



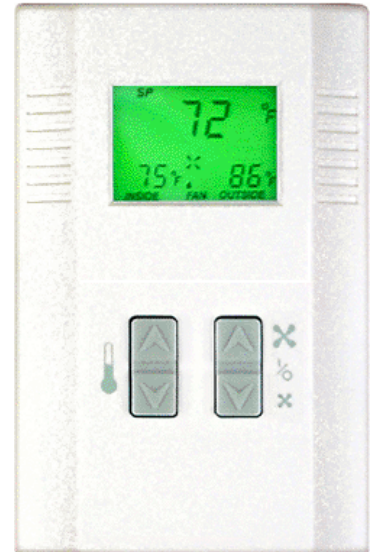
Micorset II Installation and Application Manual

Microset II

The iWorX MS II is a digital thermostat module which measures room temperature, and transmits the readings and other input information to an iWorX HVAC controller such as the DXU-3 and DXU-4.

Overview

The MS II Series thermostat measures room temperature, and transmits the information to iWorX controllers via a protocol. The MS II uses a two-wire network connection for communications with the iWorX controller.



In addition to providing temperature readings to a controller, the module also displays current room temperature, and outside air temperature on its liquid crystal display (LCD). Additionally, the MS IIs display shows fan status, heat/cool status and the current time of day.

The front panel of the module also provides control buttons to override occupancy, adjust temperature setpoints and to enable the fan.

Features

- Outside temperature displayed at all times
- Space temperature displayed at all times
- Optional outside and room display
- Fan display/adjustment
- Setpoint display/adjustment
- After-hours time remaining displayed
- Optional time of day display
- Heating or cooling mode display
- English or metric units

Precautions

Read all instructions!

Failure to follow all instructions may result in equipment damage or a hazardous condition. Read all instructions carefully before installing equipment.

Local Codes and Practices

Always install equipment in accordance with the National Electric Code and in a manner acceptable to the local authority having jurisdiction.

Wiring and Equipment Separations

All wiring and controllers must be installed to minimize the possibility of accidental contact with other, potentially hazardous and disruptive power and lighting wiring. Never place 24VAC or communications wiring near other bare power wires, lightning rods, antennas, transformers, or steam or hot water pipes. Never place wire in any conduit, box channel, duct or other enclosure containing power or lighting circuits of any type. Always provide adequate separation of communications wiring and other electrical wiring according to code. Keep wiring and controllers at least six feet from large inductive loads (power distribution panels, lighting ballasts, motors etc.), Failure to follow these guidelines can introduce electrical interference and cause the system to operate erratically.

Warning

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a Commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their expense.

Mounting

The MS II is designed to be wall-mounted indoors, with dimensions ideal for mounting to a single-gang electrical box.

Mount in a clean, dry location away from windows, air ducts, and other places where environmental factors may affect temperature readings.

The MS II ships with the backplate on backwards. This makes the backplate easier to remove during installation. Two screws attach the backplate to an electrical box, mud ring, or other mounting surface.

- To secure the MS II to a mounting surface:
 1. Remove the backplate from the MS II and the wiring pigtail.
 2. Flip the backplate so the smooth side faces the mounting surface.
 3. Rethread the wires through the center knockout on the backplate.
 4. Use wire nuts or other connectors to splice the MS II wires to the wire run from the iWorX controller.

5. Secure the backplate to the mounting surface with the enclosed screws.
 6. Hold the MS II at an angle above the backplate and then slide it down. The two tabs on the inside top edge of the MS II should fit into the tab slots on the backplate
 7. Push the bottom of the MS II onto the backplate legs until they snap securely on the tab-stops.
- To remove the MS II from the backplate:
 1. Insert a thin, flat-tipped screwdriver into the last vent slot on the bottom of the Microset. Position the screwdriver so that you can apply pressure to the backplate leg.
 2. Firmly depress the backplate leg until it is clear of the tab-stop on the MS II.
 3. Gently pull the freed corner of the MS II away from the wall.
 4. Repeat steps 1-4 on the other side.
 5. Push upward on the bottom of the MS II until it is completely free of the backplate.

Wiring

The MS II has a three-conductor connection.

Wire Color	iWorX terminal
*Orange	24 VAC
Black	Stat
White	Com

* The orange lead powers the backlit display. It is optional; if left un-terminated, the backlight is not available. **DO NOT** connect to a 24VAC source that does not have common ground with the iWorX controller.

For additional wiring information, refer to the 'Application and wiring guide for HVAC products'.

Operation

The LCD display is capable of displaying symbols and text as follows.

Symbol or Text	Description
Time	Actual time can be displayed in 12 hr or military format. Alternates with the setpoint during the occupied mode of operation. This is configured at the LCI2 level.
Off	Displayed when system is not running, ie unoccupied
Setpoint	Displayed when in the occupied mode of operation. Alternates with the Time during the occupied mode of operation.
Outside Temp	Displayed in lower right corner of display.
Inside Temp	Displayed in lower left corner of display.
Heating	Displayed on the right side of display when in the heating mode of operation.
Cooling	Displayed on the right side of display when in the cooling mode of operation.
F/C (symbol)	Displayed with temperature readings. This is configured at the LCI2 level.
Fan (symbol)	Displays on the center of the display. When running the fan will be animated when off there is no animation.

The Microset has four (4) buttons that have the following functionality.

Temperature adjust buttons

These buttons are located on the left side of the thermostat and the thermometer symbol designates the buttons. An increase and decrease button is provided.

Fan adjust buttons

These buttons are located on the right side of the thermostat and the Fan symbol designates the buttons. An increase and decrease button is provided.

Overriding the Fan

During the occupied mode of operation the fan up button can be depressed to cycle the fan to ON when it was previously OFF.

Extending occupancy/after hours operation

During the unoccupied mode of operation the fan up button can be depressed to extend or override occupancy. When the 'Up' arrow fan button is depressed the override time is extended by 30 minutes, each time the button is depressed another 30 minutes is added to the after hours operation. The extended time cannot be adjusted above the predetermined amount set in the LCI2. This predetermined amount is configurable from the LCI2.

When the controller is in the extended occupancy mode the time remaining is displayed on thermostats display.

If extended occupancy is no longer desired the operator may depress the down fan button and the time is decremented in increments of 30 minutes.

Setpoint Adjust

During the occupied mode of operation the Thermostat adjust button may be used to adjust the heating and cooling setpoints by a predetermined amount. This predetermined amount is configurable from the LCI2.

To increase the setpoint simply depress the up button until the desired temperature setpoint is achieved. If the maximum setpoint is reached the temperature displayed setpoint will no longer increase.

To decrease the setpoint simply depress the down button until the desired temperature setpoint is achieved. If the minimum setpoint is reached the temperature displayed setpoint will no longer decrease.

Specifications

Electrical

Thermistor	The thermistor is integrated with the device. The unit is a microprocessor-based sensor with a built-in analog to digital converter for temperature, which is designed to communicate directly to iWorX controllers
Type	Uni-curve Type II
Resistance	10Kohm at 77 deg. F (22 C)
Accuracy	+/- 0.36 F (0.2 C) over range of 32-158 F (0-17 C)
Power	24VAC @ 25 mA for backlit display. Orange lead terminates to 24 VAC terminal on iWorX controller. Sensor draws 5 VDC @ 10 mA from iWorX controller.
Wiring	18-22 AWG, shielded, 3-conductor, 100 ft. max. Black wire to iWorX stat connection, white to iWorX common, orange is optional 24 VAC for backlit display.
Dimensions	4.6" (117mm)H X 3.0"(76mm)L X 0.7" (18mm)D.
Environmental	32-1558 F (0-17 C). 0-90% RH, non-condensing.
Ratings	UL FCC Part 15

Troubleshooting

Since the MS II is a relatively simple device, very little troubleshooting is necessary. For the most part, the module is either functioning or it is not. If the

LCD on the front of the MS II is not displaying anything, the module may be broken. If the display is blank, do all of the following.

1. Verify the MS II is wired correctly to the controller. Check the wiring for any breaks or shorts and that it runs to the correct terminals on the controller.
2. Verify the iWorX controller is powered.
3. Though the LCI, reset the controller to which the MS II is connected. This will also reset the MS II. As the controller resets, the LCD on the MS II should momentarily display all available icons.

If the MS II still does not display the current room temperature (or anything else), it is broken and needs to be returned.