

# Master Control Unit – MCU for thermostat network

## Owner's Manual - Installation and Operating Instructions

Please read this manual carefully before installation and use

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### **1. Accessories**

- 1.1. Back Plate - 6"L x 4"W x 0.37"H - Part No. WP2.
- 1.2. Wide Back Plate - 6"L x 6"W x 0.37"H – Part No. WP3.

## 2. Installation Instructions

### Mounting the thermostat.

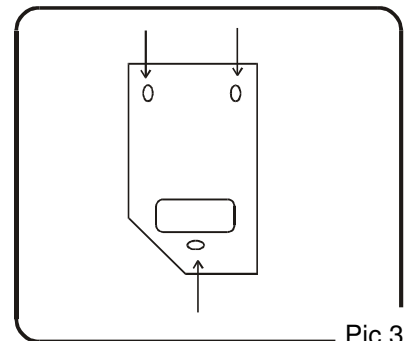
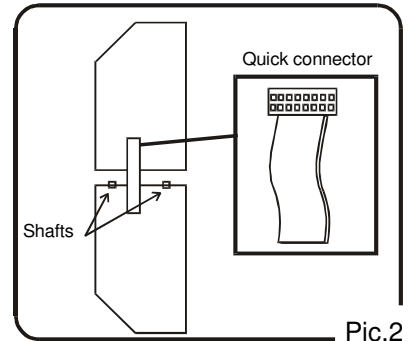
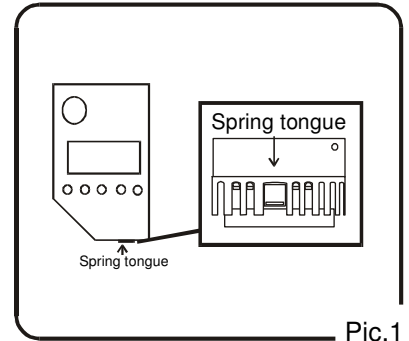
The thermostat can only be as accurate as the temperature sensor permits. It is therefore essential that the thermostat (or the return air sensor) are installed in a location that is typical of the ambient room temperature. Do not install the thermostat in a draft, near a floor/ wall/ roof register. Consideration also needs to be given to drafts that may be present near externally opening doors, chillers or windows. Where possible mount the thermostat or temperature sensor out of direct sunlight and on internal walls.

Further, when mounting the thermostat be aware of drafts that may travel down the inside of walls, (especially if mounted on external walls). It is important to fully block all cable entry holes to prevent any of these drafts effecting the internally mounted thermostat temperature sensor.

It is recommended to mount the thermostat or return air sensors between 1.5 & 1.8 meters from the floor where possible.

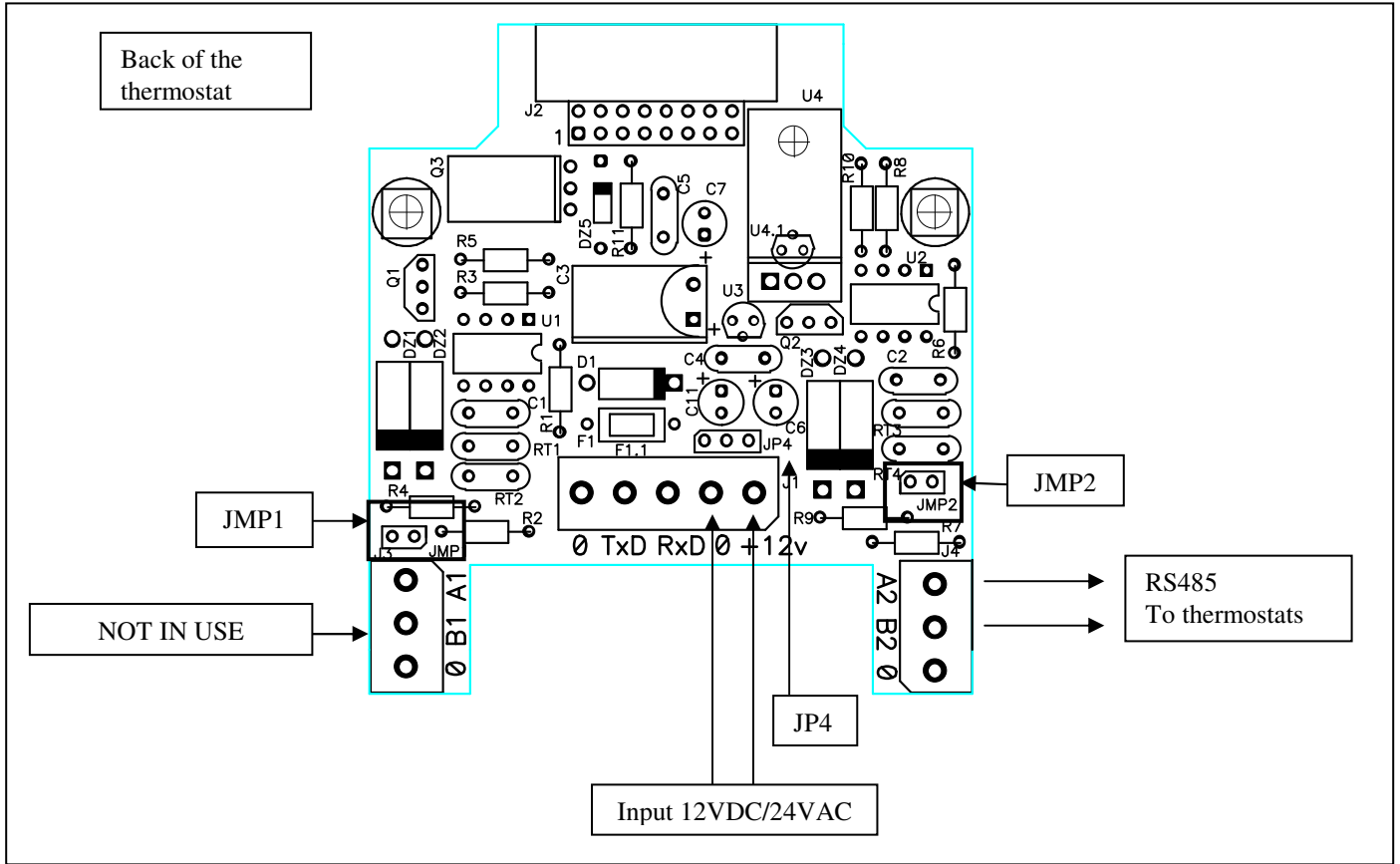
- 2.1. Separate the base from the cover by pressing the tongue (pic.1).
- 2.2. Gently disconnect the cover from the base with quick connector (pic.2)
- 2.3 Line the back panel up against the wall or flat surface on which it is to be mounted and drill the appropriate fixing holes (pic.3).
- 2.4. Insert screws so they extend approx. 3/16" (3 mm) from wall or surface.
- 2.5. Align the back panel against these screws, pushing it forward, allowing it to slide downwards to lock into position.
- 2.6. Make electrical connections to terminals on the back panel as shown on enclosed electrical wiring diagram
- 2.7. Reconnect the quick connector.
- 2.8. Adopt the cover to the base, first the two shafts and than the spring.
- 2.9. Connect 12V to the thermostat, verify that LCD display is ON .

Turn of the power to the thermostat wait 10 seconds and re connect the power to confirm that the thermostat retains memory.



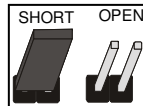
### 3. Hardware Jumper Explanations – and wiring

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



3.1. The first unit and the last unit physical in the network must have "End of network" jumper shorted.  
**See "Different type of connections" page for details.**

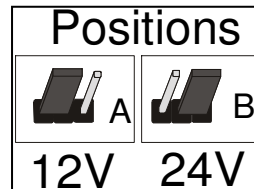
#### 3.2 How to Change the Jumpers



- To change JMP 1 & 2
- Turn power off.
  - Change the position of the jumper (short or open)
  - Turn power on.

#### 3.3 To change JP4 - 12V or 24V (default from factory 12V)

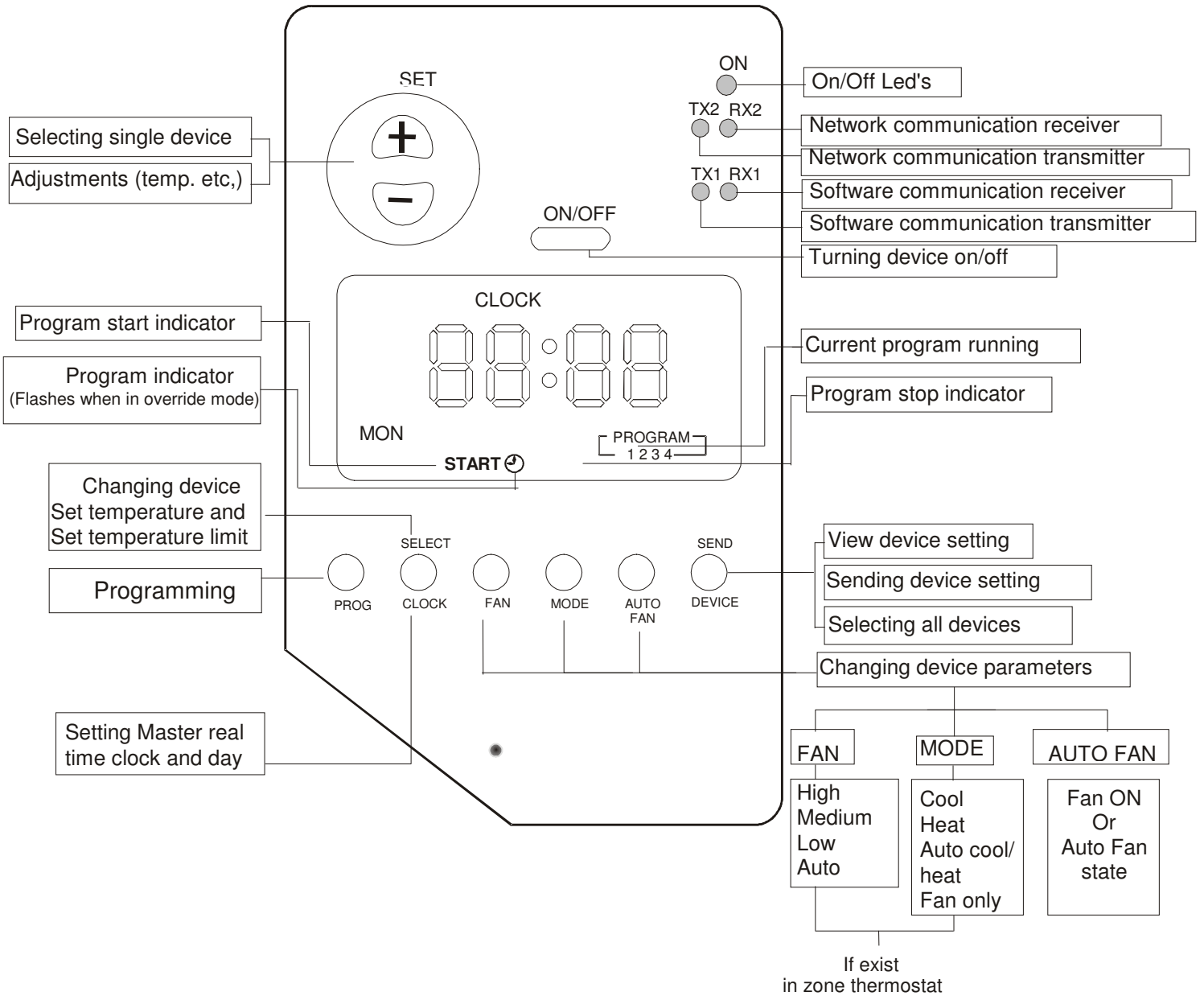
- Turn power off.
- Change the position of the jumper (A or B)
- Turn power on.



Please note: everything at the back of the front panel of the thermostat are not in use.

**5. OPERATING MANUAL:**

General Description - Quick start



**5.1 Real time clock and day:**

To set Real time clock and day of the week follow these steps:

5.1.1 To adjust the hours: Press clock/select button; the hour digits will flash.

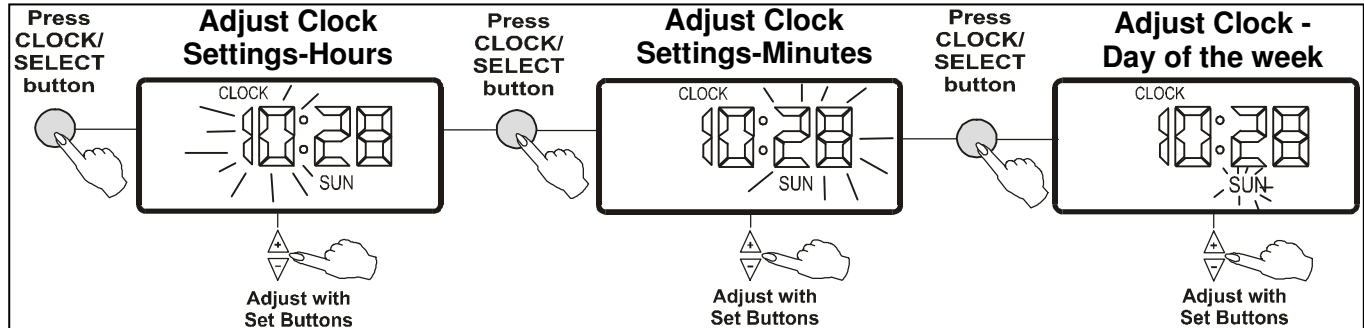
Use the set button press (+) to increase and (-) to decrease the hours.

5.1.2 To adjust the minutes: Press clock/select button; adjust the minutes.

5.1.3 To adjust the selected day of the week, press clock/select again.

The row of week days will flash.

Adjust the day by pressing the set button (eg. If Saturday selected, SAT will show in display, etc).

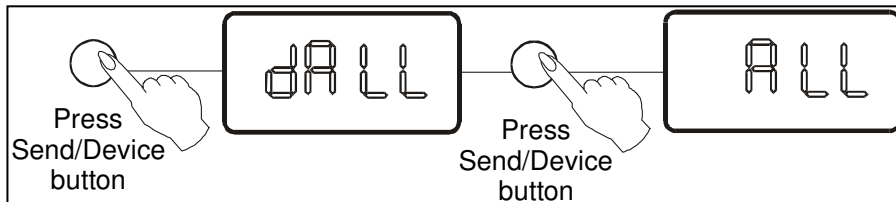


5.1.4 Press the clock/select button again to return to normal display.

**6. Turning all the thermostat network On/Off through the master :**

6.1 Press send/device setting button “dALL” will appear on display,

6.2 Press and hold send/device button until “ALL” will appear on display.



6.3 Press On/Off button to turn all the units “ON” or “OFF” (Green Led light – “ON”)

6.4 Press and hold send/device button until the display will flash (information is sent).

6.5 Press send/device button to return to normal display.

Other option: Press “ON” or “OFF” (green led lights-on), press and hold On/Off button to send information.

**7. Broadcast**

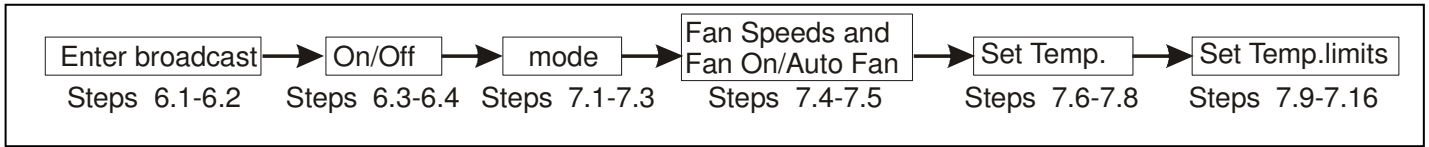
- To enter into broadcast follow Steps 6.1-6.2.

- Sending the information can be done during all broadcasts steps; use the send/device setting button to send all the information entered, by pressing and holding the send/device setting button until display flashes.

- To exit broadcast at any time press (not hold) the send/device button a number of times required until display return to normal.

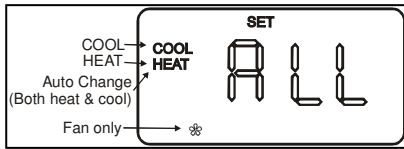
The following parameters can be changed:

- Mode
- Fan speed and Auto-Fan/Fan On
- Set temperature
- Set temperature limit
- On/Off

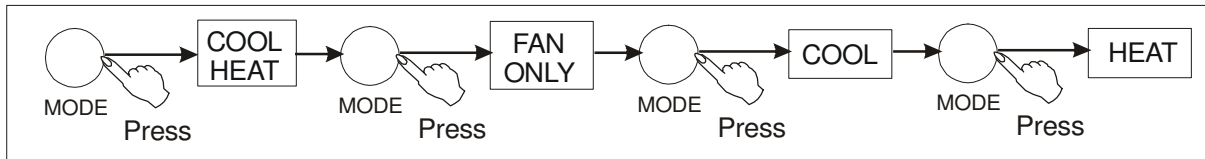


**Mode**

7.1 Enter into broadcast (steps 6.1-6.2) (if a single device number is appear, press the set buttons (+/-) to choose “dALL”).  
 7.2 Press MODE button to switch between the four modes: **1.COOL**, **2. HEAT**, **3. COOL/HEAT** (Auto-change over - not in 2 pipes system), **4. FAN ONLY**



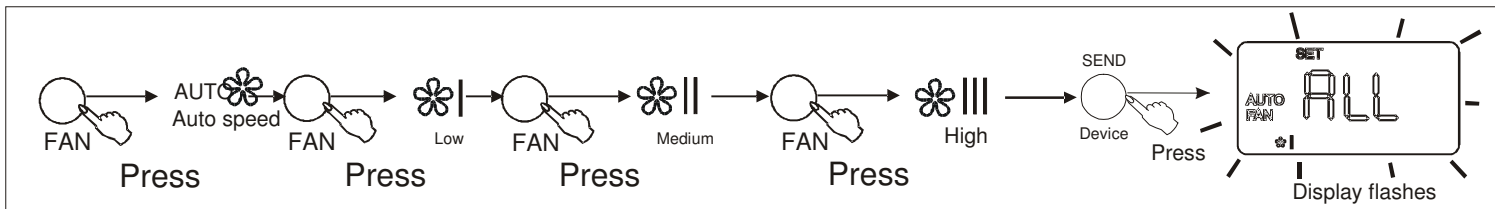
7.3 Press and hold send/device button until display flashes (information is sent).



**Fan**

Enter into broadcast (steps 6.1-6.2) (if a single device number is appear, press the set buttons (+/-) to choose “dALL”).

7.4.1 Press the fan button to change between the speeds: Auto, Low , Medium and High.



7.4.2 Press the Auto-Fan button to switch between “Fan-On” mode and “Auto-Fan” mode.

Fan On – The fan will work – regardless of the state of the unit.

Auto Fan – The fan will work – only when the unit works (while cooling or heating) – Economy mode.

7.5 Sending information: Press and hold the send button until display flashes (information is sent).

**Set Temperature – Set Cool and Set Heat**

Enter into broadcast (steps 6.1-6.2) (if a single device number is appear, press the set buttons (+/-) to choose “dALL”).

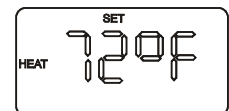
7.6 Press the set button (+) or (-) the display will show:

7.7 Change the Set Cool temperature using the set buttons (+) or (-).

Press the Select/Clock button to switch to Set Heat.

Change the Set Heat temperature using the set buttons (+) or (-).

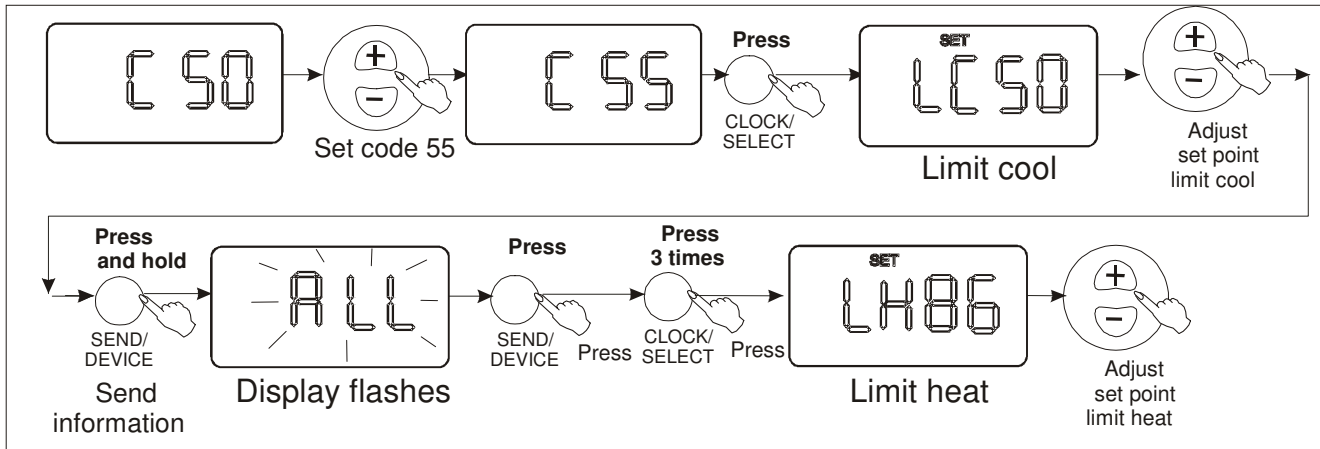
7.8 Sending information: Press and hold the send button until display flashes (information is sent).



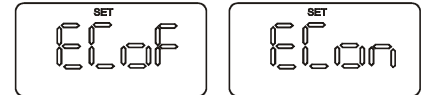
**Set temperature limit**

Enter into broadcast (steps 6.1-6.2) (if a single device number is appear, press the set buttons (+/-) to choose “dALL”).

- 7.9. Press Clock/Select button, C50 will appear on display, using the set buttons enter your code: 55,
- 7.10. Press Clock/Select button again, LC and digits will appear on display,
- 7.11. Adjust with set buttons (+) or (-) the set point limit for cooling (range: 50-86°F).
- 7.12. Press and hold send device button until display flashes (information is sent).
- 7.13. Press Send/Device button once and Clock/Select button 3 times until LH and digits will appear on display,
- 7.14. Adjust with set buttons (+) or (-) the set point limit for heating (range: 64-95°F).
- 7.15 Press and hold send device button until display flashes (information is sent).
- 7.16 Press Clock/Select button again ALL will appear, press a few times on SEND/DEVICE button until exit broadcast.



- 7.17 Set all zones to Economy Mode (if exist on thermostat). Repeat 7.9 after that.  
 Press Clock/Select – 3 times.  
 Send the information by pressing and holding the Send/Device button.

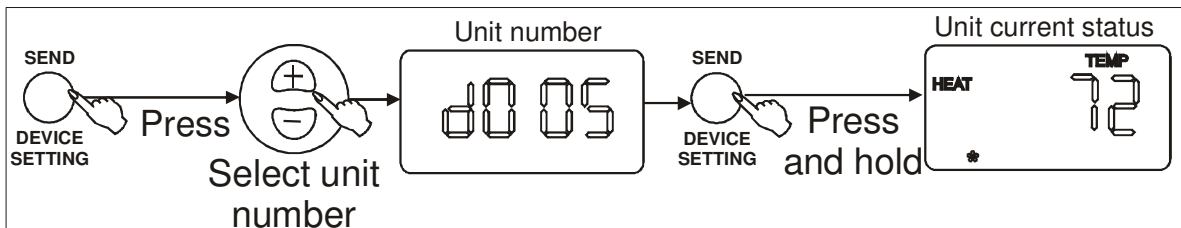


Please note: if you sent the information only after heat limit adjusting, the cool limit information was not sent.

**8. Working with single zone thermostat**

Selecting the zone thermostat:

- 8.1 Press send/device button,
- 8.2 Press the SET buttons (+) or (-) to choose a required single unit (d000-d255). (If error1 appear on display: the unit number selected does not physical exists)
- 8.3 Press and hold send/device setting button until the unit current status will appear on display.
- 8.4 Change the unit parameters as describe in the following steps.
- 8.5 To return to normal display mode press Send/Device button.

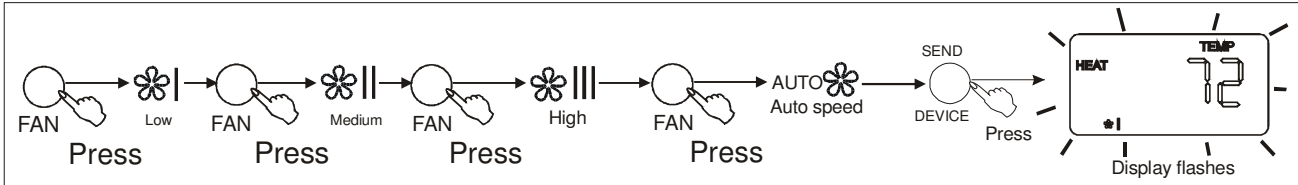


**On/Off**

- 8.6 Press On/Off button to turn the unit “ON” or “OFF” (Green Led light – “NO”)
- 8.7 Press and hold send/device button until display flashes (information is sent).

**Fan Speeds Mode (if exist on zone thermostat):**

- 8.8 Press fan button to change the fan speeds: I Low, II Medium, III High, AUTO - Auto speed.
- 8.9 Press and hold send device button until display flashes (information is sent).

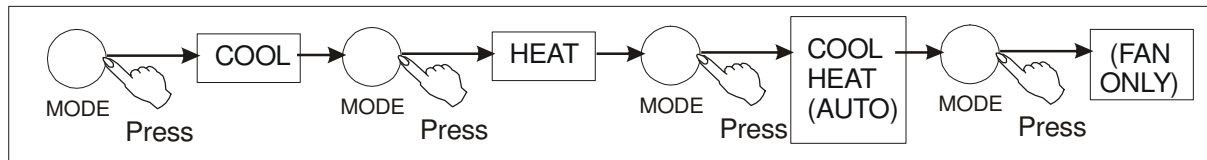


**NOTE:** See information about Broadcast in #7

**Selecting Mode:**

Please note: If LOC appear on display, the mode can not be changed from the master in this application.

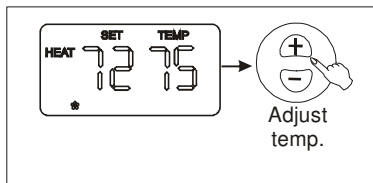
- 8.10 Press mode button to switch between the four modes: **1.COOL, 2. HEAT, 3. COOL/HEAT (Auto-change over), 4. FAN ONLY.**



- 8.11 Press and hold send device button until display flashes (information is sent).

**Set temperature – Set Cool and Set Heat**

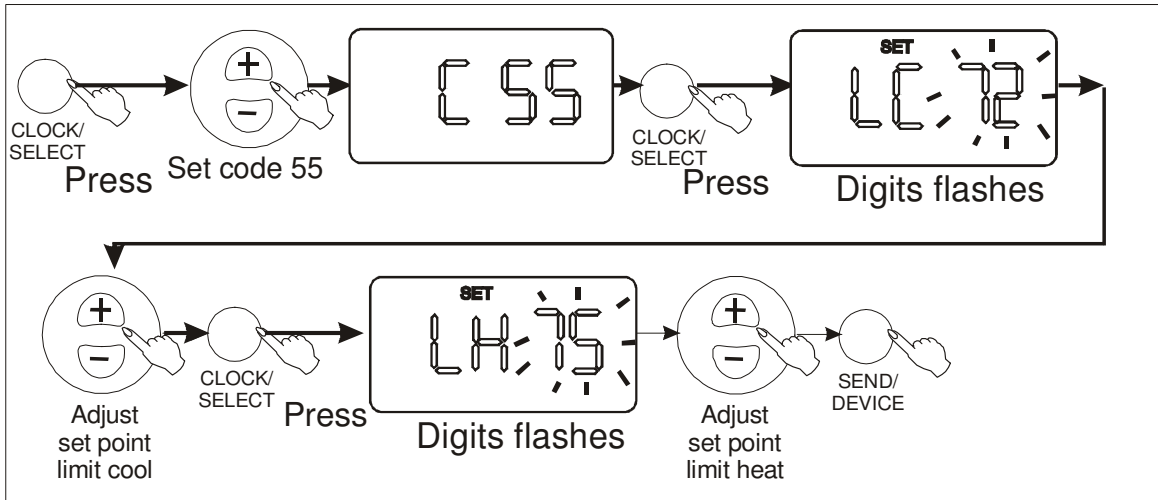
- 8.12.1 Cool Mode: Change Tset-Cool using the set buttons (+) or (-).
- 8.12.2 Heat Mode: Change Tset-Heat using the set buttons (+) or (-).
- 8.12.3 Auto Mode: Change Tset-Cool using the set buttons (+) or (-).  
 Press the Clock/Select button to switch to Tset Heat.  
 Change Tset-Heat using the set buttons (+) or (-).



Using the set buttons (+) or (-) change set temperature of the zone thermostat.

**Set temperature limit**

- 8.13 Press Clock/Select button, C50 will appear on display, using the set buttons enter your code: 55,
- 8.14 Press Clock/Select button again, LC and digits will appear on display,
- 8.15 Adjust with set buttons (+) or (-) the set point limit for cooling (range: 50-86°F).
- 8.16 Press Clock/Select button, LH and digits will appear on display,
- 8.17 Adjust with set buttons (+) or (-) the set point limit for heating (range: 64-95°F).
- 8.18 Press and hold send device button until display flashes (information is sent).



Please note: if you sent the information only after heat limit adjusting, the cool limit information is sent also.

8.19 **Set the zone to EC mode:** Press On/Off button for 10 seconds until EC appears on display.

To cancel, Press On/Off button for 3 seconds until display returns to normal.

- In EC mode, Auto fan and Auto Change-Over are selected automatically;
- When exiting EC mode, re-enter your desired mode.

## 9. Emergency Programming

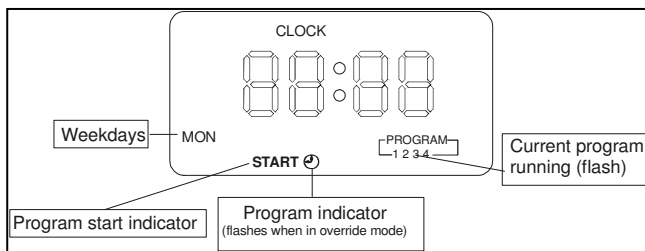
### Attention:

The program set by the MCU will take effect only when there is no communication with computer.

A weekly program can be set as a backup for computer shutdown. In that case, the program must be set prior to the shutdown, and will not take affect until then.

Please note. During programming, the display will return to normal display if no selections are made in 15 seconds. This is an important consideration during set up as is there is to long a period between pressing buttons the thermostat will return to normal mode forcing you to commence the programming procedure from start.

The thermostat is a 7 days programmable;  
 In each daily program, Tset Cool and Tset Heat can be set 4 times.



Programming Display

- The following table will help you make the program.
- We recommend that you fill out the table BEFORE setting the weekly program.
- The display will show the program day, start or stop, and the event (1, 2).
- The programming mode includes all the units.
- Individual programming only through the software.
- During weekly program you can override individual unit's settings by changing it's modes (the override settings will remain until the next program start). The program indicator on the master will flash only when the master is in override mode.

**Empty Programming table – for your use.**

Day/Program	Program event 1			Program event 2			Program event 3			Program event 4		
	Time	Set Cool	Set Heat	Time	Set Cool	Set Heat	Time	Set Cool	Set Heat	Time	Set Cool	Set Heat
Sunday												
Monday												
Tuesday												
Wednesday												
Thursday												
Friday												
Saturday												

**Default values - from factory.**

Day/Program	Program event 1			Program event 2			Program event 3			Program event 4		
	Time	Set Cool	Set Heat	Time	Set Cool	Set Heat	Time	Set Cool	Set Heat	Time	Set Cool	Set Heat
Sunday to Saturday (all)	12:00am	72°F	70°F	12:00am	72°F	70°F	12:00am	72°F	70°F	12:00am	72°F	70°F

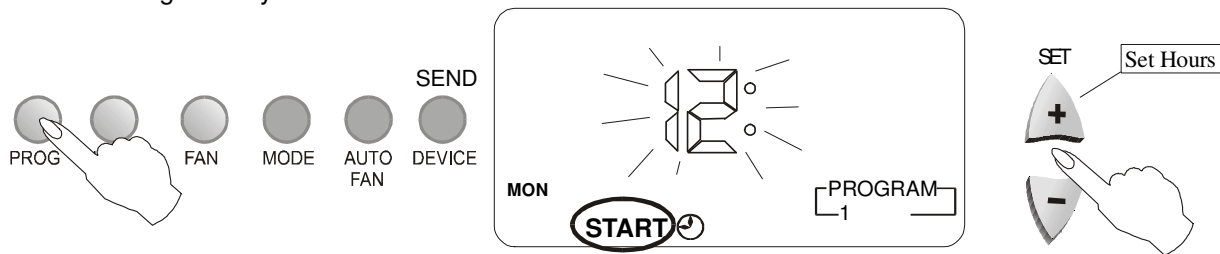
Should you wish to only use one program (one start and one stop per day) leave the second program at the default START 00 & STOP 00.

Please note. The thermostat is able to operate as manual (non programmable thermostat) or as a programmable thermostat.

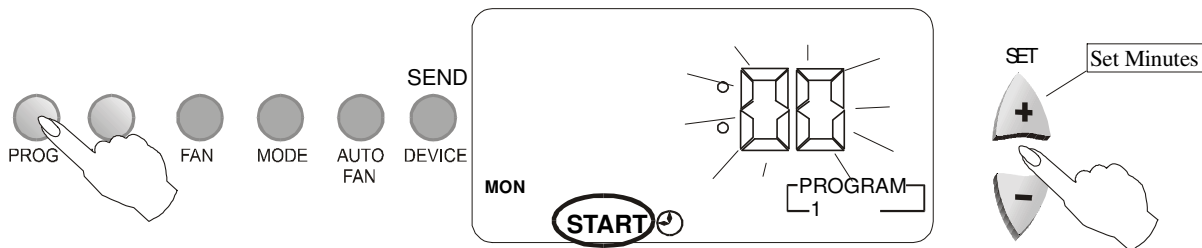
**9.1. How to Set the Program**

Pressing the PROG button does all Programming selections

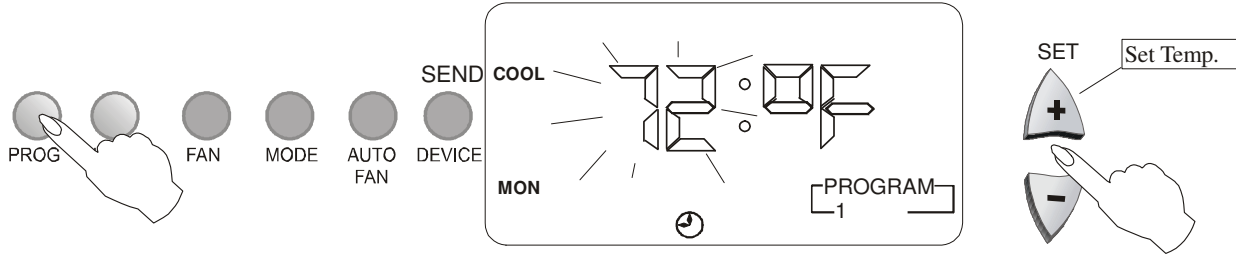
9.1.1 Press **Prog** button, the hours on display will flash, START and PROGRAM 1 is displayed. Change the hours with the set buttons (+ to increase - to decrease) to the time you want the thermostat to turn the system on during this day.



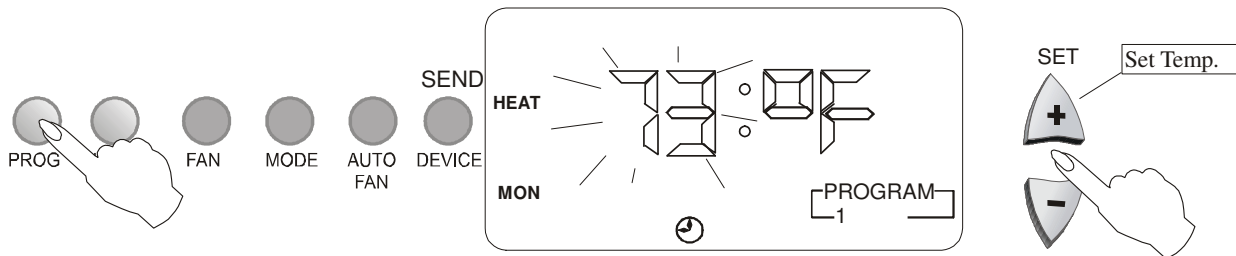
9.1.2 Press **Prog** button again, the minutes on display will flash, change the minutes with the set buttons (+ to increase - to decrease) to the time you want the thermostat to turn the system on during this day.



9.1.3 Press **Prog** button again, the temperature on display will flash, change the Set Cool temperature with the set buttons (+ to increase - to decrease) to the desired Tset Cool temperature during this event.



9.1.4 Press **Prog** button again, the Tset Heat flashes again. Using the set buttons adjust the required Tset Heat.



9.1.5 Repeat steps 9.1.1-9.1.4 to adjust the Start Time, Tset Cool and Tset Heat for any of the 4 periods within the daily program.

9.1.6 Pressing the **Prog** button repeats steps 9.1.1-9.1.5 for the rest of the weekdays.

9.1.7 Press the Prog button to return to normal display.

9.1.8 You can review the program or change part by entering into the program mode and step quickly through by pressing Select/Clock button

**Programmable or manual operation**


Remember as the thermostat can operate in either programmable or manual modes therefore once you have programmed your desired start time, Tset Cool and Tset Heat into the thermostat you must activate program mode.

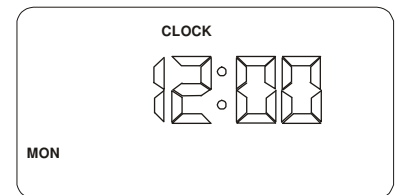
If it is not already, turn the thermostat On with the ON/OFF button. The green ON/STBY LED will illuminate. Press and holding the PROG button for 5 seconds. The program indicator will illuminate in the lower right of the LCD indicating that the thermostat is operating in program mode.

**9.2 . Override mode settings:**

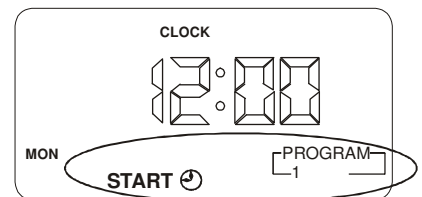
At anytime you may change the Tset Cool and the Tset Heat of all the units. (Broadcast sending of Tset Heat and Tset Cool).

The new setting 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 program indicator will flash .



Display in Manual mode



Display in Program mode

## 10. Troubleshooting for Technician

### 10.1. Error1 appear on display

The unit number selected does not physical exists.

### 10.2. The display does not light

The unit is not getting 12V

Check the wiring connections, +12V, 0

Check if the power on led on the adaptor is light.

### 10.3 "Idle" appear on display

When Power outage occurred.

Wait 1 minute until unit is back to work.

### 10.4 Error communication:

E001 - Zone unit not reply

E002 - Frame Error

E004 - Destination Error

E008 - Source Error

E016 - Crcheader Error

E032 - Crcdata Error

E064 - Wrong address unit reply

E003 – No Type

E128 – Length Error