Temperature & Dual Temp/Humidity Sensors

User Manual - 2023

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Introduction

Temperature sensors are important where optimum temperature control is paramount. If there is an air conditioning malfunction or abnormal weather conditions, damage to information, delicate electronic equipment or warehouse stock may occur.

Temperature sensors can be purchased with 15, 60, or 100 feet of cable, allowing the sensors to be positioned in hot spots. As with all our intelligent sensors its presence will be automatically detected by the unit. Each sensor has its own SNMP OID so that data can be collected over the network and graphed.

Important Note: We offer temperature and dual temperature humidity sensors in two types, the fixed one-foot type and the remote type. The fixed one-foot type or TMP01 and THS01 are not designed to be extended. If you need to extend these sensors then you need to use the TMP00 or THS00 (remote type).

Extending our Sensors: We also do not recommend you trying to connect any of our AKCP sensors including the temperature and dual temp humidity sensors though patch panels or using the RJ-45 couplers to extend them.

You may find that this works, however it will be very inconsistent and this is due to the signal strength from the sensor to the base unit. The resistance of the extra connectors in a patch panel, or couplers is often enough to prevent the sensor from functioning correctly.

Reading Coverage Area of our Sensors: As with all sensors and thermometers they don't have a sensing radius, they sense the temperature or the air that they are in contact with.

The sensing radius really depends on how uniform the temperature in the room is.

Any temperature sensor will only cover the point at which the sensor is contact with the air. A thermometer, a digital sensor they all work the same way. They measure the temperature of the air they are contact with. The sensing element.

The coverage area really depends on the amount of variation within the area. For example, if you have a fan blowing, the sensor in the airflow of the fan will read much different to a sensor 1 meter away outside of the airflow.

Moreover, the question really is, how stable is the environment you are monitoring? How much variation do you expect? Where are you positioning the sensor? Do you want to know the hottest part of the room (which would be high up nearby the ceiling, furthest away from any fans etc.), or do you want to know the coldest part of the room.

Important Note: Regarding the new style of temperature and temperature humidity sensors that were introduced in the later part of 2017. These sensors WILL NOT function correctly if you have not upgraded the firmware on your AKCP base unit to the latest on our website support portal.

The new style of sensors are NOT compatible with the old obsolete AT-Mega128 AKCP sensorProbe or the old obsolete PXA type securityProbe base units. You can check these details regarding your unit type on our support site.

All of the previous style temperature, temperature and humidity sensors are fully supported on the AKCP SP+ base units.

Sensor Calibration

All versions of the temperature and dual temperature / humidity sensors are calibrated at the factory, so there is no need to calibrate them in the field. We do have the calibration certificates, so please contact AKCP sales or support if these are required.

The sensors are very accurate, however if you find the temperature or humidity reading varies slightly you can use the “Offset” feature which is explained in detail later in this manual.

Versions of the Sensors

There are several versions of these sensors and are all listed below. The connections and web UI setup will basically be the same for all versions.

Temperature Only Sensors

Product Code: TMP01 – This version of the AKCP temperature sensor has been discontinued. However, for the sensors that have been purchased and are currently in the field the following applies.

The fixed one-foot temperature only sensor as shown in the image above should not be extended as it is designed to connect to the AKCP base unit's sensor port and monitor the temperature at the location where the base unit has been installed.

Important Note: This sensor has been replaced by the temperature sensor product code TMP01-NIST3. Please check the price list, data sheet and manual on the NIST sensors for more details.

Product Code: TMP00 – This is basically the same sensor above only it has been designed specifically for being extended. Again, as noted above, this version of the AKCP temperature sensor has been discontinued. However, for the sensors that have been purchased and are currently in the field the following applies.

Extending: This sensor can be extended from the AKCP base unit up to 1000 feet using CAT5/CAT6 LAN cable on the SPX+ and 600 feet on the SP1+ & SP2+.

Maximum Cable Length	TMP00 - SPX+ 1000 feet (300 meters) with low capacitance shielded UTP cable TMP00 - SP2+ / SP1+ 600ft (180 meters) with low capacitance shielded UTP cable TMP01 - 600ft (180 meters)

We highly recommend using shielded type cable as the sensor is susceptible to EMI (Electromagnetic interference). It is also recommended to not run the extension cable near any type of power supply or other equipment that will emit EMI. This sensor should also not ever be connected through patch panels or RJ-45 couplers.

Important Note: This sensor has been replaced by the temperature sensor product code TMP00-NIST3. Please check the price list, data sheet and manual on the NIST sensors for more details.

Product Code: TMPW15 – This water-resistant version of the AKCP temperature sensor has been discontinued. However, for the sensors that have been purchased and are currently in the field the following applies.

Designed for outdoor usage, or indoor areas that are subject to high moisture (eg. greenhouses).

Please Note: These sensors are “water resistant” sensors only and are not completely “water proof.” They are not designed to be completely submerged in water for long periods of time.

Important Note: This sensor has been replaced/upgraded to the following with the same product code TMPW15-XX. Please check the price list, data sheet and on these sensors for more details.

Waterproof temperature sensor with extended metal tube. Available in a variety of cable lengths and in either the standard tube or a choice of two additional tube lengths, either 50mm or 100mm. Custom lengths can be

ordered with code TMPWxx / TMPWxx-50mm / TMPWxx-100mm where xx is replaced by the cable length in feet.

Note: These sensors are water proof up to length of metal tube.

Single Port Dual Temperature & Humidity Sensors

Product Code: THS01 – The fixed one-foot dual temperature & humidity sensor as shown in the image below should not be extended as it is designed to connect to the AKCP base unit's sensor port and monitor both the temperature and humidity at the location where the base unit has been installed using only a single port on the base unit. However, this sensor can be custom ordered in a run length up to 100 feet.

Note: You will notice that the dual THS01 has the small hole in the front of the sensor's enclosure, this allows for the humidity to be measured.

Product Code: THS00 – This is basically the same sensor above only it has been designed specifically for being extended.

Extending: This sensor can be extended from the AKCP base units as follows.

Maximum Cable Length	THS00 - SPX+ 1000 feet (300 meters) with approved low capacitance shielded UTP cable THS00 - SP2+ / SP1+ 600 feet (180 meters) with approved low capacitance shielded UTP cable THS01 - 100 feet (30 meters)

We highly recommend using shielded type cable as the sensor is susceptible to EMI (Electromagnetic interference). It is also recommended to not run the extension cable near any type of power supply or other equipment that will emit EMI. This sensor should also not ever be connected through patch panels or extended using RJ-45 couplers.

Temperature Sensor OID

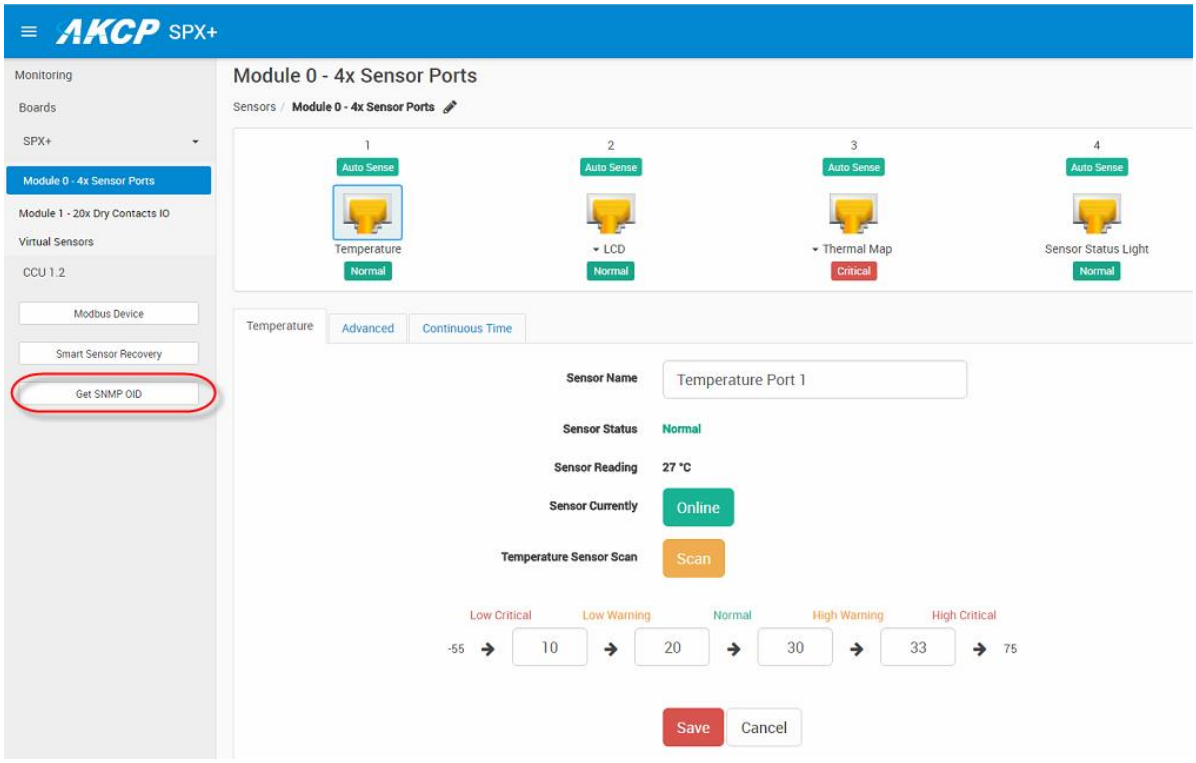
Important Note: Please refer to our latest updated OID manual & MIB file on our website support portal for the latest OID's. And also check the details in these links:

https://www.akcp.com/knowledge-base/sensorprobe-series/

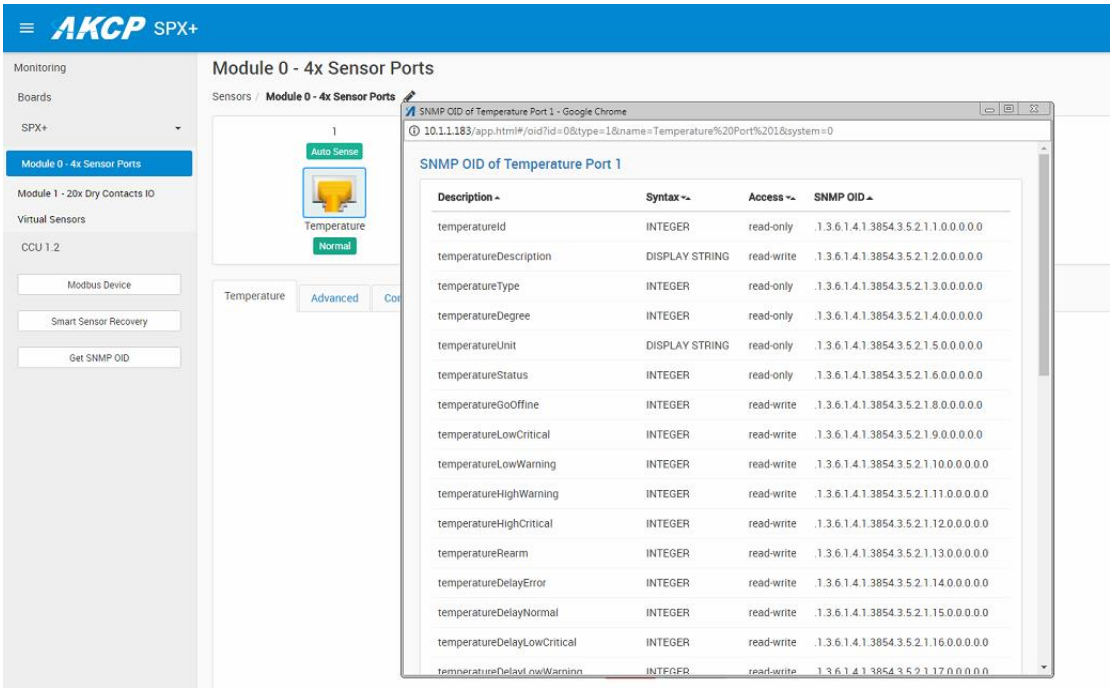
https://www.akcp.com/knowledge-base/sensorprobe-plus-series-knowledge-base/

A commonly used SNMP OID for the temperature sensor is the number of degrees. This information can be used for graphing the sensor.

The SNMP OID for the temperature sensor degrees on RJ45#1:
.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.0



By using the GET SNMP OID button shown in the above screen shot allows you to view all of the Temperature sensors OID's as shown in the screen shot below. This feature is only available on the SP+ and securityProbe base units.



The screen shot above shows the results of the GET SNMP OID feature for the Temperature Sensor connected to port #1 of the SPX+ unit.

Temperature Specifications & Features:

- Measurement range Celsius:-55°C to +75°C
- Measurement resolution Celsius: 1°C increments.
- Measurement accuracy Celsius: ±0.5°C accuracy from -10°C to +75°C
- Measurement range Fahrenheit: -67°F to +167°F
- Measurement resolution Fahrenheit: 1°F increments.
- Measurement accuracy Fahrenheit: ±0.9°F accuracy from +14°F to +167°F
- Communications cable: RJ-45 jack to temperature sensor using UTP Cat 5 cable.
- Sensor type: semiconductor microprocessor controlled
- Power source: powered by the securityProbe. No additional power needed.
- The securityProbe auto detects the presence of the temperature sensor
- Measurement rate: one reading every second
- Up to 8 temperature sensors per securityProbe
- Full Autosense including disconnect alarm
- The securityProbe Temperature Detail page allows you to set and get the working parameters of a specific temperature sensor.

Configuring the Temperature Sensor.

a) Plug the sensor into one of the RJ45 ports on the rear panel of the unit.

b) Now point your browser to the IP address of the unit (default, 192.168.0.100). Next you need to login as the administrator using your administrator password (default is “public”). You will then be taken to the summary page.

c) From the summary page you need to select the sensors tab. The layout of the next page will vary depending on your unit so please refer to your unit’s manual.

d) You should now be able to setup the thresholds for your sensor. The low critical, low warnings, normal, high warnings, high critical values can be set from this page.

Now we will cover the settings that are specific to your sensor.

Current Reading: The number of Degrees is displayed in this read-only field. This is an integer SNMP OID field which has a precision of 1 degree. The value can be polled via SNMP, and the data can be used to graph the temperature variations. The value displayed can be in Fahrenheit or Celsius. If communication to the temperature sensor is lost, the sensor value -512 will be returned by a *snmpget*.

Hint: The actual precision for the temperature sensor is 0.9°F (0.5°C). Nevertheless, the Current Reading field only displays the temperature with an increment/decrement of 1 degree. To retrieve the actual reading from the temperature sensor, another SNMP OID must be used; it is:

.1.3.6.1.4.1.3854.1.2.2.1.16.1.14.0 *for the sensor on RJ45#1.*

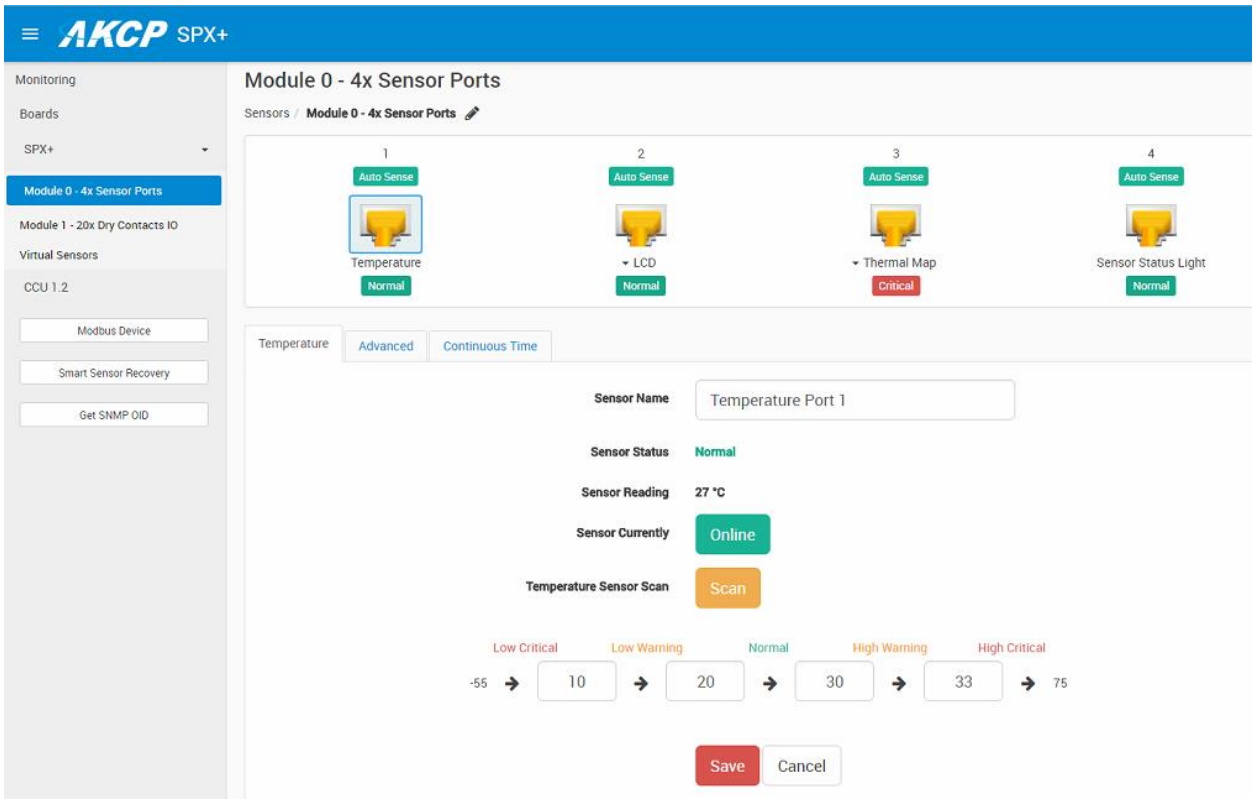
However, since this is an integer SNMP OID, the temperature must be multiplied by 10 before polled via SNMP. Therefore, the returned value has to be divided by 10 to become the actual temperature.

Status: If at any time communications with the temperature sensor are lost, the status of the temperature sensor is changed to sensorError. If communications with the temperature sensor are re-established the status will be formed by comparing the Degree to the high and low thresholds.

Degree Type: The Degree Type can be set to Fahrenheit or Celsius. When the Degree Type is changed all the threshold fields will change their values automatically. The securityProbe stores the thresholds for both Celsius and Fahrenheit independently allowing you to switch between the two.

Reading Offset: The Reading Offset parameter can be used to calibrate temperature and humidity sensors. If for example the actual reading of a sensor is 28 degrees Celsius and the Reading Offset is set to 2 the temperature will be displayed as 30 degrees Celsius.

Example of the Temperature sensor in the Web UI



The screen shot above shows the sensor settings in the SPX+ web UI as an example. Please refer to the SP+ base units product manuals for more details.

Dual Temperature/Humidity Sensor

The dual sensor has both temperature and humidity measuring capabilities in a single sensor. This means a single port can have two sensors, saving ports for additional sensors.

A specially designed CAT 5 cable assures a correct reading up to 1000 feet ONLY REMOTE TYPE TMP00 or THS00). You should not extend the fixed one foot type sensor (TMP01 or THS01) or run through patch panels as already mentioned.

When the dual sensor is plugged into the RJ-45 port, the system will auto detect the sensor, and it will display Temperature and Humidity for each port to which a dual sensor is connected. A built in graph option is available on the system for graphing temperature and humidity variations over a period of time.

The SNMP OID for the temperature sensor on RJ45#1 is
.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.0

The SNMP OID for the humidity sensor on RJ45#1 is
.1.3.6.1.4.1.3854.1.2.2.1.17.1.3.0

Specifications & Features:

Temperature

- Measurement range Celsius: -40°C to +75°C
- Measurement resolution Celsius: 1°C
- Measurement accuracy Celsius: ±0.2°C accuracy from -10°C to +75°C
- Measurement range Fahrenheit: -67°F to +167°F
- Measurement resolution Fahrenheit: 1°F increments.
- Measurement accuracy Fahrenheit: ±0.4°F accuracy from +14°F to +167°F

Humidity

- Measurement range: 0 to 100% Relative humidity
- Sensor element wettable without damage
- Resolution: 0.5 %

- Accuracy at 25°C ±5%,
- Working Range -20°C +60°C
- Communications cable: RJ-45 jack to dual sensor using UTP Cat 5 cable.
- Power source: powered by the securityProbe. No additional power needed.
- The securityProbe auto detects the presence of the dual sensor
- Up to 8 dual sensors per securityProbe
- Full Autosense including disconnect alarm

Configuring the Dual sensor

Since all of AKCP's intelligent sensors are configured similarly, not every field is described below. The descriptions below describe the fields which are specific to the humidity sensor.

Temperature

A commonly used SNMP OID for the temperature sensor is the number of degrees. This information can be used for graphing the sensor.

The SNMP OID for the temperature sensor on RJ45#1 is
.1.3.6.1.4.1.3854.1.2.2.1.16.1.3.0

Current Reading: The number of Degrees is displayed in this read-only field. This is an integer SNMP OID field which has a precision of 1 degree. The value can be polled via SNMP, and the data can be used to graph the temperature variations. The value displayed can be in Fahrenheit or Celsius. If communication to the temperature sensor is lost, the sensor value -512 will be returned by a *snmpget*.

Hint: The actual precision for the temperature sensor is 0.9°F (0.5°C). Nevertheless, the Current Reading field only displays the temperature with an increment/decrement of 1 degree. To retrieve the actual reading from the temperature sensor, another SNMP OID must be used; it is:

.1.3.6.1.4.1.3854.1.2.2.1.16.1.14.0 for the sensor on RJ45#1.

However, since this is an integer SNMP OID, the temperature must be multiplied by 10 before polled via SNMP. Therefore, the

returned value has to be divided by 10 to become the actual temperature.

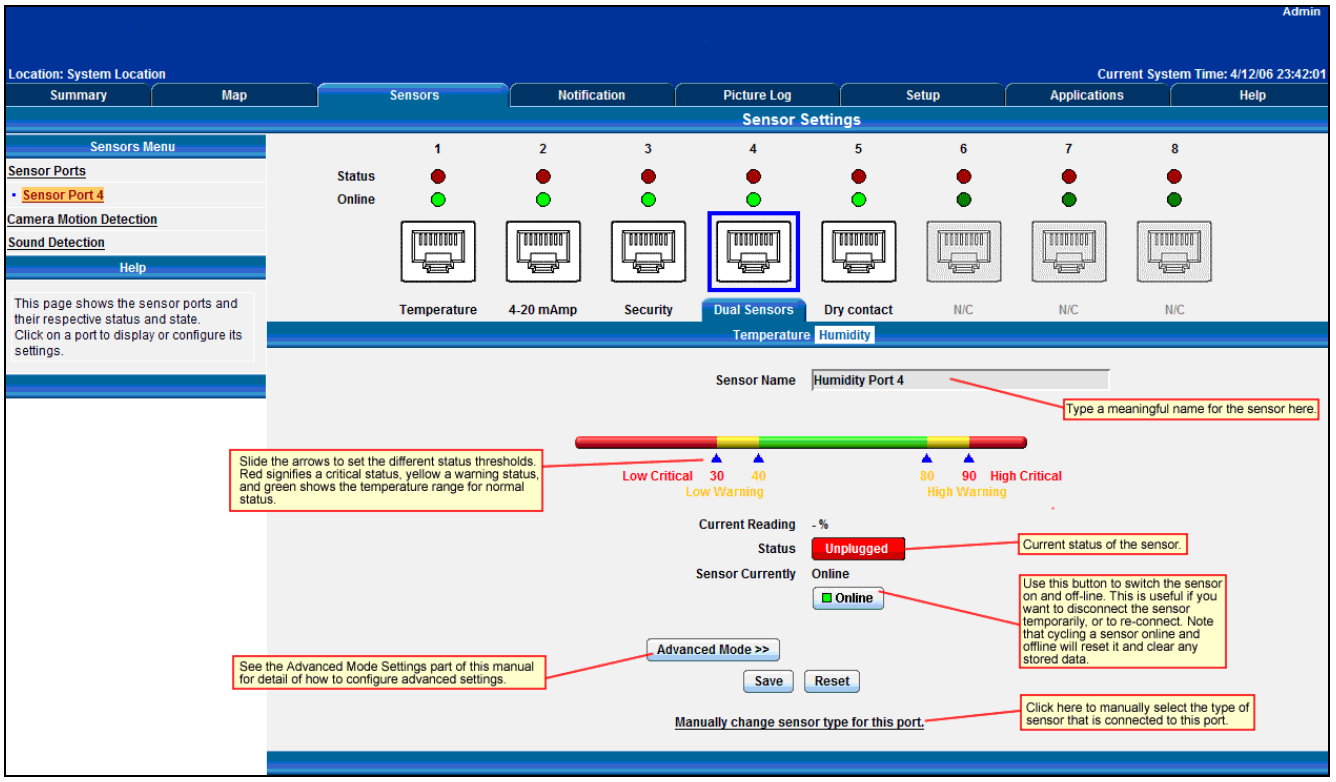
Status: If at any time communications with the temperature sensor are lost, the status of the temperature sensor is changed to sensorError. If communications with the temperature sensor are reestablished the status will be formed by comparing the Degree to the high and low thresholds.

Degree Type: The Degree Type can be set to Fahrenheit or Celsius. When the Degree Type is changed all the threshold fields will change their values automatically. The system stores the thresholds for both Celsius and Fahrenheit independently allowing you to switch between the two.

Reading Offset: The Reading Offset parameter can be used to calibrate temperature and humidity sensors. If for example the actual reading of a sensor is 28 degrees Celsius and the Reading Offset is set to 2 the temperature will be displayed as 30 degrees Celsius.

Example of Humidity Web UI Settings on securityProbe

Please see the annotated screenshot below describing the fields for the Humidity sensor setup tab.



A commonly used OID for the Humidity sensor is the percentage, this can be graphed.

The SNMP OID for Humidity sensor on RJ45#1 is
.1.3.6.1.4.1.3854.1.2.2.1.17.1.3.0

Current Reading: The relative Humidity Percent is displayed in this field. This is a read-only field. This integer OID and can be polled. The data can be used to graph the Humidity.

Status: If at any time communications with the humidity sensor are lost, the status of the Humidity sensor is changed to sensor Error. When communications with the humidity sensor are re-established the status will be formed by comparing the percentage to the high and low thresholds.

The above screen shot shows the SP2 base unit with the dual Temperature / Humidty sensor connected.

The above screen shot shows the sensor settings for the dual Teamperature / Humidty sensor on the SP2 base unit. Please refer to the sensorProbe base units product manual for more details.

This concludes the Temperature and Dual Temperature Humidity Manual.

Please contact support@akcp.com if you have any further technical questions or problems setting up your modem or your alerts.

Thanks for Choosing AKCP!