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Configuring a Rockwell PLC with an Anybus DP-V1 Slave Module

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Date: June 16, 2015

Introduction

Many AIMCO torque controllers come standard with Profibus. A common use is interfacing them to an Allen-Bradley PLC for error proofing and data collection. This document is intended to configure a Rockwell PLC with a Profibus DP-V1 module.

Equipment/Software

- Profibus capable controller from AIMCO.
 - Generation 4 controller (iEC4EGVP).
 - Anybus DP-V1 Module.
- 1769-L32E CompactLogix5332E Controller Rev 16.20.
- MVI69-PDPMV1 Master Module.
- RSLogix 5000 Rev v16.3.
- RS-232 to RJ-45 Adapter.

Initial Setup

- Connect RS-232 to RJ-45 adapter to the Modbus module 'CFG' port.

ProSoft Configuration Builder

This document was developed in parallel with 'Using an AIMCO Controller on a Rockwell PLC with Profibus'. It will establish the connection between the Profibus DP-V1 Master Network Interface Module and the Anybus DP-V1 Slave Module.

Configuring the Connection

Open the ProSoft Configuration Builder (PCB) software. Open a new project, right click on 'Default Module' and select 'Choose Module Type'. The module we are using in this example is the MVI69-PDPMV1. Mark the correct field in 'Product Line Filter' as well as the drop down menu under 'Select Module Type'. See Figure 1

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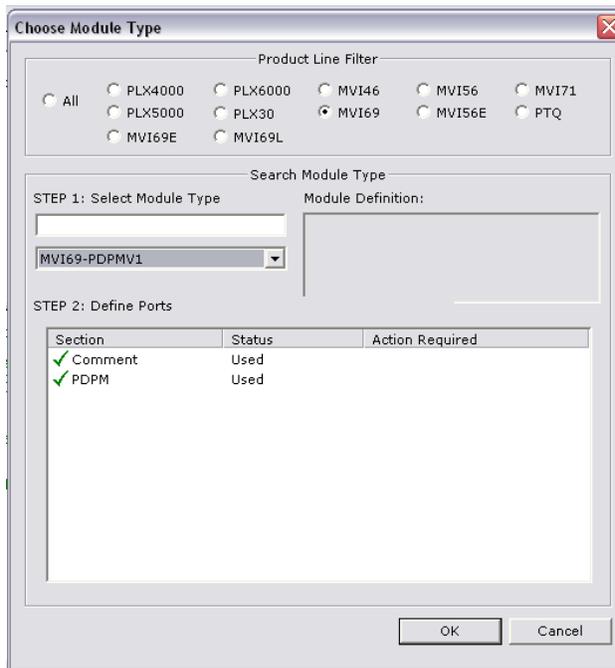


Figure 1 PCB Module Type

Click 'OK' when finished. The following screen should match Figure 2.

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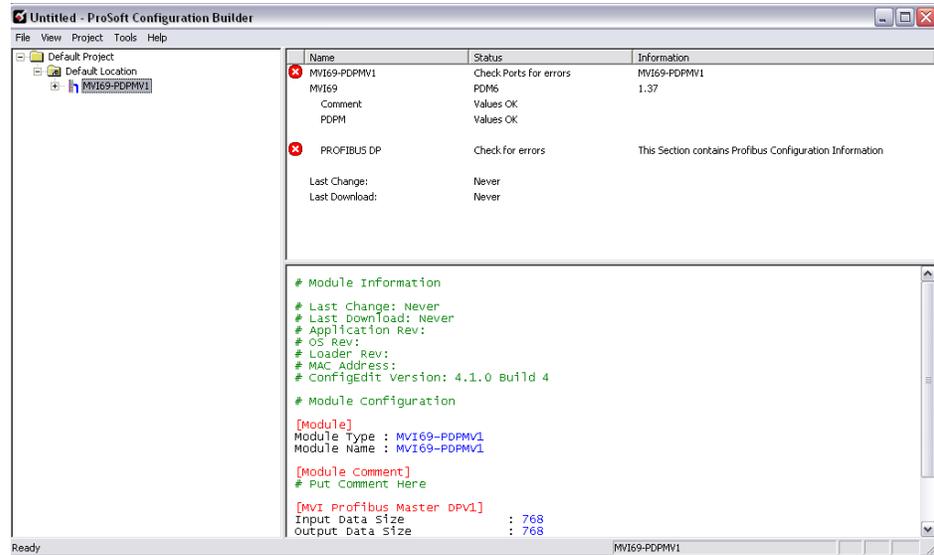


Figure 2 PCB Main Screen

Expand the 'MVI69-PDPMV1' tree under 'Default Location' that now replaces the existing 'Default Module'. In that menu, expand 'MVI69-PDPM-V1' and double click 'MVI Profibus Master DPV1'. The only thing we change on this screen is 'Block Transfer Size' (This value must correspond to what is configured in RSLogix 5000). Click on 'Block Transfer Size' and change the value from 240 to 60 under the drop down menu to the right. See Figure 3. Click 'OK'

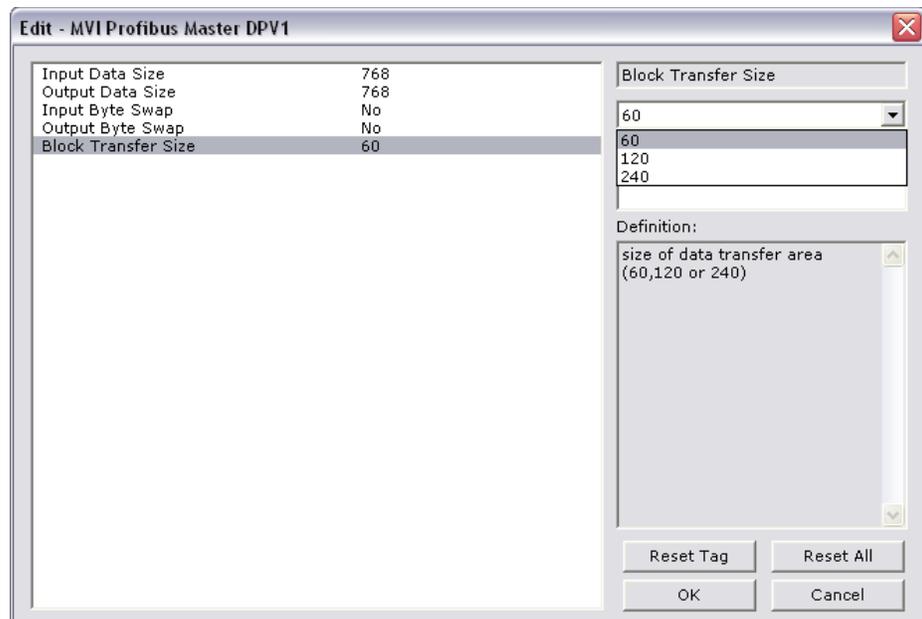


Figure 3 PCB Edit Profibus Master



Now double click 'PROFIBUS DP' and select 'Configure PROFIBUS'.

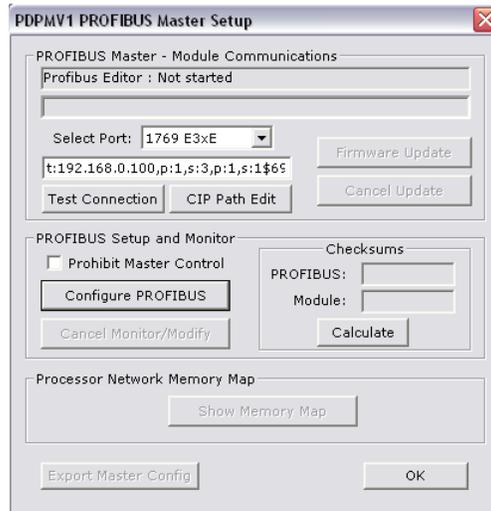


Figure 4 PCB Profibus Master Setup

Figure 5 is the start of where you configure the AIMCO controller inputs and outputs with the Profibus Master module.

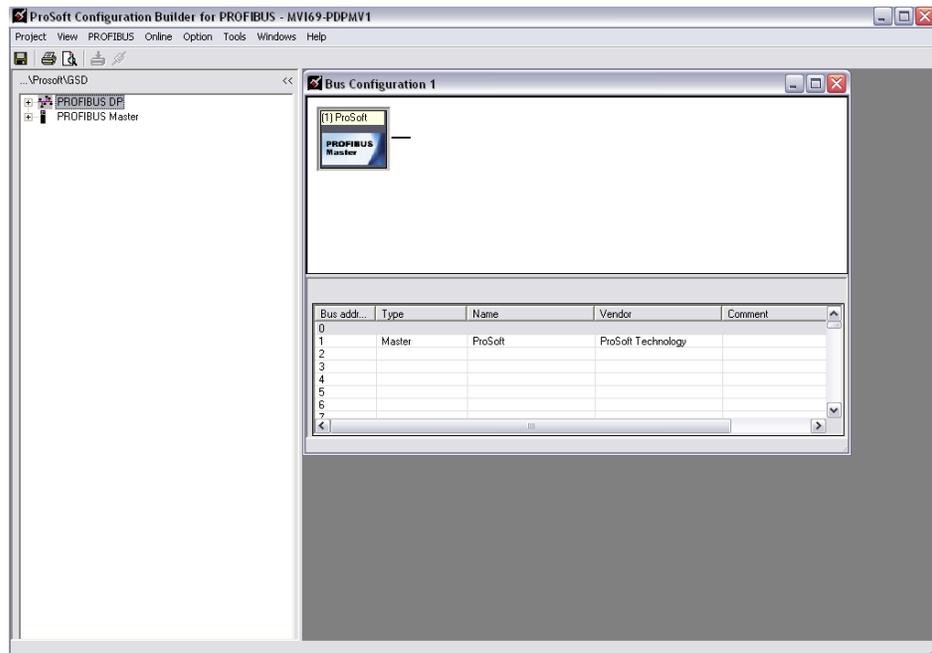


Figure 5 PCB Configuration

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Before you start the setup, be sure that you know where the correct .GSD file resides. If you know that the .GSD file already exists in the proper directory, it will appear under the 'PROFIBUS DP' menu tree. Otherwise, you can simply install it using the 'Tools' menu at the top of the screen (see Figure 5). The file will be provided on the manufacturer's website. However, if you install an already existing .GSD file, it will overwrite and delete the file that exists in the directory.

Since we are using the Anybus DP-V1 module and have copied the correct .GSD file into the proper directory, we expand 'PROFIBUS DP'. There is quite a few modules to choose from, but the one we are using is under 'General' and 'HMS Industrial Networks'. See Figure 6.

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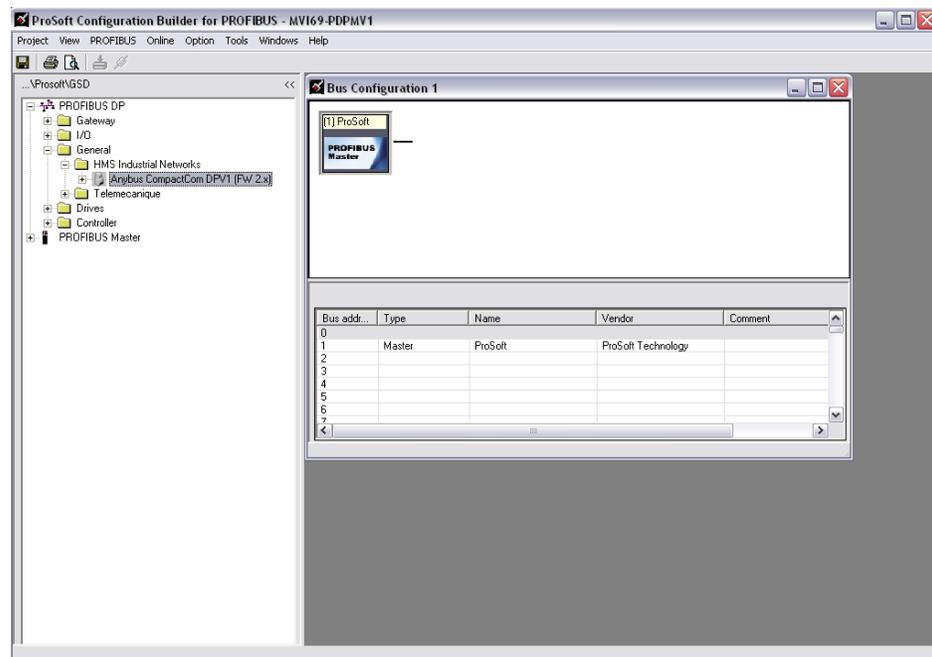


Figure 6 PCB Anybus Module

Simply drag 'Anybus CompactCom DPV1 (FW 2.x)' into the 'Bus Configuration 1' screen. This automatically declares it a slave to the ProSoft Profibus Master module that already exists.

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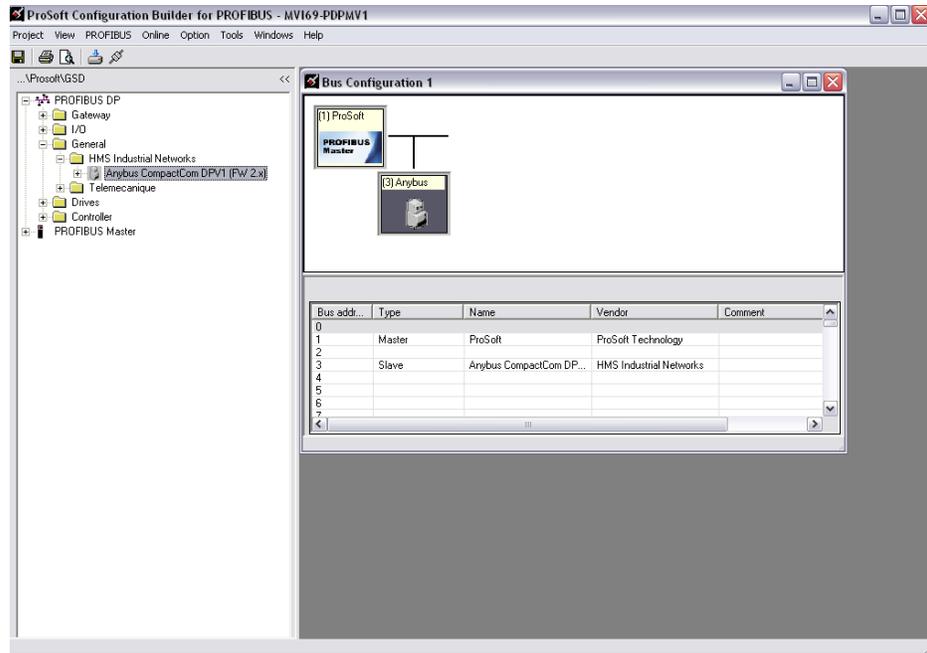


Figure 7 PCB Anybus Slave

Double click the '(3) Anybus' slave and change 'PROFIBUS address' to 4 (This is the value we configured on the AIMCO controller). Click OK.

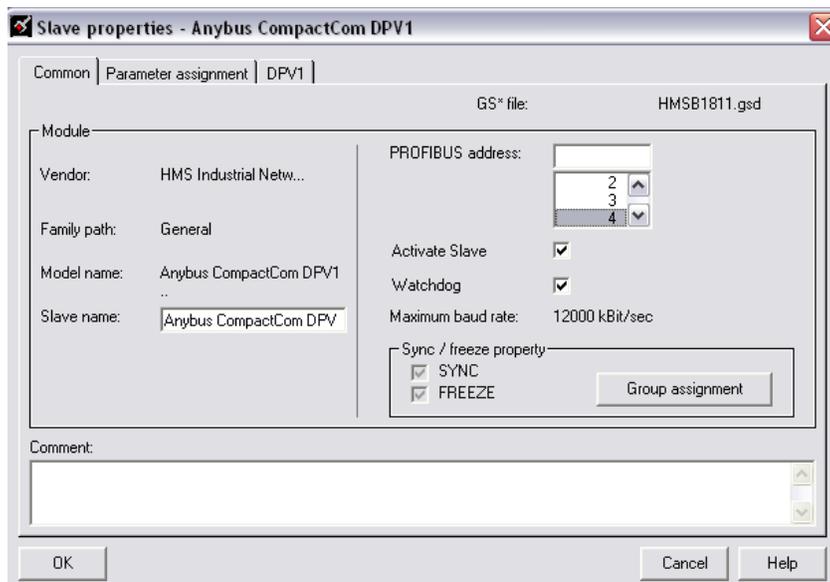


Figure 8 PCB Anybus Slave Address

The defaults for the Anybus on the AIMCO controller are shown in Figure 9. It is critical that the inputs and outputs on both the AIMCO controller and the PCB software match. If these configurations are not the same, there will be no communication between the two devices.

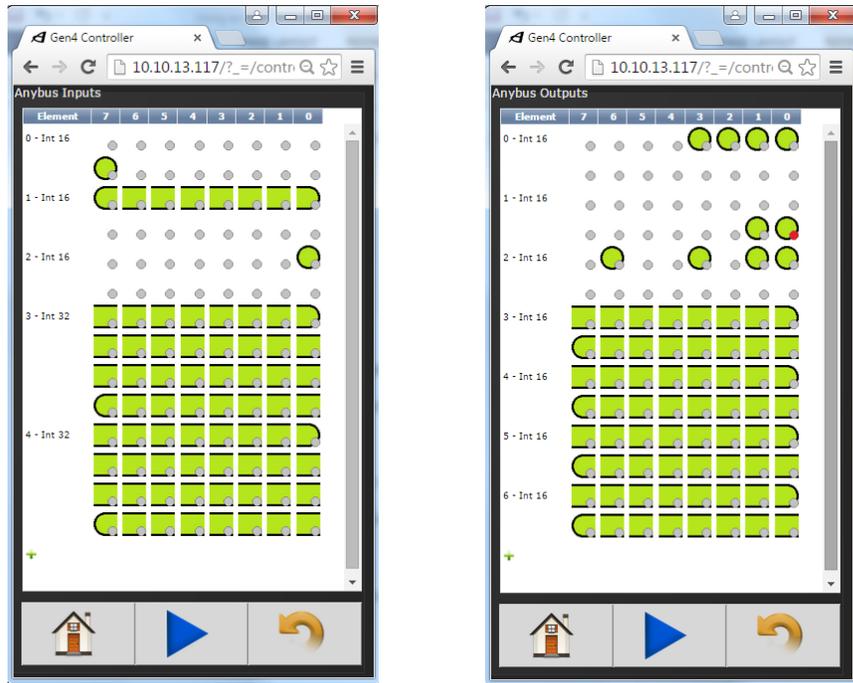


Figure 9 AIMCO Controller Inputs and Outputs

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One very important concept to understand when configuring the inputs and outputs on the PCB software is that the outputs of the AIMCO controller are considered inputs to the Profibus master and vice versa. Thus, we will configure the slave on the PCB software to have 7 input 1-words (AIMCO controller outputs), 3 output 1-words, and 2 output 2-words (see Figure 10). To do this, simply drag the values needed into the cells as shown. Notice that these settings match the default settings shown in Figure 9. Outputs must be at the top of the list. Otherwise, communication will fail.

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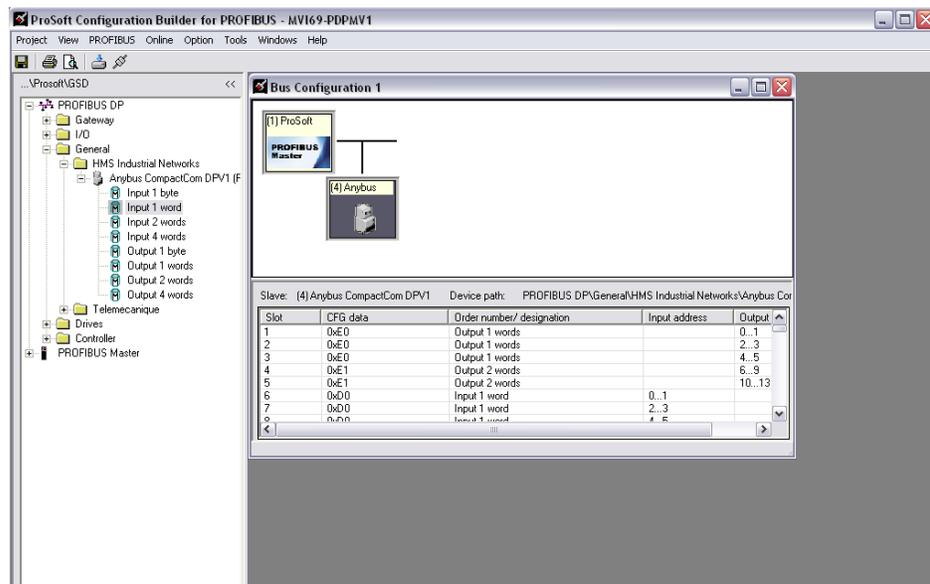


Figure 10 PCB Inputs and Outputs

Save your settings and exit out of the current configuration window. Back at the 'PDPMV1 PROFIBUS Master Setup' menu, click 'OK'.



Right click on 'MVI69-PDPMV1' and select 'Download from PC to Device'.

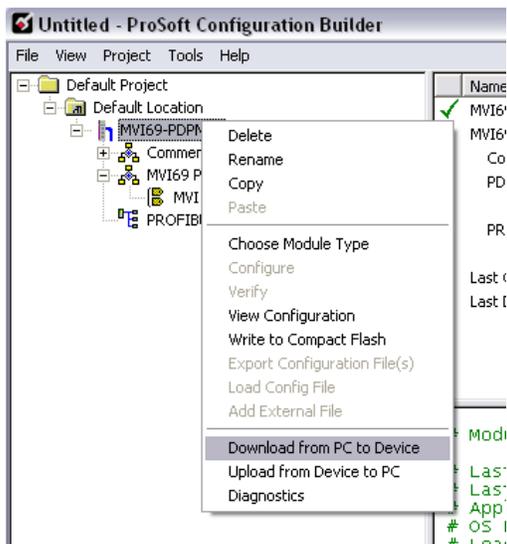


Figure 11 PCB Download

Select the 'Com' port being used to communicate with the Profibus master module. Click 'Download' when ready.

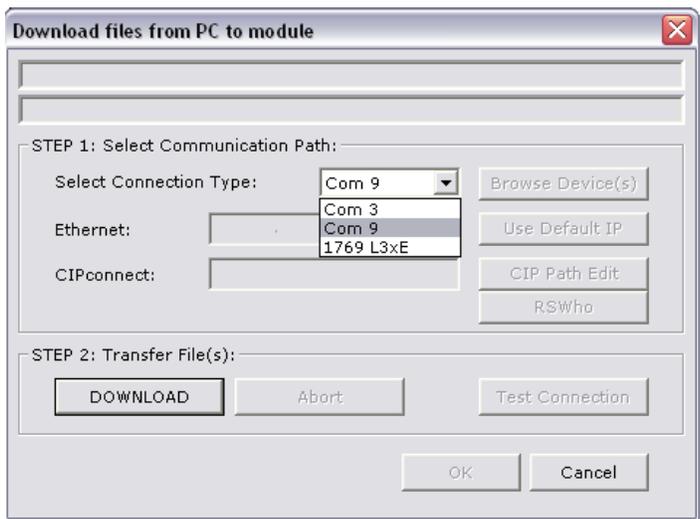


Figure 12 PCB Download

The AIMCO controller may need to be rebooted when the download has finished. Verify that all four lights at the bottom left of the Profibus Master Module are lit green.

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