

Subject: Application Note	Product: MPiEc Series Controller	Doc#: AN.MP2000iec.01
Title: SLC 5/05 Ethernet/IP Communications with an MPiEc Series Controller		

Application Note

SLC 5/05 Ethernet/IP Communications with an MPiEc Series Controller

Applicable Product: MPiEc Series Controllers



Subject: Application Note	Product: MPiec Series Controller	Doc#: AN.MP2000iec.01
Title: SLC 5/05 Ethernet/IP Communications with an MPiec Series Controller		

Application Overview

The Allen-Bradley SLC 500 series controllers in the past did not have a direct Ethernet/IP interface as the CompactLogix and ControlLogix series of controllers. Firmware version updates and newer series have made it possible for the SLC 5/05 with its built in Ethernet port to initiate peer to peer type communications using Ethernet/IP protocol and the EEM instruction. The EEM instruction is very similar to the old MSG instruction used in peer to peer communications with Allen-Bradley controllers. This enables a SLC 5/05 processor to communicate to the Yaskawa MPiec Series Controllers without a gateway or 3rd party device. This application note explains how to configure the SLC 5/05 CPU with RSLogix 500 to communicate to a Yaskawa MPiec Series Controller via the Ethernet/IP protocol.

Products Used:

Component	Product and Model Number
PLC	SLC 5/05 Series A OS501 FRN5, Series B FRN07, series C FRN10
Controller	Yaskawa MP2300Siec
Software	RS Logix version 7.10 or higher, MotionWorks IEC v1.3.9
Third Party Devices	Ethernet cables, Hub or Switch

Subject: Application Note	Product: MPiec Series Controller	Doc#: AN.MP2000iec.01
Title: SLC 5/05 Ethernet/IP Communications with an MPiec Series Controller		

Application Requirements

The Ethernet/IP protocol built into the Yaskawa MPiec Series Controllers. The MPiec Controller may be configured as an adapter or scanner using the Ethernet/IP protocol. Because the SLC 5/05 is using the EEM instruction, it will initiate the reads and writes (scanner), the Yaskawa MPiec Controller should be configured as an Ethernet/IP adapter.

Application Specifications and Constraints

- RSLogix 500 software version 7.10 and higher
- 1747-L551, L552 or L553 Series A OS501 FRN5. Series B FRN07 or higher Series C FRN10 or higher.

Application Solution and Benefits:

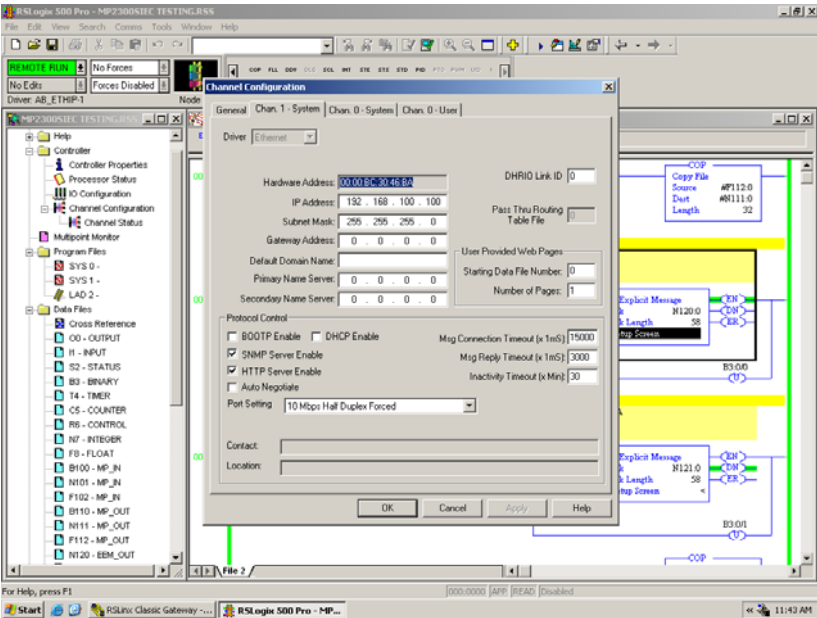
SLC 5/05 communications via Ethernet/IP requires the EEM instruction which establishes a connection to the Ethernet/IP device, in this case the MPiec machine controller, executes the communication task and closes the connection. In this instance the MPiec controller will be the Ethernet/IP adapter but unlike ControlLogix or CompactLogix instead just making the MPiec controller a polled generic I/O device now CIP communications details must be entered to configure the EEM instruction to communicate to the MPiec from the SLC 5/05. Therefore an individual EEM will be used to write data to the MPiec Controller and a second EEM instruction will be used to read data from the MPiec Controller.

Subject: Application Note	Product: MPiec Series Controller	Doc#: AN.MP2000iec.01
Title: SLC 5/05 Ethernet/IP Communications with an MPiec Series Controller		

Implementation Method of Core Operation

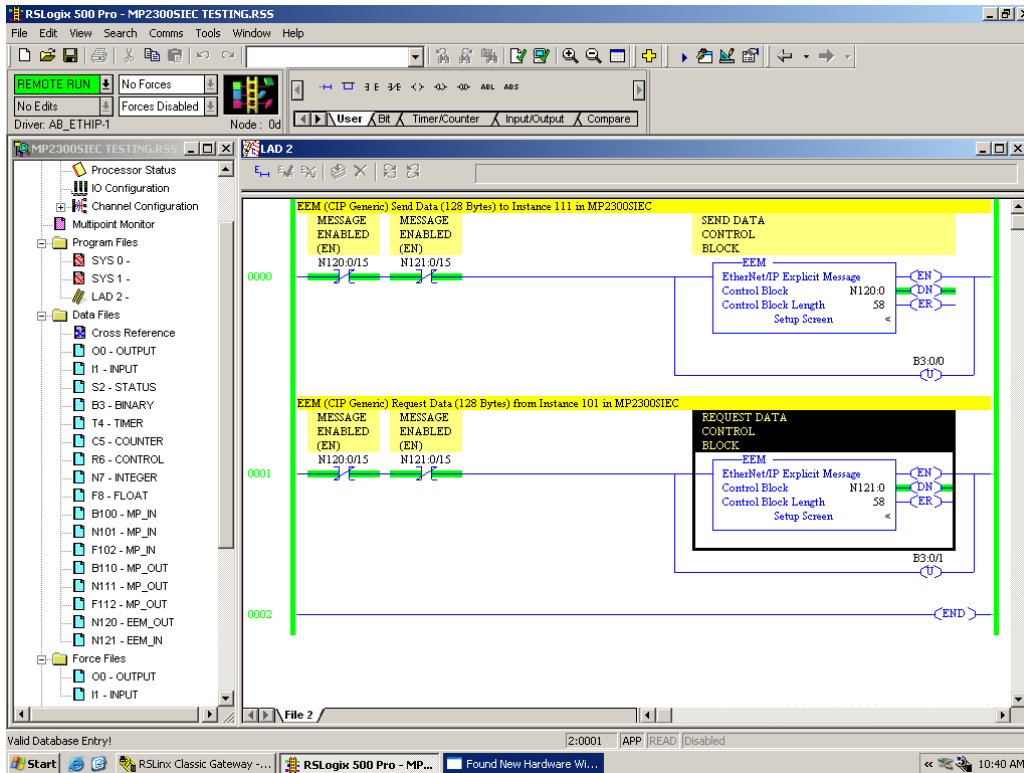
Configuration of the SLC 5/05.

1. In the project tree double click on the Channel Configuration icon to expose the Channel Configuration form. Go to the Channel 1 configuration tab to set up the Ethernet port to communicate Ethernet/IP.



2. Set the IP address of the SLC 5/05 for your systems IP addresses.
3. Consideration of the Auto Negotiate checking based on the application. Please refer to the Rockwell Automation SLC 500 Instruction Set manual for details, Publication 1747-RM001G-EN-P.

4. Insert an EEM instruction to read an Ethernet/IP instance from the MPiec Controller. Insert an EEM instruction to write to the Ethernet/IP instance to the MPiec Controller.

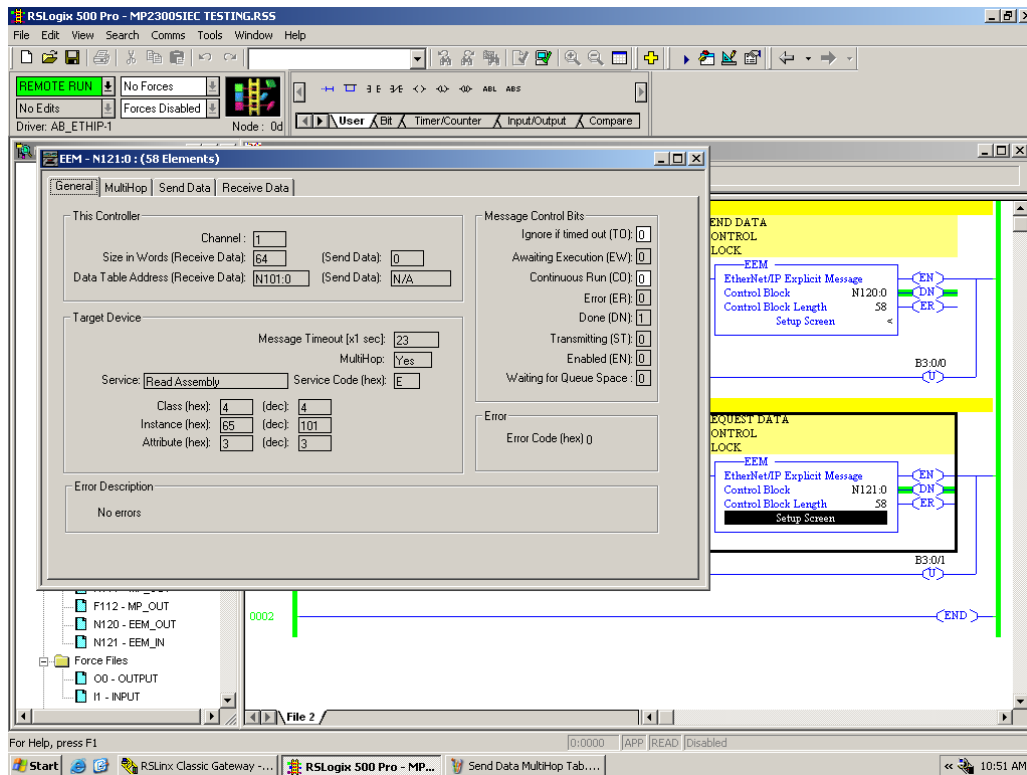


Subject: Application Note	Product: MPiec Series Controller	Doc#: AN.MP2000iec.01
Title: SLC 5/05 Ethernet/IP Communications with an MPiec Series Controller		

5. Next, configure the details of the EEM instruction by clicking on the Setup Screen.

General Tab

- Set the size (in words) to match the Ethernet/IP instance read from the MPiec. Enter either 64 or 128 words based on the instance selected. The Send Data is 0.
- Select the integer file type and starting register for your SLC controller program for the data destination in the Data Table Address.
- Under the Target Device, select Read Assembly for the Service.
- Set MultiHop to 'Yes.'
- The Class is set to '4.'
- Set the Instance to correspond to the programmed Output Assembly Instance in the MPiec Controller.
- The Attribute is set to '3.'



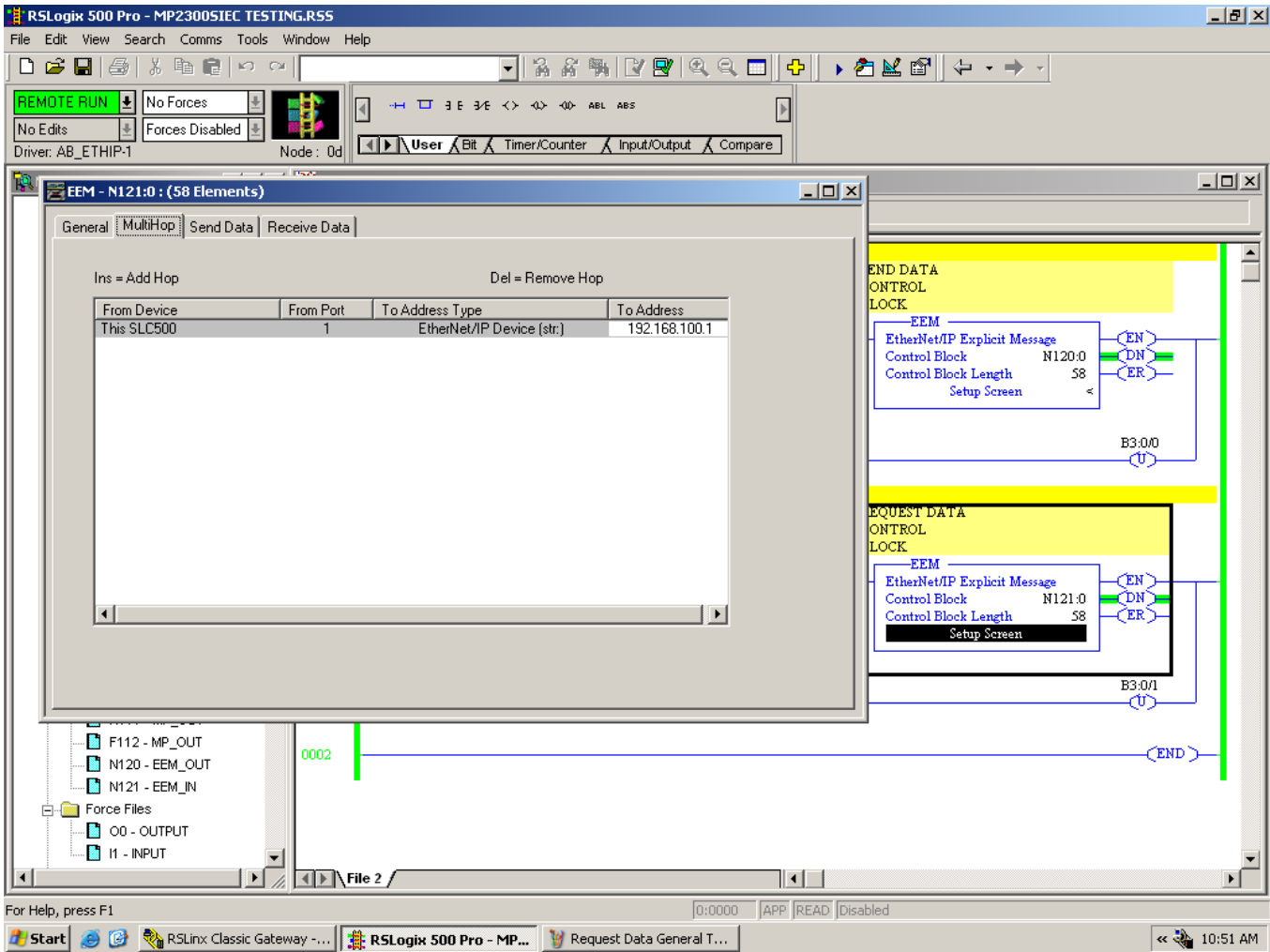
Subject: Application Note

Product: MPiEc Series Controller

Doc#: AN.MP2000iec.01

Title: SLC 5/05 Ethernet/IP Communications with an MPiEc Series Controller

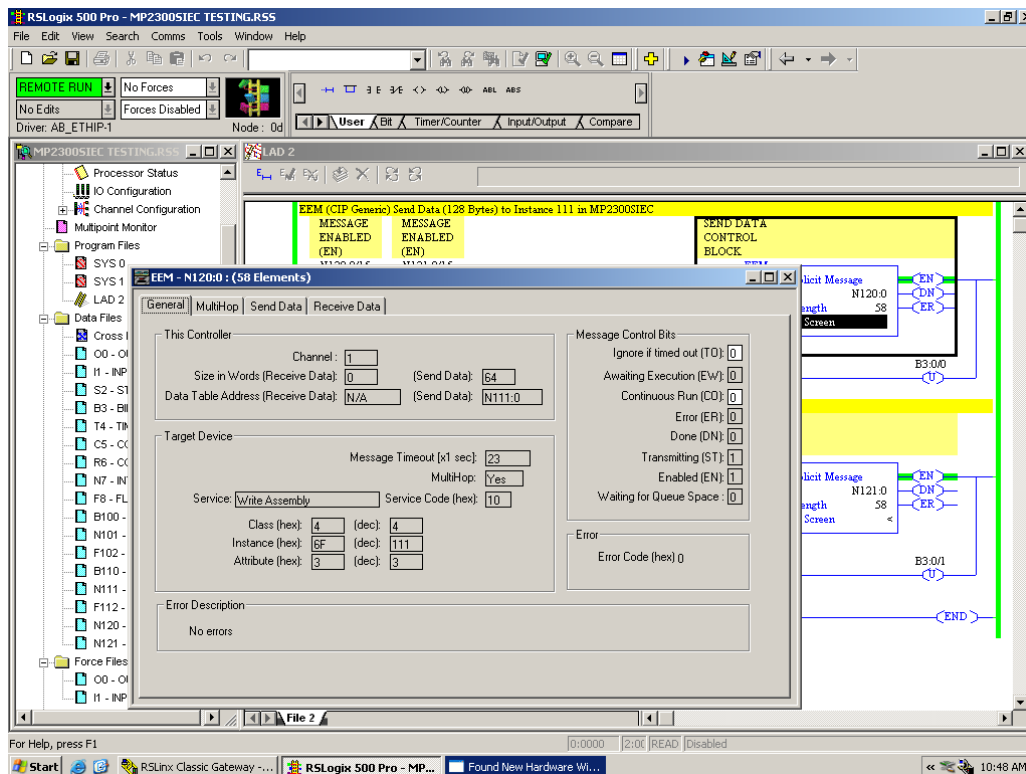
6. Click on the MultiHop tab to set the IP address of the MPiEc Controller in the 'To Address' column.



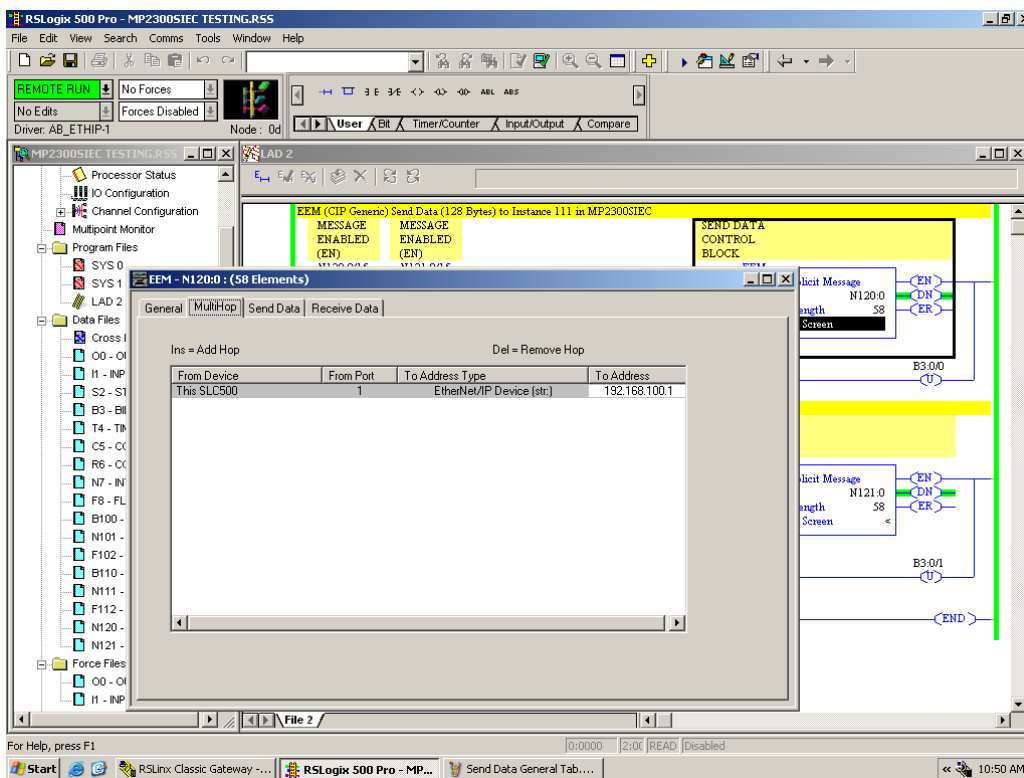
7. Next, configure the 2nd EEM instruction for writing data to the MPiec Controller by clicking on the Setup Screen on the EEM instruction.

General Tab

- a. For “This Controller,” set the size (in words) for Send Data to match the Ethernet/IP instance being written to the MPiec Controller. Enter either 64 or 128 words based on the instance. The Receive Data is 0.
- b. Select the integer file type and starting register for your SLC controller program for the data source, in Data Table Address Send Data.
- c. For Target Device, select Write Assembly for the Service.
- d. Set MultiHop to Yes.
- e. The Class is set to 4.
- f. Set the Instance to correspond to the programmed Input Assembly Instance in the MPiec Controller.
- g. The Attribute is set to 3.



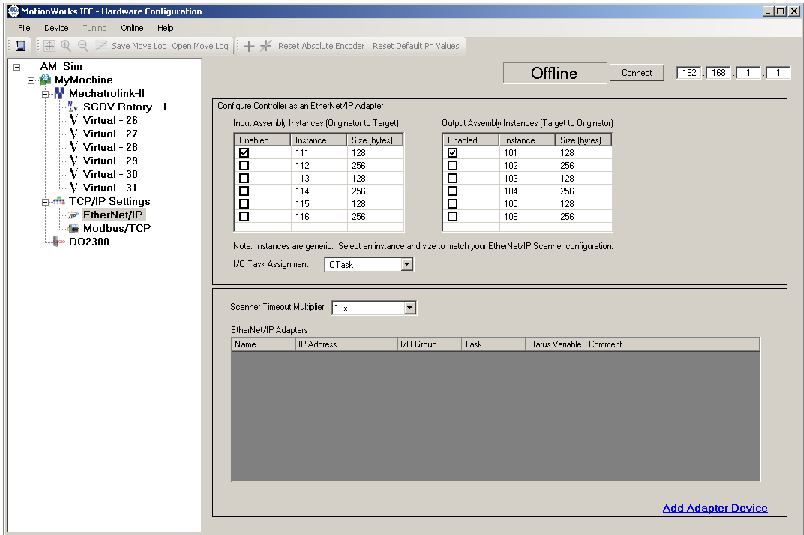
- Click on the MultiHop tab to set the IP address of the MPiiec Controller in the 'To Address' column.



Subject: Application Note	Product: MPiec Series Controller	Doc#: AN.MP2000iec.01
Title: SLC 5/05 Ethernet/IP Communications with an MPiec Series Controller		

Configuration of the MPiec Series Controller

- Using the MotionWorks IEC Hardware Configuration, click on TCP/IP Settings and select Assembly Instances for the SLC 5/05 to read and write.



- In the Global Variables grid, add variables for use by the IEC application under the appropriate E/IP Input or E/IP Output Instance. The type for these variables must be INT type in this example because of the configuration on the Allen Bradley product.