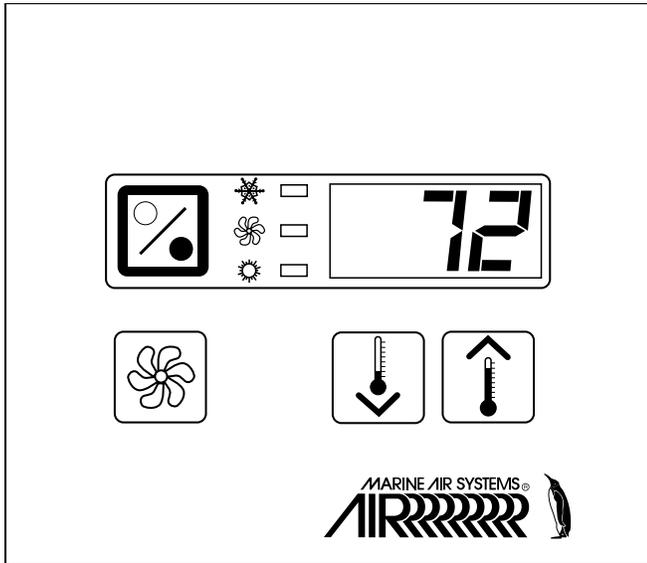


passport I/O controls

Operation Manual



MARINE AIR SYSTEMS®
AIR DIRECT EXPANSION SYSTEMS

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1.0 Passport I/O Controls • Introduction

Passport I/O is a micro controller based unit designed for use with direct expansion, reverse cycle air conditioning systems.

1.01 Standard Features

- Universal 115/230 volt, 50/60 Hz AC power supply.
- User friendly four button display panel.
- Five volt micro controller located in the display.
- Displays degrees Fahrenheit or degrees Celsius.
- Face plate ambient air sensor.
- 15 programmable parameters.
- High/Low Freon pressure switch inputs.
- Humidity Mode control.
- De-icing cycle prevents evaporator icing.
- Programmable fan operation.
- Programmable compressor delays.
- Nonvolatile memory requiring no backup power.
- Programmable display brightness.
- Programmable fail-safe modes.

1.02 Optional Features

- Electric heating control capabilities
- Outside air temperature sensor.
- Alternate air temperature sensor.

This manual provides all necessary information for proper installation and operation of Passport I/O. Poor installation or **misunderstood** operating parameters will result in unsatisfactory performance and possible failure.

Read This Manual Completely Before Proceeding !

If you have questions, or require assistance with your Passport I/O control, contact Dometic Environmental Corporation (Dometic).

The Passport I/O is covered under existing Marine Air Warranty Policy. Incorrect installation, neglect and system abuse are not covered under Marine Air Warranty Policy.

1.03 Overview

Press the Power Button once to engage the system. The display indicates room temperature when the system is on and is blank when the system is off.

Set the desired room temperature by pressing the Up or Down Button. The set point can be viewed by momentarily pressing and releasing the Up or Down Button.

Fan speed operation is automatic allowing fan speed to decrease as room temperature is approached in the Cool Mode. The fan will operate at low speed when set point is satisfied. Manual fan speeds can be selected with the Fan Button.

The fan can be programmed to run only when cooling or heating is required. Normally the automatic fan speed operation is reversed in the Heating Mode, however, the fan can be programmed to operate the same as in the Cooling Mode.

Memory: Passport I/O has nonvolatile memory requiring no batteries or backup power. When power is lost the operating parameters are retained indefinitely. When power is restored, the control resumes operating as last programmed.

IMPORTANT PROGRAMMING NOTES TO INSTALLER AND END USER:

1. If your air conditioning unit is a 24,000 BTU model, or if it has a High Velocity blower, then you **MUST** reprogram parameter P-16 prior to operating equipment. A 24K unit is identifiable by the "24" in the model number (i.e., VCD24K). A High Velocity blower does not have a blower motor overhang, the motor is inside the blower, and there is an "HV" in the model number. See the Programming section P-16 for instructions.
2. If your air conditioning unit is Cool Only - if it does not have a reversing valve - then Cool Only Mode **MUST** be programmed into parameter P-1 (factory default is Automatic Mode). **DO NOT** program Automatic Mode for a Cool Only unit. If Automatic Mode is selected and the thermostat calls for heat, the compressor will run. Since there is no reversing valve, the air conditioning unit will supply cool air when heating is desired. Cool Only units do not heat. Please see programmable parameter P-1 for more information on how to set the proper operating mode.

3. When powering on the Passport I/O control, press *and immediately release* the Power button so as to not unintentionally enter Program Mode. Program Mode will be entered if the Power button is pressed *and held* for more than 5 seconds. If Program Mode is entered unintentionally, any subsequent presses of the Up or Down buttons will change the P-1 parameter setting since it is the first parameter shown after entering this mode. This will in turn change the operating mode to Cool Only, Heat Only, or Automatic, which could result in improper system operation. Please use care when using Program Mode and refer to the corresponding sections in this manual for further information.

1.04 Normal Heating or Cooling Cycle

Automatic heating and cooling will be supplied as required. Automatic operation maintains a 2°F (1.1°C) temperature variation. A 4°F (2.2°C) change in temperature is required to cause the unit to shift to the opposite mode. Once in Heating or Cooling Mode, Passport I/O will maintain a 2°F (1.1°C) differential.

Program Cool only and cooling only will be supplied. The cabin temperature will be maintained within 2°F (1.1°C) of set point. Program Heat only and heating only will be supplied. The cabin temperature will be maintained within 2°F (1.1°C) of set point.

When the heating or cooling is satisfied, the compressor cycles off and the fan returns to low speed. The fan speed will remain constant if Manual Fan Speed has been selected.

1.05 Reversing Valve Operation

The reversing valve is toggled to the opposite mode when heating or cooling is required to reduce the compressor starting surge. The valve will only toggle to the opposite mode when a cooling or heating cycle is called for and if the system has been off for less than 75 seconds. The valve will also toggle if a cycle is interrupted from the display panel by pressing the Power Button, or changing the set point. Unnecessary valve toggling has been limited to reduce reversing valve noise. Valve toggling can be totally eliminated by programming the minimum compressor staging delay at 75 seconds or greater (program P-4).

Power On Reset, which occurs when the system is powered up, will always initiate a valve toggle.

2.0 Passport I/O Controls • Basic Operation

2.01 Operator Controls and Display Panel

Refer to figure 1 for the buttons locations and display functions listed on the following pages.

- 1. POWER BUTTON** Press and release to toggle between the On and Off Modes.
- 2. FAN BUTTON** Press to advance through the available fan settings. One through six indicates Manual Fan Speeds. One is the lowest fan speed and six is the highest speed. The letter A indicates automatic fan operation selected.
- 3. FAN LED INDICATOR** The Fan Indicator LED is on when a Manual Fan Speed is selected.
- 4. DOWN BUTTON** Press and release to display the set point. Press and hold the Down Button to decrease the set point. Set point is decreased one degree each time the button is depressed.
- 5. UP BUTTON** Momentarily press and the set point will appear in the display. Press and release the Up Button to increase the set point one degree.
- 6. HEAT MODE LED** The Heat Mode LED is lit when the Heat Only Mode is selected or the unit is in a heating cycle.

7. THREE DIGIT 7 SEGMENT DISPLAY The inside air temperature is displayed when the control on. The set point is displayed when either Up or Down Button is pressed. The display also indicates program information and fault codes.

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

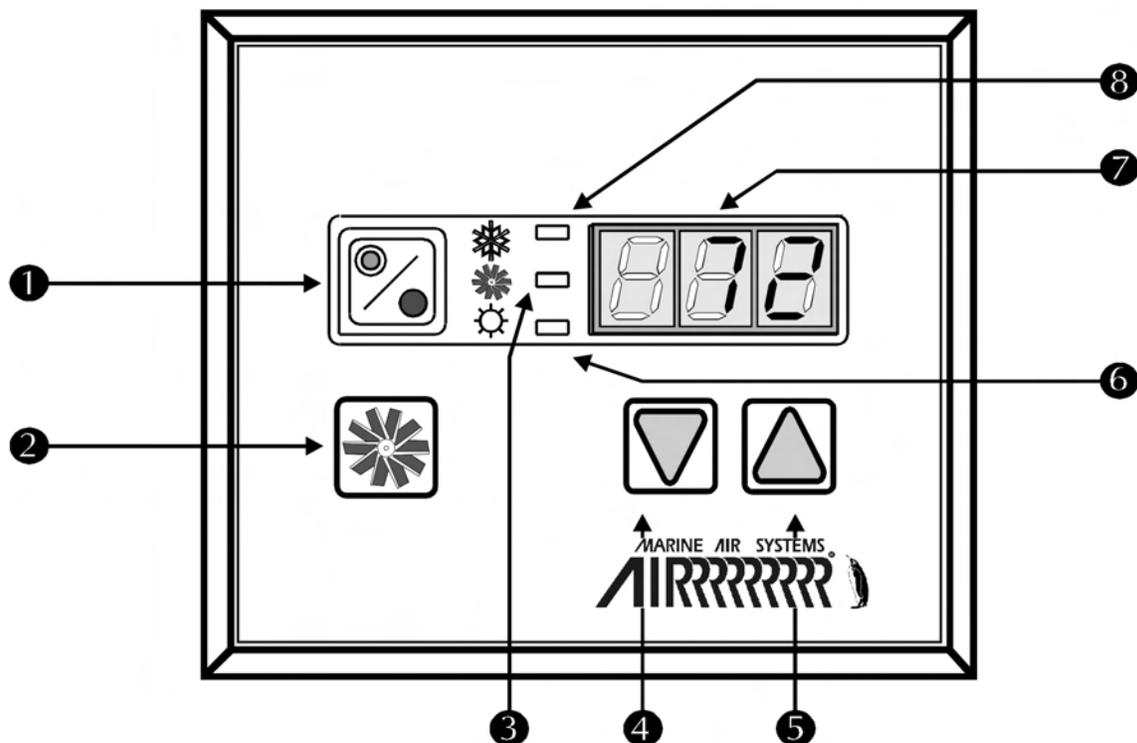
8. COOL MODE LED The Cool Mode LED is lit when Cool Mode is selected or when the unit is in a cooling cycle.

2.02 Dual Button Functions

Up & Down Buttons... Simultaneously press the Up and Down Buttons while in the On Mode to display outside air temperature providing the optional outside air temperature sensor is installed.

Up & Down Buttons... Simultaneously press the Up and Down Buttons while in the Program Mode to set new program defaults.

Power & Down Buttons... Simultaneously press the Power and Down Buttons while viewing the service fault history log to clear the fault history log.



Power & Down Buttons... Simultaneously press the Power and Down Buttons while in the On Mode to enter the Moisture Mode.

2.03 Special Button Functions

Special button functions are implemented by pressing and holding a particular button while the controls' AC power is turned on.

1. Service History Log... View the service history log by pressing and holding the Fan Button while turning on the AC power. Exit the service history log by pressing the Power Button once. See the Service History Log section.

2. Self Test Mode... Press and hold the Power Button while AC power is applied to enter the Self Test Mode. The self test is used to diagnose problems and test the air conditioning system. For complete details see the Automated Factory Self Test Program section.

3. View Hour Meter... To view the compressor hour meter, press and hold the Down Button while applying AC power. Maximum recorded time is 65,536 hours. The hour meter functions are described fully in the Service Tools section.

2.04 Modes of Operation

Off Mode

When the Passport I/O is in the Off Mode, all control outputs are turned off. Program parameters and user settings are saved in nonvolatile memory. The Program Mode can only be accessed from the Off Mode.

On Mode

When the control is in the On Mode power is supplied to the appropriate outputs and the display indicates the current state of operation. The operating and program parameters resume based on those stored the last time the unit was operating.

Cooling Mode

When Cool Mode is selected the cooling systems are operated as required. When the temperature drops below the set point, the system will not automatically switch to the Heat Mode.

Heat Mode

When the Heat LED is on, only the heating systems are selected and operated as required. Should the temperature rise above the set point, the system will not automatically switch to the Cool Mode.

Automatic Mode

Automatic Mode provides both heating and cooling as required. The Heat or Cool LED will be lit according to the mode required. Temperature in a given mode is maintained within 2°F (1.1°C) of set point, however a 4°F (2.2°C) difference is required to allow the control to change modes. Once the mode changes temperature will be maintained within 2°F (1.1°C) of set point.

Manual Fan Mode

Press and hold the Fan Button during normal operation to select one of the six manual fan speeds available. The fastest fan speed is represented by "6", the slowest represented by "1". Manual Fan Mode allows the user to select the desired fan speed manually. When a manual fan speed has been selected, the fan LED will be lit. Manual Fan Mode is sometimes preferred when room temperature is constantly changing due to varying heat loads.

Circulation Mode

When the system is off at the display panel the fan can be used to only circulate the air. Press and hold the Fan Button when the display is off until the desired speed number appears in the window. Release the Fan Button and the fan will run at the selected speed circulating the air without heating or cooling. Press the Power Button once to cancel the Circulation Mode and enter the On Mode.

Moisture Mode

While in the On Mode simultaneously press the Power and Down Buttons. The first cycle will start in one minute. Every four hours, the fan is started and air circulated for thirty 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 2°F (1.1°C). The compressor is allowed a maximum of one hour running time to reach the desired temperature. Four hours after the temperature is satisfied or the compressor times out, the cycle is repeated. The "HU1" mnemonic code is displayed while in the Moisture Mode.

Press the Power Button to end the Moisture Mode.

2.05 Program Mode

The Program Mode is used to adjust the systems operating parameters to suit the particular needs of individual users. The Program Mode is also used to tailor the air conditioning system for the most efficient operation within an installation. Variables such as, ducting, sensor location and system layout affect the system operation. Passport I/O is shipped with factory default settings which are stored in permanent memory and can be recalled at any time.

2.06 Entering Program Mode

The program mode can only be entered from the Off Mode. Press and hold the Power Button while in the Off Mode until the letter “P” appears in the display. The characters “P 1” followed by the parameter setting, appear in the display. The Passport I/O control is now in the Program Mode.

NOTE: The control will exit the Program Mode and return to the Off Mode if no programming is attempted for one minute.

2.07 Restore Memorized Default Settings

IMPORTANT ! The memorized default settings can be restored by entering the Program Mode and setting P-17 to “rSt”. Exit the Program Mode and the software version number (“A12”) appears in the display. The memorized default settings are restored and the Passport I/O control returns to the Off Mode.

2.08 Using the Program Mode

Increment from one program parameter to the next by pressing the Fan Button while in the Program Mode. Press and release the Fan Button to advance to the desired parameter. The programmable parameters range from P-1 through P-17.

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.

Saving New Program Parameters

Simultaneously press the Up and Down Buttons while in the Program Mode to save the new program parameters. This will also set the new program defaults. Factory defaults shown in the table may be reset manually.

Exiting the Program Mode

There are two methods to exit the Program Mode. Press the Power Button and the control will return to the Off Mode. Not pressing any buttons or attempting any program changes for one minute will exit the Program Mode.

Software Identification

The software version of the control is identified for one second prior to the exit from the Program Mode. The software identification number, i.e. (“A12”) will appear in the display for one second, then the control will return to the Off Mode.

NOTE:

Should there be any reason to contact Dometic Corporation about the system or programming Passport I/O be sure to have the software identification number and air conditioning unit serial number available. The serial number may be found on the dataplate label.

2.09 Programming

Programmable Parameters

There are 15 programmable parameters with their factory default settings listed in this section. The following table indicates what these parameters are, along with the permitted values and the original factory default settings.

Should any programming problems or confusion occur, reset the Memorized Default Settings by entering the program mode and setting P-17 to “rSt”.

P-1: Operating Mode

The following operating modes can be selected: Automatic Mode by programming “0”, Cool Mode by selecting “1” and Heat Mode by selecting “2”.

P-2: High Fan Limit

The upper fan speed limit can be adjusted for various motors. The high fan limit is adjusted with the system installed and operating. The values range from 65 through 95 arbitrary units. Set a higher number for a higher fan speed. Set lower number to lower the fan speed. Use the Up and Down Buttons to select the desired speed.

P-3: Low Fan Limit

The low fan limit determines the lowest output allowed for the low fan speed. The values from 30 through 64, arbitrary units. Use the Up and Down Buttons to select the low fan limit. Set a higher number, for higher fan speed. Setting lower numbers lowers the fan speed.

IMPORTANT ! Once the high and low fan speed limits are set, the unit will automatically readjust the remaining speeds to produce three equally spaced fan speeds in both Automatic and Manual Fan Modes.

P-4: Compressor Staging Time Delay

The compressor staging delay is provided for installations where more than one system operates from the same power source. Setting different staging delays allows compressors to start at different times when power is interrupted. Units should be staged five seconds apart. The minimum delay is five seconds and the maximum is 135 seconds. (See the Reversing Valve Operation section for programming tips.)

Programmable Parameters Table

Program Number	Description	Default	Range
P-1	Operating Mode	0	0 = Auto 2 = Heat Only 1 = Cool Only
P-2	High Fan Speed Limit (arbitrary units)	95	65 - 95
P-3	Low Fan Speed Limit (arbitrary units)	55	30 - 64
P-4	Compressor Staging Time Delay	15	5 - 135 seconds
P-5	Temperature Sensor Calibration	Ambient Temp	Ambient \pm 10° F
P-6	FAILSAFE	3	0 = Min. Protection 1 = Continuous No Display 2 = Continuous W / Display 3 = 4 Failures Reset Required
P-7	Reserved For Future Option		
P-8	De-Icing Cycle	Off	Off 1 to 3 Minutes
P-9	Reserved		
P-10	Display Brightness Control	9	4 = Low 13 = Maximum
P-11	Display ° Fahrenheit or ° Celsius	°F	°F = Fahrenheit Displayed °C = Celsius Displayed
P-12	Cycle Pump With Compressor or Continuous Pump	OFF	OFF = Cycle with Compressor On = Continuous Pump
P-13	Reverse Fan Speeds During Heating Mode	rEF	nor = Normal Fan Operation rEF = Reversed Fan In Heating
P-14	Continuous Fan or Cycle Fan with Compressor	con	CYC = Cycle Fan With Comp. con = Continuous Fan Operation
P-15	Reverse Cycle Heating or Electric Heat	nor	nor = Reverse Cycle Heating ELE = Electric Heater Installed
P-16	Fan motor type selection... Shaded pole or split capacitor.	SP	SP = Shaded Pole Fan Motor SC = Split Cap. Fan Motor
P-17	Reset Memorized Programming Defaults	nor	rSt = Reset Defaults nor = Normal

P-5: Temperature Calibration

Use this feature to calibrate the ambient sensor. Select P-5 and the ambient temperature appears in the display. Use the Up and Down Buttons to set the correct reading. The temperature in the display will increase or decrease as required.

P-6: Fail Safe Level

There are four fail safe levels. See Section 2.10.

P-7: Reserved for Future Option

P-8: De-Icing Cycle

The De-icing Cycle prevents ice build up on the evaporator coil.

De-icing is accomplished by switching the reversing valve into the Heat Mode while the system is cooling. The valve will remain energized for the programmed cycle time. The cycle range is "Off", or a period of one, two or three minutes. On units equipped with electric heat, de-icing is accomplished by turning off the compressor.

P-9: Reserved for Future Option

P-10: Display Brightness Control

The display brightness can be adjusted from 4 to 13, with 4 being the dimmest and 13 the brightest.

P-11: Fahrenheit or Celsius Selection

The default setting is °F. Select °C for Celsius. (Celsius readings are displayed in tenths, example 22.2°).

P-12: Cycle Pump With Compressor

The pump can also be programmed to operate continuously or cycle on demand. To program continuous operation select "On".

P-13: Reverse Automatic Fan Speeds During Heating

The automatic fan speeds can be reversed during Heating Mode. The fan will speed up as the set point is approached. Lowering the fan speed when the cabin is cold increases head pressure and helps raise supply temperature. The fan switches to low speed when the set point is satisfied and the compressor cycles off. Normal fan operation is represented by "nor". To reverse fan speeds in heating, select "rEF".

P-14: 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. To cycle the fan with the compressor select "CYC". The default is "con", continuous fan.

Important

When used with optional electric heat the fan will remain on four minutes after the heater cycles off.

P-15: Reverse Cycle or Electric Heat

Units not equipped with reverse cycle heat may have an electric heater added. Program parameter to "ELE" for the electric heat option.

NOTE: For Passport I/O software revision A12 and older, when this parameter is programmed for electric heat, only the electric heat relay located towards the middle of the Passport I/O circuit board is energized during a heating cycle (see Sample Wiring Diagram at the back of this manual). For Passport I/O software revision A13 and newer, when programmed for electric heat, both the electric heater relay and the valve relay are energized. This change was made to support the future elimination of the electric heater relay. Therefore, Passport I/O circuit boards that do not have electric heater relays will require a Passport I/O display with software revision A13 or newer to properly energize the valve relay. Also, since the valve relay output can only

support a maximum of 10 amps of resistive load, when installing an optional electric heater that exceeds this load, it will be necessary to also install an additional contactor that is rated to handle the full load of the electric heater. Please consult with Dometic Customer Service or with an authorized service technician for assistance.

P-16: Fan Motor Selection

IMPORTANT NOTE TO END USER:

Standard units have a Shaded Pole (SP) fan motor; the factory default parameter "SP" is correct for standard units. However, 24,000 BTU/Hr (24K) models and units with High Velocity (HV) blowers have Split Capacitor (SC) fan motors. **This program must be changed if you have a 24K or an HV unit.** A 24K unit is identifiable by the "24" in the model number (i.e., VCD24K). A High Velocity unit does not have a blower motor overhang, the motor is inside the blower, and there is an "HV" in the model number. **If your air conditioner is one of these two models then you must change parameter P-16 to "SC" prior to operating the equipment.** Save this change as a new default by simultaneously pressing and releasing the Up and Down Buttons prior to exiting the program mode. Make note of new default in the Programmable Parameters table.

P-17: Reset Memorized Defaults

The default programming parameters can be reset by entering the program mode and selecting "rSt". This restores the programmable parameters to the default values. The default parameters listed in the Programming Parameters Table may be altered by the installing dealer or end user. Once new defaults are entered and memorized the factory defaults will be overwritten. The original factory program parameters as listed in the table may be restored manually.

2.10 Failsafe and Fault Handling Codes

When a fault is detected Passport I/O will display one of the following Mnemonic fault codes:

"HPF"... indicates high Freon pressure.

"LPF"... Indicates low Freon pressure.

"ASF"... Indicates failed air sensor.

NOTE:

- "HPF" is not indicated and does not cause lockout in Heat Mode.
- "LPF" has a ten minute shut down delay.

Failsafe Level 0

Only “ASF” detected and displayed. The control will shut down and will not restart until the fault is repaired. Once the fault is repaired the control will restart.

Failsafe Level 1

All actions in level 0 plus all other faults detected but not indicated. The system shuts down for 2 minutes or until the fault is cleared whatever is longer. The system will restart if the fault is cleared.

Failsafe Level 2

All actions same as level 0 and 1. Faults are indicated. The system shuts down for 2 minutes or until the fault is cleared whatever is longer.

Failsafe Level 3

All actions the same as level 0, 1 and 2. The system shuts down for two minutes or until the fault is cleared, whatever is longer. The system will lockout after four consecutive “HPF” or “LPP” faults. Pressing the Power Button once to Off Mode, and pressing again to On Mode, clears the lockout.

2.11 Quick Start Operations Checklist

- Ensure seawater intake ball valve (sea cock) is open.
- Turn on the air conditioner circuit breaker. If the seawater pump has its own circuit breaker, turn that on.
- Turn the system on.
- Set the desired cabin temperature (set point).
- Check for a steady solid stream of water from the overboard discharge.
- Verify that there is steady airflow out of the supply air grille.
- If the unit does not appear to be operating properly, refer to troubleshooting guidelines.

Note: Do not turn the unit off and immediately turn it back on. Allow at least 30 seconds for refrigerant pressure equalization.

3.0 Passport I/O Controls • Troubleshooting

3.01 General Troubleshooting

Also see specific digital or mechanical control troubleshooting sections following these general guidelines.

Fault: Will not start.

Possible Reason/Correction

- 1. Air conditioning unit circuit breaker is off.**
Turn circuit breaker on at ship's panel.
- 2. Control is not turned on.**
See section 2.0 in this manual.
- 3. Wrong wiring at terminal strip.**
Check wiring diagram and correct if necessary.
- 4. Push-on butt connectors became disconnected during installation.**
Disconnect power supply and open electric box, check wiring diagram, correct if necessary
- 5. Input line voltage is insufficient.**
Check power source (shore/generator) for proper voltage. Check wiring and terminals for proper sizes and connections. Verify with a volt-meter that the power at the unit is the same as the power source.

Fault: Fan is not running.

Check specific control troubleshooting section

Fault: No cooling or heating.

Possible Reason/Correction

- 1. Temperature set point is satisfied.**
Lower or raise set point.
- 2. Obstructed seawater flow.**
Clean seawater strainer. Check for obstructions at speed scoop thru-hull inlet. Check for a good steady flow from the overboard discharge.
- 3. Seawater pump may be air-locked.**
Remove hose from pump discharge to purge air from line.
- 4. Loss refrigerant gas.**
Check air conditioning unit for refrigerant oil leakage, call service technician.

- 5. Seawater temperature too high for cooling or too low for heating.**

Seawater temperature will directly affect air conditioning unit's efficiency. This air conditioning unit can effectively cool your boat in water temperature up to 90°F (32.2°C) and heat (if reverse cycle option is installed) in water temperatures as low as 40°F (4.4°C).

- 6. Fan coil is iced (in cooling).**
Check your specific control troubleshooting section.
- 7. Fan is not running.**
Check your specific control troubleshooting section.
- 8. Seawater plumbing is air-locked.**
Ensure that seawater plumbing is installed per the guidelines in this manual.
- 9. Digital control is programmed for Cool or Heat only, or mechanical control thermostat is rotated to far towards either Cooler or Warmer setting.**
See digital control manual for reprogramming or see mechanical control operation section in this manual.
- 10. High pressure switch open (in cooling) due to improper seawater flow.**
Strainer or intake may be plugged, sea cock may be closed, check seawater hose for kinks or collapses. Verify pump operation. Check pump circuit breaker if applicable.
- 11. High pressure switch open (in heating) due to improper airflow.**
Remove any obstructions in return air stream. Clean return air filter and grille. Check for crushed or restricted ducting, ducting must be as straight, smooth and taut as possible.
- 12. High-pressure switch is open in heating mode.**
System may cycle on high-pressure if seawater temperature is above 55°F (12.8°C).
- 13. Compressor's thermal overload is open due to either of the above reasons.**
Compressor needs to cool down. Turn system off for a while (it may take up to three hours to reset thermal overload).

Fault: No heating.

Possible Reason/Correction

1. **Unit is “cool only”, or if reverse cycle, reversing valve may be stuck.**
Tap reversing valve lightly with rubber mallet while unit is in heat mode. Call for service if that does not correct the problem.

Fault: Low airflow.

Possible Reason/Correction

1. **Airflow is blocked.**
Remove any obstructions in return air stream. Clean return air filter and grille. Check for crushed or restricted ducting, ducting must be as straight, smooth and taut as possible.
2. **Fan Coil is iced.**
See below.

Fault: Fan coil is iced.

Possible Reason/Correction

1. **Thermostat set point is too low.**
Raise set point.
2. **Improper airflow.**
Remove any obstructions in return air stream. Clean return air filter and grille. Check for crushed or restricted ducting, must be as straight, smooth and taut as possible. See the Digital Controls Troubleshooting section below for reprogramming options.
3. **Supply air is short-cycling.**
Redirect supply air so that is not blowing into the return air stream. Seal any air leaks on duct.
4. **Humidity level too high.**
Close hatches and doors.
5. **When all else fails.**
Switch air conditioning unit to heat until ice melts or use hair dryer to melt.

Fault: Water coil is iced in the Heating Mode.

1. **Seawater temperature is below 40°F (4.4°C).**
Shut down system to prevent damage to condenser. Allow coil to defrost.

Fault: System runs continuously.

Possible Reason/Correction

1. **Set point temperature is improperly set: too low for cooling or too high for heating.**
Raise or lower set point.
2. **Porthole or hatches open.**
Close all port holes and hatches.
3. **Seawater temperature too high for cooling or to low for heating.**
Seawater temperature will directly affect the air conditioning unit's efficiency. This air conditioning unit can effectively cool your boat in water temperatures up to 90°F (32.2°C) and heat (if reverse cycle option is installed) in water as low as 40°F (4.4°C).
4. **Improper air sensor location.**
Check your specific control troubleshooting section.

3.02 Digital Controls Troubleshooting

Fault: Digital display panel is not lit.

Possible Reason/Correction

1. **8-pin display cable plugs are not making contact (unplugged, dirty, bent, or broken pins).**
With POWER OFF at the circuit breaker, remove connector and inspect. If damaged, replace connector or entire display cable.

Fault: Fan is not running or runs continuously.

Possible Reason/Correction

1. **Digital control is programmed for either fan cycling with compressor or continuous fan operation.**
Elite Control: Press and hold the fan button for five seconds to change to “con” so fan will stay on continuously or to “CYC” so the fan cycles with the compressor.
Passport I/O Control: Reprogram parameter P-14.
Note: After the compressor cycles off, the fan will continue to run for two minutes in Cool Mode and four minutes in Heat Mode regardless of parameter setting.

Fault: Fan is not running but the compressor is.

Possible Reason/Correction

1. **Failed triac on Passport I/O circuit board.**
Send for repair or call local service technician.

Fault: Fan runs continuously although it is set to cycle with compressor.

Possible Reason/Correction

1. **Failed triac on Passport I/O circuit board.**
Send for repair or call local service technician.

Fault: No cooling or heating.

Possible Reason/Correction

1. **Digital control programmed for heat or cool only.**
Reprogram parameter P-1.
2. **“HPF” or “LPF” is displayed.**
See below.

Fault: No heat.

Possible Reason/Correction

1. **Digital Control may be set to Electric Heat, not Reverse Cycle.**
Reprogram parameter P-15.

Fault: Unit switches to heat while in Cool Mode.

Possible Reason/Correction

1. **De-icing feature enabled due to coil icing up.**
Reprogram parameter P-8

Fault: Fan coil is iced.

Possible Reason/Correction

1. **Improper airflow.**
See the General Troubleshooting section above first, before reprogramming digital control.

Reprogram parameter P-8 to enable de-icing. If de-icing cycle does not melt ice, switch air conditioning unit to heat until ice melts or use hair dryer to melt ice.

If problem persists, reprogram Low Fan Speed Limit for maximum value. Set P-3 to 64.

Fault: System runs continuously.

Possible Reason/Correction

1. **Improper air sensor location.**
Verify display head location with criteria found in the control manual. Install alternate air sensor if necessary.

Fault: “HPF” is displayed.

Possible Reason/Correction

1. **High-pressure switch is open (in cooling) due to improper seawater flow.**
Strainer or intake may be plugged, sea cock may be closed, check seawater hose for kinks or collapses. Verify pump operation; check pump circuit breaker if applicable.
2. **High-pressure switch open (in heating) due to improper airflow.**
Remove obstructions in return air stream. Clean air filter and grille. Check for crushed or restricted ducting, ducting must be as straight, smooth and taut as possible.

If problem persists, reprogram Low Fan Speed Limit for maximum value. Set P-3 to 64, and set the reverse fan speeds during Heating Mode parameter P-13 to “rEF”, or manually set fan speed to high.

Fault: “LPF” is displayed.

Possible Reason/Correction

1. **Low-pressure switch is open due to low seawater and/or low return air temperatures.**
Try restarting the air conditioning unit, the optional low pressure switch has a ten minute shutdown time delay that may be in affect.
2. **Low pressure switch is open due to loss of refrigerant.**
Check air conditioning unit for refrigerant oil leakage, call service technician.

Fault: “ASF” is displayed.

Possible Reason/Correction

1. Indicates failed face plate air sensor, alternate air sensor or display cable.

Unplug alternate air sensor if installed or plug in alternate air sensor if not installed. Try another display cable.

2. Damaged jack/socket in display head or on circuit board.

Visually check to see that pins inside socket are not bent or corroded. Repair or replace display or circuit board if needed.

4.0 Passport I/O Controls • Maintenance

Reversing Valves

Reverse cycle units have a reversing valve; the valve must be energized periodically to keep the internal parts moving freely. To do this, switch the air conditioner unit into heat for a few seconds once a month.

Seawater Strainer

Insure that your pump receives adequate seawater flow by regularly cleaning the strainer basket. Periodically check the overboard discharge for a steady stream of water. Check seawater intake speed scoop for obstructions. Make sure hoses are not looped, kinked or crushed.

Condenser Coil Cleaning

1. With the system turned off at the circuit breaker on the ship's panel, disconnect the inlet and outlet connections of the condenser coil.
2. Use chemical resistant hoses (MAS white PVC 5/8" I.D., etc.) to connect the inlet of the condenser coil to the outlet of a chemical resistant, submersible pump (MAS P-500 pump, etc.) and let the hose connected to the coil outlet flow freely into the container mentioned below.
3. Place a strainer or piece of screen over the inlet of the pump and submerge the pump into a container filled with a 5% solution of muriatic or hydrochloric acid and fresh water or use a premixed over-the-counter solution. Use a large container as possible to hold the solution (5-25 gallons).

CAUTION: Avoid spilling or splashing the solution. Follow all warnings and recommendations given by the manufacturer of any acids or premixed solutions.

4. Power the pump and circulate the solution through the condenser coil for 15-45 minutes depending upon the size of the coils and the extent of the contamination. Visual inspection of the solution in the container should indicate when the contamination removal has stopped.
5. Circulate fresh water through the coil to flush any residual acid from the system.
6. Restart the system and check operational parameters to ensure thorough cleaning has taken place. Additional cleaning may be necessary with extreme contamination.

WARNING: For the purpose of protecting the environment, dispose of any contaminated acid solutions in accordance with federal, state and/or local regulations.

Return Air Filters

Check the return air filter about once a month and clean as necessary. To clean the filter, remove it from the unit, rinse with water, air dry and reinstall.

Winterization

There are several methods of winterization, some of which work better than others. The four various methods employed using a 50/50 nonpolluting biodegradable antifreeze/water solution are:

1. Pumping of antifreeze solution into the overboard thru-hull fitting, and discharging through the intake thru-hull fitting.
2. Use of the seawater pump to pump antifreeze solution through the system and discharging through the overboard thru-hull fitting. Close sea cock, remove hose from strainer discharge, raise hose above pump (so pump does not lose its prime) and pour in antifreeze solution. Pump solution through system. The strainer and hose to sea cock will also need to be drained of water.
3. Use of pressurized air injected at the overboard discharge fitting and the water being discharged through the seawater intake fitting.
4. Use of pressurized air to force water from the intake through the overboard discharge.

Any method that causes the antifreeze solution to flow downward is the method of choice. By this means, the antifreeze solution will displace any water trapped and eliminate the possibility of freezing in hidden areas. In addition, since the seawater pump utilizes a magnetically driven impeller, the impeller should be removed from the wet end assembly, wiped with an alcohol solution, and stored in a warm, dry area until commissioning takes place.

Note: Collect all discharged liquids and recycle or dispose of in a proper manner.

5.0 Passport I/O Controls • Manufacturers Limited Warranty Agreement

The following warranty is extended to cover marine air conditioners manufactured or supplied by Dometic Environmental Corporation, and is subject to qualifications indicated. Dometic warrants for the periods set forth below that products manufactured or supplied by it will be free from defects in workmanship and material, provided such products are installed, operated, and maintained in accordance with Dometic's written instruction.

ALL IMPLIED WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE TERMS AND PERIODS OF WARRANTY SET FORTH BELOW AND, TO THE EXTENT PERMITTED BY LAW, ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED.

Warranty with the Elite or Passport I/O digital controls (Coverage applies to units manufactured on or after 03/01/03 and applies only to units equipped with Elite or Passport I/O digital controls at the Dometic factory.): Components comprising of the Passport I/O circuit boards, Elite or Passport I/O digital displays, and associated cables are warranted for a period of three (3) years from the date of installation, but not to exceed four (4) years from the date of manufacture at the Dometic factory. All other components comprising a complete system (excluding pumps and pump relay panels) on a new installation are warranted for a period of two (2) years from the date of installation, but not to exceed three (3) years from the date of manufacture at the Dometic factory. Pumps and pump relay panels are warranted for a period of one (1) year from the date of installation, but not to exceed two (2) years from the date of purchase. OEM installed equipment warranties begin with the purchase of the vessel, not from the date of installation.

Warranty with MCP (Mechanical Control Panel) control: Components comprising a complete system on a new installation are warranted for a period of one (1) year from the date of installation, but not to exceed two (2) years from the date of manufacture at the Dometic factory. OEM installed equipment warranties begin with the purchase of the vessel, not from the date of installation.

In addition, Dometic will pay labor costs and travel as outlined in its **Schedule of Limited Warranty Allowances** for removal and reinstallation of such components for a period of one (1) year from the date of installation, but not to exceed two (2) years from the date of manufacture at the Dometic factory. OEM installed equipment warranties begin with the purchase of the vessel, not from the date of installation. Warranty will be paid in accordance with our established schedule of allowances. Compensation for warranty repairs is only made to Dometic authorized service companies.

Dometic will repair, or replace at its option, components found to be defective due to faulty materials or workmanship, when such components, examined by an authorized service dealer or a factory service representative, are found to have a defect for which the company is responsible. **Refer to Manufacturer's Limited Warranty Policy** for complete coverage and exclusions. Replacement components are warranted for the duration of the remaining warranty period in effect on the original component. In the event that a unit has to be returned to the factory, it must be properly packaged to prevent shipping damages. If packaging is not available, Dometic will provide it at no charge. The warranty may be voided on any piece of equipment or component that is damaged due to improper packaging.

This limited warranty is extended in lieu of all other warranties, agreements or obligations, expressed or implied, concerning Dometic's components. This warranty is extended only to the original purchaser and is not transferable. This warranty shall be governed by the laws of the State of Florida and gives the original first end user definite legal rights.

This warranty does not cover damages incidental and/or consequential to the failure of Dometic's equipment including but not limited to; normal wear, accident, misuse, abuse, negligence, improper installation, lack of reasonable and necessary maintenance, alteration, civil disturbance or acts of God.

No person or dealer is authorized to extend any other warranties or to assume any other liabilities on Dometic's behalf, unless made or assumed in writing by an officer of Dometic.

6.0 Passport I/O Controls • Specifications

Set Point Operating Range	65°F to 85°F (18.3°C to 29.4°C)
Ambient Temperature Operating Range Displayed	5°F to 150°F (-15°C to 65.6°C)
Sensor Accuracy	± 2°F @ 77°F (±1.1°C @ 25°C)
Low Voltage Limit 115 Volt Units	75 VAC
Low Voltage Limit 220 Volt Units	175 VAC
Low Voltage Processor Reset	50 VAC
Line Voltage	115 Through 240 VAC
Frequency	50 or 60 Hz
Fan Output	6 Amps @ 115 VAC
Fan Output	6 Amps @ 230 VAC
Valve Output	1/4 Amp @ 115/230 VAC
Heater Output	30 Amps @ 115 VAC
Heater Output	20 Amps @ 230 VAC
Pump Output	1/4 HP @ 115 VAC
Pump Output	1/2 HP @ 230 VAC
Compressor Output	1 HP @ 115 VAC
Compressor Output	2 HP @ 230 VAC
Minimum Operating Temperature	0°F (-17.8°C)
Maximum Ambient Operating Temperature	180°F (82.2°C)
Maximum Rh Conditions	99% Non Condensing
Power Consumption	Less Than 5 Watts

Dimensions

Display Panel	4.50" (114mm) X 3.86" (98mm)
Panel Cut Out	3.375" (86mm) X 2.875" (73mm)

Cable Lengths

Display Cable Self Contained	15' (4.6m) Standard
Display Cable Central System	30' (9.1m) Standard
Alternate Air Sensor	7' (2.1m) Standard
Alternate Air Sensor Central System	30' (9.1m) Standard
Outside Air Sensor	15' (4.6m) Standard
All custom cable lengths supplied in standard 5' (1.5m) increments	75' (22.9m) Maximum

NOTES: Maximum length of display and sensor cables is 75 feet (22.9m). The **outside air sensor** and **alternate air sensors** are optional items and are **not** included with the standard control package.

System Inputs

Ambient or Inside Air Temperature	1
High Freon Pressure	1
Low Freon Pressure	1
Alternate Inside Air Temperature Sensor (Optional)	1
Outside Air Temperature Sensor (Optional)	1

Automated Factory Self Test Program

The Passport I/O software contains a self test program to facilitate factory testing of the entire air conditioning system. Once the self test program is activated, the test cycle will continue until the AC power is interrupted or the Power Button is pressed once which returns the system to the Off Mode.

Activate the self test program by pressing the Power Button while turning on the AC power. Release the Power Button while the display indicates "888" and all LEDs are lit. Passport I/O is now in the self test program.

"tSt" appears in the display while in the self test program.

Once activated the self test software will continuously execute the following procedure:

1. Turn on in the Heat Mode and supply heating for ten minutes.
2. Stop heating and run the fan only for five minutes.
3. Switch to Cool Mode and continue cooling for ten minutes.
4. Stop cooling and run the fan only for five minutes.
5. Return to step one and continue until interrupted.

The self test program will continue until the power is interrupted or the test is halted by pressing the Power Button once.

Service Tools

Hour Meter

Total compressor cycle time is saved in EEPROM every six minutes of continuous compressor running time. Cycles less than six minutes are discarded to conserve memory and allow the most flexible hour-meter possible.

To view the hour meter turn off the AC power and press the Down Button. While holding the Down Button, restore AC power. After Power-On Reset is complete, the following appears in the display:

1. "Hr" is displayed for one second.
2. The display blanks out for one second then displays the thousands of hours for three seconds.
3. The display blanks out for one second then displays the hundreds units for three seconds.
4. The unit returns to the last operating state before power was removed.

Maximum recorded time is 65,536 hours, the meter stops and can only be reset by a service technician.

Service History Log

Passport I/O records and remembers the eight most recent faults. Each time a fault is detected, a one hour timer is started. Three consecutive faults within that hour cause system shut down, lock out and display the fault code. During that hour, to conserve memory, the same recurring fault is not recorded in the service history log. Continuous operation for one hour without the same recurring fault clears that fault counter but the event remains in the service history log until over written. Should a different fault be detected during the hour, it will be entered into the service history log.

The following events are entered into the service history log:

- High Freon Pressure
- Low Freon Pressure
- Air Sensor Fault

To view the service history log turn off the AC power and press the Fan Button. With the Fan Button pressed turn on the AC power. Once Power On Reset is completed (display indicates "888" and all LEDs are lit) release the Fan Button.

The display will flash the most recent fault detected, followed by the event chronology number. To view other events detected press either the Up or Down Buttons.

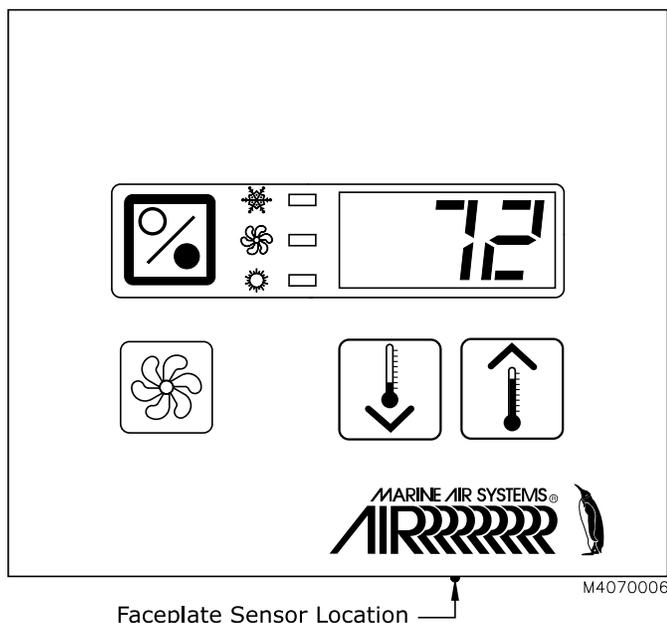
The service history log can be cleared by simultaneously pressing the Power and Down buttons.

Exit the service history log by pressing either the Power or Select Buttons or wait thirty seconds without pressing any button.

Display Panel Installation

Before mounting the Passport I/O or AH-Passport I/O digital display panel touch pad, consider the location. The air sensor built into the display panel will provide excellent room air temperature sensing given a proper installation. The display panel should be mounted on an inside wall, slightly higher than mid-height of the cabin, in a location with freely circulating air where it can best sense average temperature. The cut out size for the display panel is 3.375" (86mm) wide by 2.875" (73mm) high. Do not mount the display in direct sunlight, near any heat producing appliances or in a bulkhead where temperatures radiating from behind the panel may affect performance. **Do not mount the display in the supply air stream.** Do not mount the display above or below a supply or return air grille. Do not mount the display behind a door, in a corner, under a stairwell or any place where there is no freely circulating air.

Mount the display within display cable length (custom lengths available) of the air conditioner. Plug one end of the display cable (8-pin connector) into the upper right-hand socket on the circuit board in the electric box and the other end into the back of the display panel. Secure the display panel to a bulkhead with the adhesive strips provided. Clean the mounting surface with **isopropyl alcohol only** prior to placement (test alcohol on hidden portion of surface first). If the adhesive strips cannot be used directly on the bulkhead then use the plastic bulkhead adapter. The bulkhead adapter (sold separately) is mounted to the bulkhead with screws and the display panel is secured to the adapter with adhesive strips. Do not use a screw gun and do not over-tighten screws when mounting adapter.

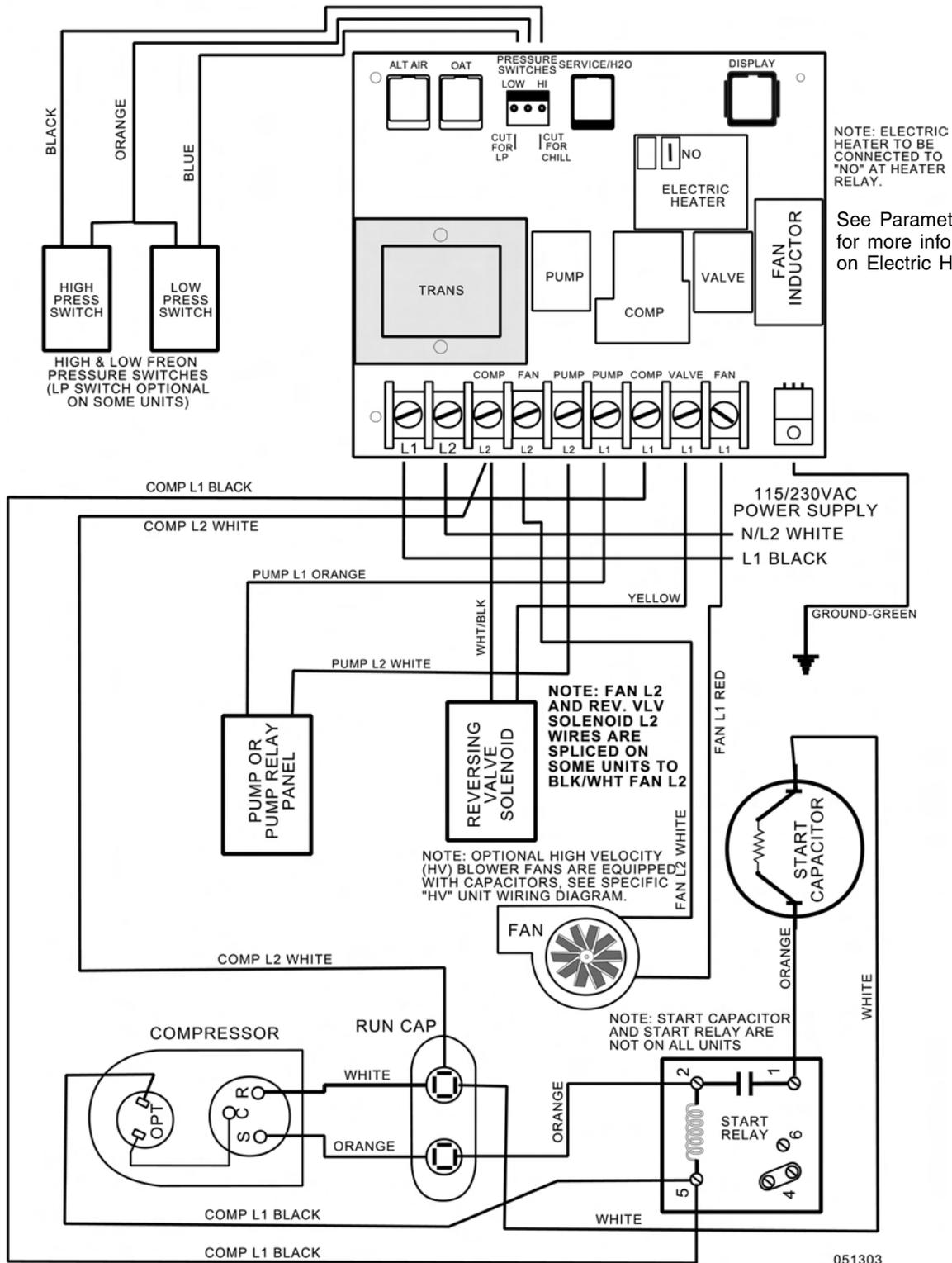


If a proper location for room temperature sensing cannot be found for the display, an optional remote air sensor may be used. Mount the remote air sensor in the return air stream behind the return air grille/ opening and plug its cable (7' / 2.1m standard length with 6-pin connector) into the "ALT AIR" socket #J4 in the upper left-hand corner of the circuit board. Installing the remote air sensor will override the faceplate sensor. An optional outside air temperature sensor and cable may also be used. Plug that cable into the "OAT" socket #J3 (next to #J4). Mount the sensor outside but not in direct sunlight. Air sensor cables are available in various lengths. Do not staple any cables when mounting.

When using the AH-Passport I/O with a chilled water air handler, plug the water inlet sensor cable into the "SERVICE/H2O" socket #J5.

Sample Wiring Diagram

NOTE: THIS IS A SAMPLE DIAGRAM. WIRE COLORS MAY VARY. SEE UNIT SPECIFIC DIAGRAM LOCATED IN ELECTRICAL BOX OR IN AIR CONDITIONING UNIT MANUAL. TURN POWER OFF BEFORE OPENING ELECTRICAL BOX.



Marine Air Worldwide Service Dealer Locator

The majority of the service listings displayed for the United States are key members of the national Marine Air distributor network. If you need service, please contact the closest company shown. In most cases they will direct you to a local dealer or service port. We have over 500 Marine Air dealers in the national Marine Air network, and one should be convenient to you.

The **international** companies listed are, in many cases, distributors and are capable of managing the majority of service requests for the countries listed. In some cases they will refer you to a local dealer.

You may also contact us directly via the web site or call us in the US at (954) 973-2477.

For a complete and up-to-date Dealer locator list, please visit our website at <http://www.marineair.com/locator/index.html>

USA

Alabama

AER Marine Supply

Location: Seabrook, TX, USA
Phone: (281) 474-3276
Fax: (281) 474-2714
E-mail: rsmiller@aersupply.com

Alaska

American Marine Contractors

Location: Seattle, WA, USA
Phone: (206) 660-2240
Fax: (206) 548-5008
E-mail: gene@nwmarineair.com

Arizona

Southern California Marine Enterprises

Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southernmarine.com
Web: www.southernmarine.com

Arkansas

AER Marine Supply

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Web: www.southernmarine.com

Colorado

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Connecticut

Ocean Options

Location: Tiverton, RI, USA
Phone: (401) 624-7334
Fax: (401) 624-8050
E-mail: Sales@oceanoptions.com
Web: www.oceanoptions.com

Delaware

Ocean Options - Mid Atlantic

Location: Annapolis, MD, USA
Phone: (410) 268-9365
Fax: (410) 268-8199
E-mail: Sales@oceanoptions.com
Web: www.oceanoptions.com

Florida (North)

Beard Marine Savannah - Distributor

Location: Savannah, GA, USA
Phone: (912) 356-5222
Fax: (912) 692-1006
E-mail: beardsav@aol.com
Web: www.beardmarine.com

Florida (South)

ARW Maritime - Dealer

Location: Ft. Lauderdale, Florida, USA
Territory: Fort Lauderdale
Phone: (954) 463-0110
Fax: (954) 522-1139
E-mail: arwgroup@earthlink.net

Beard Marine - Ft. Lauderdale - Dealer

Location: Ft. Lauderdale, Florida, USA
Territory: Fort Lauderdale
Phone: (954) 463-2288
Fax: (954) 527-0362
E-mail: info@beardmarine.com
Web: www.beardmarine.com

Beard Marine of the Palm Beaches - Dealer

Location: Riviera Beach, Florida, USA
Territory: Riviera Beach
Phone: (561) 881-9598
Fax: (561) 881-9599
E-mail: bmpb@beardmarine.com

Cable Marine - Dealer

Location: Ft. Lauderdale, Florida, USA
Territory: Fort Lauderdale
Phone: (954) 462-2840
Fax: (954) 523-3686
Web: www.cablemarine.com

Comfort Marine - Dealer

Location: Ft. Lauderdale, FL, USA
Territory: Ft. Lauderdale
Phone: (954) 257-9848
Fax: (954) 689-7332

Cowherd Marine - Dealer

Location: Lake Park, Florida, USA
Territory: West Palm Beach
Phone: (561) 844-1666
Fax: (561) 844-1628

Dometic Corporation-Environmental Systems, Distributor

Location: Pompano Beach, FL, USA
Territory: South Florida
Phone: (954) 973-2477
Fax: (954) 979-4414
E-mail: sales@dometicenviro.com
Web: www.dometicenviro.com

Edd Helms Marine Air Conditioning - Dealer

Location: Miami, Florida, USA
Territory: Ft. Lauderdale, Miami
Phone: 954 522 2520
Fax: 954 522 1331
E-mail: srogers@eddhelms.com

Florida (South)

IYS Marine - Dealer

Location: Pinellas Park, Florida, USA
Territory: Tampa-St Petersburg
Phone: (727) 521-6650
Fax: (727) 520-0844
E-mail: iysmarine2002@aol.com

Jim's Marine A/C - Dealer

Location: Port Charlotte, Florida, USA
Territory: Port Charlotte
Phone: (941) 629-8788

Marine Air Conditioning - Dealer

Location: Ft. Pierce, Florida, USA
Territory: Port St. Lucie
Phone: (772) 464-7896
Fax: (772) 464-8697

Masters Marine Center, Inc. - Dealer

Location: Miami, Florida, USA
Territory: Miami
Phone: (305) 891-1236
Fax: (305) 891-8700

Neptune Air Corporation - Dealer

Location: Ft. Lauderdale, Florida, USA
Territory: Fort Lauderdale
Phone: (954) 792-6550
Fax: (954) 792-6551

Palm Beach Aqua Air - Dealer

Location: West Palm Beach, Florida, USA
Territory: West Palm Beach
Phone: (561) 832-8820
Fax: (561) 659-7918

Sea Air Land Technologies - Dealer

Location: Marathon, Florida, USA
Territory: Florida Keys
Phone: (305) 289-1150
Fax: (305) 359-5272
E-mail: saltmail@salt-systems.com
Web: www.salt-systems.com

Sea Breeze Marine - Dealer

Location: Lighthouse Point, Florida, USA
Territory: Lighthouse Point
Phone: (954) 427-3843
Fax: (561) 368-0463

Tropica Boats & Marine, Inc. - Dealer

Location: Fort Myers, Florida, USA
Territory: Fort Myers
Phone: (239) 694-5259
Fax: (239) 694-5243
E-mail: info@tropica.net
Web: www.tropica.net

Ty Cobb Services, Inc. - Dealer

Location: Sebastian, Florida, USA
Territory: Sebastian
Phone: (772) 388-5966
Fax: (772) 581-0056

Georgia

Beard Marine Savannah - Distributor

Location: Savannah, GA, USA
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Fax: (912) 692-1006
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Web: www.beardmarine.com

Hawaii

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Web: www.southerncalmarine.com

Idaho

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Illinois

Midwest Marine Supply

Location: St. Clair Shores, MI, USA
Phone: (586) 778-8950
Fax: (586) 778-6108

Indiana

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Iowa

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Louisiana

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Web: www.oceanoptions.com

Massachusetts

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Nevada

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Web: www.oceanoptions.com

New Jersey

Marine Specialists

Location: Ronkonkoma, NY, USA
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Phone: (631) 580-0545
Fax: (631) 580-0551
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New Mexico

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New York

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Phone: (631) 580-0545
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Web: www.marinespecialists.com

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Beard Marine Savannah - Distributor

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Web: www.beardmarine.com

North Dakota

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Location: St. Clair Shores, MI, USA
Phone: (586) 778-8950
Fax: (586) 778-6108

Ohio

Midwest Marine Supply

Location: St. Clair Shores, MI, USA
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Fax: (586) 778-6108

Oklahoma

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Fax: (281) 474-2714
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Oregon

American Marine Contractors

Location: Seattle, WA, USA
Phone: (206) 660-2240
Fax: (206) 548-5008
E-mail: gene@nwmarineair.com

Pennsylvania

Ocean Options - Mid Atlantic

Location: Annapolis, MD, USA
Phone: (410) 268-9365
Fax: (410) 268-8199
E-mail: Sales@oceanoptions.com
Web: www.oceanoptions.com

Rhode Island

Ocean Options

Location: Tiverton, RI, USA
Phone: (401) 624-7334
Fax: (401) 624-8050
E-mail: Sales@oceanoptions.com
Web: www.oceanoptions.com

South Carolina

Beard Marine Savannah - Distributor

Location: Savannah, GA, USA
Phone: (912) 356-5222
Fax: (912) 692-1006
E-mail: beardsav@aol.com
Web: www.beardmarine.com

South Dakota

Midwest Marine Supply

Location: St. Clair Shores, MI, USA
Phone: (586) 778-8950
Fax: (586) 778-6108

Tennessee

Beard Marine Savannah - Distributor

Location: Savannah, GA, USA
Phone: (912) 356-5222
Fax: (912) 692-1006
E-mail: beardsav@aol.com
Web: www.beardmarine.com

Texas

AER Marine Supply

Location: Seabrook, TX, USA
Phone: (281) 474-3276
Fax: (281) 474-2714
E-mail: rsmiller@aersupply.com

Utah

AER Marine Supply

Location: Seabrook, TX, USA
Phone: (281) 474-3276
Fax: (281) 474-2714
E-mail: rsmiller@aersupply.com

Vermont

Ocean Options

Location: Tiverton, RI, USA
Phone: (401) 624-7334
Fax: (401) 624-8050
E-mail: Sales@oceanoptions.com
Web: www.oceanoptions.com

Virginia

Ocean Options - Mid Atlantic

Location: Annapolis, MD, USA
Phone: (410) 268-9365
Fax: (410) 268-8199
E-mail: Sales@oceanoptions.com
Web: www.oceanoptions.com

Washington

American Marine Contractors

Location: Seattle, WA, USA
Phone: (206) 660-2240
Fax: (206) 548-5008
E-mail: gene@nwmarineair.com

West Virginia

Ocean Options - Mid Atlantic

Location: Annapolis, MD, USA
Phone: (410) 268-9365
Fax: (410) 268-8199
E-mail: Sales@oceanoptions.com
Web: www.oceanoptions.com

Wisconsin

Midwest Marine Supply

Location: St. Clair Shores, MI, USA
Phone: (586) 778-8950
Fax: (586) 778-6108

Wyoming

American Marine Contractors

Location: Seattle, WA, USA
Phone: (206) 660-2240
Fax: (206) 548-5008
E-mail: gene@nwmarineair.com

Antigua

Aboard Refrigeration

Location: , Antigua, West Indies
Phone: (268) 460-1690
Fax: (419) 858-0544
E-mail: aboardrf@candw.aq
Web: www.aboardrefrigeration.com

Argentina

Baron SRL

Location: San Fernando, Buenos Aires, Argentina
Phone: (54) 11-4-580-5556
Fax: (54) 11-4-746-1696
E-mail: rosito@baron.com.ar
Web: www.baron.com.ar

Australia

Seairland Systems, Inc.

Location: Brisbane, Queensland, Australia
Phone: (61) 7-3268-7511
Fax: (61) 7-3268-1445
E-mail: hadyn@seairland.com.au

Austria

Domestic Marine – Italy, Sales Company

Location: Milano, Italy
Phone: 390 26172583
Fax: 390 266010223
E-mail: marine.info@dometic.it
Web: www.dometic.com

Bahamas

Freezing Point, Ltd.

Location: Nassau, Bahamas
Territory: Nassau
Phone: (242) 325-3589
Fax: (242) 356-5271
E-mail: rolandknowles@bahamas.net.bs

Bahrain

International Agencies Co.

Location: Manama, Bahrain
Phone: 973-17728691
Fax: 973-17728412

Mantech

Location: Dubai, United Arab Emirates
Phone: (971) 4-3332-542
Fax: (971) 4-3330-649

Brazil

Marine Express

Location: Sao Paulo, Brazil
Phone: 55-11-5182-7166
Fax: 55-11-5183-3636
E-mail: fabrizio@marineexpress.com.br
Web: www.marineexpress.com.br

British Virgin Islands

BVI Marine Management

Location: Roadtown, Tortola, British Virgin Islands
Phone: (284) 494-2938
Fax: (284) 494-5006

C & G Refrigeration

Location: , Tortola, British Virgin Islands
Phone: (284) 776-0038

Canada

British Columbia

American Marine Contractors

Location: Seattle, WA, USA
Phone: (206) 660-2240
Fax: (206) 548-5008
E-mail: gene@nwmarineair.com

Ontario

Northland Supply Company

Location: Queensville, Ontario, Canada
Territory: Queensville
Phone: (905) 478-2244
Fax: (905) 478-2295
E-mail: norsupco@aol.com
Web: www.norsupco.com

Woodard and Company - Manufacturer's Rep.

Location: Concord, Ontario, Canada
Territory: All Canadian Provinces except BC
Phone: (905)760-0245
Fax: (905)760-0250
E-mail: john.reid@woodardcompany.com

Quebec

Kimpex, Inc.

Location: Drummondville, Quebec, Canada
Territory: Drummondville, Quebec
Phone: (705) 721-0947
Fax: (705) 721-1704
E-mail: scott.pipher@kpx-kimpex.com
Web: http://www.kpx-kimpex.com

Caribbean Islands

Aboard Refrigeration

Location: , Antigua, West Indies
Phone: (268) 460-1690
Fax: (419) 858-0544
E-mail: aboardrf@candw.aq
Web: www.aboardrefrigeration.com

BVI Marine Management

Location: Roadtown, Tortola, British Virgin Islands
Phone: (284) 494-2938
Fax: (284) 494-5006

C & G Refrigeration

Location: , Tortola, British Virgin Islands
Phone: (284) 776-0038

Centro Cruisair de Puerto Rico

Location: San Turce, Puerto Rico
Phone: 787-727-3637
Fax: 787-727-3637
E-mail: fernan_moreno@hotmail.com

Cool-Tech Air Condition

Location: Fajardo, Puerto Rico
Phone: (787) 860-2615
Fax: (787) 801-2050
E-mail: cooltech@isprr.com
Web: www.isppr.net/cooltech

EnterTech N.V.

Location: Simpson Bay, St. Maarten/St. Martin, Netherland Antilles
Phone: 599-551-2145
Fax: 305-675-5857 (USA)
E-mail: service@entertechnv.com

Freezing Point, Ltd.

Location: Nassau, Bahamas
Territory: Nassau
Phone: (242) 325-3589
Fax: (242) 356-5271
E-mail: rolandknowles@bahamas.net.bs

May Day Marine

Location: San Juan, Puerto Rico
Phone: 787-751-0490
Fax: 787-790-2551

Nau-T-Kol Marine Refrigeration

Location: Chaguaramas, Trinidad
Phone: 868-634-2174
Fax: 868-634-2174
E-mail: nautkol@cablet.net
Web: www.nautkol.com

Reefco, Inc.

Location: , St. Thomas, US Virgin Islands
Phone: (340) 776-0038
Fax: (340) 776-0038
E-mail: denny@reefco.net
Web: www.reefco.net

Regis Electronics (St Lucia) LTD.

Location: St. Lucia, West Indies
Phone: 758-452-0205
Fax: 758-452-0206
E-mail: stlucia@regiselectronics.com

Sun Cool Air Conditioning

Location: Carolina, Puerto Rico, Puerto Rico
Territory: Carolin
Phone: (787) 791-6971
Fax: (787) 791-3885
E-mail: suncool1@coqui.net

China

Flash Marine Trading Pte.Ltd.

Location: Shanghai, China
Phone: (86 21) 509 04120
Fax: (86 21) 509 04789
E-mail: ffmtmasb@online.sh.cn

Costa Rica

Gato Frío

Location: Playa Jaco, Costa Rica
Territory: Costa Rica, Panama
Phone: 506-637-7181
Fax: 506-637-7180
E-mail: eric@yachtshare.net

Croatia

Dometic Marine – Italy, Sales Company

Location: Milano, Italy
Phone: 390 26172583
Fax: 390 266010223
E-mail: marine.info@dometric.it
Web: www.dometric.com

Cyprus

Dometic Marine - United Kingdom, Sales Company

Location: Poole, Dorset, England
Phone: 44 (0) 870 3306101
Fax: 44 (0) 870 3306102
E-mail: sales@dometricmarine.com
Web: www.dometric.com

Dominican Republic

May Day Marine

Location: San Juan, Puerto Rico
Phone: 787-751-0490
Fax: 787-790-2551

Ecuador

Quasar Nautica, S.A.

Location: P.O. Box 17-01-0069, Quito, Ecuador
Phone: (593) 2-446-996/997
Fax: (593) 2-436-625

Egypt

Engineering Air

Location: Abasia, Cairo, Egypt
Phone: 202 4829341
Fax: 202 4829341

France

Dometic Marine – France, Sales Company

Location: Plailly, France
Phone: Cell: 0033 (0)680 415 543
Fax: 0033 (0)344 633 518
E-mail: marine.sales@dometric.fr
Web: www.dometric.com

PolyMarine Distribution (C/O Occas Marine)

Location: Le Cannet, Rocheville, France
Phone: 0033 493463634
Fax: 0033 493463634
E-mail: polymarine.bayle@free.fr

Greece

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Fax: 44 (0) 870 3306102
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Web: www.dometric.com

Athens

Aegean Diesel Electric Ltd.

Location: Athens, Piraeus, Greece
Territory: Athens
Phone: 0030-1-4222484
Fax: 0030-1-4175201
E-mail: info@ade-marine.gr

Hong Kong

Piercey Marine Limited

Location: Sai Kung, NT, Hong Kong
Phone: (852) 2791-4106
Fax: (852) 2791-4124
E-mail: pmltd@attglobal.net

Italy

Condaria 87 SRL

Location: Nova Milanese (MI), Italy
Phone: 39 0362 44182
Fax: 39 0362 452266

Dometic Marine – Italy, Sales Company

Location: Milano, Italy
Phone: 390 26172583
Fax: 390 266010223
E-mail: marine.info@dometric.it
Web: www.dometric.com

Japan

Tominaga & Company, Ltd.

Location: Osaka, Japan
Phone: 816.6365.5010
Fax: 816.6365.6294
E-mail: nishi@mail.tomco.co.jp

Kuwait

Mantech

Location: Dubai, United Arab Emirates
Phone: (971) 4-3332-542
Fax: (971) 4-3330-649

Sammari Marine Trading

Location: Al-Shawikh, Kuwait
Phone: 965-5740408
Fax: 965-5715655

Malta

Dometic Marine - United Kingdom, Sales Company

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Phone: 44 (0) 870 3306101
Fax: 44 (0) 870 3306102
E-mail: sales@dometricmarine.com
Web: www.dometric.com

Inmartech Ltd.

Location: Swieqi, STJ 04, Malta
Phone: 00356 21376476
Fax: 00356 21376476

Mexico

Southern California Marine Enterprises

Location: San Diego, CA, USA
Phone: 619-224-2869
Fax: 619-226-0496
E-mail: sales@southernmarine.com
Web: www.southernmarine.com

Netherlands

Eberca

Location: , Netherlands
Phone: 31 1866 21955
Fax: 31 1866 21818
E-mail: info@eberca.nl

Heinen & Hopman Eng. Bv.

Location: Spakenburg, Netherlands
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Fax: (31) (0) 33 299 2599
E-mail: info@heinenhopman.com
Web: www.heinenhopman.com

Netherlands Antilles

EnterTech N.V.

Location: Simpson Bay, St. Maarten/St. Martin, Netherland Antilles
Phone: 599-551-2145
Fax: 305-675-5857 (USA)
E-mail: service@entertechnv.com

New Zealand

Whiting Power Systems

Location: 192 Herne Bay, Auckland, New Zealand
Phone: 649.358.2050
Fax: 649.358.0285
E-mail: sales@whiting.co.nz
Web: www.whiting.co.nz

Oman

Mantech

Location: Dubai, United Arab Emirates
Phone: (971) 4-3332-542
Fax: (971) 4-3330-649

OHI Marine LLC

Location: Muscat, Oman
Phone: 968-712240
Fax: 968-712085

Panama

Gato Frío

Location: Playa Jaco, Costa Rica
Territory: Costa Rica, Panama
Phone: 506-637-7181
Fax: 506-637-7180
E-mail: eric@yachtshare.net

Productos Marine Air

Location: La Chorrera, Panama
Territory: Panama
Phone: 507-232-5406
Fax: 507-232-7648
E-mail: masters@sinfo.net

Portugal

PowerCool Lda

Location: Portimao, Portugal
Territory: Portugal
Phone: 351 91 786 63 73
Fax: 351 282 461 818
E-mail: info@powercool.org
Web: www.powercool.org

Puerto Rico

Centro Cruisair de Puerto Rico

Location: San Turce, Puerto Rico
Phone: 787-727-3637
Fax: 787-727-3637
E-mail: fernan.moreno@hotmail.com

Cool-Tech Air Condition

Location: Fajardo, Puerto Rico
Phone: (787) 860-2615
Fax: (787) 801-2050
E-mail: cooltech@isppr.com
Web: www.isppr.net/cooltech

May Day Marine

Location: San Juan, Puerto Rico
Phone: 787-751-0490
Fax: 787-790-2551

Sun Cool Air Conditioning

Location: Carolina, Puerto Rico, Puerto Rico
Territory: Carolina
Phone: (787) 791-6971
Fax: (787) 791-3885
E-mail: suncool1@coqui.net

Qatar

Al-Badi Trading Co.

Location: Doha, Qatar
Phone: 974-4320715
Fax: 974-4442888

Mantech

Location: Dubai, United Arab Emirates
Phone: (971) 4-3332-542
Fax: (971) 4-3330-649

Russia

Standarte

Location: Starbeevo, Moscow region, Russia
Phone: 7 095 575 67 23
Fax: 7 095 575 39 77
E-mail: info@standarte.ru
Web: www.standarte.ru

Saudi Arabia

Mantech

Location: Dubai, United Arab Emirates
Phone: (971) 4-3332-542
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Samaco Marine Division

Location: Alnahdah dis Jeddah, Saudi Arabia
Territory: Saudi Arabia
Phone: (966) 2-699-2300
Fax: (966) 2-699-1024

Scandinavia

Dometic Marine – Nordic Sales, Sales Company

Location: Halmstad, Sweden
Phone: 46 35165700
Fax: 46 35165710
E-mail: marine.info@dometic.se
Web: www.dometic.com

Singapore

Tritex Equipment PTE, Ltd.

Location: , Singapore
Territory: Singapore
Phone: (65) 6861-1188
Fax: (65) 6861-4263
E-mail: anqilene@tritex.com.sg

Slovenia

Dometic Marine – Italy, Sales Company

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Phone: 390 26172583
Fax: 390 266010223
E-mail: marine.info@dometic.it
Web: www.dometic.com

South Africa

C-Dynamics cc

Location: Cape Town, South Africa
Phone: 27 21 555 3232
Fax: 27 21 555 3230
E-mail: info@c-dynamics.co.za
Web: www.c-dynamics.co.za

Spain

Acastimar

Location: Tarragona, Spain
Phone: 349-77-362118
Fax: 349-77-362687
E-mail: acastimar@acastimar.com

Dometic Marine – France, Sales Company

Location: Plailly, France
Phone: Cell: 0033 (0)680 415 543
Fax: 0033 (0)344 633 518
E-mail: marine.sales@dometic.fr
Web: www.dometic.com

Techno Electronica Naval, S.A.

Location: Barcelona, Spain
Phone: 34 (93) 664-49-70
Fax: 34 (93) 665-76-26
E-mail: ten@ten-sa.com
Web: www.ten-sa.com

Sri Lanka

G&M Enterprises

Location: Borella-Colombo 8, Sri Lanka
Phone: 94 11 2691966
Fax: 94 11 2691751
E-mail: qandM@slt.net.lk

Sweden

Dometic Marine – Nordic Sales, Sales Company

Location: Halmstad, Sweden
Phone: 46 35165700
Fax: 46 35165710
E-mail: marine.info@dometic.se
Web: www.dometic.com

Thailand

Thai Kolon Co. Ltd.

Location: Bangkok, Thailand
Phone: 66-2-745-6468-77 (10 lines)
Fax: 66-2-745-6152
E-mail: thkolon@ji-net.com

Trinidad & Tobago

Nau-T-Kol Marine Refrigeration

Location: Chaguaramas, Trinidad
Phone: 868-634-2174
Fax: 868-634-2174
E-mail: nautkol@cable.nett.net
Web: www.nautkol.com

Turkey

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Fax: 44 (0) 870 3306102
E-mail: sales@dometicmarine.com
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Egemar Muhendiscik Ltd.

Location: Tuzla, Istanbul, Turkey
Phone: 90 216 494 2168
Fax: 90 216 494 2218
E-mail: sales@egemar.com.tr
Web: www.egemar.com.tr

U.S. Virgin Islands

Reefco, Inc.

Location: , St. Thomas, US Virgin Islands
Phone: (340) 776-0038
Fax: (340) 776-0038
E-mail: dennv@reefco.net
Web: www.reefco.net

Ukraine

Standarte

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Phone: 7 095 575 67 23
Fax: 7 095 575 39 77
E-mail: info@standarte.ru
Web: www.standarte.ru

United Arab Emirates

Mantech

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United Kingdom

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Phone: (54) 11-4-580-5556
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Venezuela

Rich Marine Center

Location: Complejo Turistico El Morro, Venezuela, South America
Phone: (58) 281 2181630
Fax: (58) 281-2811630
E-mail: richmarine@telcel.net.ve
Web: www.tuyate.net

West Indies

Aboard Refrigeration

Location: , Antigua, West Indies
Phone: (268) 460-1690
Fax: (419) 858-0544
E-mail: aboardrf@candv.aq
Web: www.aboardrefrigeration.com

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