RMS-I-DRC
Dry Contact

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Content

1. Introduction

The Dry Contact sensor is a simple connection to burglar alarms, fire alarms or any application that requires monitoring by the unit. Dry contacts are user definable and can be used to detect many different inputs such as UPS status, security systems and air conditioning status.

These general purpose switches can be either input or output. When used as an output it can sink up to 20 mA. You can select the output voltage by setting the Output Level to a Low or a High. When set to Low, the pin will output 0 volts. When set as a High, the pin will output 5 volts.

When used as an input a switch will retain any error condition until it is read via SNMP. Therefore, if a switch encounters a critical condition at any time, it must report that condition before it can return to a normal state.

Input pins can be used to detect whether or not an input switch is open or closed. In combination with external sensors, input pins can detect whether a door or window is open or closed, if there is a water incursion and many other conditions.

The input pins work by sensing the presence of a voltage level on an input pin. When the switch is open, the voltage is different than when the switch is closed.

To test a dry contact input, wire ground to one side of the switch. Ground is always pin 8 on the connector. Wire the other side of the switch to the switch sensor. Set the Normal State field to Open. Set the Direction field to Input. When the switch closes, the input pin will be shorted to ground and the switch will change state from normal to critical

1.1. Specifications & Features

- o Measurement Indication - Alarm or Normal

- o Communications cable - RJ-45 jack to sensor using UTP Cat 5 wire.

- o Sensor type - open/closed contact switch

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- Power source: powered by the unit. No additional power needed.

- The unit auto detects the presence of the Voltage Sensor

- Measurement rate - multiple readings every second

- Full Autosense including disconnect alarm

- Dry contact sensor OID is: 1.3.6.1.4.1.3854.1.2.2.1.18.1.3.X

1.2. Dry Contact Pin Assignments
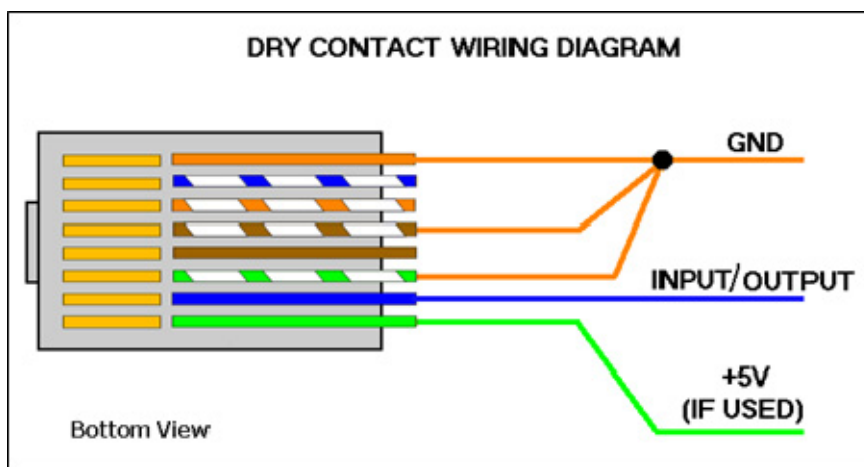
pin	color	Function
1	Green	Is +5 Volts and is the power source pin (does not have a pull up resistor)
2	Blue	Is the Input/Output pin to the base unit. Maximum voltage is 5Volts, maximum sink current is 20mA. Has internal pull up resister of 4.7k ohms
3	White/Green	This is an input pin and used for checking the sensor type.
4	Brown	This is an input pin and used for checking the sensor type
5	White/Brown	This is an input pin and used for checking the sensor type
6	White/Orange	This is an input pin and used for checking the sensor type
7	White/Blue	This pins is used for the digital input and output of our analog sensors (Airflow and 4-20mA Converter sensors).
8	Orange	Ground

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2. Configuring the Dry Contact 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.

Direction: The Switch Direction can be either **Input** or **Output**. When set as an Input, the sensor will report its status as either **Normal** or **Critical**. The status is Normal if the Normal State field matches the current value applied to the sensor. For example, if the Normal State field is High and the input to the sensor is high then the status is Normal. The input voltage should be limited to 0 to 5 volts in order to protect the sensor.

If the Direction of the sensor is Output, the sensor can be used to drive external equipment.

Description of Status When Normal: This field is the custom description, which will be displayed in the Status field when the dry contact sensor is Normal. Examples for this field are: Door Open, Pump Turned On, Light Turned On, etc

Description of Status When Critical: This field is the custom description, which will be displayed in the Status field when the dry contact sensor is Critical. Examples for this field are: Door Closed, Pump Turned Off, Light Turned Off, etc

Output Level: The Switch Output Level field can be either **High/+5 Volts** or **Low/GND**. When set to a High, the output value of 5 volts will be applied to the switch. When set to a Low, the Output Level field will depend upon the value of Direction. If Direction is set to Output and the Output Level field is set to low, the Switch will source current in order to maintain 0 Volts. If Direction is set to Input and the Output Level field is set to low, the Switch will become tri-state.

The Output level of High will pull-up the switch even if the Direction is set to Input. However, when the Switch Direction is set to Input and Output level is set to high the Switch will output a weak pull-up current. This output can be overridden by shorting the pin to ground. In this way, an external switch can be determined to be open or closed.

Normal State: The Switch Normal State field can be either **Open/+5 Volts** or **Closed/GND**. When set to a +5 Volts, the input value of 5 volts will cause the Status to be reported as normal. When set to +5 Volts, the input value of 0 volts will cause the Status to be reported as Critical Low. When the Switch Normal State is set to a Low, the input value of 5 volts will cause the Status to be reported as Critical High, and the input value of 0 volts will cause the Status to be reported as normal.

OID: The dry contact is a switch-type sensor such as spot water sensor, PIR motion sensor, AC-sensor controlled relay and siren & strobe light. The OID is 1.3.6.1.4.1.3854.1.2.2.1.18.1.3.X

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Information on Dry contact cables: The extension length of the dry contact twisted pairs is limited only by the amount of electromagnetic noise in the area. So the lengths can be quite long, but long cable lengths may create occasional false positives. These false positives can be eliminated with the advanced filtering of the dry contact sensor on the system. You can define how long a sensor must be in the error condition before changing state from Normal to Critical. You can also define how long the sensor must remain in the Normal state before changing from Critical to Normal.

2.1. Connecting Dry Contact to your RAMOS unit with intelligent ports:

It is normal for the dry contacts to be detected as the mag. door contact, as it is the same type of sensor when they are first connected to your RAMOS unit.

What you have to do on the RAMOS is click on the "Dry Contacts & Drivers" and enable the dry contact port. Or a quick way as shown below:


To get

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2.2. Connecting to your RAMOS Ultra unit as a relay:

In order to setup your dry contact sensor as a relay on your RAMOS base unit, you have to setup the sensor correctly and then create your relay action. Connect the dry contact to the RJ-45 sensor port on your main base unit or your 8 intelligent port expansion module, then turn the "Auto Sense" off.. Now you manually configure the dry contact (RJ-45) sensor as a relay, create your relay action and link it to your other sensors connected.

First change the dry contact to a relay from the Sensors Settings page. Then go to the Notification page >> Begin Notification Wizard >> Add Action >> Relay, then name the action and choose "Controls the Relay on Port" >> which ever port your new relay\dry contact is on, then choose the Action, then Finish.

Now you can use the "Link Sensor to Action" and link your Temperature or other sensors to the Relay action, which will control that output.

You can cycle the relay by setting this up in the either units web interface shown here below:

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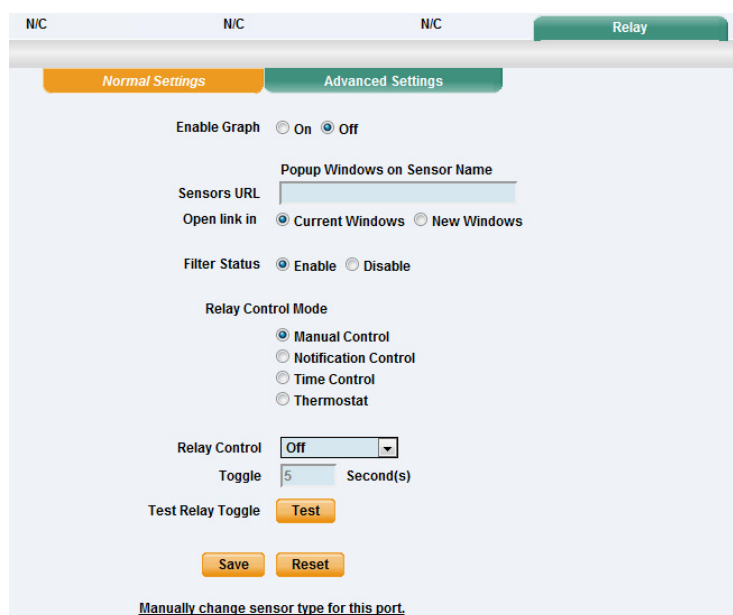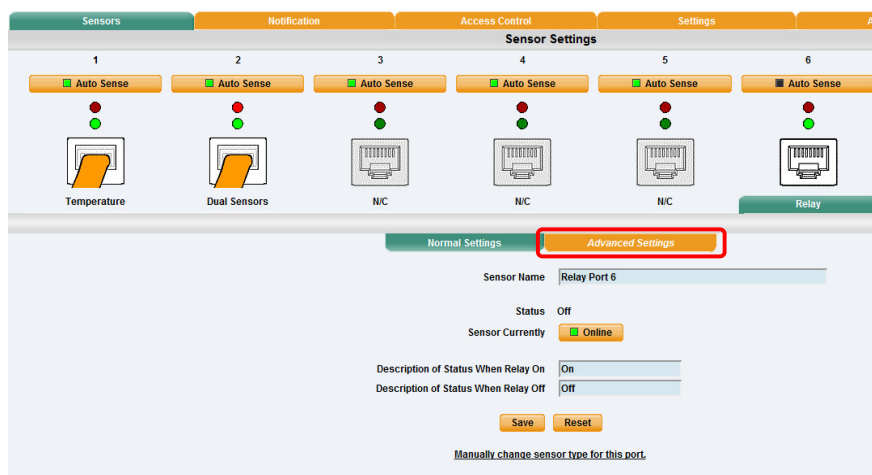
Or using the following SNMP commands:

SNMPset -m all -v1 -c <community> <IPAddress> .1.3.6.1.4.1.3854.1.2.2.1.18.1.25.<port> i <mode>

When <community> is admin password <IPAddress> is IP address of the unit <port> is the Port of power relay (default start with 0)

<mode> is mode to control
allow-sensor-control(1), cycle-On-Off-On(8), cycle-Off-On-Off(7), turn-on(3), turn-off(4)

2.3. Connecting to your RAMOS Optima unit as a relay:

In the RAMOS Optima's web interface you can set your thresholds, so that if you had a temperature alert then the unit will send an email, an SNMP trap and also control a dry contact (dry contact) output relay on another port. You can have it turn on the relay, turn it off, or cycle it.
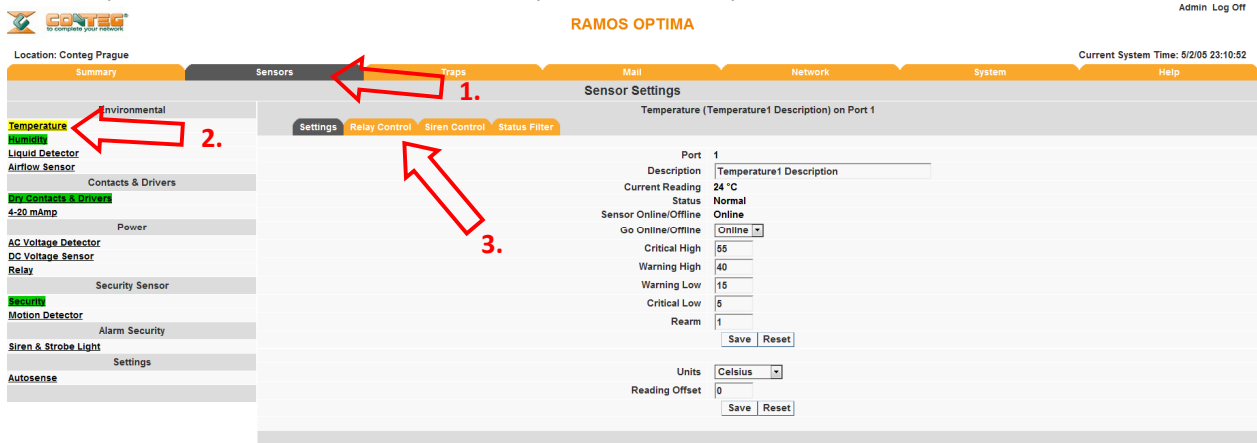
Note: If the screen shots appear too small, just use the view in your pdf reader to zoom in.

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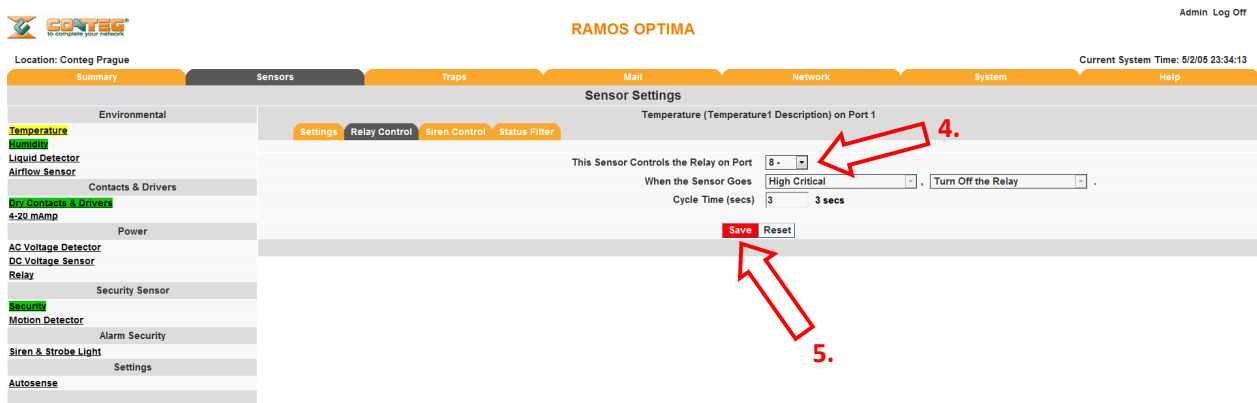
3. Dry Contact FAQ

Why do you connect the GND to the +5 on the "black wire" for the RJ45 cable?

The +5V is the input pin to the RAMOS Optima unit and is used for checking the sensor type, we have pull up resistor inside RAMOS Optima units.

How do you use the above diagram to determine how I connect the dry contact sensor to a simple switch?

We use pin 1 (green wire) and pin 8 (orange wire) for connecting to the power source and GND of the switch. Pin 2 and 7 are for connecting the input/outputs. The other pins are used for checking the sensor type.

Do I connect one side of my switch to the "GND" and the other to the Input/Output?

Yes. Just like the diagram above.

What is the function of the green wire (+5V)?

The Green wire is +5V source connection and this is used when the sensor requires a power source.

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