Ethernet RAC and Gateway Setup Instructions

Rev. 02

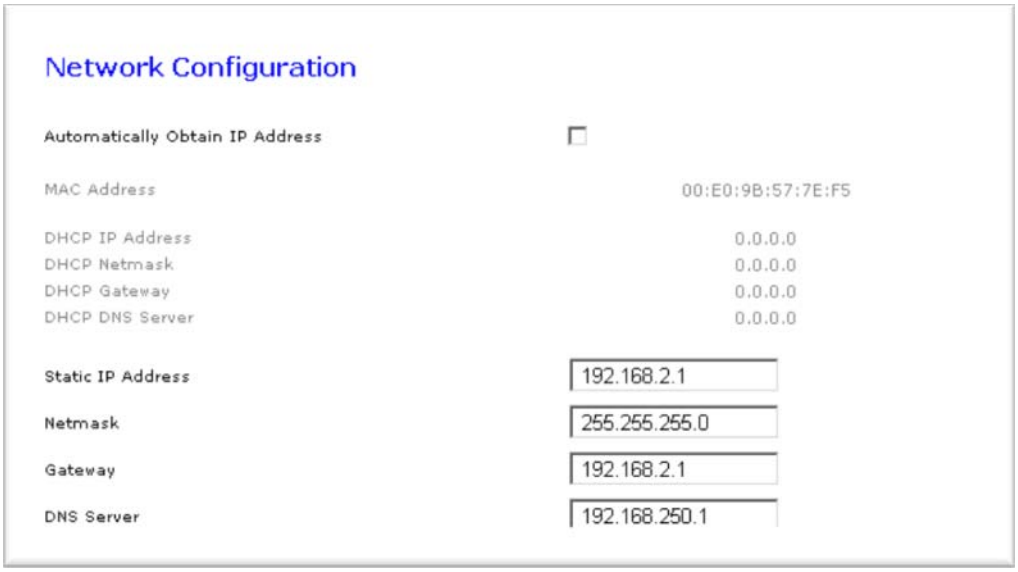
This document will go over the procedure for setting up the Ethernet RAC with one or more PXG gateways for use in a customer's ATS controller network.

General Operation Theory

With the release of the new Ethernet-enabled RAC's (HMIVU07CUNBE, HMIVU08CUNBE, and HMIVU10CUNBE), it is now possible to monitor any number of ATS switches in a facility with Ethernet networks. The Eaton PXG-200/400/600E provides an easy-to-manage serial Modbus to "Modbus TCP/IP" gateway. With proper configuration and coordination from the customer's IT department, it is possible to install multiple gateways on an existing network, and attach the RAC on any Ethernet port throughout the facility. **Note: Due to the nature of the HMI addressing, it is necessary that each Ethernet HMI is configured either before shipping (if gateway IP and controller Addresses are known first), or by an on-site technician.**

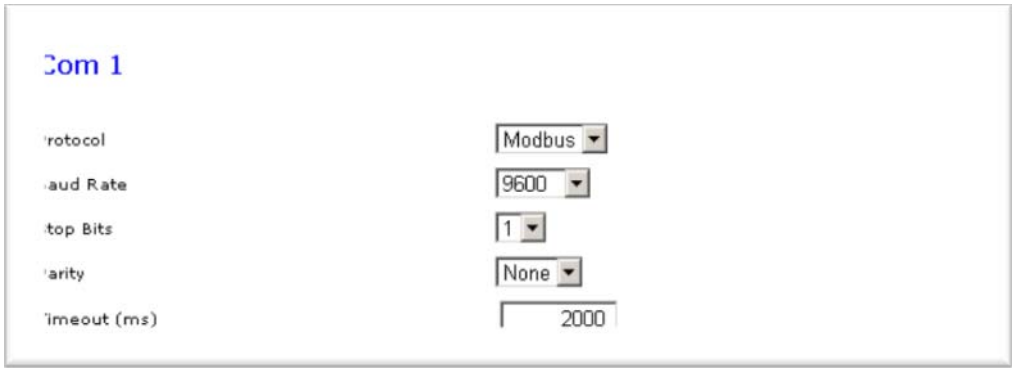
Preparing your PXG Gateways

- Connect the first PXG gateway to your PC via USB cable and power the unit up. It will take about 2 minutes before it is ready to use (indicated by solid power light with no other lights on).
- Open a web browser and enter the following URL (on an un-programmed PXG only): http://10.23.6.5/ (Note, your IP may be different from the Factory).
- The username/password is: admin/admin
- On the left column, click the Network Config. link, and the following screen will open:



- You'll need to configure your Static IP, Netmask, Gateway, and DNS Server for the PXG. If you won't be connecting to an existing network, then this can be setup however you wish (I used the above numbers in my test setup successfully since there was no existing gateway/DNS server). If not, you will need to coordinate these settings with the plant's IT department. **Note that each gateway MUST have a unique Static IP address.** The Netmask, Gateway, and DNS Server settings will depend on the existing network setup.
- Next, navigate to the Modbus TCP menu on the left column; it will open this screen:

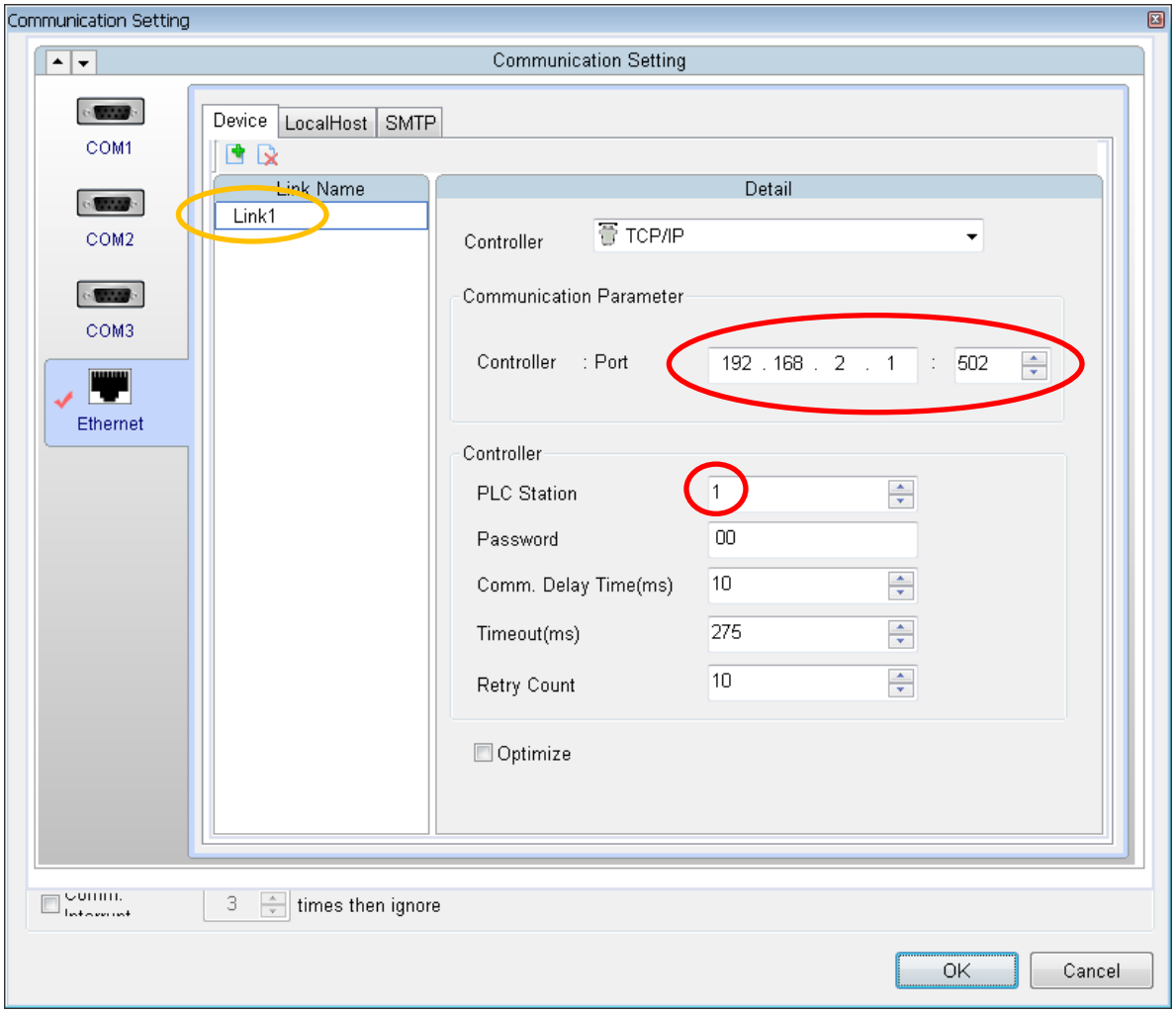
- You will want to click the Enable and Enable Writes check-boxes. Enter in a port (the default is 502) that the Modbus TCP packets will be sent to/from. **Note: Make sure that your port is open and forwarded correctly in any firewalls/routers on the network.** Set your com timeout (default of 10000ms is fine).
- The final task is to set COM 1. Click on the "Com 1" button in the left column. You will see this screen:



- Your configuration should match this exactly unless you manually changed the Baud Rate of the ATS controllers to something other than 9600.
- Your PXG Gateway is now configured to convert RS-485 Modbus to Modbus TCP/IP and vice versa!
- Repeat this process for any additional PXG gateways you may have, making sure that each one has a unique IP.
- You should now save your PXG configuration(s) as an XML file by clicking on Save/Restore Configuration. This will be very useful if the customer ever needs a replacement PXG unit sent out to them.

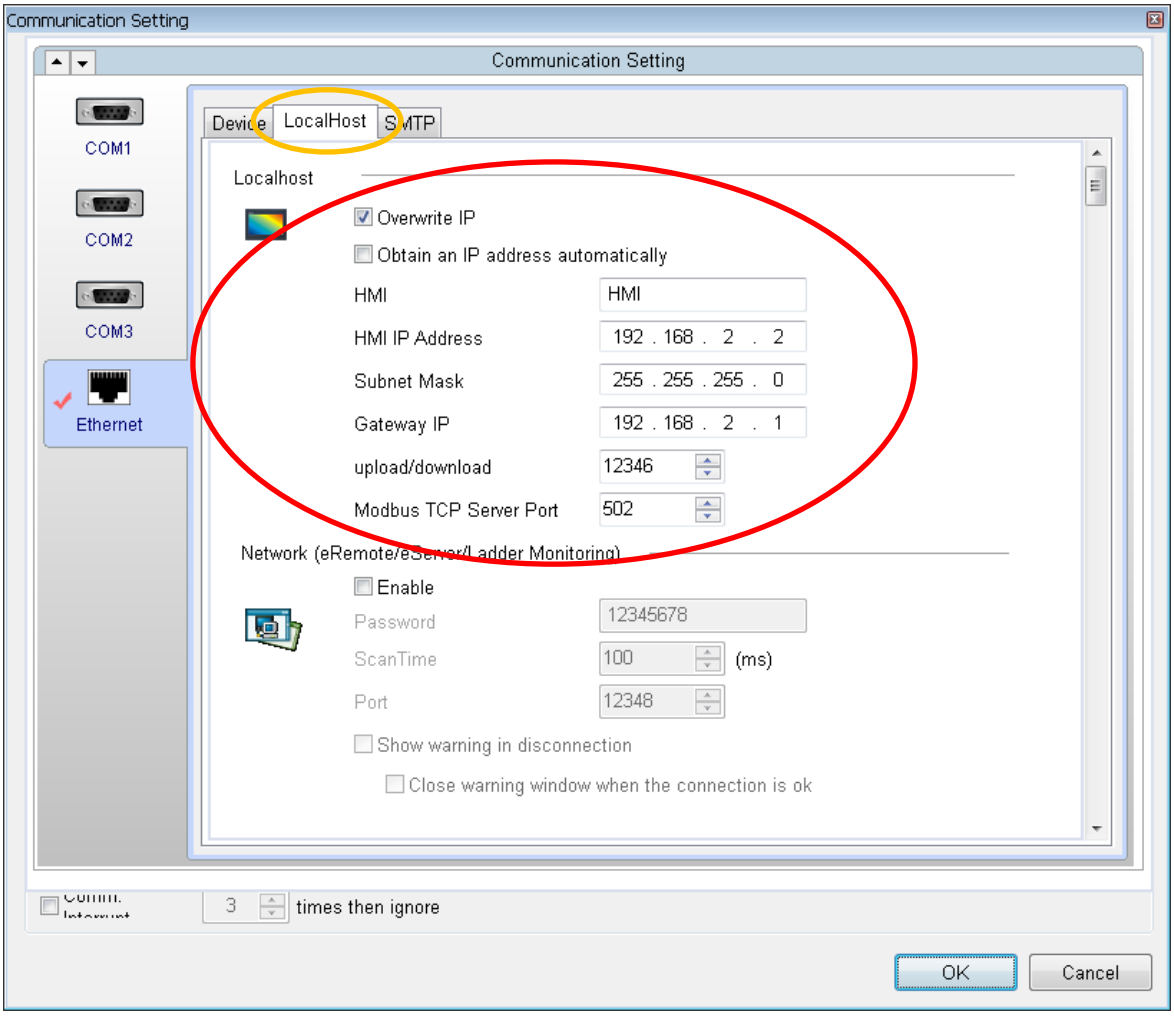
Configuring the HMI

- First, we'll want to be sure the Ethernet setup on the HMI is configured to connect to the PXG(s) and the existing Ethernet network (if there is one).
- Open your HMiSoft file, enter the password, and navigate to Options->Communication Setting. You screen should look like the following:



- Make sure that you have the correct number of Links under the Ethernet port.
  - For a 4-unit HMI setup, you should have 4 links. For a single-unit HMI, you will only have a single link.
- Click on the first link under the Ethernet category (circled in orange).
- For each of the controller links (Link 1, Link 2, Link 3, Link 4, etc.), enter the corresponding TCP/IP Gateway's static IP address in the "Controller : Port" field, and make sure your port # matches the port setting in the gateway (502 in this example).
- Set your "PLC Station" to match each controller's assigned Modbus Address.

- Next, click on “Local Host” (circled in orange below). This will let you configure the HMI panel’s IP address, subnet mask, gateway IP, and upload/download port. **You will want to coordinate with the plant IT dept. on available IP addresses for your HMI, and which gateway IP to use to ensure a connection to the PXG.**



- Make sure the “Overwrite IP” box is checked and enter in the IP address that the HMI should have. **Note: if the HMI will be connected to a DHCP server, you can simply click the “Obtain an IP address automatically” checkbox to have the IP set via DHCP.**
- The Upload/Download port is for sending programs to the HMI remotely if you are connected to the same network as the HMI. This port will need to be open and correctly forwarded if there are any firewalls/routers in front of the HMI panel network if you wish to use that feature.

Your HMI and PXG combination should now be properly configured. If possible, a quick connectivity check should be done with the hardware in-house before shipping to the customer. This will give you confirmation that your settings are correct and everything is

working. However, this will most likely not be possible if there are existing routers/firewalls in the setup.

Preparing the ATC-300+

The only options that need to be changed on the ATC-300+ are “Address” and “Baud Rate”.

Navigate to the Address setpoint and make sure that each controller in your network has a unique Modbus address number. This address MUST match the PLC Station you set in your HMI program above.

Next, navigate to the “Baud Rate” setpoint, and make sure it is set to match the baud rate you set in the PXG COM 1 setting in the beginning of this document. The default is 9600.

Preparing the ATC-600/800

The controller itself does not have any affected setpoints. What we are interested in is the MPONI attached to the controller.

Locate the 3 address selector switches and turn them to set the Modbus Address for your controller. This number MUST match the PLC Station you set in your HMI program above.

Next, locate the Baud Rate selector switch, and make sure it is set to match the baud rate you set in the PXG COM 1 setting in the beginning of this document.