Coastal Climate Control, Inc.

EasyTouch 2.5
Operation Manual

2.5” Color TFT Touch Screen Controller
for FX1 & FX2 DX & CW Control Boards



Coastal Climate Control, Inc.
www.CoastalClimateControl.com - info@CoastalClimateControl.com
301-352-5738 - Annapolis MD USA

Coastal Climate Control FX-1 Retro-fit Instructions

The Coastal Climate Control FX-1 kit consists of 3 items. The Display Head (3 ¾" square) that replaces the old control, an Electronic Power Module (8 ½" x 7" x 3") that houses the circuit board, and a phone-type, plug-in Display Cable (15' standard) that connects the Display Head & Electronic Power Module together.

The Display Head has temperature sensor embedded in the face plate, & so will be sensing the cabin temperature wherever it is mounted. Most of the old manual controls use a capillary sensing tube that is mounted in the path of the return-air to the unit or evaporator which is no longer used when replaced with the FX-1. The capillary tube is of a fixed length & many old manual controls are to be found in awkward places, especially in fwd & aft cabins.

The Display Head should ideally be mounted at mid-height in the cabin where it will sense the temperature correctly & be easy to operate. Try to avoid a location where the Display Head will be heated or cooled by the conditioned air: either by being mounted in a plenum (with conditioned air flowing over the back of the Display Head), or by mounting it into the direct air stream from a discharge grill. If the above conditions cannot be met, or problems arise that cause incorrect air sensing, install an Alternate Air Sensor (15' standard) that simply plugs into the 'Alt Air' jack on the circuit board. This will disarm the sensor on the Display Head & the Alternate Air Sensor can then be mounted in the return-air path.

The Electronic Power Module contains a circuit board with a terminal strip, & the wires that were connected to the old control need to be diverted onto the terminal strip (see the following pages for specific instructions for Cruisair, Marine Air, & Lunaire; guides for other manufacturers are available). This means that the Electronic Power Module can be mounted anywhere on the route of the cable from the air conditioning unit & the old control. It can be mounted in any orientation & needs access only for installation & troubleshooting. In most retro-fit applications there is no wiring to be done at the air conditioning unit itself for the basic installation.

The Display Cable plugs into the 'DISPLAY' jack on the circuit board & into the jack on the rear of the Display Head. This is 15' standard, but lengths of 25' & 40' are available.

OPTIONS

High & Low Pressure Controls - if installed on your air conditioning system, can be wired in to the circuit board to make full use of the fault display & diagnostic features. This is not essential for a basic installation, and requires identifying & re-wiring components on the air conditioning unit. Instructions are included in the manual, & this should be accomplished by a competent technician.

Pump Sentry Sensor – This sensor is attached to the condensing coil on the air conditioning unit, & plugs into the 'OAT/H2O' jack on the circuit board. When the water flow is reduced & the coil temperature rises above a programmable limit (100 to 150 deg F), the control will display a warning & take appropriate action.

Alternate Air Sensor – This sensor can be used as described above, & also to monitor the temperature in a different location, i.e. outside, engine room, bilge, etc. as an Outside Air Sensor. Install the sensor, plug it into the 'OAT/H2O' jack on the circuit board, then press the UP & DOWN buttons simultaneously to display the temperature.

NOTE: As the Pump Sentry Sensor & the Outside Air Sensor share the same jack, they cannot be used together.

Installation Note

The system that you are converting to the FX-1 control will probably have a High Pressure Cut-Out installed in the compressor lead that stops the compressor in the event of a lack of cooling water. This will automatically reset itself at a lower pressure when the pressures equalize.

Although the FX-1 control will work perfectly well with a simple installation, to make full use of the fault display & diagnostic features, the following procedure must be conducted.

Locate the High Pressure Cut-Out (HPCO) in the common lead to the compressor, cut the two wires & connect the two wires that come from the HPCO to the plug on the circuit board as indicated in the diagram on page 18. The plug is supplied with a strap between the two connectors on the plug, & this needs to be cut, & the two wires from the HPCO connected to them. Polarity is not important & 16 gauge or smaller wire will suffice.

The two wires that were routed through the HPCO & now have been cut need to be connected together with a properly sized butt connector.

Some central systems may also have a Low Pressure Cut-Out (LPCO), & this can be wired to the board in a similar way to above. Consult the manual for more details.

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1. INTRODUCTION

The EasyTouch Control is a microcontroller-based unit designed for use with direct expansion, reverse-cycle air conditioning systems or with chilled-water air handlers.

2. READ THIS MANUAL BEFORE PROCEEDING

Read this manual completely before you proceed with the installation and operation of the EasyTouch. If you have questions or require assistance with your EasyTouch control, contact Micro-Air at +1 (609) 259-2636.

The EasyTouch is covered under the Micro-Air Warranty Policy, and incorrect installation, neglect and system abuse are not covered under warranty policy. See section 18 for more details.

3. FEATURES

3.1 Standard

- Works automatically via auto-detection with FX1 or FX2 control circuit boards.
- User-friendly and intuitive 2.5" touch screen display requires no manual for basic operation.
- Five-volt logic and microcontroller located in the display.
- Automatic and three programmable manual fan speeds.
- Numerous programmable parameters for custom installations.
- Moisture Mode for controlling relative humidity.
- De-Icing cycle to prevent evaporator coil icing.
- Programmable compressor staging delays.
- Universal 115-230V, 50/60Hz AC power supply.
- Nonvolatile memory retains settings without batteries.
- Programmable display-brightness control.
- Programmable failsafe modes.
- Fits Vimar® Eikon and Eikon EVO bezels.

3.2 Optional

- Outside air temperature sensor.
- Alternate air temperature sensor.
- Pump Sentry (Service) water sensor.
- Relative Humidity Control (FX2 only with humidity option board)
- Electric heating control capabilities.
- Air Filter Cleaning or Replacement Timer.
- Low-Voltage Monitor.
- CAN-bus network capability (FX2 only with option board, future feature)

3.3 Main Controller Boards Currently Supported by EasyTouch

- ASY-370-X09 → FX1 Control Circuit Board standard.
- ASY-360-Xr1 → FX2 Control Circuit Board, standard.
- ASY-360-Xr11 → FX2 Control Circuit Board, with Humidity daughterboard option.

(r = current hardware revision letter for the main control board)

3.4 Main Controller Boards Not Currently Supported by EasyTouch

- ASY-360-Xr2 → FX2 Control Circuit Board, with CAN Bus daughterboard option.
- ASY-360-Xr4 → FX2 Control Circuit Board, with DC Blower daughterboard option.
- ASY-360-Xr5 → FX2 Control Circuit Board, with EasyStart™ daughterboard option.
- ASY-360-Xr8 → FX2 Control Circuit Board, with FAMU Control daughterboard.

Support for the above FX2 models will be getting added as required by the customers.



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

4. OVERVIEW

4.1 EasyTouch Home & Main Screen Displays

The EasyTouch Home screen shown in Figure 1 consists of large, easy to read graphics, with large buttons for basic control functions. The Main screen shown in Figure 2 consists of smaller graphics showing all of the controls readouts and statuses, and had more buttons for all of the control functions.

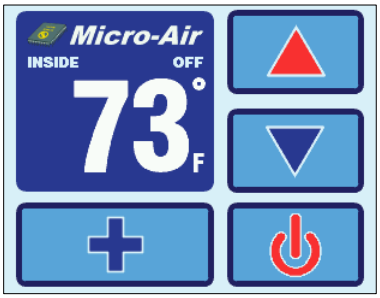


Figure 1 – Home Screen Display

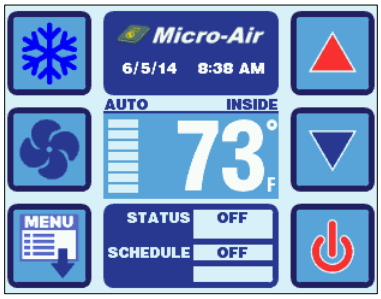
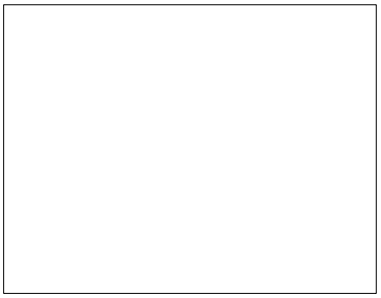


Figure 2 – Main Screen Display

4.2 EasyTouch Power-Up & Default Sleep Mode Screen Display

During power up and whenever the display enters Sleep Mode, the Sleep display is shown. While in Sleep mode, the graphic will move around the screen. See section 14.3 for more information on the various Sleep Mode settings.



5. INSTALLING THE DISPLAY PANEL

5.1 Choosing the Location

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. The physical location of the air sensor is shown in Figure 4 and marked with "S". Be sure to mount the display panel on an inside wall, slightly higher than mid-height of the cabin, in a location with freely circulating air where it can best sense average temperature. The display's distance from the air conditioner must be within the 15' (4.5m) length of the display cable. Longer, custom cable lengths are also available.

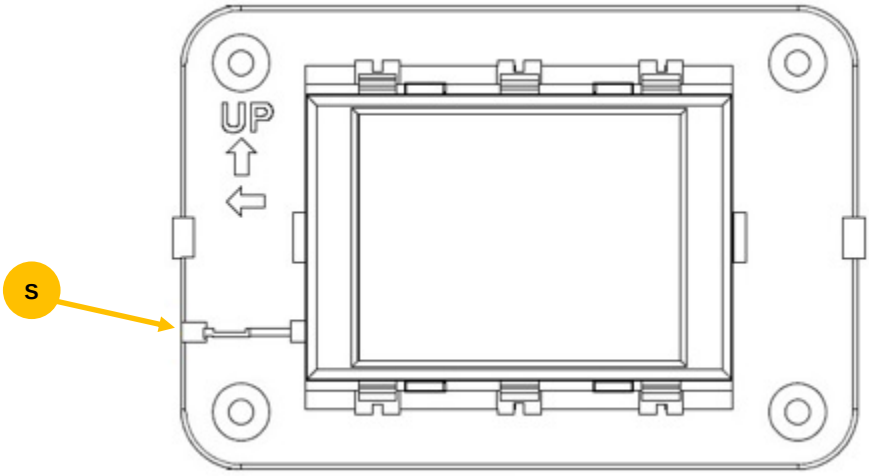


Figure 4 – EasyTouch Display Front Panel

IMPORTANT:
Do not mount the display in direct sunlight, near any heat-producing appliances or in a bulkhead where temperatures radiating from behind the panel may affect performance. **Do not mount the display in the supply-air stream.** Do not mount the display above or below a supply-air or return-air grille. Do not mount the display behind a door, in a corner, under a stairwell or any place where there is no freely circulating air. If you cannot mount the display in a suitable location for accurately sensing room temperature, install the optional remote air sensor as explained in section 6.1.

5.2 Mounting the Display

1. Choose a wall location that has adequate depth (at least 1”/25.4mm) behind the wall itself. See Figure 5 for the depth dimensions of the display.

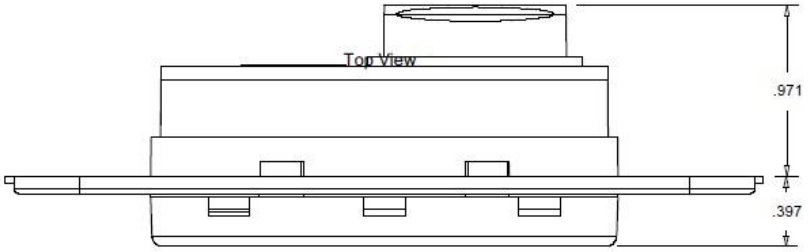


Figure 5 – EasyTouch Display Top View Mounting Dimensions

2. Make the cut-out for the display panel as shown in Figure 6. Cut-out size is 2.900” (74mm) wide by 2.165” (55mm) tall.

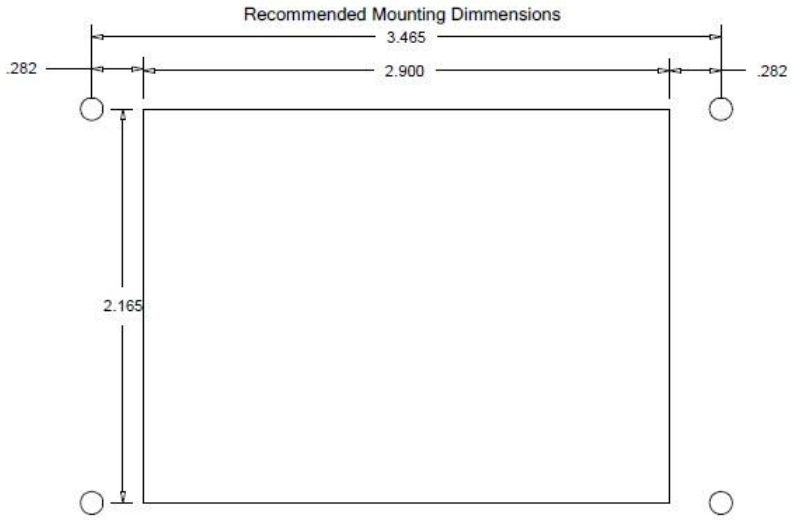


Figure 6 – EasyTouch Display Mounting Dimensions

3. Plug one end of the display cable (8-pin connector) into the display jack on the circuit board in the electric box and the other end into the back of the display panel.
4. Secure the display panel to the bulkhead using the four screws provided.
   Do not use a screw gun and do not over tighten screws when mounting, because either method may damage the display.
5. When the display is securely mounted, mount the bezel over the display frame until it snaps into place.

6. INSTALLING THE OPTIONAL SENSORS

6.1 Remote (Alternate) Air Temperature Sensor

Install the optional remote air sensor if the display cannot be mounted in a proper location for accurately sensing room temperature. Installing the remote air sensor overrides the display's built-in sensor. The standard cable length for the remote air sensor is 7 feet (2.1m).

1. Mount the remote air sensor in a reliable return-air stream, preferably just behind the opening of the return-air grille. DO NOT attach the sensor to the edge of the unit's drain pan since the condensate water and cold air spilling off of the heat exchanger coil will cause an inaccurate temperature reading.
2. Plug its cable (6-pin connector) into the "ALT. AIR" jack on the circuit board.

6.2 Outside Air Temperature Sensor

Install the optional outside air temperature sensor to monitor the temperature outside the cabin. Outside air sensor cables are available in various lengths.

1. Mount the sensor outside but not in direct sunlight.
2. Plug its cable into the "OAT" jack on the circuit board.

6.3 Service Sensor (For DX systems only)

Install the optional condenser coil temperature sensor into the "OAT/H20" jack on the FX1 circuit board or into the "SERVICE" header on the FX2 circuit board.

1. Mount the sensor in the middle of the condenser coil, strapping it securely to the piping.
2. Enabled the use of this sensor by going to DX Operational Settings, and then the Pump Sentry feature as explained in section 11.2.5.

6.4 Water Inlet Temperature Sensor (For CW systems only)

When using the EasyTouch with a chilled-water air handler, plug the water-inlet sensor cable into the "OAT/H2O" jack on FX1 or into the "OUTSIDE" jack on FX2. Attach the sensor securely to the

chilled-water inlet pipe on the air handler. Ensure that the sensor makes good contact with the copper pipe and make sure it is covered with adequate insulation. DO NOT attach the sensor to rubber hose.

6.5 Combo Temperature/Humidity Sensor (For CW FX2 systems only)

The optional EasyTouch temperature and humidity control feature is available only with the FX2 control board. For FX2 control board revisions PCB-360-00I and newer, plug the combo temperature/humidity sensor into the "ALT. AIR" jack. For FX2 control board revisions PCB-360-00G and older, the PCB-731-00 daughterboard option is required; plug the combo temperature/humidity sensor into the "INTAKE" jack on the daughterboard. The temperature and humidity control feature is enabled automatically. See section 11.1.17 for more information on using the humidity control feature.

7. NORMAL HEATING OR COOLING CYCLE

In **Automatic 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 2°F (1.0°C) and will continue to cool until the temperature equals the set point. (See the parameter setting *Set Point Temperature Differential* as described in section 11.1.14 for more information on how to change this variation to 1°F [0.5°C].) The cabin temperature must drop below the set point by at least 4°F (2.0°C) in order for the system to switch from cooling to heating. Similarly, if heating is required, the system will start a heating cycle when the cabin temperature is below the set point by 2°F (1.0°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 (2.0°C) in order for the system to switch from heating to cooling. If you select **Cool Mode**, only cooling is supplied. If you select **Heat Mode**, only heating is supplied. The cabin temperature in either mode is maintained within 2°F (1.0°C) of set point by default. 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 the fan speed control and its operation, see section 8.3.

7.1 Reversing Valve Operation (for DX systems only)

The position of the reversing valve determines if the system is in Cool Mode or Heat Mode. **The EasyTouch and FX1/FX2 systems are designed to energize the reversing valve output when in Heat Mode.** In addition, the reversing valve will toggle into the opposite position for 2 seconds to equalize the system pressure and reduce the compressor's starting surge whenever a cooling or heating cycle is called for and the system has been off for less than 75 seconds. Unnecessary valve toggling is limited to reduce reversing valve noise.

7.2 Water Valve Operation (for CW systems only)

When cooling or heating is required, the water valve will not open unless the water temperature is adequate. The fan remains in low speed until the adequate water temperature is available and the system status on the Main display screen will show "Cool Pending" or "Heat Pending". If the optional Electric Heater is enabled, heating will be provided if the water temperature is not adequate. See the *Water Temperature Differential* parameter setting described in section 11.3.2 for a definition of adequate cooling or heating water temperature and how to adjust its factory default setting to something other than 10°F (6°C).

8. OPERATION

8.1 Operator Controls and Display

8.1.1 Home Screen Indicators & Buttons

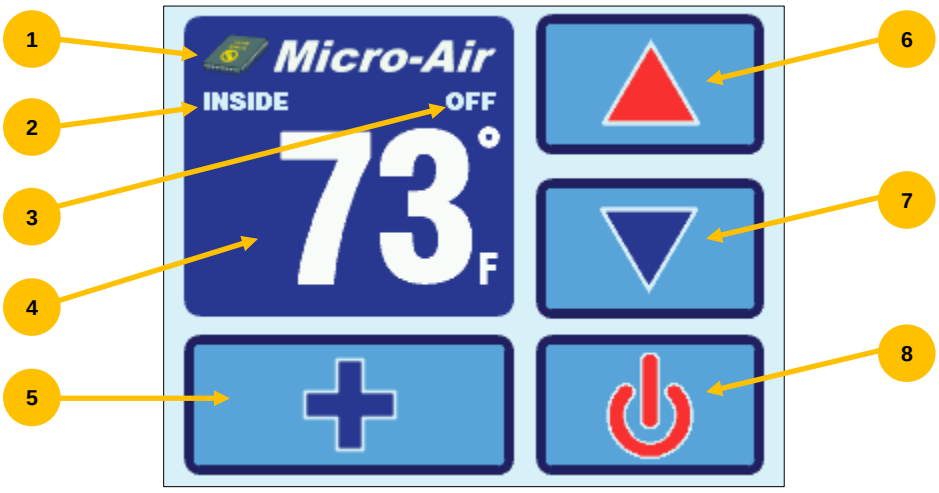


Figure 7 – EasyTouch Home Screen Icons & Functions

1. **Force Sleep Mode Button** - Press and release to force Sleep Mode to initiate immediately, if enabled. See section 14.3 for more information on Sleep Mode.
2. **Temperature Display Selection** – Indicates the current temperature display value: SET, INSIDE, OUTSIDE, SERVICE/WATER, or %RH. If the associated temperature sensor is not installed or is faulty, "- - -" will be displayed.
3. **Status Indicator** – Indicates the system status: OFF, PENDING, ACTIVE, STANDBY, or FAULT.
4. **Temperature Display Indicator** – This value indicates the current temperature reading that corresponds to the Temperature Display Selection explained above. Press and release over the top of the numeric value to select the various temperature displays: Set point(s), Inside, Outside, Service/Water temperatures, or Relative Humidity (if equipped). By default, the temperature display will always revert back to showing the Inside Temperature after 3 seconds. If you wish to change the default Temperature Display to one of the other available choices, immediately after selecting the desired temperature, press and hold again for 5 seconds (until the button highlight disappears) and the currently displayed temperature will be retained and reverted back to.
5. **More Button** - Press and release to change display to Main Screen.
6. **Up Button** - Press and release to display the set point. Press and release or press and hold the UP button to increase the set point.
7. **Down Button** - Press and release to display the set point. Press and release or press and hold to decrease the set point.
8. **Power On/Off Button** - Press and release to toggle between the ON (green) and OFF (red) Modes.

8.1.2 Main Screen Indicators & Buttons

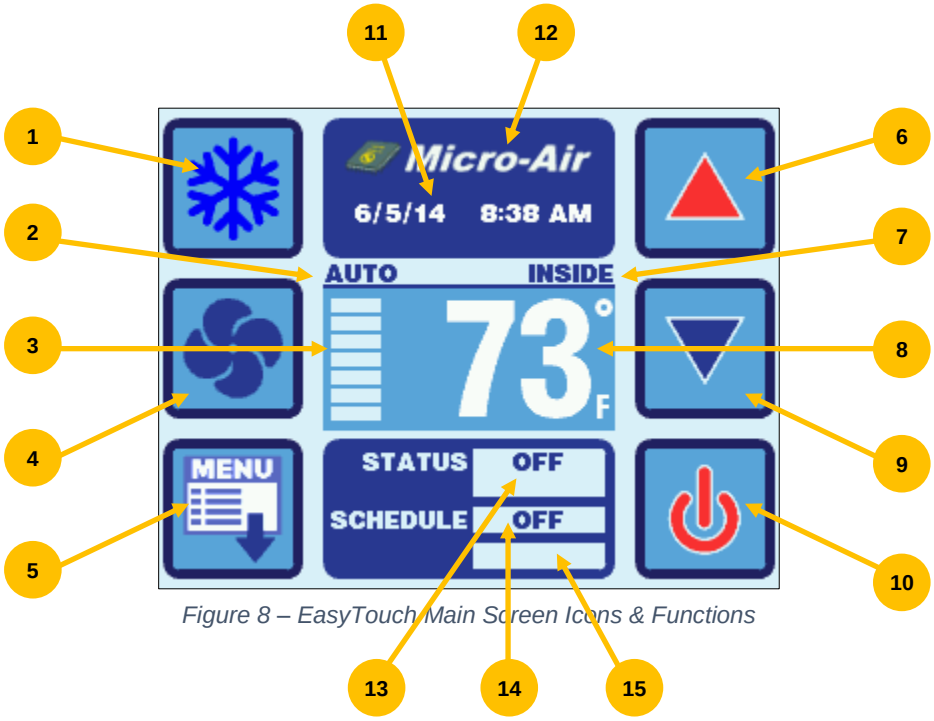


Figure 8 – EasyTouch Main Screen Icons & Functions

1. **Mode Button** - The Mode button indicates the currently active mode of operation. Press and release to step through the four available operating modes: COOL, HEAT, AUTO, and MOISTURE. See section 8.2 for more information on all the modes of operation.
2. **Fan Speed Mode Indicator** – This label indicates the current fan speed mode, AUTO or MANUAL. See section 8.3 for more information on the fan speed mode.
3. **Fan Speed Indicator** – This indicator is a bar graph that shows the speed at which the fan is currently operating. There are 3 fan speeds with EasyTouch: 1 bar lit indicates low speed, 4 bars lit indicate medium speed, and 7 bars lit indicate high speed.
4. **Fan Button** – The Fan button is used to control the fan speed. The Fan button will rotate when the fan is on, and will be stationary when the fan is off. See section 8.3 for more information on the controlling the fan speed.
5. **Menu Button** – The Menu button allows access to the EasyTouch Main Menu and all sub-menus beyond. See section 10 for more information on the menus.
6. **Up Button** - Press and release to display the set point. Press and release or press and hold the UP button to increase the set point.
7. **Temperature Display Selection** – Indicates the current temperature display value: SET, INSIDE, OUTSIDE, SERVICE/WATER, or %RH. If the associated temperature sensor is not installed or is faulty, "- - -" will be displayed.
8. **Temperature Display Indicator** – This value indicates the current temperature reading that corresponds to the Temperature Display Selection explained above. Press and release over the top of the numeric value to select the various temperature displays: Set point(s), Inside, Outside, Service/Water temperatures, or Relative Humidity (if equipped). By default, the temperature display will always revert back to showing the Inside Temperature after 3 seconds. If you wish to change the default Temperature Display to one of the other available choices, immediately after selecting the desired temperature, press and hold again for 5 seconds (until the button highlight disappears) and the currently displayed temperature will be retained and reverted back to.
9. **Down Button** - Press and release to display the set point. Press and release or press and hold to decrease the set point.

10. **Power On/Off Button** - Press and release to toggle between the ON (green) and OFF (red) Modes.
11. **Date & Time Display** – The date and time are displayed here, if enabled. See section 13 for information on how to set the date & time, change formats, and enable or disable the display.
12. **Home Button** – Hidden behind the Micro-Air logo is a button that when pressed returns the display to the Home Screen.
13. **Operational Status** – This display area indicates the current operational status of the control, including idle and active states, fault states, fault recovery, and fault lockout. See section 9 for more information on fault displays.
14. **Program Scheduler Status** – This display area indicates the current operational status of the Program Scheduler. See section 12 for more information on the Program Scheduler.
15. **Filter Maintenance Status** – If enabled, this display area indicates when it is time to clean or replace the air filter. See section 11.1.9 for more information on the Air Filter Reminder.

8.2 Modes of Operation

8.2.1 OFF Mode

When the control is in OFF Mode, all control outputs are turned off. Upon entering OFF mode, if the electric heater was active within the previous 4 minutes, the fan will remain on at low speed for up to 4 additional minutes to cool down the electric heater.

8.2.2 ON Mode

When the control is in ON Mode, power is supplied to the appropriate outputs and the display indicates the current state of operation.

8.2.3 AUTO Mode

When AUTO Mode is selected as indicated by the Mode button icon, the system provides both heating and cooling as required. The Inside temperature in is maintained within 2°F (or 1.0°C) of set point by default. See section 11.1.14 for more information on the *Set Point Temperature Differential* parameter setting and how it can be adjusted. If the system was most recently cooling, the cabin temperature must drop below the set point by at least 4°F (or 2.0°C) by default in order 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 (or 2.0°C) by default in order 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 Mode

When COOL Mode is selected as indicated by the Mode Button icon, only the cooling system operates as required. If the ambient temperature drops below the set point, the system will not automatically switch to the HEAT Mode.

8.2.5 HEAT Mode

When HEAT Mode is selected as indicated by the Mode Button icon, 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 MOISTURE Mode

MOISTURE Mode, sometimes called “Humidity” or “Dehumidification” mode, is used to help control humidity while you are away from the boat or away from a particular cabin. Once MOISTURE Mode is enabled as indicated by the Mode Button Icon, 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 (or 1.0°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. Moisture Mode will also prevent your boat or a particular cabin from dropping below a minimum temperature as a means 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. After the 30-minute fan circulation, if the temperature is at or above

the *Humidity Mode Minimum Temp* (50°F/10°C, by default), a cooling cycle is started and runs as described above. However, if the temperature is below the Humidity Mode Minimum Temp, a heating cycle will be started instead. The heating cycle will continue until the temperature reaches the Humidity Mode Minimum Temp 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. See section 11.1.15 for more information on how to adjust the Humidity Mode Minimum Temp parameter setting to a temperature that may better suit your particular requirements.



IMPORTANT (for DX systems only):
If your air conditioning unit is Cool-Only (i.e. it does not have a reversing valve) and an Electric Heater is not installed or enabled, then COOL Mode MUST be selected. DO NOT use AUTO or HEAT modes for a Cool-Only unit. If either AUTO or HEAT modes are selected with a Cool-only unit and the thermostat calls for heating, the compressor will run and still provide cooling.

8.3 Fan Speed Modes

8.3.1 Automatic Fan Speed Mode
EasyTouch has three automatic fan speeds available: High, Medium and Low. While in the On Mode, Automatic Fan Speed Mode allows the EasyTouch to determine the required fan speed based upon the set point temperature differential. This permits a balance between the most efficient temperature control and slower, quieter fan speeds. To select Automatic Fan Speed Mode, on the Main Screen press and release the Fan Button as many times as necessary until the word “AUTO” is displayed above the fan speed bar graph.

8.3.2 Manual Fan Speed Mode
There are three manual fan speeds available: High, Medium and Low. While in the On Mode, Manual Fan Speed Mode allows you to select and maintain a desired fan speed. To select Manual Fan Speed Mode, on the Main Screen press and release the Fan Button until the desired speed is indicated on the Fan Speed bar graph and the word “MANUAL” is displayed above the fan speed bar graph. The selected fan speed will increase and decrease as the Fan Button is repeatedly pressed until the Fan Speed Mode is returned back to Automatic.

8.3.3 Fan-Only Mode
While in the Off Mode, use the Fan-Only Mode to operate the fan for air circulation when no cooling or heating is desired. On the Main Screen, press and release the Fan Button to start at low fan speed. Press and release again to select Medium fan speed. Press and release a third time to select High fan speed. Press and release a fourth time to turn off the fan. Putting the control into ON Mode will cancel the Fan-Only Mode and revert the fan speed back to the Automatic Mode or whatever the last selected manual fan setting was.

NOTE: Please refer to section 11.1.20 for more information on the Fan Operational Modes, Continuous or Cycled.

9. FAULTS

There are a total of six different faults that the EasyTouch can declare. Only one applies during CW operation and all six apply during DX operation.

When a Fault is declared, it is displayed in the Status Area of the Main screens as described in section 8.1.2. Once the fault has cleared, the system will automatically delay 2 additional minutes (and display “FLT DLY”) before restarting a cooling or heating cycle. At anytime during the fault condition or fault recovery delay, pressing and releasing over the top of the fault status on the Main screen will display help information for the particular fault. See section 15.2 for more information on Fault Help.

Certain faults indicate a serious problem for the air condition. These faults are the High Pressure, Low Pressure, and Pump Sentry faults. Any four faults of these types during a single cooling or heating cycle will result in a **LOCKOUT** condition. Once a lockout occurs, the system will not restart automatically. Operator intervention is required. To clear a lockout condition, power must be cycled (turned off and back

on again) via the Power button on the Home or Main display screens. The fault count being monitored for lockout will be reset to zero upon the termination of the cooling or heating cycle, or if power is cycled.

NOTE: The Air Sensor Fault results in an immediate lockout condition.

9.1 Air Sensor Fault (DX & CW, immediate lockout)

Displayed as "SENSOR FAULT"

The EasyTouch can utilize one of 3 different temperature sensors for its Inside Temperature display and use for control purposes:

- Built-in Display Temperature Sensor
- Alternate Air Temperature sensor plugged into the main FX1/FX2 control board
- Intake Combination Temperature/Humidity sensor pulled into the FX2 Humidity Option Board (if equipped)

Normally, the inside temperature sensor selection is determined automatically. (See section 11.1.19 for details on how to select the Inside Temperature sensor.) If a specific sensor is selected and it malfunctions, or all of the potential inside temperature sensors have malfunctioned, the Air Sensor Fault will be declared. Depending on which temperature sensor is required, replacing the failed external temperature sensors or replacing the display itself may be necessary to remedy the problem.

9.2 High Pressure Fault (DX only, contributes to lockout count)

Displayed as "HIGH PRES FAULT"

The High Pressure Fault occurs whenever the system's high pressure switch opens during compressor operation or whenever it is open just before compressor start-up.

1. If the high pressure switch is open while the compressor is off, the most likely cause is an open connection in the pressure switch itself.
2. If the high pressure switch opens while the compressor is operating in COOL mode, the most likely cause is poor seawater flow or a fouled condenser.
3. If the high pressure switch opens while the compressor is operating in HEAT mode, the most likely cause is poor air flow through the evaporator, possibly due to a clogged air filter.

9.3 Low Pressure Fault (DX only, contributes to lockout count)

Displayed as "LOW PRES FAULT"

The Low Pressure Fault occurs whenever the system's low pressure switch opens during compressor operation and remains open for at least 10 minutes, or whenever it is open just before compressor start-up.

1. If the low pressure switch is open while the compressor is off, the most likely cause is loss of refrigerant charge in the system due to a leak.
2. If the low pressure switch is open while the compressor is operating in COOL mode, the most likely causes are low refrigerant charge or cold seawater.
3. If the low pressure switch is open while the compressor is operating in HEAT mode, the most likely causes are low refrigerant charge or cold inside air temperature. Setting the fan speed to manual low can sometimes remedy low pressure faults in HEAT mode.

9.4 Low AC Fault (DX Only, no lockout)

Displayed as "LOW AC FAULT"

The Low AC Fault occurs whenever the AC line voltage is below the *Low-Voltage Monitor* parameter setting during compressor operation for at least 5 minutes, or whenever it is below just before compressor start-up. By default, the Low-Voltage monitor is not enabled. See section 11.2.3 for more information on how to enable and set the voltage threshold for the Low-Voltage Monitor.

9.5 Pump Sentry Fault (DX only, contributes to lockout count)

Displayed as “HIGH PRES FAULT”

The Pump Sentry Fault occurs whenever the Service sensor temperature exceeds the *Pump Sentry* parameter setting during compressor operation. See section 6.3 for more information on how to install the optional Service sensor, and see section 11.2.5 for more information on how to enable and set the temperature threshold for the Pump Sentry.

9.6 Lost AC Fault (DX Only, no lockout)

Displayed as “LOST AC FAULT”

The Lost AC Fault occurs whenever the EasyTouch detects that the AC line voltage has been lost during compressor operation (i.e. a brownout condition). Brownout conditions can cause compressors to stall very quickly (<50ms), so this detection protects the compressor by shutting down the compressor relay output and waiting for the normal fault recovery delay before attempting a compressor restart.

10. MENU AND SETTINGS OVERVIEW

The Main Menu is accessed from the Main screen by pressing the MENU button. The Main Menu consists of 6 items on 2 pages (screens) as shown in Figure 9. All menus are hierarchically designed. All sub-menus and the various parameter settings available are accessed starting from the Main Menu. All of the parameter settings are stored in non-volatile memory and they are always retained, even when the battery is removed. A unique set of parameter settings can be saved and recalled, or factory default settings can also be recalled. Refer to sections 11.4, 11.5, and 11.6 for more information on memorizing and recalling settings.

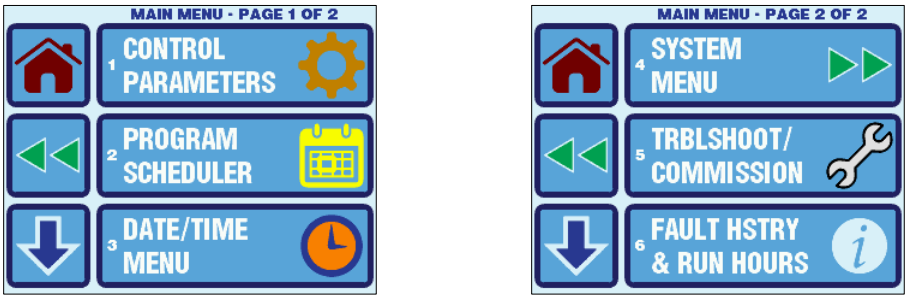


Figure 9 – Main Menu Display Screens

NOTE:
When the EasyTouch loses power, all of the parameter settings and the mode of operation are retained indefinitely. When power is restored, the control resumes operation as last programmed. The EasyTouch also has a battery to supply power to the real-time clock. If the battery has completely discharged or has been removed, only the time and date settings will be lost and will require resetting upon the next power up.

10.1 Menu Screen

All menu screens are constructed identically as shown in Figure 10. There are three large buttons to choose from three sub-menu or parameter setting choices. Paging through the menu is possible by using the DOWN ARROW button, and the current page number is always shown at the top. The menu page will wrap around to page 1 again after the last page has been reached.

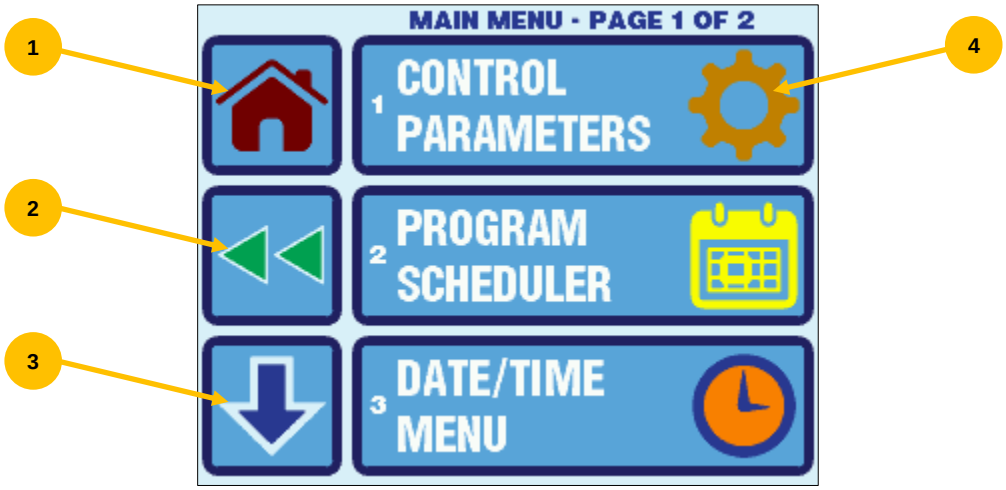


Figure 10 – EasyTouch Menu Screen Layout

1. **Home -** Press this button at any time to return to the Home Screen.
2. **Back -** Press this button to return to the previous screen.
3. **Scroll Down -** Press this button go to the next page in the menu.
4. **Menu Selection Options -** Press any of these buttons to choose a new sub-menu or modify a parameter setting.

10.2 Settings Screen

All of the parameter settings screens are constructed identically as shown in Figure 11. Some parameters are numeric and some are text choices. In all cases, the UP/DOWN arrows allow adjustment of the setting, and the SAVE button allows saving of the setting in non-volatile memory.

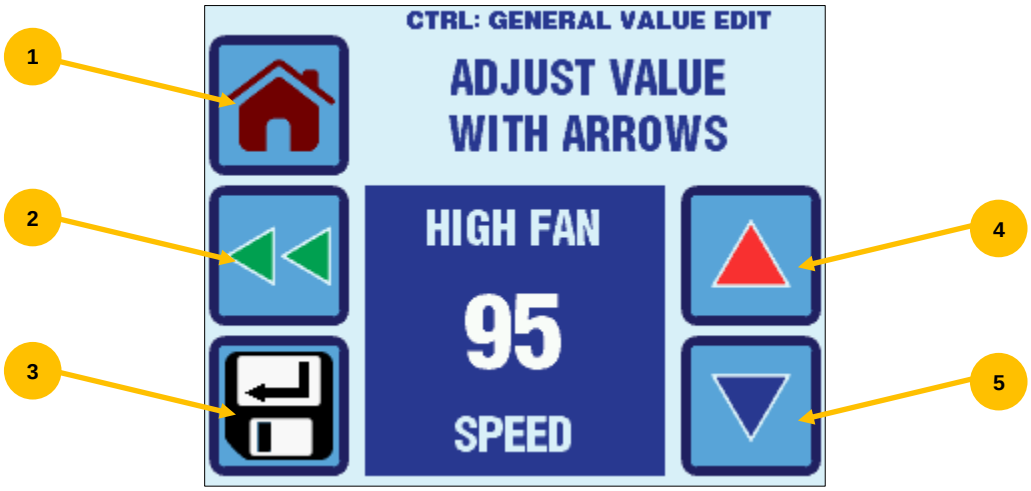


Figure 11 – EasyTouch Settings Screen Layout

1. **Home -** Press this button at any time to discard any changes and return to the Home Screen.
2. **Back -** Press this button to discard any changes and return to the previous screen.
3. **Up** - Press the button to increase the setting to the next value or selection.
4. **Down** - Press the button to decrease the setting to the previous value or selection.
5. **Save -** Press this button save the desired setting change.

11. CONTROL PARAMETERS MENU

The Control Parameters Menu allows the adjustment of all the parameter settings that affect the physical operation and configuration of the air conditioning system. Typically, the settings in this menu are accessed only by qualified technical service person or a knowledgeable user. To access the Control Parameters Menu, go to Main Menu and select Control Parameters.

The Control Parameters Menu consists of 6 items on 2 pages as shown in Figure 12. Page 1 of the menu will differ depending on whether the system is configured for DX or CW operation. Either the DX or CW Settings button will be grayed out and not accessible since those underlying settings won't pertain to the current system mode. Please see section 11.1.18 for more information on the *DX/CW Mode Selection*.

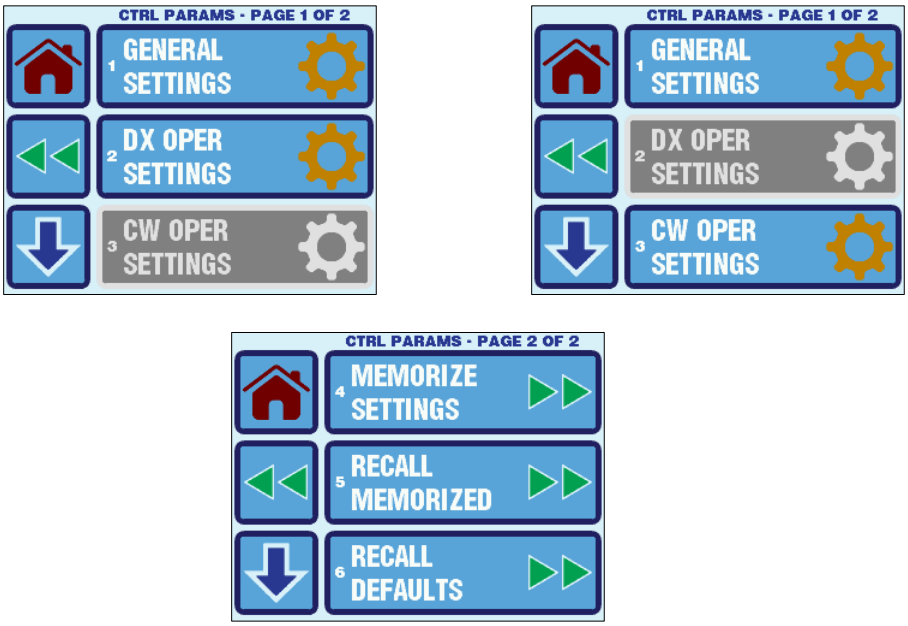
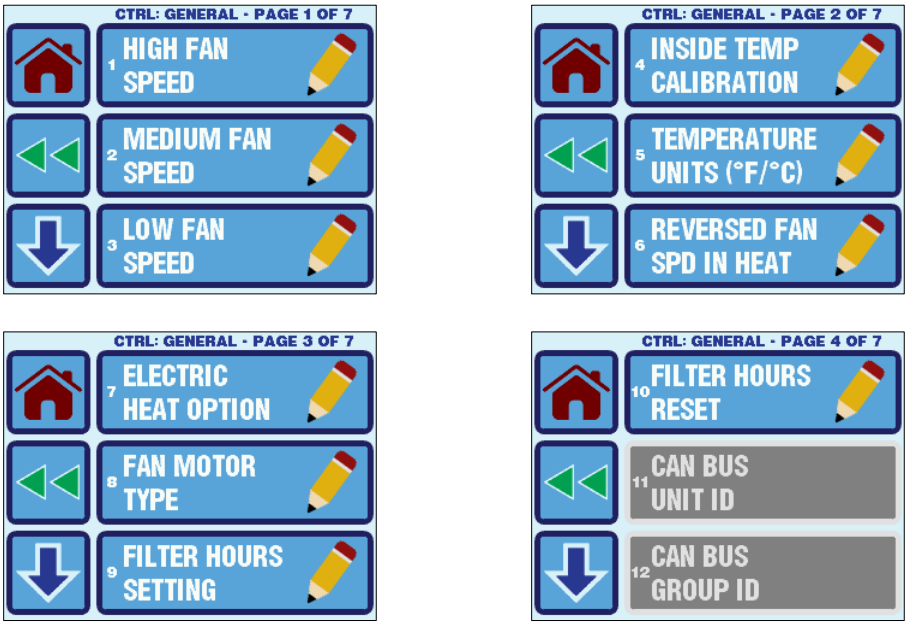


Figure 12 – Control Parameters Menu Screens

11.1 General Settings

To access the General Settings, go to the Main Menu, select Control Parameters, and then select General Settings. The General Settings Menu consists of 21 items on 7 pages as shown in Figure 13.



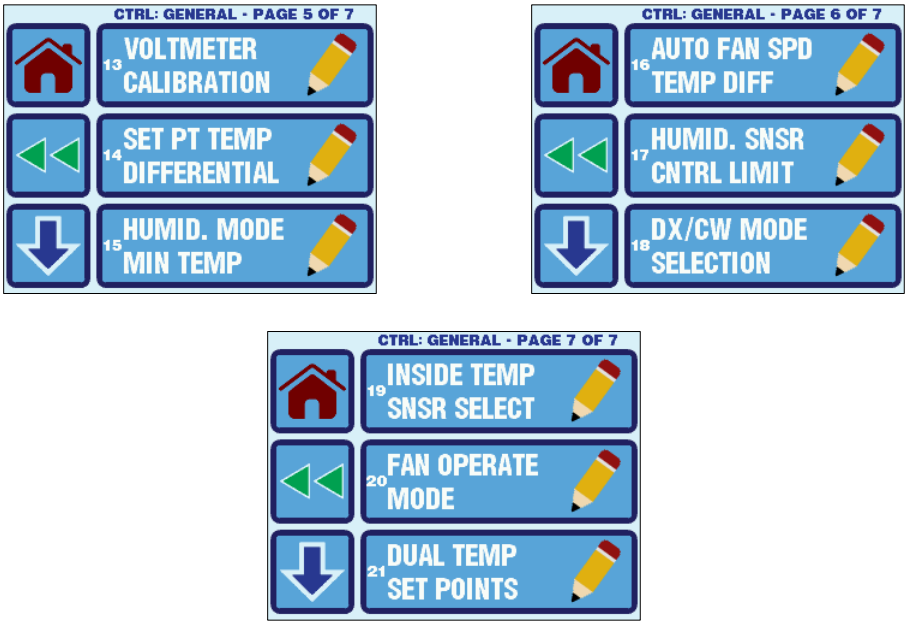


Figure 13 – EasyTouch General Settings Menu Screens

Refer to Table 1 for a quick reference to the General Settings. Refer to the sections that follow for further details on each setting.

Table 1 – General Settings Parameters

No.	Page	Description	Factory Default	Parameter Range
1	1	High Fan Speed	95	35-95
2		Medium Fan Speed	61	32-85
3		Low Fan Speed	50	30-75
4	2	Inside Temperature Calibration	0	±50°F or ±25°C
5		Temperature Units	Auto	Auto / °F / °C
6		Reversed Fan Speed in Heat	On	Off / On
7	3	Electric Heat Option	Off	Off / On
8		Fan Motor Type	Split Capacitor	Shaded Pole or Split Capacitor
9		Filter Hours Setting	Off	Off / 100-2500 Hours
10	4	Filter Hours Reset	n/a	(Resets reminder & clears hours only)
11		CAN Bus Unit ID[1]	1	1-255
12		CAN Bus Group ID[1]	100	1-255
13	5	Voltmeter Calibration	0 (none)	70-140VAC or 170-260VAC
14		Set Point Temp Differential	2°F/1°C	1 or 2°F / 0.5 or 1.0°C
15		Humidity Mode Min Temp	50°F/10°C	40-75°F or 5-25°C
16	6	Auto Fan Speed Temp Differential	2°F/1°C	1-3°F or 0.5-1.5°C
17		Relative Humidity Set Point[2]	60% RH	45-85% RH
18		DX/CW Mode Selection	Set by Jumper	Set by Jumper / DX Override / CW Override
19	7	Inside Temp Sensor Selection	Auto	Auto / Display / Alt. Air
20		Fan Operational Mode	Continuous	Continuous or Cycled
21		Dual Temp Set Points	Off	Off / On

[1] CAN Bus is an FX2 option only and is not currently supported by EasyTouch
[2] Relative Humidity control is an FX2 CW option only.

11.1.1 High Fan Speed (35-95; **95**)

Selecting this parameter immediately turns on the fan at manual high speed so you can assess the sound and air flow while adjusting. The high fan speed can be adjusted from 35 to 95. Select a higher value to increase the fan speed or a lower value to decrease the fan speed. Adjusting this parameter has no effect on the other two fan speeds. Once the setting is saved via the SAVE button or the setting screen is exited via the BACK or HOME buttons (or via Sleep Mode), the fan speed returns to the previous state.

NOTE: It is possible to adjust the high fan speed to be lower than the medium or low fan speed, so please take this into consideration when adjusting all three speeds.

11.1.2 Medium Fan Speed (32-85; **61**)

Selecting this parameter immediately turns on the fan at manual medium speed so you can assess the sound and air flow while adjusting. The medium fan speed can be adjusted from 32 to 85. Select a higher value to increase the fan speed or a lower value to decrease the fan speed. Once the setting is saved via the SAVE button or the setting screen is exited via the BACK or HOME buttons (or via Sleep Mode), the fan speed returns to the previous state.

NOTE: It is possible to adjust the medium fan speed to be lower than the low fan speed or higher than the high fan speed, so please take this into consideration when adjusting all three speeds.

11.1.3 Low Fan Speed (30-75; **50**)

Selecting this parameter immediately turns on the fan at manual low speed so you can assess the sound and air flow while adjusting. The low fan speed can be adjusted from 30 to 75. Select a higher value to increase the fan speed or a lower value to decrease the fan speed. Once the setting is saved via the SAVE button or the setting screen is exited via the BACK or HOME buttons (or via Sleep Mode), the fan speed returns to the previous state.

NOTE: It is possible to adjust the low fan speed to be higher than the medium or high fan speed, so please take this into consideration when adjusting all three speeds.

11.1.4 Inside Temp Calibration (±50°F or ±25°C; **0 [no adjustment]**)

This parameter calibrates the currently selected inside temperature sensor within a range of ±50°F or ±25°C. Adjust this parameter to display the correct room temperature reading by using a calibrated temperature measurement device for comparison.

11.1.5 Temperature Units (AUTO/°F/°C; **AUTO**)

The AUTO selection sets EasyTouch to display all live temperatures and temperature settings in °F (Fahrenheit) when connected to 60Hz AC power and in °C (Celsius) when connected to 50Hz AC power. AUTO makes this units selection only during AC power up. To set EasyTouch to use °F or °C all of the time regardless of the AC power frequency, select either of those two settings options.

11.1.6 Reversed Fan Speed in Heat (OFF/ON; **ON**)

Reverse Fan Speed reverses the automatic fan speed behavior during a heating cycle in AUTO or HEAT Modes. This is to improve heat output in cold ambient conditions. When set to ON, the automatic fan speed will decrease as the inside temperature moves away from (below) the set point, and the fan speed will increase as the temperature approaches the set point. Using a lower fan speed when the cabin is cold increases the system head pressure and helps raise the supply air temperature. Using a higher fan speed as the set point is approached also reduces unnecessary high-pressure faults. The fan switches back to low speed (continuous) or turns off (cycled) once the set point is satisfied and the heating cycle terminates. Alternately, the automatic fan speeds during a heating cycle can be programmed to operate the same as in a cooling cycle by setting this parameter to OFF.

11.1.7 Electric Heat Option (OFF/ON; **OFF**)

For DX systems, when this parameter is set to OFF, the valve output is enabled for use with a reversing valve, will toggle prior to cooling/heating cycles, and be energized for heating cycles. When this parameter is set to ON, the valve output is enabled for use with an electric heater or heater contactor, will no longer toggle, and will energize only during heating cycles without the compressor or pump.

For CW systems, when this parameter is set to OFF, only the valve output will be energized during a heat cycle if the water temperature permits. When this parameter is set to ON, the compressor output is enabled for use with an electric heater or heater contactor and will energize together with or separately from the valve output during a heating cycle, depending on the water temperature. Please refer to section 11.3.2 for more information on how the electric heater output works in concert with the valve output during CW heating operation.



IMPORTANT:

Please refer to section 17 for more information on the electrical specifications for the valve and compressor outputs. It is important to consider the size and load of any electric heater, and it may be necessary to install an additional contactor that is rated to handle the full load of the electric heater. Please consult with Micro-Air Customer Service or with an authorized service technician for assistance.

11.1.8 Fan Motor Type (Split Capacitor/Shade Pole; **Split Capacitor**)

The Split Capacitor default setting is frequently the correct setting for most modern air conditioning unit blowers. If the air conditioning unit has a shaded-pole fan motor instead of a split- capacitor fan motor, you MUST choose “Shaded Pole” for the *Fan Motor Type* parameter setting before operating the equipment. Shaded-pole fan motors are most often recognizable by an overhanging blower motor, whereas split-capacitor fan motors are most often enclosed inside the blower housing.



IMPORTANT:

Failure to select Shaded Pole for this parameter setting for an air conditioning unit with a shaded-pole fan motor could result in the fan motor stalling and overheating at low fan speeds. It is therefore very important to insure that this setting is correct.

11.1.9 Filter Hours Setting (OFF/100-2500; **OFF**)

The Filter Hours setting can be set as a reminder to clean or replace the unit’s air filter. The reminder for air filter cleaning or replacement is determined by the number of hours of fan operation. By default, this reminder is off, but it can be enabled by selecting the number of operating hours until the filter reminder message appears (shown only on the Main screen). The parameter setting can be adjusted from 100 to 2500 hours. Micro-Air recommends that you check the air filter at least every 500 hours of operation. Once set, a separate timer keeps track of the total amount of run hours that the fan accumulates. Once the reminder time has expired, a message will be displayed on the Main screen. System operation will continue normally without any interruption while this reminder is being displayed. The reminder can only be cleared and the timer reset via the *Filter Hours Reset* parameter. See section 11.1.10 for more information on how to inspect and reset the filter reminder.

11.1.10 Filter Hours Reset (clears reminder and resets hours only)

The Filter Hour Reset setting shows the number of fan operational hours that have accumulated since the reminder was last reset. The only option when viewing this parameter is to clear it by pressing the CLR button. This action will clear the filter reminder and reset the accumulated hours to 0.

11.1.11 CAN Bus Unit ID (FX2 only, 1-255; **1**)

NOTE:
CAN Bus is an FX2 option only and is currently not supported by EasyTouch. The CAN Bus Unit ID button will always be grayed out. If a new firmware version is released with CAN bus support, this manual will be revised.

This parameter selection is available whenever the EasyTouch is plugged into an FX2 circuit board with the CAN bus daughterboard option, and it will be grayed out whenever EasyTouch is plugged into any other type of FX2 or FX1 circuit board. Each control on the same CAN bus network must be assigned a unique Unit ID (1-255). Please refer to the specific requirements of the CAN bus system being used to monitor and control the EasyTouch for further information.

11.1.12 CAN Bus Group ID (FX2 only, 1-255; **100**)

NOTE:
CAN Bus is an FX2 option only and is currently not supported by EasyTouch. The CAN Bus Group ID button will always be grayed out. If a new firmware version is released with CAN bus support, this manual will be revised.

This parameter selection is available whenever the EasyTouch is plugged into an FX2 circuit board with the CAN bus daughterboard option, and it will be grayed out whenever EasyTouch is plugged into any other type of FX2 or FX1 circuit board. A group of controls on the same CAN bus network can be assigned a common Group ID (1-255) for communication to all of the units simultaneously. The Group ID must be unique from all the other Group and Unit IDs. Please refer to the specific requirements of the CAN bus system being used to monitor and control the EasyTouch for further information.

11.1.13 Voltmeter Calibration (70-140VAC or 170-260VAC; **0 [none]**)

This parameter allows adjustment of the AC line voltage reading as measured by the EasyTouch. This setting displays the live AC voltage reading, and it can be adjusted by pressing the UP and DOWN buttons. Calibrating this parameter provides a more accurate voltage level for use with the Low-Voltage Monitor (DX only, see section 11.2.3). Use a calibrated voltmeter as a reference when adjusting this parameter.

11.1.14 Set Point Temperature Differential (1 or 2°F / 0.5 or 1.0°C; **2°F/1°C**)

This parameter is the temperature differential utilized to commence either a cooling or heating cycle. Refer to section 8.2 for more information on the various Modes of Operation and how this parameter setting affects them. By default, this parameter setting is 2°F (1.0°C). It can be set to either 1°F (0.5°C) or 2°F (1.0°C). Setting this parameter to 1°F (0.5°C) will result in the control maintaining the room temperature closer to the desired set point. However, this may result in more frequent shorter-duration cooling or heating cycles. In most cases, the factory default of 2°F (1.0°C) is adequate for maintaining a comfortable temperature variation around the desired set point. If you desire less variation in temperature, set this parameter to 1°F (0.5°C).

11.1.15 Humidity Mode Min Temp (40-75°F or 5-25°C; **50°F/10°C**)

This parameter is the minimum inside temperature for which MOISTURE Mode will run a cooling cycle to remove moisture from the air. If the room temperature is below this parameter setting, MOISTURE Mode will run a heating cycle instead. By default, this parameter is set to 50°F (10°C), and it can be adjusted from 40°F to 75°F (5-25°C). See section 8.2.6 for more information on MOISTURE Mode.

IMPORTANT (for DX Systems):
On DX systems configured with reverse-cycle heat, the MOISTURE Mode heat cycle will not be allowed to run when the ambient temperature is below 40°F

(4.4°C). This is necessary to protect the condenser coil from freezing. Systems configured with electric heat will be allowed to run the MOISTURE Mode heat cycle regardless of the inside temperature.

11.1.16 Auto Fan Speed Temp Differential (1-3°F or 0.5-1.5°C; **2°F/1°C**)

This parameter sets the incremental differential (with cumulative steps) between the inside temperature and the set point temperature at which the automatic fan speed will increment to the next speed. Note that there is 1°F (or 0.5°C) hysteresis in the auto fan speed differential to prevent the speed from changing if the room temperature if fluctuating between two adjacent values. Please note that the Set Point Differential (see section 11.1.14) also affects the automatic fan speeds. See Table 2 below for an example of how the automatic fan speeds will behave when the Set Point Differential is 2°F (default) and the Auto Fan Speed Temp Differential is 2°F (default).

Table 2 – Automatic Fan Speed Temp Differential Example

	Fan Speed	
Inside Temp	**Increasing Temp ↑**	**Decreasing Temp ↓**
SP+7	High	High
SP+6	High	High
SP+5	High	High
SP+4	Med	High
SP+3	Med	Med
SP+2	Low	Med
SP+1	Low/Off	Low
SP	Low/Off	Low/Off

11.1.17 Humidity Sensor Control Limit (FX2 CW only, 45-85% RH; **60% RH**)

This parameter selection is available whenever the EasyTouch is plugged into an FX2 circuit board with the Humidity control or FAMU daughterboard option and a combo temperature/humidity sensor is plugged into the daughterboard's INTAKE jack. It will be grayed out whenever EasyTouch is plugged into any other type of FX2 or FX1 circuit board or if the combo sensor is not plugged in. Also, humidity control only applies for CW control operation only.

When the appropriate hardware and mode of operation is detected, EasyTouch will automatically enable humidity control in concert with temperature control whenever executing a cooling cycle in either AUTO or COOL Modes. Cooling will continue once the set point temperature is satisfied until the inside temperature drops to 1° below the set point. If the optional Electric Heat option is enabled (see section 11.1.7), electric heat will be turned on in concert with cooling in order to maintain the inside temperature (dry bulb) while the cooling cycle continues to dehumidify the cabin. The cooling cycle will terminate once the inside temperature set point and this Humidity Sensor Control Limit have been satisfied.

11.1.18 DX/CW Mode Selection (Set by Jumper / DX Override / CW Override; **Set by Jumper**)

This parameter determines how EasyTouch determines the type of air conditioning system to which it is connected. When this parameter is set to its default, "Set by Jumper", EasyTouch determines whether the system is DX or CW based upon the "Cut for Chill" jumper on the FX1 or FX2 main circuit board. When the jumper is cut, CW operation is in effect, and when the jumper is not cut, DX operation is in effect. If at any time the control mode needs to set regardless of the state of the jumper, setting this parameter to "DX Override" or "CW Override" will force EasyTouch to use the corresponding control mode.

11.1.19 Inside Temp Sensor Selection (AUTO / DISPLAY / ALT. AIR; **AUTO**)

This parameter determines how the EasyTouch selects the temperature sensor to for inside temperature control. By default, setting this parameter to AUTO causes EasyTouch to use the display sensor if no other sensors are found. If the Alternate (Remote) Air sensor is plugged into the FX1 or FX2 main circuit board will use this sensor for inside temperature. Or, if the combo Temperature/Humidity sensor is plugged into the FX2 Humidity Control option board, the EasyTouch will use this sensor for the inside temperature. If at any time, the inside temperature sensor selection needs to be set regardless of what is plugged in to the main circuit board, setting this parameter to “DISPLAY” or “ALT. AIR” will force EasyTouch to use the corresponding sensor for inside temperature.

11.1.20 Fan Operational Mode (CONTINUOUS, CYCLED; **CONTINUOUS**)

This parameter controls the operational mode of the fan. The fan can be set to run continuously whenever the system is turned on, or it can be set to cycle on and off in conjunction with the cooling or heating cycles.

11.1.21 Dual Temp Set Points (OFF/ON; **OFF**)

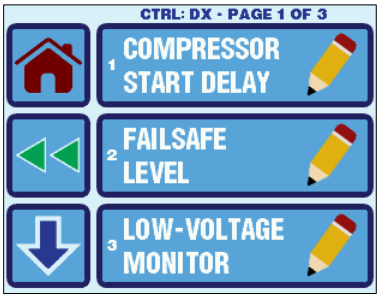
This parameter controls whether the EasyTouch uses a single, common set point for both cooling and heating (displayed in yellow), or two separate set points for cooling and heating (displayed in blue and red, respectively). When this parameter is set to ON, two set points become visible on the Home and Main screens whenever selecting the various temperature display indicators. Whenever the set point is adjusted, the cooling set point is always displayed and adjusted by default. The heating set point can only be adjusted by first changing the temperature display to show the heating set point (temporarily or permanently), and then adjusting the set point thereafter using the UP and DOWN buttons. See section 8 for more information on how to change the current temperature display.

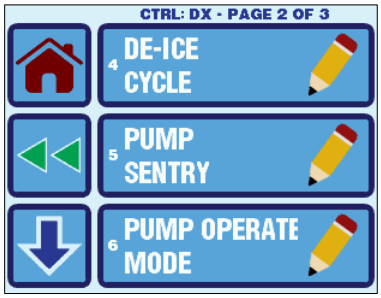
The use of dual set points in AUTO mode requires that the cooling set point always be greater than the heating set point, and vice versa. The EasyTouch automatically maintains this separation between the heating and cooling set points as the Set Point Temperature Differential (see section 11.1.14) + 2°F/1°C. For example, by default, if the heating set point is 68°F and the cooling set point is 72°F, if the cooling set point is lowered to 70°F, the heating set point is automatically reduced to 66° in order to maintain this separation. Whenever the cooling set point is raised, the heating set point will be unaffected. The opposite behavior is true when adjusting the heating set point.

Also, when the Dual Temp Set Points parameter is ON, the Program Scheduler displays and allows adjustment of both the cooling and heating set points. See section 12 for more information on the Program Scheduler.

11.2 DX Operational Settings

To access the DX Operational Settings, go to the Main Menu, select Control Parameters, and then select DX Operational Settings. The DX Operational Settings Menu consists of 7 items on 3 pages as shown in Figure 14.





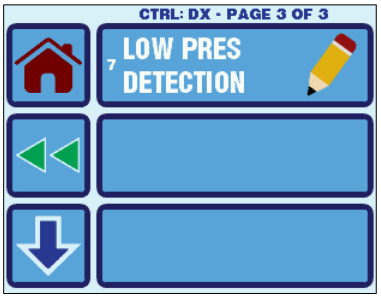


Figure 14 – DX Operational Settings Menu Screens

Refer to Table 3 for a quick reference to the DX Operational Settings. Refer to the sections that follow for further details on each setting.

Table 3 – DX Operational Settings

No.	Page	Description	Factory Default	Parameter Range
1	1	Compressor Start Delay	15 sec	5 – 135 sec
2	1	Failsafe Level	Faults Detected and Displayed with Lockout	Faults Not Detected / Faults Detected But Not Displayed / Faults Detected and Displayed / Faults Detected and Displayed with Lockout
3	1	Low-Voltage Monitor	Off	Off/75-120VAC or Off/175-240VAC
4	2	De-Ice Cycle	Enabled with 5°F/3°C Sensor Differential	Disabled Enabled with 5°F/3°C Sensor Differential Enabled with 7°F/4°C Sensor Differential
5	2	Pump Sentry	Off	Off / 100-150°F or Off / 40-65°C
6	2	Pump Operate Mode	Continuous	Continuous or Cycled
7	3	Low Pressure Detection	Set by Jumper	Set by Jumper or Disabled

11.2.1 Compressor Start Delay (5-135sec; **15sec**)

The compressor start delay is used for installations where more than one system operates from the same power source. Setting different start delays allows compressors to start at different times when AC power is interrupted. Stage the units at least 5 seconds apart. Note that this delay is only applied immediately after an AC power up and will only affect the first cooling or heating cycle that is called for, assuming the EasyTouch powers up in the ON mode. All subsequent cooling or heating cycles begin upon demand per the normal sequence.

11.2.2 Failsafe Level (Faults Not Detected / Faults Detected But Not Displayed / Faults Detected and Displayed / Faults Detected and Displayed with Lockout; **Faults Detected and Displayed with Lockout**)

This parameter controls the display and response to the various fault conditions. To protect the air conditioning equipment, certain fault conditions trigger a Lockout. A Lockout occurs when the control shuts down and will not automatically restart until the power (button) on the display is cycled. The detection and the display of faults are also controlled by this parameter.

There are 4 different Failsafe levels to choose from:

- **Faults Not Detected** - This level provides minimal failsafe protection and is not recommended. Only the “Air Sensor” and the “Lost AC” fault will be detected and displayed. No Lockout occurs at this failsafe level, except for the Air Sensor fault which always causes a Lockout condition. All other faults will not be detected or displayed.
- **Faults Detected But Not Displayed** - This level provides the same actions of the previous level, plus all other faults are detected but not displayed. When a fault is detected, the system shuts down for 2 minutes or until the fault is cleared, whichever is longer. The system will then restart automatically after the fault is cleared.
- **Faults Detected and Displayed** - This level provides the same actions of the previous two levels, plus all faults are displayed. The system shuts down for 2 minutes or until the fault is cleared, whichever is longer. The system restarts automatically when the fault is cleared.
- **Faults Detected and Displayed with Lockout** - This level provides the failsafe actions of previous 3 levels, plus the system will lockout after four consecutive High Pressure, Low Pressure, or Pump Sentry faults. To clear the lockout, cycle the power at the display by pressing the POWER button twice.

See section 9 for more information on all of the various faults that EasyTouch can declare.

11.2.3 Low Voltage Monitor (OFF / 75-120VAC or 175-240VAC); **OFF**)

The EasyTouch has a built-in voltmeter circuit that monitors the AC input voltage. Depending on whether the AC input voltage is 115VAC or 230VAC, this parameter has two different setting ranges. The factory default setting is OFF. When this parameter is set to 75-120VAC (115VAC systems) or 175-240VAC (230VAC systems), the EasyTouch checks the AC input voltage prior to each cooling or heating cycle and during regular operation.

- Just prior to compressor startup, EasyTouch will immediately declare the LOW AC fault if the voltage is less than this parameter setting. This provides extra protection for the compressor and components within the system during low voltage starting conditions. The LOW AC fault will persist until the AC input voltage goes above this parameter setting or for a minimum of 2 minutes before allowing the compressor startup to proceed, whichever occurs first.
- After compressor startup, if the AC input voltage goes below this parameter setting for 5 minutes, the system will be shutdown and the LOW AC fault will be declared. The LOW AC fault will persist until the AC input voltage goes above this parameter setting and a fault delay of 2 minutes has occurred, whichever occurs first. Once the voltage is restored, after the normal fault recovery delay, the compressor will be restarted.
- The LOW AC fault does not contribute to the Lockout count.

11.2.4 De-Ice Cycle (OFF/ Enabled with 5°F/3°C Sensor Differential / Enabled with 7°F/4°C Sensor Differential; **Enabled with 5°F/3°C Sensor Differential**)

The de-icing 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 runtime required to achieve set point. Factors that substantially increase runtime 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 the evaporator to form ice on warm humid days. De-icing is accomplished by closely monitoring the room air temperature in 10-minute intervals during a cooling cycle. Depending on the parameter value and the change in room temperature during these monitoring intervals, the control performs various actions to prevent ice from forming or to melt ice that has already formed. This is accomplished by short compressor shutdown periods combined with a one-speed increase in fan speed and by periodic Heat Mode cycles with the fan turned off. The parameter setting for the de-icing feature depends on whether you are using the optional alternate air temperature sensor or the display’s built-in inside air temperature sensor. Installation of an optional alternate air temperature sensor (located in the return air path) greatly increases the effectiveness of the de-icing feature, and this option should be considered whenever the display sensor cannot read the room temperature accurately.

NOTE:
When using the alternate air temperature sensor, the De-Ice Cycle behavior is the same regardless of whether this parameter is set to **Enabled with 5°F/3°C Sensor Differential** or **Enabled with 7°F/4°C Sensor Differential**.

The De-Ice Cycle algorithm initiates periodic compressor shutdowns every 10 minutes if the inside temperature is at or below 69°F (20°C). The lower the temperature, the longer the compressor shutdown will last. In addition, the De-Ice Cycle algorithm will perform brief reverse cycle runs (with the fan purposely turned off) if the cooling cycle runs for 40 minutes without any cooling progress or if the cooling cycle runs for more than 60 minutes regardless of cooling progress.

Enabled with 5°F/3°C Sensor Differential – When the built-in display temperature sensor is in use, the De-Ice Cycle algorithm as described above operates with the minimum threshold temperature at 74°F or 23°C. De-Ice Cycle operation with the alternate air sensor is the same and is unchanged. Use this setting for typical conditions and a normal installation.

Enabled with 7°F/4°C Sensor Differential – When the built-in display temperature sensor is in use, the De-Ice Cycle algorithm as described above operates with the minimum threshold temperature at 76°F or 24°C. De-Ice Cycle operation with the alternate air sensor is the same and is unchanged. Use this setting for more extreme conditions and an installation where ice is still forming on the evaporator when using the default setting.

11.2.5 Pump Sentry (OFF / 100-150°F or 40-65°C, OFF)

EasyTouch can be equipped with an optional Service sensor that is used to monitor the temperature of the condenser coil. See section 6.3 for more information on how to install the Service sensor. This Pump Sentry parameter setting is the maximum Service temperature allowed during normal compressor operation. If at any time during a cooling (or heating) cycle the Service temperature exceeds this parameter setting, the system will be shut down and the EasyTouch will declare a PUMP (Sentry) fault. The Pump Sentry fault will persist until the Service sensor temperature drops below this parameter setting or for a minimum of 2 minutes, whichever occurs first. Thereafter, the compressor will be restarted. See section 9.5 for more information on the Pump Sentry fault.

11.2.6 Pump Operate Mode (CYCLED / CONTINUOUS; **CYCLED**)

This parameter setting controls the behavior of the pump output. The pump output can either be set to cycle with the compressor or run continuously. Cycled operation is recommended in order to maximize the life of the pump itself and air conditioner condenser coil.

11.2.7 Low Pressure Detection (Set by Jumper / Disabled; **Set by Jumper**)

This parameter setting control the detection of the Low Pressure switch input on the main FX1 or FX2 circuit board. When the parameters is set to “Set by Jumper", the Low Pressure switch input is enabled if the "LP" jumper on the main board is cut or removed. If the jumper is not cut, the Low Pressure switch input remains disabled. If at any time the Low Pressure switch input needs to be disabled regardless of the state of the jumper, setting this parameter to “Disabled” will cause the input to always be ignored. Micro-Air does not recommend disabling the Low Pressure switch input on systems specifically designed to use Low Pressure switches as this can endanger the equipment under certain conditions. See section 9.3 for more information on the Low Pressure Fault.

11.3 CW Operational Settings

To access the CW Operational Settings, go to the Main Menu, select Control Parameters, and then select CW Operational Settings. The CW Operational Settings Menu consists of 2 items on 1 page (screen) as shown in Figure 15.

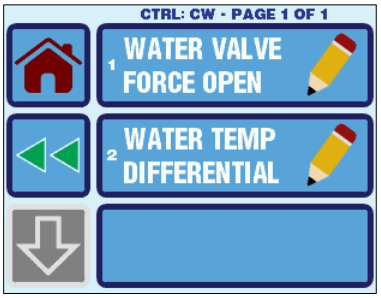


Figure 15 – CW Operational Settings Menu Screen

Refer to Table 4 for a quick reference to the DX Operational Settings. Refer to the sections that follow for further details on each setting.

Table 4 – CW Operational Settings

No.	Page	Description	Factory Default	Parameter Range
1	1	Water Valve Force Open	Off	Off / On
2		Water Temp Differential	10°F/6°C	5-25°F or 3-14°C

11.3.1 Water Valve Force Open (OFF/ON; **OFF**)

This parameter opens the water valve to bleed air from the system. Setting this parameter to ON forces the valve to open for 4 hours. If the control is turned on or if AC power is interrupted during this 4-hour period, this valve override feature is canceled. The valve can be returned to normal operation at any time by changing this parameter setting back to OFF manually.

11.3.2 Water Temp Differential (5-25°F or 3-14°C; **10°F/6°C**)

This parameter sets the temperature differential between ambient air temperature and inlet water loop temperature at the air handler. For example, the default setting of 10°F allows the valve output to be energized, opening the water valve, when the water temperature is at least 10°F less than ambient temperature in cooling mode and at least 10°F greater than the ambient temperature in the heating mode. Hysteresis is also applied so that the valve remains open if the water temperature moves back toward the ambient temperature during a cooling or heating cycle. This hysteresis equals ½ of the parameter setting (e.g. 5°F). Also, this same hysteresis is applied to disable the use of the electric heater if the water temperature is hot enough during a heating cycle. Careful selection of the temperature differential can fully utilize the ship's heating and cooling resources. See Figure 16 below for a graphical explanation of this parameter and how it affects the operation of the valve and electric heater outputs.

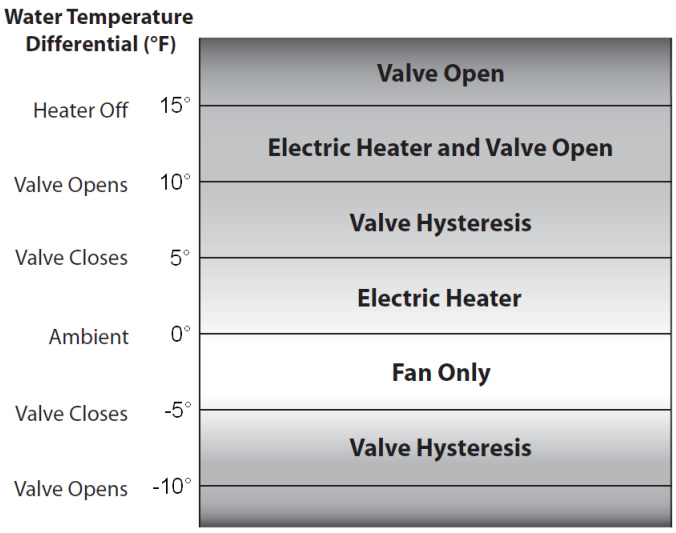


Figure 16 – Water Temperature Differential Behavior Example

11.4 Memorize Settings

On the second page of the Control Parameters Menu as shown in Figure 17, there are three options for saving and recalling all programmable settings.

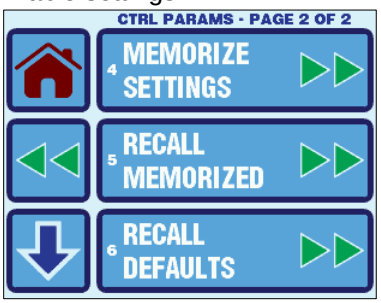


Figure 17 – Options to Save or Recall Programmable Settings

If you want all of the active and customized parameter settings to be saved as a set of memorized settings for possible recall at a later time, select the Memorize Settings option, and then press the SAVE button. This action memorizes the current parameters settings in non-volatile memory.

11.5 Recall Memorized Settings

If you want to recall the previously memorized parameter settings, select the Recall Memorized option, and then press the SAVE Button. This action overwrites all of the active parameter settings with the previously memorized parameter settings.

11.6 Recall Default Settings

If at any time you want to restore the active and memorized parameter settings to the original factory defaults, select the Recall Defaults option, and then press the SAVE button. This action overwrites all of the active and memorized parameter settings with the factory defaults.

IMPORTANT: If you have any problems or confusion during programming that cause the system to malfunction, recall the factory default settings and proceed from there.

12. PROGRAM SCHEDULER MENU

The Program Scheduler allows the EasyStart to automatically start and stop the A/C unit at specific time and day of the week, controlling the mode and temperature set point(s). To access the Program Scheduler, go to Main Menu and then select Program Scheduler.

The Program Scheduler Menu consists of 10 items on 4 pages as show in Figure 18.

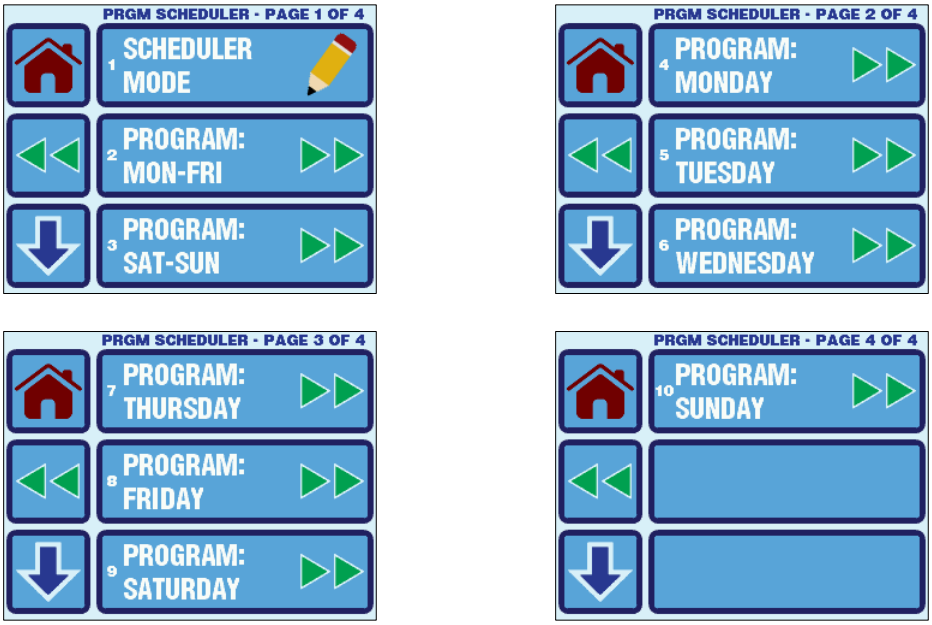


Figure 18 – Program Scheduler Menu Screens

12.1 Mode Control and Operational Behaviors

The Scheduler Mode parameter allows the Program Scheduler to be enabled (ON) or disabled (OFF, default). As soon as the Program Scheduler is enabled, it will immediately begin apply the programs as defined for the current day of the week.

The Schedule status display on the Main screen will indicate which day of the week and which program is currently in effect. For example, if the Schedule status displayed is "**WED P1**", this indicates Program #1 for Wednesday is in effect. If the Program Scheduler is disabled, the Schedule Status always shows "**MANUAL**". Lastly, if the set point temperature or operational modes are altered in anyway via user input while the Program Scheduler is operating, it will immediately yield and display the status of "**OVERRIDE**". The override condition will remain in effect until the beginning of the next Program number or Day of the Week. For example, if the Program Scheduler goes into override mode at 6PM on Wednesday, and the next program is set to begin at 10PM on Wednesday, the Program Scheduler will remain in override until 10PM.

NOTE:
The Program Scheduler requires an accurate date and time setting in order to function properly. If the date and time have not already been set, refer to section 13 for more information.

12.2 Programming a Day or Group of Days

Each Day of the week has 4 programs, and each program has a mode of operation, time, cooling set point, and heating set point (if dual set points are enabled). The 4 programs are accessed by pressing the SCROLL DOWN button. The Mode choices are OFF, COOL, HEAT, AUTO, and DEHUMIDIFY. If Dual Set Points is selected, the cooling set point is settable for COOL and AUTO operation, and the heating set point is shown and settable for HEAT and AUTO mode operation. Set points are not settable for OFF or DEHUMIDIFY modes. Pressing the buttons for the Mode, set point, hour, minute, and AM/PM allow each item to be adjusted individually and saved. Figure 19 shows and example day of the week and program number.

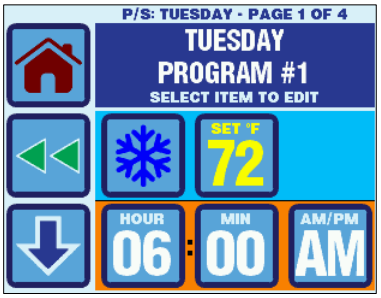


Figure 19 – Program Scheduler Setup Example

The 4 programs can be adjusted simultaneously for an individual day or a group of days:

- Program: Mon-Fri
- Program: Sat-Sun
- Program: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday

The default program settings for each day of the week are shown in Table 5. Use this table as a guide for how design the Program Scheduler behavior for your particular needs.

Table 5 – Program Scheduler Default Day of the Week

Program Number	Mode	Set Point	Start Time
1	COOL	72°F	6:00AM
2	COOL	72°F	8:00AM
3	COOL	72°F	4:00PM
4	COOL	72°F	10:00PM

NOTE:
If the same Program Scheduler behavior is desired for Monday-Thursday, but Friday needs to be different, the best way to accomplish this is to program Monday-Friday as a group with the desired programs for Monday-Thursday, then go back and individually edit Friday's programs to make them different.

13. DATE/TIME MENU

The Date/Time Menu allows the user to control the display of the date & time, change its format, and adjust its settings. To access the Date/Time Menu, go to Main Menu and then select Date/Time Menu. The Date/Time Menu has 3 items on 1 page as show in Figure 20.

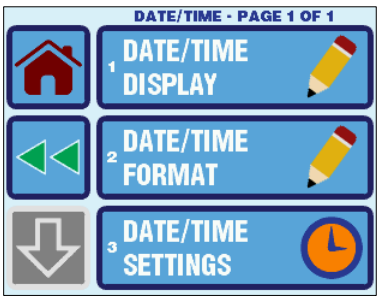


Figure 20 – Date & Time Settings Menu Screen

13.1 Enabling the Date/Time Display

The Date/Time Display parameter controls the display of date & time on the Main screen only. Setting this parameter ON enables the display of the date & time as shown in Figure 21. Setting this parameter to OFF disables the display of the date & time as shown in Figure 22. When disabled, the EasyTouch logo is shown in place of the date & time.

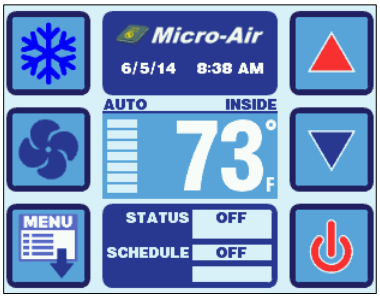


Figure 21 – Main Screen with Clock

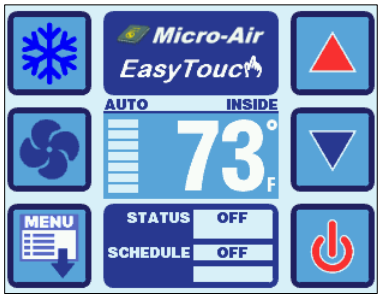


Figure 22 – Main Screen without Clock

13.2 Changing the Date/Time Format

The Date/Time Format parameter allows the date & time display format to be selected automatically based on AC power line frequency, or selected deliberately. Setting this parameter to AUTO allows the AC power line frequency to determine the date & time format.

- 60Hz: M/D/Y 12-hour format
- 50Hz: D/M/Y 24-hour format

To fix the date & time display format to a particular setting, choose “M/D/Y 12-HOUR” or “D/M/Y 24-HOUR”.

13.3 Setting the Date & Time

The Date/Time Settings screen allows each individual value to be adjusted individually. This screen has 1 page and is shown below in Figure 23.

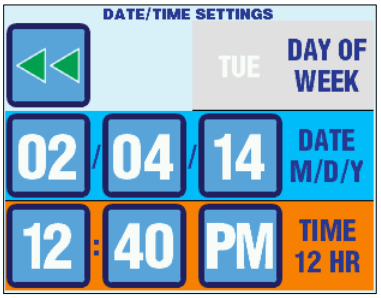


Figure 23 – Date & Time Setting Screen

To edit a particular value, press the button corresponding to the value. After making the necessary adjustments in the edit screen, press the SAVE button. The day of the week will automatically be calculated based upon the set date.

NOTE:
If the EasyTouch battery is ever replaced, the date & time settings will be reset to 01/01/2007 12:00AM. During the first AC power up after a battery replacement, the EasyTouch will detect this date & time reset and immediately display the Date/Time Settings screen immediately after power up.

14. SYSTEM MENU

The System menu allows the user to view and modify system settings pertaining to the display itself. For example, the screen brightness, colors, Sleep Mode behaviors, display lock, etc. To access the System Menu, go to Main Menu and then select System Menu. The System Menu has 5 items on 2 pages as show in Figure 24.

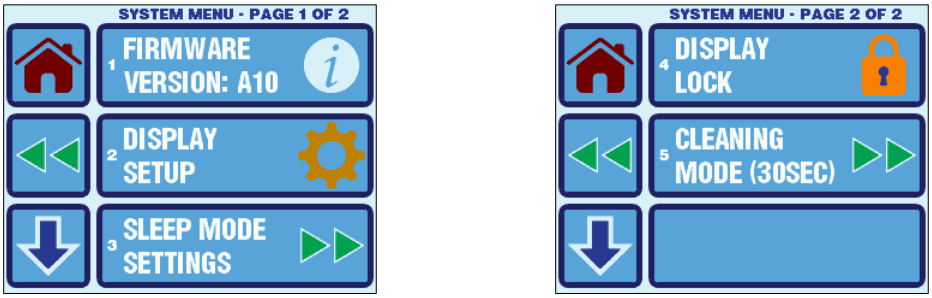


Figure 24 – System Settings Menu Screens

14.1 Firmware Version

The Firmware Version is displayed on the System Menu screen inside the corresponding button. Pressing the button will display a screen showing the firmware version number and its release date.

14.2 Display Setup

The Display Setup menu allows the adjustment of the display brightness, and the color adjustment of 5 different portions of the display color scheme. The Display Setup menu has 6 items on 2 pages as shown in Figure 25.

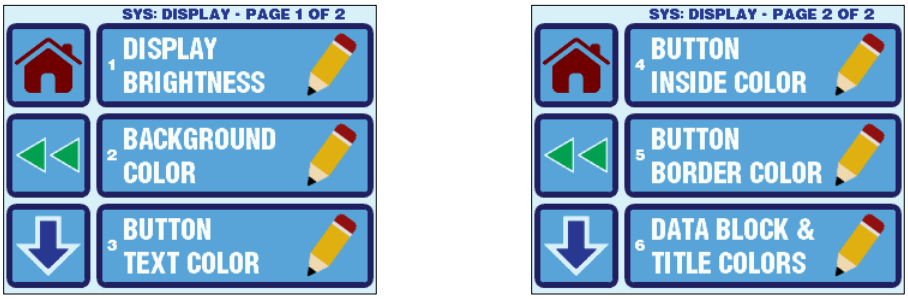


Figure 25 – Display Setup Menu Screens

Display Brightness – This setting can be adjusted from 5 to 100%. Note that this setting does not affect the brightness used during sleep mode or during power up.

Display Colors – The various portions of the display can have their colors changed. The color choice palettes displayed consist of 126 different colors shown across 14 pages. Pages 1-12 show the color choices from a standard color pallet, page 13 shows the grayscale color choices, and page 14 shows the standard display colors used by factory default. Figure 26 below shows an example of a color selection display screen.

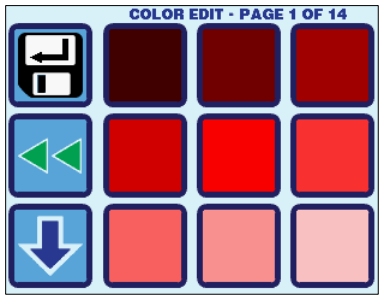


Figure 26 – Color Edit Screen Example

14.3 Sleep Mode Settings

The Sleep Mode Settings menu allows control over all the various Sleep Mode displays and its behavior. The Sleep Mode Settings menu has 5 items on 2 pages as shown in Figure 27.

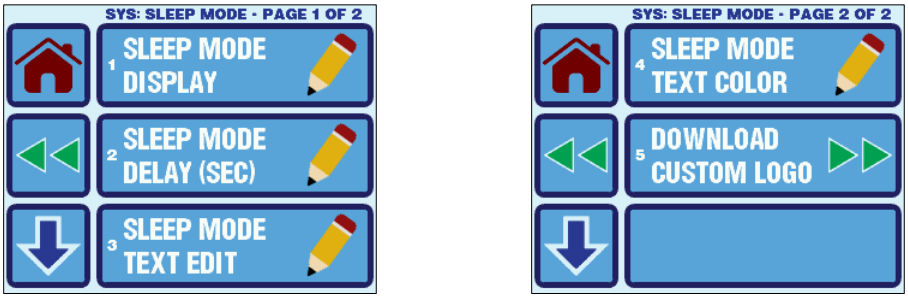


Figure 27 – Sleep Mode Settings Menu Screens

Sleep Mode Display - Sleep Mode Display Allows to select among 5 different options to be displayed when the EasyTouch automatically enters into Sleep Mode.

- Standard Logo – shown in Figure 3
- Blank Screen Backlight On
- Blank Screen Backlight Off
- Custom Logo – see details below.
- Custom Text – see editor below.

Sleep Mode Delay – The Sleep Mode Delay parameter is set to 60 seconds by default. That is, after 60 seconds of no touch screen interactions, the EasyTouch will automatically enter Sleep Mode. The choices for the Sleep Mode Delay parameter are OFF, and 0 to 600 seconds. If OFF is selected, the display will not go into Sleep Mode.

Sleep Mode Text Edit – This special entry screen shown in Figure 28 allows the editing of the text string that will be displayed in Sleep Mode when "Custom Text" is selected as the Sleep Mode Display parameter.

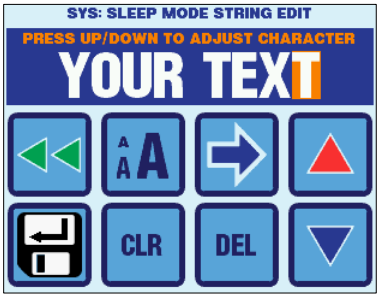


Figure 28 – Sleep Mode Text Editor

The active (last) character can be changed using the UP and DOWN buttons. The character choices are as follows:

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789&'*@:,°=!-()%.+#?/
(and a space character)

Navigating to the right is accomplished using the RIGHT ARROW button. Navigating to the left is accomplished using the DEL button. CLR deletes all the custom text except for one active character. The font size can be adjusted to 3 different sizes by pressing the font button. The total number of characters that will fit on the screen is a function of the font size, with an absolute max of 25. Pressing the SAVE button will store the updated Sleep Mode Text into non-volatile memory.

Sleep Mode Text Color – The color of the Sleep Mode custom text can be adjusted identically as the other various display colors. See the description for *Display Colors* in section 14.2 for more information about adjusting and selection colors.

Download Custom Logo - This feature button is normally grayed out unless the EasyTouch detects that the special programming cable is plugged into its 8-pin jack. Figure 29 shows the Down Custom Logo screen as it normally appears before a download is initiated.



Figure 29 – Sleep Custom Logo Download Screen

Use of this feature also requires a special PC program that enables the reading of a 24-bit graphics bitmap file (BMP) and then transmission to the EasyTouch. Please contact Micro-Air Customer Service for more information on this special programming cable and PC program.

14.4 Display Lock

The Display Lock menu allows control over the Display Lock and its 4-digit PIN. The Display Lock menu has 2 options on 1 page as shown in Figure 30.

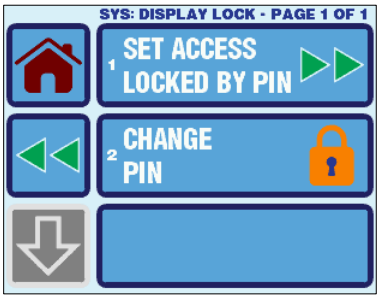


Figure 30 – Display Lock Menu Screen

NOTE:
The EasyTouch factory default PIN is 1234.

Set Access Locked by PIN – This parameter controls the display access level at which PIN access is required. There are 5 levels of access restriction including OFF (no restriction), each of which is a progressively higher (earlier) in the access allowed:

- None (no lock or restriction, factory default)
- Control Parameters – access without the PIN is allowed to the Home & Main screens, and to all menus and settings *except* for the Control Parameters and all sub-menus and parameters beyond this point.
- All Menu Settings – access without the PIN is allowed to the Home and Main Screens, but no access to the Main Menu is allowed and all sub-menus and parameters beyond this point.
- Main Screen – access without the PIN is allowed to the Home Screen, but no access is allowed beyond this point.
- Home Screen – access without the PIN allows viewing the Home Screen after power up or exiting from Sleep Mode, but not button presses or access beyond this point is allowed.

When access to a restricted point is attempted, the EasyTouch will prompt the user for the PIN with the display screen shown in Figure 31. The factory default PIN for the EasyTouch is 1234.



Figure 31 – Display Lock PIN Prompt Screen

Figure 32 shows examples of the screen displays when the PIN is entered correctly or incorrectly. If the PIN is entered incorrectly, the CLR button must be pressed in order to try again.

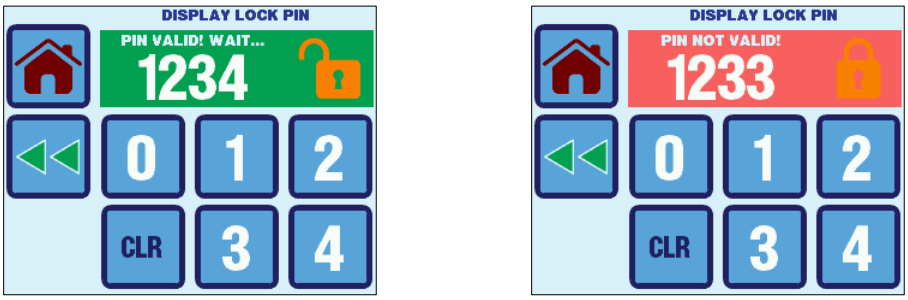


Figure 32 – Display Lock PIN Entry Screen Examples

Once the PIN is entered successfully, access to all levels below and above are allowed, until the display once again enters Sleep Mode or until its AC power is cycled. PIN re-entry will also be required again if the access level parameter setting is changed.

Change PIN – This option allows the PIN setting to be changed to a different 4-digit value. Before entering a new PIN, the current PIN must be entered first. Once a new 4-digit PIN is entered and validated, the screen color will change to green and the ENT button will be displayed as shown in Figure 33. Pressing the ENT button will save the new PIN into non-volatile memory.

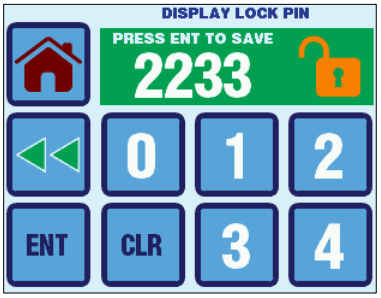


Figure 33 – Display Lock PIN Change Display Screen

IMPORTANT: If the PIN is forgotten, it can be restored to 1234 by powering off the control at the AC circuit breaker, removing the battery for 30 seconds, reinstalling, and powering back up. This will only reset the date and time to its factory default and will also reset the PIN to 1234. No other parameters or saved entries will be lost.

14.5 Cleaning Mode

The Cleaning Mode Allows screen to be cleaned for 30 seconds with the backlight turned off and the touch panel disabled. In this way, finger prints and other dirt can be seen more clearly and the touch screen will not react to the wiping. The screen and touch panel will turn on again automatically in 30 seconds. Normal system operation is not affected during this time. Micro-Air recommends that a soft, non-abrasive cloth be used with a small amount of rubbing alcohol to clean the display.

15. TROUBLESHOOT & COMMISSION MENU

The Troubleshoot & Commission Menu allows access to the System Status, Help, and the Commission Procedure. To access the Troubleshoot & Commission Menu, go to Main Menu and then select Troubleshoot & Commission. The Troubleshoot & Commission Menu has 3 items on 1 page as show in Figure 34.

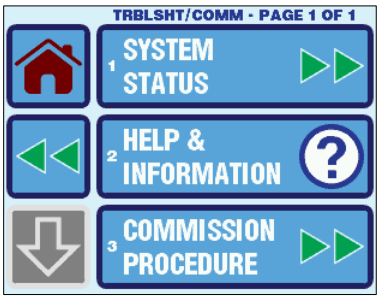


Figure 34 – Troubleshoot & Commission Menu Screen

15.1 System Status

The System Status displays the live readings from all the sensors and pressure switches, the status of the AC outputs, and the AC input voltage & frequency. Uninstalled temperature sensors are indicated by the display of "- - - ". Certain sensors will be relabeled depending on if the main circuit board is FX1 or FX2, and which option boards are installed. See Figure 35 for examples of the System Status display.

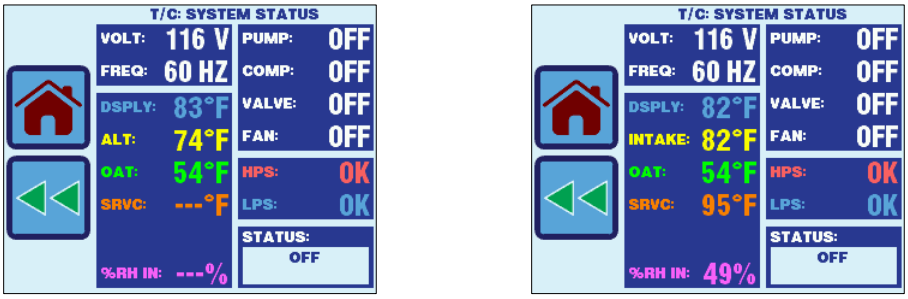


Figure 35 – System Status Display Screen Examples

15.2 Help & Information

Fault Help Lookup – For each of the six faults described in section 9, a help description is available in the Fault Help Lookup menu. These help descriptions are also displayed whenever a fault is active or recovering, and the user presses the touch screen over the top of the fault status display on the Main screen. See Figure 36 for an example of a Fault Help description.

Link to Get More Help – The Link to Get More Help display shows a QR Code that connects to the Micro-Air website. There you can find this manual along with other information for further assistance. Figure 37 shows the Link to Get More Help screen.

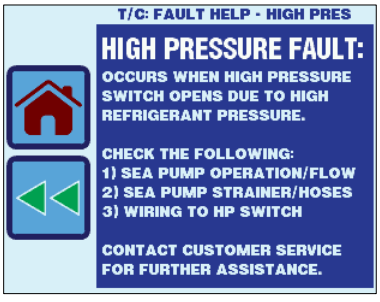


Figure 36 – Fault Help Display Screen Example



Figure 37 – More Help QR Code Screen

15.3 Commission Procedure

The Commission Procedure provides step-by-step instructions on how to verify the operation of a DX or CW system. It reads all of the important sensor and switch inputs, exercises the AC outputs, and prompts the user to verify a number of different items. Successful completion of the entire Commission Procedure will add an entry into the Fault History to provide a record that the procedure was carried out. See Figure 38 for examples of the Commission Procedure display screens.

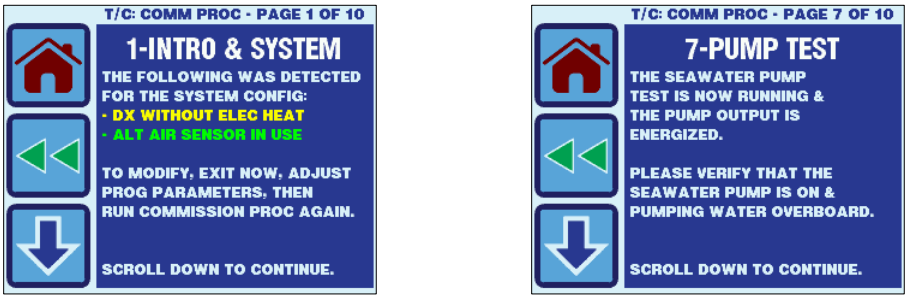


Figure 38 – Commission Procedure Screen Examples

16. FAULT HISTORY & RUN HOURS MENU

The Fault History & Run Hours Menu allows access to the Fault History and Run Hour displays. To access the Fault History & Run Hours Menu, go to Main Menu and then select Fault History & Run Hours. The Fault History & Runs Hours Menu has 3 items on 1 page as show in Figure 39.

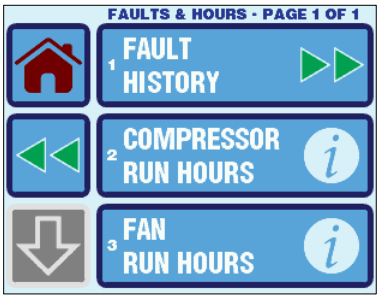


Figure 39 – Fault History & Run Hours Menu Screen

16.1 Fault History

The Fault History displays the all of the faults that have occurred. Each entry has a number, date & time, and a fault type as shown in Figure 40. The most recent entries are shown at the top of the list with the lowest entry number. For example, entry #1 is the most recently recorded fault and entries #2, #3, #4, etc. all occurred before entry #1. The Fault History can store a maximum of 500 faults. Once filled, it will be begin overwriting the oldest entry in the history; however, the order of the display and the numbering of the entries will always be maintained as described above.

All of the fault types described in section 9 are captured in the Fault History. Refer to that section for further details on the each fault type. In addition, the execution of the Commission Procedure is also recorded (see section 1.1). To clear the fault history, press and release the CLR button. Pressing and holding the CLR button for 10 seconds will restore the Fault History to the listing of lifetime faults stored in the 500-entry memory. Although the displayed Fault History can be cleared, the lifetime entries are always being maintained in the background and cannot be cleared (for a maximum of the previous 500 entries).

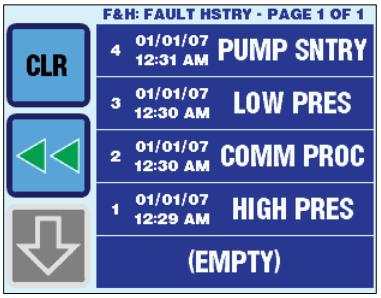


Figure 40 – Fault History Display Screen

NOTE:
The Fault History is an excellent troubleshooting tool and can only have maximum effectiveness if the Date & Time are set correctly. See section 13 for more information on how to properly set the Date & Time.

16.2 Compressor Run Hours

The Compressor Run Hours displays the number of hours the fan has been operating as shown in Figure 41. The value can be cleared by pressing the CLR button. Once cleared, the number of operating hours begins accumulating again from 0. Pressing and holding the CLR button for 10 seconds will reset the Compressor Run Hours to the total hours accumulated for the lifetime of the display. Although the displayed hours are cleared, the lifetime hours are always being maintained in the background and cannot be cleared.

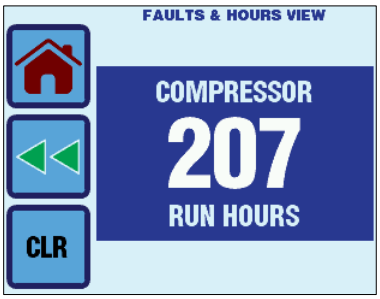


Figure 41 – Compressor Run Hours Display

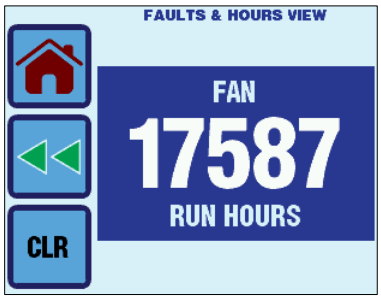


Figure 42 – Fan Run Hours Display

16.3 Fan Run Hours

The Fan Run Hours displays the number of hours the fan has been operating as shown in Figure 42. The value can be cleared by pressing the CLR button. Once cleared, the number of operating hours begins accumulating again from 0. Pressing and holding the CLR button for 10 seconds will reset the Fan Run Hours to the total hours accumulated for the lifetime of the display. Although the displayed hours are cleared, the lifetime hours are always being maintained in the background and cannot be cleared.

NOTE:
The Fan Run Hours display is a completely separate timer value maintained and stored separately from the Filter Reminder (Fan) Hours. The two timers are completely independent. See section 11.1.9 for more information on the Filter Reminder.

17. SPECIFICATIONS

OPERATIONAL

Set Point Operating Range (single) ..... 65°F to 85°F (18°C to 30°C)
Set Point Operating Range (dual, cool mode) ..... 65°F to 95°F (18°C to 35°C)
Set Point Operating Range (dual, heat mode) ..... 55°F to 85°F (13°C to 30°C)
Ambient Temperature Operating Range Displayed ..... 5°F to 150°F (-15°C to 65°C)
Sensor Accuracy ..... ± 2°F @ 77°F (±1.0°C @ 25°C)
Low Voltage Processor Reset ..... 50 VAC
Line Voltage ..... 100 to 240 VAC
Frequency ..... 50 or 60 Hz
Fan Output ..... 6 Amps @ 115 VAC
Fan Output ..... Amps @ 230 VAC
Valve Output ..... 1/4 Amp @ 115/230 VAC
Heater Output (using valve relay) ..... 15 Amps @ 115 VAC
Heater Output (using valve relay) ..... 10 Amps @ 230 V
Pump Output ..... 1/4 HP @ 115 VAC
Pump Output ..... 1/2 HP @ 230 VAC
Compressor Output ..... 1 HP @ 115 VAC
Compressor Output ..... 2 HP @ 230 VAC
Minimum Operating Temperature ..... 0°F (-18°C)
Maximum Ambient Operating Temperature ..... 180°F (82°C)
Maximum Rh Conditions ..... 99% Non-Condensing
Power Consumption ..... Less Than 5 Watts

DIMENSIONS

Display Panel ..... 4.309” (109mm) X 2.874" (73mm)
Panel Cut Out ..... 2.90" (74mm) X 2.165" (55mm)
Bezel Type Required ..... Vimar® Eikon or Vimar® Eikon EVO

CABLE LENGTHS

Display Cable Self Contained ..... 15' (4.6m) Standard
Display Cable Split System ..... 30' (9.1m) Standard
Maximum Display Cable Length ..... 75' (22.9m) Maximum
Alternate Air Sensor (optional) ..... 7' (2.1m) Standard
Alternate Air Sensor Split System (optional) ..... 30' (9.1m) Standard
Outside Air Sensor (optional) ..... 15' (4.6m) Standard
Maximum Temperature Sensor Cable Length ..... 75' (22.9m) Maximum
Combo Inside Temperature/Humidity Sensor (optional for FX2 only) ..... 7' (2.1m) Standard
Maximum Combo Inside Temperature/Humidity Sensor Cable Length ..... 15' (4.6m) Maximum

SYSTEM INPUTS

Inside Air Temperature Sensor (built into display) 1
High Refrigerant Pressure 1
Low Refrigerant Pressure (optional) 1
Alternate Inside Air Temperature Sensor (optional) 1
Combo Inside Temperature/Humidity Sensor (optional for FX2 only) 1
Outside Air Temperature Sensor (optional) .....
Pump Sentry Condenser Coil Sensor (optional) 1

Optional Sensor Locations and Cable Connections

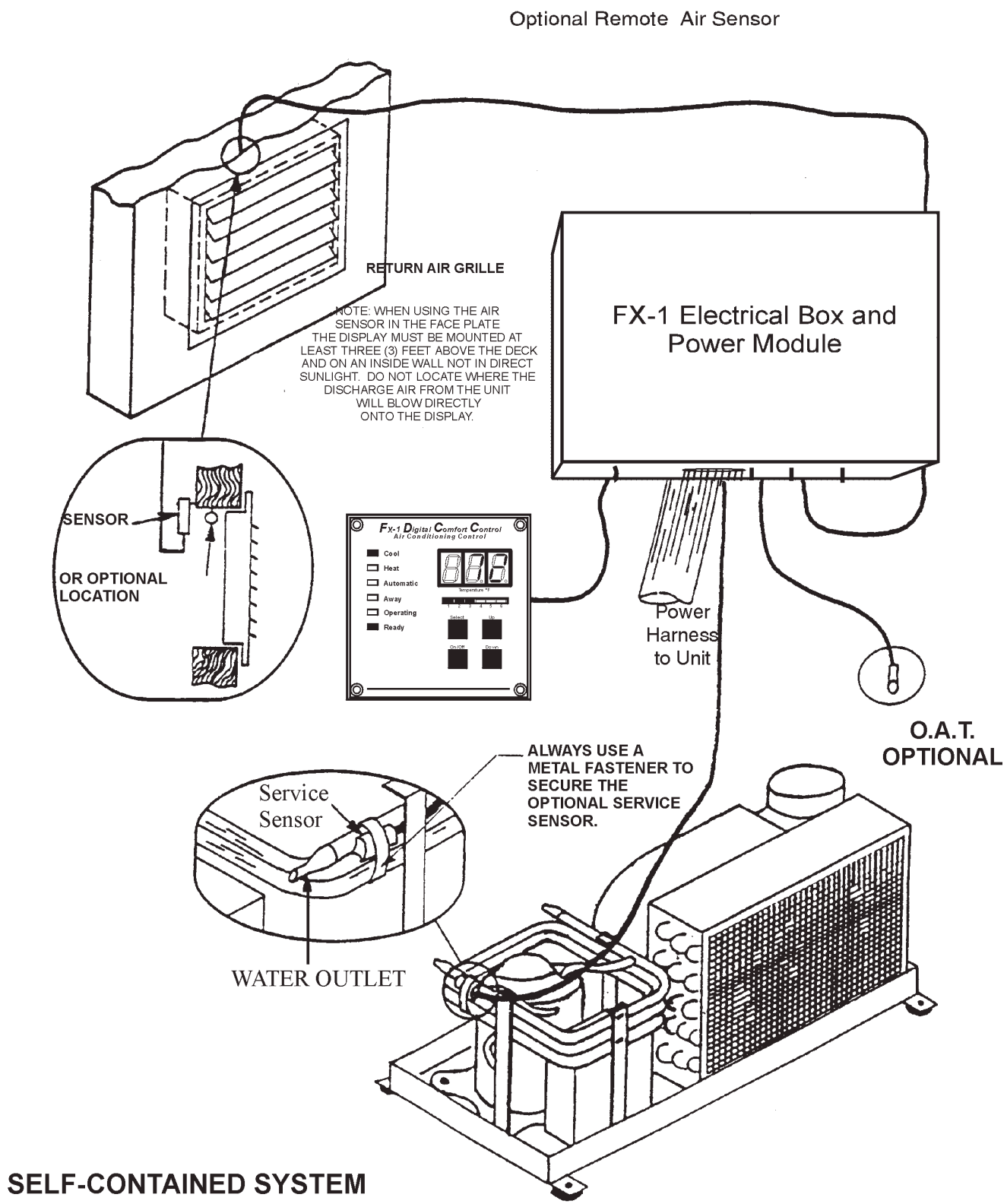
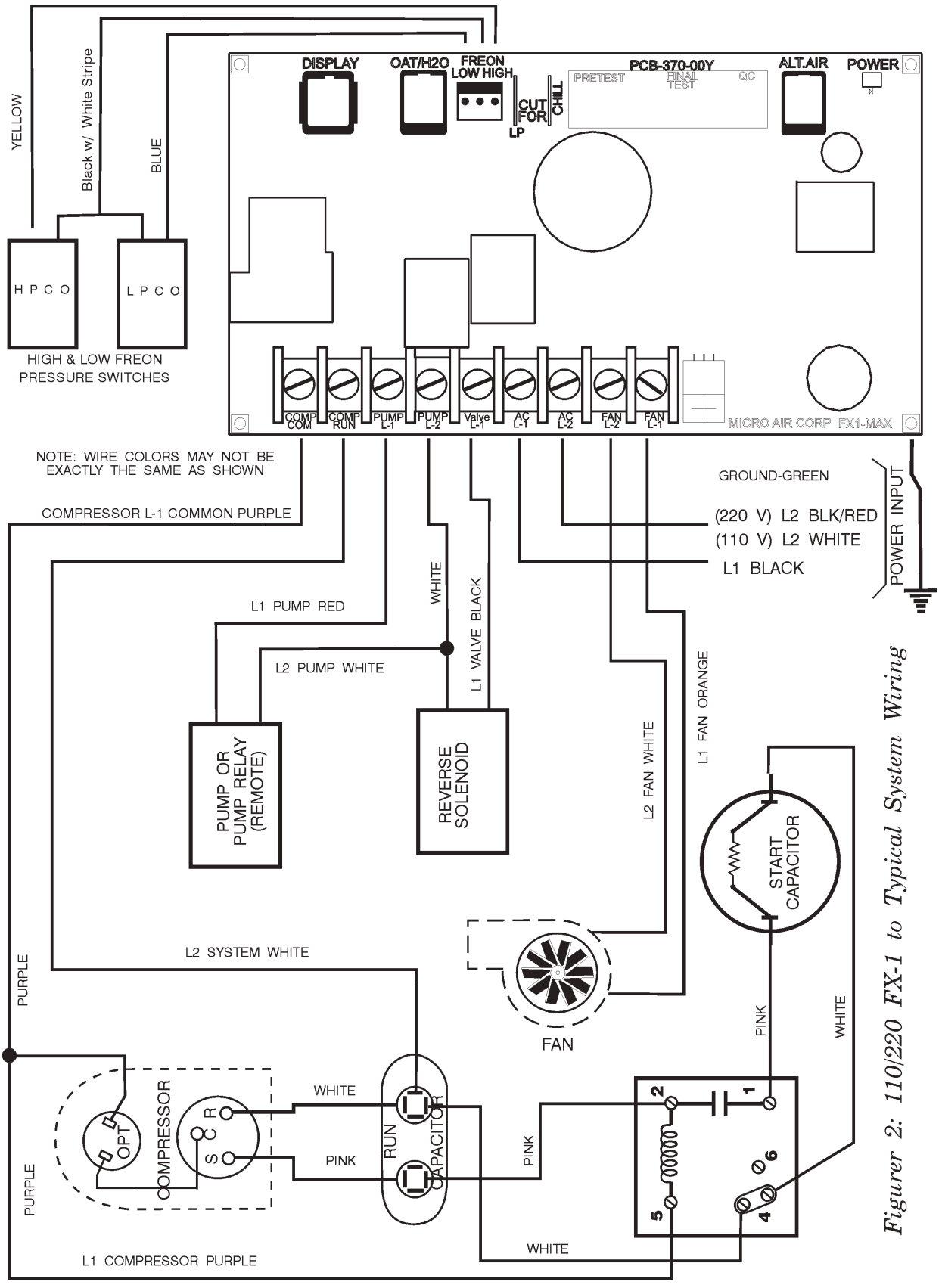


figure 3



Figurer 2: 110/220 FX-1 to Typical System Wiring