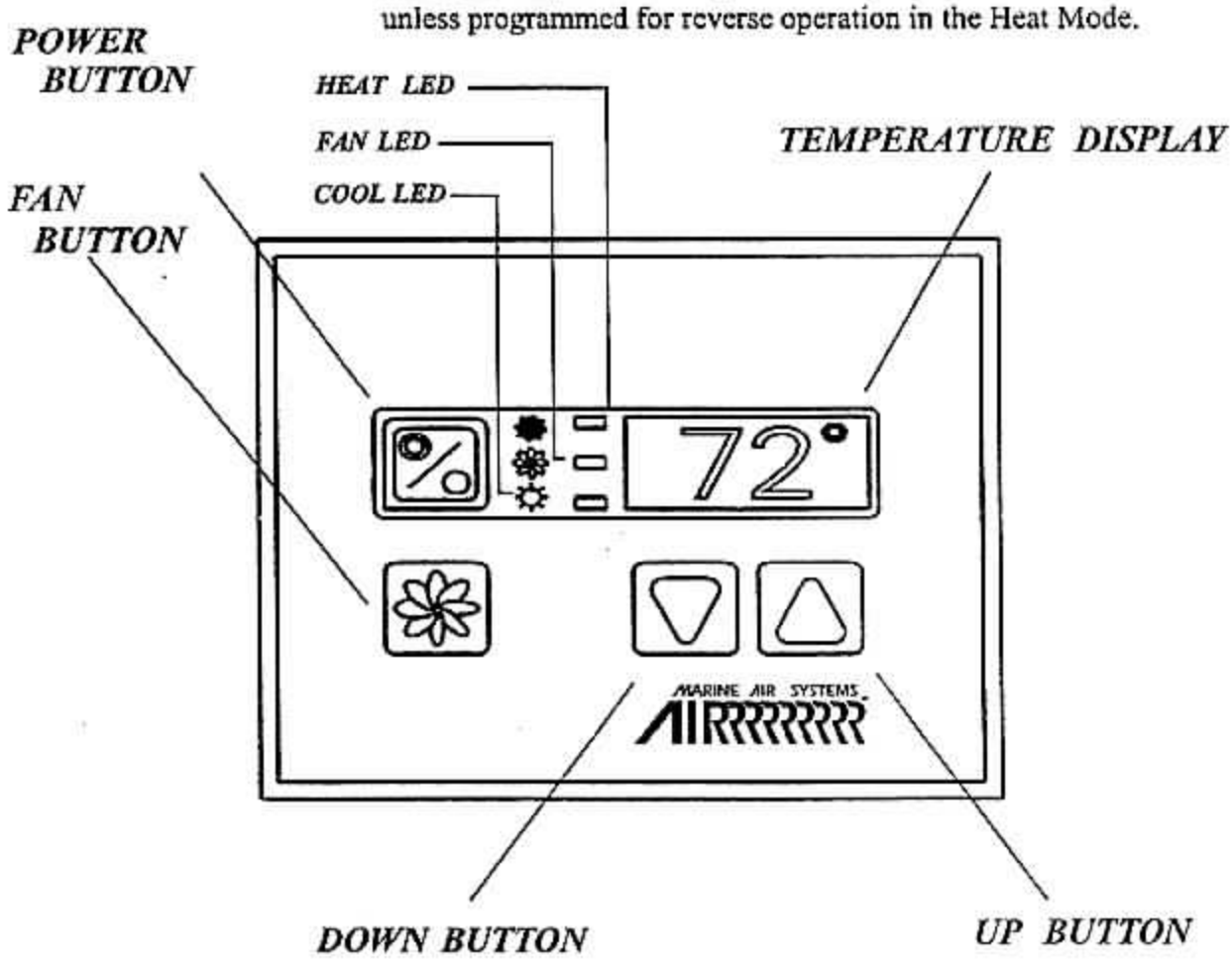
Button Locations and Functions

Single Button Functions

1. POWER BUTTON The power button is used to toggle the control between the on and off mode. Press and hold the power button in the off mode to enter the program mode. Continue to hold the power button to reset the Factory Default Values for the programmable parameters.

2. FAN SPEED BUTTON The fan speed button is used to select one of the six manual speeds or the automatic fan setting. The automatic mode controls the fan speed according to the to the difference between set point and room temperature. The greater the difference the faster the fan will run unless programmed for reverse operation in the Heat Mode.



3. DOWN BUTTON Press the down button momentarily and the set point will appear in the temperature display. Press and hold the down button and the set point will begin to decrease, slowly at first, then faster as the button remains depressed. The lowest set point allowed is 55° F which is where the display will stop no matter how long the button remains depressed.

Button functions Continued

3. Down Button The down button is also used in the program mode to decrement program values. Pressing the down and fan buttons simultaneously will blank the display for night operation. Press the power button to exit the blank display mode.

4. Up Button Press the up button momentarily and the set point will appear in the temperature display. Press and hold the up button and the set point will increase, slowly at first, then faster as the button remains depressed. The highest set point allowed is 85° F which is where the display will stop no matter how long the button is held down.

Dual Button Functions

5. Up & Down Buttons Press the up and down button together and the outside air temperature will be displayed, **if the OPTIONAL Outside Air Temperature Sensor** has been purchased and installed.

6. Fan & Down Button Press the fan and down buttons simultaneously to blank the display for night time operation. While the display is blanked out the mode LED, heating or cooling, remains on indicating proper system operation. Press any button to return the display to normal operation.

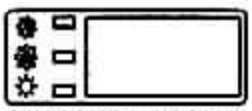
7. Power & Up Button Press the power and the up button together to enter the humidity or moisture control mode. Once in humidity mode the temperature display will indicate H U 1 . To exit the moisture control mode press the power button and the control will return to the off mode.

NOTE:

When in the Blank Display Mode the center segment of the seven segment temperature display will remain lighted when no heating or cooling is called for. This segment remains on to indicate that the controller is on and operating properly.

Modes of Operation

Off Mode


CABIN MATE Off Mode

When the CABIN MATE is in the off mode, all control outputs will be turned off. All program parameters and user settings are saved in non-volatile memory. The program mode can only be accessed from the off mode.

On Mode

CABIN MATE RESET

When the controller is in the on mode, power will be supplied to the appropriate control outputs and the display will indicate the current state of operation. Operating and program parameters resume based on those stored the last time the unit was operating.

NOTE:

When the control resumes operation after a power interruption all the display LEDs will turn on for one second. This is a normal operating condition and is referred to as **"Power On Reset".**

Cool Only Mode

When the **CABIN MATE** is configured for cool only mode, only the cooling systems will be selected and operated as required. When the temperature drops below the cool set point the system will **not** switch to the heating mode.

Heating Mode Only

When the controller is programed for heating mode only, the heating systems will be selected for operation as required. Should the temperature rise above the heating set point the system will **not** switch to the cooling mode automatically.

Automatic Mode

When **CABIN MATE** is configured for the automatic mode, both heating and cooling will be supplied as required. The heating and cooling LED indicators will be lit according to which mode is being called for. Temperature hysteresis in a given mode will be maintained at 2° F, however, A 4° F change in temperature is required to cause the control to change modes. Once in a new mode the hysteresis will remain at 2° F.

Modes of Operation cont.

Humidity Mode

Press the power and the up button simultaneously to enter the humidity or moisture control mode. The letters H U I will appear in the temperature display indicating successful entry.

Every four (4) hours, the fan is started and air circulated for thirty (30) minutes. During this time the air temperature is sampled and entered into memory. The cooling cycle is started and continues until the temperature is lowered two (2) °F. The compressor is allowed a maximum of one hour running time to reach the desired temperature. Four (4) hours after the temperature is satisfied or the compressor times out, the cycle is repeated. During the cycle, the cool LED will be lit when the compressor is running.

Humidity Mode is provided to maintain a specific temperature and humidity range when the yacht is unoccupied for extended periods of time.

Fan Modes

Automatic Fan Mode

Press and hold the fan button until the letter A appears in the temperature display window. The fan LED **not** being lit indicates **automatic fan** has been selected. Automatic fan mode allows the **CABIN MATE** to determine the fan speed based on room temperature. The closer the room temperature is to the set point the slower the fan speed. This permits a balance between the most efficient temperature control and the slower (quieter) fan speeds. Automatic fan operation is a factory default mode, however, manual fan speed control is available.

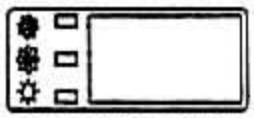
Manual Fan Mode

Press and hold the fan button during normal operation to select one of the six (6) manual fan speeds available. Six (6) is the fastest and one (1) represents the lowest fan speed available. The manual fan mode allows the user to select the desired fan speeds manually. When a manual fan speed has been selected the fan LED will be lit.

NOTE:

High and Low Fan Limits ***Fan speeds can be further tailored to suit the user by adjusting the high and low fan limits. See programming modes U 2 and U 3.***

Program Mode

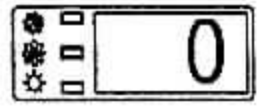


CABIN MATE Off Mode

The Program mode is used to adjust many of the operating parameters to suit the particular needs of individual users. The program mode is also used to tailor the Marine Air System for efficient operation with any installation that CABIN MATE is used with. Installation variables such as ducting, sensor location and system lay-out effect the perceived operation of the overall system. The program mode allows the system to operate as efficiently as possible in a given installation. The CABIN MATE is shipped with factory default settings of the programmable parameters which are stored in permanent memory and can be recalled at any time.

Severe electrical disturbances can sometimes upset the CABIN MATE operating sequences. Operator confusion related to program parameters can also cause what seem to be operational problems. Whenever there is any doubt as to the proper operation of the controller, factory default parameters should be initialized.

Entering Program Mode



The program mode can only be entered from the off mode. From the off mode, press and hold the power button for five (5) seconds until a "U" appears in the display. Release the power button and the characters "U 1" followed by a parameter value will appear in the display. CABIN MATE is now in the program mode. To exit the program mode press the off button.

NOTE: The control will exit the program mode and return to **OFF** if no programming is attempted for one (1) minute.

NOTE: *Restoring Factory Default Settings*

Initialize Factory Default Settings by pressing and holding the power button for ten (10) seconds when the control is in the off mode.

Five (5) seconds after the button is pressed, "U" appears in the display. After ten (10) seconds a software revision number, such as (A01), appears indicating initialization has been completed. Release the power button and the CABIN MATE will return to the off mode. **Factory Default Settings** have been restored.

Using the Program Mode

The program parameters are displayed by pressing the fan button while in the program mode. Press the fan button once to advance to the next parameter. Press and hold the fan button to scroll through the program parameters. The Programmable parameters range from "U 1" thru "U11"

The Up and Down Buttons

The up and down buttons are used to select the data or set the desired limits for the parameter being programmed. This method is followed throughout the program mode, however, special instructions are included for individual functions that require them.

Exiting the Program Mode

There are two methods to exit the program mode. Press the power button and the CABIN MATE will return to the off mode. Not pressing any buttons for sixty (60) seconds will cause the control to exit the program mode.

Software Identification

The software version of the control is identified for one (1) second prior to the exit from the program mode. The software identification number will appear in the display for one second, then the control will turn off.

NOTE: ***Should there be any reason to contact Marine Air Systems about the system or programming the CABIN MATE, be sure to have the software identification number available.***

Programmable Parameters

There are fifteen (15) programmable parameters along with their Factory Default Settings listed in this section. The table below indicates what these parameters are along with the permitted values and settings.

Program Number	Description	Default Setting	Range
U-1	Operating Mode 0 = Auto, 1 = Cool, 2 = Heat	0 = Auto	0 - 2
U-2	High Fan Limit	75	50 - 80
U-3	Low Fan Limit	30	25 - 49
U-4	Compressor Staging Time Delay	60	60 - 135 seconds
U-5	Temperature Calibration	0	±10°F
U-6	Compressor Load Fault Detection	3	0 - 3 0 = Off
U-7	Fahrenheit or Celsius Selection	0	0 - 1 1 = C
U-8	Outside Air Sensor Option Installed	0	0 - 1 1 = Installed
U-9	Reverse Fan Speeds During Heating	0	0 - 1 1 = normal
U-10	Continous Fan or Cycle Fan with Compressor	0-Cycle Fan with comp.	0 - 1 1 = cont. with compressor
U-11	Reverse Cycle Heat or Electric Heat	0-Reverse Cycle Heat	0 - 1 1 = Electric Heat
U-12	Hydronic Water Sensor Option for use with Cal Rod Heaters	O = Off	0 - 1 1 = Chill Chaser
U-13	Hydronic High Water Limit defines heating water lower limit	70° F	70° to 120° F
U-14	Hydronic Low Water Limit defines cooling water upper limit	60° F	60° F to 40° F
U-15	Hydronic Valve Open forces valve open for start-up	O = normal	0 -1 1 = forced open

NOTE: ***Should any programming problems or confusion occur, reset the Factory Default Settings by pressing and holding the Power Button while in the Off Mode for ten (10) seconds.***

U-1: Operating Mode

Automatic Mode

The Operating Mode is used to select Heating, Cooling or Automatic Mode depending on the particular requirement. Zero (0) selects the Automatic Mode, one (1) selects the Cooling Mode and two (2) selects the Heating Mode. Example: Systems that do not have heating capabilities should be programmed for cooling only. The factory default is zero (0) Automatic Mode.

U-2: High Fan Limit

High Fan Limit

The upper fan speed limit can be tailored to suit various motors and operating conditions. The high fan limit is adjusted with the system hooked up and operational. The range of values are 50 through 80 and are arbitrary units. Setting a higher number results in a higher fan speed, setting lower number lowers the high fan speed limit. Use the up and down buttons to select the desired high fan speed limit. The factory default setting is 75.

U-3: Low Fan Limit

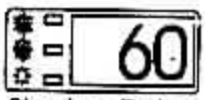
Low Fan Limit

The low fan limit determines the lowest output allowed for the low fan speed. The range of values for the low fan speeds are 25 through 49 in arbitrary units and the factory default setting is 35.

IMPORTANT!

Once the high and low speed fan limits are set the unit will automatically adjust the remaining fan speeds to produce six (6) equally spaced fan speeds.

U-4: Compressor Staging Time Delay

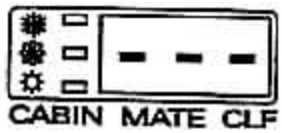


Staging Delay

The compressor staging delay is provided for installations where more than one system is being operated from the same power source. Setting the staging delays at different intervals allows only one compressor to start at a time. The units should be staged at least five (5) seconds apart. The minimum delay is sixty (60) seconds and the maximum is one hundred thirty-five (135) seconds. The factory default setting is 60 seconds.

U-5: Temperature Calibration

Use this feature to calibrate the air sensor within a range of ± ten (10) ° F. Enter the program mode and the calibration offset will be displayed. Use the up and down keys to select the desired offset. The factory default is zero.



U-6: Compressor Load Fault

Compressor Load Fault is provided to monitor the compressor output circuit. Should, for example, the klixon or high head pressure switch open up a **Compressor Load Fault** or **C L F** is displayed. When a C L F occurs the display will flash three dashes - - - alternating with the room temperature. Compressor load fault can be caused by lack of cooling water, clogged inlet air filter (in heating mode), poor ducting resulting in restricted air flow, or a failed compressor. C L F indicates the system needs some serious attention and should not be ignored.

Compressor Load fault Detection can be programmed to shut down the unit after one occurrence or as many as three C L F occurrences. C L F can also be turned off by programming Zero (0). The programming range is three (3) through Zero (0) and factory default is three (3).

U-7: Fahrenheit or Celsius Selection

The unit can be programmed to display either Fahrenheit or Celsius By programming a Zero (0) or one (1). Zero selects degrees F and one (1) selects degrees C. The factory setting is Zero, degrees Fahrenheit.

U-8: Outside Air Sensor Option

When this option has been purchased install the outside air sensor in the alternate air sensor jack and select one (1) for the program value. The outside air temperature can be viewed during normal operation by pressing the up and down buttons simultaneously. The factory default is Zero (not installed) since this is an optional item.

U-9: Reverse Fan Speeds During Heating

Under normal operation in both Heating and Cooling Modes the automatic fan speed control reduces the fan speeds as the set point is approached. During the Heating Mode this is not always the preferred method of operating. Some customers prefer that the fan operate faster as set point is approached which allows lower fan speeds at the cooler temperatures. This method also reduces head pressures during reverse cycle heating operation. Reverse fan speeds during heating is the factory default. Program a one (1) if you wish the fan to operate as it does in the Cooling Mode.

U-10: Cycle Fan with Compressor

The fan can be programmed to run continuously when the system is on or can be allowed to cycle with the compressor. When cycled with the compressor the fan will only operate when heating or cooling is called for. To cycle the fan program a Zero (0) and to operate the fan continuously program one (1). The factory default is Zero (0) which cycles the fan.

U11: Reverse Cycle or Electric Heat

Units not equipped with reverse cycle heat may have electric strip heaters added after market. Electric heater requires the compressor be turned off when heating is called for. Program one (1) for electric heat option. The factory default mode is Zero (0), reverse cycle heat.

Failed triac on Relayport IO Circuit Board.