



Subject: EtherNet/IP Configuration	Product: MPiec Controllers	Doc#: AN.MPIEC.08
Title: Configuring an MPiec controller to communicate with a Phoenix Ethernet/IP bus coupler		




Use this document to configure an MPiec controller to communicate with a Phoenix Ethernet/IP bus coupler.

To properly configure the Phoenix bus coupler, the correct size for the input and output instances must be determined. The correct size is based on the number and type of inline terminals added to basic bus coupler.

Please consult the Phoenix manual under the section titled “Bus Coupler Mapping” for determining the correct number of bytes based on the I/O modules present, or connect to the bus coupler with a web browser and view the data sizes on the *Inline Station -> Bus Configuration* page.

The screenshot shows a web browser window with the URL <http://192.168.207...>. The page title is "IL EIP BK D18 DO4 2TX-PAC" with a last update time of 9:46:20. The main content area is titled "Bus Configuration" and contains the following information:

- Produced size in bytes: 4 (Module Inputs)
- Consumed size in bytes: 2 (Module Outputs)
- Baudrate: 2 MBaud

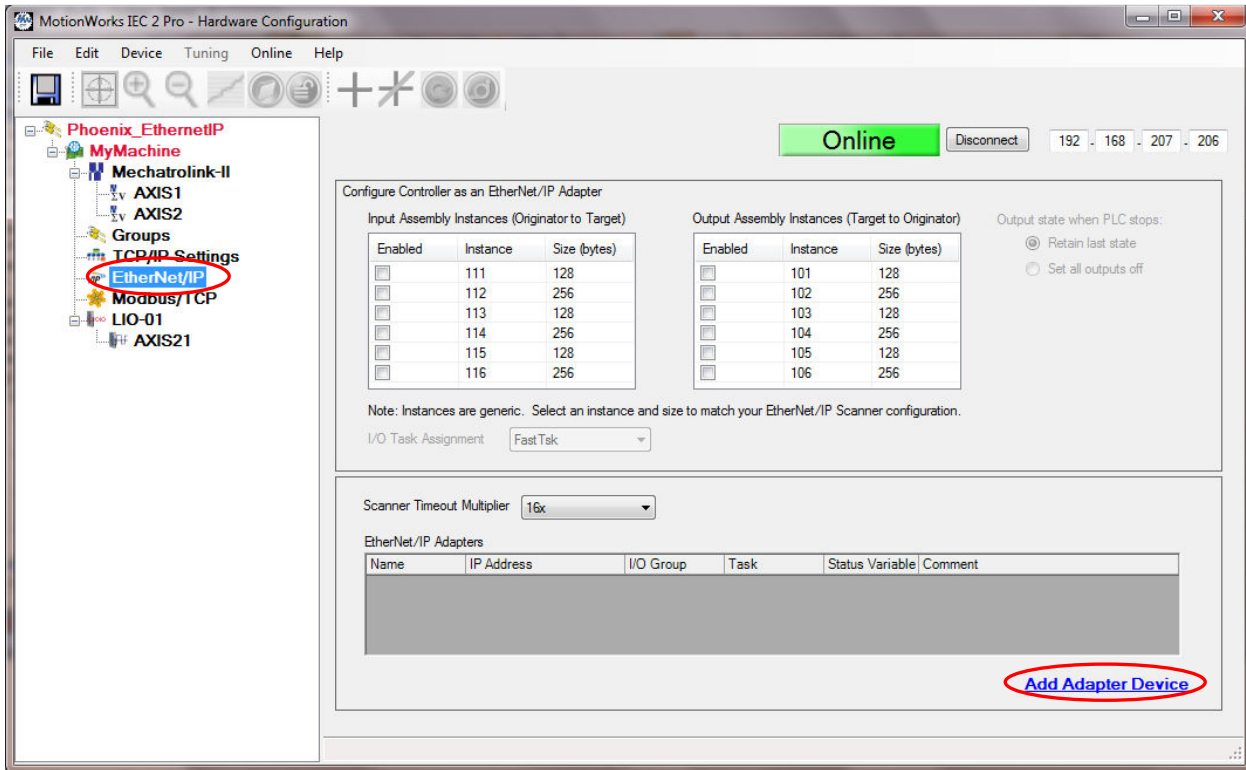
Number	Symbol	Description
0		IL EIP BK D18 DO4
1		Module with 4 digital outputs.
2		Module with 8 digital inputs.

The left sidebar contains a navigation menu with the following items:

- General Instructions
- Device Information
- Device Configuration
- Inline Station
 - Services
 - Process Data Monitoring
 - Remote Diagnostics
 - Bus Configuration
 - PCP Configuration
- Home

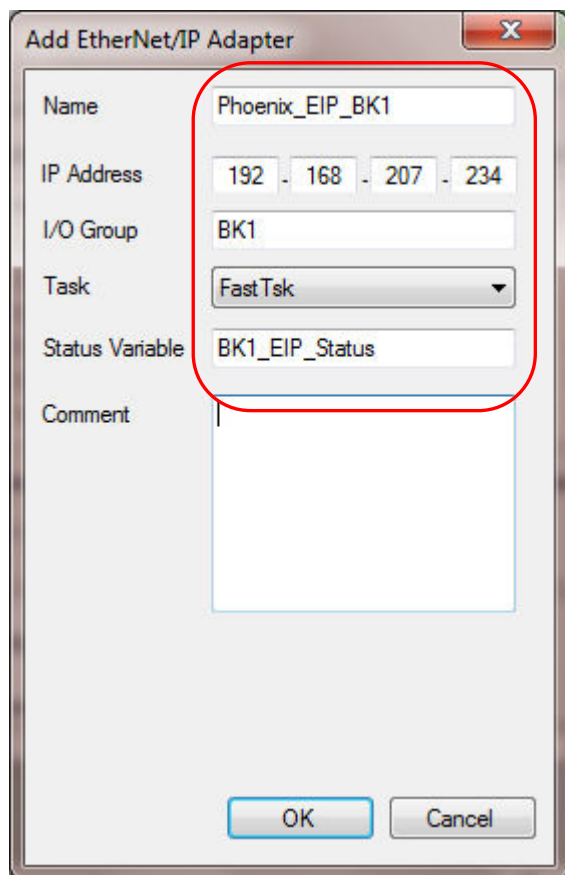


Open Yaskawa’s MotionWorks IEC Hardware Configuration, go online with the controller, and select the *Ethernet/IP* tree node on the left side of the screen.



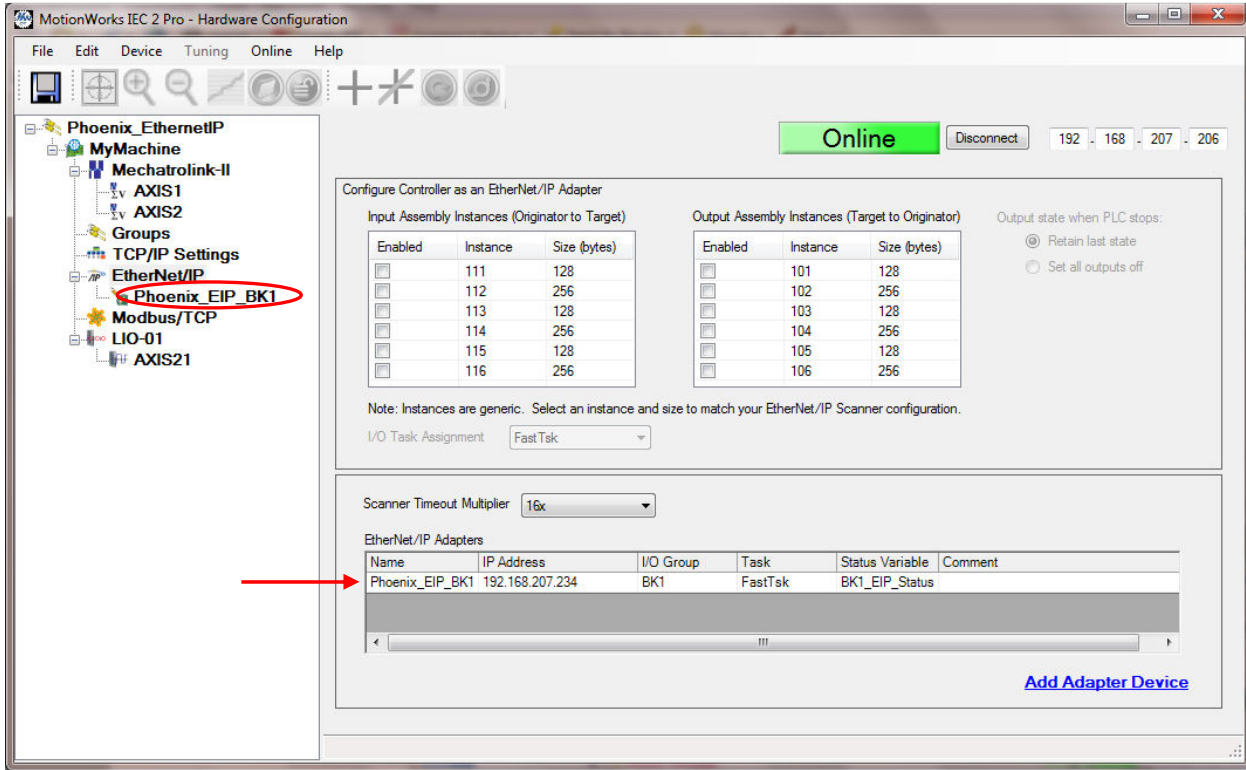
Select the “Add Adapter Device” link at the lower right of the screen.

Enter the information for the Phoenix Ethernet/IP bus coupler.

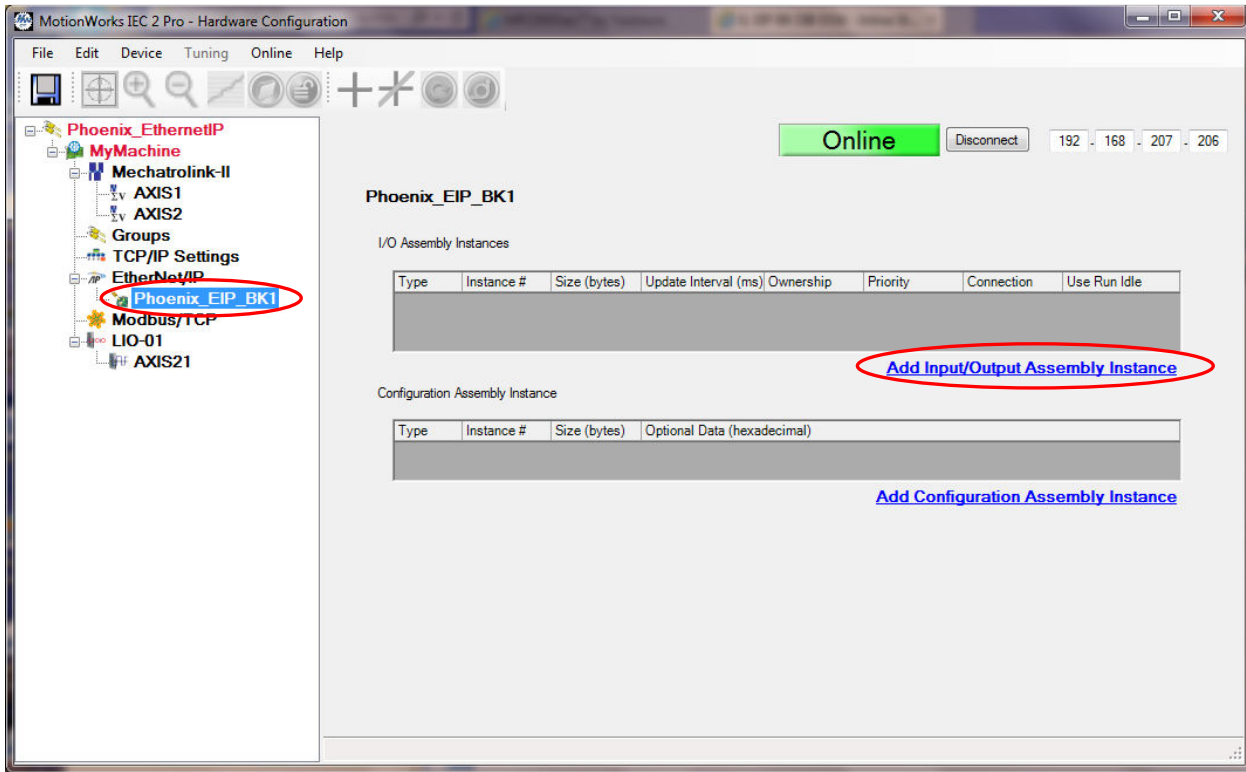


The name is used for display in the Hardware Configuration tree. The IP address is the address of the Phoenix bus coupler. The I/O Group will be used as the location in the global variables table to place I/O for this device. Select the application task with an interval appropriate for updating the I/O values in the application program. The Status Variable will be added to the Global Variable list and provides the status of the connection to the bus coupler.

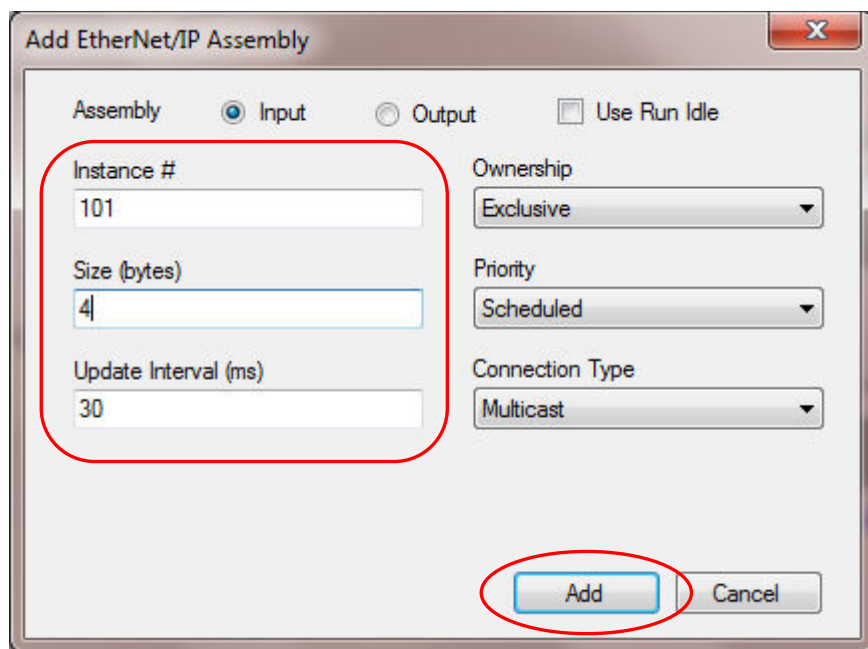
After clicking *OK*, the device will appear in the list of Ethernet/IP adapters and there will be a tree node icon created for this device with the name supplied.



Click on the bus coupler's tree node to continue with the configuration, and click on the "Add Input/Output Assembly Instance."

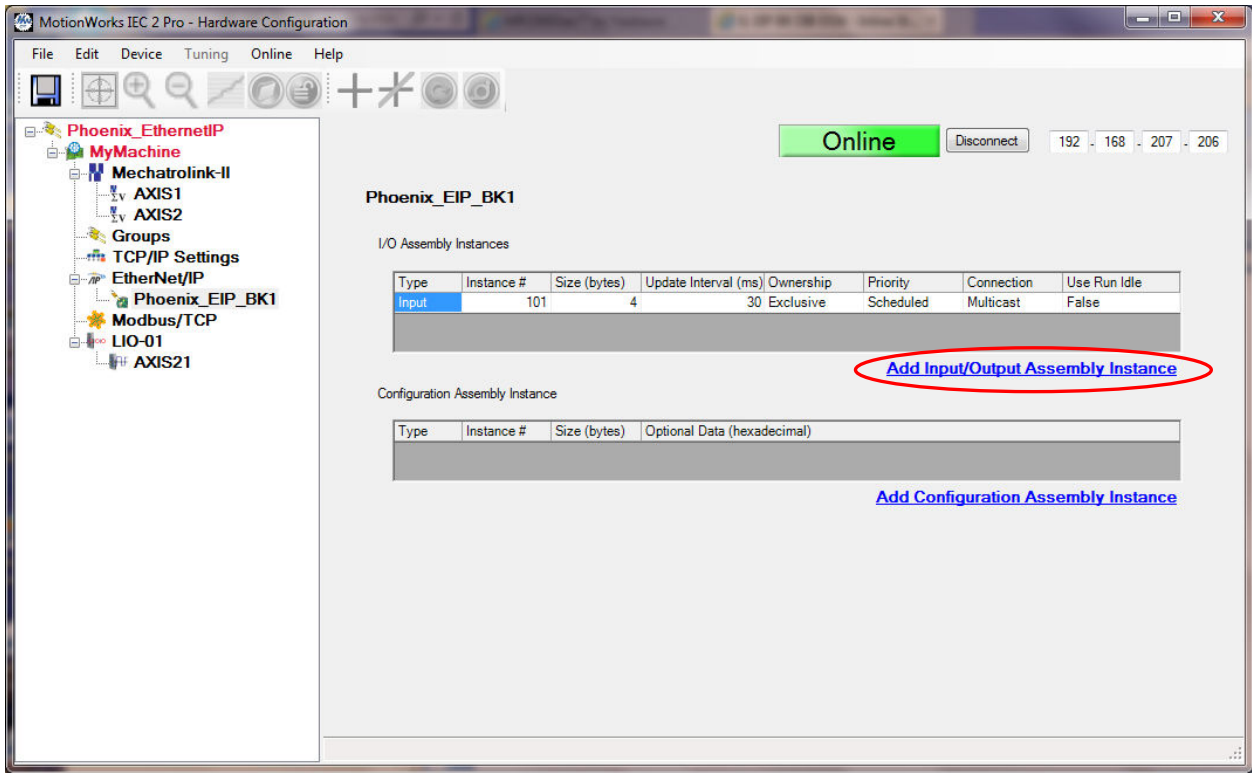


Enter the information for the Input instance. Most values remain at their default, but the user must enter the Instance Number (101), the Size in bytes, and the Update Interval. Instance number 101 is required to communicate with this device. The Size is based on the number of devices or slices that are added to the basic bus coupler. The value shown is for a bus coupler with no additional slices. The Update Interval is the time required for the data to be refreshed. The I/O update will take place at the larger of the two values: Task Time (chosen by selecting the task when adding the device) and Update Interval. For example, if the assemblies update interval is 30ms and a task with a 60ms update interval is chosen, the data will be refreshed to the IEC application every 60 ms, and refreshed on the network every 30ms.

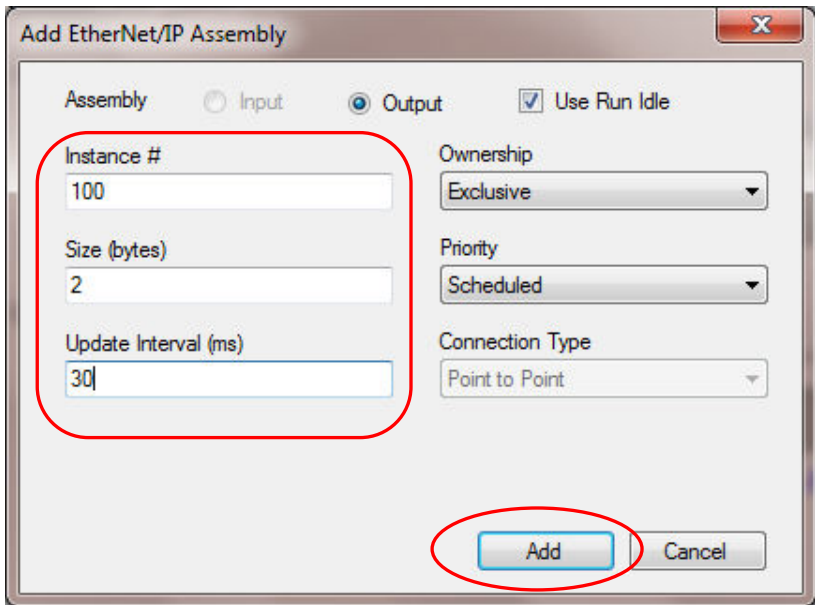


Click the “Add” button to complete adding the input assembly.

Click on the “Add Input/Output Assembly Instance” to add an Output instance.

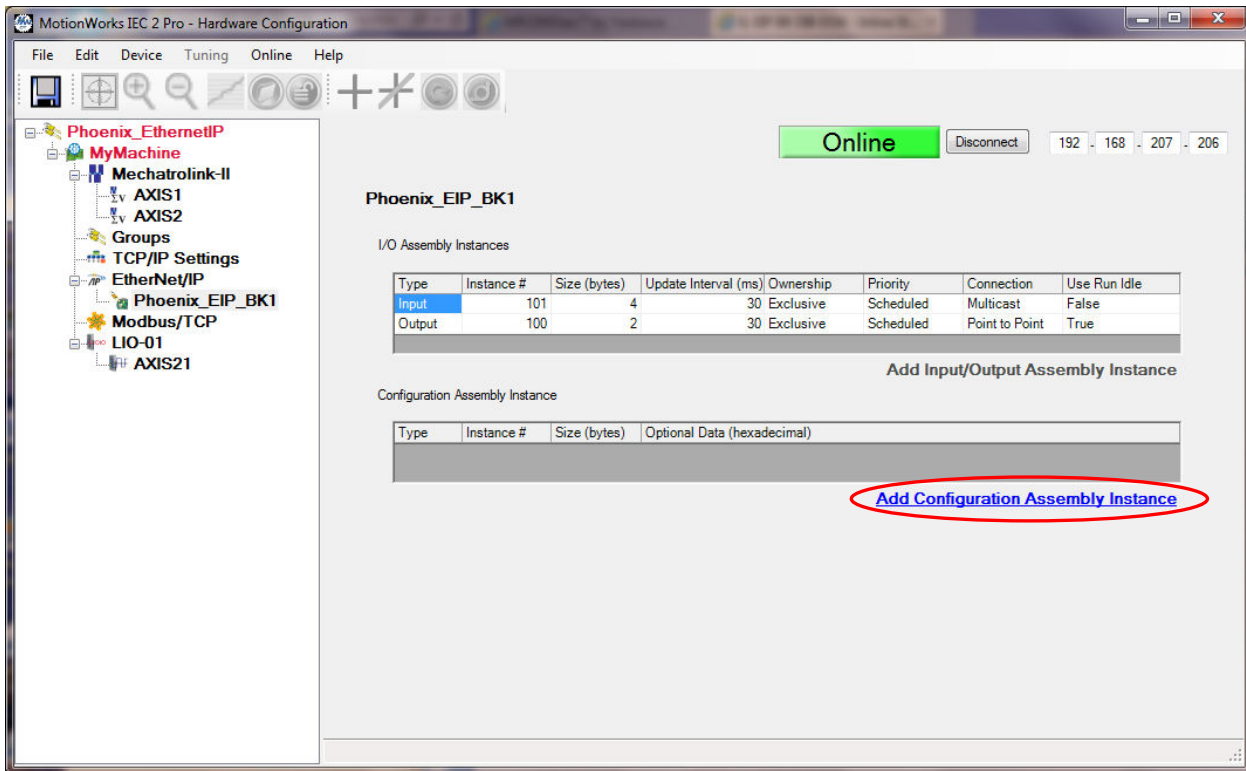


Again, most values remain at their default, but the user must enter the Instance Number (100) required by the Phoenix Bus Coupler, the Size in bytes and the Update Interval. Please consult the Phoenix documentation for determining the correct number of bytes based on the I/O modules present.



Click the “Add” button to complete the output assembly configuration.

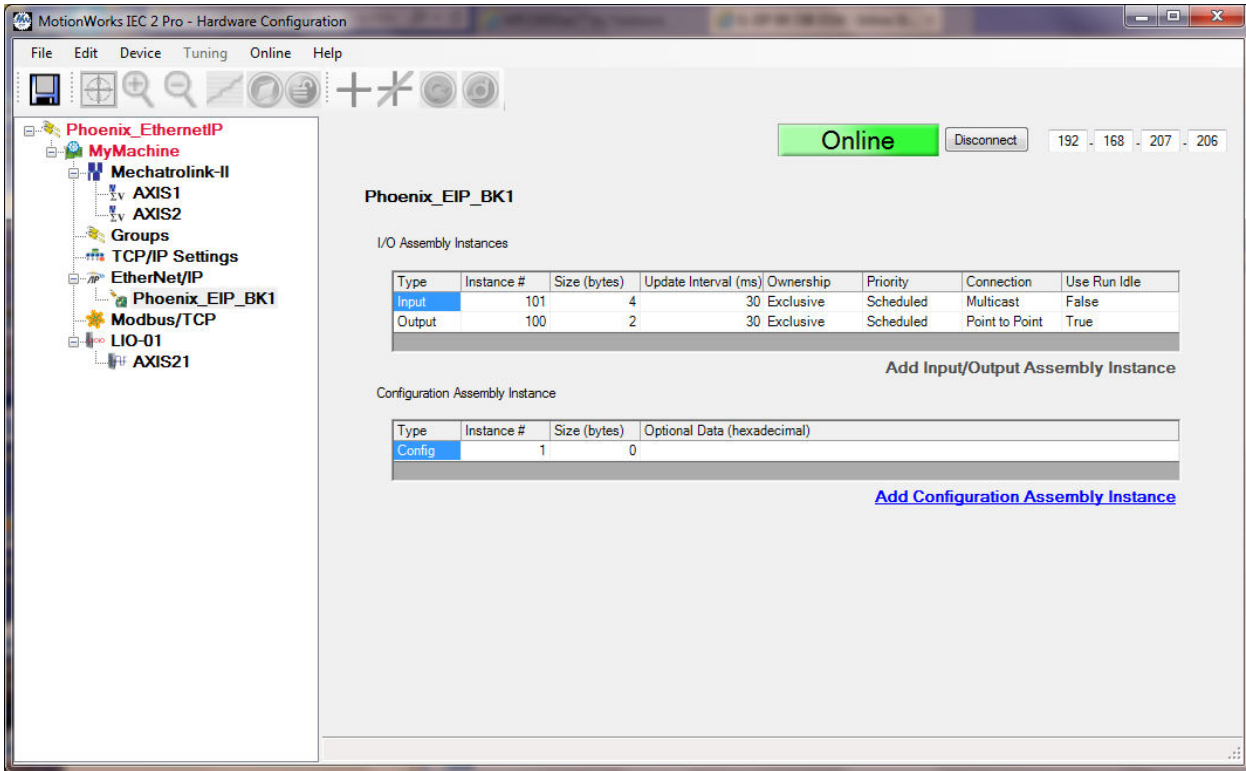
Click on the “Add Configuration Assembly Instance” to add a Configuration instance.



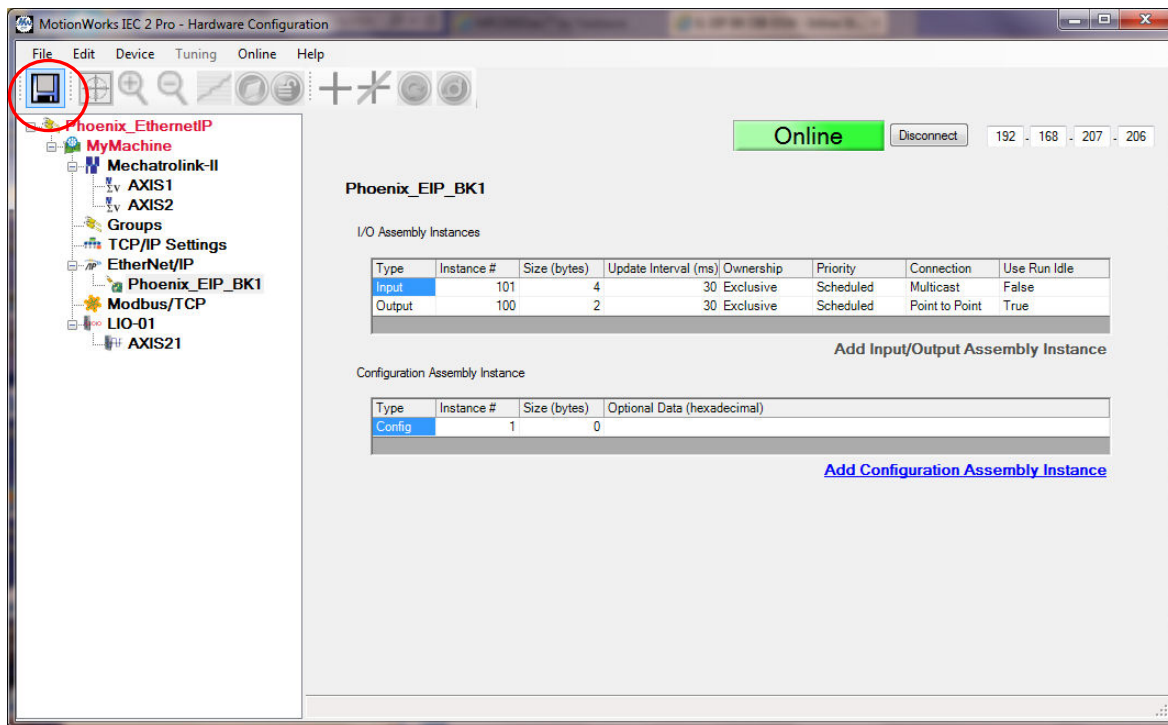
The Configuration Assembly must be added for proper operation. Enter "1" for the Instance Number and "0" for the Size, and then click the "Add" button.

The screenshot shows a dialog box titled "Add EtherNet/IP Assembly". At the top right is a close button with an "X". Below the title bar, there is a "Type" label followed by a radio button selected for "Config". Underneath, there are three input fields: "Instance #" with the value "1", "Size (bytes)" with the value "0", and "Optional Data (hexadecimal)" which is currently empty. At the bottom of the dialog, there are two buttons: "Add" and "Cancel". The "Add" button is circled in red.

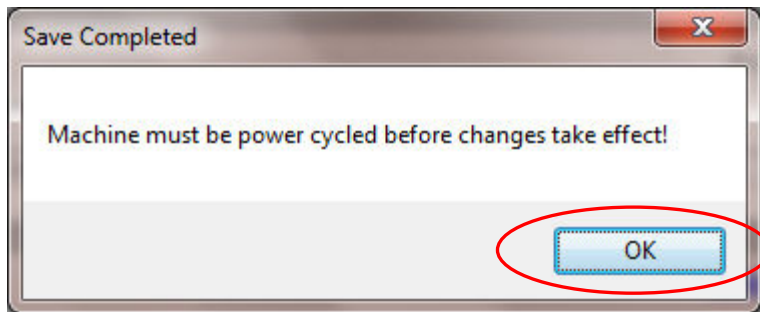
The configuration for a basic Phoenix Ethernet/IP bus coupler (without any added I/O) is shown below.



Click the “Save” icon on the upper right (while online) to save the configuration to the Yaskawa MPiec controller.

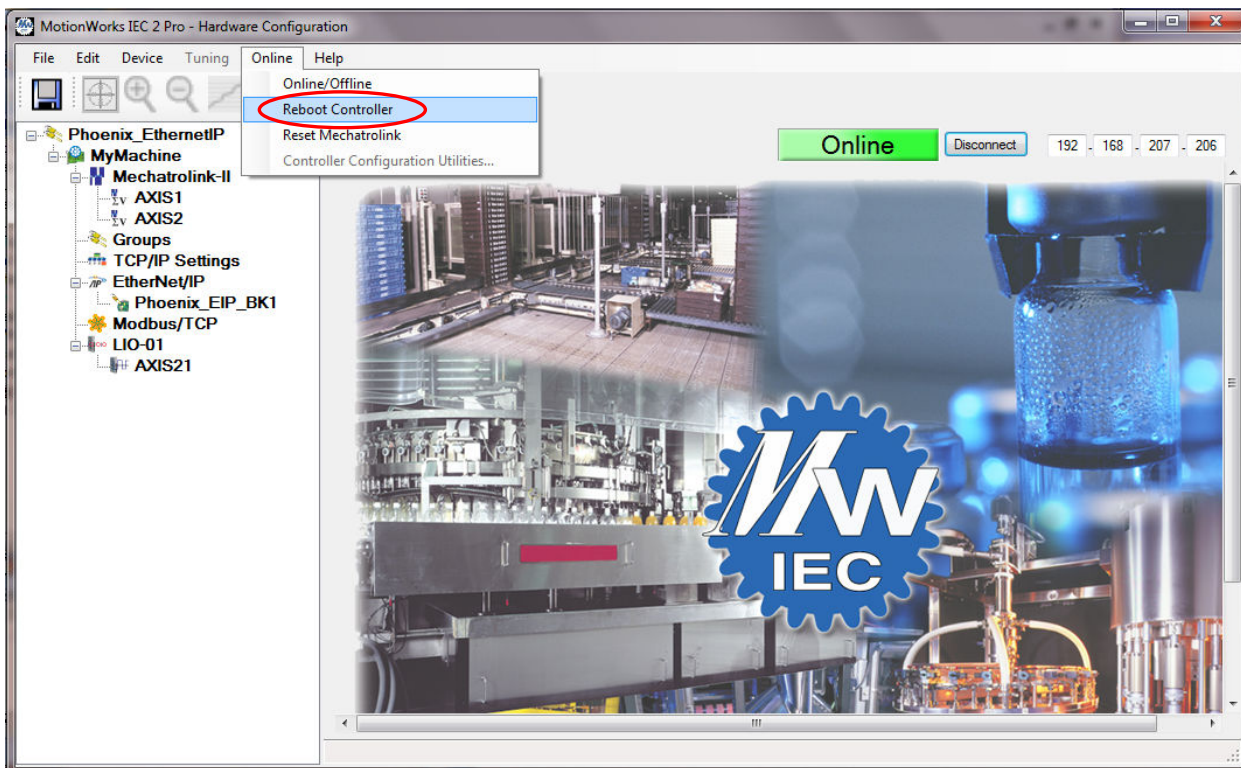


After saving, cycle power or reboot the Yaskawa MPiec controller to begin using the new configuration.

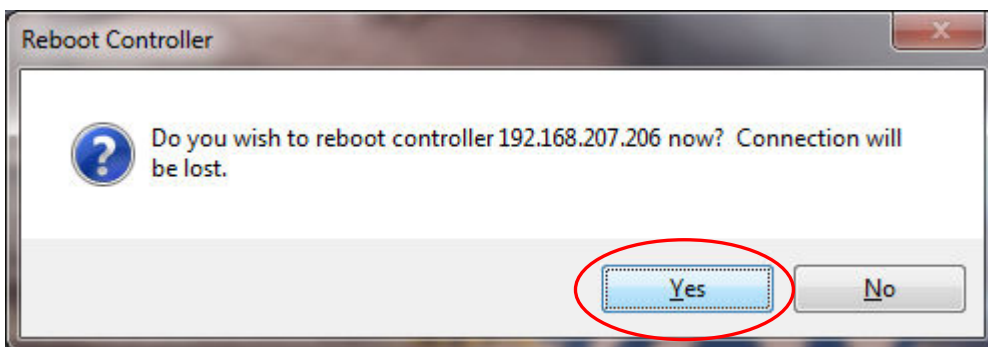


Click “OK” in the Save Completed dialog box.

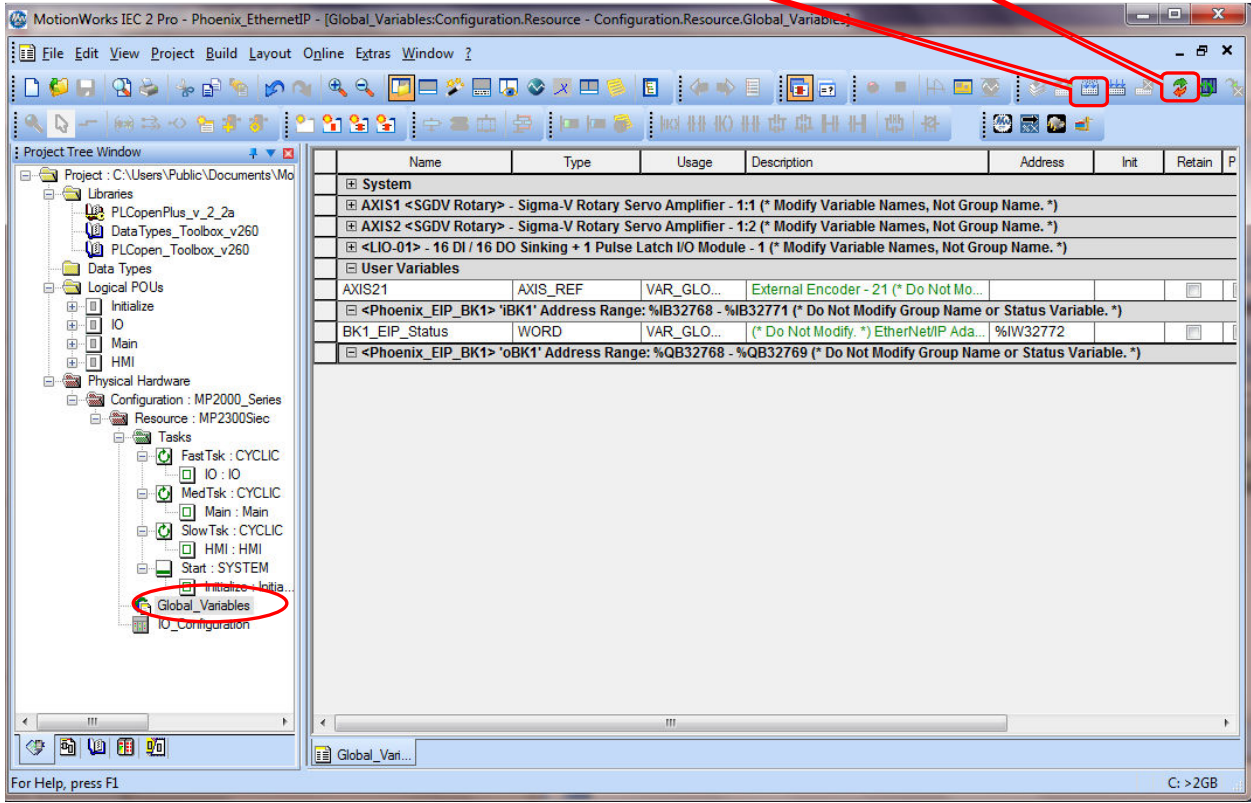
Reboot the controller by selecting “Reboot Controller” from the *Online* menu.



Click “Yes” to reboot the MPiec controller .

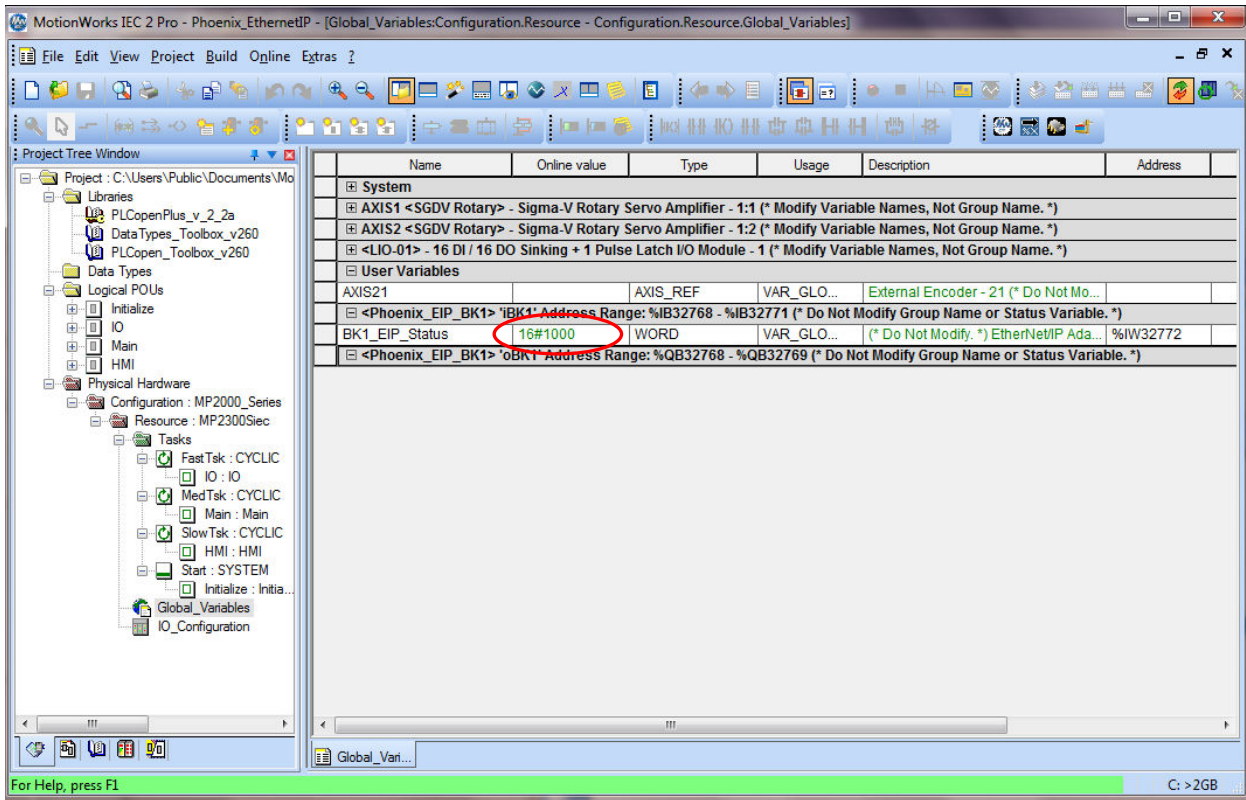


In the MotionWorks IEC project, click compile and then enter debug mode after the controller has finished powering up.



Click on global variables to see the bus couplers network status variable.

The controller should now be communicating with the bus coupler, as indicated by the value of 16#1000, or 4096 decimal in the status variable. If the bus coupler is connected and powered up, but the status variable does not indicate communication is OK, check the MotionWorks IEC Hardware Configuration help section called “Adding an Ethernet/IP Adapter” for the meaning of other status values.



Adding variables: Note from the group names below that the input group starts at memory location %IB32768 and the output group starts at %QB32768. The bus couple contains two status bytes which are also included. These are found in the first input word of the data area. (%IW32768)

The first input word is the bus coupler’s status and the second input word contains 8 bits of data. The variable “BK1_Status_Word” is mapped to %IW32768 and variable “BK1_Inputs” is mapped to %IW32770.

For the outputs, 4 bits of data are located in the first word. “BK1_Outputs” is mapped to %QW32768.

Note that the complete address range allocated for the bus coupler includes memory up to 32771 for the inputs and up to 32769 for the outputs, as shown below in the Phoenix group header. If additional slices are added, this memory area will become larger.

Consult the Phoenix manual under the section titled “Bus Coupler Mapping” to properly locate variables for each slice.

