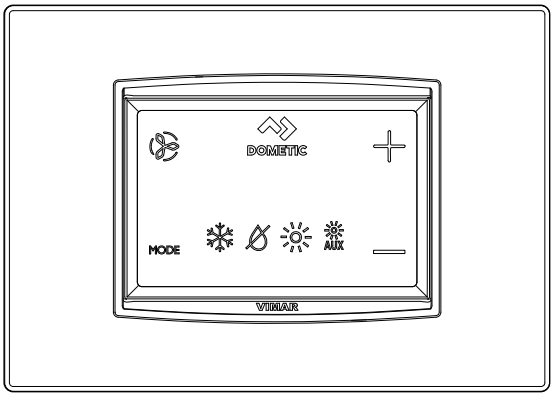
DOMETIC

MARINE
CABIN CONTROL



EN **CapTouch Cabin Control**
Installation and Operating Manual

NORTH AMERICAN ADDRESS INFORMATION

USA & CANADA
Service Office
Dometic Marine Division
2000 N. Andrews Avenue
Pompano Beach, FL 33069

Service Center & Dealer Locations
Refer to "11 Customer support" on page 24.

L-5119 | Form No. 340498 05/18 |

Read these instructions carefully. These instructions MUST stay with this product.

CONTENTS

1 EXPLANATION OF SYMBOLS AND SAFETY INSTRUCTIONS

This manual has safety information and instructions to help you eliminate or reduce the risk of accidents and injuries.

1.1 Recognize Safety Information

This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

1.2 Understand Signal Words

A signal word will identify safety messages and property damage messages, and will indicate the degree or level of hazard seriousness.

⚠WARNING indicates a hazardous situation that, if **not** avoided, could result in death or serious injury.

⚠CAUTION indicates a hazardous situation that, if **not** avoided, could result in minor or moderate injury.

NOTICE is used to address practices **not** related to physical injury.

indicates additional information that is **not** related to physical injury.

1.3 Supplemental Directives

Read and follow all safety information and instructions to avoid possible injury or death.
Read and understand these instructions before installation or use of this product.
Incorrect installation or operation of this product can lead to serious injury.
The installation must comply with all applicable local or national codes, including the latest edition of the following standards:

U.S.A.

- ANSI/NFPA70, National Electrical Code (NEC)
- American Boat and Yacht Council (ABYC)

1.4 General Safety Messages

⚠WARNING Failure to obey the following warnings could result in death or serious injury:

- This product should be installed by a qualified service technician.
- Do **not** modify this product in any way. Modifications can be extremely hazardous.
- This product should be installed in a controlled environment (inside).

⚠CAUTION Improper installation, adjustment, alteration, service, or maintenance can cause injury and property damage. Refer to this manual. For assistance or additional information, consult a qualified installer, service agency, or the gas supplier.

2 GENERAL INFORMATION

Recommended Tools
Phillips Screwdriver
Saw
Safety Glasses

Included Parts	Quantity
Screws	4

Optional Parts
Outside air temperature sensor
Remote air temperature sensor
Room humidity sensor (CW systems only)
Water inlet sensor (CW systems only)
Pump sentry water sensor (DX systems only)
Electric heating control capabilities

The maximum length for display and sensor cables is 75' (22.9 m). Optional items are not included with the standard control package.

3 INTENDED USE

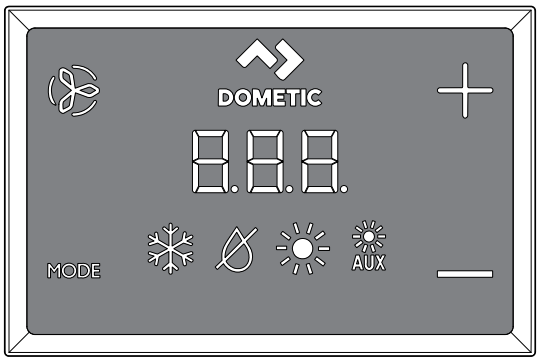
The CapTouch Control is a user-friendly capacitance touchscreen display for basic thermostat operation. The micro controller-based unit is designed for use with direct expansion (DX), reverse-cycle air-conditioning systems, and chilled-water systems (CW). The display panel has 29 programmable parameters, automatic and manual fan speeds, standard and optional sensor inputs, and fits both Vimar® Idea and Eikon switch bezels.

This manual provides all necessary information for proper installation and operation of the CapTouch display panel. Poor installation and misunderstood operating parameters will result in unsatisfactory performance and possible failure. The manufacturer accepts no liability for damage in the following cases:

- Faulty assembly or connection.
- Damage to the product resulting from mechanical influences and excess voltage.
- Alterations to the product without express permission from the manufacturer.
- Use for purposes other than those described in the operating manual.

4 DISPLAY FEATURES

1



Icon	Name	Function
	Fan	Cycles through the different fan speeds
DOMETIC	Dometic	Brand identification. No operational function
	Up	Raises the temperature set-point
	Down	Lowers the temperature set-point
	Temperature Indicator	Displays the inside, set point, outside, and water temperatures, as selected
AUX	Mode Icons	Indicates the current display mode
MODE	HVAC Modes	• Cycles through the different modes • Sends the display to sleep

5 INSTALLATION

⚠WARNING RISK OF ELECTRIC SHOCK. Turn power OFF before performing any electrical installation or maintenance activities. Failure to obey this warning could result in death or serious injury.

NOTICE Failure to obey the following notices could result in damage to the product:

- Do **not** locate the display panel 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 or above or below a supply-air 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.
- Do **not** staple sensor cables during installation.
- The system's air sensor is located in the control's display panel. A remote air sensor is required if installing the display panel in a cabinet, enclosed space, or any area where the accurate sensing of the room temperature would be impaired.

5.1 Choosing a display panel location

➤ Place the display panel:

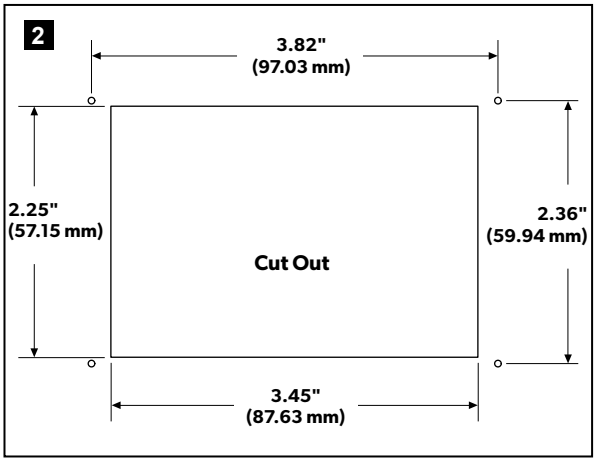
- on an inside wall of the cabin
- slightly higher than mid-height of the cabin
- in an area of freely circulating air
- a maximum distance of 15' (4.6 m) from the air conditioner

If these conditions cannot be met, use an optional remote air sensor and install the sensor in the return-air stream.

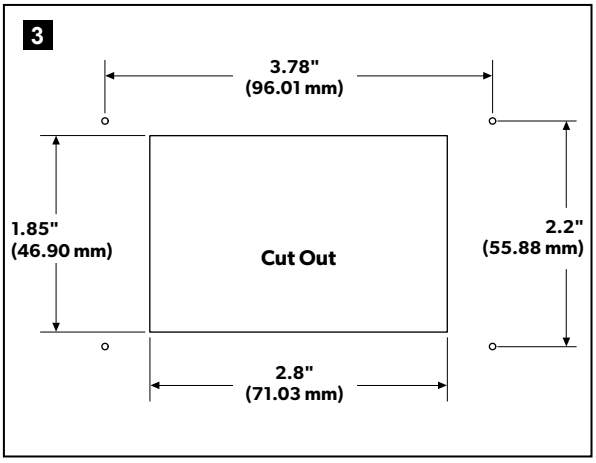
5.2 Preparing the wall

➤ Cut the cabin wall to fit the display panel, according to the bezel being used.

Idea



Eikon

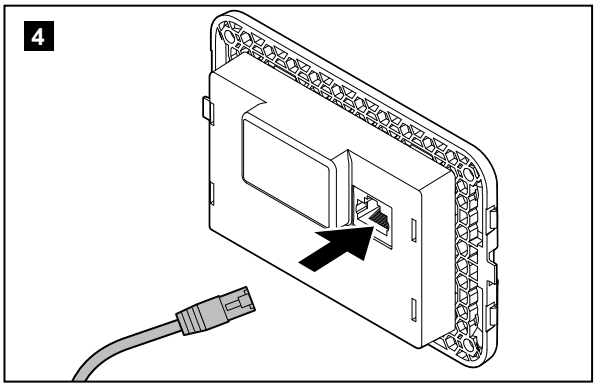


5.3 Installing an optional sensor

➤ Mount the optional sensor according to the installation instructions included with the sensor.

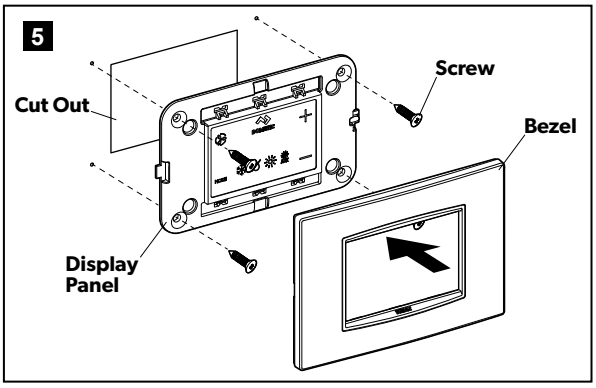
➤ Plug the sensor cable into the appropriate sensor jack on the upper side of the control board. Refer to "9 Appendix: Reference documents" on page 21 for details on the sensor jack locations.

5.4 Mounting the display panel



➤ Plug the display cable 8-pin connector into the upper-right jack on the circuit board.

➤ Insert the other end of the display cable into the display jack on the back of the display panel.



➤ Use the four screws provided to secure the display panel to the bulkhead. Do not use a screw gun or overtighten the screws.

➤ Snap the bezel onto the display panel frame.

5.5 Testing the display

NOTICE For DX units only: do **not** turn the circuit breaker or power supplied to the unit OFF and then immediately turn it back ON. Allow at least five minutes for the refrigerant pressure to equalize. Failure to obey this notice could result in damage to the product.

➤ Open the seawater-intake ball valve (seacock).

➤ Turn the display OFF. Wait a minimum of five minutes.

➤ Turn the air conditioner circuit breaker ON.

If the seawater pump is on a separate circuit breaker, be sure to turn it ON.

➤ Turn the display ON.

➤ Press the **fan** icon.

➤ Verify that the fan is running and that a steady airflow is coming out of the supply-air grille.

➤ Select a temperature set-point lower than the current cabin temperature.

➤ Verify that a steady, solid stream of water is coming out from the overboard discharge.

➤ Verify that there is a steady airflow is coming out of the supply-air grille.

If the unit is not functioning as expected, refer to "7 Troubleshooting" on page 18.

6 OPERATION

NOTICE For DX systems only: If your air-conditioning unit is cool-only, select COOL mode. Do **not** set to AUTOMATIC mode for a cool-only unit. Cool-only units do **not** heat. Failure to obey this notice will cause the unit to cool in both modes.

When used with optional electric heat, the fan remains ON for four minutes after the heater cycles OFF, even if the fan is set to cycled operation.

6.1 Understanding heating and cooling cycles

Normal heating or cooling cycle

- In AUTOMATIC mode, heating and cooling are supplied as required to meet the cabin temperature set-point.
  - The system starts a cooling cycle once the cabin temperature exceeds the temperature set-point by 2 °F (1.1 °C) and starts a heating cycle once the cabin temperature falls below the temperature set-point by 2 °F (1.1 °C). The system continues the cycle until the cabin temperature equals the set point. During a cycle, the cabin temperature must drop below the set point by at least 4 °F (2.2 °C) before the system switches from cooling to heating or exceed the set point by at least 4 °F (2.2 °C) before the system will switch from heating to cooling. This behavior prevents small temperature overshoots from causing the system to switch between heating and cooling when it is not necessary.
- COOL mode supplies cooling only and HEAT mode supplies heating only.
  - The cabin temperature for either mode is maintained within 2 °F (1.1 °C) of the set point by default. When the heating or cooling set point is satisfied, the compressor cycles OFF and the fan returns to low speed.
- In manual, the fan speed remains constant.

Chilled-water (CW) systems

In CW systems, the water valve does not open unless the water temperature is adequate to heat or cool the cabin. The adequate heating or cooling water temperature is defined by the **water temperature differential** setting in the control parameters. Refer to "6.6 Selecting a Parameter" on page 12 for more detail.

To see the current water temperature, press **Fan** and **Up** for three seconds. Refer to "6.3 Using the control panel" on page 11 for more detail. The fan remains on low speed until the adequate water temperature is available.

To provide heat when the required water temperature is not available, install and program the optional electric heater.

Reversing-valve operation (DX systems only)

COOL mode or HEAT mode is determined by the position of the reversing valve. The reversing valve is programmed to automatically toggle in these situations:

- When the system is running and an opposite cycle is needed to maintain the temperature, the reversing valve will toggle to the opposite position to initiate the opposite cycle and reduce the starting surge of the compressor.
- When a cooling or heating cycle is initiated after the system has been OFF for less than five minutes.
- When a cycle is interrupted by pressing the power icon or changing the set point from the display panel.

To reduce reversing-valve noise, unnecessary valve toggling is limited by default. Program the minimum compressor staging delay to five minutes or greater, to eliminate valve toggling.

When the system is powered up, a power-on-reset always initiates a valve toggle.

DX systems have a de-icing cycle option to prevent ice buildup on the evaporator coil during extended periods of cooling operation, by switching the reversing valve into HEAT mode when the system is cooling. The valve remains energized for the programmed cycle time. De-icing is accomplished by closely monitoring the room air temperature in 10-minute intervals during a cooling cycle. Depending on the parameter value and the change in room temperature during these monitoring intervals, the control performs various actions to prevent ice from forming or to melt ice that has already formed. This is accomplished by short compressor shutdown periods combined with a one-speed increase in fan speed, and by periodic HEAT mode cycles with the fan turned OFF.

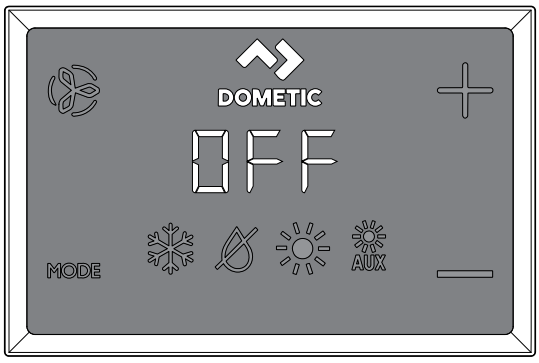
The built-in room air temperature sensor on the display has two selectable behavior modes. Both modes attempt to compensate for any temperature discrepancy detected by the display sensor. Although a discrepancy is not typical, installation variables such as where the display is placed inside the room—near an open door or in direct sunlight—can affect how accurately it reads the actual room temperature.

Installation of an optional alternate air temperature sensor (located in the return-air path) greatly increases the effectiveness of the de-icing feature. This option should be considered whenever the display sensor cannot read the room temperature accurately.

For additional details on parameter settings and navigation options, refer to "6.6 Selecting a Parameter" on page 12 and "9.2 Navigation Tree" on page 23.

6.2 Choosing the control operation

6



The four mode icons indicate the different modes of the control: COOL, MOISTURE, HEAT, and AUX HEAT. Refer to "6.3 Using the control panel" on page 11 for more detail on mode operation.

➤ Press the **mode** icon to select a mode:

- Display icons illuminate to indicate the selected mode.
- The display locks into the last mode selected after five seconds of inactivity, then displays the room temperature. The selected mode LED remains lit.
- After 10 seconds of inactivity, the display shows the room temperature and enters the IDLE state.

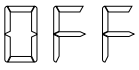
- OFF displays on the screen to indicate the OFF state.
- When the display is making a call for heating, cooling, aux heat, or humidity, the appropriate mode icon blinks for two seconds ON and two seconds OFF.

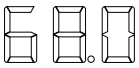
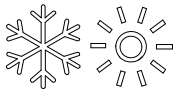
➤ Press any icon to wake up the control from the OFF or IDLE state.

➤ Press the **mode** icon for three seconds to initiate a SLEEP state:

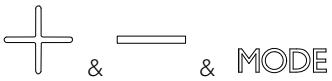
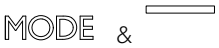
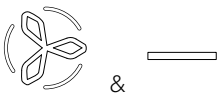
- The display goes dark.
- Normal operation continues.

➤ Press the **mode** icon for an additional three seconds to wake up the control.

Icons Displayed	Description/Mode	Function
	COOL	The COOL icon illuminates when the COOL mode is selected or when the unit is in an AUTOMATIC mode cooling cycle. Only the cooling system operates. If the ambient temperature drops below the set point, the system will not automatically switch to the HEAT mode.
	MOISTURE	The MOISTURE icon illuminates when the MOISTURE mode is selected. This mode controls humidity during periods when the vessel is unoccupied and prevents the cabin temperature from dropping below the minimum default temperature setting. During humidity control: • The fan circulates air for 30 minutes. • Air temperature is sampled and recorded. • After 30 minutes, a cooling cycle starts and continues until the temperature is lowered 2 °F (1.1 °C) or until the cooling cycle runs a maximum of one hour. • Four hours after the temperature is satisfied or the cooling cycle times out, the cycle repeats. For temperature control: • After the 30-minute fan circulation, if the sampled temperature is at or above the factory default setting (50 °F/10 °C), a cooling cycle begins and runs for humidity control. • If the temperature is below 50 °F (10 °C), a heating cycle begins. The heating cycle continues until the temperature reaches 50 °F (10 °C) or until the heating cycle runs a maximum of one hour. • Four hours after the temperature is satisfied or the cooling/heating cycle times out, the cycle repeats, each time determining whether cooling or heating is required. For DX systems only: the MOISTURE mode heat cycle will not run when the ambient temperature is below 40 °F (4.4 °C). This protects the condenser coil from freezing. Systems configured with electric heat will run the MOISTURE mode heat cycle regardless of the cabin temperature.
	HEAT	The HEAT mode icon illuminates when the HEAT mode is selected or when the unit is in an AUTOMATIC mode heating cycle. Only the heating system operates. If the ambient temperature rises above the set point, the system will not automatically switch to the COOL mode.
	AUX HEAT	The AUX HEAT mode icon illuminates when the electric heating system is in operation. If the ambient temperature rises above the set point, the system will not automatically switch to the COOL mode.
	OFF	All control outputs are turned OFF. The display reads OFF. All settings are saved in non-volatile memory.

Icons Displayed	Description/Mode	Function
	ON	All control outputs are on and the display indicates the current state of operation. The display shows the cabin temperature. All parameters operate as set.
 or 	AUTOMATIC	The AUTOMATIC mode icons illuminate when the system is in AUTOMATIC mode, which switches to cooling or heating as required to satisfy the temperature set-point. When AUTOMATIC mode is selected, the system provides both heating and cooling, as required. The COOL and HEAT icons or COOL and AUX HEAT icons are illuminated according to the AUTOMATIC mode.
	Fan	The fan icon allows the user to cycle through all of the different fan speeds, which include auto and 1–5 (high, medium high, medium, medium low, and low). Fan speeds are automatic based on default and programmed values. Program menu settings P-1 and P-2 determine the maximum and minimum fan speed settings. • Fan speed decreases as the temperature set-point is approached in COOL mode and operates at low speed when the set point is reached. • The automatic fan speed operation is reversed for HEAT mode, unless programmed otherwise. • Automatic fan mode determines the required fan speed based on temperature differential. This balances the most efficient temperature control with a slower, quieter fan speed. – To select automatic fan mode, press and release the **fan** icon until an “A” appears above the icon. Refer to "6.6 Selecting a Parameter" on page 12 for additional detail on fan parameter settings. Once high and low fan speed limits are set, the unit automatically readjusts the remaining fan speeds in both automatic and manual fan modes.
	Manual Fan	Manual fan allows the selection of a consistent desired fan speed. There are five manual fan speeds available: high, medium high, medium, medium low, and low. The speed number is illuminated on the display when selected. • Press and release the **fan** icon to advance from automatic to manual fan operation. • Press and release the **fan** icon to cycle through the manual fan speeds, from low to high. • Press and release the **fan** icon to return to automatic fan operation.
	Fan-Only	Use fan-only to operate the fan for air circulation when no cooling or heating is desired. • From the OFF mode, press and release the **fan** icon to select a desired fan speed. Turning the control ON reverts the fan to the AUTOMATIC mode or the last selected manual fan setting.
	Cycled / Continuous Fan	The fan can be set to run continuously whenever the system is turned ON, or it can be set to cycle ON and OFF in conjunction with the cooling or heating cycles. • Press and hold the **fan** icon for five seconds. – CYC displays when the operational setting is set to cycled. – CON displays when the operational setting is set to continuous.

6.3 Using the control panel

Icon Combination	Icon Names	Function
	Mode & Up	Press simultaneously for three seconds while the control is in the OFF mode to enter the programming menu. P1 appears on the display.
	Up & Down	Press simultaneously and hold for three seconds to display the outdoor temperature. The display alternates between OU and the outdoor temperature reading while this combination is held.
	Fan & Up	Press simultaneously and hold for three seconds to display the seawater temperature. The display alternates between SE and the seawater temperature reading while this combination is held.
	Up, Down, & Mode	Press simultaneously and hold for three seconds to display the relative humidity. The display alternates between HU and the relative humidity reading while this combination is held.
	Mode & Down	• Press and hold for three seconds while the control is in the OFF mode to enter the fault history log. The display holds up to eight faults. • Use the **up** and **down** icons to view the fault history. • Hold the **mode** and **down** icons for three seconds to clear the fault history. • Exit by pressing the **mode** icon once.
	Fan & Down (DX only)	• Press and hold for three seconds while the control is in the OFF mode to display the compressor run-time hour meter. • Exit by pressing the **mode** icon once.

6.4 Programming the control

If your air-conditioning unit has a Shaded-Pole (SP) fan motor instead of a Split-Capacitor (SC) High-Velocity (HV) fan motor, program SP into the fan motor type parameter before operating the unit. The SP units are recognizable by an overhanging blower motor. The SC motor of an HV unit is inside the blower, and the unit has VTD or HV as part of the model number. Only reprogram the fan motor type parameter if you do not have an HV blower.

Parameter settings are used to program and fine-tune the system for the most efficient operation within an installation and to adjust operating parameters for your particular needs. After new values are entered and memorized, the factory defaults are overwritten and the new parameters become the default values. Should the CapTouch lose power, the operating parameters are retained. When power is restored, the control resumes operating as last programmed.

The control has factory default values stored in permanent memory (memorized factory default settings) that can be recalled if you have any programming difficulties. You can restore the original factory default parameters manually. Refer to "6.6 Selecting a Parameter" on page 12 for a summary of the parameters, the permitted values, and original factory default settings.

6.5 Entering programming mode

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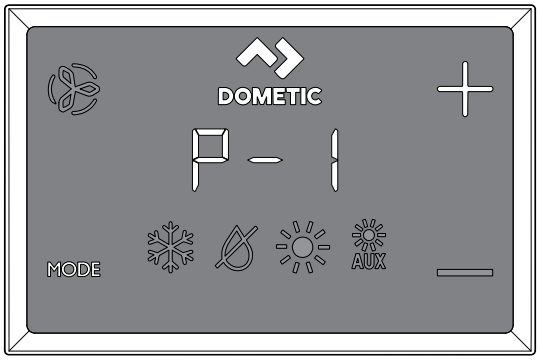


- ➤ Press the **mode** and **up (+)** icons on the display screen simultaneously for three seconds while the control is in the OFF mode to enter the programming menu. P-1 appears on the display.
- ➤ Use the **up (+)** and **down (-)** icons to navigate to different parameters (P-1, P-2, P-3, etc.).
- ➤ Press the **mode** icon to enter the parameter adjustment menu. The display will alternate between the parameter number and the current setting.
- ➤ Press the **up (+)** and **down (-)** icons to adjust the parameter settings.
- ➤ Press the **mode** icon to lock in the parameter change and return to the programming menu.

6.6 Selecting a Parameter

Parameter	Name	DX	CW	Factory Default	Parameter Range
P-1	High Fan Limit	x	x	95	65–95
		Select a higher number to increase the fan speed, a lower number to decrease the fan speed.			
P-2	Low Fan Limit	x	x	50	30–75
		Select a higher number to increase the fan speed, a lower number to decrease the fan speed.			
P-3	Compressor Staging Time Delay	x		15	5–135 seconds
		For installations where more than one system operates from the same power source. Different staging delays allow compressors to start at different times when the power is interrupted. Stage the units at least five seconds apart.			
P-4	Temperature Calibration	x	x	Ambient Temperature	Ambient Temperature ±10 °F (5.5 °C)
		Calibrates the ambient sensor to display the correct room temperature reading. Note: setting increments are in °F even when the control is set to display °C.			
P-5	Failsafe Level	x		3	0 = Minimal Protection 1 = Continuous No Display 2 = Continuous With Display 3 = Four Failures Reset Required
		Refer to "Fault codes" on page 17.			

Parameter	Name	DX	CW	Factory Default	Parameter Range
P-6	Low Voltage Monitor	x	x	OFF	OFF, 95 VAC/195 VAC
		A built-in voltmeter circuit monitors the AC input voltage prior to each cooling or heating cycle when set to 95 VAC or 195 VAC. For DC application, the compressor does not start if the voltage is less than the set limit. • For 100–120 VAC input power, set to OFF or 95. • For 220–240 VAC input power, set to OFF or 195.			
P-7	De-icing Cycle	x		1	OFF 1 = ON with 5 °F (2.8 °C) Display Sensor Differential 2 = ON with 7 °F (3.9 °C) Display Sensor Differential
		The de-icing cycle is programmable to OFF or to a period of 1 or 2 minutes. The parameter setting for the de-icing feature depends on whether you are using the optional alternate air-temperature sensor or the display's built-in room air-temperature sensor. • If using an optional alternate air temperature sensor, set this parameter to 1 to turn the de-icing feature ON, or to OFF to disable. • If using the built-in room air temperature sensor, choose one of the two selectable behavior modes: – 1: assumes the display sensor may be reading the room temperature as much as 5 °F (2.8 °C) greater than the actual evaporator temperature (standard). – 2: for more extreme installations - assumes the display sensor may be reading the room temperature as much as 7 °F (3.9 °C) greater than the actual evaporator temperature. • The setting of 2 should only be used if a setting of 1 does not prevent evaporator ice from forming.			
P-8	Optional Pump Sentry	x		OFF	OFF ON = Select 100 °F to 150 °F (37.8 °C and 65.6 °C)
		Use this parameter when the optional temperature sensor is installed to monitor the condenser coil temperature and shut down the pump and compressor when the coil temperature rises above the programmed value. This sensor is plugged into the H2O OUT sensor jack on the control board. Program a temperature between 100 °F and 150 °F (37.8 °C and 65.6 °C), depending on seawater temperature and the system type. Refer to the sensor installation instructions for detail. The setting increments are in °F even when the control is set to display °C.			
P-9	Display Brightness Control	x	x	15	1 (Dimmest)–3 (Brightest)
		Set this parameter between 1 and 3. A dark cabin requires a setting of 1. A very bright cabin requires a setting of 3.			
P-10	Fahrenheit or Celsius Selection	x	x	F	F = Fahrenheit Displayed C = Celsius Displayed
		The default setting is °F. Select °C for Celsius. (Celsius readings are displayed in tenths, for example 22.2°).			
P-11	Cycle Pump with Compressor	x		CYC	CYC = Cycle with Compressor con = Continuous Pump
		• CYC: increases pump life and conserves electricity by cycling ON and OFF with the compressor. • con: programs the pump to operate continuously whenever the system is on.			

Parameter	Name	DX	CW	Factory Default	Parameter Range
P-12	Reverse Automatic Fan Speeds During Heating	x	x	rEF	nor = Normal Fan Operation rEF = Reversed Fan in HEAT Mode
		This setting reverses the automatic fan speeds during HEAT mode to improve heat output in cooler climates. • When set to rEF, the fan speeds up as the set point is approached. The fan switches to low speed when the set point is satisfied and the water valve or compressor cycles OFF. • When set to nor, the fan operates the same as during cooling, which represents normal fan operation.			
P-13	Reverse-Cycle Heating or Electric Heat	x		nor	nor = Reverse Cycle Heating/ disable ELE = Electric Heat
	Water Valve or Electric Heat		x		
		DX units not equipped with reverse-cycle heat may have an electric heater added. CW units may be equipped with an electric heater, which is used to heat an individual cabin when the chiller system is in COOL mode. • For DX units: the valve-relay output only supports a maximum of 10 amps at 100–120 VAC or 5 amps at 220–240 VAC of resistive load. When installing an optional electric heater that exceeds this load, it is necessary to install an additional contactor that is rated to handle the full load of the electric heater. Consult with Dometic Customer Service or with an authorized service technician for assistance. • For CW units: when programmed for electric heat, both the electric-heater relay and the valve relay are energized. When installing the electric heater, the L-1 connection must be connected to the COMP L-1 terminal on the control board. Consult with Dometic Customer Service or with an authorized service technician for assistance.			
P-14	Fan Motor Selection	x	x	SC	SC = Split Capacitor Fan Motor SP = Shaded Pole Fan Motor
		Set to SC for air-conditioning unit switch high-velocity blowers. Set to SP if your unit has a Shaded Pole fan motor. Refer to "6.4 Programming the control" on page 11 for additional detail.			
P-15	Restore Factory Default Settings	x	x	nor	rST = Reset Defaults nor = Normal
		• To reset all programming parameters set this parameter to rST. This restores all programmable parameters to the factory default values.			
P-16	Hydronic Water Valve Forced Open		x	nor	OPn = Valve Forced Open nor = Normal Operation
		This parameter opens the water valve to bleed air from the system. • OPn: forces the valve open for four hours while the control is turned OFF. – If the control is turned ON or if AC power is interrupted during this four-hour period, the valve override is canceled. • nor: returns the valve to normal operation.			
P-17	Water Temperature Differential		x	15 °F (8.3 °C)	5 °F to 25 °F (2.8° C to 13.8 °C)
		This parameter sets the temperature differential between ambient air temperature and hydronic water temperature that controls the water valve. Careful selection of the temperature differential utilizes heating and cooling resources; while in COOL mode and using a 10-degree value, the valve will open to allow some cooling while the hydronic system is coming down to temperature.			

Parameter	Name	DX	CW	Factory Default	Parameter Range
P-18	Air Filter Cleaning/ Replacement Timer Setting	x	x	0	Displays the elapsed time (in hours x10) since the timer was started or reset.
		This parameter sets a reminder to clean or replace the air filter. **FIL** flashes briefly on the LED display every 10 seconds until it is cleared • The parameter entered represents that number times 10 hours. Select the number of operating hours until the filter reminder appears. • Parameter choices are between 10 (100 hours) and 250 (2500 hours). • Press the down icon to reset value to 0, restart the timer, and clear the reminder. Dometic recommends checking the air filter at least every 500 hours of operation.				
P-19	Filter Cleaning/ Replacement Timer Value & Reset	x	x	0	Displays the elapsed time (in hours x10) since the timer was started or reset.
		This parameter displays the current elapsed time (in hours x 10) since the timer was started or reset. When this parameter value reaches the value set in parameter 18, **FIL** flashes on the display every 10 seconds until cleared. Press the down icon to reset the value to 0, restart the timer, and clear the reminder.			
P-20	Reserved for Future Use	x	x	n/a	n/a
P-21	Reserved for Future Use	x	x	n/a	n/a
P-22	Voltage Calibration	x	x	AC Voltage	Adjust to match the accurate voltage reading.
		This parameter displays a live reading of the voltage being read by the circuit board. Calibrating this parameter provides a more accurate voltage level when calculating low voltage for parameter P-6. Use a reliable voltmeter during adjustment.			
P-23	Set Point Temperature Differential	x	x	2	1 = 1 °F (.55 °C) Differential 2 = 2 °F (1.1 °C) Differential
		This parameter is the temperature differential in Fahrenheit for all modes of operation: AUTOMATIC, COOL, HEAT, or AUX HEAT. Refer to "6.2 Choosing the control operation" on page 8 for more detail. • 1: maintains the room temperature ±1 °F (.55 °C) from desired set point. • 2: maintains the room temperature ±2 °F (1.1 °C) from desired set point.			
P-24	MOISTURE Mode Minimum Temperature	x	x	50 °F (10 °C)	40 °F–75 °F (4.4 °C to 23.9 °C)
		This parameter sets the minimum room temperature in Fahrenheit for which MOISTURE mode initiates a cooling cycle to remove moisture from the air. If the room temperature is below this parameter setting, MOISTURE mode runs a heating cycle. Refer to "6.2 Choosing the control operation" on page 8 for more detail.			
P-25	Auto Fan Speed Temperature Differential	x	x	2 °F (1.1 °C)	1 °F to 3 °F (.55 °C to 1.7 °C)
		This parameter sets the incremental differential (with cumulative steps) between the ambient temperature and the set point temperature at which the fan speed will increment to the next speed. A 1 °F (.55 °C) hysteresis in the auto fan speed differential prevents the speed from changing if the room temperature changes. In addition, programming parameters P-12 and P-23 both have an effect on the operation of the auto fan speed.			

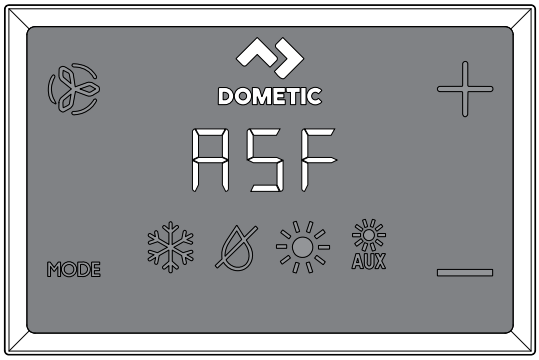
Parameter	Name	DX	CW	Factory Default	Parameter Range
P-26	Supply Air High Temperature Limit	x	x	OFF	OFF 95 °F–140 °F in 5° increments (35 °C–60 °C in 2.8° increments)
		This parameter sets the maximum supply air-discharge temperature allowed. • Enabling this parameter has no effect unless parameter P-13 is enabled and set to ELE (electric heat), and the P-28 parameter is enabled and set to EnA. • Use of this parameter requires that the OAT sensor be placed in the supply air stream immediately downstream of the blower discharge. • HEAT mode shut downs if the temperature of this sensor exceeds the setting. HEAT mode is restored when a 10 °F (5.5 °C) hysteresis is satisfied or when power is cycled to the control and the OAT sensor temperature is less than the setting but still within the hysteresis. There is no fault indication when this condition occurs, and no lockout. • Display the discharge temperature by pressing the up and down icons simultaneously (same as viewing the outside air temperature).			
P-27	Idle State Delay	x	x	10 seconds	5–120 seconds (5-second increments)
		This parameter sets the delay time before the display enters an idle state. Refer to "6.2 Choosing the control operation" on page 8 for more detail. Use the up or down icons to increase or decrease the idle delay time.			
P-28	Auxiliary Heat Enable	x	x	dIS	dIS/EnA
		This parameter allows operation of an optional auxiliary electric heater. If an aux heater is installed, change this setting to EnA to allow the electric heater to be operated independently of the reverse-cycle heating. In DX applications, the aux heat and compressor outputs on the control board will never operate at the same time.			
P-29	Relative Humidity Enable	x	x	OFF	OFF / 50–80
		This parameter enables the optional humidity sensor so the system can dehumidify with electric heat (if electric heat is installed and enabled) when the cabin humidity rises above 60% (sensor default) relative humidity (RH). • For DX applications, the display will indicate that the system is in Dehumidify mode. If the temperature decreases by 1 °F (.55 °C), the electric heat will turn on to maintain the set point. If the temperature increases back to set point, the electric heat will turn off. If the temperature increases 1 °F (.55 °C) above the set point, the compressor will then turn back on. This operation continues until the cabin's relative humidity (RH) is less than 60% (default). If an electric heater is not installed, the compressor run time will extend by operating to 1 °F (.55 °C) lower than the set point. This cycle continues until the cabin's relative humidity is less than 60% (default). The range of adjustment is 50% to 80% RH. • For CW applications, the electric heater cycles ON and OFF to maintain the set point while the bypass valve opens to allow cold loop water to enter the air handler coil to dehumidify. This operation continues until the cabin's relative humidity reaches the set point. If an electric heater is not installed, the bypass valve remains on until reaching 1 °F (.55 °C) below the set point.			

6.7 Exiting programming mode

To exit the programming menu, press and hold the **mode** icon for five seconds until the room temperature is displayed on the display. Alternatively, the display automatically exits the programming menu after 10 seconds of inactivity. The control's software version (such as "A1") appears in the display for one second prior to the automatic exit from the programming mode, then the control enters OFF mode.

6.8 Identifying programming fault codes

8



To protect the unit, certain fault conditions trigger a lockout that shuts down the control. The control will not restart until the fault is repaired. The type of lockout associated with the fault depends on the type of fault detected (refer to the "Fault codes" table) in combination with the level of protection (refer to the "Fail safe levels" table) that was programmed in the P-5 parameter (refer to"6.6 Selecting a Parameter" on page 12).

Fault codes

Code	Fault
ASF	Air Sensor Failure: indicates an air sensor failure
FIL	Filter: indicates the filter needs to be cleaned or replaced
HPF	High Pressure Fault: indicates high refrigerant pressure. This fault is not applicable in HEAT mode.
LAC	Low AC Voltage: indicates low AC voltage. This fault offers extra protection for the compressor and components within the system during low-voltage (brownout) conditions: • After the compressor starts, the low voltage monitor checks the AC input voltage. If voltage drops below the specified setting (95 VAC/195 VAC) and remains below for five minutes, the system shuts down and the low AC voltage fault displays. • The fault continues until the AC input voltage rises above 95 VAC/195 VAC.Then, the **LAC** fault code clears automatically and the cooling or heating cycle commences. • System lockout (sustained shutdown) occurs after the fourth consecutive low AC voltage fault.
LPF	Low Pressure Fault: indicates low refrigerant pressure. This fault has a 10-minute shutdown delay.
PLF	Pump Sentry Fault: indicates high-water temperature in the condensing coil.
Fail safe levels	
0	Fail Safe Level 0: provides minimal failsafe protection and is not recommended. • Only the **ASF** fault is detected and displayed. • The control shuts down and will not restart until the fault is repaired. • Once repaired, the control restarts after a two-minute delay.
1	Fail Safe Level 1: includes the failsafe actions of the previous level and detects all other faults, but they are not displayed. • The system shuts down for two minutes or until the fault is cleared, whichever is longer. • The system restarts when the fault is cleared.
2	Fail Safe Level 2: includes the failsafe actions of the previous levels and displays all other faults. • The system shuts down for two minutes or until the fault is cleared, whichever is longer. • The system restarts when the fault is cleared.
3	Fail Safe Level 3: includes the failsafe actions of previous levels and the system will lockout after four consecutive **HPF**, **LPF** or **PLF** faults. In addition, the lockout can be cleared. • The system shuts down for two minutes or until the fault is cleared, whichever is longer. • To clear the lockout, enter OFF mode then return to ON mode.

7 TROUBLESHOOTING

Symptom	Possible Issue	Solution
System will not start	Digital control is not ON	Turn on the control
System runs continuously	Set point temperature is improperly set: too low for cooling or too high for heating	Raise or lower set point
	Porthole or hatches open	Close all port holes and hatches
	Seawater temperature too high for cooling or too low for heating	Seawater temperature directly affects the air-conditioning unit's efficiency. The unit effectively cools in water temperatures up to 90 °F (32.2 °C) and heats (if reverse cycle option is installed) in temperatures as low as 40 °F (4.4 °C)
	Improper air sensor location	Refer to "5.1 Choosing a display panel location" on page 6
Low airflow	Manual fan speed is set to low	Refer to "6.2 Choosing the control operation" on page 8
No heat	Unit is set to cool only	Refer to "6.2 Choosing the control operation" on page 8.
	If DX, reversing valve may be stuck	Tap reversing valve lightly with a rubber mallet while unit is in HEAT mode. Call for service if problem persists
	Control parameters may be set to electric heat, not reverse cycle	Reprogram the **reverse automatic fan speeds during HEAT mode** parameter. Refer to "6.6 Selecting a Parameter" on page 12.
Water coil is iced in the HEAT mode	Seawater temperature is below 40 °F (4.4 °C).	Shut down system to prevent damage to condenser. Allow coil to defrost
Fan coil is iced	Thermostat set point is too low	Raise set point
No cooling or heating	Temperature set-point is satisfied	Lower or raise set point
	Seawater temperature too high for cooling or too low for heating	Seawater temperature directly affects the air-conditioning unit's efficiency. The unit effectively cools in water temperatures up to 90 °F (32.2 °C) and heats (if reverse cycle option is installed) in temperatures as low as 40 °F (4.4 °C)
	Control set to cool or heat only, or the mechanical control thermostat is rotated too far toward either cooler or warmer	Refer to "6.2 Choosing the control operation" on page 8
	For CW systems only: • Chilled water loop is inadequately cooled or heated • Chiller system is not in the proper mode of operation • Electric heater is disabled, if equipped	Check the water temperature sensor at the control, if equipped: • If the water temperature is not at least 15 °F (8.3 °C) warmer (for HEAT mode) or cooler (for COOL mode), the water valve will not open • If the system is equipped with an electric heater, ensure that the electric heat option is enabled
	HPF or **LPF** is showing on display	Refer to **HPF** or **LPF** troubleshooting solutions in this table
Digital display panel is not active	The eight-pin display cable plugs are not making contact (unplugged, dirty, bent, or broken pins)	With the power OFF at the circuit breaker, remove connector and inspect. If damaged, replace connector or entire display cable
Fan is not running or runs continuously	Digital control is set for either fan cycling with compressor or continuous fan operation	Change the fan operation to cycled or continuous. Refer to "6.2 Choosing the control operation" on page 8. When configured for electric heat, after a heat cycle ends the fan will stay on four minutes even if the fan is set to cycled operation

Symptom	Possible Issue	Solution
De-icing feature enabled due to coil icing up	Improper airflow	Refer to the "Fan coil is iced" troubleshooting section in this table, before reprogramming digital control
	De-icing parameter is set improperly	Reprogram de-icing parameter. • 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 the low fan speed parameter limit to 75 for maximum value
Air Sensor Failure (ASF) fault code displays	Indicates a failed air sensor, remote air sensor, or display cable	• Unplug remote air sensor, if installed • Plug in remote air sensor, if not installed • Change display cable
	Damaged jack/socket in display or on circuit board.	Visually check to see that the pins inside socket are not bent or corroded. Repair or replace display or circuit board, if needed.
Filter Reminder (FIL) fault code is displayed	Filter needs cleaning or replacement	Clean or replace filter, and reset filter hours reset
High Pressure Fault (HPF) fault code is displayed	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 parameter limit to 75, maximum limit, and set the reverse fan speeds during HEAT mode, or manually set fan speed to high
Low AC Voltage (LAC) fault code is displayed	Supply voltage is too low	Verify power to unit with multimeter
	Voltage is improperly calibrated	Verify that the **voltage calibration** parameter setting matches the voltage reading to unit using a multimeter. Adjust voltage calibration, if necessary
Low Pressure Fault (LPF) fault code is displayed	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 10-minute shut down time delay that may be in effect
	Low-pressure switch is open due to loss of refrigerant	Check air-conditioning unit for refrigerant oil leakage; call service technician
Low Pump Flow (PLF) fault code is displayed	Condenser coil is too hot	Verify that unit is getting water flow and that condenser is not fouled
	Thermistor is damaged	Unplug water sensor, if installed. Install new water sensor
	Damaged jack/socket on circuit board	Visually check to see that the pins inside of the socket are not bent or corroded. Repair or replace display or circuit board, if needed

8 SPECIFICATIONS

	Product Specifications
OPERATIONAL	
Set Point Operating Range	55 °F to 99 °F (12.8 °C to 37.2 °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 Volts	95 VAC
Low Voltage Limit 220 Volts	195 VAC
Low Voltage Processor Reset	50 VAC
Line	110 through 240 VAC
Frequency	50 Hz or 60 Hz
Fan Output	6 Amps @ 115 VAC
Fan Output	6 Amps @ 230 VAC
Valve Output	5 Amps @ 115/230 VAC
Electric Heater Output (using compressor output L1 and L2))	30 Amps Maximum
External Triac	26 Amps
External Q-Relay	30 Amps Maximum
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	4.41" x 2.96" (112 mm x 76 mm)
Cut-Out Dimensions for Idea Bezel	3.82" x 2.39" (96.9 mm x 60.2 mm)
Cut-Out Dimensions for Eikon Bezel	2.90" x 2.17" (73.6 mm x 55.0 mm)
CABLE LENGTHS	
Display Cable Self Contained	15 ft (4.6 m) Standard
Display Cable Central	30 ft (9.1 m) Standard
Alternate Air Sensor (optional)	7 ft (2.1 m) Standard
Alternate Air Sensor Central System (optional)	30 ft (9.1 m) Standard
Outside Air Sensor (optional)	15 ft (4.6 m) Standard
All custom cable lengths supplied in standard 5' (1.5m) increments	75 ft (22.9 m) Maximum
SYSTEM INPUTS	
Ambient or Inside Air Temperature	1
High Refrigerant Pressure	1
Low Refrigerant Pressure (optional)	1
Alternate Inside Air Temperature Sensor (optional)	1
Outside Air Temperature Sensor (optional)	1
Pump Sentry Condenser Coil Sensor (optional)	1

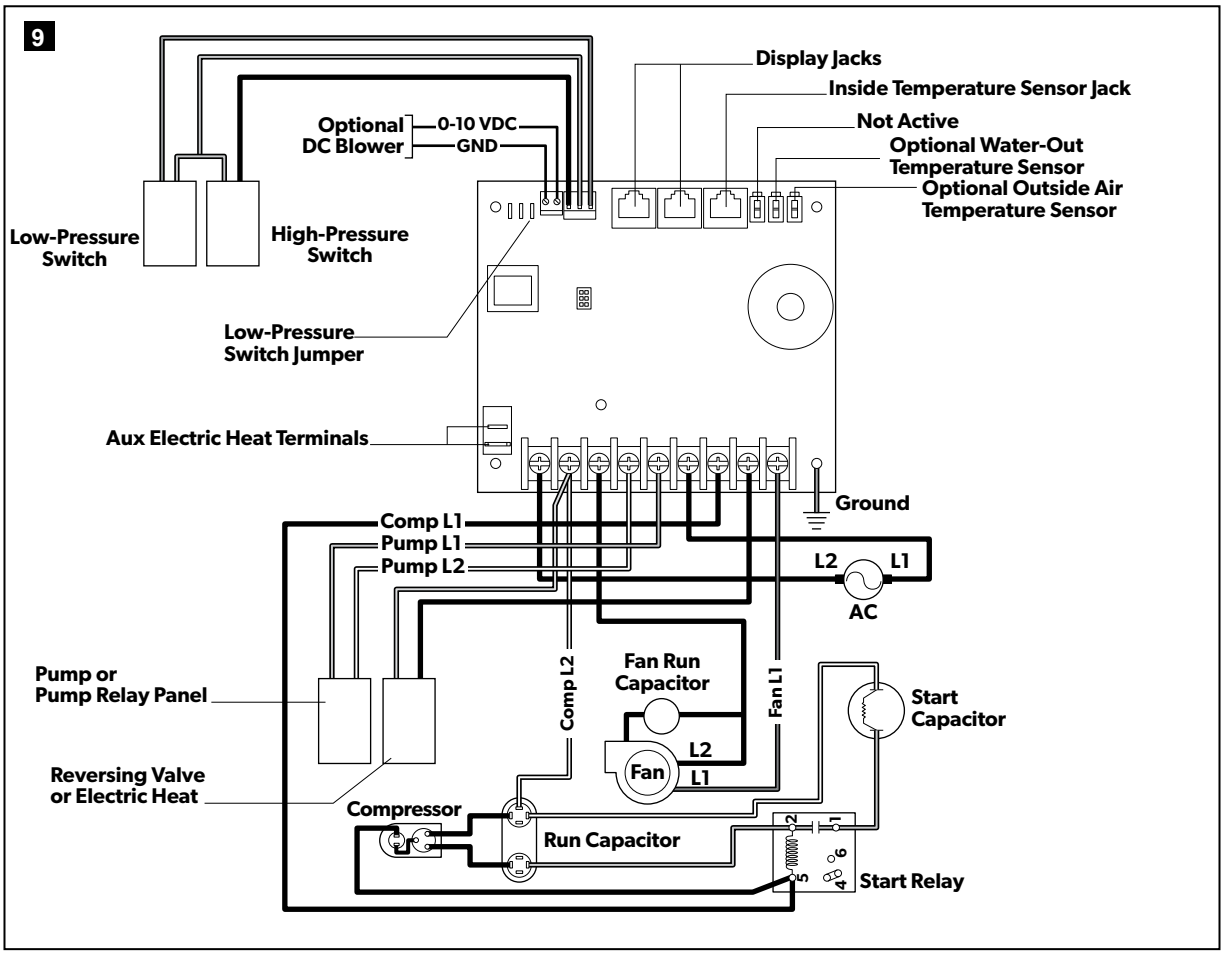
9 APPENDIX: REFERENCE DOCUMENTS

9.1 Wiring Diagrams

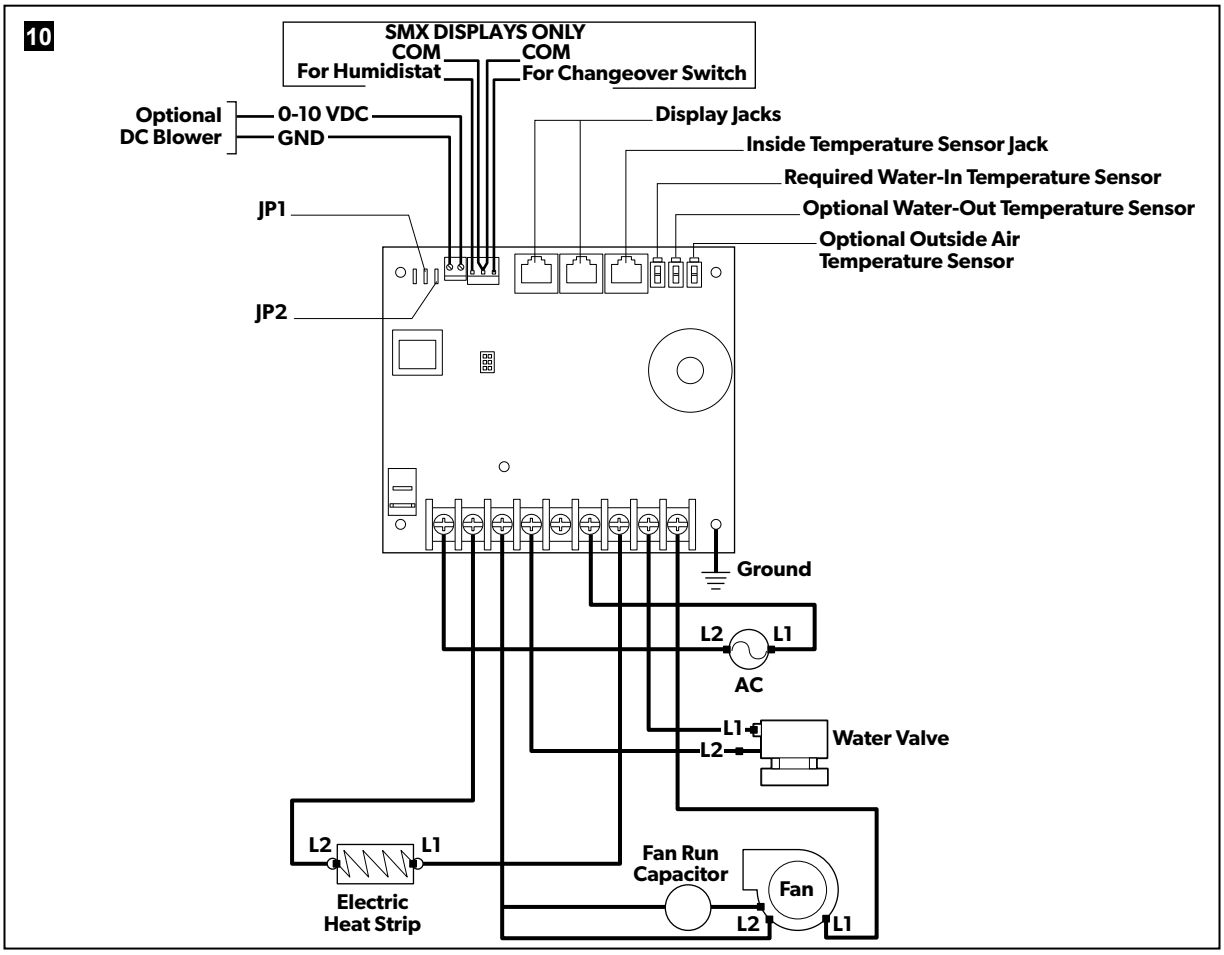
⚠WARNING RISK OF ELECTRIC SHOCK. Turn power OFF before performing any electrical installation or maintenance activities. Failure to obey this warning could result in death or serious injury.

These are sample diagrams. Refer to the installation manual for your air-conditioning unit or the specific diagram located in the electrical box for additional detail.

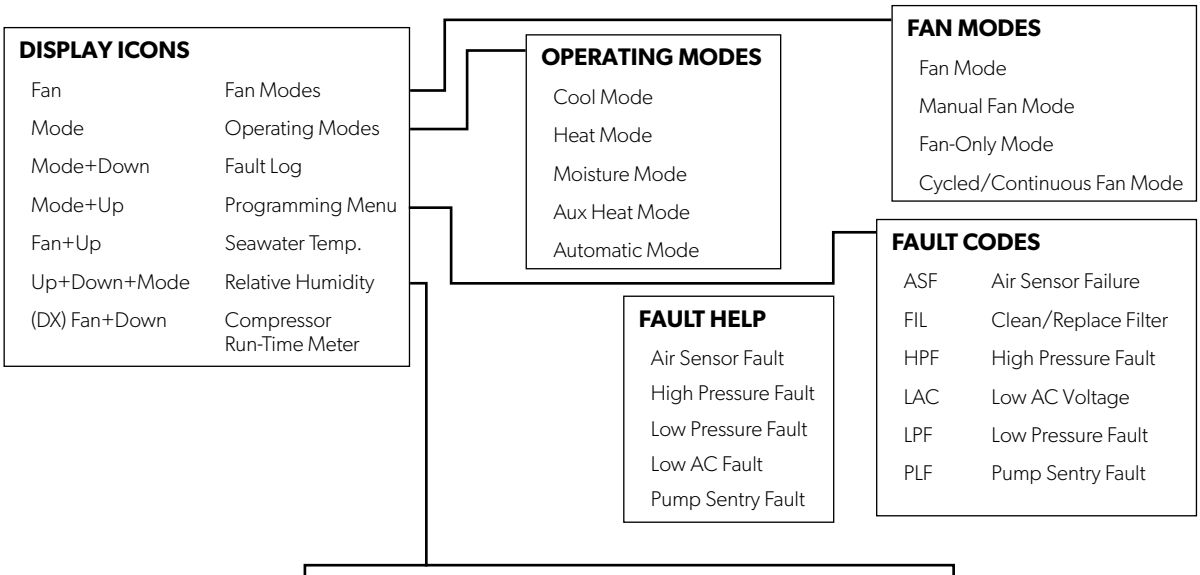
DX Wiring Diagram



CW Wiring Diagram



9.2 Navigation Tree



DX PROGRAMMABLE PARAMETERS

P-1	High Fan Limit
P-2	Low Fan Limit
P-3	Compressor Staging Time Delay
P-4	Temperature Calibration
P-5	Failsafe Level
P-6	Low Voltage Monitor
P-7	De-Icing Cycle
P-8	Optional Pump Sentry
P-9	Display Brightness Control
P-10	Fahrenheit or Celsius Selection
P-11	Cycle Pump with Compressor
P-12	Reverse Automatic Fan Speeds During Heating
P-13	Reverse-Cycle Heating or Electric Heat
P-14	Fan Motor Selection
P-15	Restore Factory Default Settings
P-16	Reserved
P-17	Reserved
P-18	Air Filter Cleaning/Replacement Timer Setting
P-19	Filter Cleaning/Replacement Timer Value & Reset
P-20	Reserved
P-21	Reserved
P-22	Voltage Calibration
P-23	Set Point Temperature Differential
P-24	Moisture Mode Minimum Temperature
P-25	Auto Fan Speed Temperature Differential
P-26	Supply Air High Temperature Limit
P-27	Idle State Delay
P-28	Auxiliary Heat Enable
P-29	Relative Humidity Enable

CW PROGRAMMABLE PARAMETERS

P-1	High Fan Limit
P-2	Low Fan Limit
P-3	Reserved
P-4	Temperature Calibration
P-5	Reserved
P-6	Low Voltage Monitor
P-7	Reserved
P-8	Reserved
P-9	Display Brightness Control
P-10	Fahrenheit or Celsius Selection
P-11	Reserved
P-12	Reverse Automatic Fan Speeds During Heating
P-13	Water Valve or Electric Heat
P-14	Fan Motor Selection
P-15	Restore Factory Default Settings
P-16	Hydronic Water Valve Forced Open
P-17	Water Temperature Differential
P-18	Air Filter Cleaning/Replacement Timer Setting
P-19	Filter Cleaning/Replacement Timer Value & Reset
P-20	Reserved
P-21	Reserved
P-22	Voltage Calibration
P-23	Set Point Temperature Differential
P-24	Moisture Mode Minimum Temperature
P-25	Auto Fan Speed Temperature Differential
P-26	Supply Air High Temperature Limit
P-27	Idle State Delay
P-28	Auxiliary Heat Enable
P-29	Relative Humidity Enable

10 DISPOSAL

Place the packaging material in the appropriate recycling waste bins, whenever possible. Consult a local recycling center or specialist dealer for details about how to dispose of the product in accordance with all applicable national and local regulations.

11 CUSTOMER SUPPORT

Use the following information to contact Dometic Marine Customer and Technical Support.

Telephone:	+1 954-973-2477		
Fax:	+1 800-542-2477	Marine Division	Florida
email:	MarineSales@dometic.com		
24/7 Technical Support			
Telephone:	+1 800-542-2477	8:00 AM to 5:00 PM Eastern Time	U.S.A. and Canada
	+1 888-440-4494	After hours and weekends	
email:	MarineServiceUS@dometic.com		
International Sales and Service			
Telephone:	+44 (0) 870-330-6101		

For all other areas visit our website to find your nearest distributor at www.dometic.com.

When contacting Dometic, 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.

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DOMETIC

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