Systems Controls & Instruments, L.L.C.

ETN-24-NON PROG Series
Owner's Manual - Installation and Operating Instructions

Please read this manual carefully before installation and use

1. Options and Accessories

1.1. Individual cool and heat set points.
1.2. External sensor option .
1.3. Scale in Fahrenheit or Celsius.
1.4. Average Temperature sensing. Please look for details in our web site "Sensors & Accessories"
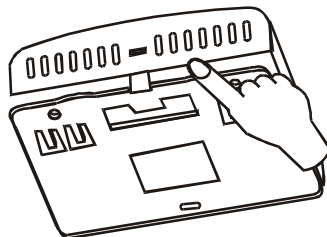
FOR DETAILS ON WHERE TO PURCHASE ACCESSORIES, PLEASE CONTACT SCI FOR YOUR NEAREST LOCATION OR VISIT OUR WEB SITE AT WWW.SCILLC.COM
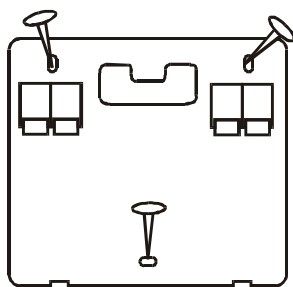
2. Installation Instructions

Important: It is very easy to open and handle after assembly on wall!
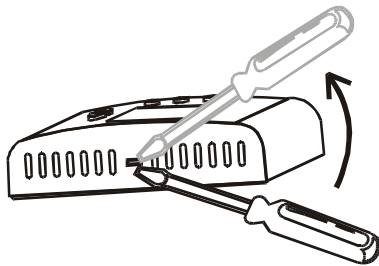
Separate the front panel from back panel by depressing the tongue located in the top of the unit.
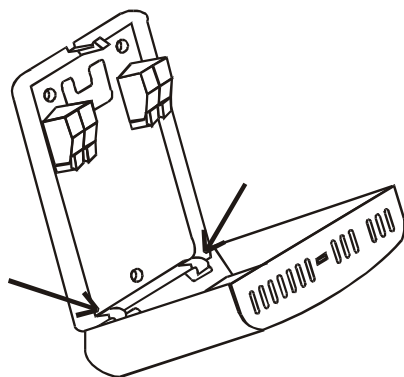

Push the back panel out.

Line the back panel up against the wall or flat surface onto which it is to be mounted and drill in the appropriate screw holes.

Make electrical connections as shown on enclosed electrical wiring diagram.

Apply the cover to the base; first the two shafts and than the tongue.

3. Wiring Connections

IF YOU HAVE THE **SUPER** MODEL, MAKE SURE THAT YOU CHOOSE THE RIGHT JUMPER SELECTIONS - PLEASE SEE # 4

- Rc-Rh - If one phase is in use, they must be shorted - (Default from Factory)

Switch	Function ETN	HC11	HC22	HP21	HP32	External sensing
Rc	24 Vac RED	X	X	X	X	
Rh	24 Vac RED (jumpered to Rc)	X	X	X	X	
C	24 VAC Common from transformer	X	X	X	X	
Y1	Cooling 1st Stage	X	X	X	X	
Y2	Cooling 2nd Stage	N/A	X	N/A	X	
W1	Heating 1st Stage	X	X	X	X	
W2	Heating 2nd Stage	N/A	X	X (EMH)	X (EMH)	
G	Fan	X	X	X	X	
AL	Low temperature alarm output	X	X	X	X	
T	External Sensor	#4.4	#4.4	#4.4	#4.4	X
T	External Sensor	#4.4	#4.4	#4.4	#4.4	X

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4. Hardware Jumper and Dip switch Explanations

IMPORTANT - BEFORE MAKING ANY CHANGES IN THE HARDWARE
JUMPERS, DISCONNECT ELECTRICITY POWER ON THE MAIN SWITCH.

4.1 The Hardware Jumper and dip switch are situated according to this drawing. (back of the thermostat)
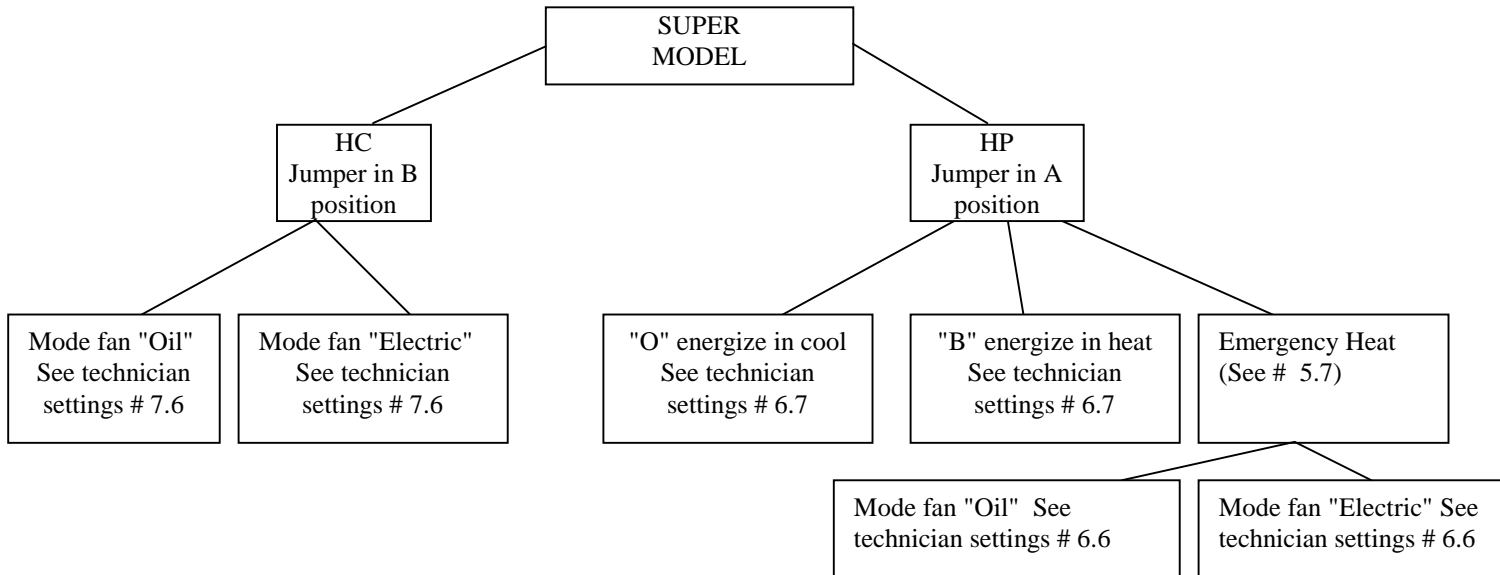

Jumper to select HC or HP with 2 positions A and B.

Jumper Positions

Dip switch
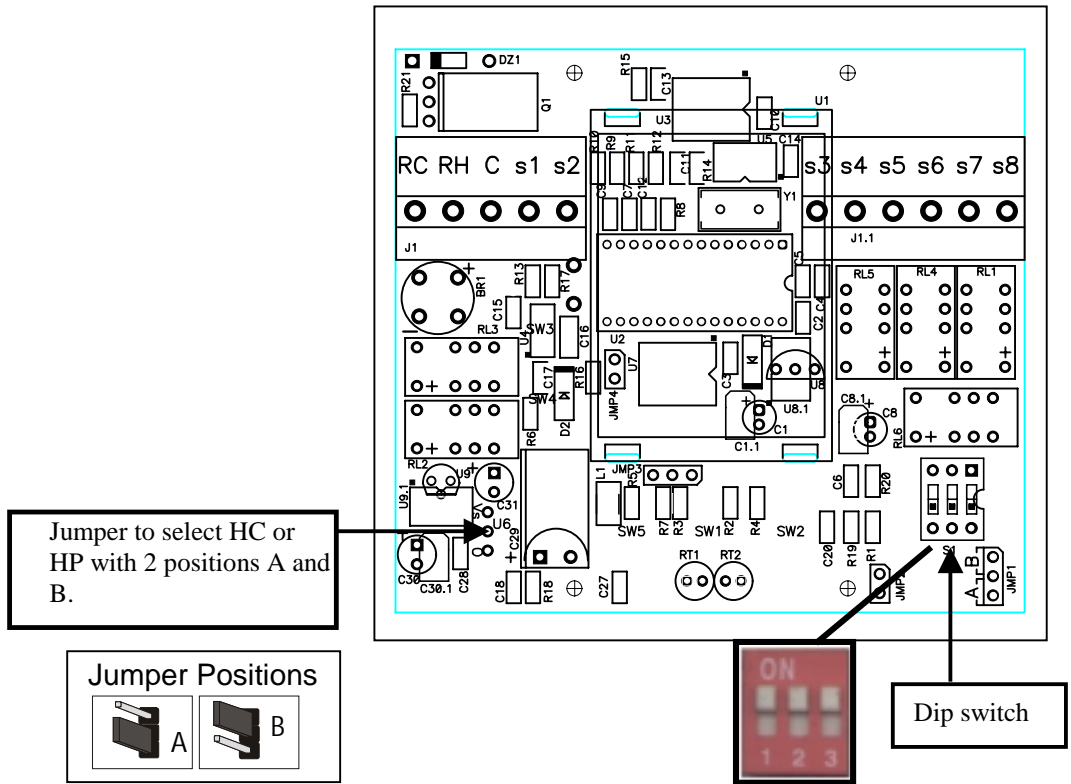
IF you have the SUPER model, Select the configuration of the thermostat.

The options with the jumpers are:
 - Heat pump or non heat pump

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This chart will help you select the jumpers:
- HC - (heat, cool) and Fan mode "Oil" or "Electric".
- HP - heat pump and energize in Cool "O" or in Heat "B".

```
                        ┌──────────────┐
                        │   SUPER      │
                        │   MODEL      │
                        └──────────────┘
             ┌───────────────┐         ┌───────────────┐
             │    HC         │         │    HP         │
             │ Jumper in B   │         │ Jumper in A   │
             │ position      │         │ position      │
             └───────────────┘         └───────────────┘
```

| Mode fan "Oil" See technician settings # 7.6 | Mode fan "Electric" See technician settings # 7.6 | "O" energize in cool See technician settings # 6.7 | "B" energize in heat See technician settings # 6.7 | Emergency Heat (See # 5.7) |

| Mode fan "Oil" See technician settings # 6.6 | Mode fan "Electric" See technician settings # 6.6 |

4.2. Jumper - To select HC or HP, it has two positions A and B.
- Position A = HP
- Position B = HC - default from factory

4.3 How to work with the DIP switch
The DIP switch has 3 pins.
Each pin has a number from 1 to 3.
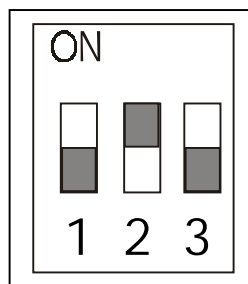Each pin can be in 2 positions :
- ON
- OFF
When the pin is TOWARDS the ON, that means
the pin is in ON position.
(DIP switch number 2 is in the ON position, in the picture)
When the pin is AWAY FROM to the ON, that means
the pin is in OFF position.
(DIP switch number 1, 3, in the picture)

4.4 The options with the deep switch are:
- External sensor connection.
- Internal sensor connection
The following pictures of each selection will help you to choose your configuration.
In the following pictures, the DIP switches that are NOT displayed are for other options (leave them as is).

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IMPORTANT - THE EXTERNAL SENSOR MUST BE SCI TYPE

N.TC. Sensor; Temperature ~ Resistance Characteristics

Temp °C	7.2	10.0	12.8	15.6	18.3	21.1	23.9	26.7	29.4	32.2
Temp °F	45	50	55	60	65	70	75	80	85	90
Res. K	115.8	100.9	88.1	77.1	67.7	59.6	52.5	46.4	41.2	36.6

The default from factory is INTERNAL SENSOR.

- 4.4.1. Disconnect power to the thermostat 24vac.
- 4.4.2. Move the DIP switch as in the picture.

Switch 1 - OFF
Switch 2 - ON
Switch 3 - OFF

ON
1 2 3
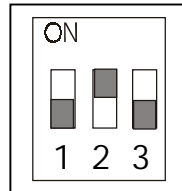
- 4.4.3. Connect the temperature sensor to T-T terminals.
- 4.4.4. Reconnect power 24vac.
- 4.4.5. Make sure the reading in the display is by the external sensor.

The length of the cable for the external sensor is 100 feet (30 meters) with standard cable.
If longer distance is needed then the cable MUST be shielded.

There is a wide range of sensors for different applications, duct, rooms, etc.
There is also option for averaging the temperature. For details please contact our technical line
or visit our web site, see details at the end of this manual.

5. OPERATING MANUAL:
5.1. ON/OFF:
  Press ON/OFF button to activate or deactivate the thermostat.
  The word "ON" or "OFF" will appear in the display.

5.2 . SET TEMPERATURE
  Press the SET buttons (+) or (-); the temperature will flash, change with the set buttons (+) or (-).

5.3. SELECTING MODES:
  Press mode button to switch between the four modes: **1**.COOL, **2**. HEAT, **3**. COOL/HEAT (Auto-change over), **4**. FAN ONLY.

5.4 FAN/AUTO FAN function
Press the FAN button to select AUTO FAN, press again to cancel. In AUTO FAN the fan will only run when calling for heat or cool.

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5.6 UNOCCUPIED MODE (Set back mode)

Unoccupied mode overrides the set point temperature and uses set economy temperatures for heat and cool when you leave home or office for any period of time - vacation, unexpected event - and the system will work in SET BACK mode.

     5.6.1 To set the thermostat to work in Unoccupied Mode.
        - Switch on the thermostat
        - Press and hold ON/OFF button (3 sec.) until buzzer "beeps" , EC (Economy) will appear in the display.
          When returning home (office) press and hold (3 sec.) the ON/OFF button until buzzer "beeps"
          and SET TEMP returns to normal.

In Unoccupied Mode, none of the buttons function.

5.7 EMERGENCY HEAT (for HP types only)

Press and hold FAN button until display shows H or EH, with set buttons (+) or (-) choose H (emergency heat OFF) or EH (emergency heat ON)

6.Technician settings For HP32 types

These setting permits to change the following :

- Set point limits (commercial application)

- Set Fan Mode "electric" or "oil/gas".

- Set the heat pump operation in cool or heat mode.

    6.1 Set temperature to 50°F or 10°C.
    6.2 Press and hold MODE button (3 sec.) until Cool and set temperature will appear in display.
    6.3 Adjust with set buttons (+) or (-) the set point limit for cooling.
    6.4 Press MODE button again, adjust with set buttons (+) or (-) the set point limit for heating.
    6.5 Press MODE button again, choose with set buttons (+) or (-) °F or °C.
    6.6 Press MODE button again, choose with set buttons (+) or (-) E or 0 (the flashing one).
        E - **Fan mode "electric"** : fan will be activated or not, depending on the position of the button "AUTO FAN."
        0 - **Fan mode "oil/gas"** this option is used when the heating system is different from the A/C unit. (i.e., furnace)
          In this option the fan will work:
          -   FAN ON position: the fan will work continuously.
          -   AUTO FAN position: the fan WILL NOT WORK continuously.
    6.7 Press MODE button again and adjust with set buttons H or C
        H - Heat pump active in heat;
        C - Heat pump active in cool.
    6.8 Press MODE button again, choose with set buttons (+) or (-) 3 or 0 (the flashing one).
        ∃ = 3 minutes time delay to protect compressor;
        0 = No time delay for system's test only.
        After testing the system ∃ must be chosen again! (After break of electricity ∃ will return automatically)
    6.9 Press MODE to return to normal display.

7. Technician settings For HC22 types

    7.1 Set temperature to 50°F or 10°C.
    7.2 Press and hold MODE button (3 sec.) until Cool and set temperature will appear in display.
    7.3 Adjust with set buttons (+) or (-) the set point limit for cool
    7.4 Press MODE button again, adjust with set buttons (+) or (-) the set point limit for heat.

7.5 Press MODE button again, choose with set buttons (+) or (-) °F or °C.

7.6 Press MODE button again, choose with set buttons (+) or (-) E or 0 (the flashing one).

     E - **Fan mode "electric"** : fan will be activated or not, depending on the position of the button "AUTO FAN."

     0 - **Fan mode "oil/gas"** this option is used when the heating system is different from the A/C unit. (i.e., furnace)

       In this option the fan will work:
- FAN ON position: the fan will work continuously.
- AUTO FAN position: the fan WILL NOT WORK continuously.

7.7 Press MODE button again, choose with set buttons (+) or (-) 3 or 0 (the flashing one).

     ∃ = 3 minutes time delay to protect compressor;

     0 = No time delay for system's test only.

     After testing the system ∃ must be chosen again! (After break of electricity ∃ will return automatically)

7.8 Press MODE to return to normal display.

8.General:

8.1 Hand held remote option

The following units have the remote control option:

ETN-24-HC11

ETN-24-HC22

ETN-24-HP21

ETN-24-HP32

The ETN-24-SUPER do not have this option

8.2 Alarm output will be activated when Temperature drops to 45°F (7°C).

8.3 After power failure the thermostat will remember the last settings, for an indefinite period of time.

8.4 After return of power the LCD (display) will always perform a test.

9. Troubleshooting for Technician

   9.1. The display is blank
     The unit is not getting 24 Vac
     Check the wiring connections, Rh (Phase for heat), Rc(Phase for cool), C(common).
     If you are using one phase for cool and heat, check that the short between Rc, Rh and common is tight.

   9.2. Cool stages do not switch on
     Check the Rc connection.

   9.3. Heat stages do not switch on
     Check the Rh connection.

   9.4. In heat mode, unit sends cool air.
     The Auto Fan is not ON.

   9.5 The unit display low temperature (32°) all the time
     The unit does not feel the external sensor.

   9.6 The unit display high temperature (92°) all the time
     The unit has a short circuit in the external sensor.

SCI - Systems Controls & Instruments can offer a WIDE range of products for the HVAC industry such as :

- Flush Mount Thermostats - Programmable and Non-Programmable.
- HVAC Analyzer that can measure BTU's, for technicians.
- Tamper proof thermostats that can be operated ONLY from the remote control, for public places.
- Thermostat with phone communication; listen to your thermostat from ANYWHERE and change settings.   For trial please dial : 1-888-5887113 Password 1,2,3,4,# for Menu *,0,# ...

To obtain more information or technical support :

Tel : 1-800-663-8107.   E-mail : support@scillc.com   Web site: www.scillc.com

Your suggestions or comments regarding these units would be appreciated.

At our web site, you can find technical details regarding the units, as well as, operating manuals, electrical drawings, Etc.

The company reserves the right to change the specifications any time without prior notice.

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