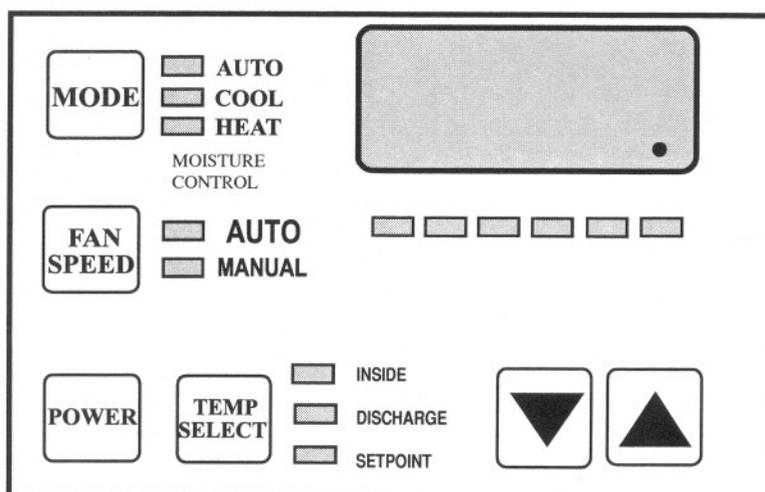# Micro Air Corporation

FX-Maxx THERMOSTAT
Operations Manual

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FX-Maxx Operations Manual
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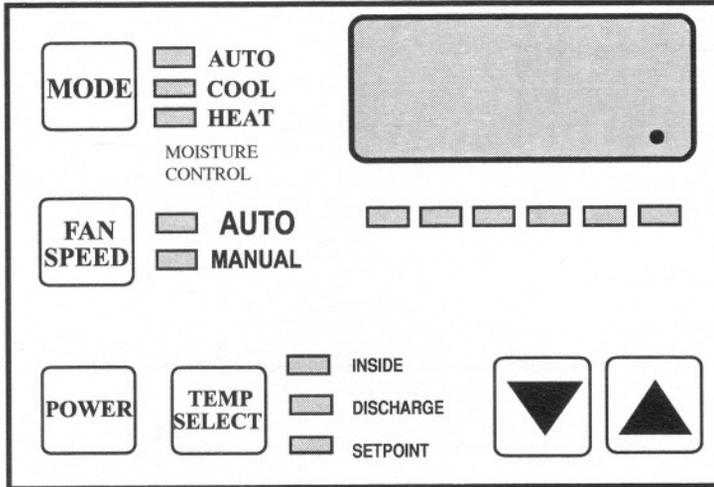**124 Route 526**
Allentown, NJ 08501

POWER BUTTON Press the power button once to toggle the unit to the on mode. Press the power button again to toggle the unit to the off mode.

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┌──────────────────────────────────────────────────────────┐
│  ┌──────┐  □ AUTO      ┌──────────────────┐                │
│  │ MODE │  □ COOL      │                  │                │
│  └──────┘  □ HEAT      │                  │                │
│            MOISTURE    │              ●   │                │
│            CONTROL     └──────────────────┘                │
│                                                            │
│  ┌───────┐ □ AUTO      □ □ □ □ □ □                         │
│  │ FAN   │                                                 │
│  │ SPEED │ □ MANUAL                                        │
│  └───────┘                                                 │
│                         □ INSIDE                           │
│  ┌───────┐ ┌───────┐    □ DISCHARGE  ┌────┐┌────┐          │
│  │ POWER │ │ TEMP  │                 │ ▼  ││ ▲  │          │
│  │       │ │SELECT │    □ SETPOINT   └────┘└────┘          │
│  └───────┘ └───────┘                                       │
└──────────────────────────────────────────────────────────┘
```

FAN BUTTON Press and release the **fan button** to advance from auto to manual fan. Press and release to increase the manual fan speeds, 1 through 6. Press and release again returns to the auto fan mode. The selected fan mode is indicated by the Auto and Manual fan LED's

UP BUTTON Momentarily press and the set point will appear in the temperature display. The set point increases one degree each time the up button is pressed and released.

DOWN BUTTON Momentarily press and release to display the set point. The set point is decreased one degree each time the down button is pressed and released.

MODE BUTTON The **mode button** is used to select one of 4 Operating Modes. Press and release to advance to the next mode. Continue to press and release until the desired Operating Mode is reached. The mode selected is indicated by the Mode LED.

TEMP SELECT BUTTON Press and release to view inside [return] air temperature, outside [discharge] air temperature or set point. The appropriate LED will be lit indicating the temperature is displayed.

THREE DIGIT DISPLAY The inside [return] temperature is displayed whenever the control is turned on. The display provides a readout of the inside air temperature which is located in the supply duct.

HEAT MODE LED The heat mode LED is lit when Heating is selected.

COOL MODE LED The cool mode LED is lit when the Cooling is selected.

AUTO LED The auto LED is lit when the "Automatic Heating or Cooling Mode is selected. The control will automatically switch to heating or cooling when this mode is selected.

MOISTURE CONTROL LED The moisture LED is lit when the Moisture Control is selected.

MANUAL FAN LED The manual fan LED is lit when a manual fan speeds is selected.

AUTO FAN LED The auto fan LED is lit when automatic fan speed operation is selected.

FAN SPEED BAR GRAPH There are six [6] individual fan speed LED's. Each LED represents one [1] fan speed. Low fan [1] is indicated by illuminating the first LED. High fan speed is indicated by illuminating all six [6] LED's.

COMPRESSOR LED The system operating status [Compressor On or Off] is indicated by turning On the right most decimal point in the 3 Digit Display.

Refer to figure 1 for the buttons locations and display functions listed on the following pages.
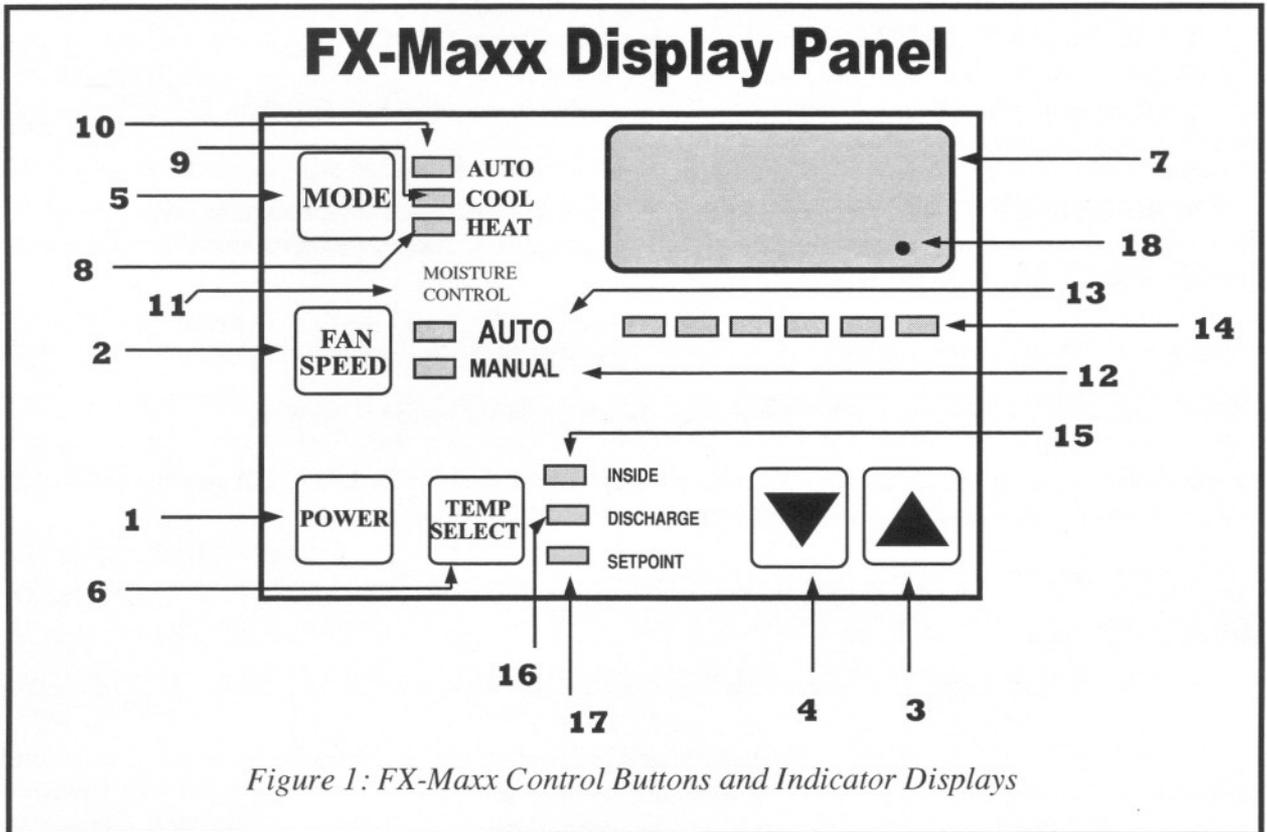
FX-Maxx Display Panel

Figure 1: FX-Maxx Control Buttons and Indicator Displays

1.   **POWER BUTTON** The power button is used to toggle between the **on** and **off modes.** Press the power button once to toggle the unit to the on mode. Press the power button again to toggle the unit to the off mode.

2.   **FAN BUTTON** Press and release the **fan button** to advance from auto fan to manual fan. Press and release the **fan button** to advance the manual fan speeds, 1 through 6. Press and release again to return to the automatic fan mode. The selected fan mode is indicated by the auto and manual fan LED's.

3.   **UP BUTTON** Momentarily press the **up button** and the set point will appear in the temperature display. Press and release the up button to increase the set point one degree. The set point is increased by one degree each time the up button is pressed and released. The highest set point allowed is 85° F. The up button is used in conjunction with the down button to display the outside air temperature when the control is on.

4.   **DOWN BUTTON** Momentarily press and release the **down button** to display the set point. Press and release the **down button** to decrease the set point. The set point is decreased one degree each time the down button is pressed and released. The lowest set point allowed is 55° Fahrenheit. The down button is used in conjunction with the up button to display the outside air temperature when the control is on.

5. **MODE BUTTON** The **mode button** is used to select one of the four operating modes. Press and release the **mode button** and the FX-Maxx will advance to the next mode. Continue to press and release the Mode button until the desired operating mode is reached. The mode selected is indicated by the Mode LED, i.e., Cool, Heat, Automatic or Moisture Mode.

6. **TEMP SELECT BUTTON** Press and release the **Temp Select Button** to view inside air temperature, discharge air temperature or the set point. The appropriate LED, Inside, Discharge or Set Point will be lit indicating which temperature is being displayed. If no outside air sensor is installed three [3] dashes will appear in the Three Digit Display.

7. **THREE DIGIT SEVEN SEGMENT DISPLAY** The inside air temperature is displayed in the window whenever the control is turned on. The three digit 7 segment display provides a readout of the inside air temperature which is located in the face plate.

The display also indicates fault codes and discharge air temperature when the **discharge air sensor** is installed.

The display momentarily indicates the **set point** when the **up** or **down** button is pressed.

When the control resumes operation after a power interruption all the display LEDs will turn on for one second. This is a normal operating condition and is referred to as "Power On Reset".

8. **HEAT MODE LED** The heat mode LED will be lit when the Heat Mode has been selected. The heat mode LED is also lit when the optional electric heat is installed and the heat mode is selected.

9. **COOL MODE LED** The cool mode LED will be lit when the Cooling Mode has been selected.

10. **AUTOLED** The autoLEDislitwhentheautomaticheatingorcoolingmodehasbeenselected. The control will automatically switch to heating or cooling when this mode is selected.

11. **MOISTURE CONTROL LED** The moisture mode LED is lit when the Moisture Control has been selected. This mode is used to control humidity during periods when the temperature is satisfied but humidity is still high.

12. **MANUAL FAN LED** The manual fan LED will be lit when one of six manual fan speeds has been selected.

13. AUTO FAN LED The auto fan LED is illuminated when automatic fan speed operation has been selected.

14. **FAN SPEED BAR GRAPH** There are six [6] individual fan speed LED's in the Fan Speed Bar Graph. Each LED represents one [1] fan speed. Low fan speed [1] is indicated by illuminating the first LED. High fan speed is indicated by illuminating all six [6] LED's. Any of the six [6] fan speeds available are displayed by illuminating the appropriate LED's.

15. **INSIDE LED** The inside LED is lit when the inside air temperature is being displayed.

16. **DISCHARGE LED** The discharge LED is turned on when the discharge temperature is displayed.

17. **SET POINT LED** The set point LED is turned on when the set point is displayed.

18. **COMPRESSOR LED** The system operating status [Compressor On or Off] is indicated by turning On the right most decimal point in the 3 Digit Display.

Off Mode

When the **FX-Maxx** is in the **off mode,** all control outputs are turned off. Operating parameters and user settings are saved in nonvolatile memory.

On Mode

When the control is in the **on mode,** power will be supplied to the appropriate control outputs and the display will indicate the current state of operation. The operating and program parameters resume based on those stored the last time the unit was operating.

Cool Only Mode

When Cool **LED** is on, only the cooling systems are selected and operated as required. When the temperature drops below the set point, the system will **not automatically** switch to the heating mode. Cooling only is available for customers that do not want automatic cooling and heating operation.

Heating Only Mode

When the **Heat LED** is on, only the heating systems are selected and operated as required. Should the temperature rise above the set point, the system will **not automatically** switch to the cooling mode. Heating only is supplied for customers that require the system to not automatically switch from the heating to the cooling mode.

Automatic Mode

When **the Automatic LED** is on, both heating and cooling are supplied as required. The **heat** and **cool LEDs** will be lit according to the mode required. When the system requires compressor operation for heating or cooling the right most decimal point [1 8] will turn on when the compressor is on.

Temperature in a given mode will be maintained at two degrees Fahrenheit 2° F, however, a four degree difference is required to allow the control to change modes. Once in a new mode, the temperature will remain within two degrees Fahrenheit 2° F of the set point.

Moisture Mode

While in the **on mode,** press the Mode Button until the Moisture Mode LED is illuminated. Every four (4) hours, the fan is started and air circulated for thirty (30) minutes. During this time the air temperature is sampled and entered into memory. The cooling cycle is started and continues until the temperature is lowered 2° F. The compressor is allowed a maximum of one hour running time to reach the desired temperature. Four (4) hours after the temperature is satisfied or the compressor the cycle will be repeated. The right most decimal point is lit while the compressor is running.

Automatic Fan Speeds

FX-Maxx has 6 automatic fan speeds. Speed 6 is high, 3 is medium and 1 is low or the slowest speed, Automatic fan mode allows the FX-Maxx to determine the required fan speed based on room temperature. The closer the room temperature is to the set point, the slower the fan will run. This permits a balance between the most efficient temperature control and slower, quieter fan speeds. Automatic fan operation is the **factory default,** however, manual fan speed control is available.

Manual Fan Mode

Six (6) is the fastest and 1 represents the slowest speed. Manual fan mode allows the user to select and maintain the desired fan speed manually. When a manual fan speed has been selected, the fan speed bar graph will indicate the speed selected by the number of LED's lit.

FAN SPEEDS					
▭	▭	▭	▭	▭	▭
1	2	3	4	5	6

Select speed 3, for example, and the first 3 LEDs in the fan bar graph will turn on. Manual fan is sometimes preferred when room temperature is constantly changing due to varying heat loads.
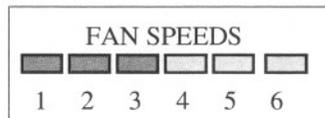
FAIL SAFE AND FAULT HANDLING CODES

When a fault is detected FX-Maxx will display one of the following Mnemonic fault codes:

> **HPF** ....indicates high Freon pressure. 15 Second Delay.......**Ignored** in Heat Mode.

> **LAC**.......indicates low AC line power

> **AAA** ....indicates failed air sensor. Unit will not run until repaired.

Fail-Safe

There are four levels of fail-safe protection including the fail-safe **off mode.** Level one monitors the sensors, takes appropriate action and allows continuous restarts after a 90 second delay... **Does not display the fault code.** Level two worjis the same as level one, however, the appropriate fault code mnemonic is displayed during the time-out between restarts. Level three is identical to level two with the inclusion of a three successive failures lockout routine. After four [4] consecutive failures the system is shut down and a manual reset is required.

Lockout

Lockout occurs if four consecutive faults are detected within a heating or cooling cycle. Lockout causes the system to shut down and flash the appropriate mnemonic fault code. **Lockout** can only be cleared by turning the unit **off,** then .**on** with the **power button.**

Fault Display

When a fault occurs the appropriate mnemonic code is flashed in the display. The flashing mnemonic can be removed from the display by <u>pressing and releasing</u> the **power button** to reset the control. <u>Resetting the control does **not** solve the problem that caused the fault!</u>
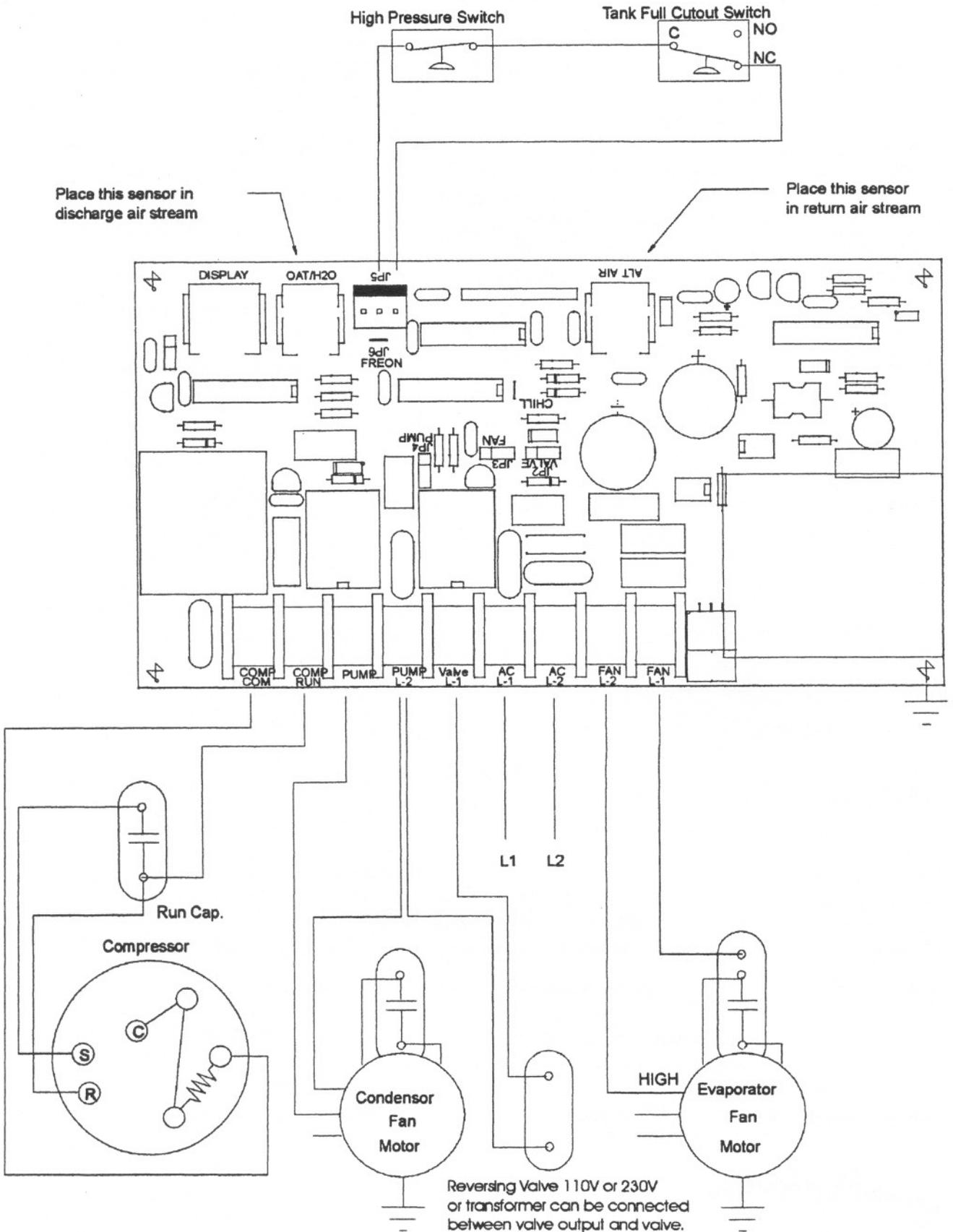
SPECIFICATIONS

SET POINT RANGE………………………………… 55°F to 85°F

TEMPERATURE RANGE DISPLAYED………………….. 0°F to 150°F

TEMPERATURE SENSOR RANGE……………………… 0°F to 150°F

FREQUENCY ……………………………………… 50 OR 60 Hz

FAN OUTPUT……………………………………… 6 Amps @ 230 VAC

VALVE OR HEATER OUTPUT…………………………… 6 Amps @ 230 VAC

PUMP OUTPUT 125 volt……………………………… 1/4 HP @ 125 VAC

PUMP OUTPUT 250 volt……………………………... 1/2 HP @ 250 VAC

COMPRESSOR OUTPUT 125 volt……………………… 1 HP @ 125 VAC

COMPRESSOR OUTPUT   250 volt……………………… 2 HP @ 250 VAC

DISPLAY DIMENSIONS

DISPLAY PANEL……………………………………….. 5.310" X 4.130"

DISPLAY PANEL CUT OUT……………………………... 5.5" X 4.5"

PC BOARD DIMENSIONS

LENGTH………………………………………….. 7.000"

WIDTH…………………………………………… 3.750"

HEIGHT………………………………………….. 1.560"

High Pressure Switch　　　　Tank Full Cutout Switch

C　　　○ NO

○ NC

Place this sensor in
discharge air stream

Place this sensor
in return air stream

DISPLAY　　OAT/H2O　　JP5　　　　　　　　ALT AIR

JP6
FREON

CHILL

PUMP
JP4 PUMP

FAN
JP2 JP3
VALVE VALVE

COMP COMP PUMP PUMP Valve AC AC FAN FAN
COM RUN L-2 L-1 L-1 L-2 L-2 L-1

L1　　L2

Run Cap.

Compressor

C

S

R

Condensor
Fan
Motor

HIGH

Evaporator
Fan
Motor

Reversing Valve 110V or 230V
or transformer can be connected
between valve output and valve.

FX1-Wiring Diagram

Reversing valve 110V or 230V
or transformer can be connected
between valve output anv valve.