WS-MBS

Modbus Wall Sensor with Digital Display

WS-MBS Features

- Digital display of room ambient temperature and user selected temperature setting on demand
- 11 Icons and 4 digit LCD Backlit Display
- Adjustable Setpoint
- Engineering mode for initial setup
- Push -button selec tion ofafterhours operation
- Selectable °C or °F display
- Self-diagnostic features

The WS-MBS Digital Display zone temperature sensor is used in conjunction with the ASIC/2 or ASIC/3 controllers for measuring ambient zone temperature, for displaying and modifying the Temperature Setpoint, and for initiating afterhours operation.

The wall mounted sensor utilizes a precision thermistor to measure and display the zone temperature. The thermistor's high change of resistance creates a large signal that eliminates lead wire resistance problems. The information from the WS-MBS is polled on the local bus of the ASIC/3 controller using Modbus protocol.

Normal Operation

When connected to an ASIC/3 controller, the WS-MBS displays the reading of its own Zone Temperature sensor in Fahrenheit or Celsius. Pressing the Mode key brings up User Adjust Operation and displays the Temperature Setpoint. When the Up or Down key is pressed, the displayed Occupied Temp Setpoint is incremented or decremented by 0.5 degree. Pressing the Mode key again returns to normal operation

Modbus Operation

To use the data in the WS-MBS, the Modbus registers must be polled on the Local Bus of the controller using the Modbus Function 3 Read Holding Registers.

The display value and other parameters may be modified using the Modbus Function 6, Write Single Register. The operation of the WS-MBS is controlled using Modbus Master read/write messages. . The Control Mode register can be set to Off, Cooling or Heating. and the Heat or Cooling Icon is displayed.

The Control State register can be set to Unoccupied, Occupied, or Night Setback. and the appropriate Icon (none, Day, Night) is displayed. Similarly, the Fan Icon and Other Icon registers may be set to control the display.

If the Remote Sensor feature is enabled, then user may display the value of another sensor from the controller as the Temperature Display value.

Application

The WS-MBS connects with a 5-position two-part screw terminal connector for +5 V power and Modbus RTU slave communication. 5 Vdc power for the WS-MBS can be provided using one of the controller inputs. If a 100 mA polyswitch fuse replaces the pin-socketed pull-up resistor for an input, then that input can be used to provide +5 Vdc power.

Engineering Mode Setup

By holding the up and down buttons for at least three seconds, the WS-MBS enters the Engineering Mode and displays a code that allows the user to setup the device: such as units, ºC or ºF; Temperature Deadband, etc. The Engineering Mode can be disabled by writing a value to the Operation Mode register.

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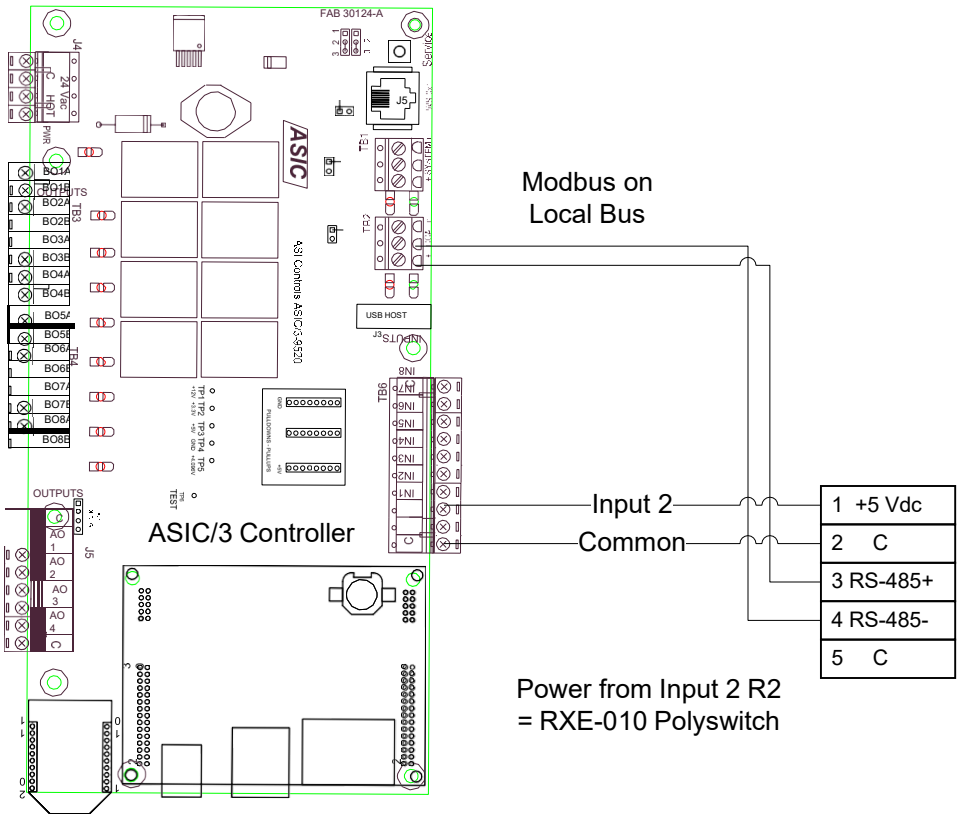

MODBUS Registers

0	Override Status
1	Clock Icon
2	Temperature Setpoint
3	Temperature Display
4	Fan Mode
5	Control State
6	Control Mode
7	Other Icons
8	Operation Mode
9	Temperature Units C, F (E01)
10	Temperature Deadband (E02)
11	Setpoint Low Limit (E03)
12	Setpoint Hi Limit (E04)
13	Sensor Offset (E05)
14	Modbus Device Address (E06)
15	Remote Sensor Enable (E07)
	Self Diagnostic (E08)
16	Baudrate (E09)
17	Data Format (E10)
	Exit Engineering Mode (E11)

SPECIFICATIONS

Sensor	NTC thermistor, 3000 Ohm at 25.0 ºC (77 ºF)
Temperature Indication:	32 ºF to 104 ºF, 0 to 40 ºC
Indication Accuracy:	+/- 0.5 ºC (+/- 1ºF)
Thermistor Stability	Highly Stable, No Field Calibration Required
Setpoint Adjust:	Mode Selection and Up and Down Arrows
Push-Button:	O/R Button
Power:	Typical 15 mA, 5 Vdc from ASIC/2 input through a100 ma poly-switch
Connections	Standard 4.50" x 2.75" x 1.25"
Dimensions:	(115mm x 70mm x 32mm)
Display	LCD, 11 icons and 4 digit
Display Unit	0.1 ºC (0.1 ºF)
Setting Unit	0.5 ºC (0.5 ºF)
Operating Temperature	0~50 ºC (32~122 ºF)
Operating Humidity	5~95% RH (non-condensing)
Storage Temperature	0~80 ºC (32~176 ºF)
Mounting	Mounts directly onto wall or standard 2×4 inch vertical junction box (hole pitch 83.5 mm)

How to Order:	Order Number
Modbus Wall Sensor with Display	WS-MBS
RXE-010 polyswitch for 0-5 VDC	RXE-010