Application Note

Configuring an MPiec Series Controller for EtherNet/IP Communication to an SMC EX250-SEN1 device

Applicable Product: MPiec Series Controllers

YASKAWA							
Subject: Application Note	Product: MPiec	Doc#: AN.MP2000iec.03					
Title: Configuring an MPiec Series Controller for EtherNet/IP Communication to an SMC EX250-SEN1 device							

Application Overview

This document details the steps required to configure the MPiec Series Controller as an EtherNet/IP scanner to an SMC EX250-SEN1 adapter device.

Application Highlights:

Industry:	EtherNet/IP protocol users
Major Features:	MPiec Series Controller communicating with an SMC device via EtherNet/IF

Products Used:

Component	Product and Model Number			
Controller	MP2300Siec			
Software	MotionWorks IEC Pro			
Third Party Devices	SMC EX250-SEN1			



Figure 1: EtherNet/IP communication

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The MPiec Series Controller is configured as a scanner in this communication set up. The SMC pneumatic device with built in adapter driver will respond to requests sent by the MPiec Series Controller. Follow the steps to configure the MPiec Series Controller.

1. Verify that both devices are on the same sub network. The MPiec Subnet mask can be verified from the MotionWorks IEC Hardware Configuration or the web server page.

👺 MotionWorks IEC - Hardware Configuration	1
File Device Tuning Online Help	
🛄 🧎 🕀 🍳 📈 Save Move Log Open M	love Log $1 + \#$ Reset Absolute Encoder Reset Default Pn Values
 YEA_SMCtest MyMachine Mechatrolink-II SGDV Rotary - 1 SGDV Rotary - 2 SGDV Rotary - 2 SGDV Rotary - 2 SMC Modbus/TCP LIO-01 Counter 	TCP/IP Settings: MP2300Siec Static IP Settings IP Address 192 . 168 . 0 . 51 Subnet Mask 255 . 255 . 0 Default Gateway 192 . 168 . 0 . 253



YASKAWA	Communica	tions Setting	S
<u>Home</u> Welcome		Current Settings	New Settings (Requires Restart)
<u>Operation</u> Machine Operations	Address Method	Static IP	 Use Static IP Address Use DHCP
Alarm Status Alarm Reference Alarm History	IP Address	192.168.0.51	192 . 168 . 0 . 51
Debugging Output	Subnet Mask	255.255.255.0	255 . 255 . 255 . 0
Axis Grid	Gateway	192.168.0.253	192 . 168 . 0 . 253
Configuration Sets Ethernet Config	Hostname		
Set Clock Maintenance			Change Network Settings

Figure 3: Web server – Ethernet Config

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2. Add the SMC as an adapter device in the MotionWorks IEC Hardware Configuration by doing the following:

- a. Name the device
- b. Enter the SMC's IP address
- c. Create an IO group name
- d. Assign the SMC data to an IEC application task
- e. Give it a status variable name.

 YEA_SMCtest MyMachine Wechatrolink-II ∑v SGDV Rotary - 1 ∑v SGDV Rotary - 2 	Configure Controll	er as an EtherNe bly Instances (Orig	t/IP Adapter jinator to Target)	Outp	out Assembl	ly Instances (T	arget to Originator)
E TCP/IP Settings	Enabled	Instance	Size (bytes)] Er	nabled	Instance	Size (bytes)
EtherNet/IP		111	128		1	101	128
SMC		112	256			102	256
Modbus/TCP		113	128			103	128
🖻 🔤 LIO-01		114	256			104	256
		115	128			105	128
		116	256			106	256
	Note: Instanc I/O Task Ass	es are generic. Signment	Select an instanci ask	e and size to ma	atch your Etl	herNet/IP Sca	nner configuration.
	Scanner Time EtherNet/IP A	out Multiplier 1	Бх	•			
	Name	IP Address		1/U Group	Lask	Statu	s Variable Comment
	SMC	192.168.0.3	1	grp1	10Task	stat1	
					·		

Figure 4: Adding the SMC as an adapter

Configure the IO assembly instances and the configuration assembly instance as shown in figure 5.
 The update interval can be chosen as per the application requirement.



YEA_SMUTEST									
🖻 🚇 MyMachine									
🖻 🚻 Mechatrolink-II									
	SMC								
SGDV Rotary - 2									
□ - math TCP/IP Settings	L/O Assembly Is	otanoaa							
⊨ 🚈 EtherNet/IP	170 Assembly II	ISTOLICES							
SMC	Type	Instance #	Size (bytes)	U	Jpdate Interval (ms)	Ownership	Priority	Connection	Use Run Idle
Modbus/TCP	Input	100		6	20	Exclusive	Scheduled	Multicast	False
	Output	150		4	20	Exclusive	Scheduled	Point to Point	True
	,						Add Input	/Output Asser	mbly Instance
							i iaia iripad	o alpatitioo oi	inorg interaction
	Lonfiguration A	ssembly Instanc	e						
	Tupe	Instance #	Size (butes)		Intional Data (hevad	ecimel)			
	Config	1	Dize (Dytes)	0	ptional blata (nexad	colinaly			
	Coning			•			11106-		
							Add Config	uration Asser	nbly Instance

Figure 5: IO and configuration assembly instances

- 4. Save the configuration. Disconnect from MPiec Series Controller and cycle power.
- 5. The adapter will be ready for use.
- 6. The Global Variable list will now contain IO groups created by the Hardware Configuration. The status variable will also be added to the input group. Add input and output variables to the respective groups. Assign addresses based on their location in the instances such that they are mapped correctly between the two devices. An example is shown in figure 6:

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	SMC> 'igrp1' Address Range: %IB4 - %IB9 (* Do Not Modify Group Name or Status Variable!! *)										
	stat1	WORD	VAR_GLOBAL	(* Do Not Modify!! *) SMC Status Variable for: igrp1	%NV10						
	I_Byte1	BYTE	VAR_GLOBAL		%IB4						
	I_Byte2	BYTE	VAR_GLOBAL		%IB5						
	I_Byte3	BYTE	VAR_GLOBAL		%IB6						
	I_Byte4	BYTE	VAR_GLOBAL		%IB7						
	🖂 <smc> 'ogrp1' Address</smc>	Range: %QB2 - %QB	5 (* Do Not Modify	/ Group Name or Status Variable!! *)							
	O_Byte1	BYTE	VAR_GLOBAL		%QB2						
	O_Byte2	BYTE	VAR_GLOBAL		%QB3						

Figure 6: IO variables in Global Variables worksheet

7. If communication is healthy, the status word will show 4096 (decimal) or 1000 (hex).