Technical Note
00840-1300-4420, Rev AA
06/14

Connecting an Emerson® Wireless Gateway to the ABB Totalflow XRC 6490

1.1 Purpose

This document describes how to connect an Emerson Smart Wireless Gateway to a ABB Totalflow XRC6490using serial Modbus®.

1.2 Emerson *Wireless*HART® Gateway

- ABB Totalflow XRC6490 with PCCU configuration software
- Emerson Smart Wireless Gateway1420/1410
- A computer setup to connect to the Gateway

1.3 Assumptions

1. The user of this document has a fundamental understanding of the ABB Totalflow PCCU software.
2. A comm port has been added in the Totalflow configuration for Modbus communications.
3. The user of this document has a fundamental understanding of the Gateway.

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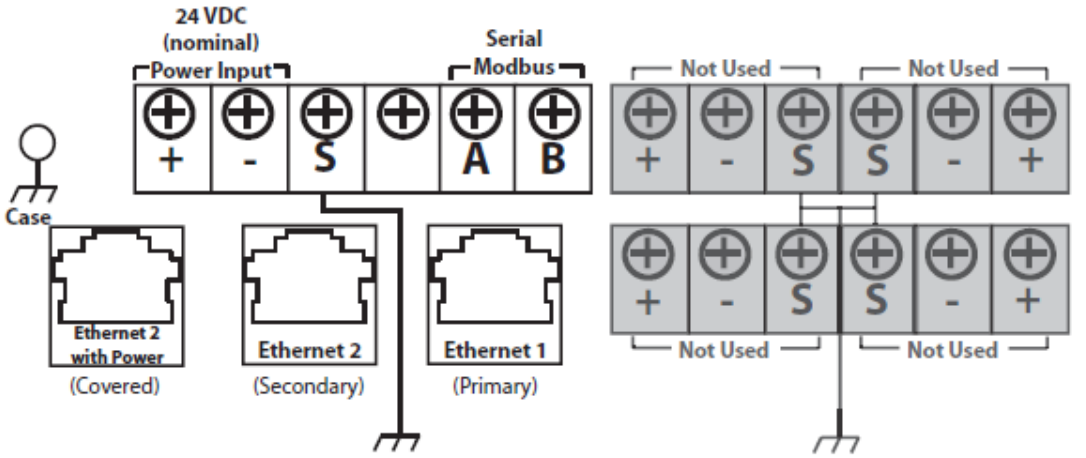
1.4 Wiring

1. Wire the modbus terminals.

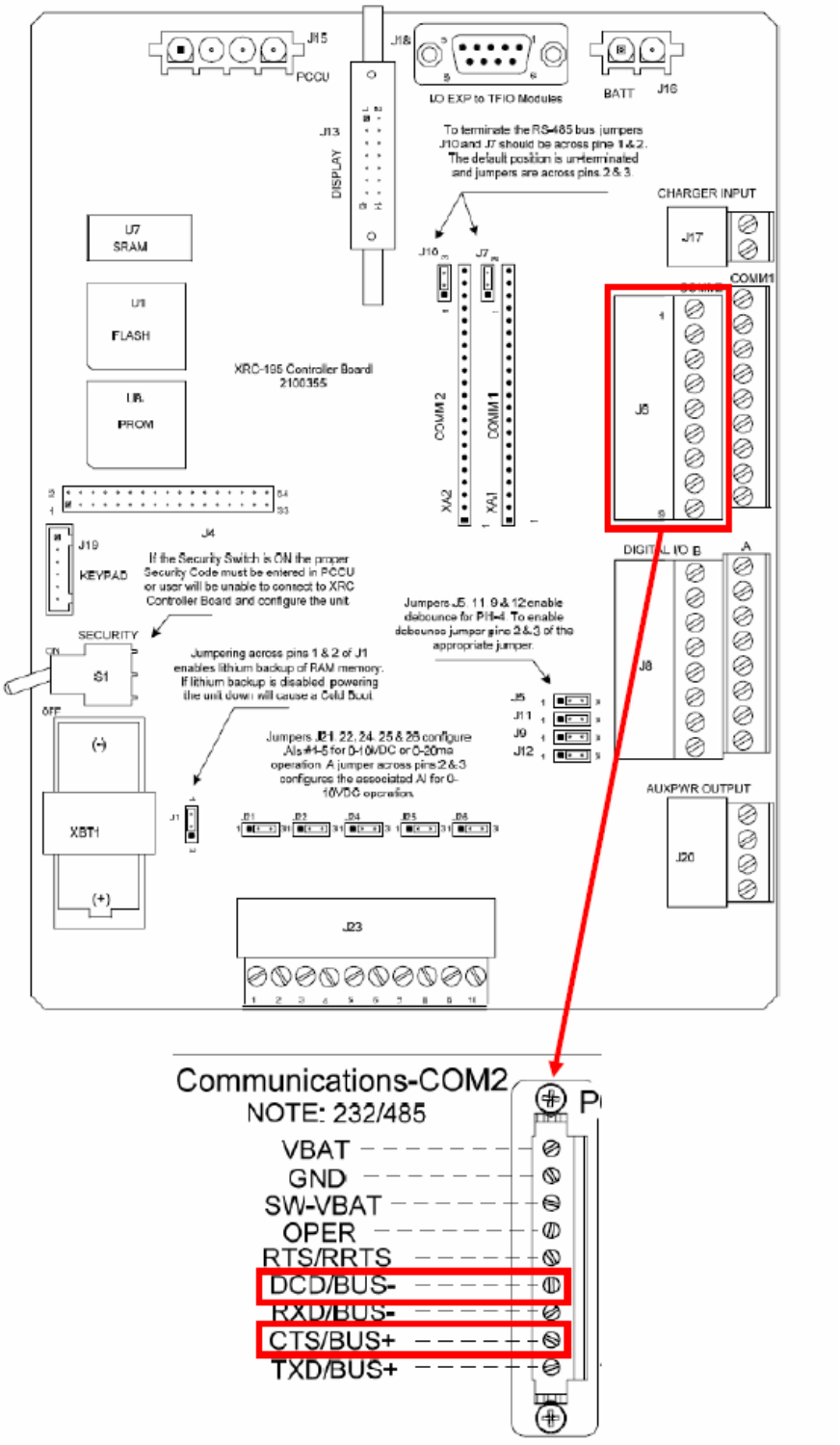
Note
The Smart Wireless Gateway 1420 wiring diagram is shown below.

Figure 1-1. Standard Terminal Block



2. Connect the modbus “A” wire to pin 6 and “B” wire to pin 8. In this case we are connecting to Comm Port 2.

Figure 1-2. Connecting to Comm Port 2



1.5 Configuration

1. Configure the 1420 for serial modbus communication. This can be done using the web browser. In this case we are using the following communication settings, Baud Rate = 9600, Start Bit = 1, Data Bit = 8, Parity = None, Stop Bit = 1.

Figure 1-3. 1420 Settings for serial Modbus communications

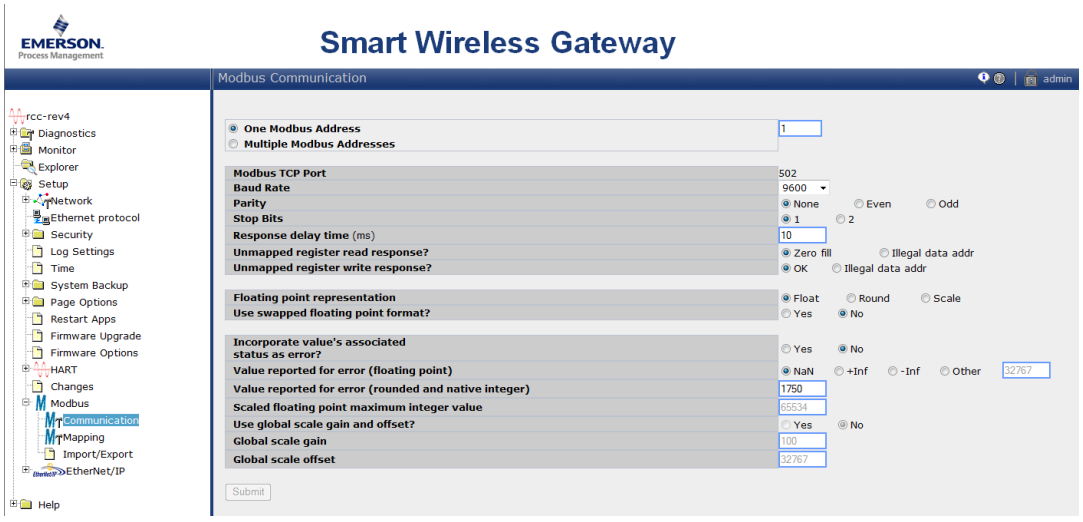
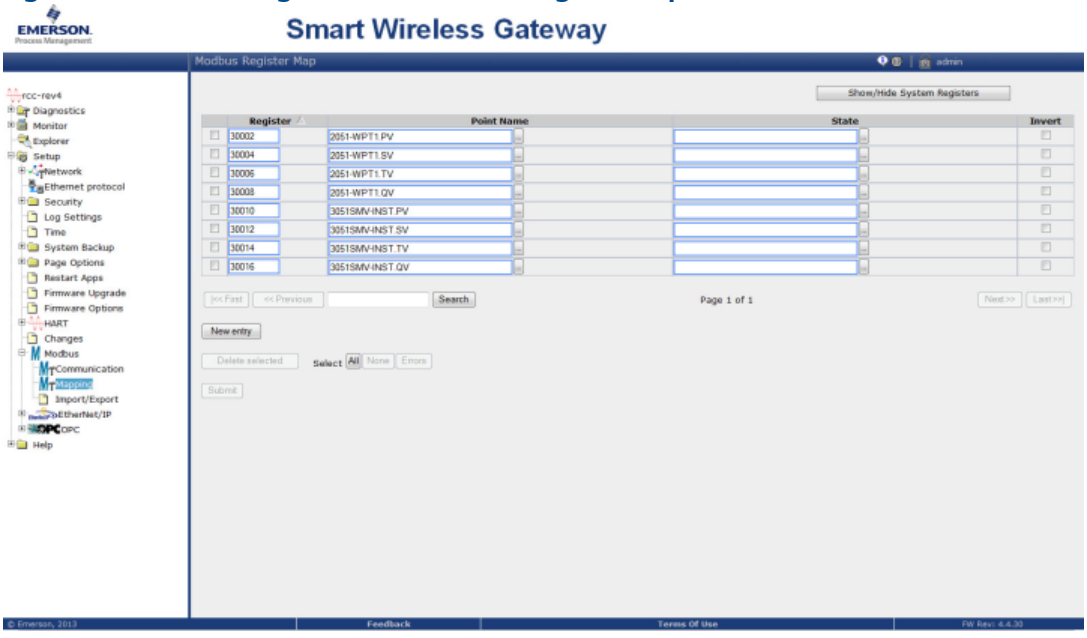
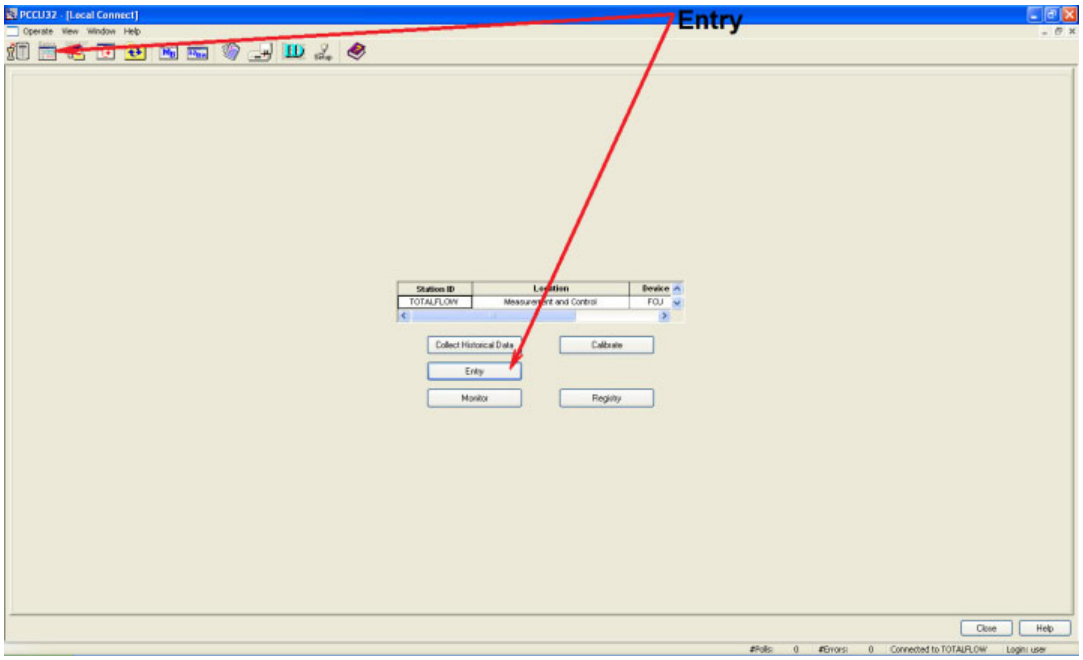


Figure 1-4. 1420 Settings for serial Modbus Register Map



2. Configure the Totalflow by starting the PCCU software. Click the **Entry** button to connect to the Totalflow XRC 6490 hardware.

Figure 1-5. Starting the PCCU software



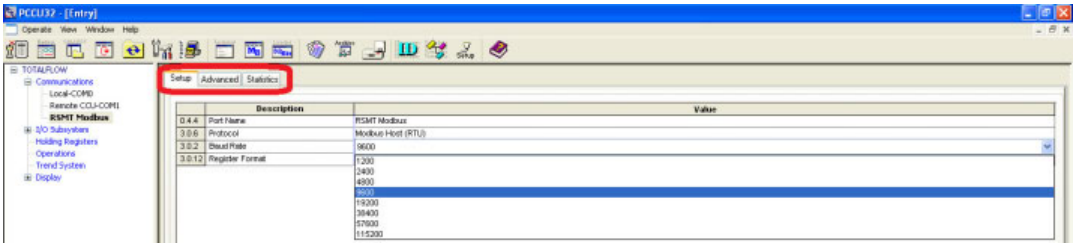
3. In this case we have renamed Comm Port 2 to RSMT Modbus. Select the Comm Port configured for modbus communications.

4. In the "Setup" tab, set the **Baud Rate** and the **Register Format** values. The Baud Rate must match with the Gateway modbus parameter settings.

Note
The value entered in "Register Format" will depend on what modbus registers you are reading in the Gateway.

5. Based on what you chose in the Gateway Modbus communication web page for "Use swapped Floating Point format", enter in correct **Register Format** value.
   a. For Gateways not using swapped floating point format, select the "16 BIT Modicon".
   b. If using the swapped format, then choose "16 Bit Word Swapped" in the Totalflow.

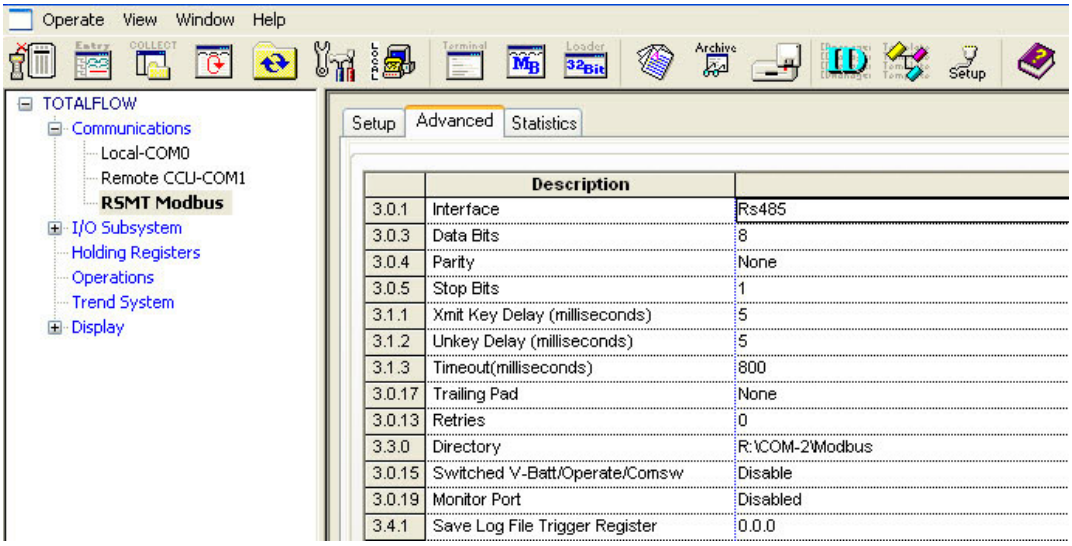
Figure 1-6. Select the Comm Port configured for Modbus communications



6. In this window, setup the **Data Bits**, **Parity** and **Stop Bits** to match the configuration of the 5300.

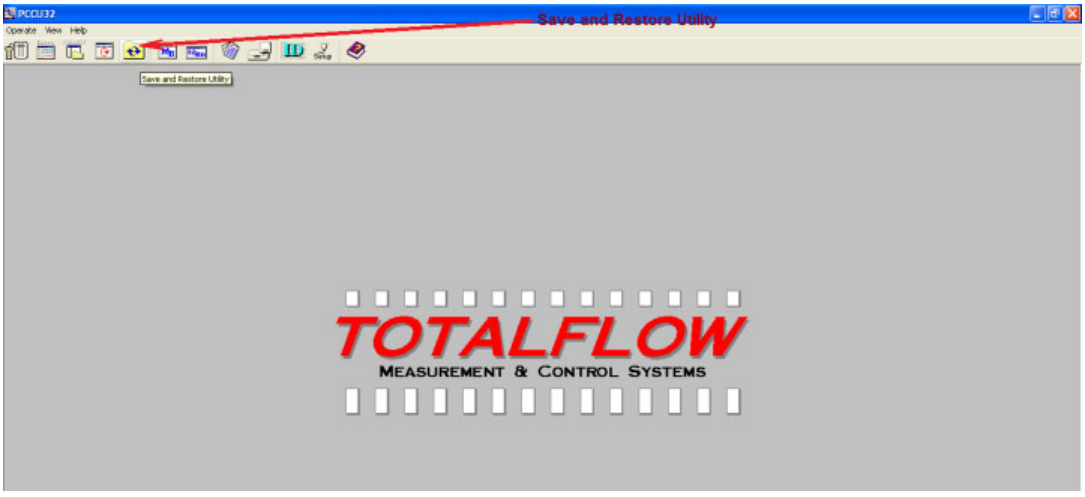
Note
It was found during our testing that the “Xmit Key Delay” and “Unkey Delay” should be set no higher than 10. If it is set to something higher, the Total Flow will not see the modbus responses. You can set the “Retries” to a value that will suit your requirements.

Figure 1-7. Data Bits, Parity, and Stop Bits Setup



7. Click the **Save and Restore Utility** to launch the utility window.

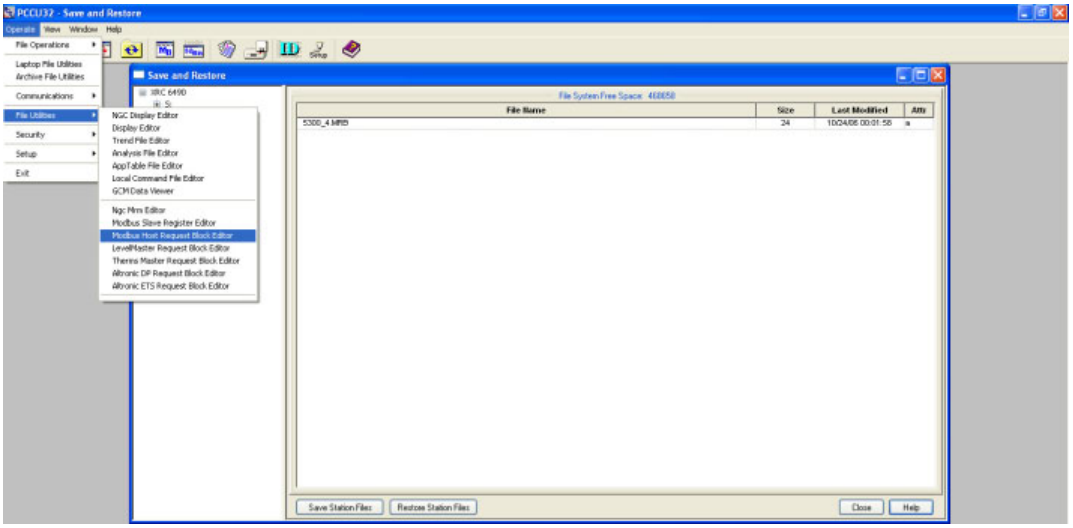
Figure 1-8. Save and Restore Utility



8. Expand the “R” folder and then navigate to the Modbus comm Port.

9. Go to **Operate**, right click, and select **File Utilities**, and then select **Modbus Host Request Block Editor**.

Figure 1-9. Expand the “R” folder and then navigate to the Modbus comm port



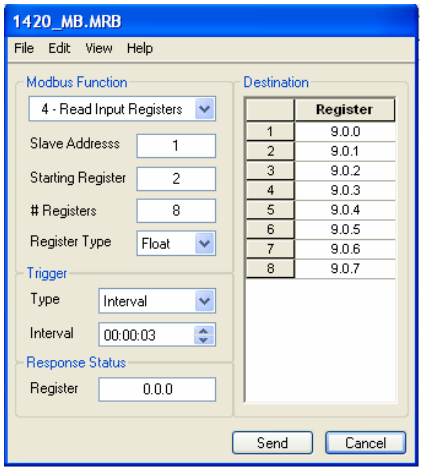
10. This window is where the Modbus register mapping is set. This block will be set up to read any device variables that are floats. You will need to use Modbus Function code 4 (Read Input Registers).

    a. Select the correct “Slave Address”.
    b. Enter in the Modbus register configured in the 1420 in the “Starting Register” field.
    c. Enter in the number of registers needed to be read in “# Register”.
    d. Set the “Register Type” to float.
    e. Set the “Type” to Interval.

Note
“Interval” is how often it should request the information.

    f. The Destination field contains the number of Registers shown and depends on the number of Registers requested. Start with 9.0.0 then increment by 1, the nest Destination register would be 9.0.1 and so on.
    g. When finish click **Send** and then save it.
    h. Enter in name for the MRB block.

Figure 1-10. Modbus register mapping

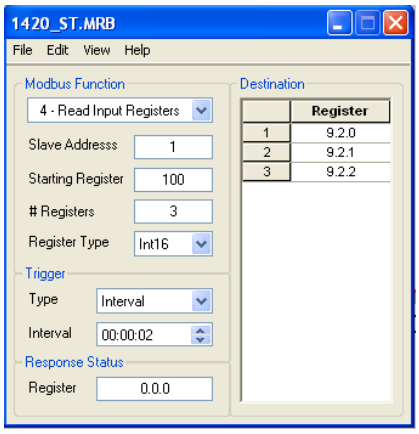


11. In this block we are requesting Modbus registers mapped to Statuses which are integer values. Note here the “Register type” we used is Int16.

12. When finish click on **Send** and then save it.

13. Enter in name for the MRB block.

Figure 1-11. Modbus registers mapped to statuses

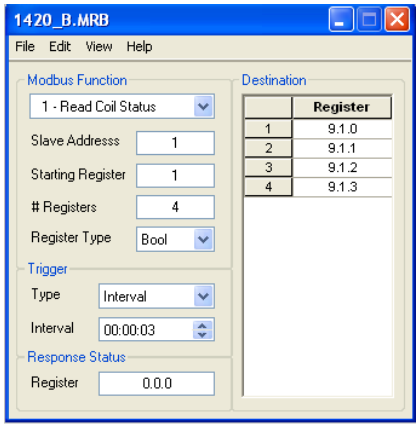


14. In this block we are requesting Modbus registers mapped to Statuses which are integer values. Note here the “Register type” we used is Int16.

15. When finish click on **Send** and then save it.

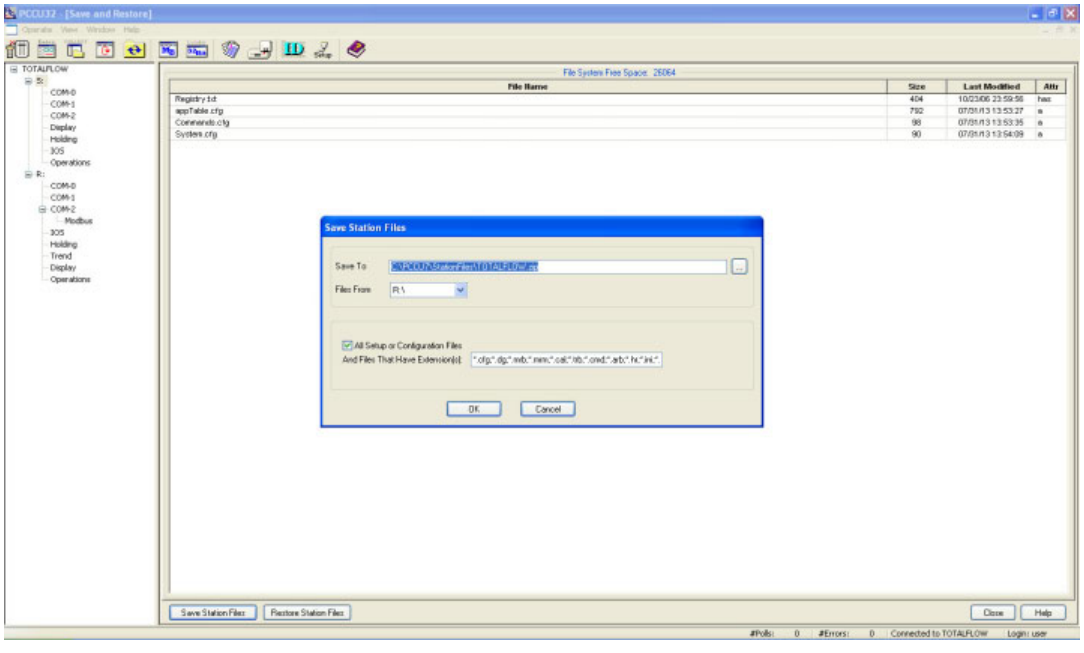
16. Enter in name for the MRB block.

Figure 1-12. Modbus registers mapped to statuses (cont.)



17. Click the **Save Station Files** button on the bottom of the screen. Make sure the "All Setup or Or Configuration Files" check box is checked, then click **OK**.

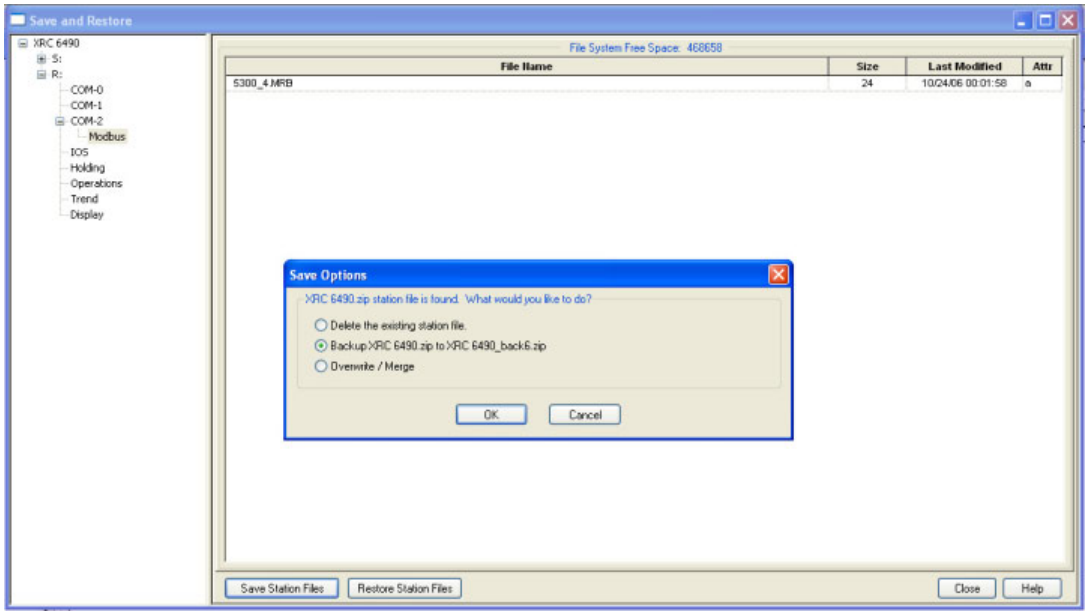
Figure 1-13. Save Station Files



18. Either Backup the existing station file or delete it.

19. Click **OK**. This will save the information of the "R" directory.

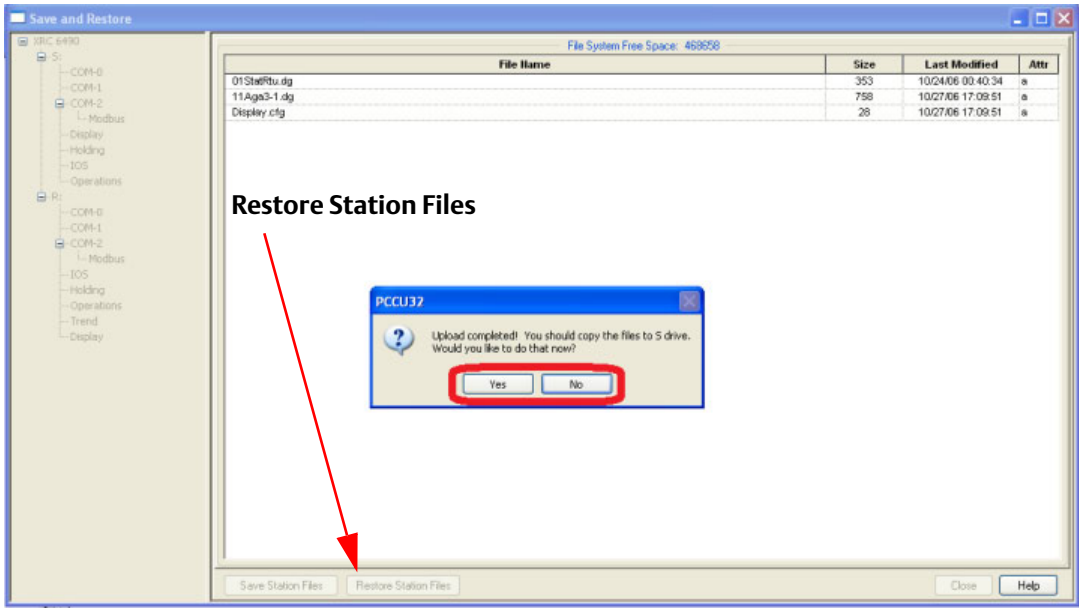
Figure 1-14. Save Options



20. When the Upload is completed you will need to copy this to the "S" drive. Either you can select **Yes** in the window below. If you want to do this at a later time then select **No**.

21. Copy files to the "S" press **Restore Station Files** button on the bottom of the screen.

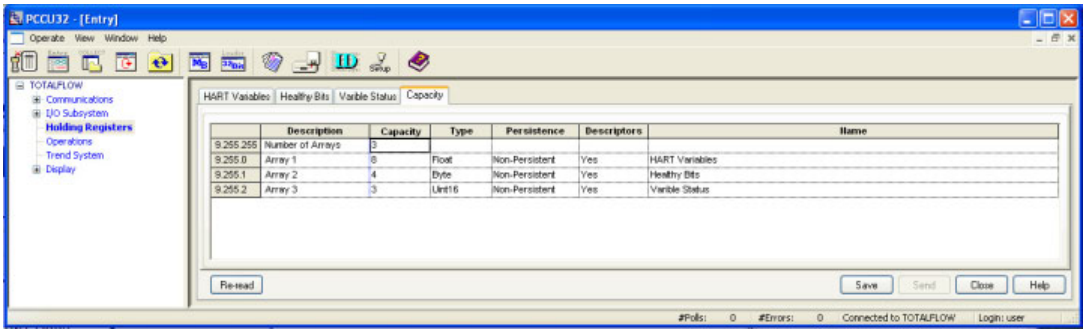
Figure 1-15. Restore Station Files



22. Return to the "Entry" mode to view the values.

23. Click **Holding Registers**, then the **Capacity** tab. In this window you can set how many registers are displayed in each Array and give the Array a name.

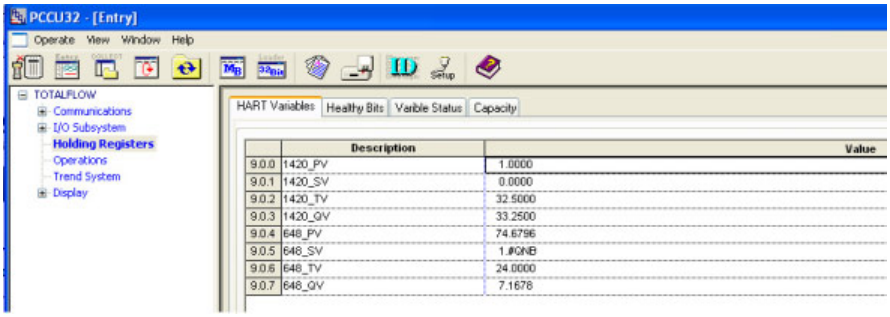
Figure 1-16. Return to the "Entry" Mode to view the Values



24. Select the name of the tab you used in the above step.

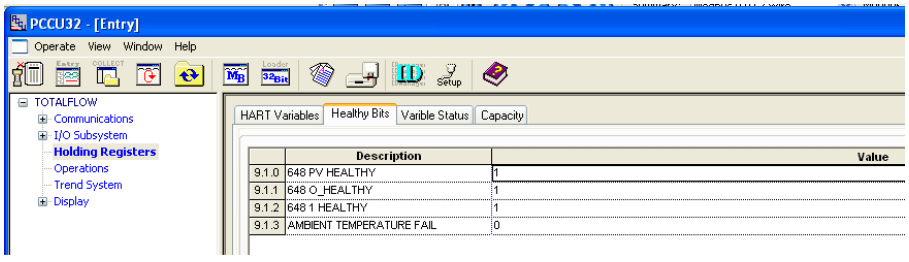
25. Click **Reread** to get updates to the value.

Figure 1-17. Updates to the Values



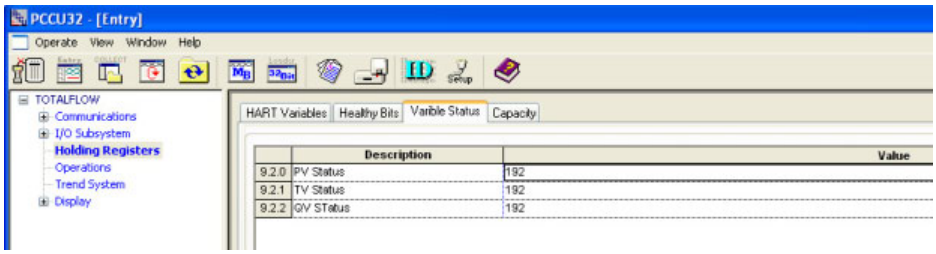
Note
This tab displays the Boolean values.

Figure 1-18. Boolean Values



Note
This tab displays the Integer values.

Figure 1-19. Integer Values



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