YASKAWA			
Subject: Quick Start	Product: MPiec Controllers	Doc#: AN.MP2600iec.01	
Title: Quick Start Guide for MP2600iec			

This document will detail the basic sets required to get the motor moving once the SGDV / MP2600iec controller is removed from its packaging.

# Contents

Removing the unit from the box	2
Connecting to the Controller	2
Clearing Alarms	3
Setting an IP address (optional)	6
Creating a New Project	7
Limit Switches	12
Making a Test Move	17



### Removing the unit from the box.

- 1) Connect the battery to the MP2600iec connector (CN14) located on the bottom right.
  - a. Important: Battery alarms must be cleared as described in the Clearing Alarms section on page 3.
- 2) Connect power to the Servopack, but do not power it on yet.
- 3) On the MP2600iec, set SW1 "CNFG" and "E-INIT" switches to the ON position, all others should be OFF. When the E-INIT switch is on, the controller will use the IP address 192.168.1.1.

## **Connecting to the Controller**

- 1) Apply power to the ServoPack's control power terminals L1C and L2C. If using a 400 VAC ServoPack, apply 24 VDC as described in the Sigma-5 Option Amplifier manual.
- 2) Connect an Ethernet cable to the PC and to the MP2600iec controller.
- 3) Configure the PC with an IP address of 192.168.1.x where x is anything between 2 and 250. If you're not sure how to do this, follow link provided below, or Google "configure PC IP address":

http://www.howtogeek.com/howto/19249/how-to-assign-a-static-ip-address-in-xp-vista-or-windows-7/

4) Open Internet Explorer and enter the controller's IP address "192.168.1.1" in the address bar. The browser should look something like this:





## **Clearing Alarms**

If the battery has been disconnected for some time (the MP2600iec is shipped with the battery disconnected) the controller will have SRAM alarms.

1) Login into the controller by clicking in the textbox next to Login and entering "Admin" and "MP2600" in the Password textbox. Note that both are case sensitive.

Ø MP2600iec™ by Yaskawa - Windows Ir	nternet Explorer		-	
	/index.xml	🔹 💀 🍫 🗙 🔍 MixiDJ V44 Cu	stomized Web S	Search 🔎 🔻
🖕 Favorites 🛛 👍 🔁 Suggested Sites	🔻 🙋 Web Slice Gallery 👻			
Ø MP2600iec™ by Yaskawa		🟠 🔻 🖾 👻 🖶 💌 🖻	age 🔻 Safety	▼ Tools ▼ ② ▼ <sup>≫</sup>
	MP260	0iec™		
	Welcome to th	е MP2600іес <sup>тм</sup> (	Contro	ller.
<u>Home</u> Welcome	Please make your select	ction from the menu on the	left.	
Operation				
Alarm Status Alarm Reference Alarm History	Version Information			
Configuration				
Axis Grid	Version number	3.0.0		
	Build number	72		
t and the	Build date	4 June 2014, 21:47:21		
Login:	Software Platform	MP2600iec		
Password:	Hardware Platform	SGDV-OCC02A		
Log In Log In	Model Number	SGDVxxxxExx000000300		
				-
Done		😜 Internet   Protected Mode: Off	4	<ul> <li>♥ ♥ 125%</li> </ul>



- 2) Click on the "Alarm Status" link at the left of the page.
- 3) Click the "Clear Alarms" button.



- 5) Click the "Initialize SRAM" link.
- 6) On the Initialize SRAM screen, click the "Re-initialize SRAM" button.

(<) (5) (5) http://192.168.1	I1/index.ml D + ⊇ C × Ø MP2600iec <sup>™</sup> by Yaskawa ×
File Edit View Favorites	Tools Help
VASKAWA	MP2600iec <sup>ter</sup>
Home Welcome	Initialize Controller SRAM Re-initializing the SRAM (static RAM with battery back-up) will prevent a persistent "Controller SRAM data invalid" alarm (code 34040021) from recurring.
Operation Machine Operations Alarm Status Alarm Reference Alarm History Debugging Output	WARNING: This action will also reset all user SRAM data to zero. All persistent application data which is stored in SRAM will be permanently erased.           Re-initialize SRAM
Configuration Axis Grid 1/O Grid Configuration Sets Drive Parameters Ethernet Config Set Clock	
<u>Maintenance</u> Project Archive Update Firmware Initialize SRAM Reboot	
Logged in as: Admin Access Level: OEH Log Out	

- 7) Reboot the controller.
- 8) Once the controller has rebooted, click the "Set Clock" link.



9) Set the correct date, time, and time zone then click "Set Date/Time".





# Setting an IP address (optional)

- 1) Login into the controller by clicking in the text box next to "Login" and entering "Admin" and "MP2600" in the Password text box. Note that both are case sensitive.
- 2) Click on the Ethernet Config link on the left side of the screen.
- 3) Set the IP address and click on "Update Built-in Ethernet Settings."
- 4) Set the Default Gateway and click on "Update Global Settings." (Do not set both values before clicking on a button or you will have to reenter the value for the button that was not clicked.)



- 5) Reset SW2 so that all switches are off. If E-INIT is left ON, the controller will not use the configured IP address.
- 6) Reboot the controller and reset the PC's IP address. If you plan to connect directly to the controller, then the PC's IP address must be on the same subnet.
- 7) Confirm communication by typing the configured IP address in the address bar of Internet Explorer.



## **Creating a New Project**

1) Open MotionWorks IEC and open a new MP2600iec project by selecting File -> New Project.



2) Select the MP2600Siec Template.

Ne	w Project					×
	General Project Wizard	MP2300Siec Template	MP2310iec Template	MP2600iec Template	MP3200iec Template	OK
	Template	FLC Simulat				



3) Locate and click the icon to open the Hardware Configuration. Note, this toolbar may be on the bottom left of the toolbar area.



4) Set the configured IP address in the boxes on the upper right and click on the Connect button.

Configuration Comparison	
Configuration differences were detected	ed 🕢
Offline Configuration: MyMachine Motion Engine Sv AXIS1 TCP/IP Settings - CN 11A EtherNet/IP Kodbus/TCP S Controller I/O F AXIS21	Autodiscovered Configuration:
Use Offline Configuration	Use Autodiscovered Configuration

5) The Hardware Configuration will display configuration differences since the project's default configuration will not match the autodiscovered configuration. Select the "Use Autodiscovered Configuration" button.



6) If the Servopack has factory default parameters, the axis will be shown in red, because it has alarms. Click on MyMachine in the configuration tree and then on the Alarms tab. The current alarm status will likely show an alarm that Pn002 is not properly initialized as shown above.

MationWorks IEC 2 Bro			
Motionworks IEC 2 Pro - Hardware Configuration			
File Edit Device Tuning Online Help			
$\Box \oplus \Theta \otimes \mathbb{Z} \oslash \oslash$	$+$ $+$ $\otimes$ $\odot$		
		Online	192 . 168 . 207 . 126
B MyMachine			
Motion Engine	Limits Configuration I/O Tuning Test Move Function	Absolute Encoder   Hardware   Alarm	Brake   Dual Encoder
TCP/IP Settings - CN TIA	Peremotor Peremotoro	Current Value Unite Mi	in Max Dofault Value
	Pn000.0 Rotation Direction	0 - Set counter clockwise	0 - Set counter cloc
Modulus/TCF	Pn000.1 Reserved (Do not change.)	0 - Reserved (Do not chi	E
	Pn000.2 Reserved (Do not change.)	0 - Reserved (Do not chi	
AXIS21	Pn000.3 Reserved (Do not change.)	0 - Reserved (Do not chi	0. Step meter by D
	Pn001.0 Serve OFF of Alarm Stop Mode	0 - Stops the motor by th	1 - Decelerate moto
	Pn001.2 AC/DC Power Input Selection	0 - Input AC Power	0 - Input AC Power
	Pn001.3 Reserved (Do not change.)	0 - AL01. AL02. AL03 ou	0 - AL01. AL02. AL(
	Pn002.0 Speed Control Option	1 - Mechatrolink values F	1 - Mechatrolink val
	Pn002.1   Torque/Force Control Option	A - Mechatrolink value V     A - Lice absolute encode	0 - Lise absolute on
	Pn002.3 Full-Closed Encoder Selection	0 - Unused	0 - Unused
	Pn006.0 Analog Monitor 1	2 - Toraue/Thrust Refere	2 - Toraue/Thrust R
	Pn006.1 Reserved (Do not change.)	0 - Reserved (Do not cha	
	Pn006.2 Reserved (Do not change.)	0-x1	0 - x 1
	Ph006.3 Reserved (Do not chande.)	0 - Reserved (Do not chi 0 - Meter Speed [1]// (10	0 - Mater Speed [1]
	Pn007.1 Reserved (Do not change )	0 - Reserved (Do not chi	0 - Motor Sbeed In
	Pn007.2 Reserved (Do not change.)	0 - x 1	0 - x 1
	Pn007.3 Reserved (Do not change.)	0 - Reserved (Do not chi	
	Pn008.0 Low Battery Voltage Alarm/Warning	0 - Display Alarm for low	0 - Display Alarm fo
	Ph008.1 Function Selection for Insufficient Voltad	te U - Disables detection of	0 - Disables detecti
	Pn008.2 Warning Detection Selection	0 - Dotocte warning	
	Pn008.2 Warning Detection Selection Pn008.3 Reserved (Do not change)	0 - Detects warning 4 - Reserved (Do not chi	0 - Detects warning

7) Click on Axis1 in the configuration tree view and then on the "All Parameters" tab. Observe that the required for Pn002 is set properly. Save these values to the controller.



#### **Limit Switches**

1) On the All Parameters tab, scroll down to Pn50A and 50B.

WARNING: Do not disable the limit switches if the axis can physically hit something. If this is the case, connect over travel (limit) switches to the Servopack's CN1 IO connector. If the axis is unconnected from its load or if it is impossible for the axis to hit anything, proceed to disable the limit switches.

MotionWorks IEC 2 Pro - Hardware Configuration		×
File Edit Device Tuning Online Help		
$\square \oplus \oplus \oplus \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$	$+$ $\times \odot \odot$	
	Online Disconnect 192 . 168 . 207 .	126
MyMachine     Motion Engine	Limits Configuration 1/0 Tuning Test Move Function Absolute Encoder Hardware Alarm Brake Dual Encoder All Parameters	
-# TCP/IP Settings - CN TTA -# EtherNet/IP -# Modbus/TCP	Parameter Parameters Current Value Units Min Max Default Value Pn502 Rotation Detection Level 20 per mir 1 100C 20	*
Garage Controller I/O	Photos         Speed Coincidence Signal Output Width         10         per mir 0         100         10           PhotoB         Brake Reference - Servo OFF Delav Time 0         ms         0         500         0           PhotoP         Brake Reference Output Speed Level         100         per mir 0         100(100	
	Phose         Timina for brake Reference during Motor ( 500         ms         100         100         500           Phose         0         ms         20         ms         20         100C 20           Phose         0         Reserved (Do not change.)         1 - Reserved (Do not change.) <th></th>	
	Ph5UA1 Reserved (Do not chanae.) 8 - Reserved (Do not chi Ph50A2 Reserved (Do not chanae.) 8 - Reserved (Do not chi Ph50A3 Positive Over Travel 1 - ON When Termin ▼ 1 - ON When Termi	
	Pn50B.0         Negative Over Travel         2 - ON When Terminal C         2 - ON When Terminal C         2 - ON When Terminal C           Pn50B.1         Reserved (Do not change.)         8 - Reserved (Do not change.)         8 - Sets Signal OFF         8 - Sets Signal OFF	
	Ph50B.3 /N+CL Sianal Mappina 8 - Sets Sianal OFF 8 - Sets Sianal OFF Ph50C.0 Reserved (Do nat chanae.) 8 - Reserved (Do nat chi Ph50C.1 Reserved (Do nat chanae.) 8 - Reserved (Do nat chi	=
	Pn50C.2 Reserved (Do not chanae.) 8 - Reserved (Do not chi Pn50C.3 Reserved (Do not chanae.) 8 - Reserved (Do not chi Pn50D 0 Reserved (Do not chanae.) 8 - Reserved (Do not chi	
	Ph50D.1 Reserved (Do not chance.) 8 - Reserved (Do not chi Ph50D.2 Reserved (Do not chance.) 8 - Reserved (Do not chi Ph50D.3 Reserved (Do not chance.) 8 - Reserved (Do not chi	
	Ph50E.0 COIN Output 0 - Disable 0 - Disabl	<b>.</b>
۲ ۲	Phoue.2 I GON Output U - Disable 0 - Disable	



MotionWorks IEC 2 Pro - Hardware Configuration		
File Edit Device Tuning Online Help		
	Onli	Disconnect 192 . 168 . 207 . 126
	Limits Configuration I/O Tuning Test Move Function Absolut	e Encoder   Hardware   Alarm   Brake   Dual Encoder
Ty AXIS1	AirParameters	
TCP/IP Settings - CN 11A		
EtherNet/IP	Parameter Parameters Curre	ent Value Units Min Max Default Value
Modbus/TCP	Ph502 Rotation Detection Level 20 Ph503 Speed Coincidence Signal Output Width 10	per mir 0 100 10
🔤 👪 Controller I/O	Pn506 Brake Reference - Servo OFF Delay Time 0	ms 0 500 0
AXIS21	Pn507 Brake Reference Output Speed Level 100	per mir 0 1000 100
, , , , , , , , , , , , , , , , , , ,	Pn508 Timina for Brake Reference durina Motor ( 500	ms 100 1000 500
	Pn509 Momentary Hold Time 20	ms 20 1000 20
	Pn50A.0 Reserved (Do not change.) 1 - R	eserved (Do not chi
	Pn50A.1 Reserved (Do not change.) 8 - R	eserved (Do not cha
	Pn50A.2 Reserved (Do not change.) 8 - R	eserved (Do not cha
	Pn50A.3 Positive Over Travel 8 - S	et Sianal OFF 1 - ON When Tern
	Pn50B.0 Negative Over Travel 8-S	et Signal OFF 2 - ON When Tern
	Pn50B.1 Reserved (Do not change.) 8 - R	eserved (Do not chi
	Ph50B.2 /P-CL Signal Mapping 8 - Si	ets Signal OFF 8 - Sets Signal OFF
	Phoue 3 /N-CL Signal Mapping 8 - 5	ets Sidnai OFF 8 - Sets Sidnai OFF
	Ph50C.0 Reserved (Do not change.) 0 - R	eserved (Do not ch
	Ph50C 2 Reserved (Do not change.) 8 - R	eserved (Do not chi
	Pn50C.3 Reserved (Do not change.) 8 - B	eserved (Do not chi
	Pn50D 0 Reserved (Do not change ) 8 - B	eserved (Do not chi
	Pn50D.1 Reserved (Do not change.) 8 - R	eserved (Do not chi
	Pn50D.2 Reserved (Do not change.) 8 - R	eserved (Do not chi
	Pn50D.3 Reserved (Do not change.) 8 - R	leserved (Do not chi
	Pn50E.0 COIN Output 0 - D	visable 0 - Disable
	Pn50E.1 V-CMP Output 0 - D	lisable 0 - Disable
	Pn50E.2 TGON Output 0 - D	isable 0 - Disable 🔻
4	Changes in Red will not take effect until after change	es are saved and power is cycled on the machine

YASKAWA



3) Click on the configuration tab to set user units. For this example the load will move 10 inches for every motor revolution so set the position scale to 10 and the user units to inches.

MotionWorks IEC 2 Pro - Hardware Configuration	1				
File Edit Device Tuning Online Help					
$\blacksquare \oplus \bigcirc \bigcirc \checkmark \oslash \oslash \oslash \oslash $	+*00				
Strate Constraints     Strate Constrain	Limits Configuration VO Tuning Test Move Funct Machine Cycle 1 Feed Constant	ion Absolute Encoder   Hardware   Alarm   Brake   D Gear Ratio	Discon Dual Enco	der A	192 . 168 . 207 . 126
Barroller I/O	10	Position Scale			User Units
HI AXIS21	1 Perc X	- 10			
	1 Rev A	= 10			inches
					E
	Parameter Parameters	Current Value	Unite	Min	Max Default Value
	Pn002.2 Absolute Encoder Usage	0 - Use absolute encoder as absolute encoder	e.mo		0 - Use absolute encod
	1300 Moving Average Filter 1 Enable	False		0	False
	1301 Moving Average Filter 1 Time Constant 1807 Load Type	U.I	s	0	5 U.I 1 Linear
	1809 Axis Name	AXIS1		0	
	1831 Logical Axis Number	1		1	512 1
	Pn205 Multi-Turn Limit Settina	65535	Revolu	0	655: 65535
	Changes in RED will not take effect until after	er changes are saved and machine is power	cycled.	After	changing the Axis Name c
	Lodical Axis Number. You MUST cycle Dower	before MotionWorks IEC Confiduration can	ao onlin	e adai	n.

4) After setting the position scale, save all of these settings to the MP2600iec controller and Servopack by selecting the Save icon or choosing Save from the file menu. The following dialog will appear while the configuration is being saved.

Saving the Configuration to the Controller and the Project Folder...



When saving has completed, a dialog box will indicate that the system must be power cycled.

Save Completed	<b>—</b>
Machine must be power cycled before changes	s take effect!
	ОК

5) From the Online menu, select "Reboot Controller," and then click Yes to the following confirmation dialog.



When the MP2600iec controller reboots, it performs a software reset on the ServoPack, so there is no need to physically remove power from the Servopack.



6) After the controller has finished rebooting, click Connect again.





### **Making a Test Move**

To run the test move, click on the Test Move tab. In this example, the axis will be commanded to move 10 inches at 10 rev/sec in one direction only. The test move will be repeated only once as indicated by the "Cycles' field. Click on the "+" icon to enable the motor and then click Start to begin motion.

MotionWorks IEC 2 Pro - Hardware Configuration	
File Edit Device Tuning Online Help	
в€€<∠00	+*00
	Limits Configuration 1/0 Tuning Test Move Function Absolute Encoder Hardware Alarm Brake Dual Encoder All Parameters
	Direction     Distance     10     Inches     Speed     10     Inches/s <ul> <li>+</li> <li>Acceleration/D</li> <li>5</li> <li>Inches/s<sup>2</sup></li> <li>Cycles</li> <li>1</li> </ul>
	© +/- Delay lime 10 ms
	Feedback Porameter         Current Value         Units           Feedback Position         1.23037382         Inches           Feedback Volcitv         0.078175044         Inches/s           Feedback Torque         0.9%         Position Error           Position Error         0.1nches         Inches
( )	



The motor will begin moving and the screen will show updated information as the axis moves.

MotionWorks IEC 2 Pro - Hardware Configuration	n 🖸 🖻 📂
File Edit Device Tuning Online Help	
■ ◆ UNTITLED	
🗄 🚇 MyMachine	Online Disconnect 192 . 168 . 207 . 126
Motion Engine	Limits Configuration I/O Tuning Test Move Function Absolute Encoder Hardware Alarm Brake Dual Encoder All Parameters
Ty AXIS1	
TCP/IP Settings - CN 11A	Direction Distance 10 Inches Speed 10 Inches/s
The second second	(i) +
Modbus/TCP	Acceleration/D 5 Inches/s <sup>2</sup> Cycles 1
	O - ecceleration
	+/- Deley Time 10 ms
	Stan
	Зюр
	Constant Velocial Velocial
	Feedback Parameter Current value Ontis
	Feedback Velocity 5.56936264 Inches/s
	Position Fror 0001373291 Inches

Now that the motors are enabled and running, the next steps in the development of an application is to mount and tune the motors and write the IEC 61131 application program. Follow the link for a good reference document about tuning the servo.

http://www.yaskawa.com/site/dmservo.nsf/SearchV/7BBC75A9A5EBFF1A862578F40075604E?OpenDocument&Source=SearchResultPage