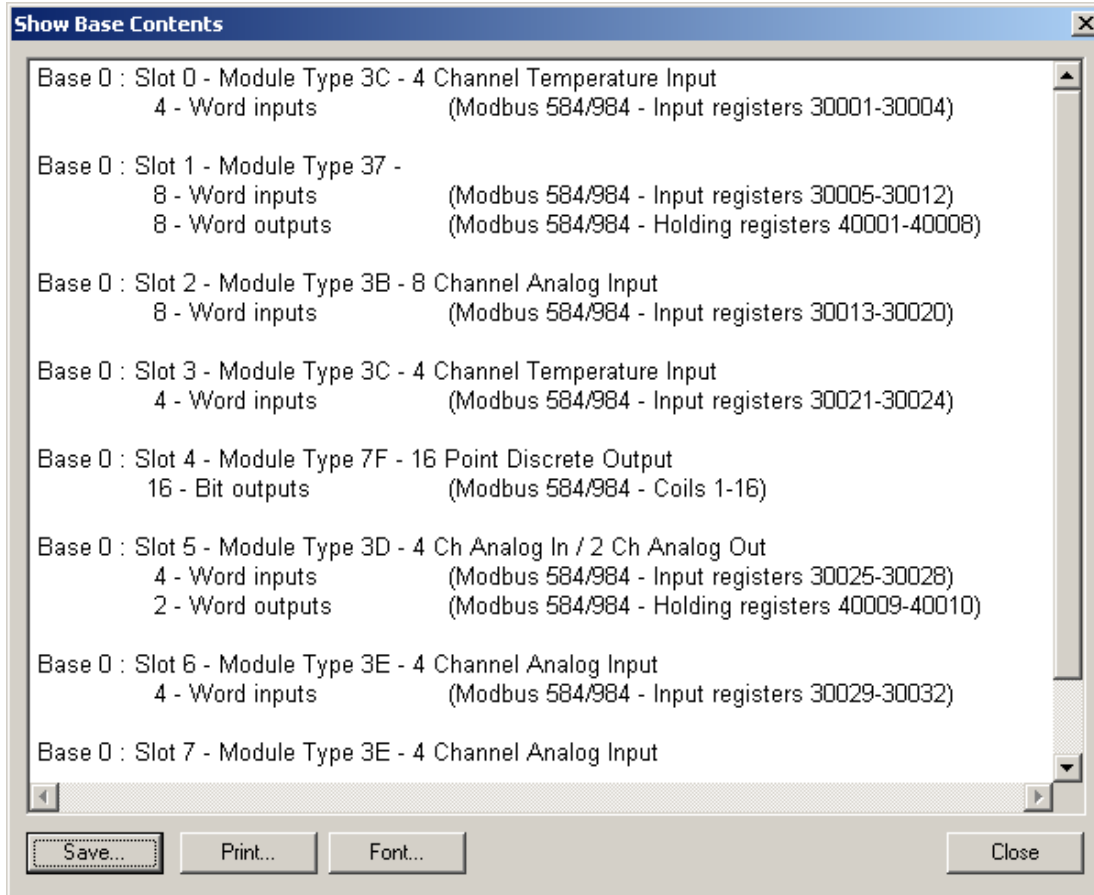


FACTS 205 Analog Modules and Modbus TCP

Use Host Engineering's Nedit3 to find and select the IP address of the H2-EBC100. Select the 'EBC Settings' tab then the 'Show Base Contents' button to see the I/O modules in the H2-EBC100 base and the Modbus addressing for those modules. You should see something like this:



The Modbus protocol defines four data types: Coils, Inputs, Input Registers, and Holding Registers.

Coils are discrete bits that can be read or written. Coil addresses start at 1. Coils are read with function code 1 (Read Coil Status) and written with function code 5 (Force Single Coil) or 15 (Force Multiple Coils). Coils are generally discrete outputs on the H2-EBC100.

Inputs are discrete bits that are read only. Input addresses start at 10001. Inputs are read with function code 2 (Read Input Status). Inputs are generally discrete inputs on the H2-EBC100.

Input Registers are words that are read only. Input Register addresses start at 30001. Input Registers are read with function code 4 (Read Input Registers). Input Registers are generally analog inputs on the H2-EBC100.

Holding Registers are words that can be read or written. Holding register addresses start at 40001. Holding Registers are read with function code 3 (Read Holding Registers) and written with function code 6 (Preset Single Register) or 16 (Preset Multiple Registers). Holding Registers are generally analog outputs on the H2-EBC100.

Use the addresses shown in Netedit3 'Show Base Contents' along with the following table to read/write your analog I/O with your Modbus TCP master.

DIAGNOSTICS NOTE:

See chapter 4 of H24-EBC-M for Modbus TCP Mapping:

<http://www.automationdirect.com/static/manuals/h24ebc/ch4.pdf>

Error Addresses are on Page 4-8

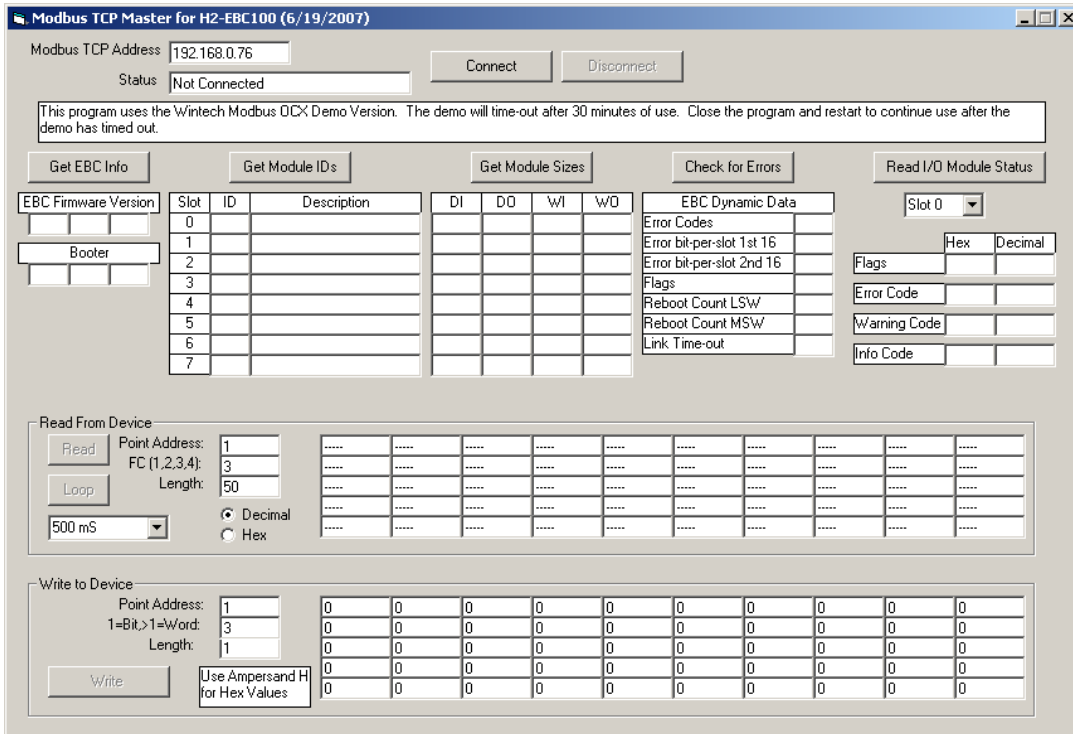
Error Codes are on Page 4-9

To check module diagnostics you must read 'EBC Dynamic Data' to see if there is an error in a particular slot then read the 'I/O Module Status' to see what the error is. The 'Diagnostics' column refers to 'Error Code' and 'Info Code', these are the second and fourth words under 'I/O Module Status' on page 4-8 of H24-EBC-M.

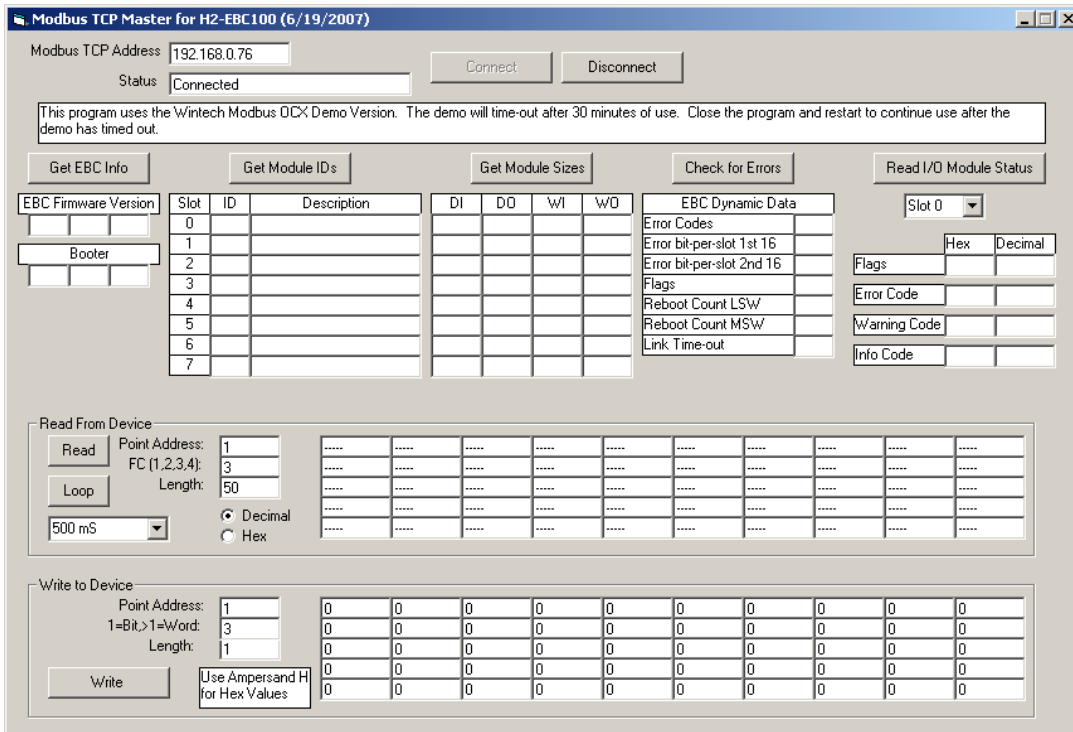
Part Number	Channel Data	Configuration Data	Diagnostics Data
			See DIAGNOSTICS NOTE above
F2-04AD-1 (L) F2-04AD-2 (L)	Input Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4	None	No Broken Transmitter Detection If No 24VDC or No Terminal Block: All channels = 0 counts 'Error Code' =121d 'Info Code' = 0
F2-08AD-1	Input Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4 Word 5 = Ch5 Word 6 = Ch6 Word 7 = Ch7 Word 8 = Ch8	None	Channels with broken transmitter: Channel=0 counts 'Error Code' =121d 'Info Code' = High Byte - Bit On for Each Failed Channel If No 24VDC or No Terminal Block: All channels = 0 counts 'Error Code' =121d 'Info Code' = Cycles 0100h thru 0700h
F2-08AD-2	Input Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4 Word 5 = Ch5 Word 6 = Ch6 Word 7 = Ch7 Word 8 = Ch8	None	No Broken Transmitter Detection If No 24VDC or No Terminal Block: All channels = 0 counts 'Error Code' =121d 'Info Code' = Cycles 0100h thru 0700h
F2-4AD2DA	Input Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4 Holding Registers Word 1 = Ch1 Word 2 = Ch2	None	No Broken Transmitter Detection If No 24VDC or No Terminal Block: All channels = 0 counts 'Error Code' =121d 'Info Code' = Cycles 0100h thru 0400h

F2-8AD4DA-1	<p>Input Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4 Word 5 = Ch5 Word 6 = Ch6 Word 7 = Ch7 Word 8 = Ch8</p> <p>Holding Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4</p>	<p>Holding Registers Word 5 = Input Resolution Word 6 = N/A Word 7 = Track and Hold Word 8 = Not Used</p> <p>See 15-15 of D2-ANLG-M</p>	<p>Channels with broken transmitter: Channel=0 counts 'Error Code' =121d or 142d 'Info Code' = High Byte - Bit On for Each Failed Channel</p> <p>If No 24VDC or No Terminal Block: All channels = 0 counts 'Error Code' =121d 'Info Code' = 0FF00h</p>
F2-8AD4DA-2	<p>Input Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4 Word 5 = Ch5 Word 6 = Ch6 Word 7 = Ch7 Word 8 = Ch8</p> <p>Holding Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4</p>	<p>Holding Registers Word 5 = Input Resolution Word 6 = Range Selection Word 7 = Track and Hold Word 8 = Not Used</p> <p>See 16-14 and 16-15 of D2-ANLG-M</p>	<p>No Broken Transmitter Detection</p> <p>If No 24VDC or No Terminal Block: All channels = 0 counts 'Error Code' =121d 'Info Code' = 0FF00h</p>
F2-04THM F2-04RTD	<p>Input Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4</p>	None	<p>Channels with broken transmitter: Channel=0 counts 'Error Code' = 142d 'Info Code' = High Byte - Bit On for Each Failed Channel</p> <p>If No 24VDC or No Terminal Block: All channels = 0 counts 'Error Code' =121d 'Info Code' = 0F00h</p>
F2-02DA-1(L) F2-02DA-2(L)	<p>Holding Registers Word 1 = Ch1 Word 2 = Ch2</p>	None	None
F2-02DAS-1 F2-02DAS-2	<p>Holding Registers Word 1 = Ch1 Word 2 = Ch2</p>	None	None
F2-08DA-1 F2-08DA-2	<p>Holding Registers Word 1 = Ch1 Word 2 = Ch2 Word 3 = Ch3 Word 4 = Ch4 Word 5 = Ch5 Word 6 = Ch6 Word 7 = Ch7 Word 8 = Ch8</p>	None	None

There is a utility at www.facts-eng.com/tech/H2EBC100_Master.zip that you can use to test I/O in the H2-EBC100. Download it and run setup.exe to install it. When you start the application it should look like this:



Use Netedit3 to determine what the address of your H2-EBC100 is and put that in the 'Modbus TCP Address' field in the top left. Click 'Connect' to connect to that address. The 'Status' field should show 'Connected'.



Version History

11/13/2008 – Fixed typo in 'Word Configuration Data' for F2-8AD4DA-1 and 2. Changed 5,7,8,9 to 5,6,7,8.