

RMS-U-DST

Daisy-chain temperature sensor

© 2012 CONTEG, spol. s r.o.

All rights reserved. No part of this publication may be used, reproduced, photocopied, transmitted or stored in any retrieval system of any nature, without the written permission of the copyright owner.

Although this manual was prepared and checked with the best care, CONTEG, spol. s r.o. cannot accept any liability for omissions or errors in this publication. Due to the continuous development and progress, CONTEG, spol. s r.o. also reserves the right to change details and technical specifications of the products described in this manual. Such changes along with eventual errors or printing errata shall not constitute grounds for compensation.

Content

1. Introduction	3
1.1. Specifications & Features.....	3
2. Configuring the Temperature Sensors.....	4
2.1. Screen shots of the temperature daisy-chain configuration:	5

1. 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.

The Daisy-chain temperature sensor is a multipoint temperature measurement solution specially designed for efficient rack temperature monitoring.

Up to 8 Daisy-chain temperature sensors can be strung together and plugged into one RAMOS Ultra Intelligent Sensor port enabling the unit to measure up to a maximum of 64 temperature points.

The sensor cables can be extended using Ethernet cable with a maximum daisy-chain length of 150m.

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.

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

The SNMP OID for the temperature sensor degrees is:

.1.3.6.1.4.1.3854.1.2.2.1.19.33.<port>.2.1.3.<subport>

where : <port> is port the unit starting at 1 to 7
 <subport> port of temperature sensor on the string

1.1. Specifications & Features

- o Measurement range Celsius:-55°C to +75°C
- o Measurement resolution Celsius: 1°C increments.
- o Measurement accuracy Celsius: ±0.5°C accuracy from -10°C to +75°C
- o Measurement range Fahrenheit: -67°F to +167°F
- o Measurement resolution Fahrenheit: 1°F increments.

- Measurement accuracy Fahrenheit: $\pm 0.9^{\circ}\text{F}$ accuracy from $+14^{\circ}\text{F}$ to $+167^{\circ}\text{F}$
- Communications cable: RJ-45 jack to Daisy-chain temperature sensor using UTP Cat5 cables.
- Sensor type: semiconductor microprocessor controlled.
- Power source: powered by the RAMOS. No additional power needed.
- RAMOS auto detects the presence of the Daisy-chain temperature sensor.
- Measurement rate: one reading every 10 seconds
- Up to 8 Daisy-chain temperature sensors per sensor port, measure up to 64 temperature points on one RAMOS Ultra.
- The RAMOS temperature detail page allows you to set and get the working parameters of a specific temperature sensor.

2. Configuring the Temperature Sensors

- a) Plug the Daisy-chain temperature sensor into one of the RJ45 sensor 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.
- d) You should now be able to setup the thresholds for each of the sensors on you're the daisy-chain. The low critical, low warnings, normal, high warnings, high critical values can be set from this page.

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 each of the temperature sensors 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:

.1.3.6.1.4.1.3854.1.2.2.1.19.33.<port>.2.1.14.<subport>

where: <port> is port the unit starting at 0 to 7
 <subport> port of temperature sensor on the string

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 a daisy-chain temperature sensor is lost, the status of the temperature sensor will change to **sensor Error**. If communications with the temperature sensor is 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 RAMOS 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.

2.1. Screen shots of the temperature daisy-chain configuration:

Please see the annotated screenshots below describing the fields for the Daisy-chain temperature sensor setup. In this example, the Summary tab shows all the sensors including the status of each on the daisy-chain including the reading in temperature and the status.

Host Name	Type	Sensor Information	Sensor Name	Reading	Status
Main Module	Dry Contact	Dry Contact Port 6.1	Dry Contact Port 6.1	-	Critical
	Dry Contact	Dry Contact Port 6.2	Dry Contact Port 6.2	-	Critical
	Dry Contact	Dry Contact Port 6.3	Dry Contact Port 6.3	-	Critical
	Dry Contact	Dry Contact Port 6.4	Dry Contact Port 6.4	-	Critical
	Dry Contact	Dry Contact Port 6.5	Dry Contact Port 6.5	-	Critical
	Dry Contact	Dry Contact Port 6.6	Dry Contact Port 6.6	-	Critical
	Dry Contact	Dry Contact Port 6.7	Dry Contact Port 6.7	-	Critical
	Dry Contact	Dry Contact Port 6.8	Dry Contact Port 6.8	-	Critical
	Dual Humidity	Dual Humidity Port 2	Dual Humidity Port 2	49 %	Normal
	Dual Temperature	Dual Temperature Port 2	Dual Temperature Port 2	24.7 °C	Normal
	Temperature Array	Temperature Array Port 3.3	Temperature Array Port 3.3	24.5 °C	Normal
	Temperature Array	Temperature Array Port 3.2	Temperature Array Port 3.2	24.5 °C	Normal
	Temperature Array	Temperature Array Port 3.1	Temperature Array Port 3.1	24.5 °C	Normal
	Temperature	Temperature Port 1	Temperature Port 1	24.0 °C	Normal
	Water	Water Detector Port 9	Water Detector Port 9	-	Normal

System Log (151 of 220 messages)

1	2012/07/17 13:18:29	Temperature Array Port 3.3 is 24.5 °C, status is Normal
2	2012/07/17 13:18:29	Temperature Array Port 3.2 is 24.5 °C, status is Normal
3	2012/07/17 13:18:29	Temperature Array Port 3.1 is 24.5 °C, status is Normal
4	2012/07/17 13:18:26	Temperature Array Port 3.3 is now ONLINE
5	2012/07/17 13:18:26	Temperature Array Port 3.2 is now ONLINE
6	2012/07/17 13:18:26	Temperature Array Port 3.1 is now ONLINE
7	2012/07/17 13:18:24	Dual Humidity port 2 is 49 %, status is Normal
8	2012/07/16 16:29:45	Dry Contact Port 6.8 status is Normal
9	2012/07/16 16:29:40	Dry Contact Port 6.7 status is Critical
10	2012/07/16 16:29:40	Dry Contact Port 6.7 status is Critical

The Array of temperature sensors shown here

The Sensors tab is the area where we can edit each individual sensors setting. By clicking on each sensors tab the system allows us to change each sensors setting on the daisy chain.

The screenshot displays the CONTEG RAMOS ULTRA web interface. At the top, there are navigation tabs: Summary, Map, Sensors, Notification, Access Control, Settings, and Applications. The current system time is 17/07/2012 13:33:06. The main content area is titled "Sensor Settings" and shows a row of 8 sensor ports. Port 3 is highlighted with a red box and labeled "Temperature". Below this, the "Temperature Array 3.1" settings are shown, including a table of ports (3.1, 3.2, 3.3) and a graph of the current reading (24.5 °C). The graph shows a scale from 10 to 40 with markers for Low Critical, Low Warning, High Warning, and High Critical. The current reading is 24.5 °C, and the sensor status is "Online".

To get on specific sensor from sensor page, move with cursor over .Advanced settings of each sensor in the daisy-chain can be setup by clicking on the “Advanced Mode” button