YASKAWA		
Subject: EtherNet/IP Configuration	Product: MPiec Controllers	Doc#: AN.MPIEC.08
Title: Configuring an MPiec controller to o	communicate with a Phoenix Ethe	ernet/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.





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.

MotionWorks IEC 2 Pro - Hardware Configuration							
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Phoenix_EthernettP     MyMachine     Mechatrolink-II					On	line Disco	annect 192 - 168 - 207 - 206
	Configure Controlle	r as an EtherN	let/IP Adapter				
Tv AXIS2	Input Assembl	y Instances (O	riginator to Target)	Output Asser	mbly Instances (1	arget to Originator)	Output state when PLC stops:
Groups	Enabled	Instance	Size (bytes)	Enabled	Instance	Size (bytes)	Retain last state
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		112	256		102	256	
	(FT)	113	128	(FT)	103	128	
		114	256		104	256	
	and the second s	115	128		105	128	
		116	256		106	256	
-	Note: Instance	anment Fa	Select an instance istTsk	and size to match your	EtherNet/IP Sca	nner configuration.	
	Scanner Timeo	ut Multiplier	16x	•			
	EtherNet/IP Ad	lapters					
	Name	IP Addres	s	O Group Task	Statu	s Variable Comment	
							Add Adapter Device
							.:

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



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

Add EtherNet/IP Adapter						
Phoenix_EIP_BK1						
192 - 168 - 207 - 234						
BK1						
FastTsk 🔹						
BK1_EIP_Status						
OK Cancel						

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.

MotionWorks IEC 2 Pro - Hardware Configuration	-		-	-		-	-		
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		112	256			102	256		
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	<b>E</b>	114	256			104	256		
AXIS21	100	115	128	[[17]]		105	128		
		116	256			106	256		
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<b>_</b>	Phoenix_EIP	BK1 192.168	207.234	BK1	FastTsk	E	K1_EIP_Status		
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									Add Adapter Device



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

MotionWorks IEC 2 Pro - Hardware Configur	ation
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	Online Disconnect 192 - 168 - 207 - 206 Phoenix_EIP_BK1 I/O Assembly Instances
	Type       Instance #       Size (bytes)       Update Interval (ms)       Ownership       Priority       Connection       Use Run Idle         Add Input/Output Assembly Instance
	Type         Instance #         Size (bytes)         Optional Data (hexadecimal)
	Add Configuration Assembly Instance



Add EtherNet/IP Assembly	<b>X</b>
Assembly 💿 Input 💿 Ou	tput 🔲 Use Run Idle
Instance #	Ownership
101	Exclusive 🔹
Size (bytes)	Priority
4	Scheduled 🔹
Update Interval (ms)	Connection Type
30	Multicast 🔹
	Add Cancel

Click the "Add" button to complete adding the input assembly.



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

MotionWorks IEC 2 Pro - Hardware Configura	ation	
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Groups		
Modbus/TCP	Type         Instance #         Size (bytes)         Update Interval (ms) Uwnership         Priority         Connection           Input         101         4         30         Exclusive         Scheduled         Multicast	Use Kun Idle False
LI# AXIS21	Configuration Assembly Instance	mbly Instance
	Type Instance # Size (bytes) Optional Data (hexadecimal)	
	Add Configuration Asser	mbly 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.

Instance #	Ownership
100	Exclusive
Size (bytes)	Priority
2	Scheduled
Update Interval (ms)	Connection Type
30	Point to Point

Click the "Add" button to complete the output assembly configuration.



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

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	I/O Assembly I	nstances					
EtherNet/IP	Туре	Instance #	Size (bytes)	Update Interval (ms) Ownership	Priority	Connection	Use Run Idle
Phoenix_EIP_BK1	Input	101	4	30 Exclusive	Scheduled	Multicast	False
Modbus/TCP	Output	100	2	30 Exclusive	Scheduled	Point to Point	True
Ee∞ LIO-01							
	Configuration /	Instance #	e Size (bytes)	Optional Data (hexadecimal)	Add Con	figuration Ass	embly Instance
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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.

Add	EtherNet/IP Assembly
1	Type 💿 Config
	nstance #
	1
	Size (bytes)
	0
	Optional Data (hexadecimal)
	Add Cancel



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

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	I/O Assembly Type Input Output	Instances Instance # 101 100	Size (bytes) 4 2	Update Interval (ms) Ownership 30 Exclusive 30 Exclusive	Priority Scheduled Scheduled	Connection Multicast Point to Point	Use Run Idle False True
⊡-⊪∾ LIO-01 Lin+ AXIS21	Configuration	Assembly Instanc	e Size (bytes)	Optional Data (hexadecimal)	Add Inp	out/Output Ass	embly Instance
	Config	1	0		Add Con	figuration Ass	embly Instance
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Click the "Save" icon on the upper right (while online) to save the configuration to the Yaskawa MPiec controller.

MotionWorks IEC 2 Pro - Hardware Configura	tion	1000			-		
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hoenix_EthernetIP				O	nline	Disconnect	192 - 168 - 207 - 206
	Phoenix_E	P_BK1					
Groups	I/O Assembly	Instances					
EtherNet/IP	Туре	Instance #	Size (bytes)	Update Interval (ms) Ownership	Priority	Connection	Use Run Idle
Phoenix_EIP_BK1	Input	101	4	30 Exclusive	Scheduled	Multicast	False
Modbus/TCP	Output	100	2	30 Exclusive	Scheduled	Point to Point	True
	Configuration a	Assembly Instand	ce Size (bytes) 0	Optional Data (hexadecimal)			
					Add Cor	figuration Ass	embly Instance

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.

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

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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.

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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.

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