

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

Please read this manual carefully before installation and use

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3. Wiring Connections
4. Hardware Jumpers Explanation
5. Operating Manual
6. Hand remote control - Operating Manual - Option. (with weekly program build in)
7. Troubleshooting for technician.

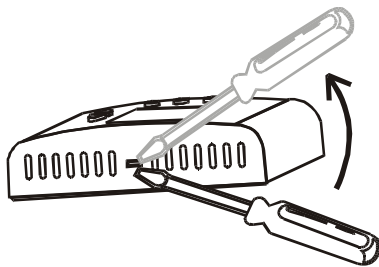
### **1. Options and Accessories**

- 1.1. Programmable or non-programmable, feature is ONLY available with the remote control.  
Default from factory with weekly program.
- 1.2. Hand held remote control with weekly program and BackLite.
- 1.3. Individual cool and heat set points.
- 1.4. External sensor option .

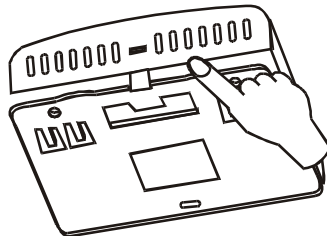
FOR DETAILS ON WHERE TO PURCHASE ACCESSORIES, PLEASE CONTACT SCI FOR YOUR NEAREST LOCATION OR VISIT OUR WEB SITE AT [WWW.SCILLC.COM](http://WWW.SCILLC.COM)

### **2. Installation Instructions**

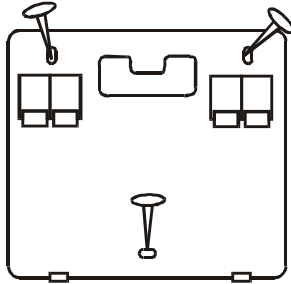
Important: It is very easy to open and handle after assembly on wall!



Separate the front panel from back panel by depressing the tongue located in the top of the unit.

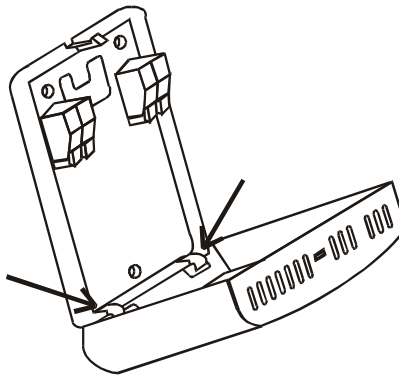


Push the back panel out.



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 then 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)

#### 3.1. Connections for 1 heat - 1 Cool - HC11

**Rc - Phase for Cool**

**Rh - Phase for Heat**

**C - Common**

**W1 - Heat**

*Y2 - Not in use*

*W2 - Not in use*

**Y1 - Compressor/Cool**

**G - Fan**

T-T - External sensor option - see # 4.3



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3.2. Connections for 2 Heat - 2 Cool - HC22

- Rc - Phase for Cool**
- Rh - Phase for Heat**
- C - Common**
- W1 - Heat 1**
- Y2 - Compressor/Cool 2**
- W2 - Heat 2**
- Y1 - Compressor/Cool 1**
- G - Fan**
- T-T - External sensor option - see # 4.3

3.3. Connections for Heat Pump 1 stage - HP21

- Rc - Phase for Cool**
- Rh - Phase for Heat**
- C - Common**
- W1 - Heat Pump (to change active cool or heat - See # 5)**
- Y2 - Not in use*
- W2 - Emergency heat (EMH)**
- Y1 - Compressor**
- G - Fan**
- T-T - External sensor option - see # 4.3

3.4. Connections for Heat Pump 2 stage - HP32

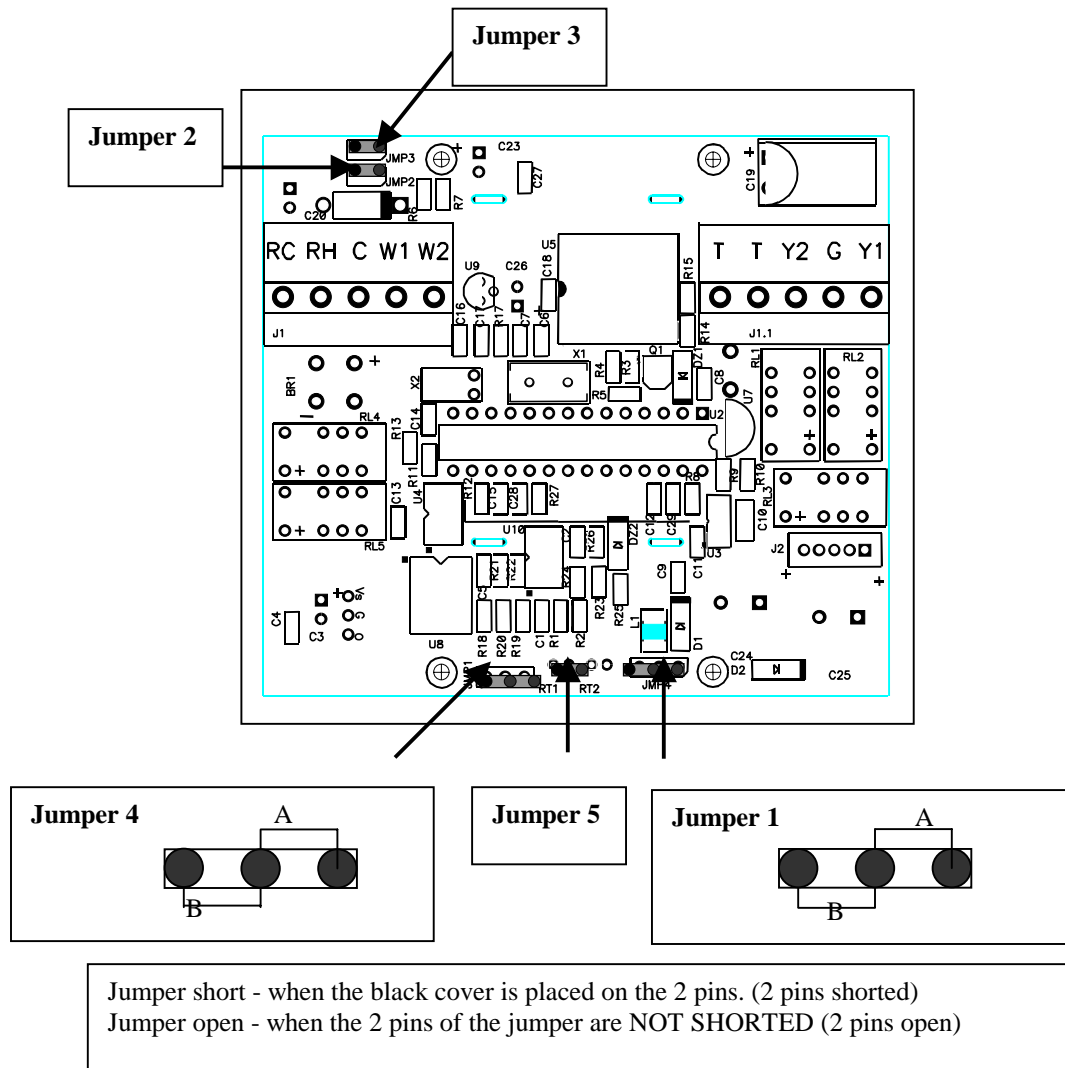
- Rc - Phase for Cool**
- Rh - Phase for Heat**
- C - Common**
- W1 - Heat Pump (to change active cool or heat - See # 5)**
- Y2 - Compressor 2**
- W2 - Emergency heat (EMH)**
- Y1 - Compressor 1**
- G - Fan**
- T-T - External sensor option - see # 4.3

THE EMERGENCY HEAT (EMH) IN HEAT PUMP TYPES IS NOT SELECTABLE -  
IT WILL SWITCH ON BY REQUEST OF TEMPERATURE. (second stage)

#### 4. Hardware Jumper Explanations

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

4.1 The Hardware Jumpers are situated according to this drawing. (back of the thermostat)



4.2 List of jumpers are description:

- Jumper 1 - 3 pins - External sensor operation. SEE # 4.3
- Jumper 2 - 2 pins - See below table.
- Jumper 3 - 2 pins - See below table.
- Jumper 4 - 3 pins - NOT IN USE .
- Jumper 5 - 2 pins - External sensor operation. SEE # 4.3

Jumper 2 and 3 - options

IF you have the SUPER model , make sure that you select the correct configuration needed :

<b>Jumpers \ Function</b>	<b>HP - Active in Cool "O"</b>	<b>HP - Active in Heat "B"</b>	<b>HC-Electric</b>	<b>HC-Oil/Gas</b>
<b>Jumper 2</b>	SHORT	OPEN	OPEN*	SHORT
<b>Jumper 3</b>	OPEN	OPEN	SHORT*	SHORT

\* - Factory default. (Default open with the plastic cover on ONE pin)

HP - Heat pump mode

HC - Heat / Cool mode.

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

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.

4.3 External sensor connection - option

**IMPORTANT - THE EXTERNAL SENSOR MUST BE SCI TYPE**

**N.T.C. Sensor; Temperature ~ Resistance Characteristics**

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

**The default from factory is INTERNAL SENSOR.**

- 4.3.1. Disconnect power to the thermostat 24 Vac.
- 4.3.2 Place jumper 1 in "B" position. (see # 3)
- 4.3.3 Remove jumper 5. OPEN . (see # 3)
- 4.3.4 Connect external sensor to terminals T - T .
- 4.3.5 Reconnect power to the thermostat.

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 (-).

Instead of the clock the display will show "COOL" or "HEAT".

In auto change mode, press the set buttons (+) or (-), COOL and TEMPERATURE will flash, set the cooling temperature with (+) or (-) buttons.

After three seconds, HEAT and the TEMPERATURE will flash, set heating with (+) or (-) buttons.

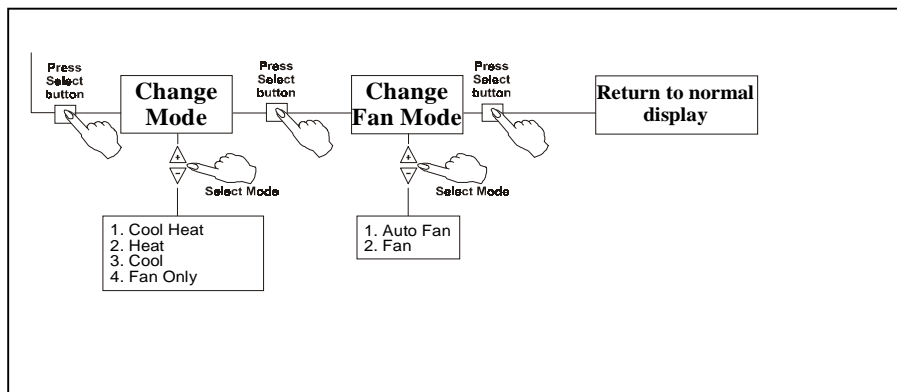
**The controller keeps a safe differential of at least 1 degree between Heat set and Cool set (Heat is always less than Cool).**

### 5.3 . SELECT BUTTON

With the select button you can choose :

- Mode
- Fan On or Autofan.

Press the select button the MODE will appear. With the +/- buttons select the mode. Press select again and fan will appear. Select with the +/- buttons , Fan On or Fan Auto.



### 5.4 Prog (Program) Button

With the Clock button you can adjust :

- Real time clock.
- Programming.

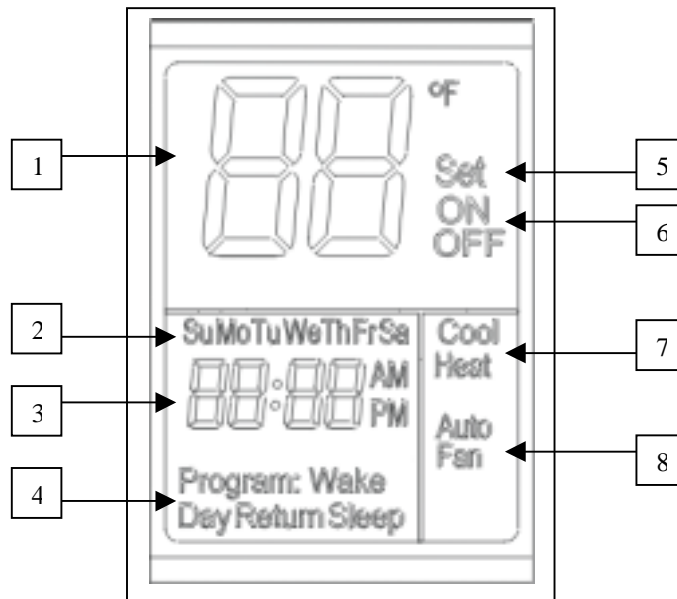
See program chart below.

### 5.5. PROGRAMMING:

The control is a 5-1-1 programmable; weekdays Monday through Friday, Saturday and Sunday have individual programs.

There are four program events per day: 1 (Wake), 2 (Day), 3 (Return), 4 (Sleep)

Before programming your thermostat you should be familiar with the display of the unit



#### Thermostat Display

1. Temperature digits, in normal display will show the temperature in the room. When +/- are pressed, it will flash , and the show the set point.
2. Days of the week: (when setting the program.). It will display the period that you are setting. Example: when display shows: MON-TUE-WED-THU-FRI, you are setting the week days program. (The program will repeat on each of these days).  
In normal display the actual program will show.
3. Real time clock , AM/PM. When setting the program, "COOL" or "HEAT" will display showing witch set point you are setting.
4. Program that you are setting:
  - Wake - program 1.
  - Day - program 2.
  - Return - program 3.
  - Sleep - program 4.
5. When changing the temperature set point, the temperature digits will flash, and the "SET" will appear in the display.
6. ON-OFF , thermostat active or deactivated.
7. MODE, Heat , Cool. When both in the display , AUTOCHANGE (heat+cool)
8. Fan Mode, when the display shows "FAN" that is Fan ON. When "AutoFan" displays it is Auto Fan mode.



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### Normal display

In normal display, the display will show:

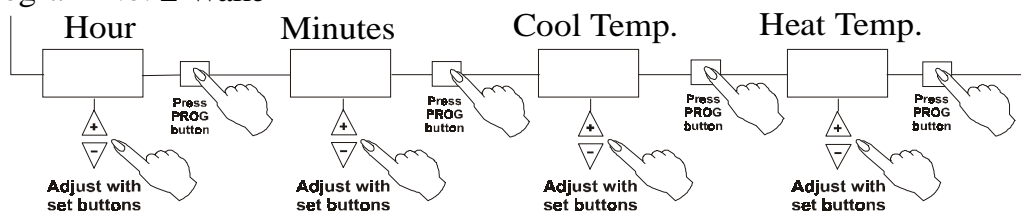
- Temperature in the room.
- ON or OFF.
- Day of the week.
- Real time clock .
- Actual program that the unit is doing.
- Mode.
- Fan mode.

- The following chart will help you make your normal settings (Mode, Fan) and the program.
- We recommend that you fill out the chart BEFORE setting the weekly program.
- On the chart, select a cooling and a heating temperature. This will keep a safe differential between Heat and Cool for auto change over.
- The display will show the program (weekday, Saturday or Sunday)
- During programming, the display will NOT return to normal display unless all the program is review. To exit the Program mode, press ON button until normal display is reach.
- The controller keeps a safe differential of at least 1 degree between Heat set and Cool set. (Heat is always less than Cool).

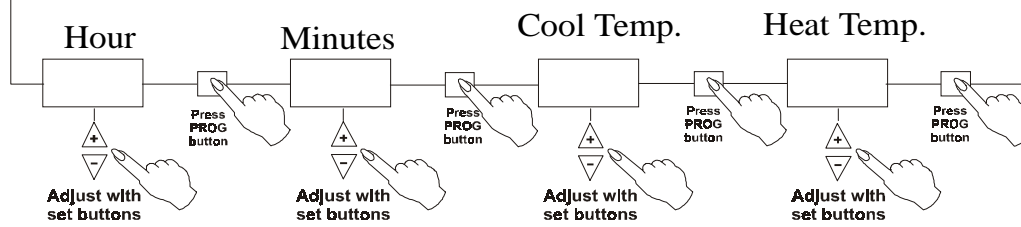


**Programming**

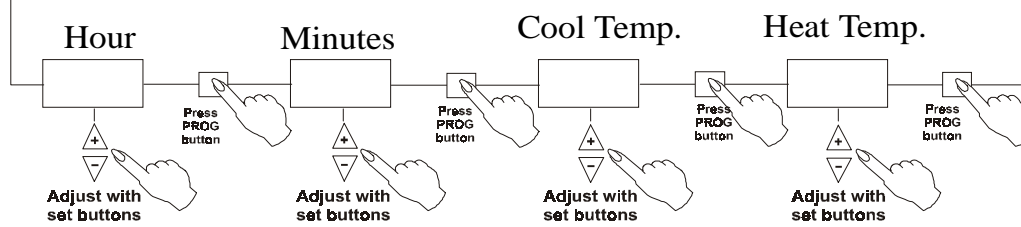
**Program No. 1 Wake**



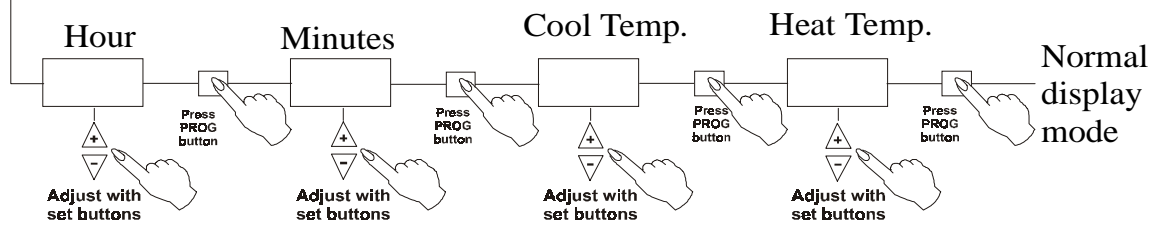
**Program No. 2 Day**



**Program No. 3 Return**



**Program No. 4 Sleep**



DURING THE PROGRAM THE UNIT WILL NOT CHANGE TO NORMAL DISPLAY UNTIL ALL THE PROGRAM HAS BEEN REVIEW.

AT ANY TIME DURING THE PROGRAMMING YOU CAN REVIEW QUICKLY THE SETTINGS BY PRESSING THE "ON" BUTTON.

**5.5. OVERRIDE SET TEMPERATURE:**

At anytime you may change the temperature by pressing the set buttons. The new temperature will be retained until the next prog start. If the thermostat was in prog mode, then the number of the prog. will disappear until the next prog.

THE THERMOSTAT MEMORY (PROGRAM) WILL HOLD FOR 24 HOURS DURING POWER FAILURE

**5.6 Back Light**

The back-light of the unit will activate when a button is pressed or the information is send from the remote control.

**6. RT04 - Hand held remote control - (option for FMT-PROG SERIES)**

**General**

This remote control is Infrared, the remote must be pointed at the thermostat to operate. Every time you change a parameter in the Remote Control, you must send it to the thermostat by pressing "ON/SEND" . Every time that the information is sent to the thermostat, the Back Light will switch ON.

**Operating Manual**

**Fan:**

Press FAN button to change between: FAN ON (⊗) or AUTO FAN (A).  
 Press ON/SEND button to send information to the thermostat.

**Mode:**

Press MODE button to change between: COOL, HEAT, AUTO CHANGE and FAN ONLY.  
 Press ON/SEND button to send information to the thermostat.

**Set Temperature:**

Cool Mode: Press the set buttons (+) or (-). COOL & digits will flash, select the desired temperature. Press ON/SEND button to send information to the thermostat.  
 Heat Mode: press the set buttons (+) or (-). HEAT & digits will flash, select the desired temperature. Press ON/SEND button to send information to the thermostat.  
 Auto Change Mode: Press the set buttons (+) or (-) COOL and SET TEMPERATURE will flash, set cooling with (+) or (-) buttons.





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Press SELECT button, the HEAT and the SET TEMPERATURE will flash. Set heating with (+) or (-) buttons. Press SELECT button again or Press ON/SEND button to send information to the thermostat.

The HEAT SET must always be at least 1 degree less than the COOL SET. The controller will not let you enter a wrong setting. (Set Temperature See # 6.5)

#### Real Time Clock and Day:

Press SELECT button: CLOCK SET will flash. Press (+) or (-) buttons, the hours will flash. Use the set button, press (+) to increase and (-) to decrease the hours.

Press SELECT button again, the minutes will flash. Use the set button, press (+) to increase and (-) to decrease the minutes.

Press SELECT button again, the week day will flash. Adjust the day by pressing the set buttons (ie. if Saturday selected SAT will show in display etc).

Press SELECT button again to exit from program or Press ON/SEND button to send information to the thermostat.

#### Programming:

To set the Program times and Temperature settings for the week:

The remote is 5-1-1 programmable; weekdays (Monday to Friday), Saturday, and Sunday can be programmed differently. There are 4 program events per day; 1 (Morning), 2 (Day), 3 (Evening), 4 (Night)

To enter programming: Press and hold SELECT button for three seconds.

PROGRAM (flashing) and the days Mon-Fri will appear on display.

Press (+) or (-) buttons, PROGRAM 1 & START (flashing) will appear in display.

Press SELECT button, the hours will flash. To change the **hours** press (+) to increase, (-) to decrease.

Press SELECT button, the minutes will flash. To change the **minutes** press (+) to increase, (-) to decrease.

Press SELECT button; Cool (flashing) & Temperature will appear on display, To change the **Temperature**, Press (+) to increase, (-) to decrease.

Press SELECT button; Heat (flashing) & Temperature will appear on display, To change the **Temperature** Press (+) to increase, (-) to decrease.

**The controller keeps a safety differential of at least 1 degree between Heat set and Cool set (Heat is always less than Cool).**

**Note: After choosing the heat set, you cannot reduce the cool set to less than the heat set.**

Press SELECT button: **PROGRAM 2 & START** (flashing) will appear in display.

Press (+) or (-) buttons and adjust the hours, minutes and temperature the same way as in PROGRAM 1

Press SELECT button: **PROGRAM 3 & START** (flashing) will appear in display.

Press (+) or (-) buttons and adjust the hours, minutes and temperature the same way as in PROGRAM 1

Press SELECT button: **PROGRAM 4 & START** (flashing) will appear in display.

Press (+) or (-) buttons and adjust the hours, minutes and temperature the same way as in PROGRAM 1

SEND will blink, press ON/SEND button to send the information to the thermostat.

PROGRAM (flashing) and **SA (Saturday)** will appear in display

Adjust the programming for Saturday the same way as programming MON to FRI.

SEND will blink, press ON/SEND button to send the information to the thermostat.

PROGRAM (flashing) and **SU (Sunday)** will appear in display

Adjust the programming for Sunday the same way as programming MON to FRI.

SEND will blink; press ON/SEND button to send the information to the thermostat.



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The TIMER will blink; using the (+) or (-) buttons, Select TIMER ON or OFF. If you changed between TIMER ON or OFF, the SEND will blink. Press SEND/ON button to send the information to the thermostat. If you did not change between them, press the SELECT button to end programming. (Programmable or non-programmable).

**REVIEW** - If you want to review your program or to change part of it, simply enter the programming and press and hold (3sec.) SELECT button. You can Select between MON-FRI, SAT, SUN programming and TIMER on or off by pressing the SELECT button. If you want to enter programming, press (+) or (-) button when appropriate indication appears and continue as previously explained.

## 7. Troubleshooting for Technician

### 7.1. 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.

### 7.2. Cool stages do not switch on

Check the Rc connection.

### 7.3. Heat stages do not switch on

Check the Rh connection.

### 7.4. In heat mode, unit sends cool air.

The Auto Fan is not ON.

### 7.5 The unit display low temperature (32°) all the time

The unit does not feel the external sensor.

### 7.6 The unit display high temperature (92°) all the time

The unit has a short circuit in the external sensor.

### 7.7 The display shows the word "PROGRAM" without the name

The unit is in OVERRIDE mode, the name of the program will reappear when the next program will start working.

THE MEMORY OF THE THERMOSTAT (PROGRAM) WILL HOLD FOR 24 HOURS POWER FAILURE
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To obtain more information or technical support :

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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.

Rev 1