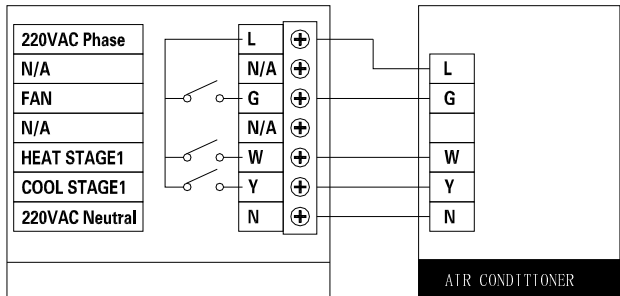
**Auto Restart**

☞ When the thermostat is at ON status for one minute, if power cut, it will return back to running automatically with the status how it is one minute ago after power coming back.

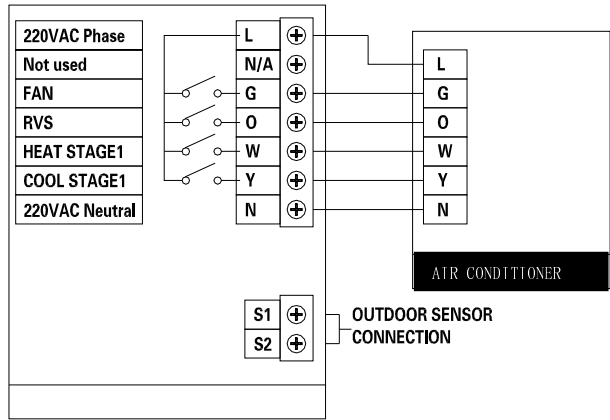
☞ When the thermostat is at OFF status for one minute, if power cut, it will keep OFF status after power coming back.

**Wire Diagram**

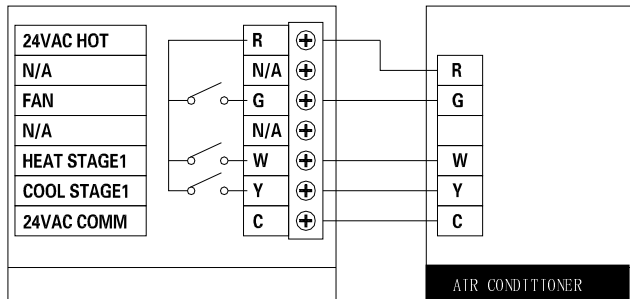
**HL- ESNC-023 ( 220V AC ):**



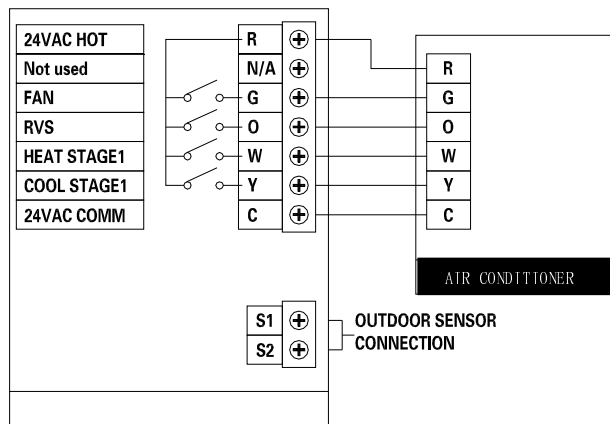
**HL- ESND-023 ( 220V AC ):**



**HL- ESNC-024 ( 24V AC ):**



**HL- ESND-024 ( 24V AC ):**



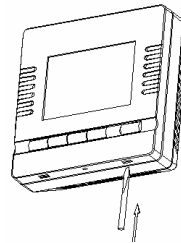
**Installation**

**Thermostat Location**

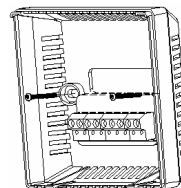
Thermostat should be mounted:

- Approximately 5 ft (1.5 m) 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.

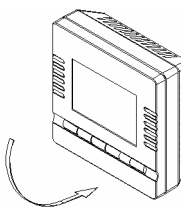
1. Cut off the power, the mark of wire should be clear.



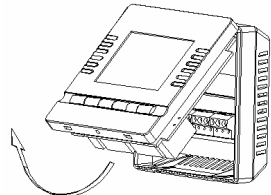
2. Take the main control panel apart: put the screwdriver (3.5mm wide) into 4mm of slot.



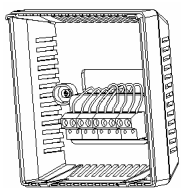
4. Fix by the two screws in the packing box.



6. Push the downside by force, lock the up panel, and finish the installation.



3. Push up by force, open the clip.



5. As per wiring drawing, connect with terminals, fix it by screwdriver.