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Dometic is a customer driven, world-leading provider of innovative leisure products for the caravan, motorhome and marine markets. Dometic offers a complete range of air conditioners, refrigerators, awnings, cookers, sanitation systems, lighting, windows, doors and other equipment that makes leisure life more comfortable away from home.

Dometic also provides refrigerators for specific use in hotel rooms, offices and for storage of medical products and wine. Dometic's products are sold in almost 100 countries and are produced mainly in Dometic's own production facilities around the world. Annual sales amount to approximately 750 MEUR. Dometic has more than 4,400 employees.



Guidelines for Adding Computerized Controls To Your Boat's Air Conditioning System

This guideline describes the advanced features of the SMX II Series and offers help with upgrading your existing control system. We invite you to review this information, then to call your Cruisair dealer to discuss how you can make the change to your air conditioning system.

If you have a Cruisair air conditioning system with a manual switch assembly, or wish to change your current computerized control to our **new SMXht** keypad/display, we have good news for you.

You can easily replace your 3-knob switch with a state-of-the-art SMX II Series computerized control – quickly and inexpensively. Your Cruisair dealer can upgrade your air conditioning system, and in just a few hours, you can be using the powerful comfort-control capabilities available with the SMX II Series of controls.

Although the SMX II Series was specifically designed for Cruisair air conditioning systems, in many cases, you can retrofit it to systems other than Cruisair. You should consult your dealer for guidance.

About the SMX II Series

The term "SMX II" refers to the computerized control system consisting of a keypad/display and a power/logic circuit board located in the a/c unit's electrical box.

The keypad/displays that are available to operate the SMX II system are the SMXIIAB (formerly the SMX II), **SMXir** and **SMXht**.

The controls can be used with Cruisair direct-expansion seawater-cooled systems with variable-speed blowers. They can also be specified with new Cruisair systems, and retrofitted in the field to replace most Cruisair electromechanical switch assemblies.

In spite of its sophistication, (more than 22 different programmable functions), the SMX II computerized control system is remarkably easy to use. For normal operation, you simply select the desired temperature, set for automatic operation and relax. That's all. If you are currently using a 3-knob type control, you will be amazed at the difference in temperature regulation – no more wide swings.

If you want to fine-tune your settings or take advantage of the advanced programmable functions, you can enter the programming mode and make changes to the factory-set parameters. The system's non-volatile memory retains all of your settings, even when power is interrupted.

Standard Features of all Keypad/Displays:

- Clearly marked buttons that are self-explanatory.
- Large, easy-to read digital display giving instant reference to setpoint or cabin temperature, important operating parameters and fault code warnings.
- Small LED lights on panel to show system's operating mode and status.

Stand-Out Features of Keypad/Displays:

SMXir

- Attractive, compact housing, with easy surface-mount installation.
- Optional remote control just like your TV or DVD player. Use it to adjust control settings from anywhere in the cabin.

The new Euro-styled SMXht

- Easier to operate five button control that fits into popular Vimar® and Gewiss® bezels, allowing more flexibility with your boat's interior decor.
- Sleep mode feature – panel lights turn completely off after a prescribed interval of non-use, then back on with the first touch of any key.

Heating and Cooling

Using a keypad/display, you can set the SMX II system to provide cooling only, heating only or automatic changeover between heating and cooling. This means that in the Fall or Spring, when days are hot and nights are cool, the system will keep the inside of your boat at a constant comfortable temperature.

This is quite different from the three-knob controls, where one usually makes several adjustments between day and night, in order to maintain a comfortable temperature.

Power interruptions are a common occurrence on most boats, and it's a nuisance to have to reset the air conditioning system every time power is lost momentarily. The SMX II Series is designed to bring the Cruisair system back on line automatically to the last user-programmed settings.

To protect the compressor, the SMX II has a special software subroutine that automatically equalizes pressure before every compressor restart. If two or more Cruisair systems are on board, the SMX II can be programmed with time delays to restart the compressors sequentially, minimizing line and generator load.

Automatic Monitoring

The SMX II Series monitors critical system functions, such as voltage and certain refrigerant pressures. Whenever it senses potentially damaging conditions, it reacts to protect the system from harm.

The system constantly supervises line voltage with an internal voltmeter. Whenever it senses a brief dip in line voltage (three minutes or less) it lets the a/c system continue running to avoid nuisance shutdowns.

Likewise, the SMX series automatically monitors pressures in the refrigerant lines. Any time the pressure exceeds a preprogrammed limit, either too high or too low (where a low pressure switch is installed), the SMX II shuts the system down before it can be damaged. It then goes through a programmed subroutine of automatic restarts and system monitoring. If the out-of-tolerance condition persists after several restarts, the SMX II series issues a sustained shutdown command. A warning display appears on the LED.

Dehumidification

When you leave your boat unattended for long periods of time, you can use your keypad/displays to program the SMXII system to switch the air conditioning system on at pre-selected intervals to circulate and remove moisture from the air. You can program the dehumidification software routine for your specific geographical region.

Whenever the SMX II system is in dehumidification mode, all of the safety controls are on guard. If the seawater flow fails, the high-pressure switch will shut the system down. Likewise, if line voltage drops below a certain limit, it will shut down to protect the compressor. If power is briefly interrupted, the system will remember all of the settings currently in effect, and when power is restored, it will automatically resume operation in the dehumidification mode.

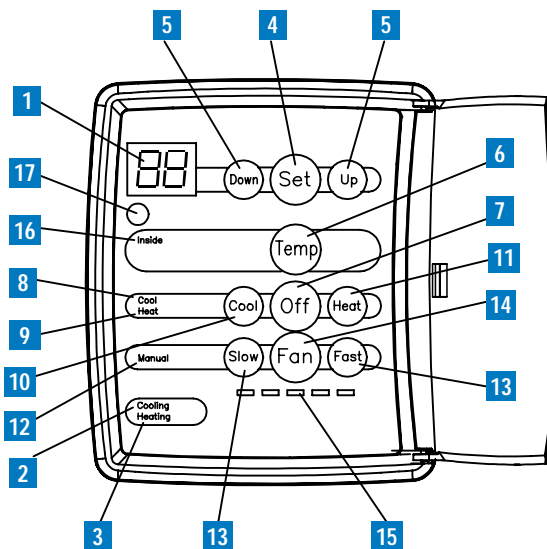
Programmable

SMX II computerized control systems are programmed at the factory for "average" conditions. For optimum performance, you can fine-tune many system parameters with touchpad programming procedures. For instance, you can calibrate the temperature, calibrate the internal line voltmeter, change the compressor restart time delay, set for continuous or intermittent fan operation, reset the high and low fan speeds, change the compressor response differential, optimize the automatic dehumidification cycle, and change the display from Fahrenheit to Celsius.

Proven In The Field

Field experience has shown that SMX II Series equipped air conditioning systems work better and have fewer mechanical failures than systems with electromechanical controls. This is because electronic controls can monitor and react much more capably than mechanical systems, and also because of the built-in protective features and self-diagnostics made possible by the powerful microprocessor inside the SMX.

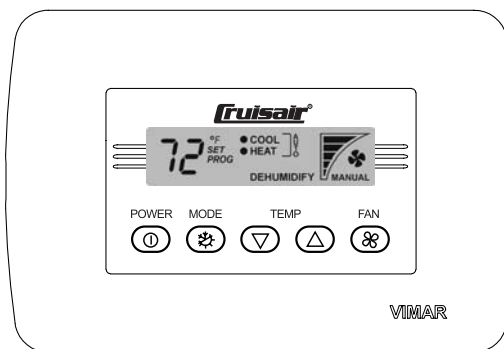
Figure 1: SMXir Keypad/Display



- | | |
|-----------------------|---------------------------------|
| 1 Data Display | 9 Heat Mode Indicator |
| 2 Cooling Indicator | 10 Cool Key |
| 3 Heating Indicator | 11 Heat Key |
| 4 Set Key | 12 Manual Fan Mode Indicator |
| 5 Up and Down Keys | 13 Slow and Fast Keys |
| 6 Temp Key | 14 Fan Key |
| 7 Off Key | 15 Fan Speed Indicators |
| 8 Cool Mode Indicator | 16 Inside Temperature Indicator |
| | 17 IR Receiver |

Figure 2: SMXht Keypad/Display

(shown here with bezel, which is sold separately)



Components Required for Retrofitting to SMX II Series Controls

- Circuit board inside electrical box (A-284 includes harness)
- SMXIIAB, SMXir or SMXht keypad/display
- Bezel for SMXht (many colors are available)
- Retrofit Plate for SMXir or SMXht
- Display Cable
- TSEP Temperature sensor cable

Cruisair makes it easy to replace your old switch assembly with an SMX, but before you call your Cruisair dealer, you will need to make a few decisions.

Your first step should be to determine the model numbers for the Cruisair units on your boat. This will help your dealer determine exactly which components will be needed to complete the retrofit.

Next, you'll have to answer the following questions. . .

Relative to your boat's interior:

- 1. What color keypad/display do you want?**
 - The SMXir is available in Black or White and the SMXht is available in Gray or White.
- 2. What cover style do you want for your keypad/display ?**
 - SMXir display housings are available in Black and White, with either a 3/4 or full coverage door.
 - SMXht display bezels come in an assortment of styles (Vimar or Gewiss) and colors including Chrome Metallics and Wood Grain.
- 3. How long does the cable run between the power logic module and the keypad/display?**
 - Cables are available in standard lengths of 5, 10, 15, 20, 30, 40 and 60 ft.
- 4. Where will the temperature sensor (thermistor) be placed?**
 - Normally, it should be behind the return air grill, or in front of the evaporator coil. Thermistors come with cable lengths of 5, 10, 15, 20, 30, 40 and 60 ft

For your convenience, you can use the worksheet below. Fill in the blanks, and take it to your local Cruisair dealer. You'll find out how easy and inexpensive it is to upgrade.

(NOTE: Each separate air conditioning system has its own control, and you'll need a separate worksheet for each.)

How many air conditioning systems do your have on board? _____

Model number of your air conditioning system: _____

Distance from power logic module location to air conditioning control (approximate): _____ ft.

Distance from temperature sensing element (thermistor) to power logic module (approximate): _____ ft.

Keypad/Display selection....

SMXIIAB

-Color of ABS cover (circle one):

- Black
- White
- Beige

SMXir

-Color of Keypad/Display (circle one):

- Black
- White

-Color of Cover for display (circle one):

- Black Full Door
- Black 3/4 Door
- White Full Door
- White 3/4 Door

SMXht

-Color of Keypad/Display (circle one):

- Gray
- White

-Color and style of Bezel for display. Sorry – but we have a wide selection. Of course black and white are available, but so are gold, chrome metallics and wood grains (special order) – see what we mean? **See your Cruisair dealer for Bezel availability.**