►► DOMETIC

MARINE CONTROL UNITS
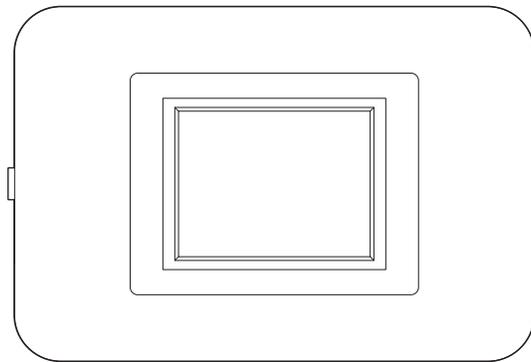
EN **Smart Touch Cabin Control**

Installation and Operation Manual 2

Service Center & Dealer Locations
Visit: www.dometic.com

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 also will indicate the degree or level of hazard seriousness.

⚠ **DANGER!**

Indicates a hazardous situation that, if **not** avoided, will result in death or serious injury.

⚠ **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: Used to address practices **not** related to physical injury.

ⓘ Indicates additional information that is **not** related to physical injury.

1.3   Supplemental Directives

To reduce the risk of accidents and injuries, please observe the following directives before proceeding to install or operate this appliance:

• Read and follow all safety information and instructions.

• Read and understand these instructions before installing or operating this product.

• The installation **must** comply with all applicable local or national codes, including the latest edition of the following standards:

  – American Boat and Yacht Council (ABYC)

  – ANSI/NFPA70, National Electrical Code (NEC)

1.4   General Safety Messages

⚠ **WARNING: ELECTRICAL SHOCK, FIRE, AND/ OR EXPLOSION HAZARD. Failure to obey the following warnings could result in death or serious injury:**

• Use only Dometic replacement parts and components that are specifically approved for use with the appliance.

• Avoid improper installation, adjustment, alterations, service, or maintenance of the appliance. Service and maintenance **must** be done by a qualified service person only.

• Do **not** modify this product in any way. Modification can be extremely hazardous.

• Use care when diagnosing and/or adjusting components on a powered unit.

NOTICE: Do **not** operate the air conditioning unit in water that is cooler than 38 °F (3 °C). Failure to obey this notice could lead to water freezing in the condenser coil which can damage to the unit.

2 Intended Use

The Dometic Smart Touch Cabin Control is a microcontroller-based unit designed for use with direct expansion (DX), reverse-cycle air conditioning systems.

The Smart Touch Cabin Control offers 22 programmable parameters for custom installations, including a dehumidification mode to control relative humidity and de-icing to prevent evaporator coil icing. The system offers a nonvolatile memory that retains settings without batteries and CAN-bus network capability. Optional sensors are available for further customization.

Dometic Corporation reserves the right to modify appearances and specifications without notice.

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

3 General Information

This section provides information on the features, tools, and high-level screen displays.

This manual provides all the necessary information for proper installation and operation of the Smart Touch Cabin Control. Poor installation and misunderstood operating parameters will result in unsatisfactory performance and possible failure.

i The images used in this document are for reference purposes only. Components and component locations may vary according to specific product models. Measurements may vary ±0.38 in. (10 mm).

3.1 How it Works

This section describes the affects of seawater on a marine climate control system.

The basic principle of an air conditioning unit is the movement of heat. To cool, heat is removed from the inside cabin air and transferred to the seawater. To warm, heat is extracted from the seawater and discharged into the living space. The efficiency of the system operation depends on both seawater and cabin temperatures.

- **Cool mode operation.** The air conditioning unit operates most efficiently in seawater temperatures below 90 °F (32 °C). At higher seawater temperatures, the unit will operate at a reduced capacity. A high-pressure shutdown may occur at higher seawater temperatures.

- **Heat mode operation.** As the seawater gets colder, less heat is available and the heating efficiency is reduced. Full heating capacity is obtained at approximately 55 °F (13 °C) seawater temperature. Performance drops to about 50% of the rated capacity in 40 °F (4 °C) water.

In water temperatures below 40 °F (4 °C), the system pressure can be so low that the unit will shut down on a low-pressure fault. This problem is compounded when the cabin is also cold. See "Troubleshooting" on page 37 for more information.

3.2 Tools and Materials

Dometic recommends that the following tools and materials be used while installing the appliance:

Recommended Tools	
Phillips-head Screwdriver	Saw
Safety Glasses	Thermal Mastic
Multimeter	

Included Parts	Quantity
Smart Touch Cabin Control	1
Screws	4

Additional Parts	DX	CW
Required for CW installations (not included)		
Water Inlet Temperature Sensor		X
Optional Parts		
Outside Air Temperature (OAT) Sensor	X	X
Inside Air Temperature Sensor	X	X
Room Temperature/Relative Humidity Combination Sensor	X	X
Seawater Low-Limit Temperature Sensor	X	
Pump Sentry Water Sensor	X	

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

3.3 Understanding the Menu Screen Layout

This screen is an example of a typical menu screen and navigation buttons. Actual menu screens may vary in appearance.
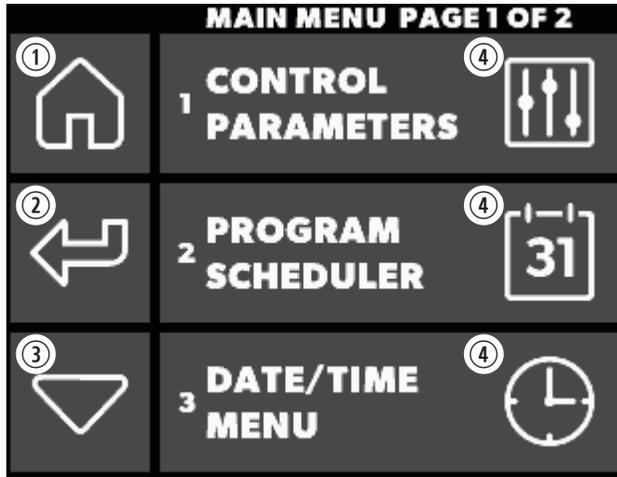
1 Menu Screen Layout

No.	Button	Description
①	Home	Returns to the home screen
②	Back	Returns to the last screen or menu
③	Scroll Down	Moves to the next page of settings options
④	Main Menu Options	Selects the menu option to modify

3.4 Understanding the Settings Screen Layout

This screen is an example of a typical setting screen. Actual settings screens may vary in appearance.
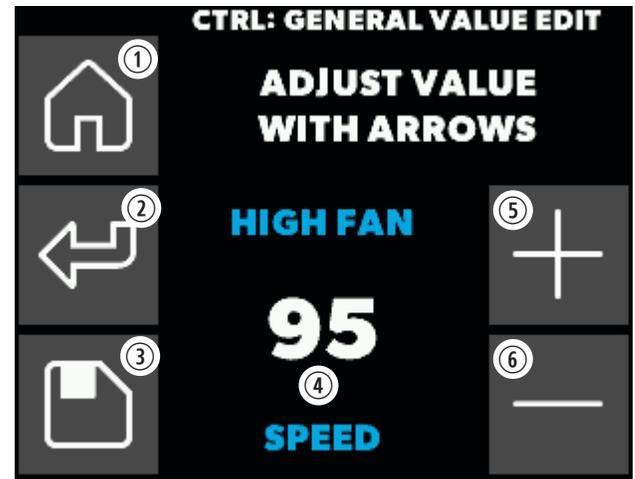
2 Settings Screen Layout

No.	Button	Description
①	Home	Returns to the home screen
②	Back	Returns to the last screen or menu
③	Save	Saves the displayed value
④	Value Display	Displays the current value of the item or parameter
⑤	Up	Increases the set point by one degree with each press and release operation
⑥	Down	Decreases the set point by one degree with each press and release operation

3.5   Understanding the Home Screen

This starting screen displays when the Smart Touch Cabin Control is turned on.
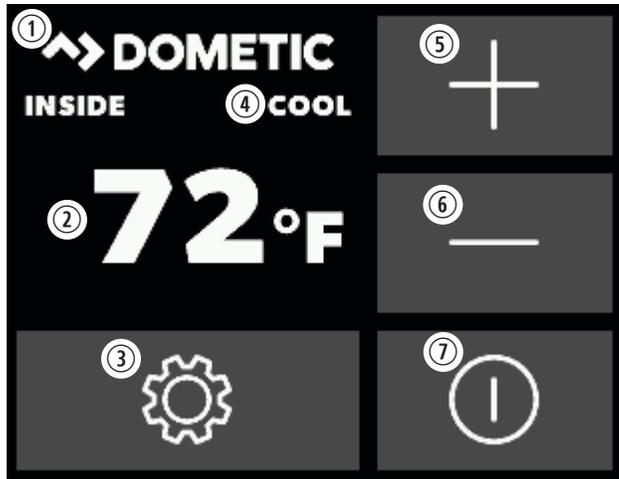
3 Main Screen Icon Functions

No.	Button	Description
①	Force Sleep	Forces the sleep mode to initiate immediately, if sleep delay is on/enabled with a press and release
②	Temperature	Cycles through available set point(s) (inside, outside, service, water, and humidity temperatures) with a press and release
③	Main Screen	Displays the main screen with a press and release
④	Status	Indicates the system status (off, pending, active, standby, or fault)
⑤	Up	Displays the set point with a press and release. Press and release the up icon as many times as desired to increase the set point. The set point increases one degree with each press and release.
⑥	Down	Displays the set point with a press and release. Press and release the down icon as many times as desired to decrease the set point. The set point decreases one degree with each press and release.
⑦	Power	Toggle between On and Off with a press and release

3.6   Understanding the Main Screen

Enter from the home screen to access the most basic functions as well as the menu for more options.
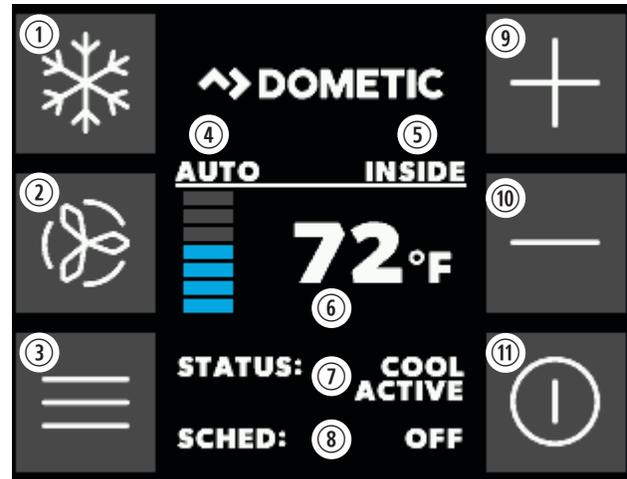
4 Main Screen Icon Functions

No.	Button	Description
①	Mode	Changes the currently active mode with a press and release
	Auto	Switches to cool or heat to satisfy the temperature set point
	Cool	Indicates the system is in cooling mode or when the unit is in an automatic mode cooling cycle
	Heat	Indicates the system is in heating mode or when the unit is in an automatic mode heating cycle
	Auxiliary Heat	Indicates aux heat-only mode or when the unit is in an automatic mode auxiliary heating cycle
	Dehumidification	Controls humidity when the vessel is unoccupied
②	Fan Mode	Cycles through low, medium, high, and auto fan speeds with a press and release
③	Main Menu	Displays the main menu with a press and release
④	Fan Speed and Mode Indicator	Above the line, indicates if the fan speed is automatic or manual. Displays the current speed below the line.
⑤	Sensor Indicator	Specifies which temperature is displayed (inside, outside, service, or water temperature) based on the sensors installed.

No.	Button	Description
⑥	Temperature Indicator	Displays the temperature based on the sensor indicator.
⑦	Status	Shows if a fault has occurred
⑧	Schedule	Shows a schedule program is active and the specific times and days
⑨	Up	Increases the set point one degree with a press and release
⑩	Down	Decreases the set point one degree with a press and release
⑪	Power	Toggles between On and Off mode

4 Specifications

This section describes the display, sensor, cabling, environmental, and electrical specifications for the unit.

Installation Specifications	
Display Dimensions	
Display Panel	4.3 x 2.9 in. (110 x 73 mm)
Panel Cut Out	2.9 x 2.2 in. (74 x 55 mm)
Cable Lengths	
Display Cable Self-Contained	15 ft (4.6 m) Standard
Inside Air Temperature Sensor (optional)	7 ft (2.1 m) Standard
OAT Sensor (optional)	15 ft (4.6 m) Standard
All custom cable lengths supplied in standard 5.0 ft (1.5 m) increments	75 ft (22.9 m) Maximum
Sensor Inputs	
High Refrigerant Pressure	1
Low Refrigerant Pressure (optional)	1
Inside Air Temperature Sensor (optional)	1
OAT Sensor (optional)	1
Pump Sentry Water Sensor (optional)	1
Room Temperature/Relative Humidity Combination Sensor (optional)	1
Water Inlet Temperature Sensor (CW Installations Only)	1

Operational Specifications	
Environmental	
Set Point Operating Range	65–85 °F (18–29 °C)
Ambient Temperature Operating Range Displayed	5–150 °F (-15–66 °C)
Sensor Accuracy	±2 °F @ 77 °F (±1 °C @ 25 °C)
Minimum Operating Temperature	0 °F (-18 °C)
Maximum Ambient Operating Temperature	180 °F (82 °C)
Electrical	
Low Voltage Limit 110–120 Volt Units	95 VAC
Low Voltage Limit 208–240 Volt Units	195 VAC
Low Voltage Processor Reset	50 VAC
Universal Line Voltage	100–240 VAC
Frequency	50 or 60 Hz
Fan Output	6 A @ 115 VAC
	6 A @ 230 VAC
Valve Output	1/4 A @ 115/230 VAC
Heater Output[1] (using valve relay)	15 A @ 115 VAC
	10 A @ 230 VAC
Aux Heater Output (using off-board relay)	30 A @ 115 VAC / 230 VAC
Pump Output	1/4 HP @ 115 VAC
	1/2 HP @ 230 VAC
Compressor Output	1 HP @ 115 VAC
	2 HP @ 230 VAC
Maximum Rh Conditions	99% Non Condensing
Power Consumption	< 5 W

[1] Only applies to software revision A26 and older.

5   Wiring Diagrams

The following diagrams show the component connections for the direct expansion (DX) and chilled water (CW) systems.

⚠ **WARNING: ELECTRICAL SHOCK.**
Turn the power off before opening the electrical box. Failure to do so could result in death or serious injury.

5.1   Understanding the DX Wiring Diagram
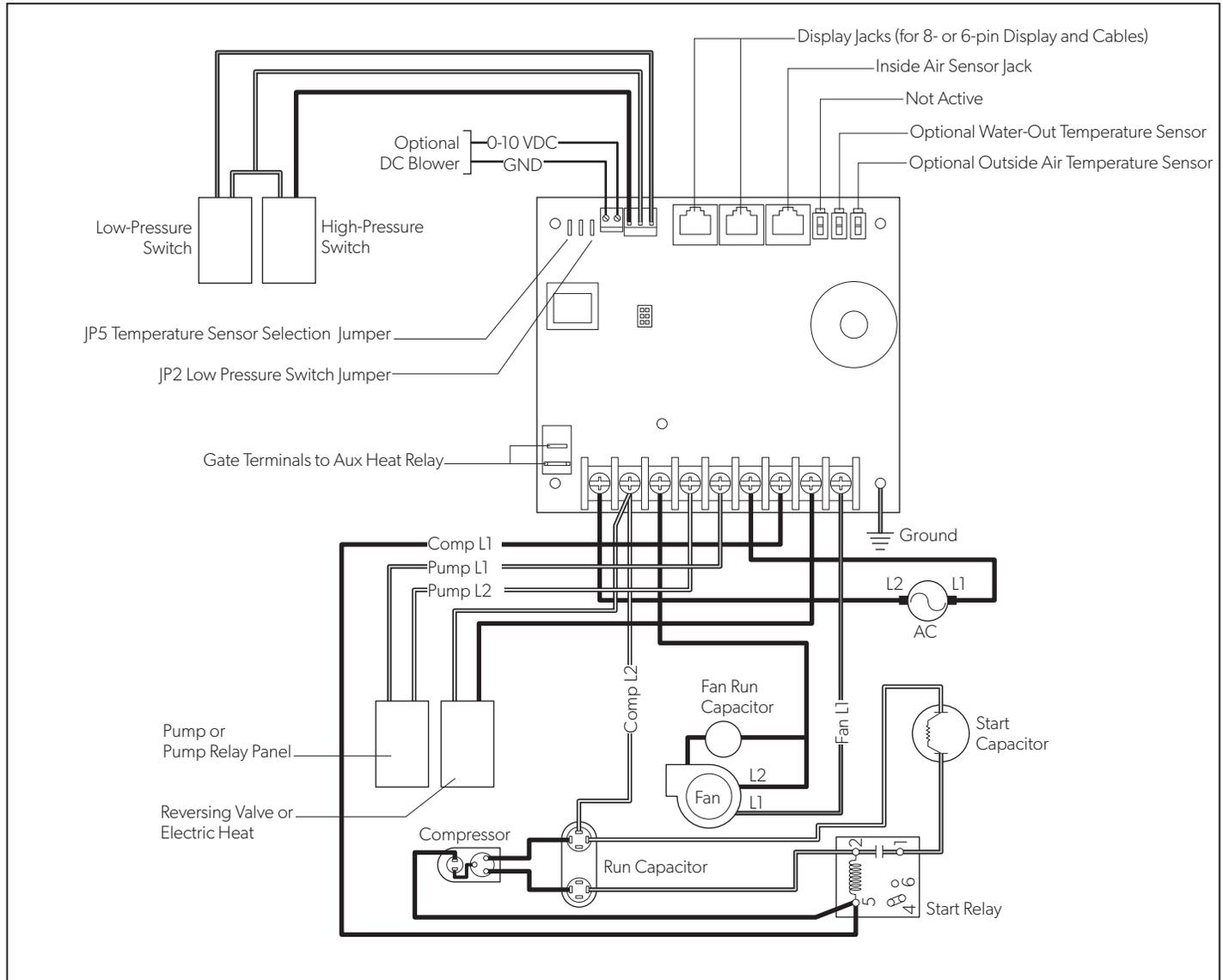
5   Wiring Diagram - DX

5.2 Understanding the CW Wiring Diagram

SMX DISPLAYS ONLY
COM — COM
For Humidistat — For Changeover Switch

Optional DC Blower — 0-10 VDC
GND

Display Jacks (for 8- or 6-pin Display and Cables)
Inside Air Temperature Sensor Jack
Required Water-In Temperature Sensor
Optional Water-Out Temperature Sensor
Optional Outside Air Temperature Sensor

JP1 System Selection Jumper

JP5 Temperature Sensor Selection Jumper

Ground

L2 — L1
AC

L1
L2
Water Valve

L2 — L1
Electric Heat Strip

Fan Run Capacitor

Fan
L2 — L1

6 Wiring Diagram CW

6 Installation and Setup

NOTICE: Do **not** use a screw gun and do **not** over-tighten the screws when mounting the display because either method may damage the display.

NOTICE: The system's built-in air sensor is located in the control display panel; therefore, you **must** locate the display on an interior wall at eye level. Do **not** locate in direct sunlight or inside a cabinet. If these conditions cannot be met, you **must** purchase the optional inside air temperature sensor and install it in the return-air stream.

NOTICE: Do **not** staple sensor cables when mounting.

This section describes how to install and set up the Smart Touch Cabin Control.

6.1 Choosing the Location

This section describes the location requirements.
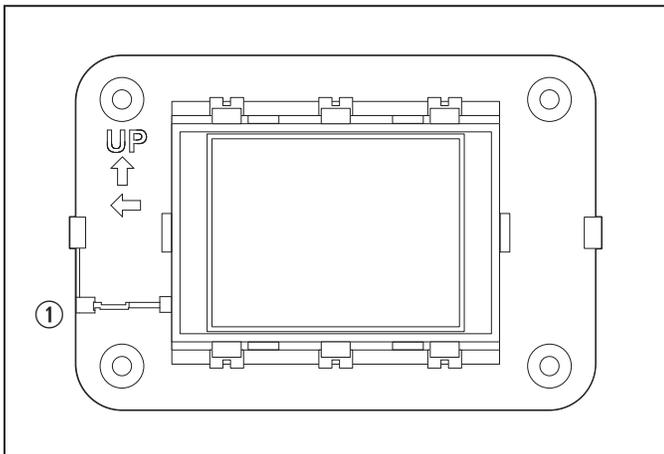
7 Front Panel Temperature Sensor

① Temperature Sensor Location

1. Before mounting the control panel, consider the location. The display panel's built-in air sensor provides excellent room-air temperature sensing when properly located and installed. For the sensor location on the display panel, see Figure 7.

   ⓘ If you cannot mount the display in a suitable location, install the optional inside air temperature sensor.

2. Ensure the following requirements are met when mounting the display panel.

– Install the display on an inside wall, slightly higher than mid-height of the cabin.

– Select a location with freely circulating air where the temperature sensor can best sense average temperature.

– Select a location within 15 ft (4.5 m) of the air conditioning unit to accommodate the length of the display cable (custom lengths are available).

– Avoid installing the display in direct sunlight, near any heat-producing appliances, or in a bulkhead where temperatures radiating from behind the panel may affect performance.

– Avoid installing the display in the supply air stream, above or below a supply air or return-air grille, behind a door, in a corner, under a stairwell, or any place where there is no freely circulating air.

6.2 Installing the Display Panel

This section describes how to mount the display panel.
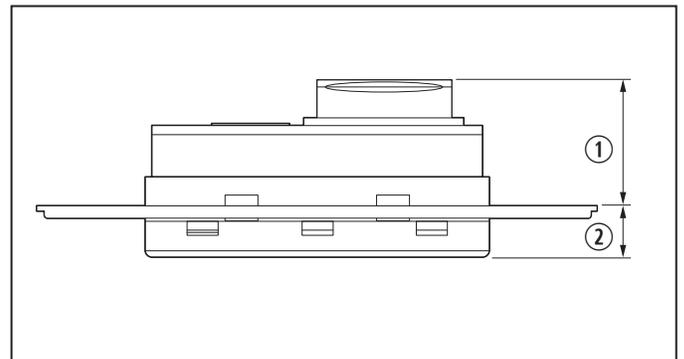
8 Top View Mounting Dimensions

① 1 in. (25 mm)   ② 0.4 in. (10 mm)
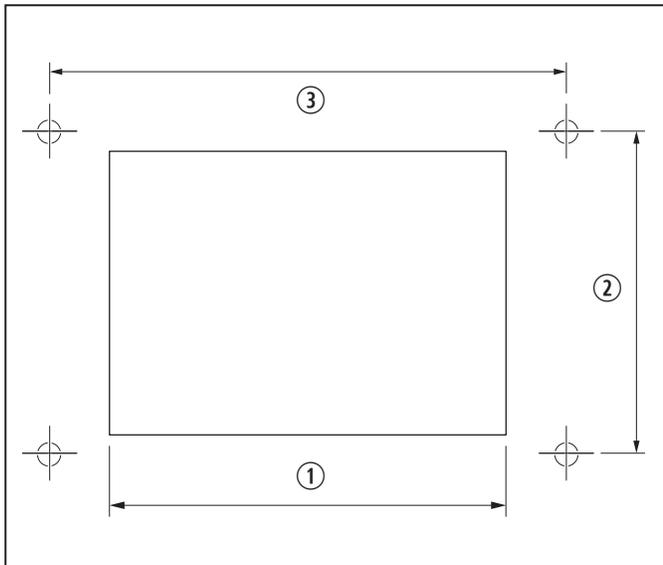
9 Cut Out Dimensions (Drawing not to scale – not a template)

① 2.9 in. (74 mm)   ③ 3.5 in. (88 mm)

② 2.2 in. (56 mm)

1. Make the cut-out for the display panel to measure 2.9 in. (74 mm) wide by 2.2 in. (56 mm) high.

2. Plug the 8-pin connector end of the display cable into the upper-right socket on the circuit board in the electric box.

3. Plug the other end to the back of the display panel.

4. Secure the display panel to the bulkhead using the four screws provided.

5. When the display is securely mounted, place the bezel over the display frame and snap into place.

6.3   Installing the Optional Sensor Hardware

This section describes where and how to mount additional sensors.

6.3.1 Inside Air Temperature

If the display cannot be mounted in a proper location, install this optional sensor to monitor the cabin temperature. The installed sensor will override the display built-in temperature sensor.

ℹ️ The sensor's distance from the air conditioner must be within the 7 ft (2.1 m) standard cable length.

1. Mount the sensor in the return-air stream behind the opening of the return-air grille.

2. Plug the 6-pin connector cable into the inside jack #J3 in the upper-left corner of the circuit board.

6.3.2 Outside Air Temperature

Install this optional sensor to monitor the outside air temperature.

ℹ️ The sensor's cables are available in various lengths.

1. Mount the sensor outside, but not in direct sunlight.

2. Plug the cable into the OAT plug #P6.

6.3.3 Room Temperature/Relative Humidity Combination

Install this optional sensor to monitor the relative humidity of the cabin.

ℹ️ The control board automatically detects the this sensor and immediately starts measuring humidity.

1. Mount the sensor in the same location as the optional inside air temperature sensor.

2. Plug the sensor's 6-pin connector into the inside temperature socket at the edge of the circuit board.

6.3.4 Pump Sentry Water – DX Only

Install this optional DX sensor to monitor the condenser coil temperature.

ℹ️ This sensor must be enabled with the Pump Sentry feature. See section "Understanding the DX Operational Settings" on page 21.

1. Mount the sensor at the condenser coil outlet and install insulation around it.

2. Plug the sensor into the H2O OUT plug #P5.

6.3.5 Seawater Low-Limit Temperature – DX Only

Install this optional DX sensor to monitor the temperature of the seawater feeding the air conditioning unit.

1. Mount the sensor in direct contact with the copper pipe, using thermal mastic to ensure a good heat transfer.

2. Strap the sensor wire in place for strain relief and to prevent the sensor from being accidentally removed.

3. Plug the sensor's 2-pin connector into the loop water out (blue) socket located on the circuit board.

6.3.6 Water Inlet Temperature – CW Only

Install this optional CW sensor to monitor the water temperature.

When using the AH Mode with a CW air handler:

1. Ensure the sensor has good contact with the copper pipe.

2. Attach the sensor to the chilled-water inlet on the air handler.

3. Plug the water inlet sensor cable into the H2O IN plug #P4.

ⓘ Do not attach to a rubber hose.

7   Commissioning the System

NOTICE: Do **not** turn the unit off and then immediately turn it back on. Allow at least 30 seconds for the refrigerant pressure to equalize.

This section describes the commissioning procedure and provides a commissioning checklist.

7.3.1 Commissioning Procedure

This section outlines the commissioning procedure to test the main inputs and outputs of a new system. The procedure also offers guidance when selecting important system settings.

ⓘ The commissioning procedure varies depending on the CW or DX system.

To begin the commissioning procedure:

1. Ensure the seawater-intake ball valve/seacock is open.

2. Make sure the control is powered Off.

3. Turn on the air conditioning unit circuit breaker and the seawater pump circuit breaker, if installed.

4. Turn the control On.

5. Press the fan icon, and verify that the fan is running and that there is steady airflow out of the supply air grille.

6. Select a temperature set point lower than the current cabin temperature to start the compressor and seawater pump.

7. Check for a steady solid stream of water from the overboard discharge.

8. Verify there is steady airflow from the supply air grille.

ⓘ If the unit does not appear to be operating properly, see section "Troubleshooting" on page 37.

To navigate through the commissioning procedure:

1. Press the home button to exit the procedure.

2. Press the return arrow to exit the procedure and return to the menu.

3. Press the down arrow to continue with the next step.

7.3.2 Commissioning the System

The steps in the commissioning procedure vary depending on whether the system is a chilled water (CW) or a direct expansion (DX) air conditioning system.

These tables clarify the commissioning procedures for the CW system, followed by the DX system.

CW and DX - Commissioning Procedure Screens 1 - 5	
Screen	**Description**
1	Introduction and System Configuration The following system components were detected to configure: [Chilled water system with electric heater] [Alternative air sensor is connected] [Direct expansion system without electric heater] To modify these settings exit the commissioning procedure, adjust the program parameters, and run the commissioning procedure again. Press the down button to continue.
2	Inside Temperature Sensor If using the display sensor, make sure the display is not located in direct sunlight, near an outside door, or near the supply air stream. If using an alternative air sensor, make sure it is placed in the return-air stream. Press the down button to continue.
3	Low Fan Speed Test The fan is now energized at the above mentioned speed. Verify the supply air flow and the acoustics are correct. To modify these settings, exit the commissioning procedure, adjust the program parameters, and run the commissioning procedure again. Press the down button to continue.
4	Medium Fan Speed Test The fan is now energized at the above mentioned speed. Please verify the supply air flow and the acoustics are correct. To modify these settings, exit the commissioning procedure, adjust the program parameters, and run the commissioning procedure again. Press the down button to continue.
5	High Fan Speed Test The fan is now energized at the above mentioned speed. Please verify that the supply air flow and the acoustics are correct. To modify these settings, exit the commissioning procedure, adjust the program parameters, and run the commissioning procedure again. Press the down button to continue.

CW only - Commissioning Procedure Screens 6 - 10	
Screen	**Description**
6	Water Temperature Sensor The water temperature reading is: 49 °F. The difference between the water temperature and the inside temperature must exceed the differential setting to open the valve. To modify these settings, exit the commissioning procedure, adjust the program parameters, and run the commissioning procedure again. Press the down button to continue.

CW only - Commissioning Procedure Screens 6 - 10	
Screen	**Description**
7	Water Valve Test The water valve output test is now running and the valve output is energized. Please verify that the valve is open and that the supply air is cooler than the room ambient temperature. Press the down button to continue.
8	Electric Heater Test The electric heater output test is now running and the electric heater is energized. Please verify that the heater is operating and that the supply air is warmer than the room ambient temperature. Press the down button to continue.
9	Auxiliary (Aux) Heater Test The aux heater output test is now running and the aux heater is energized. Please verify that the heater is operating and that the supply air is warmer than the room ambient temperature. Press the down button to continue.
10	Pass Confirmation Congratulations! The commissioning procedure is now completed. Press the down button to continue.

DX only - Commissioning Procedure Screens 6 - 11	
Screen	**Description**
6	Fault Check No faults are detected. If the system has a low-pressure switch, verify that it is wired and its enable jumper on the main board is cut. Press the down button to continue.
7	Pump Test The seawater pump test is now running and the pump output is energized. Please verify that the seawater pump is on and pumping water overboard. Press the down button to continue.
8	Cool Test The cooling cycle test is now running and the compressor should start within 15 seconds. Please verify that the compressor is operating and the supply air is cooler than the room ambient air temperature. Press the down button to continue.

DX only - Commissioning Procedure Screens 6 - 11	
Screen	**Description**
9	R/C Heat Test The reverse-cycle heating test is now running and the compressor should start within 15 seconds. Please verify that the compressor is operating and the supply air is warmer than the ambient air temperature. Press the down button to continue.
10	Auxiliary (Aux) Heat Test The aux heater output test is now running and the aux heater is energized. Please verify that the heater is operating and the supply air is warmer than the ambient air temperature. Press the down button to continue.
11	Pass Confirmation Congratulations! The commissioning procedure is now completed. Press the down button to continue.

8   Operation

This section describes the operating features.

Use the main menu settings to adjust the operating parameters and to fine-tune the system for the most efficient operation. Variables such as ducting, sensor location, and system layout affect the system operation.

The control has factory default settings stored in permanent memory that can be recalled. To return to the default settings, select main menu > control parameters > recall defaults.

Reprogrammed, new settings can be saved as memorized settings, and then recalled and saved at any time. To use the reprogrammed settings, select main menu > control parameters > memorize settings, and recall memorized. See section "Understanding the Memory Settings" on page 25" for more information.

8.1   Understanding the Operating Cycles

This section describes how the system responds during normal heating and cooling cycles.

8.1.1 Automatic Mode

Heating and cooling are supplied as required.

A cooling cycle will start when the cabin temperature exceeds the set point by 2 °F (1 °C) and will continue to cool until the temperature equals the set point. See the section set point temperature differential on page 19 for instructions on how to reduce this variation to 1 °F (1 °C).

To switch from cooling to heating, the cabin temperature must drop below the set point by at least 4 °F (2 °C). Similarly, if heating is required, a heating cycle will start when the cabin temperature is below the set point by 2 °F (1 °C) and will continue to heat until the temperature equals the set point.

The cabin temperature must exceed the set point by at least 4 °F (2 °C) to switch from heating to cooling.

8.1.2 Cool or Heat Mode

Heating and cooling are supplied as selected.

- By selecting cool mode, only cooling is supplied.

- By selecting heat mode, only heating is supplied.

The cabin temperature in either mode is maintained within 2 °F (1 °C) of the set point by default. See the section set point temperature differential on page 19 for instructions on how to reduce this variation to 1 °F (1 °C).

When the heating or cooling set point is satisfied, the compressor cycles off and the fan returns to low speed.

The fan speed remains constant if manual fan speed is selected. For more information on this feature, see "Understanding the Operating Modes" on page 15.

8.1.3 CW Systems

This section applies to CW systems only.

When cooling or heating is required, the water valve will not open unless the water temperature is adequate. View the water temperature by pressing the temperature indicator icon until the water temperature is displayed. The fan remains in low speed until an adequate water temperature is available. Heat will be supplied when no heating is available (water temperature is inadequate) only if the optional electric heater is installed and programmed.

An adequate cooling or heating water temperature is defined by the water temperature differential setting, under CW control parameters. The factory default is set at a 15 °F (8 °C) differential from the ambient air temperature.

8.1.4 Reversing Valve

This section applies to DX systems only.

The position of the reversing valve determines if the system is in cool mode or heat mode. In addition, the reversing valve is programmed to toggle in these situations:

- When the system is running and heating or cooling is required, the reversing valve toggles to the opposite mode to reduce the starting surge of the compressor.

- When a cooling or heating cycle is called for and if the system has been off for less than five minutes.

- When a cycle is interrupted from the display panel by pressing the power icon or changing the set point.

Unnecessary valve toggling is limited to reduce reversing valve noise. To completely eliminate valve toggling, program the minimum compressor staging delay to five minutes or greater. See "Understanding the DX Operational Settings" on page 21 for more information on setting the compressor start delay. Power-on reset, which occurs when the system is powered up, always initiates a valve toggle.

8.2 Understanding the Operating Modes

This section describes the available operating modes.

8.2.1 Off

All control outputs are turned off. All settings are saved in nonvolatile memory.

8.2.2 On

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 last stored when the unit was operating.

8.2.3 Automatic

The system provides heating and cooling as required.

The automatic mode icon displays the cabin temperature in a given mode and is maintained within 2 °F (1 °C) of the set point by default. See the section set point temperature differential on page 19 for instructions on how to reduce this variation to 1 °F (1 °C)

If the system was most recently cooling, the cabin temperature must drop below the set point by at least 4 °F (2 °C) for the system to switch from cooling to heating. Similarly, if the system was most recently heating, the cabin temperature must exceed the set point by at least 4 °F (2 °C) for the system to 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.

8.2.4 Cool

The cooling mode icon displays and only the cooling system operates as required.

If the ambient temperature drops below the set point, the system will not automatically switch to heat mode.

8.2.5 Heat

The heating mode icon displays and only the heating system operates as required.

If the ambient temperature rises above the set point, the system will not automatically switch to the cool mode.

8.2.6 Dehumidification

The dehumidification mode helps to control humidity while away from the boat or away from a particular cabin.

The dehumidification mode will also prevent the boat or a particular cabin from dropping below a minimum temperature to prevent the contents from freezing. When the temperature drops low, eliminating moisture may become less of a concern and maintaining some minimum temperature may become more important. The adjustment range is 40 °F (4 °C) to 75 °F (24 °C). To adjust the 50 °F (10 °C) factory default to a different temperature, see section humidity mode minimum temperature on page 19.

While the control is in On mode, press the mode icon until the dehumidification mode icon displays. Once the dehumidification mode is enabled, the fan circulates the air for 30 minutes. During this time, the air temperature is sampled and entered into memory. After 30 minutes, a cooling cycle starts and continues until the temperature is lowered 2 °F (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, this cycle repeats.

After the 30-minute fan circulation, if the temperature is at or above the factory default setting of 50 °F (10 °C), a cooling cycle starts and runs as described above.

However, if the temperature is below 50 °F (10 °C), a heating cycle will begin. The heating cycle will continue 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 entire cycle repeats, each time determining whether cooling or heating is required.

ℹ️ For DX systems only: on systems configured with reverse-cycle heat, the dehumidification mode heat cycle will not run when the ambient temperature is below 40 °F (4 °C). This protects the condenser coil from freezing. Systems configured with auxiliary electric heat will run the dehumidification mode heat cycle regardless of the room temperature.

The word "Dehumidify" displays when the control is in dehumidification mode. It flashes if the optional humidity sensor is connected and operating in the cooling mode.

8.3 Understanding the Fan Modes

This section describes the available fan modes.

8.3.1 Automatic

The automatic fan mode allows the Smart Touch Cabin Control to determine the required fan speed based on the temperature differential. This permits a balance between the most efficient temperature control and slower, quieter fan speeds.

Three automatic fan speeds are available: high, medium and low.

To select automatic fan mode, press and release the fan icon until the word "Auto" displays above the graph.

8.3.2 Manual

The manual fan mode maintains a selected, desired fan speed. When a manual fan speed is selected, the fan speed bar graph indicates the speed. The bar level will increase as you increase the speed setting.

Three manual fan speeds are available: high, medium and low.

To select a manual speed, press and release the fan icon until the desired speed is reached.

8.3.3 Fan-Only

The fan-only mode operates the fan for air circulation when no cooling or heating is desired.

Three fan-only speeds are available: high, medium, and low.

Beginning in Off mode, press and release the fan icon until the desired speed is reached. Press and release a fourth time to turn off the fan or place it in auto mode.

ℹ️ Turning on the control will revert the fan to the automatic mode or the last selected manual fan setting.

8.3.4 Cycled Fan

The cycled fan mode operates the fan only during heating or cooling cycles.

When used with an optional electric heater, the fan remains on for four minutes after the heater cycles off.

8.3.5 Continuous Fan

The continuous fan mode operates the fan continuously as long as the system is in On mode.

9 Control Parameters

NOTICE: If the unit is cool-only (does **not** have a reversing valve), change the DX operational setting Heat Pump/Cool Only mode to "Cool Only". Once this parameter is set, the operational mode selections are limited to off, cool, optional auxiliary heat, and dehumidification. Failure to obey this notice will cause the unit to cool in both modes. See the section Heat Pump/Cool Only on page 24.

NOTICE: If the air conditioning unit has a shaded-pole (SP) fan motor, you **must** program "SP" into general setting 8 (fan motor type) before operating the equipment. The SP unit has an overhanging blower motor. However, the split-capacitor (SC) high-velocity (HV) fan motor is inside the blower, and the unit will have "VTD" or "HV" in the model number. Only reprogram this general setting if you do **not** have an HV blower.

This section describes the settings available in the different software menus.

9.1 Understanding the General Settings

This section describes the options available in general settings. To locate the general settings screen, select main menu > control parameters > general settings.
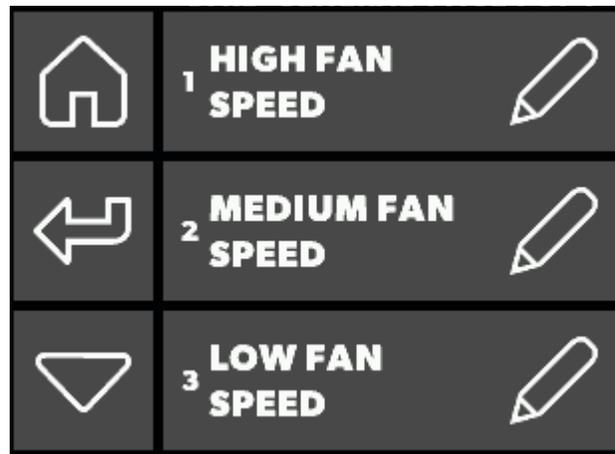
10 General Settings Screen 1

1 High Fan Speed. Sets an upper fan-speed limit from 35 to 95. A higher number increases the fan speed and a lower number slows the fan speed.

2 Medium Fan Speed. Sets an mid fan-speed limit from 32 to 85. A higher number increases the fan speed and a lower number slows the fan speed.

3 Low Fan Speed. Sets a lower fan-speed limit from 30 to 75. Set a higher number to increase or a lower number to slow the fan speed.
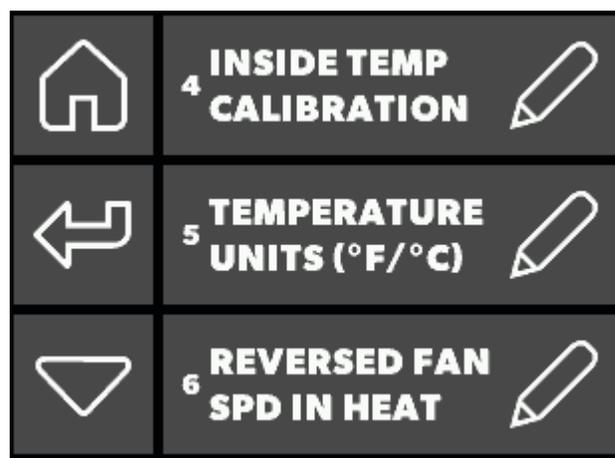
11 General Settings Screen 2

4 Inside Temp Calibration. Calibrates the display built-in temperature sensor or the optional inside air temperature sensor within a range of ±50 °F (± 10 °C). Adjust this parameter to display the correct room temperature.

ⓘ   The setting increments are in °F even when the control is set to display °C.

5 Temperature Units (°F/°C/Auto). Changes the temperature units from the default F to C. Celsius readings display in tenths (for example 2.2°). Auto corresponds to "automatic by line frequency", where 60 Hz automatically sets the unit to Fahrenheit (F), and 50 Hz automatically sets the unit to Celsius (C).

6 Reversed Fan Spd in Heat. Improves heat output in cooler climates. Automatic fan speeds during heating automatically reverse the fan speed during heat mode. The fan speeds up as the set point is approached. The fan switches to low speed when the set point is satisfied and the compressor cycles off.

Lowering the fan speed when the cabin is cold increases the head pressure and helps raise the supply temperature. Increasing the fan speed as the set point is approached also reduces unnecessary high-pressure faults. The fan can be programmed to operate the same as in cooling by selecting the Off option, which represents normal fan operation during reverse-cycle heating.
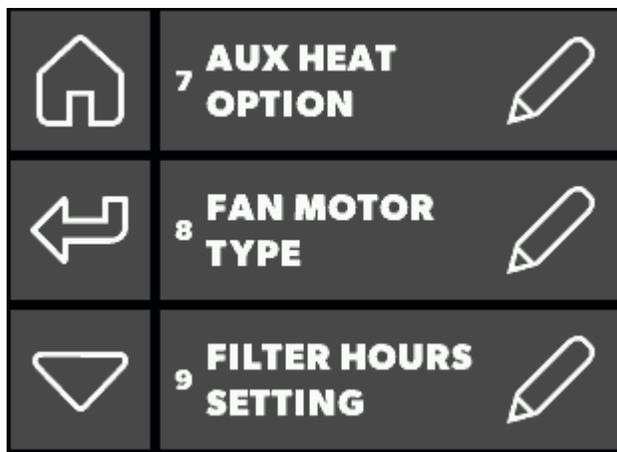
12 General Settings Screen 3

7 Auxiliary Heat Option. Allows optional heat, based on the system (DX or CW). Set to On to enable reverse-cycle and auxiliary electric heat. Set to Off for reverse-cycle heat only.

–   **For DX Applications.** Allows an optional auxiliary electric heater to operate, if installed.

- If not installed, select Off.
- To use reverse-cycle and auxiliary electric heat, select On.
- To allow the auxiliary electric heater to operate at the same time as the reverse-cycle heating when the dehumidification feature is active and required, select aux heat. Auxiliary heat output will also operate when using the optional seawater low-limit adjustment or the auto changeover feature, if enabled. See the seawater low-limit adjustment on page 24.

–   **For CW Applications.** Allows an optional auxiliary electric heater to operate.

- To use electric heat and/or hydronic heat, select On. Selecting On allows the electric heater to operate at the same time as the hydronic valve when the dehumidification feature is active and required. The compressor and auxiliary heat spade terminal outputs will energize when CW electric heat is called for.
- To use only hydronic heat, select Off (default).

ⓘ   Please consult with Dometic Customer Service or with an authorized service technician for assistance.

8 Fan Motor Type. Use the default split capacitor setting for air conditioning units with high-velocity blowers.

ⓘ   Only change the setting to shaded pole if the unit has a shaded pole fan motor, recognizable by a blower-motor overhang.

ⓘ   The split capacitor motor of a high-velocity unit is inside the blower, and the unit has "VTD" or "HV" in the model number.

9 Filter Hours Setting. Enables a reminder to clean or replace the air filter. The default setting is off. Select the number of operating hours until the filter reminder appears. Parameter choices are between 100 hours and 2,500 hours. Once set, the timer tracks the total amount of run hours that the fan accumulates. When the timer setting is reached, the status icon flashes briefly until it is cleared. The room temperature continues to display and the normal system operation is not affected. To clear and reset the timer, select general setting > filter hours setting.

> ℹ Dometic recommends checking the air filter at least every 500 hours of operation.
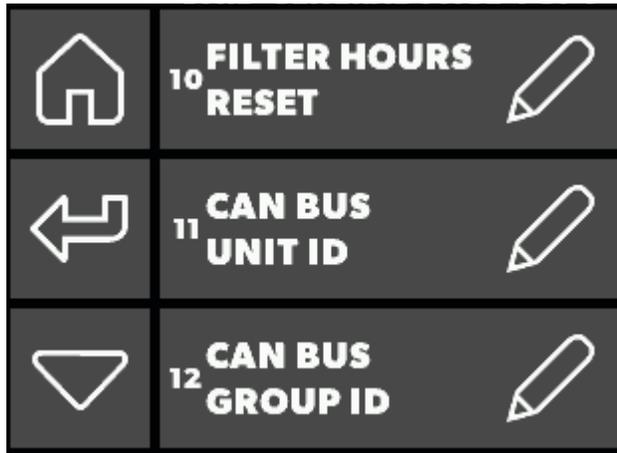
13 General Settings Screen 4

10 Filter Hours Reset. Displays the number of filter reminder hours accumulated since the timer was started or reset. To clear the reminder, press the CLR icon. This resets the value to 0 and restarts the timer.

11 CAN-bus Unit ID. Displays only when the CAN-bus network capability is available and the Smart Touch Cabin Control is plugged into a networked control board with the CAN-bus daughterboard option. If the Smart Touch Cabin Control is plugged into a standard control board, this parameter is unavailable and the icon is grayed out. Each control on the same CAN-bus network must be assigned a unique Unit ID (0–255). For example, the control set to 5 responds to commands with a destination address of 5.

12 CAN-bus Group ID. Displays only when the CAN-bus network capability is available, and the Smart Touch Cabin Control is plugged into a networked control board with the CAN-bus daughterboard option. If the Smart Touch Cabin Control is plugged into a standard control board, this parameter is unavailable and the icon is grayed out. Assign the address for the control's CAN-bus network group (0–255). This number should be unique and different from any CAN-bus unit ID. For example, all controls that are set to 100 will respond to commands with a destination address of 100 (in addition to responding to commands that target their individual Unit IDs).
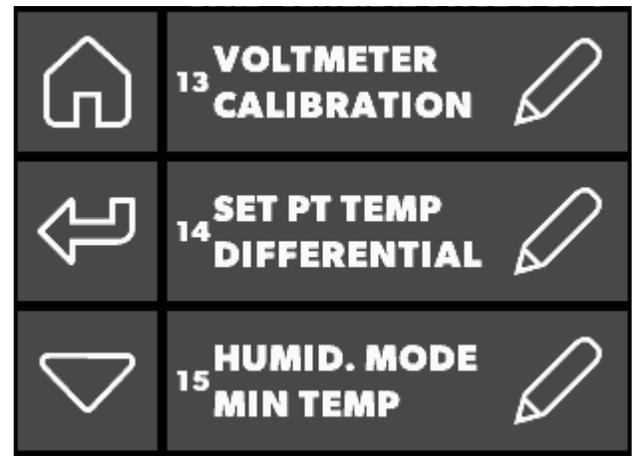
14 General Settings Screen 5

13 Voltmeter Calibration. Displays a live reading of the voltage as read by the power and logic circuit board. To calibrate the line voltage reading, press the up or down icons. Calibrating this parameter provides a more accurate voltage level when calculating low voltage. Use a reliable voltmeter as a reference when adjusting this parameter.

14 Set Point Temperature Differential. Sets the temperature differential in Fahrenheit for all modes of operation: automatic, cool, or heat. By default, this parameter setting is 2 °F (1 °C). It can be set to either 1 °F (1 °C) or 2 °F (1 °C). In most cases, the factory default is adequate to maintain a comfortable temperature variation around the desired set point.

To maintain the room temperature closer to the desired set point with less temperature variation, set the parameter to 1 °F (1 °C). Frequent, shorter-duration cooling or heating cycles may occur. See section "Understanding the Operating Modes" on page 15 for how this setting affects the modes.

15 Humidity Mode Min Temp. Sets the minimum room temperature (Fahrenheit) for the dehumidification mode to run a cooling cycle to remove air moisture. If the room temperature falls below the setting, the dehumidification mode will run a heating cycle. The default setting is 50 °F (10 °C), and it can be adjusted between 40–75 °F (4–24 °C). See "Dehumidification" on page 16 for the dehumidification mode functions.
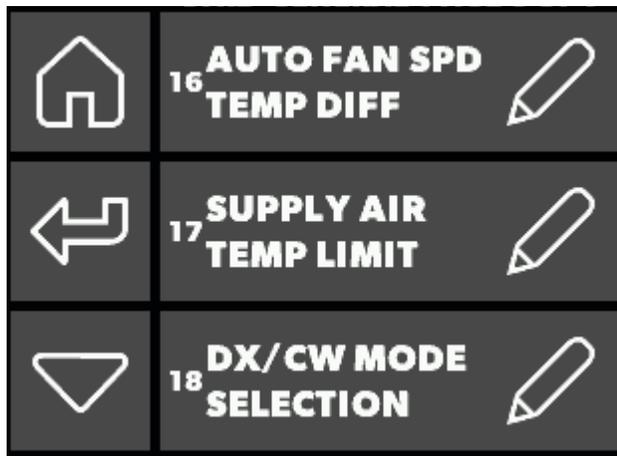
15 General Settings Screen 6

16 Auto Fan Speed Temp Differential. Sets the incremental differential (with cumulative steps) between the ambient and set point temperatures at which the fan speed will increment to the next speed.

ℹ️ Note there is 1 °F hysteresis in the auto fan speed differential to prevent the speed from changing if the room temperature changes by a fractional degree causing speed fluctuations. Both the reversed fan speeds in heat setting, and the set point temperature differential setting, have an effect on the operation of the auto fan speed.

17 Supply Air Temp Limit. Sets the maximum supply air discharge temperature allowed, and shuts down the heat mode if the temperature sensor exceeds the programmed set point. If this condition is met, there is no fault indicator or lockout. Before enabling:

a. Set the general setting aux heat option to On.

b. Place the OAT sensor in the supply air stream immediately downstream of the blower discharge.

The heat mode will be restored once a 10 °F hysteresis has been satisfied. The heat mode will also be restored if the power is cycled to the control and the OAT sensor temperature is less than the setting but still within the hysteresis. To display the discharge temperature, press the temperature icon until the temperature title shows outside (same as viewing the outside air temperature).

18 DX/CW Mode Selection. Choose "Set by Jumper" to preserve the status of the control board operation:

– If the "Removed for CW" jumper on the main control board is not removed, the Smart Touch Cabin Control will operate in DX mode.

– If the "Removed for CW" jumper is removed, the Smart Touch Cabin Control will operate in CW mode.

– The other choices for this parameter allow the jumper to be overridden, if desired.
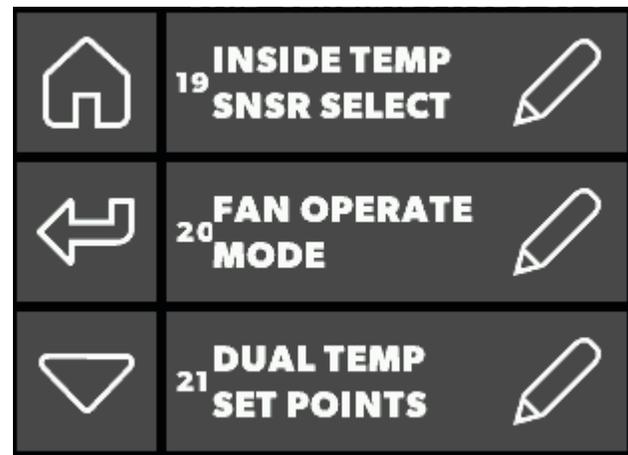
16 General Settings Screen 7

Inside Temp Sensor Selection. If the optional inside air temperature sensor is plugged into the control board, it overrides the display built-in temperature sensor.

If the optional inside air temperature sensor is not plugged into the control board, the display uses the display built-in temperature sensor for the inside temperature. This behavior can be overridden, if desired.

19 Fan Operational Mode. Sets the fan to run continuously whenever the system is turned on, or to cycle on and off in conjunction with the cooling or heating cycles.

20 Dual Temp Set Points. Allows two separate set points, one for cooling and one for heating. When turned off, only one common, adjustable set point for both heating and cooling is used.
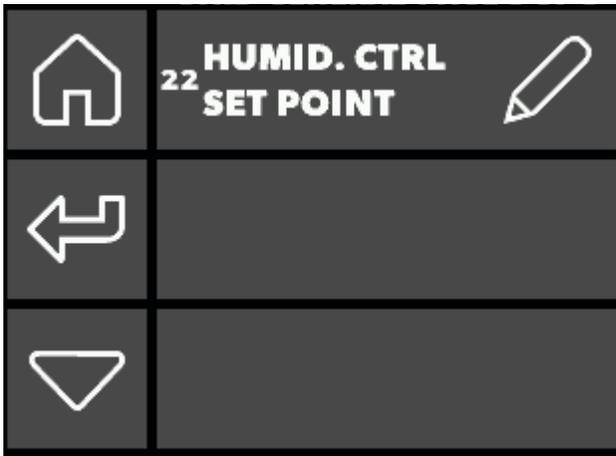
17 General Settings Screen 8

21 Humidity Control Set Point

– **For DX applications.** If the optional humidity sensor is connected to the control board, and if the auxiliary electric heat is installed and enabled, this feature allows the system to dehumidify with auxiliary electric heat when the cabin humidity rises above 60% (default) relative humidity (RH). The range of adjustment is 50% to 80% RH.

  • The electric heater will cycle on and off to maintain the set point while the compressor turns on to dehumidify. When the room reaches the set point, the compressor will remain on. The display will indicate dehumidification mode.

  • If the temperature decreases by one degree, the auxiliary electric heat turns on to maintain the set point and the compressor remains on. If the temperature increases to the set point, the electric heat turns off. If the temperature increases one degree above the set point, the compressor remains on.

  • This cycle continues until the cabin's relative humidity is less than 60%. If an electric heater is not installed, the compressor run time extends by operating to 1 °F (1 °C) lower than the set point. The cycle continues until relative humidity is less than 60%.

– **For CW applications.** If the optional humidity sensor is connected to the control board, and if the electric heat is installed and enabled, this feature allows the system to dehumidify with electric heat when the cabin humidity rises above 60% (default) relative humidity (RH). The range of adjustment is 50% to 80% RH.

  • 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 continues until the cabin's relative humidity is less than 60%.

  • If an electric heater is not installed, the bypass valve's on time will extend by operating to 1 °F (1 °C) lower than set point.

22 Humidity Control Enabled – ICM. (Off for unity board 1/On for unity board 2) This parameter allows the Humidity Sensor Limit Adjustment to work with the control unity board 2 (ICM).

9.2 Understanding the DX Operational Settings

This section describes the menu screens and the operational settings available for the DX system.
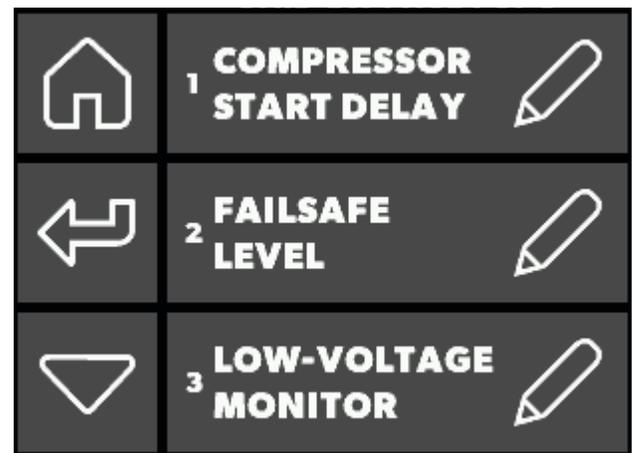
18 DX Settings Screen 1

1 Compressor Start Delay. Allows compressors to start at different times if more than one system operates from the same power source and the power is interrupted. The delay range is 5–135 seconds.

ℹ Stage the different unit start times at least five seconds apart.

2   **Failsafe.** Protects the equipment by triggering a lockout under certain fault conditions. The Smart Touch Cabin Control shuts down and will not restart until the fault is repaired. The lockout condition depends on a combination of programmed failsafe levels as well as the type of fault detected. To clear the lockout, press the power button once for Off and press it again for On.
There are four different failsafe levels (only two levels are available for display firmware #A29 and above):

– **Faults Not Detected.** Provides minimal failsafe protections and is recommended during initial start up or troubleshooting. Only the air sensor failure fault is detected and displayed.

  • Sometimes during an initial start up or a new unit installation, the refrigerant pressure is below the minimum. In this case, the fault should be bypassed until the pressure rises above the minimum requirement. If this failsafe level is selected, an automatic timer will revert the system to full detection after five minutes (the automatic 5-minute timer is only for display firmware #A29 and newer. Any older display firmware will not revert to full detection).

  • If a fault is detected, the Smart Touch Cabin Control shuts down and will not restart until the fault is repaired. When the fault is repaired, the control restarts after a two-minute delay.

– **Faults Detected but Not Displayed.** Applies to display firmware #A28 and older. In addition to the failsafe actions of the previous level, enables all the other fault detections without being displayed.

  • The Smart Touch Cabin Control shuts down for two minutes or until the fault is cleared, whichever is longer. The Smart Touch Cabin Control restarts when the fault is cleared.

– **Faults Detected and Displayed.** Applies to display firmware #A28 and older. In addition to the failsafe actions of the previous two levels, all faults are displayed.

  • The Smart Touch Cabin Control shuts down for two minutes or until the fault is cleared, whichever is longer. The Smart Touch Cabin Control restarts when the fault is cleared.

– **Faults Detected and Displayed with Lockout.** Initiates a lockout after four consecutive high-pressure faults, low-pressure faults, or high water temperature in the condenser coil faults. The Smart Touch Cabin Control shuts down for two minutes or until the fault is cleared, whichever is longer.

3   **Low Voltage Monitor.** Uses the built-in voltmeter circuit to monitor the AC input voltage to prevent the compressor from starting if the voltage is less than the setting. When enabled, provides extra protection for the system compressor and components during low voltage (brownout) conditions. Depending on whether the input power supply is 100–120 VAC or 208–240 VAC, the setting can be set to Off (default), 95–120 VAC for 100–120 VAC input power, or 195–240 VAC for 208–240 VAC input power.

– If a low voltage condition occurs, the fault code low AC voltage appears in the status icon in the main display. The fault will continue until the AC input voltage rises above the selected voltage value, at which time the low AC voltage fault code clears automatically and the cooling or heating cycle will commence. After the compressor starts, the low voltage monitor continues to check the AC input voltage.

– If the voltage drops and remains below the specified setting for five minutes, the Smart Touch Cabin Control will shut down and the low AC voltage fault will display. The Smart Touch Cabin Control will remain shut down until the voltage rises above the specified setting. Once the voltage is restored, the control will restart after the normal fault recovery delay.
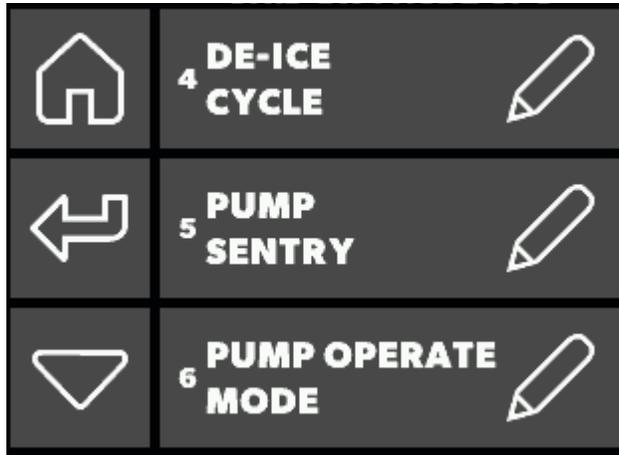
19 DX Settings Screen 2

4 De-Ice Cycle. Prevents ice buildup on the evaporator coil during extended periods of cooling operation. Installation variables such as grille sizes, length of ducting, insulation, and ambient temperatures determine the run time required to achieve the set point. Factors that substantially increase run time include operating the system with hatches and doors open and programming an unrealistic set point (e.g. 65 °F/18 °C). Such situations can cause evaporator ice to form on warm humid days. This monitors the room air temperature in ten-minute intervals during a cooling cycle.

Depending on the parameter value and the change in room temperature during these monitoring intervals, the control performs 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 parameter setting for de-icing depends on the sensor: the optional inside air temperature sensor or the display built-in temperature sensor.

ⓘ Installing an optional inside air temperature sensor greatly increases the effectiveness of the de-icing feature, and this option should be considered whenever the display built-in temperature sensor cannot read the room temperature accurately.

– If using an optional inside air temperature sensor: set this parameter to enable with 5 °F (3 °C) sensor differential to turn the de-icing feature On, or set to Off to disable.

– If using the display built-in temperature sensor, select one of the following two modes:

   • Option (a): Set to enable with a 5 °F (3 °C) sensor differential to assume the display sensor may read the room temperature as much as 5 °F (3 °C) greater than the actual evaporator temperature.

   • Option (b): For more extreme installations, set to enable with a 7 °F (4 °C) sensor differential to assume the display sensor may read the room temperature as much as 7 °F (4 °C) greater than the actual evaporator temperature.

ⓘ Only use option (b) if option (a) does not prevent evaporator ice from forming.

ⓘ Both modes attempt to compensate for any temperature discrepancy from the display built-in temperature 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.

5 Pump Sentry. Optional temperature sensor that monitors the condenser coil temperature. The sensor is plugged into the "H20 out" sensor plug. When the coil temperature rises above the programmed value, the pump and compressor shut down and "Pump Sentry Fault" flashes in the display.

a. Connect the water sensor to the condenser coil outlet and insulate it.

b. Program the pump sentry setting for a temperature between 100–150 °F (38–66 °C), depending on the seawater temperature and the system type.

ⓘ The setting increments are in °F even when the control is set to display °C .

6 Pump Operate Mode. Cycles the pump with the compressor to increase the pump's life and to conserve electricity. The pump can be programmed to cycle on and off with the compressor, or to operate continuously whenever power is applied. To program the pump for continuous operation, set to continuous.
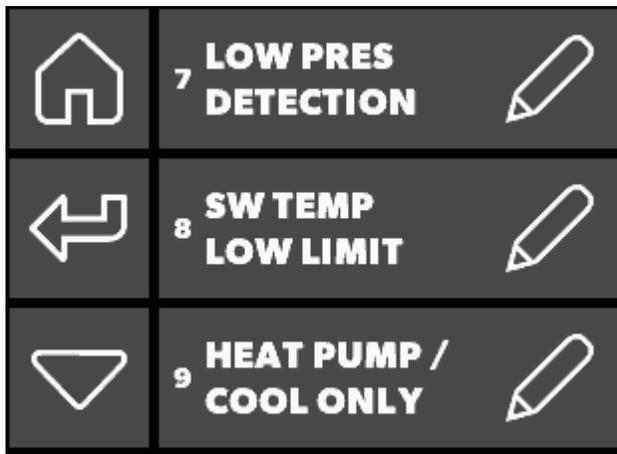
20 DX Settings Screen 3

7 Low Press Detection. When selecting set by jumper, the low-pressure switch will be disabled if the enable LP jumper on the main control board is connected. The low-pressure switch will be enabled if the LP jumper is removed. Choosing disabled (use caution) forces the Smart Touch Cabin Control to ignore the low-pressure switch, treating it as disabled even if the jumper is removed.

ⓘ Choosing disabled (use caution) should only be done when advised by Dometic Customer Service. As with all faults, a system lockout (sustained shutdown) will occur after the fourth consecutive low-pressure fault.

8 Seawater Temp Low Limit. If the optional sensor is connected to the control board, this feature allows the Smart Touch Cabin Control to switch from reverse-cycle heat to electric heat when the following requirements are met:

– An auxiliary electric heater is installed and enabled.

– The seawater temperature drops below the factory default 40 °F (4 °C).

– The reverse-cycle heat has operated more than five minutes.

Once the seawater rises 3 °F above the seawater low temperature limit, the system returns to reverse-cycle heating. If an auxiliary heater is not installed, the Smart Touch Cabin Control will shut down and flash "LO" then "SE" by default when the seawater drops below 40 °F (4 °C).

Once the seawater rises 3 °F above the seawater low temperature limit, the system returns to reverse-cycle heating and stops flashing "LO" then "SE". The range of adjustment is 35–50 °F (2–10 °C).

9 Heat Pump/Cool-Only Mode. Allows for the heat pump or the cool-only mode operation. Select HP to operate in the default heat pump mode, which allows cooling, reverse-cycle heating, and (optional) auxiliary electric heat modes. Select CL for cool-only operation and the unit will operate in cooling or (optional) auxiliary electric heat modes.

ⓘ By selecting CL cool-only mode, a five-minute compressor delay will initiate whenever the compressor shuts down because of a set point, a fault, or a power outage. The five-minute delay will begin immediately after the compressor shuts down. The display will show DLY to indicate the system is stabilizing the refrigerant pressures. If the five-minute delay period passes before the compressor is called to operate, the compressor will come on with no delay.

9.3 Understanding the CW Operational Settings

This section describes the menu screens and the operational settings available for the CW system.

Water Temperature Differential

Water Temperature Differential in °F Default is 15 °F (-9 °C)	Valve	Auxiliary Heater
22 °F (-6 °C)	Open	Off
15 °F (-9 °C)	Opens	On
7 to 15 °F (-14 to 9 °C)	Hysteresis	On
7 °F (-14 °C)	Closes	On
7 to 0 °F (-14 to -18 °C)	Close	On
0 °F (-18 °C)	Close	Off
0 to -7 °F (-18 to -22 °C)	Close	Off
-7 °F (-22 °C)	Closes	Off
-7 to -15 °F (-22 to -26 °C)	Hysteresis	Off
-15 °F (-26 °C)	Open	Off
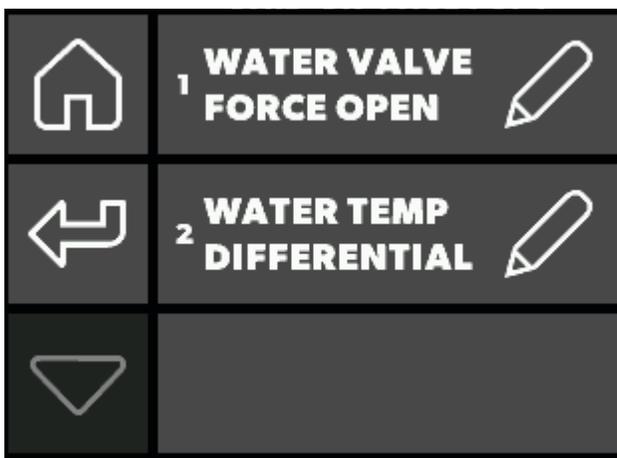
21 CW Settings Screen

1 Water Valve Force. Opens the water valve to bleed air from the system. The On setting forces the valve open for four hours while the Smart Touch Cabin Control is turned off. If the cool mode is activated or if the AC power to the control's electric box is interrupted during this four-hour period, this valve override feature is canceled. To return the valve to normal operation at any time, select Off.

2 Water Temp Differential. Sets the temperature differential between the ambient air temperature and the hydronic water temperature that controls the water valve. For example, selecting 10 °F (-12 °C) opens the valve when the water temperature is 10 °F less than ambient in cooling mode and 10 °F greater than ambient in the heating mode. Careful selection of the temperature differential can fully utilize the ship's heating and cooling resources. For example, while in cooling mode and using a 10 degree value, the valve will open to allow some cooling while the hydronic system is coming down to temperature. See the table "Water Temperature Differential" on page 25 for a visual explanation.

9.4 Understanding the Memory Settings

This section describes the menu screen and the operational settings available for the system memory.
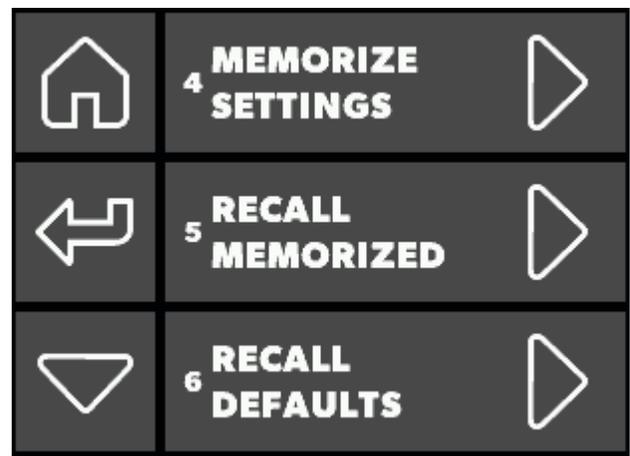
22 Memory Settings Screen

3 Reserved for future use.

4 Memorize Settings. Allows new settings to be set as the program defaults. To set new defaults, adjust the parameters to the desired settings: select memorize settings > save. To return to the factory default settings, see Recall Factory Default Settings 6 on page 26.

5 Recall Memorized Settings. Restores the last memorized default settings. To restore the last memorized default settings, select recall memorized > save. To return to the factory default settings, refer to Recall Factory Default Settings on page 26.

6   Recall Factory Default Settings. Allows the installing dealer or end user to change the system's default parameters. Once the new values are entered and memorized, the factory defaults are overwritten and the new parameters become the default values. To restore the factory defaults manually, select recall defaults > save.

ℹ️   If you have any reason to contact Dometic about the system or programming the control, you must have both the firmware version number and the control display's serial number available. The serial number is on the back of the display. To find the firmware version, select menu > system menu > firmware.

ℹ️   If you have programming problems, reset the memorized default settings and try again.

9.4.1 Understanding the Backup Battery

This section describes the response to a power loss.

9.4.2 Memory

When the Smart Touch Cabin Control loses power, the operating parameters are retained for up to two years. When power is restored, the control resumes operating as last programmed. The Smart Touch Cabin Control has a battery backup. If the battery backup is removed, only the time and date settings will be lost.

9.4.3 Rechargeable Battery

The Smart Touch Cabin Control comes with a rechargeable battery. The battery recharges whenever the control is powered, similar to a computer motherboard battery, so there should never be a need to install or replace the backup battery.

When the Smart Touch Cabin Control is plugged into a control that is powered up, the battery will not drain. The Smart Touch Cabin Control battery will drain only when the AC power to the control board is powered off. The battery backup will last over two years of powered-off time or inactivity.

When the battery drains due to inactivity, the only information lost is the date and time. In addition, the screen lock PIN will reset to its default ("1234"). All other programming parameters, calibrations, program scheduler settings, etc., remain in flash memory forever and do not require battery power.

If the battery drains, there is no visible indication on the display during a normal power up. Immediately upon a subsequent AC power down and power up, the user will be prompted to set the date and time. This is the indication that the battery drained due to inactivity.

9.5   Understanding the Program Scheduler

This section describes the menu screen and the operational settings available to start and/or stop the A/C unit at a specific time, day of the week, mode and temperature set point.

To access the program scheduler, go to main menu, program scheduler, and select the setting to modify.
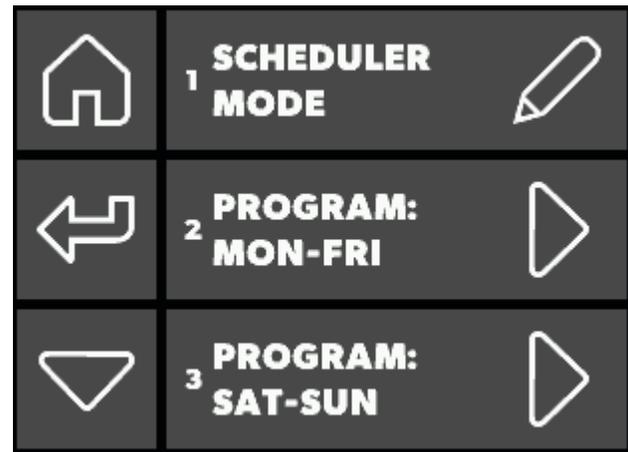
23 Program Scheduler Screen 1

1   Scheduler mode As soon as the program scheduler is enabled, it will immediately start applying the programs as defined in the various day settings.

2   Program: Mon-Fri

3   Program: Sat-Sun

24 Program Scheduler Screen 2

4 - 7 Program: Day of the week (Seven programs)

Each program day has a mode, time, cooling set point, and heating set point (if dual set points are enabled). The mode choices are off, cool, heat, auto, and dehumidify. If dual set points is selected, the cooling set point for cool and auto may be set, and the heating set point for heat and auto may be set. Set points are not available for off or dehumidify.

9.6 Understanding the Date/Time Menu

This section describes the menu screen and the settings available to set the display time, customize its format, and set the optional display on the main screen.

25 Program Scheduler Screen - Date and Time Submenu 1
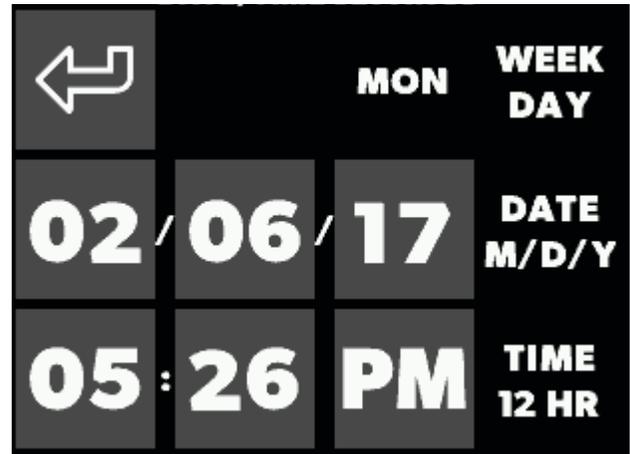
26 Program Scheduler Screen - Date and Time Submenu 2

To access the date/time menu, select main menu, date/time menu, and the setting to modify.

- **Date/Time Display.** Choose between On or Off to display the date and time on the main screen.

- **Date/Time Format.** Choose automatic by line frequency (60 Hz line frequency results in M/D/Y 12-hour format, or 50 Hz line frequency results in D/M/Y 24-hour format), M/D/Y 12-hour, or D/M/Y 24-hour.

- **Date/Time Settings.** Modifies the date and time. Each value is individually editable. The day of the week calculates automatically based upon the date.

9.7 Understanding the System Menu

This section describes the menu screen and the operational settings available to modify the display's screen background, font, icon colors, screen saver configuration, and text editing. To modify a display setting, select menu > system menu.
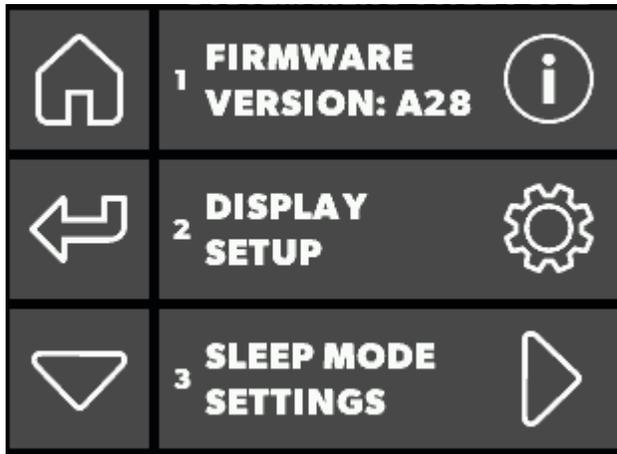
27 System Menu Screen 1

1 **Firmware Version.** Displays the firmware version. To access, (such as "A23"), go to menu, system menu, and then firmware version.

2 **Display Setup.** Adjusts the display settings.

– **Display Brightness**. Choose a display brightness that can easily be read and does not disturb you in low-light conditions.

– **Background Color.** Choose a display color.

– **Icon Text Color.** Choose a color for button text.

– **Icon Inside Color.** Choose a color for buttons.

– **Icon Border Color.** Choose a color for button borders.

– **Data Block & Title Colors.** Choose a color for screen texts, except button texts.

3 **Sleep Mode Settings.** Adjusts the system operations when in sleep mode. See section "Sleep Mode Setting Submenus" on page 28 for submenu screens.
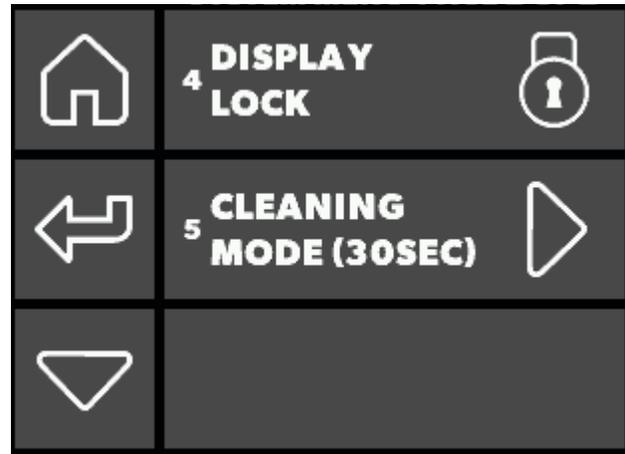
28 System Menu Screen 2

4 **Display Lock.** Adjusts the display locking settings. See section "Display Lock Submenus" on page 29 for submenu screens.

5 **Cleaning Mode.** Allows time for a screen wipe down for 30 seconds with the backlight off and the touch panel off. The screen and touch panel automatically return in 30 seconds. The operation is not affected during this time.

a. To turn off the display for cleaning, select menu > system menu > cleaning mode (30SEC).

b. Press the save icon after completing the modification.

9.7.1 Sleep Mode Setting Submenus

This section describes the sleep mode submenu screens and the settings to customize the sleep operation.
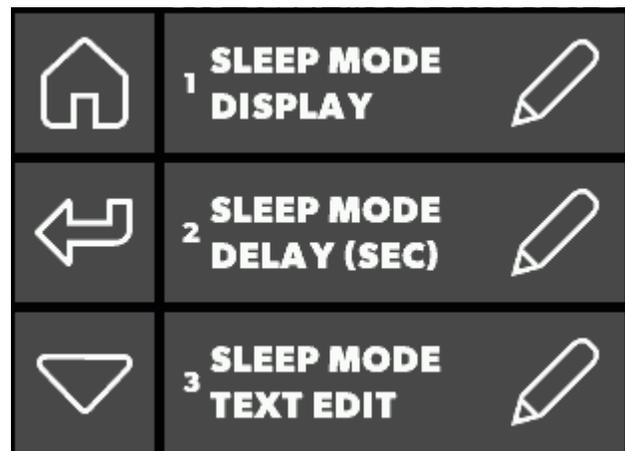
29 System Menu Screen - Sleep Mode Settings Submenu 1

30 System Menu Screen - Sleep Mode Settings Submenu 2

The available sleep mode settings are below. Select system menu > sleep mode settings Press the save icon after completing the desired modification.

1 **Sleep Mode Display.** Select what to show after the sleep mode delay ends (standard logo, custom logo, custom text, or blank screen backlight off or on).

2 **Sleep Mode Delay.** Select either Off, or 0 to 600 seconds of delay to show the sleep mode display. If Off is selected, the display will enter sleep mode.

3 **Sleep Mode Text Edit.** Allows for editing of the display text when the screen is in sleep mode. Edit the text using arrow icons to select each character. Character choices are: "ABCDEFGHIJKL MNOPQRSTUVWXYZ0123456789 &'*@:,°=!- ()%.+#?/". The total number of characters that will fit on the screen is a function of the font size, with an absolute maximum of 25.
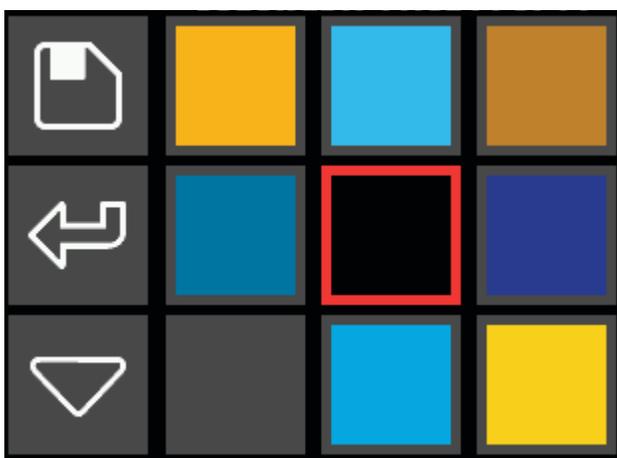
31 System Menu Screen - Sleep Mode Setting - Text Color Submenu

4 **Sleep Mode Text Color.** Select from 126 different text colors to display during sleep mode.

32 System Menu Screen - Sleep Mode Setting - Custom Logo

5 **Download Custom Logo.** This option is only available if the Smart Touch Cabin Control detects that a special programming cable is plugged into its 8-pin jack (i.e. it is not plugged into a control board). Otherwise, the option is grayed out. There is a PC program called the "Smart Touch Downloader" that enables selection of a 24-bit bitmap file (BMP) and transmission to the Smart Touch Cabin Control. Instructions for this program are provided separately.

9.7.2 Display Lock Submenus

This section describes the display lock submenu screens and settings to customize the display's security access.

33 System Menu - Display Lock Submenu

– **Set Access Locked by Pin.** Sets a security PIN to access the display based on the levels configured. Press the icon to enter the configured PIN. Once the PIN is entered, access is available to all levels.

If the system enters sleep mode, the PIN entry will be required again to re-access the same level. The PIN entry will also be required again if this level setting is changed or if the display is AC power cycled.
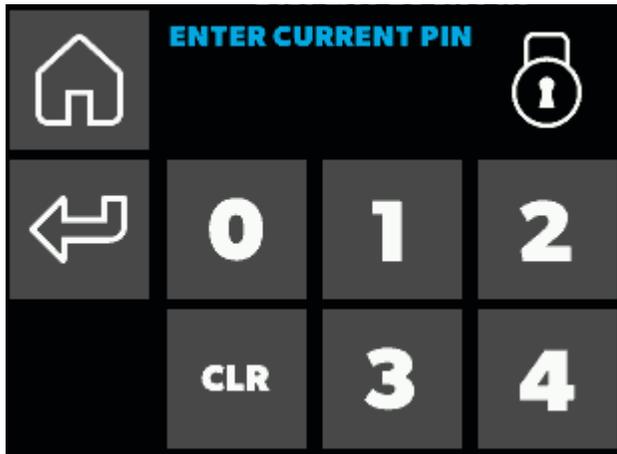
34 System Menu Screen - Change Pin Submenu

–   **Change Pin.** Configures the access PIN. Enter the current pin first. Factory default is "1234". If the PIN is forgotten, it can be restored to 1234 by powering off the control at the circuit breaker, removing the battery for 60 seconds, reinstalling, and repowering. This resets the date and time to the factory default and also resets the PIN to 1234. No other parameters or saved entries will be lost.

9.8   Understanding the Troubleshooting/Commissioning Screens

This section describes the menu screens available for troubleshooting and commissioning the system.

See "Troubleshooting" on page 37. for specific troubleshooting procedures.

See "Commissioning the System" on page 12 for step by step instructions to commission a unit by testing the main inputs and outputs. Steps vary depending on the system. A successful completion will add an entry into the fault history screen.

35 Troubleshooting/Commissioning Screen
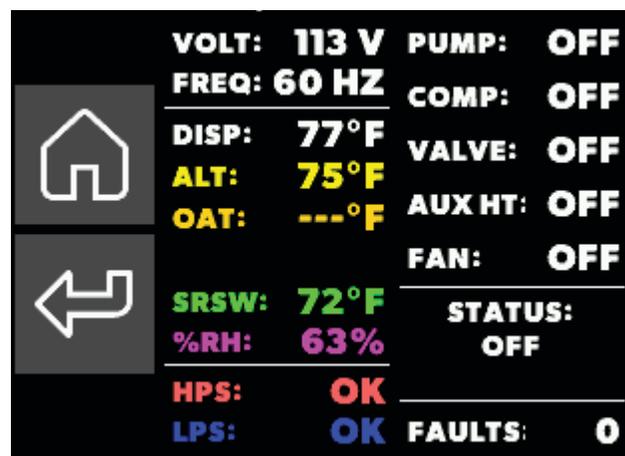
36 Troubleshooting/Commissioning Screen - DX System Status
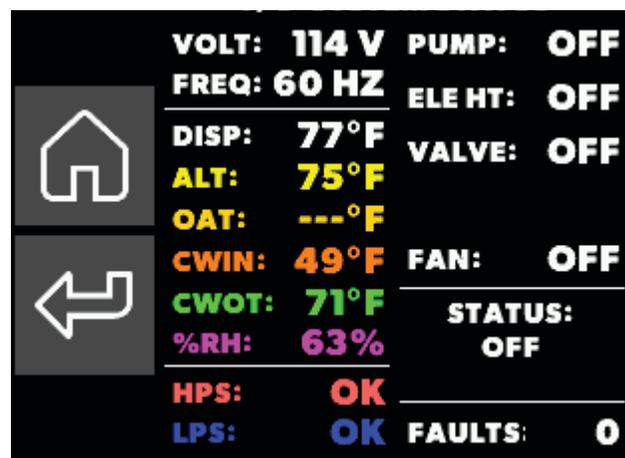
37 Troubleshooting/Commissioning Screen - CW System Status

1   **System Status**. Displays the live readings and status of all sensors, voltage, frequency, mode status, cycle fault counts, and other key readings. The screen will vary based on the system in operation.

2 Help & Information. Describes potential faults.

- **Fault Help Lookup.** Choose one of the help topics integrated in the software.

    - **Air Sensor Failure.** Indicates an air sensor failure.

    - **Filter needs to be Cleaned or Replaced.** Indicates that the filter needs to be cleaned or replaced.

    - **Low AC Voltage.** Indicates there is low AC voltage.

    - **High-pressure Fault.** Indicates that there is high refrigerant pressure. When in heat mode, it does not display and does not cause a lockout.

    - **Low-pressure Fault.** Indicates there is low refrigerant pressure. It has a three-minute shutdown delay.

    - **Pump Sentry Fault.** Indicates high water temperature in the condensing coil.

    - **Lost AC Fault**. Indicates there is a loss of power.

    - **Seawater Low Temperature Limit Fault.** Indicates the seawater is below 40 °F (4 °C).

38 Troubleshooting/Commissioning - Help and Information - QR

- **Link For More Help.** Scan the QR code to open the Smart Touch Cabin Control website for help. The fault descriptions match the live fault help on the main screen when the hidden icon over the status text window is pressed.

3 Commission Procedure. See "Commissioning the System" on page 12.

9.9 Understanding the Fault Handling, History & Run Hours

This section describes the fault and run histories.

To protect the equipment, certain fault conditions trigger a lockout. The control shuts down and will not restart until the fault is repaired.

39 Faults and Hours Screen

40 Faults Detail

1 Fault History. Displays the history of previously cleared faults and the current active faults.

- To clear the visible fault history, compressor run hours, and fan run hours, press the CLR icon.

- To view the lifetime fault history and run hours, or cleared faults, press and hold the CLR icon for ten seconds.

ℹ️ When used with the optional auxiliary heat sensor, the fan remains on for four minutes after the heater cycles off even if the fan is set to cycled operation.
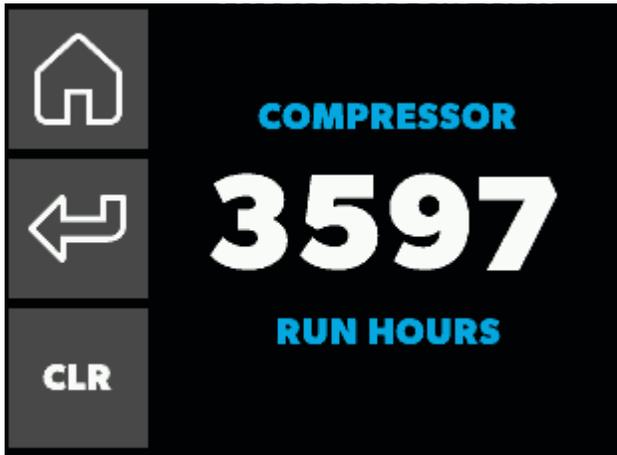
41 Compressor Run Hours

2 Compressor Run Hours. Displays the number of compressor run hours. To clear, press the CLR icon.

42 Fan Run Hours

3 Fan Run Hours. Displays the current number of fan hours. To clear, press the CLR icon.

EN

9.10 Navigation Trees

This section provides a visual representation to navigate the system options.

9.10.1 Main Menu Navigation

Program

Mode	Cool/Heat/Auto/AuxHeat/AutoAuxHeat/Dehumidify
Temp	# °F/RH %
Hour	##
Min	##

Program Scheduler

Scheduler Mode	On/Off
Program Mon–Fri	
Program Sat–Sun	
Program Monday	
Program Tuesday	
Program Wednesday	
Program Thursday	
Program Friday	
Program Saturday	
Program Sunday	

Control Parameters

See page 17

System Menu

See page 27

Menu

- Control Parameters
- Program Scheduler
- Date/Time Menu
- System Menu
- Troubleshoot/Commission
- Fault History & Run Hours

Date/Time Menu

Date/Time Display	On/Off
Date/Time Format	Automatic by line/(M/D/Y) 12 Hour/(D/M/Y) 24 Hour
Date/Time Settings	
Day of the week	[Mon–Sun]
Date	
Month	[01–12]
Day	[01–31]
Year	[00–99]
Time	
Hour	[01–12]
Min	[00–59]
Time of Day	AM/PM

Fault History & Run Hours

Fault History	(Max 500 entries)
Compressor Run Hours	# Hrs
Fan Run Hours	# Hrs
Min	##

Troubleshoot/Commission

- System Status
- Help & Information
- Commission Procedure

System Status

Volt	115 V
Freq.	60 Hz
Display	# °F
Alt	# °F
Out	# °F
Water	# °F
Humidity # %	[01–31]
HPS	Ok/Alm
LPS	Ok/Alm
Pump	Off/On
Comp	Off/On
Valve	Off/On
Aux Heat: Off/On	
Fan	Off/Spd 1/Spd 2/Spd3
Status	Off/On
Faults	#

Commission Procedure

- Into & System
- Inside Temp Sensor
- Low Fan Speed Test
- Med Fan Speed Test
- High Fan Speed Test
- Fault Check
- Pump Test
- Cool Test
- R/C Heat Test
- Pass Confirmation

Help & Information

Fault Help Lookup
- Air Sensor Fault Help
- High-pressure Fault Help
- Low-pressure Fault Help
- Low AC Fault Help
- Pump Sentry Fault Help
- Low Seawater Sensor Fault Help
- Link to get more help
- Scan QR Code

9.10.2   Control Parameters Navigation

Control Parameters
General Settings
DX Operating Settings*
CW Operating Settings*
Memorize Settings
Recall Memorized
Recall Defaults

General Settings

High Fan Speed	95 [35–95]
Medium Fan Speed	61 [32–85]
Low Fan Speed	50 [30–75]
Inside Temp Calibration	±50 °F or ±25 °C
Temperature Units	Auto [Auto/°F/°C]
Reversed Fan SPD in Heat	On [On/Off]
Aux Heat Option	Off [Off/On]
Fan Motor Type	SP [Split Capacitor/Shaded Pole]
Filter Hours Setting	Off [100–2,500]
Filter Hours Reset	Clear
CAN Bus Unit ID*	1 [1–255]
CAN Bus Group ID*	1 [1–255]
Voltmeter Calibration	[70–140 VAC] or [170–260 VAC]
Set Point Temp Differential	2 °F (1 °C) [1–2] °F or [0.5–1.0] °C
Humidity Mode Min Temp	50 °F (10 °C) [40–75] °F or [5–25] °C
Auto Fan Speed Temp Diff	2 °F (1 °C) [1–3] °F or [0.5–1.5] °C
Supply Air Temp Limit*	Off [Off/[95–140] °F or Off/[35–60] °C]
DX/CW Mode	Set by jumper/DX Override/CW Override
Inside Temp Sensor	Auto [Auto/Display/Alt. Air]
Fan Operational Mode	Continuous [Continuous/Cycled]
Dual Temp Set Points	Off [On/Off]
Humidity Sensor Limit	60% [50%–80%]

CW Operational Settings

Water Valve Force Open	Off [On/Off]
Water Temp Differential	15 °F/8 °C [5–25] °F or [3–14] °C

DX Operational Settings

Compressor Start Delay	15 sec [5-135] sec
Failsafe Level	Fails Not Detected Fails Detected but Not Displayed Fails Detected and Displayed Fails Detected and Displayed with Lockouts
Low Voltage Monitor	Off/95–120 VAC or Off/195–240 VAC
De-Ice Cycle	Enabled [Disabled/ Enabled with 5 °F (3 °C) Sensor Differential/ Enabled with 7°F (4°C) Sensor Differential]
Pump Sentry	Off [Off/100–150 °F or Off/40–65 °C]
Pump Operational Mode	Continuous or Cycled
Low-pressure Detection	Set by Jumper/Disabled
Seawater Low Limit Adj.	40 °F [35–50] °F
Heat Pump/Cool Only	Heat Pump [Heat Pump/Cool Only]

* To activate this feature, additional hardware or software is required and must be enabled in the parameters.

9.10.3 System Settings Navigation

Display Setup

Display Brightness	100% [5–100] %
Background Color	Select color
Button Text Color	Select color
Button Inside Color	Select color
Button Border Color	Select color
Data Block & Title Colors	Select color

System Menu

Firmware Version	#
Display Setup	
Sleep Mode Settings	60 Sec
Display Lock	
Cleaning Mode (30 sec)	Save

Display Lock

Set Access Locked by Pin	None (No Lock)/Control Parameters/All Menu Settings/Main Screen/Home Screen
Change Pin	
Enter Current Pin	####
Enter New Pin	####

Sleep Mode Settings

Sleep Mode Display	Standard Logo/Blank Screen Backlight On/ Blank Screen Backlight Off/Custom Text/Custom Logo
Sleep Mode Delay (sec)	Off/[10–600] sec
Sleep Mode Text Edit	Enter Text (max 25 characters)
Sleep Mode Text Color	Select Color
Download Custom Logo*	

* To activate this feature, additional hardware or software is required
  and must be enabled in the parameters.

10 Maintenance

This section describes routine activities to maintain properly working system components.

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

- Follow all warnings and recommendations given by the manufacturer of any acids or premixed solutions.

- Dispose of any contaminated acid solutions in accordance with federal, state and/or local regulations.

- Avoid spilling or splashing any antifreeze solution.

Monthly	
Task	**Section**
Check the return-air filter.	10.1
Energize the reverse-cycle units.	10.2
Periodically - DX Only	
Task	**Section**
Check the seawater strainer function.	10.3
Clean the condenser coil.	10.4
Winterizing - DX Only	
Task	**Section**
Circulate antifreeze in the system.	10.5

10.1 Checking the Return-Air Filter

Check the return-air filter about once a month and clean as necessary. To clean the filter:

1. Remove the filter from the unit and rinse with water.

2. Air dry the filter and reinstall.

10.2 Energizing the Reversing Valve Units – DX Only

Energize the reverse-cycle (cooling and heating) units to keep the internal parts moving freely.

To energize the reversing valve, switch the air conditioning unit to heat mode for a few seconds very month.

10.3 Checking the Seawater Strainer – DX Only

Ensure the pump receives adequate seawater flow. To maintain proper flow:

1. Regularly clean the strainer basket.

2. Periodically check the overboard discharge for a steady stream of water.

3. See the seawater intake speed scoop for blockage.

4. Ensure the hoses are not looped, kinked, or crushed.

10.4 Cleaning the Condenser Coil – DX Only

To avoid a marine-growth-fouled coil which reduces efficiency by raising the total system pressure and decreasing its ability to produce cold air:

1. Turn off the circuit breaker on the ship's panel, and disconnect the inlet and outlet connections of the condenser coil.

2. Use chemical-resistant hoses [white PVC 0.6 in. (16 mm) I.D., etc.] to connect the inlet of the condenser coil to the outlet of a chemical resistant, submersible pump (P-500 pump, etc.). 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 submerse the pump into a container filled with fresh water or with a premixed over-the-counter solution. Use as large a container as possible to hold 5–25 gal (19–95 L) of solution.

4. Power the pump and circulate the solution through the condenser coil for 15–45 minutes depending on the size of the coils and the extent of the contamination. Visually inspect the solution in the container to determine when the contamination removal has stopped.

5. Circulate fresh water through the coil to flush any residual cleaner from the system.

6. Restart the system. Check the operational parameters to ensure thorough cleaning. Additional cleaning may be necessary with extreme contamination.

10.5 Winterizing the System – DX Only

Any winterization method that causes the antifreeze solution to flow downward is the method of choice. By this means, the antifreeze solution displaces any trapped water and eliminates the possibility of it freezing in hidden areas.

Choose one of the methods below. The first two methods use a 50/50 nonpolluting biodegradable antifreeze/water solution:

1. Pump the antifreeze solution into the overboard thru-hull fitting, and discharge through the intake thru-hull fitting.

2. Use the seawater pump to pump the antifreeze solution through the system and discharge through the overboard thru-hull fitting:

   a. Close the seacock.

   b. Remove the hose from the strainer discharge.

   c. Raise the hose above the pump (so the pump does not lose its prime) and pour in the antifreeze solution.

   d. Pump the solution through the system.

   e. Drain the water from the strainer and the hose to the seacock.

3. Inject pressurized air at the overboard discharge fitting to force any system water through the seawater intake fitting, and expel any trapped water from the system.

11 Troubleshooting

⚠ **WARNING: ELECTRICAL SHOCK HAZARD. Failure to obey the following warnings could result in death or serious injury:**

This section describes issue characteristics and the corrective actions.

- Exercise extreme care when working around energized equipment.

- Maintenance and repair should be performed only by qualified technicians.

11.1 General Troubleshooting

Problem	Possible Causes	Recommended Solution
The system does not power up.	The air conditioning unit circuit breaker is off.	Turn on the air conditioning unit circuit breaker at the ship's panel.
	The display is not turned on.	Turn on the display.
	The terminal strip is miswired.	Check the wiring diagram and correct if necessary.
	The input-line voltage is insufficient.	• Check the power source (shore/generator) for proper voltage. • Check the wiring and terminals for proper sizes and connections. • Verify with a voltmeter that the power at the unit is the same as the power source.
	An electrical component has failed.	A technician should inspect the display, cable, and circuit board. Look for a red light on the circuit board.
The system runs continuously.	The unit is not able to reach the set point.	Close all the port holes and hatches. Adjust the set point so it is not too low for cooling or too high for heating.
	The seawater temperature is too high for cooling or too 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 °C) and heat (if reverse-cycle option is installed) in water as low as 40 °F (4 °C).
	The optional inside air temperature sensor is not located properly.	• Verify the display location with the criteria found in the installation section of this manual. • Install an optional inside air temperature sensor if necessary. If an optional inside air temperature sensor is already installed in the air stream, ensure it does not touch anything warm (like the condenser coil).
	The de-icing feature is not enabled.	Enable de-icing in the parameters. If ice still forms immediately, revisit the above possible causes. ⓘ Ice on a fan coil can be removed quickly by running the unit in HEAT mode.
There is a lack of airflow.	The airflow is blocked or restricted.	• Remove any obstructions in the return-air stream. • Clean the return-air filter and grille. • Check for crushed or restricted ducting. Ducting must be as straight, smooth, and taut as possible.
	The fan speed is set to manual low.	• If the fan speed is set to manual low, raise the speed to a higher setting or set to automatic mode. • Or, increase the minimum low speed in the program parameters.
	The fan coil may be iced.	Refer to "The fan coil is iced." in this table.
The fan coil is iced.	The humidity level is set too high.	Close the hatches and doors.
	The supply air is short-cycling.	• Redirect the supply air so that is not blowing in or near the return-air stream. • Seal any air leaks on the duct.
	The airflow is blocked or restricted	Refer to "There is a lack of airflow." in this table.
	The fan runs too slow.	Set the fan speed to automatic mode or increase the manual fan speed. Or, increase the minimum low speed in the program parameters.
	The system runs continuously.	Close hatches and doors, raise set point, turn on de-icing.
The condenser coil is iced while in HEAT mode.	The seawater temperature is below 40 °F (4 °C).	• Shut down the system to prevent damage to the condenser. • Allow the coil to defrost.

Problem	Possible Causes	Recommended Solution
The fan does not run or runs continuously.	The digital control is set for either fan cycling with compressor or for continuous fan operation.	Change the fan operation to continuous fan operation or fan cycling with compressor. ℹ️ When configured for auxiliary electric heat, the fan will stay on for four minutes after a heat cycle ends even if the fan is set to cycled operation.
	The circuit board on the unit is defective. Typically, the compressor and pump are still running.	Call for service to replace the board. ℹ️ A shorted relay or triac may cause the fan to never shut off or never turn on. If the fan never shuts off, the fan may be set to 'continuous' on the display.
The unit does not heat.	The unit does not have a heating cycle.	Most units have a reverse cycle to create heat, but some units may not have this function.
	The display is set to cool-only or auxiliary electric heat.	Change the parameters on the display or press the MODE button to activate heating or automatic. The auxiliary electric heat will not function if the display is set to auxiliary electric heat and the unit does not have an auxiliary electric heater added.
	The reversing valve is stuck.	• Lightly press on the valve with a rubber mallet while the unit is in HEAT mode. • Call a service technician if that does not correct the problem.
	The seawater temperature is too low.	Seawater temperature directly affects the unit's efficiency. For the unit to heat (if the reverse-cycle option is available), water temperatures must be 40 °F (4 °C) or higher.
	There is a loss of refrigerant gas.	• Check the air conditioning unit for a refrigerant oil leak. • Call for service.
	(For CW systems only) The chilled-water loop is inadequately heated, the chiller system is not in the proper mode of operation, or the auxiliary electric heater is disabled.	• Be sure the chiller is in HEAT mode. • If the air handler system is equipped with water-temperature sensors, check the water temperature at the digital control. • If the water temperature is not at least 15 °F warmer for HEAT mode, the water valve will not open. • If the air handler system is equipped with an auxiliary electric heater, ensure that the auxiliary electric heat is enabled.
The unit does not cool.	The display is set to heat-only.	Change the parameters on the display or press the MODE button to activate cool or automatic mode.
	The seawater temperature is too high.	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 °C). The unit may still work at higher water temperatures, but not as efficiently.
	There is a loss of refrigerant gas.	• Check the air conditioning unit for a refrigerant oil leak. • Call for service.
	(For CW systems only) The chilled-water loop is inadequately cooled or the chiller system is not in the proper mode of operation.	• Be sure the chiller is in COOL mode. • If the air handler system is equipped with water-temperature sensors, check the water temperature at the digital control. • If the water temperature is not at least 15 °F cooler for COOL mode, the water valve will not open.
The unit switches to heat while in COOL mode.	The de-icing feature is enabled due to the coil possibly icing up during long run times.	Reprogram the de-icing cycle under the parameter settings.

Problem	Possible Causes	Recommended Solution
The pump does not shut off.	The circuit board is shorted.	• Call service to verify if a relay on the circuit board is shorted or if the pump relay board is defective, if applicable. • Replace any board that is shorted.
	The pump parameter on the display is set for the pump to run continuously.	Change the parameter on the display so the pump cycles with the compressor.
The pump does not run.	A high-pressure fault may be present.	Refer to "A high pressure fault is present." in this table.
The compressor does not shut off.	A relay on the circuit board has shorted closed.	Call service to verify and replace the board.
The compressor does not run.	A relay on the circuit board has shorted open.	Call service to verify and replace the board.
	There is an open overload on the compressor.	• Call service to verify and repair. • If the overload on the compressor is internal, wait several hours for it to cool before testing.
A low-pressure fault is present.	The unit does not have a low-pressure switch, but the JP2 jumper on the circuit board has been removed or a parameter, if applicable, has been enabled on the display.	• If the unit does not have a low-pressure switch, ensure the JP2 jumper on the board is in place over both pins. • Disable the parameter, if applicable.
	The low-pressure switch is open due to low seawater and/or low return-air temperatures.	Try to restart the air conditioning unit. The optional low-pressure switch has a ten-minute shutdown time delay that may be in effect.
	The low-pressure switch is open due to a loss of refrigerant.	• Check the air conditioning unit for a refrigerant oil leak. • Call for service.
	The low-pressure switch is defective or a wire is loose.	• Contact a servicing dealer to test the low-pressure switch and to ensure the wires are properly connected and seated in the orange plug on the circuit board. • Ensure the orange plug is not installed backwards on the circuit board.

Problem	Possible Causes	Recommended Solution
A high pressure fault is present.	The seawater flow is obstructed. The condenser coil may be too hot to touch.	• Water should be flowing strongly out of the overflow. Be sure the seacock is open and water is flowing to the pump. • Clean the seawater strainer. • Check for obstructions at the speed scoop thru-hull inlet. • Check for a strong, steady flow from the overboard discharge.
	The high-pressure switch is open (in heating) due to improper airflow.	• Remove any obstructions in the return-air stream. • Clean the air filter and grille. • Check for crushed or restricted ducting. The ducting must be as straight, smooth, and as taut as possible. • If the problem persists, reprogram the low fan speed limit for maximum value. • Set the low fan limit to 75, and set the reverse fan speeds during HEAT mode by changing the reverse fan speed in Heat under general settings, or manually set the fan speed to high.
	The high-pressure switch is open (in heating) due to a high seawater temperature.	The system may cycle on high-pressure if the seawater temperature is above 55 °F (13 °C).
	The high-pressure switch is defective or a wire is loose.	• Contact a servicing dealer to test the high-pressure switch and to ensure the wires are properly connected and seated in the orange plug on the circuit board. • Ensure the orange plug is not installed backwards on the circuit board.
	The seawater pump may be air-locked.	• Ensure that the seawater plumbing is installed according to the guidelines in the Installation Manual included with the air conditioning unit. • Remove the hose from the pump discharge to purge air from the line.
	The seawater pump is not running.	• Water should be strongly flowing out of the overflow . • Ensure the pump is not damaged from being run dry. • Check if the pump is receiving voltage. • Check the pump circuit breaker or the relay board, if applicable.
A low-AC voltage fault is present.	The supply voltage is too low.	Use a multimeter to verify that constant, steady power is available to the unit.
	The voltage is improperly calibrated, if applicable.	• Use a multimeter to verify that the voltage reading to the unit matches the voltage calibration in the parameters. • Adjust the voltage calibration if necessary.

Problem	Possible Causes	Recommended Solution
The air conditioning unit does not respond to the changes entered on the display.	The display is experiencing a power interruption, voltage frequency fluctuation, electromagnetic interference from other equipment, or similar power-related issue.	Perform a factory reset of the display: 1. Turn the power off. 2. Disconnect the cable from the display. 3. Turn the power on, wait 20 seconds, and turn the power off. 4. Reconnect the cable to the display. 5. Turn the power on. ⓘ This will cause all the parameters to reset to the factory default settings.
	The circuit board is recognizing previously connected displays.	
	The display-cable plugs are not making contact (for example, the plugs are unplugged, dirty, bent, or have broken pins). The display may show '999' or '- - -' if unable to communicate with the unit.	• With the power off at the circuit breaker, remove the connector and inspect it. • Clean the socket and the cable with electrical contact cleaner. • Work the cable in and out of the socket. If damaged, replace the connector or the display cable.
	The display buttons do not function.	The display is locked. Unlock the display.
	The display and the circuit board are not compatible.	• Ensure the compatibility between the circuit board and the display. Some older boards will not work with newer displays and some newer boards will not work with older displays. • If the rebooted circuit board and display unit continue to act oddly, replace the display cable.
The display does not show the correct room temperature.	The display is showing a code for a faulty air sensor, typically because there is a failed: display built-in temperature sensor, optional inside air temperature sensor, or display cable.	• Replace the optional inside air temperature sensor. • If using the display built-in temperature sensor, replace the display or add an optional inside air temperature sensor. • Install a different display cable. • Ensure that the damaged jack/socket in the display head or on the circuit board is not damaged.
	The temperature displayed is too high.	• If the temperature displayed is within 50 °F above the actual temperature, use calibration parameter 4 to adjust. • If the temperature displayed is hotter than 50 °F above the actual temperature, adjust the JP5 jumper on the unit's circuit board. • Refer to the "Note if using an optional inside air temperature sensor".
	The temperature displayed is too low.	• If the temperature displayed is within 50 °F below the actual temperature, use calibration parameter 4 to adjust. • If the temperature displayed is colder than 50 °F below the actual temperature, adjust the JP5 jumper on the unit's circuit board. • Refer to the "Note if using an optional inside air temperature sensor".
	The temperature adjusts too quickly or still does not read correctly.	Relocate the display or the optional inside air temperature sensor. The supply air should not blow on or near a sensor. Locate the optional inside air temperature sensor in the return air stream, and ensure it is not physically touching any part of the unit. ⓘ Note if using an optional inside air temperature sensor, it will be either an RJ11 4-pin 3,000 K sensor or an RJ12 6-pin 10,000 K sensor. If the 6-pin sensor is installed, the JP5 jumper must be removed from the board. If neither sensor is installed on the circuit board, the display reads from its own built-in sensor, if applicable.
A low pump-flow fault is present, if applicable.	The condenser coil is too hot.	Verify the unit receives water flow and the condenser is not fouled.
	The thermistor is damaged.	• Unplug the water sensor if installed. • Install another thermistor if one is available.
	There is a damaged jack/socket on the circuit board.	Visually check to verify the pins inside the socket are not bent or corroded. Repair or replace the circuit board if needed.

Problem	Possible Causes	Recommended Solution
A filter reminder is presented.	The timer setting to clean or replace the filter has been reached.	Clean or replace the filter and reset the filter hours.

12 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.

13 Warranty Information

LIMITED WARRANTY AVAILABLE AT WWW.DOMETIC. COM/WARRANTY.

IF YOU HAVE QUESTIONS, OR TO OBTAIN A COPY OF THE LIMITED WARRANTY FREE OF CHARGE, CONTACT:

DOMETIC CORPORATION
MARINE CUSTOMER SUPPORT CENTER
2000 NORTH ANDREWS AVENUE
POMPANO BEACH, FLORIDA, USA 33069
1-800-542-2477

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