Configuring a Rockwell PLC with Modbus TCP

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Introduction
Many AIMCO torque controllers come standard with Modbus TCP. 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 Modbus TCP.

Equipment/Software
- Modbus capable controller from AIMCO.
  - Generation 4 controller (IEC4EGVP).
- MVI69-MNET Modbus TCP/IP Master Module.
- ProSoft Configuration Builder version 4.1.0 (Build 4).
- RS-232 to RJ-45 Adapter.

Initial Setup
- Connect RS-232 to RJ-45 adapter to the Profibus module ‘CFG’ port.
ProSoft Configuration Builder

This document was developed in parallel with ‘Using an AIMCO Controller on a Rockwell PLC with Modbus TCP’. It will establish the connection between the Modbus TCP Master Network Interface Module and the Modbus TCP capable slave.

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-MNET. Mark the correct field in ‘Product Line Filter’ as well as the drop down menu under ‘Select Module Type’. See Figure 1

![Figure 1 PCB Module Type](image)

Click ‘OK’ when finished. The following screen should match Figure 2.
Expand the ‘MVI69-MNET’ tree under ‘Default Location’ that now replaces the existing ‘Default Module’. In that menu, expand ‘Module’ and double click ‘Module’. Change the ‘Read Register Count’ and ‘Write Register Count’ to 300. Also change the ‘Write Register Start’ to 1000. See Figure 3. Click ‘OK’.
Now expand ‘MNET Client 0’ and double click ‘MNet Client 0’. Change the following:

- Error/Status Pointer - 4800
- Command Error Pointer - 4810
- Minimum Command Delay - 100
- Response Timeout - 100
- Retry Count - 1

Click ‘OK’.

Expand ‘MNet Client 0 Commands’. To create a command, simply click ‘Add Row’ and make editions using ‘Edit Row’. Configure the commands according to Figure 5. Click ‘OK’.
Figure 5 PCB Modbus TCP Client Commands

Expand ‘MNet Servers’ and double click ‘MNet Servers’. The only value to change here is ‘Output Offset’ from 0 to 15. Click ‘OK’.

Figure 6 PCB Modbus TCP MNet Servers
The last step in this process is to change the ‘Ethernet Configuration’ under the ‘MVI69-MNET’ tree. These values need to match the values on the Modbus module. If this does not match up, there will be no communication between the two devices. Click ‘OK’ when finished.

![Figure 7 PCB Modbus TCP Ethernet Configuration](image)

Save your settings. Right click on ‘MVI69-MNET’ and select ‘Download from PC to Device’.
Select the ‘Com’ port being used to communicate with the Modbus master module. Click ‘Download’ when ready.

The AIMCO controller may need to be rebooted when the download has finished.