SECTION VI:

ACCESSORY DEVICE – ENVIRONMENT SENSOR

ManageUPS II +E

Kit Components

Environment Sensor

Adhesive Backed Velcro Strip

Blue Bus Cable 3m (15')

ManageUPS II with AUX Board and Blue Bus port

MIBs & Documentation CD

Hardware Specifications

Environment Sensor	**Input power**	Single sensor powered from Blue Bus @ 7-24Vdc, < 0.36 watts Multiple sensors may require an auxiliary power supply. (Refer to Appendix *C: Compatibility Table for ManageUPS Blue Bus Accessories*) Auxiliary power input accepts 12-24Vdc unregulated. Connector is 2.5mm center pin. Outer barrel is positive, inner post is negative. 2.5MM
	Temperature	Measurement range 0 – 75 degC Accuracy +/- 1 degC between 10 and 50 degC
	Relative Humidity	Measurement range 1-99% RH Accuracy +/- 2% between 10 and 90 %RH
	Input Contacts	Accepts input from up to three (3) Form C dry contacts
	Output Relay	1 relay contact, rated 1A @ 30V (normally open or normally closed)
	Conformance	Emissions: EMC Directive 89/336/EEC as amended by 92/31/EEC and 93/68/EEC EN 55022: 19948+ A1:2000 + A2:2003 EN 50091-2: 1995 EN 61000-3-2:2000 EN 61000-3-3:1995 +A1:2001 Immunity: EMC Directive 89/336/EEC as amended by 92/31/EEC and 93/68/EEC EN 55022: 19948+ A1:2000 + A2:2003 EN 50091-2: 1995 EN 61000-4-2:1995 +A1:1998 + A2:2002 (IEC 1000-4-2) EN 61000-4-3:2002 (IEC 10000-4-3) EN 61000-4-4:1995 +A1:2001 + A2:2001 (IEC 1000-4-4) EN 61000-4-5:1995 +A1:2001 (IEC 1000-4-5) EN 61000-4-6:1996 +A1:2001 (IEC 1000-4-6) EN 61000-4-8:1993 +A1:2001 (IEC 1000-4-8) EN 61000-4-11:1994 +A1:2001 (IEC 1000-4-11)
Blue Bus	**Cable**	CAT5 STP with RF filter at ManageUPS connection point. (filtered cable not required for connections between sensors).

Hardware Installation

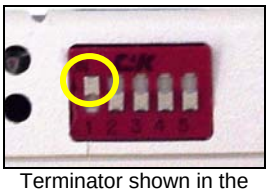
Single Sensor

1. Install the ManageUPS adapter in your UPS.
2. Choose a location to mount the environment sensor within 3m (15') of your UPS.
3. Use the adhesive-backed *Velcro Strip* to attach the Sensor to the mounting location.
4. Connect the Blue Bus cable between the Blue Bus port in the ManageUPS adapter and a Blue Bus port on the sensor. (Connect the filtered end of the cable to the MangeUPS adapter.)

Multiple Sensors

1. Install the first sensor as described above – making sure to connect the Blue Bus cable from the ManageUPS adapter to the IN port on the first sensor.

2. Connect a Cat5 STP cable between the Blue Bus OUT port on the first sensor and IN port on the second sensor.
3. Set the Terminator (switch #1) on the first sensor in the DOWN position. Set the terminator in the last sensor in the UP position

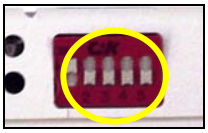


Terminator shown in the UP position.

4. Set the address (switches #2 - #5) of the each additional sensor to be unique – different from the 1st sensor and different from any other sensor on the bus.

Address Switch Translation Table	
32 = 0000	40 = 1000
33 = 0001	41 = 1001
34 = 0010	42 = 1010
35 = 0011	43 = 1011
36 = 0100	44 = 1100
37 = 0101	45 = 1101
38 = 0110	46 = 1110
39 = 0111	47 = 1111

Address combination (switches #2-5) in the "all down" position is 0000.



This combination will set the the value "32" as the "address" in the CHLORIDE-ENVIRONMENT-SENSOR.MIB

On the Environment Status web page:

NOTE for Multiple Sensors:
There is a logical limit of 16 addresses available on the BLUE BUS.

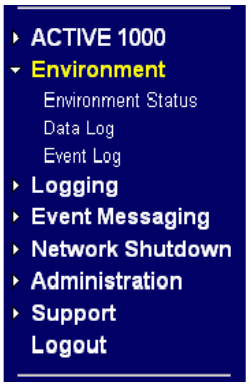
However, the number of sensors that can be added to the bus without adding supplemental power is limited by the power available in the UPS communications accessory slot.

If you need more sensors than your UPS can power, add supplemental power to any sensor on the bus. Supplemental power will drive that sensor and any sensors down stream from the sensor connected to auxiliary power.

Refer to *Appendix C: Compatibility Table for ManageUPS Blue Bus Accessories* to verify the limits for your UPS.

BROWSER INTERFACE:

OVERVIEW OF DEVICE SETTINGS



The "Environment" menu provides a view of current status and quick links to Environment Logs.

Environment Logs can also be reached from the dropdown list on "Logging" menu.

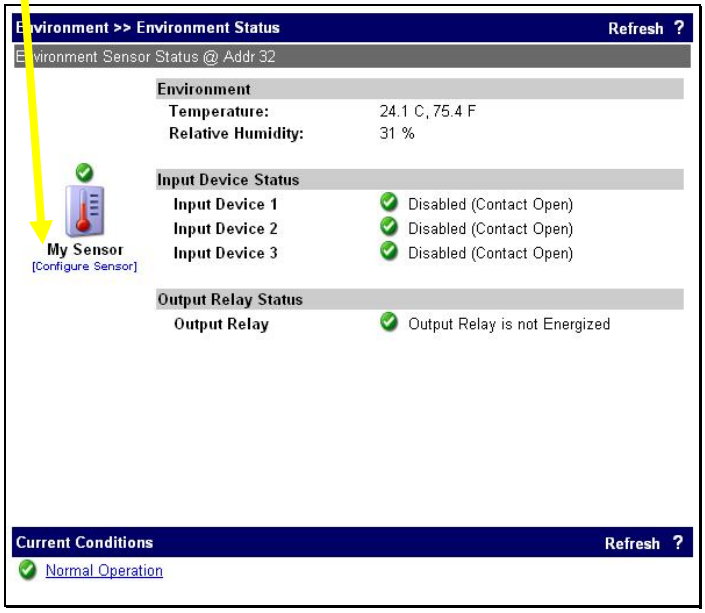
Configuration menus are accessed from the link on the *Environment Status* page.

Status View

Environment:

Measures of *Temperature* and *Relative Humidity* are displayed.

These values are returned as MIB objects in the *Chloride Environment Sensor MIB.*



Input / Output Device Status

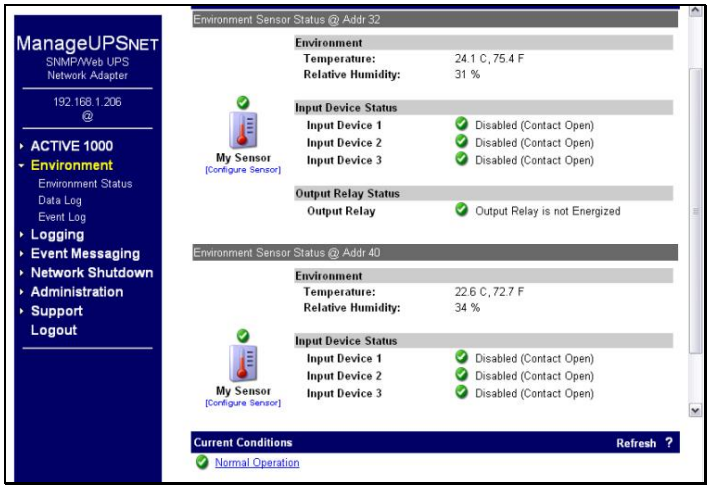
The current state and defined alarm condition are displayed for each input and output relay contact.

The states of these switches are also returned as MIB objects in the *Chloride Environment Sensor MIB.*

Status View Multiple Sensors

If multiple sensors are connected to the bus each sensor will have its own section in the status page.

Press the *Configure Sensor* link to open a page that will allow you to tailor the name of the sensor, thresholds for alarms and names and alarm state to associate with the various input devices.

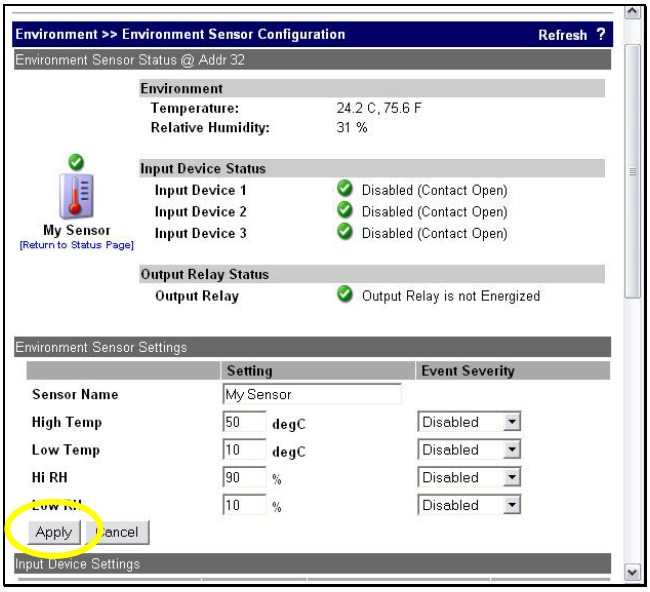


Configure Sensor Settings

The *configure sensors* page displays the current status at the top page – and provides three sections for configuring :

- Environment Sensor Settings
- Input Device Settings
- Output Device Settings

Use the scroll bar at right to reveal the sections at the lower part of the page.



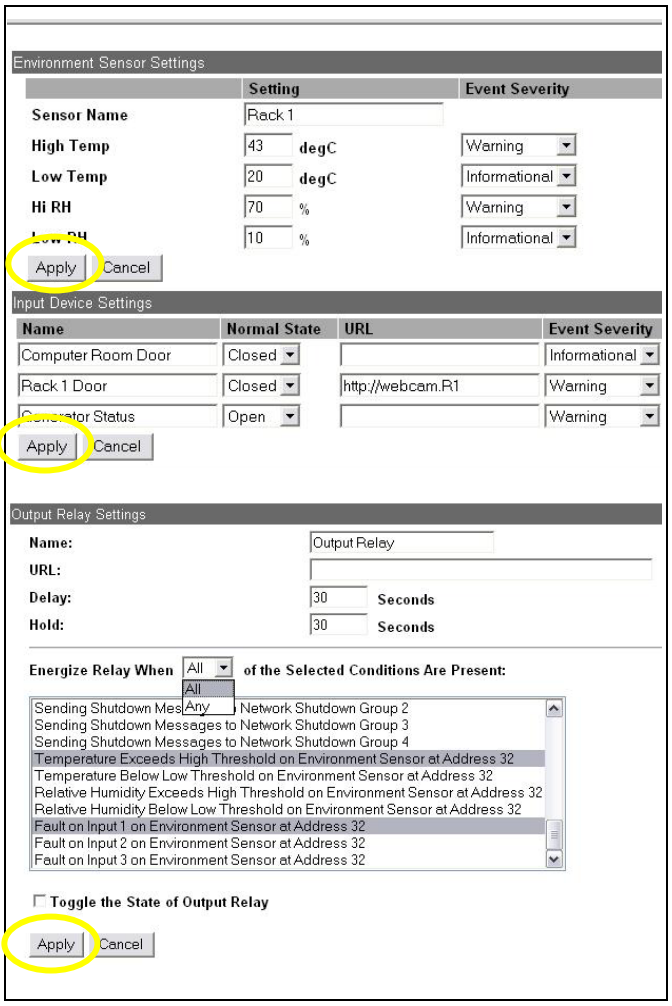
The APPLY button in each section enters the settings for that section.

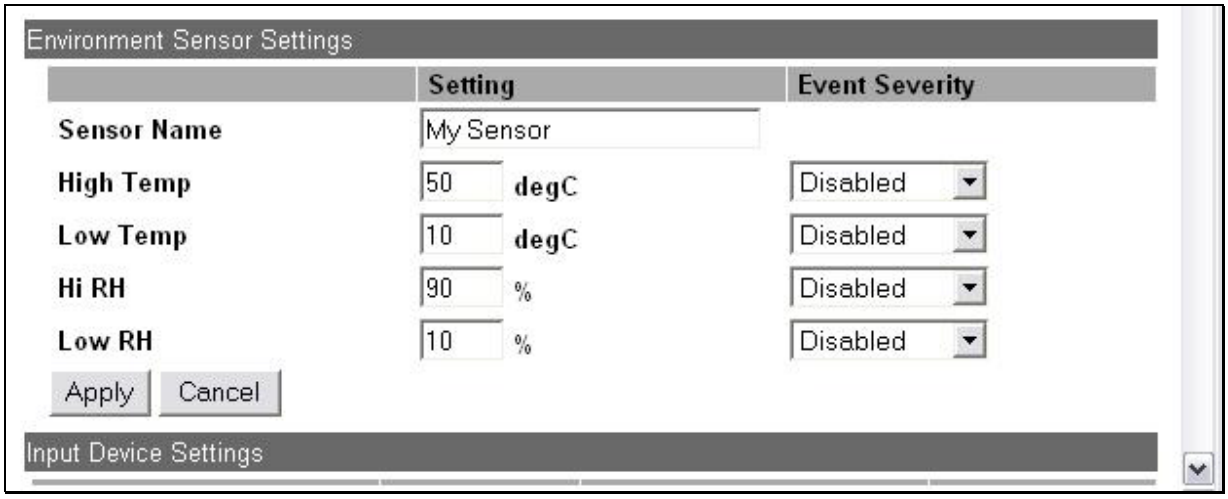
You should configure one section at a time – pressing the APPLY button before configuring the next section.

Configuration options are explained in the on screen ?HELP utility.

A copy of the on line help entries are included on the following pages.

NOTE: The control for *Toggle the State of the Output* relay does not permanently override an event that drives the relay. If the relay is energized by an event, and you toggle the relay off using the *Toggle* control, the output relay will re-energize within 10 seconds if the event remains active.





Environment Sensor Settings – Help Detail Entries

Event Severity

The severity level of each of the conditions described above is determined using the ***Event Severity*** setting. If this setting is ***Disabled*** then no condition will be generated and the status will always be ***Normal***.

Sensor Name:

A user configurable name given to the sensor.
(This value is the `name` object in the Chloride Power Environment Sensor MIB)

High Temp:

The temperature at which the high temperature condition is generated for this sensor.
(This value is the `tempHiThreshold` object
in the Chloride Power Environment Sensor MIB)

Low Temp:

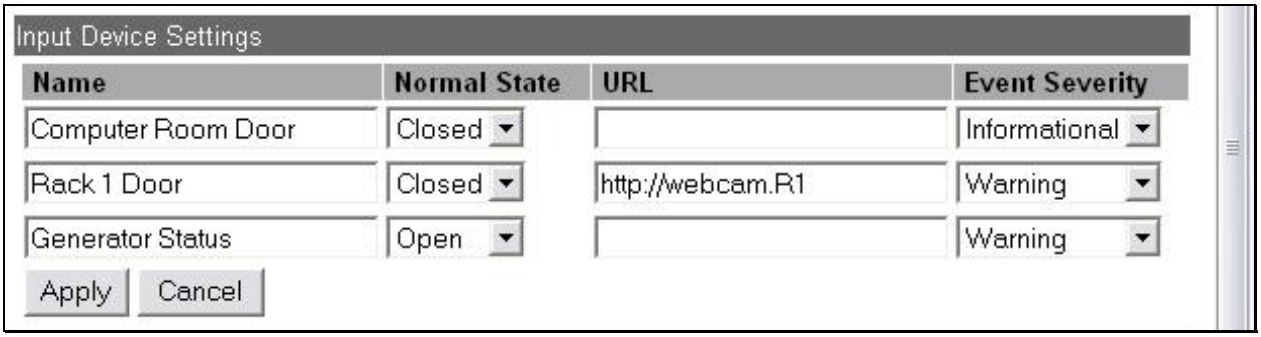
The temperature at which the low temperature condition is generated for this sensor.
(This value is the `tempLoThreshold` object
in the Chloride Power Environment Sensor MIB)

High RH:

The relative humidity at which the high relative humidity condition is generated for this sensor.
(This value is the `humidityHiThreshold` object
in the Chloride Power Environment Sensor MIB)

Low RH:

The relative humidity at which the low relative humidity condition is generated for this sensor.
(This value is the `humidityLoThreshold` object
in the Chloride Power Environment Sensor MIB)



Input Device Settings – Help Detail Entries

Name (1-3):

A user configurable name given to the input device.
(These values are the `inputName1, inputName2, inputName3` objects in the Chloride Power Environment Sensor MIB)

Normal State (1-3)

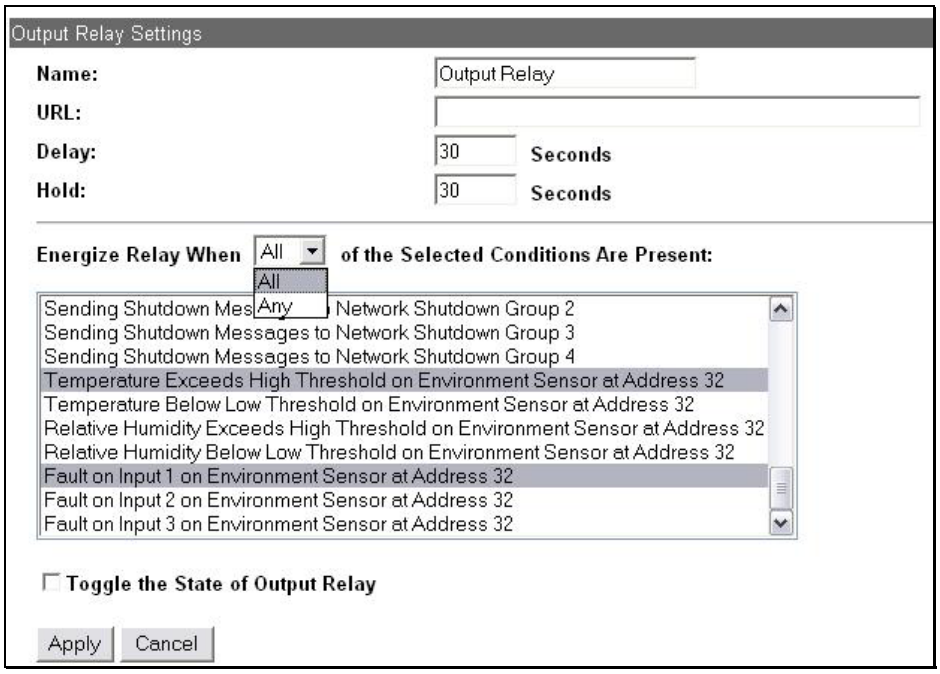
The normal state of the input contact. When the input contact is not in this state the input fault condition is generated..
(These values are the `inputNormalState1, inputNormalState2, inputNormalState3` objects in the Chloride Power Environment Sensor MIB)

URL (1-3)

A url associated with this device. Must be in the format `'http://hostname'`. When this value is set the input name becomes a link on the environment status page.
(These values are the `inputUrl1, inputUrl2,` inputUrl3 objects in the Chloride Power Environment Sensor MIB)

Event Severity (1-3)

This setting determines the severity level of a fault condition on the input. If this setting is ***Disabled*** then no condition will be generated and the status will always be ***Normal***.
(These values are the `inputFaultSeverity1, inputFaultSeverity2, inputFaultSeverity3` objects in the Chloride Power Environment Sensor MIB)



Output Relay Settings – Help Detail Entries

Name:

A user configurable name given to the output relay.
(These values are the `ouputName` objects in the Chloride Power Environment Sensor MIB)

URL:

A url associated with this device. Must be in the format `'http://hostname'.` When this value is set the output name becomes a link on the environment status page.
(These values are the `outputUrl` objects in the Chloride Power Environment Sensor MIB)

Delay:

This setting determines the number of seconds the ***Energize Relay When*** conditions must be present before the relay is energized.

Hold:

The number of seconds the relay will be held in the energized state after the ***Delay*** time has expired. If the ***Energize Relay When*** conditions are corrected before this time is up the relay will de-energize.

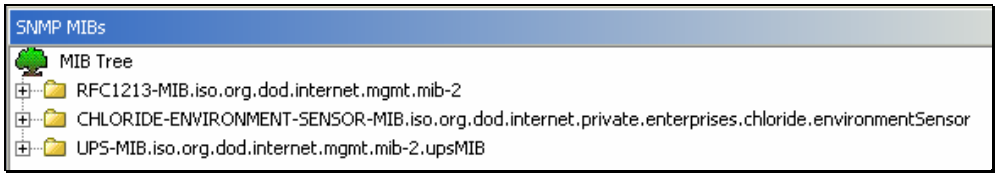
An entry of '0' in this field will cause the relay to remain energized for as long as the event condition(s) that trigger the relay remain active.

Energize Relay When:

Configure the relay to energize when any or all of the selected conditions are present. Multiple conditions can be selected using the `Ctrl` key and clicking on entries in the list box. If no conditions are selected the output relay is disabled.

CHLORIDE POWER ENVIRONMENT SENSOR MIB

ManageUPS NET ADAPTER II with Environment Sensor option supports three SNMP MIBs:



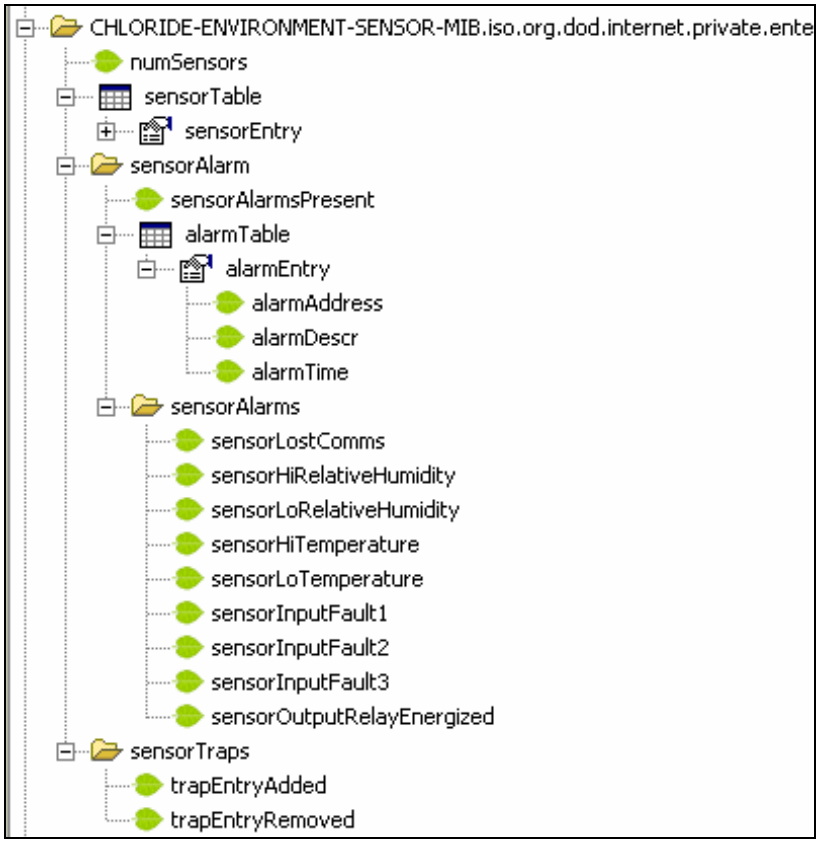
The UPS MIB is an SNMPv1 translation of RFC1628 (1.3.6.1.2.1.33)

The environment sensor MIB is a private enterprise MIB .

(1.3.6.1.4.1.1364.10)

The sensor MIB is organized in tables of object values, alarms and traps.

Each entry shown on the WEB interface is represented as an object in the sensorTable sensorEntries.



The table on the next page illustrates how the MIB handles entries for *single sensor* and *multiple sensor* configurations.

NOTE: Screen shots were prepared with iReasoning, Inc.'s MIB Browser v2.5.1

Example of environment Sensor MIB sensorTable sensorEntries

Single Sensor		Two Sensors	
Object Name	Object Value	Object Name	Object Value
numSensors.0	1	numSensors.0	2
name.1	Rack 1	name.1	Rack 1
		name.2	My Sensor
status.1	Warning	status.1	warning
		status.2	Normal
address.1	32	Address.1	32
		Address.2	40
temperature.1	21	temperature.1	22
		temperature.2	21
tempStatus.1	Normal	tempStatus.1	Normal
		tempStatus.2	Normal
tempHiSeverity.1	Warning	tempHiSeverity.1	warning
		tempHiSeverity.2	disabled
tempLoSeverity.1	informational	tempLoSeverity.1	informational
		tempLoSeverity.2	disabled
tempHiThreshold.1	43	tempHiThreshold.1	43
		tempHiThreshold.2	50
tempLoThreshold.1	20	tempLoThreshold.1	20
		tempLoThreshold.2	10
humidity.1	32	humidity.1	32
		humidity.2	32

Listing above is a partial listing to illustrate the construction of the MIB.

View the full list of MIB objects with your MIB browser utility.