OPC Servers – Modbus OPC Server 3.x Quick Start

APPLICATIONS NOTE

April 2010

Description: Guide to configuring and running the Modbus OPC Server 3.x
OS Requirement: Win 2000, XP Pro, Server 2003, Vista, Server 2008, Windows 7
General Requirement: ICONICS Modbus OPC Server 3.x

Introduction

The Modbus OPC Servers allows you to configure OPC Tags that acquire process data from Modbus compliant devices. The device has many features including RTU and ASCII Serial communication supports, tag multiplier, simulating process data, and much more.

This document will guide you through the steps of configuring your Modbus 3.x server.

Configuring the Modbus Server

1. Start the Modbus Configurator by going to Start → Programs → ICONICS Modbus OPC Server 3.x → Modbus OPC Configurator

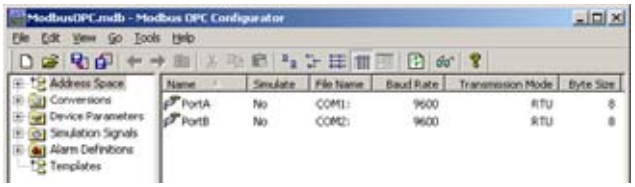


Figure 1 - Modbus Configurator

2. Select File → New from the menu and specify a name for the configuration. We will use MyModbus.mdb in this example and Click on "Save" to create the new configuration.
3. Select File → Make Active… and click on "Yes" to confirm in the dialog window that comes up.
4. In the tree-control in the left-hand pane, right-click on Address Space and select New → Port
5. Give the Port a name and specify the settings for the port. If you do not have a device to connect to yet, you can check to simulate the device.

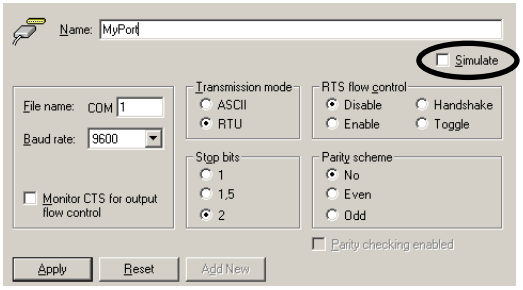


Figure 2 - Device Port Settings

NOTE: These Settings must match the settings of our Modbus device.

6. Click on the "Apply" button when you are done.
7. In the left-hand pane, right-click on the port that you have just created and select New → Device
8. Give the device a name and configure the device. You can configure your device similar to Figure 3.

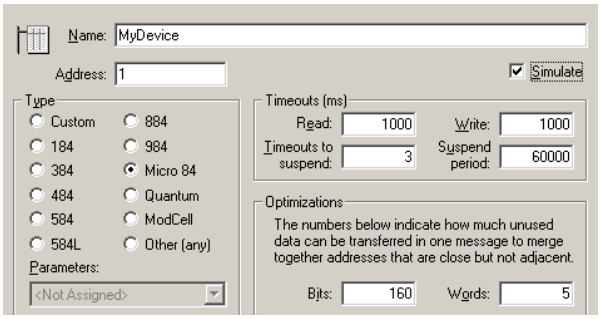


Figure 3 - Device Properties

9. Click on the "Apply" button when you are done.
10. Right-click on the device that you have just created and select New → Data Item
11. Give the data item a name and set its properties. You can create a Temperature tag as shown in Figure 4 if you wish.

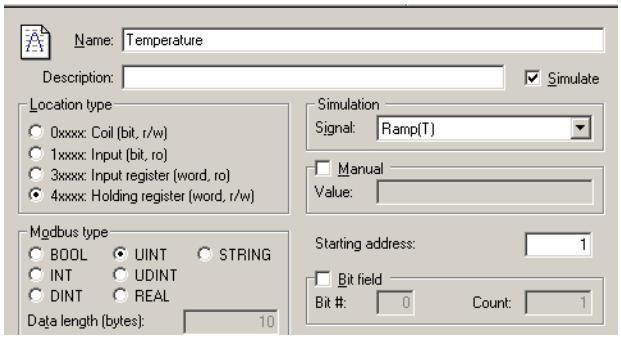


Figure 4 - Temperature Tag Settings

12. Click on "Apply" when you are done.
13. Create another Data Item. You can create a Pressure tag as show in if you wish.

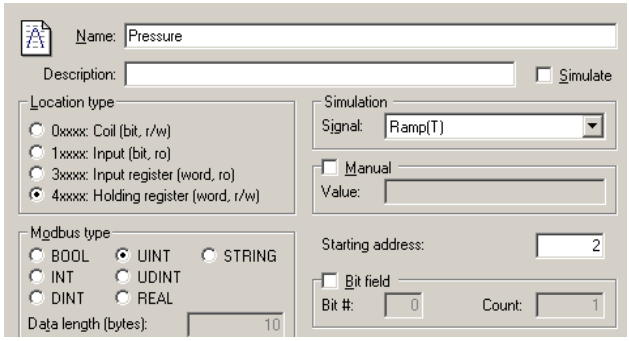
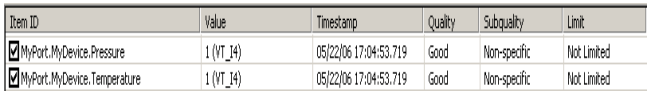


Figure 5 - Pressure Tag Properties

14. Click on "Apply" when you are done.
15. Right-click on the device in the left-hand pane and select Monitor View to see live data.



Item ID	Value	Timestamp	Quality	Subquality	Limit
MyPort.MyDevice.Pressure	1 (VT_I4)	05/22/06 17:04:53.719	Good	Non-specific	Not Limited
MyPort.MyDevice.Temperature	1 (VT_I4)	05/22/06 17:04:53.719	Good	Non-specific	Not Limited

Figure 6 - Monitor View

16. You can exit the configurator. Any OPC client can now browse to the Modbus OPC Server and use the OPC tag.

Scaling

Scaling is an advanced capability of the Modbux OPC Server 3.x. It is used to convert raw device data into meaningful engineering data. In the following example, we will demonstrate how a temperature sensor with a value from 0 to 65535 to have engineering values from -10 to 300 Degrees Celsius.

1. Start the Modbus OPC Configurator if its not already started
2. In the tree-control in the left-hand pane, right-click on the Conversions folder and select New → Conversion
3. Set the High Instrument Range IR to 65535
4. Set the Low Engineering Units EU to -10 and the High Engineering Units EU to 300.

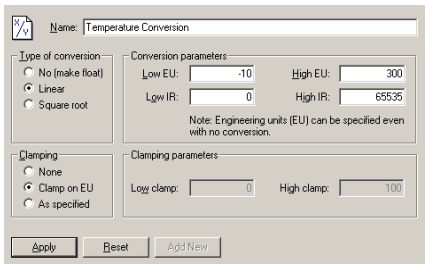


Figure 7 - Temperature Conversion Properties

5. Click on "Apply" when you are done.
6. If you have followed the example and created a Temperature tag in the previous section, select the tag.
7. In the tag configuration, check Use Conversion and select the Temperature Conversion we have just created.

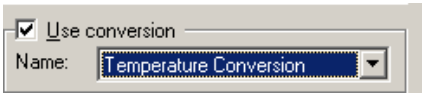


Figure 8 - Set Conversion on Temperature Tag

8. Click on "Apply" when you are done.

Alarming

You can configure alarm limits for each tag in your Modbus configuration. You can directly connect industry standard OPC Alarm & Event Clients to your server such as theICOINCS AlarmWorX32 viewer to this server.

1. In the tree-control on the left-hand pane, right-click on Alarm Definitions and select New → Limit Alarm Definition
2. Give the alarm a name and configure the alarm settings. You can use as a guide to configure a Temperature Alarm.

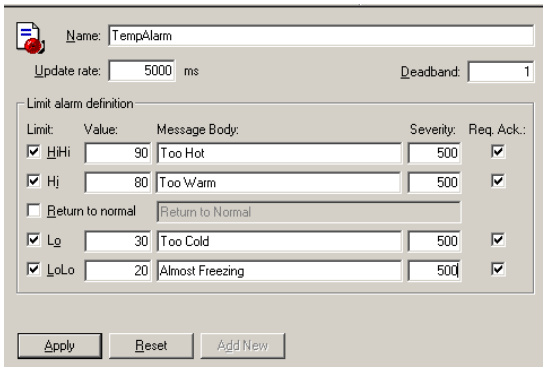


Figure 9 - Limit Alarm Settings

3. Click on "Apply" when you are done.
4. If you have followed the example and created a Temperature tag in the previous section, select the tag.
5. In the tag configuration, check Generate Alarm and select the alarm that you have just created in the Limit Alarm dropdown list.

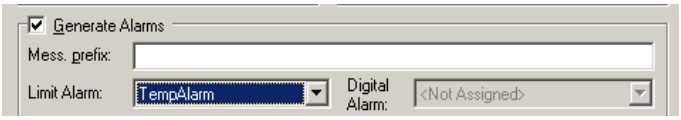


Figure 10 – Set Alarm on Temperature Tag

6. Click on "Apply" when you are done.