TOTALFLOW

Technical Bulletin 154

Adam RS-485 Quad AO Converter to NGC Setup and Operation

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Purpose

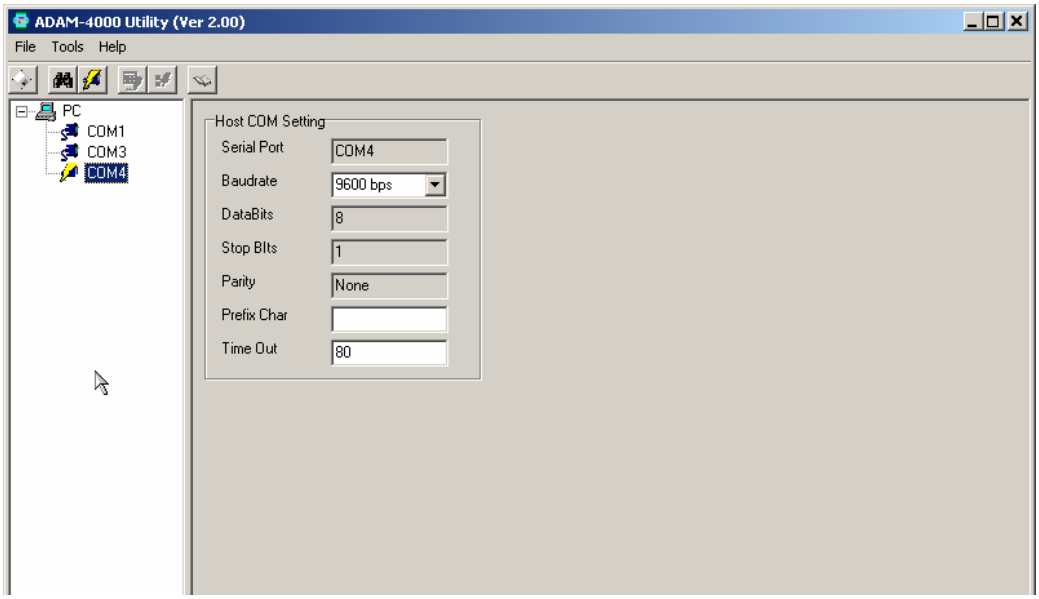
To describe how to configure the ADAM 4024 Converter to work with the NGC-8xxx Gas Chromatograph.

Description

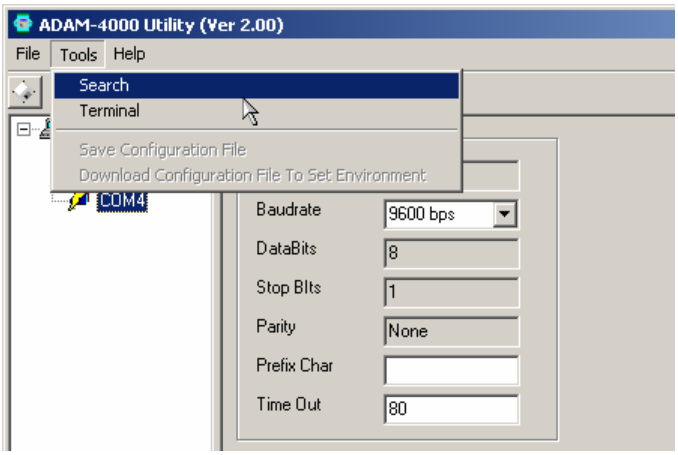
Step by Step ADAM Converter Configuration

Connect the ADAM model 4024 converter to a personal computer (PC). An RS232/RS485 converter is required to communicate from the PC to the Adam converter.

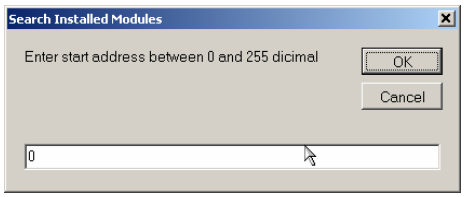
1. Install the ADAM-4000 utility software onto the PC that will be used to configure the converter.
2. Run the ADAM-4000 Utility Software



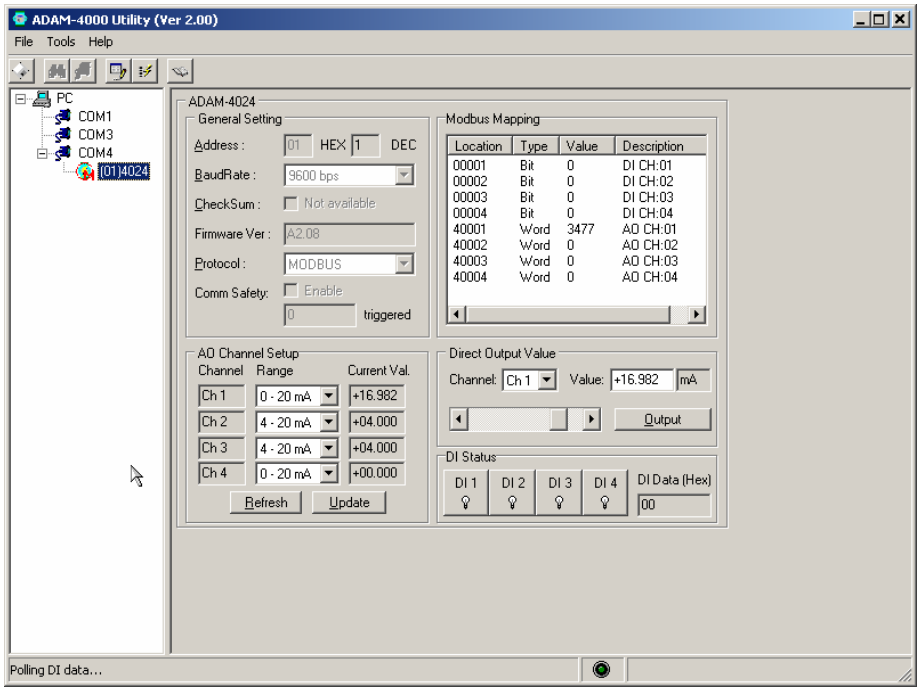
3. Highlight the COM port from your PC that is going to be connected to the ADAM converter and then select "search" from the "tools" drop down located in the utilities tool bar



4. Set the module's address to 1 (all the modules ship from the factory with the Modbus address set to 1)



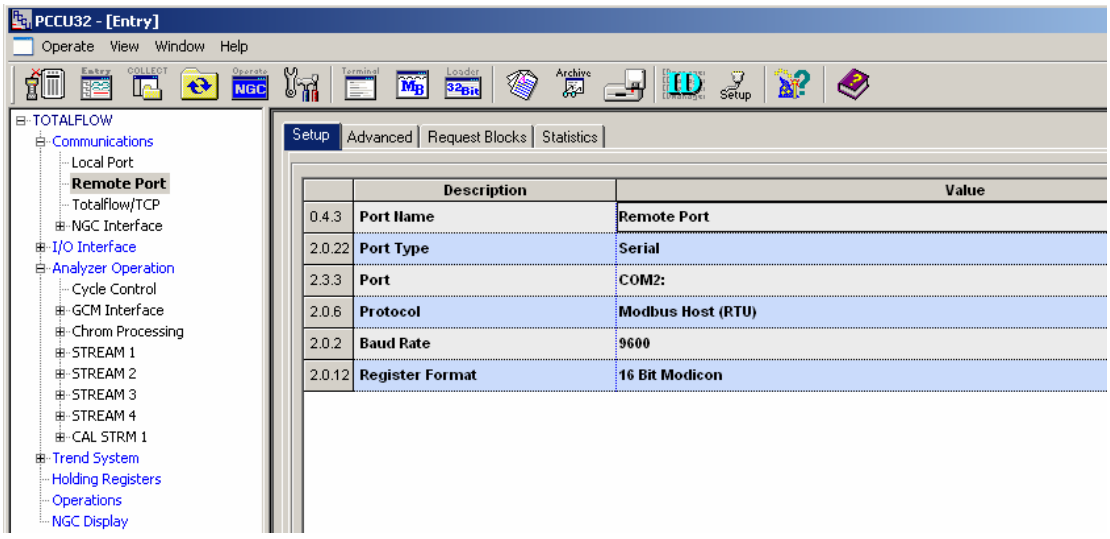
5. Once the program begins communicating to the module you should see the following configuration screen. Begin configuring the AO according to customer requirements.



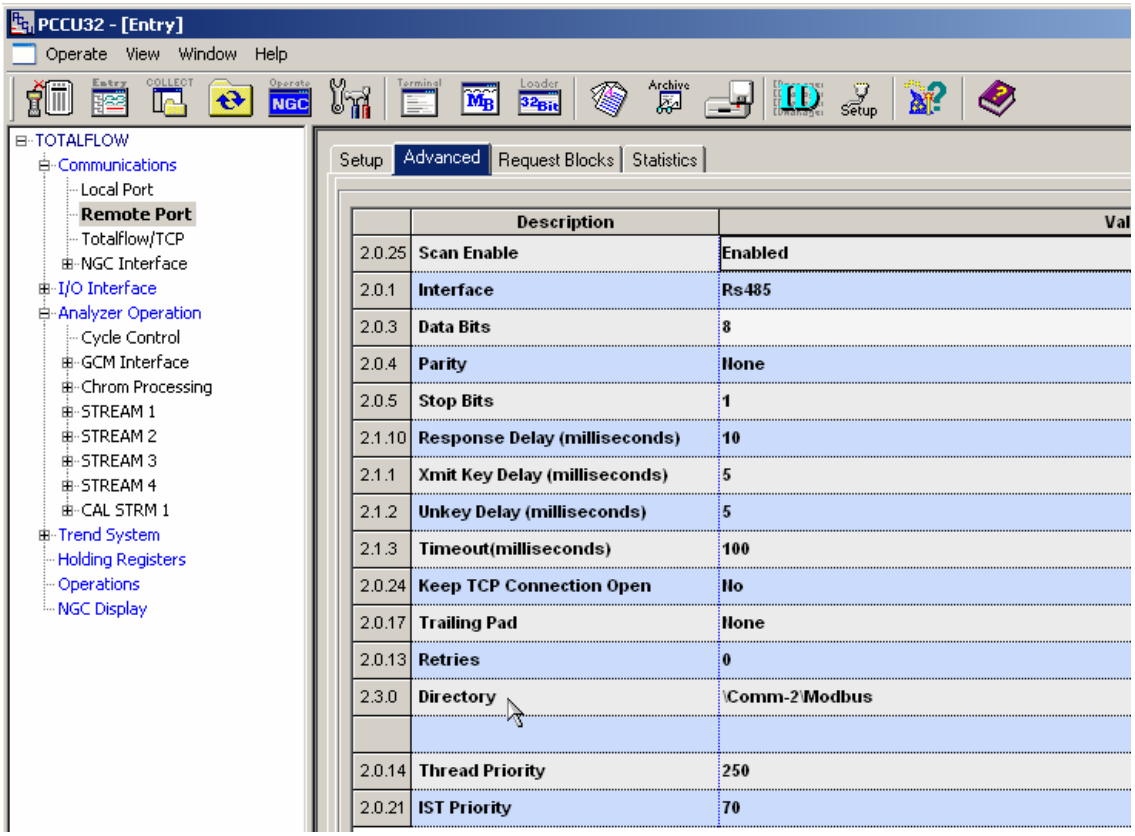
Note: Online help is available from within the ADAM configuration software if a problem is encountered or additional configuration assistance is needed.

Step by Step NGC Communications Configuration

1. Enable one of the remote communications port on the NGC (if not already visible from “entry” tree view)Set the port in the NGC

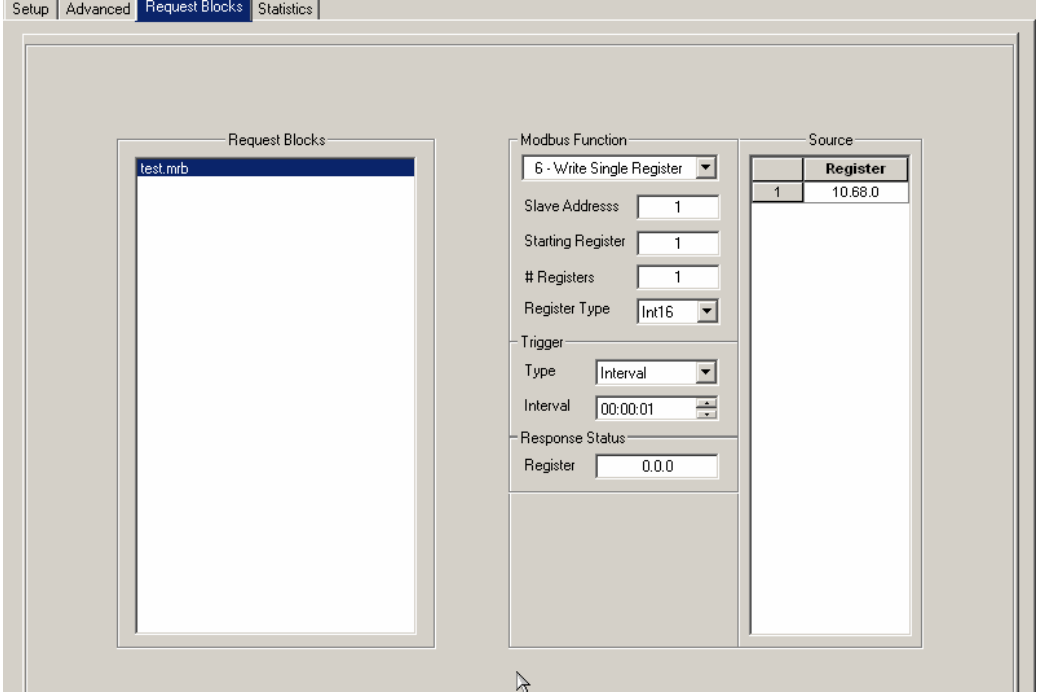


2. Either COM1 or COM2 can be used to communicate RS-485 from the NGC to the ADAM converter.
3. Set the port as follows:
    a. RS-485
    b. Modbus RTU (default ADAM parameter)
    c. 16 bit Modicon (default ADAM parameter)
    d. Data bits 8 (must match ADAM parameter)
    e. 1 stop bit (must match ADAM parameter)
    f. No parity
    g. Response delay = 10
    h. Transmit key delay = 5
    i. Unkey delay = 5
    j. Timeout = 100



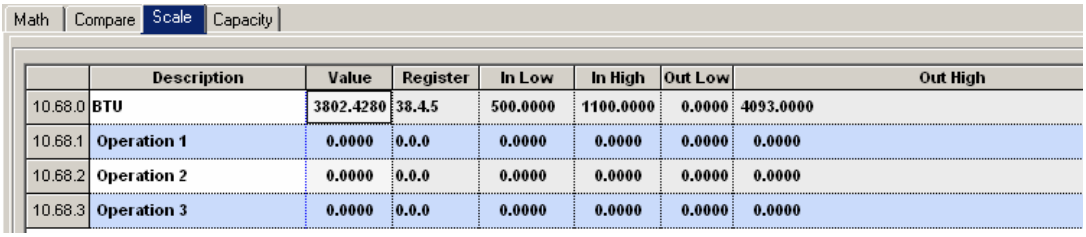
	Description	Val
2.0.25	Scan Enable	Enabled
2.0.1	Interface	Rs485
2.0.3	Data Bits	8
2.0.4	Parity	None
2.0.5	Stop Bits	1
2.1.10	Response Delay (milliseconds)	10
2.1.1	Xmit Key Delay (milliseconds)	5
2.1.2	Unkey Delay (milliseconds)	5
2.1.3	Timeout(milliseconds)	100
2.0.24	Keep TCP Connection Open	No
2.0.17	Trailing Pad	None
2.0.13	Retries	0
2.3.0	Directory	\Comm-2\Modbus
2.0.14	Thread Priority	250
2.0.21	IST Priority	70

4. Create a Modbus request block from the “request block” tab within the communications port selected to communicate to the ADAM converter. Setup the request block as indicated below.



5. Modbus Function will very between 6 (for one register) or 15 (for multiple register).
6. The Register Type is Int16, because that is the format of the value (any value) after scaling it as per the ADAMs settings
7. The ADAM's modbus Register are:
    a. Slave address 1 = AO1
    b. Slave address 2 = AO2
    c. Slave address 3 = AO3
    d. Slave address 4 = AO4

8. Scaling Variables using NGC Operations
    a. Using the "scale" operator, create 1-4 registers that will be used to deliver the value to the ADAM's analog output. In the example below we are sending a BTU value (register 38.4.5) to the ADAM converter using write register 10.68.0.
    b. Next, scale the BTU's value's "IN" range to match the lowest and highest BTU value that could be calculated
    c. Next, scale the "OUT" range to match the ADAM's counts. Typical range will be 0 for the low and 4093 for the high scaled value.
    d. Repeat these steps for any additional variables to be delivered to the ADAM converter's AO2-4



	Description	Value	Register	In Low	In High	Out Low	Out High
10.68.0	BTU	3802.4280	38.4.5	500.0000	1100.0000	0.0000	4093.0000
10.68.1	Operation 1	0.0000	0.0.0	0.0000	0.0000	0.0000	0.0000
10.68.2	Operation 2	0.0000	0.0.0	0.0000	0.0000	0.0000	0.0000
10.68.3	Operation 3	0.0000	0.0.0	0.0000	0.0000	0.0000	0.0000

Wiring Diagram