Q-Logic Digital Controls
The Q3 and Qht for Tempered Water Systems

OPERATIONS MANUAL

Q3 Control

Qht Control (with bezel)

Dometic Marine
Rev. 20110225
L-2962 English

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INTRODUCTION

The Q-Logic Q3 and Qht are microcontroller-based units designed for use with tempered water (TW) air conditioning systems. This manual provides all necessary information for proper installation and operation of the Q3 and Qht controls. Poor installation or misunderstood operating parameters will result in unsatisfactory performance and possible failure.

READ THIS MANUAL BEFORE PROCEEDING

This manual contains essential information concerning the operation of your Q-Logic control system. It is very important that you read and understand the contents of this manual before using the equipment, and it should be kept on the boat for future reference.

Read this manual completely before you proceed with the installation and operation of the controls. If you have questions or require assistance with your Q3 or Qht control, call your Cruisair dealer or the Dometic/Cruisair Service Department at +1 954-973-2477.

The Q3 and Qht controls are covered under existing Cruisair Warranty Policy. Incorrect installation, neglect and system abuse are not covered under the Cruisair Warranty Policy.

Q-LOGIC OVERVIEW

The term "Q-Logic" refers to the overall product family of keypad/display controls and to the power/logic circuit board located near the air-handler electrical box. There are two different controls that can operate a Q-Logic system:

- **Q3 -** Rectangular in shape with a bezel look and LED indicators, this display was designed as an economical version of the Qht. The Q3 control is only compatible with a Q-Logic board and is not backward compatible with an SMXII system
- **Qht** - Using the newest high-technology (ht), this European-style control with LCD display fits into a decorative Vimar® Idea bezel and has many new features. The Qht control is only compatible with a Q-Logic board and is not backward compatible with an SMXII system. To distinguish between Qht and SMXht, the Qht has a "Compatible With Q-Logic Only" label displayed on the Qht mounting flange.

While the programming procedure of the Q3 and Qht controls is the same, there are differences in the look of the buttons and and the way the information is presented in the displays. Differences are noted in this manual where applicable. Familiarize yourself with the operation and programming sections of this manual.

FEATURES

Standard

- Universal 115/230 volt, 50/60 Hz AC power supply.
- User-friendly four- and five-button display panels.
- Option to display temperature in degrees Fahrenheit or Celsius.
- Water-in sensor for individual cabin heating and cooling.
- 22 programmable functions.
- Nonvolatile memory requires no backup power.
- Humidity Mode control.
- Programmable fan operation.
- Programmable display brightness.
- Air Filter Cleaning or Replacement Timer.

Optional

- Outside temperature sensor.
- Tempered water inlet temperature sensor.
- Tempered water outlet temperature sensor.
- Auxiliary heating control capabilities.
- Humidity sensor for advanced humidity control.

HOW IT WORKS

The basic principle behind an air conditioner is the movement of heat. In a marine TW air conditioner operating in cool mode, heat is removed from the inside cabin air and transferred to a closed, fresh water loop that is in turn cooled by the main chiller system in the engine room or in another equipment space. The chiller system then transfers the heat into the seawater. In heat mode, the chiller system adds heat to the water loop using either reverse-cycle or electric heating. Then, the TW air conditioner in the cabin removes the heat from the loop and adds it to the cabin air.

POWER INTERRUPTIONS

The Q-Logic control has built-in protection against sudden power interruptions. The system automatically stores the current operating configuration in permanent memory every time any changes are made. When AC power is lost, the Q-Logic system retains these settings and resumes using them when AC power is restored.

DESCRIPTION OF THE CONTROLS

Figure 1: Q3 Diagram - Control Display Panel and Indicators

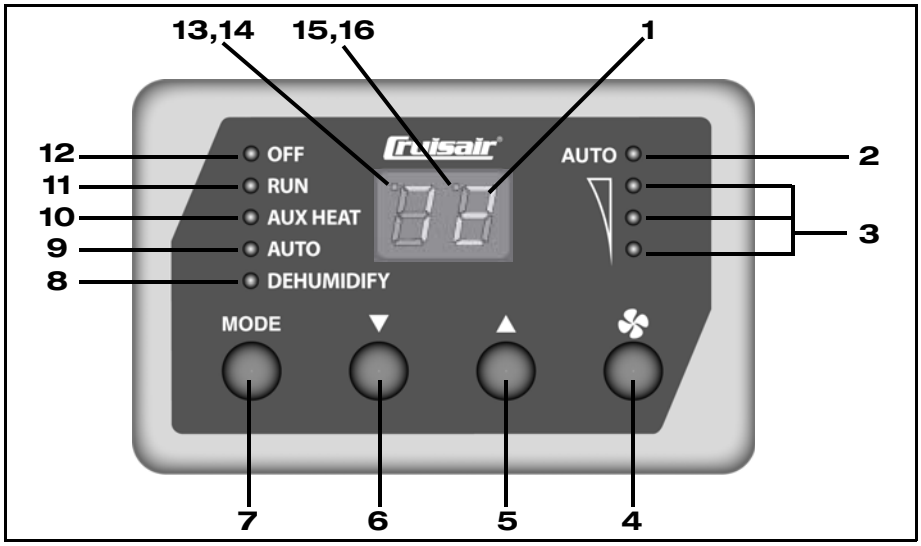


Table 1: Q3 Diagram Description of Control Display Panel and Indicators

1	**Data Display** - Large LED readout displays current temperature, set point, programmed values and error messages.	9	**AUTO Mode Indicator** - Lights when Auto Mode is selected. Auto Mode can only be selected if the optional Aux Heat function is enabled (see Programmable Function “12: Aux Heat Enabled/Disabled” on page 9).
2	**AUTO Fan Mode Indicator** - Lights when fan is running in Automatic Fan Mode.	10	**AUX HEAT Indicator** - Lights when the optional Aux Heat Mode is selected. Aux Heat may only be selected if the optional Aux Heat Programmable Function 12 is enabled.
3	**Fan Speed Indicators** - Column of three LEDs that indicate the current fan speed of high, medium, or low (refer to fan speed operation).	11	**RUN Indicator** - Lights when the Run Mode is selected. The Run Mode will automatically switch from Cool to Heat depending on the set point, cabin temperature, and entering loop water temperature.
4	**FAN Button** - Press to select Automatic or Manual Fan Mode, indicated by the AUTO Fan LED indicator being on or off. In Manual Fan Mode, additional presses of the Fan button will adjust fan speed higher, then lower, then back to AUTO. In AUTO Fan, fan speed is controlled by the microprocessor as a function of the difference between set point and inside temperature. See Programmable Function “3: Fan Response Differential” on page 8.	12	**OFF Mode Indicator** - Lights when system is off. Note that the Data Display remains on. You can continue to adjust set point, display temperature readings and activate the manual fan to circulate air while the system is in the Off Mode.
5	**UP Button** - Press to adjust set point up. In programming mode press to scroll through program modes and adjust values.	13	**Cooling Indicator** - A dot in the upper left corner of the data display lights to indicate the bypass valve is open in COOL mode. In AUTO mode, the COOL LED indicator lights to indicate the bypass valve is open.
6	**DOWN Button** - Press to adjust set point down. In programming mode press to scroll through program modes and adjust values.	14	**Heating Indicator** - A dot in the upper left corner of the data display lights to indicate the bypass valve is open in HEAT mode. In AUTO mode, the HEAT LED indicator lights to indicate the bypass valve is open.
7	**MODE Button** - Press to cycle through the modes of operation (refer to indicators). Mode sequence selections are OFF, RUN, AUX HEAT (optional), AUTO (RUN with optional AUX HEAT), and DEHUMIDIFY.	15	**Set Point Indicator** - A dot in the upper center of the display lights to indicate the set point is being adjusted. Normally display defaults to inside temperature.
8	**DEHUMIDIFY Mode Indicator** - Lights when the Dehumidify Mode is selected. Flashes if optional humidity sensor is connected and operating in Cooling Mode.	16	**Manual Fan Mode Indicator** - AUTO Fan indicator turns off when fan is running in Manual Fan Mode.

Figure 2: Qht Diagram - Control Display Panel and Indicators

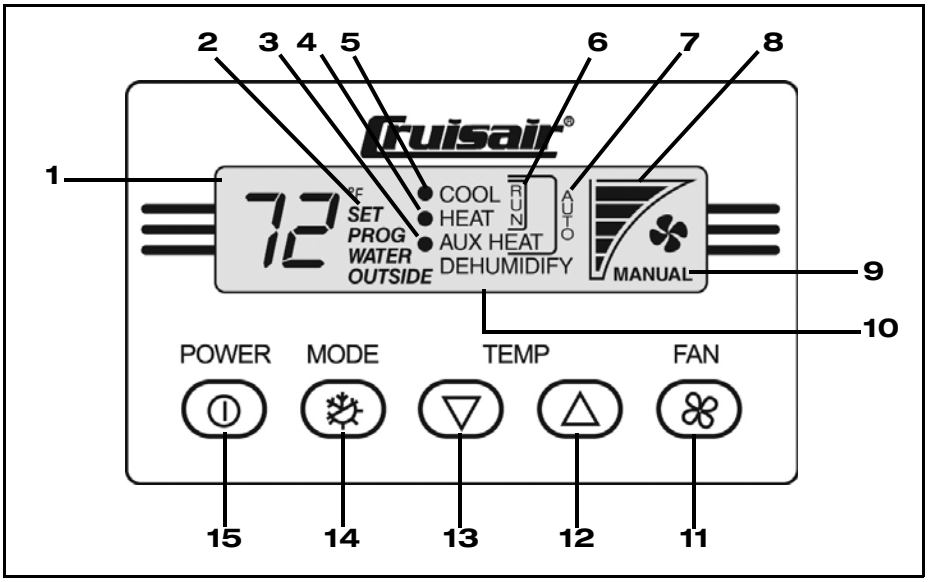


Table 2: Qht Diagram Description of Control Display Panel and Indicators

1	**Data Display** - Large LCD readout displays current temperature, set point, programmed values and error messages.	**9**	**Fan Mode Indicator** - The word MANUAL displays when the fan is running in Manual Fan Mode. The word MANUAL does not display when the fan is running in Automatic Fan Mode.
2	**Set Point Indicator** - Display shows SET when set point is being adjusted. Normally display defaults to inside temperature.	**10**	**Dehumidify Mode Indicator** - The word DEHUMIDIFY displays when you are in Dehumidification Mode. It flashes if optional humidity sensor is connected and operating in the Cooling Mode. (Press the MODE button to select Dehumidification Mode.)
3	**Aux Heating Indicator and Aux Heat Mode Indicator (optional)** - A solid dot displays next to the words AUX HEAT when the electric heater is on and running in Aux Heat mode. The words AUX HEAT display when you are in Aux Heat mode. (Press the MODE button to select the optional Aux Heat Mode.) See Programmable Function "12: Aux Heat Enabled/Disabled" on page 9.	**11**	**FAN Button** - Press to select Manual or Automatic Fan Mode, indicated by the word MANUAL displaying or not displaying. In Manual Fan Mode, additional presses of the FAN button will adjust fan speed higher, then lower, then back to Automatic. In Automatic Fan Mode, fan speed is controlled by the microprocessor as a function of the difference between set point and inside temperature. See Programmable Function "3: Fan Response Differential" on page 8.
4	**Heating Indicator** - A solid dot displays next to the word HEAT when the bypass valve is on (open) and running in Heat mode.	**12**	**UP Button** - Press to adjust set point up. In programming mode press to scroll through program modes and adjust values.
5	**Cooling Indicator** - A solid dot displays next to the word COOL when the bypass valve is on (open) and running in Cool mode.	**13**	**DOWN Button** - Press to adjust set point down. In programming mode press to scroll through program modes and adjust values.
6	**Run Mode Indicator** - Lights when the Run mode is selected. The Run mode will automatically switch from cool to heat depending on set point, cabin temperature, and entering loop-water temperature. (Press the MODE button to select Run mode.)	**14**	**MODE Button** - Press to cycle through the modes of operation (refer to indicators). Mode sequence selections are RUN, AUX HEAT (optional), AUTO (RUN with optional AUX HEAT), and DEHUMIDIFY.
7	**AUTO Mode Indicator** - A bracket and the word AUTO display to the right of the words COOL, HEAT, and AUX HEAT when you are in Auto Mode. Auto Mode automatically switches from RUN mode to AUX HEAT depending on set point, cabin temperature, and entering loop-water temperature. AUTO Mode can only be selected if the optional Aux Heat function is enabled (see Programmable Function "12: Aux Heat Enabled/Disabled" on page 9).	**15**	**POWER Button** - Press to turn the system on and off. Note that the Data Display remains on in the Off mode. You can continue to adjust set point, display temperature readings and activate the manual fan to circulate air while the system is in the Off Mode.
8	**Fan Speed Indicator** - A row of five bars indicate the current fan speed, with more bars indicating a higher fan speed and fewer bars indicating a lower fan speed.		

Important Programming Notes To Installer and End User

Standard air handlers come equipped with chilled-water bypass valves. However, for “no-valve” air handlers, the fan mode must be set to “Intermittent” via Programmable Function 6. Verify that the installed air handlers have bypass valves; if not, change Programmable Function 6 to “I” for intermittent fan operation. (See Programmable Function “6: Fan Mode” on page 9 for more information) Also in this case, please ensure that the ambient air temperature sensor is located somewhere directly exposed to the cabin space and not located inside of a duct or near the air handler itself.

Normal Heating or Cooling Cycle

In Run Mode, heating and cooling are supplied as required. If Cooling is required, the system will start a cooling cycle when the cabin temperature exceeds the set point by the Bypass Valve Differential setting in Programmable Function 2 (1.5°F/0.8°C by default) and will continue to cool until the temperature equals the set point. Similarly, if Heating is required, the system will start a heating cycle when the cabin temperature is below the set point by the Bypass Valve Differential setting and will continue to heat until the temperature equals the set point.

If you select Cool Mode, only cooling is supplied. If you select (optional) Aux Heat Mode, only heating is supplied. The cabin temperature in either mode is maintained within the Bypass Valve Differential setting. When the heating or cooling set point is satisfied, the bypass valve closes.

When cooling is required, the bypass valve will not open unless the loop supply water temperature is at least 10°F less than the inside cabin temperature Similarly, when heating is required, the bypass valve will not open unless the loop supply water temperature is at least 10°F greater than the inside cabin temperature. In Auto Mode, which requires an optional aux heater to be installed and enabled, the aux heater will assist in heating with the bypass valve when the supply loop water temperature is between 10°F and 20°F greater than the inside cabin temperature. You can view the supply loop water temperature by simultaneously pressing the MODE and FAN buttons.

During a Cooling or Heating cycle, the fan will operate at a fan speed depending on the fan’s operational mode. If a Manual fan speed is selected, the fan will operate at this speed at all times, even if the set point has been satisfied and the cooling or heating cycle has ended. If the fan is in Auto mode, the fan speed will be determined by Programmable Function 3, the Fan Response Differential, and Programmable Function 18, Fan-Speed Divisions. Please refer to these parameters for further details on the fan speeds during Auto fan operation. When in Auto fan mode, the fan speed will return to low speed once the set point temperature has been satisfied and the cooling or heating cycle has ended.

INSTALLING THE DISPLAY PANEL

Mounting the Display

1. **For the Qht display,** make a rectangular cut-out in the panel where it will be mounted. The Qht cut-out size is 3-7/16” (88mm) wide by 2-1/8” (54mm) high. **For the Q3 display,** only a 1” (26mm) round hole is required in the panel for mounting.
2. Use the installation instructions included with your display to complete the mounting, securing the display with the appropriate size and number of screws.
3. Plug one end of the display cable (6-pin connector) to the back of the display and the other end to socket labeled “Display” located on the edge of the Q-Logic circuit board.

Mounting the Sensors

NOTE
Do not staple any sensor cables when mounting.

Ambient Temperature Sensor - required

Install the ambient temperature sensor in a proper location to accurately sense the room air temperature. *Ideally, the sensor should be located in a reliable return-air stream moving from the room to be controlled to the air handler it is plugged into.* Locating the sensor on the back of the air handler coil is not ideal and can result in false readings for several reasons. It is best to locate the sensor just inside of a return-air grille or passage. The standard cable length for the remote air sensor is 7 feet (2.1m). Plug in the sensor’s 6-pin connector to the “Inside Temp” (P2) socket located on the edge of the Q-Logic circuit board.

Loop Inlet Temperature Sensor - required

Install the tempered water loop inlet temperature sensor on the supply pipe that is feeding the air handler. Ensure that the sensor is in direct contact with the copper pipe and use thermal mastic to ensure good heat transfer. Strap the sensor wire in

place for strain relief and to prevent the sensor from being accidentally removed. Plug the sensor's 2-pin connector into the "Loop Water In (P4 - red) socket located in the corner of the Q-Logic circuit board.

Loop Outlet Temperature Sensor - optional

Install the optional tempered water loop outlet temperature sensor on the return pipe that is leaving the air handler. Ensure that the sensor is in direct contact with the copper pipe and use thermal mastic to ensure good heat transfer. Strap the sensor wire in place for strain relief and to prevent the sensor from being accidentally removed. Plug the sensor's 2-pin connector into the "Loop Water Out (P5 - blue) socket located in the corner of the Q-Logic circuit board.

Outside Air Temperature Sensor - optional

Install the optional outside air temperature sensor to monitor temperature outside the cabin. Outside air sensor cables are available in various lengths. Mount the sensor outside but not in direct sunlight. Plug in the sensor's 6-pin connector to the socket labeled "Outside Temp" (P3) located on the edge of the Q-Logic circuit board.

Humidity Sensor - optional

Install the optional humidity/temperature combo sensor to monitor the relative humidity of the cabin. Locate the sensor in the same location as the ambient air temperature sensor. Plug in the combo sensor's 6-pin connector to the "Inside Temp" (P2) socket located on the edge of the Q-Logic circuit board. The Q-Logic automatically detects the presence of this combo sensor and immediately starts measuring humidity.

OPERATION

Operator Controls and Display Panel

For the button locations and display functions, refer to Figure 1, Table 1 on page 2 for the Q3 control and to Figure , Table 2 on page 3 for the Qht control.

Button Functions

- **POWER button (Qht only)** - Press and release to toggle between the **On and Off Modes**.
- **MODE button** - Press and release to toggle between the **Off (Q3 only) and all other modes of operation**.
- **UP button** - Press and release to display the **set point**. Press and hold the UP button to increase the set point. Set point increases one degree each time the button is pressed.
- **DOWN button** - Press and release to display the **set point**. Press and hold the DOWN button to decrease the set point. Set point decreases one degree each time the button is pressed.
- **FAN button** - Press to select the **Automatic Fan Mode**, the **Manual Fan Mode**, or to advance through the manual fan speeds.
- **Display Supply Loop Water Temperature** - The supply loop water temperature sensor must be used to sense constant loop water supply. Press the MODE and FAN buttons simultaneously to display the loop water temperature. If the loop water sensor is open or shorted (closed), the display flashes "- -" instead of a temperature reading.
  - **Q3 -** The display flashes "IL" for one second then the loop water temperature displays in two segments: The display flashes the first digit of loop water temperature for one second, then the next two digits of loop water temperature for one second. The cycle repeats until the buttons are released.
  - **Qht -** The word WATER displays, "IL" flashes for for one second, then the loop water temperature displays in two segments: The display flashes the first digit of loop water temperature for one second, then the next two digits of loop water temperature for one second. The cycle repeats until the buttons are released.
- **Display Return Loop Water Temperature (optional)** - Press the FAN and UP buttons simultaneously to display the return loop water temperature (optional). If the return loop water temperature is not available, open or shorted (closed), the display flashes "- -" instead of a temperature reading.
  - **Q3 -** The display flashes "OL" for one second then the return loop water temperature displays in two segments: The display flashes the first digit of the return loop water temperature for one second, then the next two digits of the return loop water temperature for one second. The cycle repeats until the buttons are released.
  - **Qht -** The word WATER displays, "OL" flashes for one second, then the return loop water temperature displays in two segments: The display flashes the first digit of the return loop water temperature for one second, then the next two digits of the return loop water temperature for one second. The cycle repeats until the buttons are released.
- **Display Outside Temperature (optional)** - Press the FAN and DOWN buttons simultaneously to display the outside temperature (optional). If outside temperature is not available, open or shorted (closed), the display flashes "- -" instead of a temperature reading.

- **Q3 -** The display flashes “OU” for one second then the outside temperature displays in two segments: The display flashes the first digit of outside temperature for one second, then the next two digits of outside temperature for one second. The cycle repeats until the buttons are released.
- **Qht -** The word OUTSIDE displays, “OU” flashes for one second, then the outside temperature displays in two segments: The display flashes the first digit of outside temperature for one second, then the next two digits of outside temperature for one second. The cycle repeats until the buttons are released.

- **Display Relative Humidity (optional)** - Press the MODE and UP and DOWN buttons simultaneously to display the relative humidity (optional). “HS” displays for one second then the two digits of relative humidity display for one second. The cycle repeats until the buttons are released. If HS is not available, open or shorted (closed), the display flashes “- -” instead of the humidity reading.

Modes of Operation

Power On and Basic Modes

Press the MODE (Q3) or POWER (Qht) button to turn the system on. In three seconds, the system will start operating in whichever mode it was running prior to the last shut down. For the initial startup, the control will be in Run Mode.To change mode before the system starts, press the MODE button before the three-second startup completes (while the display is flashing). Or, while the system is on, press the MODE button at any time to change the mode.

The modes available are: Off, Run, Auto (automatically switches between Run and optional Aux Heat Mode, depending on set point requirement), Aux Heat (optional) and Dehumidification Mode. In Run Mode, a solid dot lights up next to the words COOL or HEAT when the bypass valve is on (open) and running in that mode. The Auto Mode automatically switches from Run mode to Aux Heat depending on set point, cabin temperature and supply loop water temperature. In Auto Mode, a solid dot lights up next to the words COOL, HEAT, or AUX HEAT, indicating either the bypass valve is on (open) or the aux heater is energized. Auto Mode can only be selected if the optional aux heat function is enabled (see “12: Aux Heat Enabled/Disabled” on page 9).

Dehumidification Mode

Press the MODE button until the DEHUMIDIFY LED indicator lights (Q3) or the word DEHUMIDIFY appears in the display (Qht). The display flashes “HU” during this mode of operation. When Dehumidification Mode is activated, the Humidity Control Program automatically turns the bypass valve (if the loop is cold) on at timed intervals to remove moisture from the air. The system is programmed at the factory for average values. To change the factory settings, see Programmable Function “20: Dehumidification Pre-Circulation Time”, Programmable Function “21: Dehumidification Time”, and Programmable Function “22: Dehumidification Overall Time Period” on page 11.

NOTE

When the system is in Dehumidification Mode, all system safeguard controls remain active. For example, if the line voltage falls below preset limits, the system will automatically shut down. Or, if AC power is interrupted, the system will automatically resume operation in Dehumidification Mode when power is restored.

Adjusting the Set Point

To view the set point, momentarily press and release the UP or DOWN button. To adjust the set point, press the UP or DOWN buttons to set the desired room temperature (press and hold either button to scroll). The set point range is 55-99°F (12.8-37.2°C). After selecting the desired set point temperature, if no buttons are pressed for three seconds the display automatically reverts to showing the inside cabin temperature. Inside cabin temperature is continuously displayed.

- **Q3 -** The upper center dot in the display lights when set point is being adjusted.
- **Qht -** The word SET appears in the display while set point is being adjusted.

Fan Operation and Control

Press the FAN button to adjust the fan speed while in Manual Fan Speed Mode or to switch between Manual and Automatic Fan Speed Modes. The fan may be run manually whether the system is on or off. Automatic Fan Speed Mode can only operate when the system is on. Fan behavior also depends on how the Fan Mode function is programmed: “C” for continuous or “I” for intermittent running with the bypass valve. See Programmable Function “6: Fan Mode” on page 9.

- **Q3 -** When in Manual Fan mode, the AUTO Fan LED is off.
- **Qht -** The word MANUAL appears in the display when in Manual Fan mode.

Memory

The Q-Logic controls have nonvolatile memory requiring no batteries or backup power. When power is lost, the operating parameters are retained indefinitely. When power is restored, the control resumes operating as last programmed.

Display Inside Cabin Temperature

The control continuously displays inside cabin temperature. If Mode or Set Point is changed, after three seconds the display automatically reverts to showing inside temperature. If inside temperature is greater than 99°F (37°C) or less then 0°F (-17°C), the display shows either 99°F (37°C) or 0°F (-17°C) respectively as the maximum or minimum inside temperature.

Dimming the Display

Press the MODE and UP buttons simultaneously and repeatedly to select the brightness setting for the display.

Sleep Mode

Sleep Mode dims all LEDs (Q3) or turns off the backlight (Qht). When in Sleep Mode, press any button to brighten the display, and then operate as usual. See Programmable Function “11: Sleep Mode” on page 9.

Lockout Display Mode

Press the MODE and UP and FAN buttons simultaneously to select the Lockout Display Mode setting. This mode locks the display in the current mode selected. If a button is pressed, the display flashes “LC” for 2 seconds then goes back to displaying the inside temperature. In Lockout Mode, the display shows inside temperature and the indicators operate as normal, but all button presses are ignored until MODE and UP and FAN buttons are pressed simultaneously, then “UL” displays momentarily and the buttons are unlocked for normal operation. In Lockout Mode all sensors operate as normal and any fault and error codes will be displayed.

PROGRAMMING THE CONTROL

Programming Procedure

The Q3 and Qht must be in Off Mode prior to entering Programming Mode.

- **Q3 -** Press the MODE button and select the Off Mode.
- **Qht -** Press the POWER button to turn the control off or on.

Once in the Off Mode, then:

1. Simultaneously press and hold the MODE and DOWN buttons for three seconds.
   - **Q3 -** “PO” flashes in the display while the buttons are being held. When “PO stops flashing and the OFF LED flashes, you have successfully entered Program Mode.
   - **Qht -** “PROG” flashes in the display while the buttons are being held. When “PROG” stops flashing and a flashing “01” appears in the display, you have successfully entered Program Mode.
2. Press the UP or DOWN buttons to scroll until the desired Programmable Function Number (1-22) is displayed. See Table 4 on page 12.
3. Press the MODE button to access the programmable value of the displayed Function Number. That function’s current value and a flashing OFF LED (Q3) or the word “PROG” (Qht) will also be displayed.
4. Press the UP or DOWN buttons to change the value of that function.
5. Press the FAN button to save the new setting and return to Program Mode. Scroll to another function number and continue programming, or press FAN again to exit Programming Mode and return to Off Mode.

NOTE

Whether your control is set to display temperatures in °F or °C, all temperature-related programming values must be adjusted in °F only.

Programmable Functions

Customizing the Functions

The system’s default settings may be changed by the installing dealer or end user.

A summary of the function settings, permitted values, and original factory default settings of each are listed in Table 4: Programmable Functions - Ranges and Factory Defaults, page 12. Record the data for any function settings you change in the Custom Settings column of that table.

Restoring Factory Default Settings

You can restore the original factory default settings and overwrite all the customized changes you made. To restore the factory default settings, switch to Off Mode and then press and hold the UP and DOWN buttons simultaneously. Hold the buttons for three seconds while “00” flashes in the display. Successful memory reset is indicated by a “1” flashing back and forth across the display. Release the buttons. System returns to the Off Mode.

Description of Functions

1: Fahrenheit or Celsius Selection

(Factory Default: Fahrenheit)

Select F for Fahrenheit. Select C for Celsius.

2: Bypass Valve Differential

(Factory Default: 12 = 1.5°F / 0.8°C)

The bypass valve differential is the temperature change needed for the bypass valve to cycle on. The factory setting of 1.5°F should be adequate for most applications. Differential selections are available in increments of 1/8°F. Thus, to change the setting one degree, you should add or subtract 8 (for 8-eighths). All program functions must be adjusted in °F even if the temperature display is changed from Fahrenheit to Celsius (see Programmable Function 1); however, after exiting the program mode all temperature values will be displayed in Celsius.

3: Fan Response Differential

(Factory Default: 8 = 1.0°F / 0.6°C)

When the fan is in the Automatic Fan Mode, its speed is governed by how much the room temperature differs from the set point. The fan runs faster when the difference is greater. As the room cools or warms, and the temperature approaches set point, the fan slows down automatically. The Fan Response Differential can be adjusted from 1/4°F to 4°F, in 1/8° increments. All program functions must be adjusted in °F even if the temperature display is changed from Fahrenheit to Celsius (see Programmable Function 1).

The fan speed range is divided by the Q-Logic microprocessor into five equal increments. If the Fan Response Differential is set at 1/2°, then the fan speed will change 20% for each 1/2° of temperature deviation from set point. Lowering the fan speed differential will cause the fan to change speed more frequently as temperature changes. Raising the fan speed differential will result in slower fan speed changes for a given temperature change. The factory setting of 1/2° is good for most applications, but you may wish to try a slightly higher setting in your salon and a lower setting in your stateroom.

NOTE

If the Bypass Valve Differential and the Fan Response Differentials are both set to the factory default or a comparable range and the Automatic Fan Mode is on, then the fan will not run at high speed unless the cabin temperature rises 3°F above set point.

4: Low Fan Speed

(Factory Default: 38)

You can adjust the lowest fan speed to suit individual preferences. For instance, you may wish to decrease the low fan speed setting in your stateroom to minimize fan noise.

NOTE

For most efficient operation of your system, you should normally keep the low fan speed at the highest possible setting, consistent with a comfortable noise level.

5: High Fan Speed

(Factory Default: 85)

A blower will often reach its highest speed at a voltage lower than full line voltage. For example, at a line voltage of 120V, the blower might reach its fastest speed at 110V. At higher voltages, the bower speed will not increase significantly.

The High Fan Speed Adjustment allows you to set the maximum high-speed voltage to the threshold of the blower high-speed response. Q-Logic divides the fan speed voltage steps into five equal increments (between the low-speed and high-speed adjustments). Accurately setting the High and Low Fan Speed Adjustments can help ensure that each fan speed increment step results in a noticeable change of fan speed.

- While in Program Mode, listen to the fan noise level and use the UP button to raise the displayed value past the point that you can hear an increase in the fan noise level.
- Press the DOWN button to lower the voltage until you hear a drop in fan speed, then raise that number by 2 or 3 to ensure that it is set at the highest speed.

6: Fan Mode

(Factory Default: Continuous)

You can select continuous or intermittent fan operation.

Select C and the fan will run continuously while the system is on. Select I for intermittent operation and the fan will cycle on and off with the compressor.

NOTE

If you select intermittent fan operation, you should relocate the thermistor from the return air grill to a cabin wall where it can best sense the average room temperature. Check with your dealer or call the Cruisair Applications Department for more information.

7: Temperature Calibration

This feature calibrates the ambient sensor within a range of ±1%. The temperature sensor should be within one or two degrees of actual room temperature. Note that setting increments are in °F even when the control is set to display °C. Adjust this parameter to display the correct room-temperature reading.

- The sensed temperature is displayed. Place an accurate thermometer beside the sensor and compare the temperatures.
- Press the UP or DOWN buttons to recalibrate the value as required.

8: Software Revision Level

This setting displays the software version and revision level of your Q-Logic system as a 2-digit number, such as “05” for version 5. You should know this information prior to calling a dealer or the factory for service assistance.

9: Determining Your Product Type

This setting displays the product type your Q-Logic system is being used with. You should know this information prior to calling a dealer or the factory for service assistance. “dE” displays for marine Direct Expansion Self-Contained and Remote Products; “CH” displays for Tempered Water or Modulating Air Handlers.

10: LED/LCD Segment Test

Press the MODE button to test the display. All LED segments (Q3) or LCD graphics (Qht) should display. Press the FAN button to exit this test.

11: Sleep Mode

(Factory Default: On)

You can set the Q3’s LED brightness level to dim or you can set the Qht’s backlight to be on or off. Select “SL” for Sleep Mode and the LEDs will remain dim or the backlight will remain off until a key is pressed, which will temporarily brighten the display. Select “On” and the Q3’s LEDs will stay at the current brightness setting or the Qht’s backlight will stay on.

12: Aux Heat Enabled/Disabled

(Factory Default: AH)

The Q-Logic control allows operation of an optional auxiliary (aux) electric heater. The default for this feature is “AH” indicating electric heat is enabled and installed. If an electric heater is not installed, select “- -” to disable the electric heater.

13: Humidity Sensor Limit Adjustment

(Optional; Factory Default: 60% RH)

If the optional humidity sensor is connected to the Q-Logic board, this feature allows the system to dehumidify with electric heat (if electric heat is installed and enabled) when the cabin humidity rises above 60% (default) relative humidity (RH). The electric heater will cycle on and off to maintain set point while the bypass valve opens to allow cold loop water to enter the air handler coil to dehumidify. This operation continues until the cabin’s relative humidity is less than 60% (default). If an electric heater is not installed, the bypass valve’s on time will extend by operating to 1°F lower than set point. This cycle continues until the cabin’s relative humidity is less than 60% (default). The range of adjustment is 55% to 80% RH.

14: Air Filter Timing Setting and Reset

(Factory Default: 0)

Use this feature for a reminder to clean or replace the unit’s air filter. Select the number of operating hours until the filter reminder appears in the display flashing “Ar” then “FL”. The value entered represents that number times 100 hours. Function values are between 1 (100 hours) and 25 (2500 hours). Dometic recommends that you check the air filter at least every 500 hours of operation. The default setting is off, designated with “00”. To reset the timer and stop the flashing filter reminder, press the FAN, UP, and DOWN buttons simultaneously.

15: CAN Bus Unit ID

(Factory Default: 59)

This feature allows all units with a CAN Bus adapter installed to be networked together to communicate with each other or the ship’s CAN Bus system (with additional translator equipment in some cases). Enter the unit’s CAN Bus Unit ID number.

16: CAN Bus Group ID

(Factory Default: 58)

This feature allows all units with a CAN Bus adapter installed to be grouped together in a network system and communicate with the ship's CAN Bus system (with additional translator equipment in some cases). Enter the unit's CAN Bus Group ID number.

17: Select FAMU Operation (future feature)

18: Fan Speed Division

(Factory Default: 5)

You can select either 5 or 3 fan-speed divisions based on the Fan Response Differential (see "3: Fan Response Differential" on page 8). The default is set at 5 fan-speed divisions.

- **Q3 -** Displays either the individual High, Medium and Low fan-speed LEDs if 3 speeds are selected, or a combination of the High, Medium and Low fan-speed LEDs if 5 speeds are selected, for example:
  - Low Speed = Low LED
  - Medium Low Speed= Medium and Low LEDs
  - Medium Speed = Medium LED
  - Medium High Speed = Medium and High LEDs
  - High Speed = High LED
- **Qht -** Displays 5 bars to indicate the five distinct speed changes or groups the bars to show three distinct speed changes.

19: Bypass Valve Override

(Factory Default: "- -" Normal)

If the air handler coil requires air bleeding or emergency operation of the air handler, the Bypass Valve Override routine allows this by energizing the bypass valve and fan for continuous operation. Select "Ob" for this parameter to enter the override mode. The bypass valve will stay energized (open), allowing loop water to flow through the air handler and the fan will operate at high speed. Select "- -" for this parameter to return to normal operation.

NOTE

If you exit the Program Mode during the bypass valve override routine, you must re-enter the Program Mode and follow the instructions above to change back to normal operating mode. Until this is done, "Ob" will display each time a mode is entered.

20: Dehumidification Pre-Circulation Time

(Factory Default: 10 minutes)

The Humidity Control Program (HU) automatically operates the air handler for a programmed time period to help control humidity in the boat. This dehumidification feature works in three stages:

1. The fan comes on at high speed to circulate air for ten minutes.
2. The fan then drops to low speed, and the bypass valve opens if supply loop water is cold and runs in the Cool Mode to dehumidify.
3. After the dehumidification cycle, the system turns off. The process repeats according to the programmed time period.

The factory default settings are:

Program Function 20: Pre-circulation cycle - 10 minutes

Program Function 21: Dehumidification cycle - 30 minutes

Program Function 22: Overall time period - 12 hours

The factory settings are adequate for most moderate climates and boats. For very humid climates, shorten the overall time period and extend the dehumidification time. In dry climates, select a longer overall time period between cycles and a shorter dehumidification time. Program Function 20 governs the pre-circulation cycle time and should not be changed.

21: Dehumidification Time

(Factory Default: 30 minutes)

The dehumidification time determines how long the bypass valve stays open in the Dehumidification Mode (see Program Function 10). The display shows the dehumidification time period in minutes.You can select 10, 20, 30, 40, 50 or 60 minutes. Select a longer dehumidification time in climates with high humidity and a lower dehumidification time in climates with low humidity.

22: Dehumidification Overall Time Period

(Factory Default: 12 hours)

This setting determines how often the system performs the dehumidification process. The display shows the overall time period in hours. You can select intervals of 2, 4, 6, 8, 10, 12, 14 or 16 hours. Choose a shorter overall time period in climates with high humidity and a longer overall time period in climates with low humidity.

Table 3: Recommended Humidity Control Settings

Outside Temperature	Relative Humidity	Time Period	Dehumidification Time
Below 80° F (27°C)	75-85%	12 hours	10 minutes
	Above 85%	8 hours	20 minutes
80° - 90° F (27°- 32°C)	75-85%	10 hours	30 minutes
	Above 85%	6 hours	40 minutes
Above 90° F (32°C)	75-85%	8 hours	40 minutes
	Above 85%	6 hours	60 minutes

SUMMARY TABLE OF PROGRAMMABLE FUNCTIONS

Table 4: Programmable Functions - Ranges and Factory Defaults

Function Number	Description	Factory Default	Custom Settings	Function Range
1	Display Fahrenheit or Celsius	F		F or C
2	Bypass Valve Differential	12 (12/8 = 1.5°F [0.8°C])		2 - 31
3	Fan Response Differential	8 (8/8 = 1°F [0.6°C])		2 - 31
4	Low Fan Speed	38		2 - 57
5	High Fan Speed	85		41 - 99
6	Fan Mode	C (Continuous)		C (Continuous) I (Intermittent)
7	Temperature Calibration	--		Plus or minus 1%
8	Software Revision	(current version)		n/a
9	Product Software	dE = Direct Expansion CH = Tempered Water or Modulating Air Handler		n/a
10	LCD or LED Segment Test	Displays all LCD graphics or LED segments		n/a
11	Sleep Mode LCD backlight off or LEDs dim	On		On = Continuous display SL = Sleep Mode
12	Aux Heat Enable/Disable	AH		"- -" = Aux Heat Disabled AH = Aux Heat Enabled
13	Humidity Sensor Limit	60 (%RH)		55 - 80 %RH
14	Air Filter Timing Setting (x100 hours)	0		0 = Disabled 1 - 25 (100 - 2500 hours)
15	CAN Bus Unit ID	59		0 - 99
16	CAN Bus Group ID	58		0 - 99
17	Select FAMU (Fresh Air Make-Up) Operation (future feature)	"- -"		"- -" = Normal FA = FAMU
18	Fan-Speed Divisions	5		3 = 3 speeds 5 = 5 speeds
19	Bypass Valve Override (for bleeding air handler)	"- -"		"- -" = Normal Operation Ob = Override Bypass Valve
20	HU (Humidity) Pre-circulation	10 (minutes)		0 - 30 minutes
21	HU Dehumidification	30 (minutes)		10 - 60 minutes
22	HU Time Period	12 (hours)		2 - 16 hours

FAULT AND ERROR MESSAGES

To protect the equipment, certain fault conditions trigger a shutdown, and the system will not restart until the fault is repaired.

If an operational failure occurs, the display will flash one of the following fault or error code messages. Fault code displays are cancelled by presing the MODE button (Q3) or POWER button (Qht).

SUMMARY OF FAULT CODES AND INDICATOR CODES

Table 5: Fault-Code and Indicator-Code Descriptions and Results

Code	Description	Result
IL / - -	The air handler's entering loop water sensor has failed open or shorted. To reset, press the MODE button (Q3) or POWER button (Qht)	No Operation
- - (flashing)	Q-Logic display connected to SMXII unit. The two components are not compatible.	No Operation
IS / - - or - -	Inside temperature sensor failure flashes IS / - - for 3 seconds if MODE button is pressed. After 3 seconds, display shows constant - -. Run Mode may be selected for emergency operation and display will show a constant - -.	Emergency Operation
Ar / FL	Display flashes Ar / FL for 15 seconds every 30 minutes indicating return air filter needs to be cleaned or replaced. Reset and stop flashing by pressing the FAN, UP, and DOWN buttons simultaneously.	Continue Operation
LC	LC flashes momentarily if a button is pressed indicating the display is locked in current mode of operation. Enter or exit lock mode by pressing the MODE, UP, and FAN buttons simultaneously. UL flashes for 3 seconds when exiting lock mode.	Continue Operation
OU or Outside / 1st digit / 2nd 2 digits or OU or Outside / - -	Displays the optional outside temperature as OU (Q3) or Outside (Qht) then the first digit followed by second two digits. Displays OU or Outside / - - if optional outside temperature sensor is not installed or failed open or shorted. See "Button Functions" on page 5 for instructions.	Continue Operation
IL or Water / 1st digit / 2nd 2 digits	Displays supply (input) loop water temperature at air handler as IL (Q3) or Water (Qht) then the first digit followed by second two digits. See "Button Functions" on page 5 for instructions.	Continue Operation
OL / 1st digit / 2nd 2 digits or OL / - - and Water	Displays optional return (output) loop water temperature at air handler as OL (Q3) or OL and Water (Qht) then the first digit followed by second two digits. See "Button Functions" on page 5 for instructions. Displays OL or Water / - - if optional return loop water temperature sensor is not installed or failed open or shorted.	Continue Operation
HS / 1st 2 digits or HS / - -	Displays the optional relative humidity as HS / then the first two digits of relative humidty. Displays HS / - - if optional humidity sensor is not installed or failed open or shorted. See "Button Functions" on page 5 for instructions	Continue Operation

INITIAL SYSTEM START UP

1. Turn on the circuit breaker for the air handler.
2. Set the system for RUN Mode.
3. Use the control to set the system for cooling or heating and adjust the set point temperature so the unit will turn on.
4. Verify that there is steady airflow out of the supply-air grille.
5. Allow unit to run for ten minutes at high fan speed. Check the temperature differential between discharge and return air by placing an accurate thermometer in front of the discharge grill and then in front of the return air grill.

   In Cool Mode the difference between the discharge and return should be 15 - 20°F (8.3 - 11.1°C), with normal ambient air and water temperatures.

   In Heat Mode the differential can be as high as 25°F (13.9°C).

If the unit does not appear to be operating properly, refer to the guidelines in "TROUBLESHOOTING" on page 14.

TROUBLESHOOTING

GENERAL SYSTEM TROUBLESHOOTING

Before you call for service, review this list. It may save you time and expense. This list contains common occurrences that are not a result of defective workmanship or materials. If you need service after trying these procedures, call your nearest Cruisair dealer.

See additional troubleshooting information in the manual for your specific air conditioning system. See also *"Digital-Controls Troubleshooting" on page 15*.

Table 6: General System Troubleshooting

PROBLEM	POSSIBLE REASON/SOLUTION
System will not start.	1. **Air handler circuit breaker is off.** Turn circuit breaker on at ship's panel. 2. **Digital control is not turned on.** Press the Power button. 3. **Wrong wiring at terminal strip.** Check wiring diagram; correct if necessary. 4. **Input-line voltage is insufficient.** Check power source (shore/generator) for proper voltage. Check wiring and terminals for proper sizes and connections. Verify with a volt-meter that the power at the unit is the same as the power source. 5. **Push-on connectors or butt splices became disconnected during installation.** Disconnect power supply and open electric box, check wiring diagram, correct if necessary.
System runs continuously.	1. **Set point temperature is improperly set: too low for cooling or too high for heating.** Raise or lower set point. 2. **Porthole or hatches open.** Close all port holes and hatches. 3. **Improper air sensor location.** Check your specific control troubleshooting section.
Low airflow.	1. **Airflow is blocked.** Remove any obstructions in return-air stream. Clean return-air filter and grille. Check for crushed or restricted ducting; ducting must be as straight, smooth and taut as possible. 2. **Fan speed is set to manual low.** If the fan speed is set to manual low, press and release the Fan button until the desired fan speed and airflow are reached. If you want automatic fan speed control, press and release the Fan button until the letter "A" displays.
Fan is not running.	*Check "Digital-Controls Troubleshooting" on page 15.*
No cooling or heating.	1. **Temperature set point is satisfied.** Lower or raise set point. 2. **Fan is not running.** Check your specific control troubleshooting section. 3. **Control is in fan-only mode.** Set system for Cool Mode or Heat Mode. 4. **Digital control is programmed for Cool or Heat only.** See *"Digital-Controls Troubleshooting" on page 15*. 5. **Chilled-water loop is inadequately cooled or heated, chiller system is not in the proper mode of operation, or Electric Heater is disabled.** Check the loop inlet water temperature at the digital control by pressing the Up and Power buttons simultaneously while in the On mode. If the water temperature is not at least 10°F warmer (for heat mode) or cooler (for cool mode), the bypass valve will not open.

DIGITAL-CONTROLS TROUBLESHOOTING

See also “General System Troubleshooting” on page 14.

Contact an authorized Cruisair servicing dealer if the problem continues or for replacement parts.

Table 7: Digital-Controls Troubleshooting

PROBLEM	POSSIBLE REASON/SOLUTION
Digital display panel is not lit.	1. **No power.** Turn circuit breaker on. 2. **Wrong power board.** Q-Logic control must be connected to a Q-Logic Power Board. It will not work with an SMXII Power Board. Replace with Q-Logic Power Board. 3. **Check CXP and TSEP cable and connections.** Replace CXP or TSEP cables if necessary. 4. **Failed equipment.** Replace control or Q-Logic Power Board.
Erratic temperature display.	1. Shut power to the unit off and back on. 2. Perform Restore Factory Settings. 3. Check sensor cable and connections. 4. Ensure the temperature sensor is installed properly. 5. Calibrate temperature. 6. Replace Q-Logic Power Board.
Erratic system operation.	1. Shut power to the unit off and back on. 2. Check CXP cable and connections. 3. Checktemperature sensor, cable and connections. 4. Replace control. 5. Replace Q-Logic Power Board.
Fan is not running or runs continuously.	**Digital control is programmed for either fan cycling with cooling/heating demand or continuous fan operation.** Change Programmable Function 6. Note: When configured for aux heat, after a heat cycle ends the fan will stay on for 30 seconds even if the fan is set to cycled operation.
Fan is not running but a cooling/heating demand exists.	Failed triac on circuit board. Send for repair or call local service technician.
Fan runs continuously although it is set to cycle with cooling/heating demand.	Failed triac on circuit board. Send for repair or call local service technician.
System runs continuously.	**Improper air sensor location.** Verify air sensor location with criteria found in the control manual. Ensure that sensor is located out of direct sunlight and away from open doors or hatches.
"Ar / FL" is flashing. (Filter Reminder)	**Filter needs to be cleaned or replaced.** Clean or replace filter. Reset and stop flashing by pressing the FAN, UP, and DOWN buttons simultaneously.
"- -" is flashing.	**Q-Logic control connected to SMXII unit instead of a Q-Logic Power Board.** Replace with Q-Logic Power Board.

MAINTENANCE OF SYSTEM COMPONENTS

CONDENSATE DRAINS

At least once every three months, check the condensate drains for obstructions by pouring a quart of water rapidly into the condensate pan. If it does not drain completely within 30 seconds, check the drain outlets for clogging. Remember that many air conditioning units have two drains and hoses, one at each end of the drain pan.

RETURN-AIR FILTER

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

SPECIFICATIONS

OPERATIONAL

Set Point Operating Range	55°F to 99°F (12.8°C to 37.2°C)
Sensor Accuracy	± 2°F @ 77°F (±1.1°C @ 25°C)
Line Voltage	110 through 240 VAC
Frequency	50 or 60 Hz
Fan Output	6 Amps @ 115 VAC/230 VAC
Valve Output	1/2 Amp @ 115/230 VAC
Heater Output (using off-board triac)	35 Amps @ 115 VAC/230 VAC
Minimum Operating Temperature	0°F (-17.8°C)
Maximum Ambient Operating Temperature	180°F (82.2°C)
Maximum RH Conditions	99% Non Condensing
Power Consumption	Less Than 5 Watts

DIMENSIONS

Q3 Display Panel	3.50” (89mm) W x 2.53" (65mm) H x 0.75” (19mm) D
Qht Display Panel	4.84” (123mm) W x 3.27" (83mm) H
Qht Panel Cut Out	3-7/16" (88mm) W x 2-1/8" (54mm) H
Q3 Panel Cut Out	1" (26mm) round hole

CABLE LENGTHS

Display Cable	15' (4.6m) Typical
Ambient Air Sensor	7' (2.1m) Standard
Outside Air Sensor (optional)	75' (22.9m) Maximum
All custom display-cable lengths supplied in standard 5' (1.5m) increments	75' (22.9m) Maximum

NOTE
Maximum length of display and sensor cables is 75 feet (22.9m).

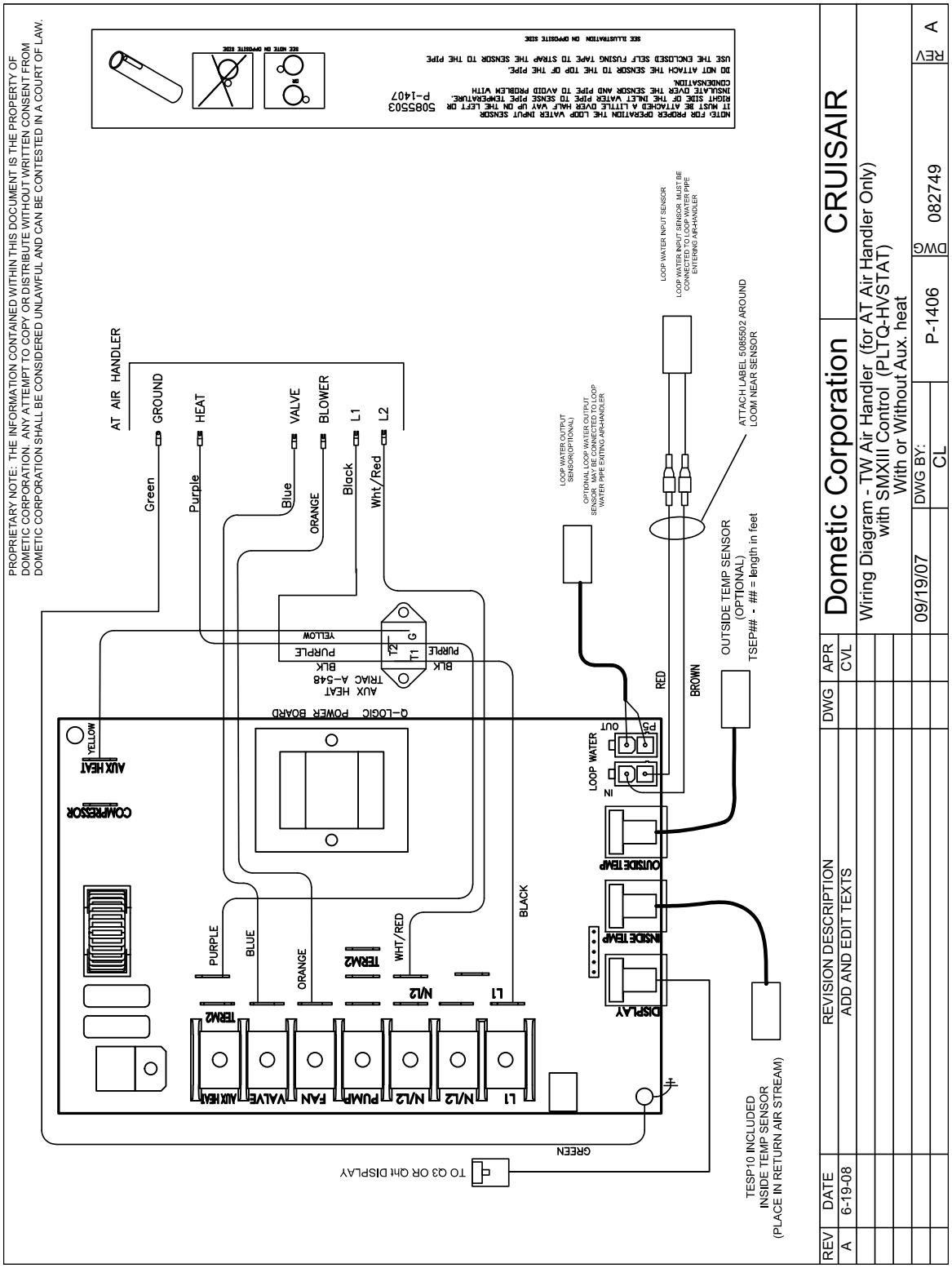
SYSTEM INPUTS

Ambient or Inside-Air Temperature	1
Water-Inlet Temperature Sensor	1
Water-Outlet Temperature Sensor (optional)	1
Outside Air Temperature Sensor (optional)	1
Humidity Sensor (optional)	1

SAMPLE WIRING DIAGRAM

IMPORTANT
This is a sample diagram. Wire colors may vary. See unit's specific diagram located in electrical box. Turn power off before opening electrical box.

Figure 3: Sample Q-Logic Digital Control Wiring Diagram



OWNERS LIMITED WARRANTY

As hereinafter described, Dometic limits the duration of any implied warranty to the duration of the underlying express warranty and also disclaims any liability for consequential or incidental damages arising from any application, installation, use or malfunction of any warranted product.

SECTION I - WHAT'S COVERED

What does the Limited Warranty cover?

Products manufactured by Dometic Corporation (Dometic) are under limited warranty to be free from defects in workmanship or materials. This being under normal use and service, with the obligation of Dometic under this limited warranty, being limited to replacing or repairing any component(s) which shall disclose defects within the limits defined in **Section III**. Which upon examination by Dometic, shall appear to the satisfaction of Dometic to be defective or not up to specifications.

This Limited Warranty is made in lieu of all other express warranties, obligations, or liabilities on the part of Dometic. In addition, Dometic shall not be responsible for any incidental or consequential damages. In those instances in which a cash refund is made, such refund shall effect the cancellation of the contract of sale without reservation of rights on the part of the purchaser. **Such refund shall constitute full and final satisfaction of all claims which the purchaser has or may have against Dometic due to any actual or alleged breach of warranty, either express or implied, including, without limitation, any implied warranty or merchantability or fitness for a particular purpose.** Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation may not apply to you.

The Dealer is not an agent for Dometic, except for the purpose of administering the above warranty to the extent herein provided. Dometic does not authorize the dealer or any other person to assume for Dometic any liability in connection with such warranty, or any liability or expense incurred in the replacement or repair of its products other than those expressly authorized herein. Dometic shall not be responsible for any liability or expense except as is specifically authorized and provided in this section.

Dometic reserves the right to improve its products, through changes in design or material without being obligated to incorporate such changes in products of prior manufacture. Dometic can make changes at any time in design, materials, or part of units of any one, model year, without obligation or liability to owners of units of the same year's model of prior manufacture.

This warranty gives you; the purchaser, specific legal rights, and you may also have other rights which vary from state to state. You also have implied warranty rights, including an implied warranty of merchantability, which means that your product must be fit for the ordinary purposes for which such goods are used. **The duration of any implied warranty rights is limited to the duration of the express warranty as found in Section III.** Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

SECTION II - WHAT'S NOT COVERED

What does this Limited Warranty not cover?

This Warranty Shall Not Apply to:

1. Failures resulting from improper installation or use contrary to instructions.
2. Failures resulting from abuse, misuse, accident, fire, or submergence.
3. Any part manufactured by Dometic, which shall have been altered so as to impair its original characteristics.
4. Any parts which fail as a result of misuse, improper application or improper installation.
5. Items not manufactured by Dometic, i.e., items, which are purchased from another manufacturer and supplied as received by Dometic without alteration or modification except as any part of a Dometic manufactured unit or component.
6. Components or parts used by or applied by the purchaser, as an integral part of products not manufactured by Dometic.
7. Labor resulting from difficult access to a Dometic product. The original installer or OEM is responsible for accessibility of unit.
8. Leaks due to improper installation of split systems and refrigeration systems, for example; packing glands, flare nuts, quick disconnects. The adjustment of the refrigerant charge on a split system should be charged to the original installer or OEM.
9. Freight Damage (see page 10 for instructions for handling freight damage).
10. Pumps that have been run dry, are water damaged or have blown freeze plugs.
11. Pumps with cracked heads.
12. Pump seals are not covered.

13. UV light bulbs are not covered.
14. Liquid line filter dryers are not covered.
15. Blowers with water damage.
16. Logic boards with water damage.
17. Logic boards with blown MOV's (Power Surge)
18. Mis-programmed displays.
19. Display heads with water damage.
20. Dirty Condensers and/or Evaporators.
21. Failures due to improper winterization.
22. Unit damage as a result of improper return packaging.
23. Replacement of freon with substitute without authorization from factory.
24. Environmental and/or Recovery Fees.
25. Welding and Nitrogen Fees.
26. Travel costs are included in the hourly labor allowances and should not be billed as a separate item without preapproval form the factory.

Installation and application of Dometic components is not warranted by Dometic, because Dometic has no control or authority over the selection, location, application, or installation of these components.

SECTION III - COVERAGE PERIOD

What is the period of coverage?

(See **Limited Warranty Periods** at the end of this book).

All Dometic components bear a data plate on which there are model and serial numbers. The serial number is date coded. To determine whether or not any Dometic component is in warranty, proceed as follows:

1. Determine the manufacture date of the component from the serial number on the data plate. If you are not familiar with the date code, write or call the Dometic Customer Service Department to obtain the manufacture date. The hours of the Customer Service Department are 8:00 a.m. - 5:00 p.m. (USA, Eastern Standard Time Zone) Monday through Friday excluding holidays.
2. It is possible that there might exist a considerable time lag between the date a component is manufactured and the date it is put in service. In such instances, the date of manufacture could indicate that the item is out of warranty. However, based on the date the equipment is first put in service, the item may still be covered by the Dometic warranty as described in **Section I**. For proof of date put in service, Dometic will require a copy of the bill of sale of the Dometic equipment from the installer or new boat dealer to the original owner.

SECTION IV - GETTING SERVICE

How do you get service?

Please read the following Warranty Procedure:

If the failure of a Dometic component is determined to be covered under the Dometic warranty and the time in service is determined to be within the warranty time limit, the owner has the following three options:

1. Preferred option: Have a Dometic authorized Servicing Dealer, perform the work needed. The customer needs to call Dometic Customer Service Department for a recommendation as to the closest dealer. If the customer already knows an authorized servicing dealer, the dealer should be contacted directly.
2. Second option: If the customer contacts Dometic Service Department for a Servicing Dealer and Dometic has no one in that particular area, Dometic will authorize the use of a local service company and Dometic will work with the local company to assist in any way possible.
3. Third option: The customer may send his equipment back to the factory to have the repair work done. Dometic will make every effort to return the equipment to the customer within a three week time period. If the claim represents a legitimate warranty problem, Dometic will pay the freight both ways. Dometic prefers option one first, option two second, and option three only if one and two are not available.

The customer may contact the Dometic Service Departments at (804) 746-1313 (Virginia plant) or (954) 973-2477 (Florida plant) Monday through Friday, 8:00am - 5:00pm.

After hours (evenings and weekends) technical support is offered through Dometic's 24/7 Hotline at (888) 440-4494.

TABLE OF WARRANTY PERIODS

AIR CONDITIONING

Important Notes:

1. Warranty periods begin from the date of possession of the boat by the first owner if OEM installed or date of installation if dealer installed, but not to exceed three (3) years from date of production. The warranty is transferable and will carry the remainder of the original owner's warranty based on the original date of purchase or date of installation.
2. Proof of purchase or installation may be required to verify warranty coverage.
3. Any unit or replacement part installed due to a warranty failure carries the remainder of the original warranty. Warranty coverage does not start over from the repair/replacement date.
4. Warranty coverage shall not exceed three (3) years from the date of production.
5. These warranty periods are effective March 1, 2010.

CRUISAIR - Direct Expansion, Self-Contained, Split-Systems, and Modulating Systems

Product	Sale Type	Warranty Coverage
Stowaway Turbo Stowaway Emerald Series Condensers and Evaporators	OEM or Dealer Installed with digital or mechanical controls.	2-Year Warranty 1st Year parts and labor, 2nd Year parts only. Not to exceed three (3) years from date of production. Pump warranty, see Pump section.

CRUISAIR - Tempered Water Systems

Product	Sale Type	Warranty Coverage
Tempered Water Systems	OEM or Dealer Installed with TWLC or latest series control.	2-Year Warranty 1st Year parts and labor, 2nd Year parts only. Not to exceed three (3) years from date of production. Pump warranty, see Pump section.
New Model sold as a replacement unit or partial retro-fit to an existing installation.	Installed with old controls or competitor's controls.	Parts and Labor: 90 days.

CRUISAIR - Chiller Refit Policy

Dometic chillers installed in conjunction with a control system other than a Cruisair or Marine Air control, or a control system that is outdated carries a 90-day warranty on defective material or workmanship from the date it is put into service. There will be no warranty coverage for operation failures such as control malfunctions, freeze failure and the like. Dometic's Customer Service and Applications departments will be glad to assist with recommendations on the installation, but Dometic will not be responsible for the controls.

CRUISAIR - Pumps, Compressors, Replacement Parts

Product	Sale Type	Warranty Coverage
Pumps	OEM or Dealer Installed with complete system.	1-Year warranty, parts and labor. **Pump seals are not covered under warranty.**
	Dealer Installed and Aftermarket sales.	1-Year warranty, parts only. **Pump seals are not covered under warranty**.
Compressors	Aftermarket sales	1-Year warranty, parts only
Replacement parts and components	Aftermarket sales	90-Day warranty, parts only

DOMETIC - Air Conditioning Accessories

Product	Sale Type	Warranty Coverage
In-Duct Breathe Easy Air Purifiers	Aftermarket sales	1-Year warranty, parts only **UV bulb is not covered under warranty.**
SmartStart Control	Aftermarket sales	1-Year warranty, parts only

NOTES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