Overview:

This document will walk you through the process of configuration and tuning of a Yaskawa Sigma V Servo Drive Pack and motor with a centroid CNC11 based control.

Prequisites:

The following items are needed:

•

Laptop computer with the Yaskawa SigmaWin+ software installed.

•

A to Mini-B type USB cable (Yaskawa part number JZSP-CVS06-02-E) ? connected between the laptop and the Yaskawa drive you wish to setup.

ServoPack Configuration Process:

•

Launch the Yaskawa WigmaWin+ software.

- - You will see the following screen (Illustration 1):

🛱 USB				C Search
Axis No.	Servopack SGDV-5R5A01A	Servomotor SGMJV-08A3A6S	Option	Axis name B-Axis

Ensure "Online" is selected as shown above

Select "Search" and make sure "?5 drives" are selected. This search should be done every

time you power up the software or connect to a different ServoPack because the SigmaWin+ software remembers the last drive that was connected to it and displays that rather than what is currently connected.

•

Select the drive that appears and click "Connect".

•

SigmaWin+ will then open to the main screen as shown below (Illustration 2):

合 Sigm	aWin+ AXIS#1 : SGD	V-180A01A Sigma	aV Component					-			
File(F)) Parameters(U) Ala	arm(A) Monitor()	M) Setup(S) Tr	race(T) Tuning(G) Te	est Run(R)	Edit Table(I) Solution	n(O) Help(H	Ð			
	x 🔬 🔊 🚳 🛈 🗖				5 A 7	💁 🕅 😼 🛈 头		- M - 4			
× =1								• • •			
M	otor Power on Spe	eed Reference	Main Circuit	Fund And D		nuchikited (DT					
	Motor Running	Speed	l Coincidence		ev. run	prohibited (P11	NT)				
				×			×				
Motion M	ionitor		1			nai monitor		Status M	onitor	4	
Axis	Name		Value	Unit 🔺	Axis	Input Terminal Name	Signal Na	Axis	Name	Value	
v 1	Current Alarm State		Normal		1	SI0 (CN1-40)	/S-ON	v 1	Motor Power ON	No Motor Power	
1	Motor Speed		0	min-1		SI1 (CN1-41)	/P-CON		Mode Switch	-	
1	Speed Reference		-2	min-1		SI2 (CN1-42)	P-OT		Position Reference (PULS)	-	
1	Internal Torque Refe	erence	0	% =		SI3 (CN1-43)	N-OT		Position Reference Direction	-	
	Input Reference Pul	ise Speed	-	min-1	1	SI4 (CN1-44)	/ALM-RS	1	Clear Signal	CLEAR Signal N	
	Deviation Counter (F	Position Deviations)	-	reference units		SI5 (CN1-45)	/P-CL	1	AC Power ON	No AC Power In	
	Cumulative Load		-	%		SI6 (CN1-46)	/N-CL	1	/S-ON	Servo OFF	
	Regenerative Load		-	%		SEN		1	/ALM-RST	Alarm Reset	
	DB Resistor Consur	mption Power	-	%					/INHIBIT	-	
	Reference Pulse Co	ounter	-	reference units					Pulse Reference (PULS)	-	
	Feedback Dules Cor	unter		encoder nulee i					Sign Reference (SIGN)	-	
• 📖								1	Reference Pulse Input Multiplication S	Reference Puls	
					레						
Output S	ional Monitor			×				II			
	ighar monitor	-						II			
Axis	Output Terminal N	Signal Name	Value								
☑ 1	ALM		Lo								
☑ 1	SO1 (CN1-25, 26)	/COIN,/V-CMP	Lo								
	SO2 (CN1-27, 28)	/TGON	-								
⊻ 1	SO3 (CN1-29, 30)	/S-RDY	Hi								
	AL01		-								
	AL02		-								
	AL03		-								
							•				
1								1			

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The best way to configure the ServoPack is by using the Setup Wizard, it is located under the Parameter's menu option as shown below (Illustration 3):



• Select the "Setup Wizard" option and the Setup Wizard shown will open (Illustration 4):



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•
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•

The Encoder should be automatically selected at this stage and you only need to click on "Apply" at the lower right have corner.

•

The Encoder type will then be shown under the Encoder Selection button.



•

Click "Control Mode Selection".

•

Select "Speed Control (analog reference)" from the drop down menu:

Servopack Selection	Control Mode Selection	
SGDV-180A01A (2000W)		
Encoder Selection		
Encoder Selection : 20bit incremental Fully-closed encoder : Do not use	Select the control mode you wish to use.	
▼	Speed control (analog reference)	•
🔼 Control Mode Selection		
	mode which controls speed by input of reference analog voltage.	

Click "Apply".

•

Click "Reference Input Setting

"? Note: that the Control Mode setting will be highlighted in green, as you complete each section it will show green.

•

Enter the Max RPM of the motor ? 3000 RPM in this example.

•

Enter "9" for the Reference by input of _____ V, click "Calculate".

•

The SigmaWin+ software will then calculate the RPM per Volt for the motor as shown below:

Ent	er the ratio between the r	efere	nce voltag	e and speed reference.
Se	et the speed to 3	000	[min-1]	Motor Se
b	y reference input of		9 [V]	Rated sp
	Calculate V			
L	450 [0.01V/rat	ed sp	eed]	F

•

Enter "10" for the Speed Coincidence Signal Output Width, click "Next".

•

Enter "0" for both "Soft Acceleration Time" and "Soft Deceleration Time", click "Apply".

•

Reference Input settings will now be green.

•

Click "Motor Encoder Settings".

• Enter "32768" for the number of Encoder Pulses ? This will yield 131072 Encoder counts per revolution of the motor:



• It is possible that you have gotten a motor with an absolute encoder if lead times are short and incremental encoders are not available. To use an absolute encoder the drive setting must be changed to use the encoder as an incremental encoder. This motor has an incremental encoder so it is not an option you can adjust even:

- Absolute Encoder Setting
 Select the method of usage for the absolute encoder.

 Pn002: Application Function Select Switch 2
- •

```
Click "Next".
```

- - Select "Standard Setting":

	Forward Reference	Reverse Reference				
Standard Setting	Encoder output <u> ccw.</u> from Servopack	Encoder output cw from Servopack				
	میں PAO(phase A) مرتبہ PBO(phase B)	مریک میں PAO(phase A مرکب PBO(phase E				
	Encoder output CW from Servopack	Encoder output from Servopack				
C Reverse Mode	I III JAO(phase A)	Inn PAO(phase /				
	JULUL PBO(phase B)	PBO(phase B				

```
Click "Apply".
```

•

You will be returned back to the Setup Wizard main screen, and the Encoder Settings section will now also be green.

•

Click "Motor Stop Method" Selection.

•

Set "Servo Off" to "0 - Stops motor by applying Dynamic Brake".

•

Set "Overtravel" to "0 - Stops motor by applying Dynamic Brake".

- Set "G2 Alarm" to "0 ? Stops the motor by setting the speed reference to 0".
- Motor Stop Method Selection



• If the Servo Motor has a Holding Brake you will need to select the "Use the Holding brake" option as shown below:



Click "Apply".

•

Click "IO Signal Settings", then click "Input Signal Settings".

- •
- Disable "N-OT" by clicking in the "Always OFF" column as shown below.
- Disable "P-OT" by clicking in the "Always OFF" column as show below.

					Stand	dard allocat	tion	Customi	ze alloca	tion
Click an	y cell to alloc	ate an inp	ut signal.							
	Allocation	SI0 (CN1-40)	SI1 (CN1-41)	SI2 (CN1-42)	SI3 (CN1-43)	SI4 (CN1-44)	SI5 (CN1-45)	SI6 (CN1-46)	Always ON	Always OFF
/S-ON	Required	/S-ON(L)								
/P-CON	Possible		/P-CON(L)							
P-OT	Possible									P-OT
N-OT	Possible									N-OT
ALM-RST	Possible					/ALM-RST(L				
/P-CL	Possible						/P-CL(L)			
/N-CL	Possible							/N-CL(L)		
/SPD-D	Not required									/SPD-D
/SPD-A	Not required									/SPD-A
/SPD-B	Not required									/SPD-B
/C-SEL	Not required									/C-SEL
	Not required									/ZCLAM
ZCLAMP										
ZCLAMP /INHIBIT	Not required									/INHIBIT
/INHIBIT /G-SEL	Not required Possible									/INHIBIT

Click "OK".

•

Click "Output Signal Settings".

•

For motors without Holding Brake the standard output settings is correct.

•

For motors with a Holding Brake you must set "/COIN" and "/V-CMP" to "Always OFF".

•

For motors with a Holding Brake you must also set "/BK" to "SO1 ? Output 1" as shown: below:

Click any cell to allocate an output signal.

	Allocation	SO1 (CN1-25,28)	SO2 (CN1-27,28)	SO3 (CN1-29,30)	Disable (Do.not.use)
/COIN	Not require				/COIN
/V-CMP	Possible				/V-CMP
/TGON	Possible		/TGON(L)	L	
/S-RDY	Possible			/S-RDY(L)	
/CLT	Possible				/CLT
/VLT	Not require				/VLT
/BK	Required	/BK(L)			
/WARN	Possible				/WARN
/NEAR	Not require				

•

Click "OK".

•

You will then be returned to the IO Signal Settings screen, hit "Apply" to save the settings and then click "Save/Write".

•

Check "Write with a backup file" this will save the current configuration and then write the current configuration fo the ServoPack:



•

```
Click "Finish".
```

•

Click "Yes" when prompted to complete the Setup Wizard.

•

The ServoPack will now have an A941 Error ? This indicates that a reset is required to apply the configuration changes.

		Motor Runn	ing	Speed Co	bincidence	A.9	41. Cha	nge of Pa	arameters	Require	s r
	Moto	or Power on	Speed Ref	erence	Main Circuit		44 - Cha	nne of D		Dequire	
×										Software I	Reset
	/ 🕅	🚄 📲 🔕	🕘 🚍 🖃 🖲	🗟 🛓 🙆	9 🕕 🔞	a ⊭ ₹	ି 🏡 💁 🕯	l 🍈 🔂 🕯	7 🦦 🎨 📴	0 🖳	🗄 🍋 🛙
Fi	ile(<u>F</u>)	Parameters(J) Alarm(<u>A</u>)	Monitor(<u>M</u>)	Setup(<u>S</u>)	Trace(<u>T</u>)	Tuning(<u>G</u>)	Test Run(<u>R</u>)	Edit Table(])	Solution(<u>O</u>)	Help(<u>H</u>
	Sigma	WIII+ AA13#1	: 3004-1004	torn sigmav	componer	ite i					

•

To Reset the ServoPack you must click the "Software Reset" button in SigmaWin or remove power from the ServoPack. The Software Reset button is indicated below:

C	Sigma	Win+ AXIS#1	: SGDV-1	80A01A	SigmaV (Componer	nt						
	File(<u>F</u>)	Parameters(<u>U)</u> Alarm	(<u>A</u>) Mor	nitor(<u>M</u>)	Setup(<u>S</u>)	Trace(<u>T</u>)	Tuning(<u>G</u>)	Test Run(<u>R</u>)	Edit Table]) Solutio	n(<u>O</u>) Help	»(<u>H</u>)
	7. 🕅	🚣 📲 🔕	<u>i</u> 🖪 🖸	. 🕤 🛃	1 🛋 🖸] 🔃 🗐	₩₹₹	ି 🎦 😤 🖁	s 🎳 🔂 🕯	7 🦦 🖏 (90 🗎	R 🔚 🕯	s 🖪 🋱
×										Soft	ware Res	et	

•

After pressing the "Software Reset" button you will receive a warning, simply click "Execute" to continue:

Software Reset					
The software reset function resets the Servopack by using software and re-calculates all settings including parameters. Be sure to carefully read the SigmaWin+ Operation Manual before executing this function. Special care must be taken for the following.					
The Servopack will stop responding for approximately 5 seconds after the execution begins. Before executing this function, always check the Servopack and motor status to ensure safety.					
Execute					

•

Then click "Execute" at the next screen that pops up to confirm reset of the ServoPack.

•

Every time the Drive is Reset you will normally get an error on the Centroid Control. Simply cycle ESTOP to clear the error message.

Once the drive is reset you will have a "Motor Base Blocked - bb" message displayed on the ServoPack itself. This message means everything is OK.

Test Run:

We are now ready to perform a test run of the ServoPack and motor. This test run will be performed from the SigmaWin software using the Jog system.

•

To enter Jog Mode select Jog from the Test Run menu:

ł	SigmaWin+ AXIS#1 : SGDV-180A01A SigmaV Con	mponent		
	File(<u>F)</u> Parameters(<u>U</u>) Alarm(<u>A</u>) Monitor(<u>M</u>) Se	etup(<u>S)</u> Trace(<u>T</u>) Tuning(<u>G</u>)	Test Run(<u>R)</u> Edit Table(<u>I</u>)	Solution(O) Help(H)
	🗸 🕅 🎿 📲 🥥 🗿 🖉 🖛 🚳 🛃 🐼 🤅	() 🗐 🛱 样 🖉 🏡 😫	. 🎳 🔒 🚏 🦦 🖏 🕅	0 🚵 🖳 🔚 🖻

•

You will then see the Jog Operation Popup shown below:

S JOG Operation AXIS#1	×
Pn304 : JOG Speed	[min-1] Edit
Operation Servo OFF	Servo ON
Forward	Reverse

•

Click "Edit" to change the JOG Speed. "10 RPM" is a good safe starting point.

•

Release ESTOPon the Centroid Control.

•

Click "Servo ON" to enable the ServoPack Motor Power.

•

The screen should then show "Servo ON" as shown below:



•

You can now jog the motor by pressing and holding either the Forward or Reverse buttons

If everything is workign correctly you should have smooth motion of the Servo Motor. Simple close the Test Jog popup to exit Jog Mode, the cycle ESTOP on the Centroid Control

ServoPack Tuning:

We are now ready to tune the Yaskawa ServoPack. There are two main options for tuning of the drive:

•

"Tune Less Mode" ? this is the default mode for the ServoPack, it obtains a stable response without adjustment.

•

"Autotuning" ? In this mode the ServoPack will attmept to tune itself to the dynamics of the system, saving the parameters for use after that.

Note: Most ServoPack / Motor combinations seem to perform better once they have been Autotuned, so we will focus the rest of the time using that feature.

Manually Disabling Tuning Less (If not Autotuning):

•

Enter "Edit Parameters" from the Parameters menu:

•

The Tuning function is located under the Tuning menu:



•

Locate Parameter 170, the default setting is shown below:

Parameter Editing	: SGDV-****01*							X
	Display Mode User Level 2 :	Level 2 (To th	e adjustme	nt.)	-	Display Se	etting 👌	Import
	Control Mode 13	: All Control M	ode		- -	Com	ment Cus	stomize
All constant number	Function Selection(Pn0xx-) Gain(Pn1	xx-) Position	n(Pn2xx-)	Speed(Pn3xx-)	Torque(Pn4xx-) Sequence	e(Pn5xx-) VO S	Sigı_
No.	Name	Input value	Unit	Set value	Min	Max	Default	•
Pn161	Anti-Resonance Frequency	1000	0.1Hz	100.0 Hz	10	20000	1000	·
Pn162	Anti-Resonance Gain Compensation	100	%	100 %	1	1000	100	
Pn163	Anti-Resonance Damping Gain	0	%	0 %	0	300	0	
Pn164	Anti-Resonance Filter Time Constant	0	0.01ms	0.00 ms	-1000	1000	0	
Pn165	Anti-Resonance Filter Time Constant	0	0.01ms	0.00 ms	-1000	1000	0	
Pn170	Tuning-less Function Related Switch	1401H	-	-	-	-	1401H	
Odigit	Tuning-less Function Selection	1 : Tunin	-	-	-	-	-	
1 digit	Control Method during speed control	0 : Uses	-	-	-	-	-	
2digit	Tuning-less Level	4 : Tunin	-	-	-	-	-	
3digit	Tuning-less Load Level	1 : Tunin	-	-	-	-	-	
Pn190	Reserved (Do not use.)	0010H	-	-	-	-	0010H	
Odigit	Reserved (Do not change.)	0 : Reser	-	-	-	-	-	
1 digit	Reserved (Do not change.)	1 : Reser	-	-	-	-	-	
2digit	Reserved (Do not change.)	0 : Reser	-	-	-	-	-	
-								
3digit	Reserved (Do not change.)	0 : Reser	-	-	-	-	-	

•

Click edit on Parameter 170 and change the setting to Tuning-less function disabled:

Edit	×
Pn170 Tuning-less Function Related Switch	_
digit 0 Tuning-less Function Selection	
1 : Tuning-less function enabled	•
0 . Tuning-less function disabled 1 : Tuning-less function enabled	
0 : Uses as speed control	-
digit 2 Tuning-less Level	
4 : Tuning-less Level 4	•
digit 3 Tuning-less Load Level	
1 : Tuning-less Load Level 1	•
1401 H	
ОК	Cancel

Hit OK, you will then see the changed parameters highlighted green, Press Write to send the changed parameters to the Drive.

L P0165	Anti-Resonance Filter Lime Constant	U	0.01ms	0.00 ms	-1000	1000	U	
Pn170	Tuning-less Function Related Switch	1400H	-	-	-	-	1401H	
Odigit	Tuning-less Function Selection	0 : Tunin	-	-	-	-	-	
1 digit	Control Method during speed control	0 : Uses	-	-	-	-	-	
2digit	Tuning-less Level	4 : Tunin	-	-	-	-	-	
3digit	Tuning-less Load Level	1 : Tunin	-	-	-	-	-	
Pn190	Reserved (Do not use)	0010H	_	_	_	_	0010H	

•

The drive will need to be reset to apply the changes made.

Autotuning procedure:

•

The Tuning function is located under the Tuning menu:

•	SigmaWin+ AXIS#1 : SGDV-200A01A SigmaV Component
	File(F) Parameters(U) Alarm(A) Monitor(M) Setup(S) Trace(I) Tuning(G) Test Run(R) Edit Table(I) Solution(O) Help(H)
] 🗸 🕅 🎿 🖑 🔕 🕮 🖷 🗑 🕹 🕭 🖓 🕼 🛱 📈 🤇 🎹 Tuning(G
	× -

•

You will then see a safety warning about the use of Tuning ? simply press "Execute" to continue.

Note: If Tuning Less mode is enabled you will be prompted to disable tuning less in order to run Autotune.

•

You will then see the following Tuning Screen:

Tuning	— ×
Set the moment of inertia (mass) ratio before executing autotuning.	Precautions
Moment of inertia (mass) ratio identification	
Pn103 : Moment of Inertia Ratio	
Execute.	
Autotuning	
C Position reference input	→
Advanced adjustment	Finish

Click "Execute" ? this will begin the process to calculate the Moment of Inertia for the Motor system.

•

You will then see the Condition Setting screen, click "Next".

•

Click "Start" to transfer reference conditions to the ServoPack

•

Click "Next".

•

You will then see the Moment of Inertia calculation screen shown below:



Release ESTOPon the Centroid Control.

•

Click "Servo ON" to apply power to the ServoPack Motor.

•

Alternatingly click "Forward", then "Reverse

" until the SigmaWin software will no longer allow you to press either one, signifying the completing of the movements.

•

Click the "Next" button.

•

You will then see the following screen:

📲 Write Result	s AXIS#1	
Condition Setting	Reference Transmission → Operation Measurem	i∕ III Write Results
Wr	ites the Identified Moment	of Inertia Ratio.
	-	
	Identified Moment of Inertia Ratio	Pn 103 : Moment of Inertia Ratio
	Wn	nting Results
		< Back Finish Cancel

•

Click the "Writing Results" button shown above to send the results to the ServoPack.

•

Click "Finish".

•

You will be prompted to Execute a ServoPack software Reset.

•

Cycle ESTOP on the Centroid Control to clear any error messages generated by the ServoPack reset.

•

You will then be returned to the Tuning screen.

•

Click "No Reference Input" to ensure the correct mode during tuning, then click "Autotuning".

•

You will then see the following Autotuning Set Conditions screen:

[*8	Autotuning - Setting Conditions AXIS	#1	_	×							
	Set conditions.										
IF	-Switching the load moment of intertia (load	d mass) identification									
	1:A moment of inertia is not presumed.										
	Mode selection										
	2:For positioning										
	A gain adjustment specialized for positioning will be executed. In addition, the following automatic adjustments can be executed. Model following control, notch filter, anti-resonance control, and vibration suppression.										
	Mechanism selection										
	2:Ball screw mechanism or linear motor	r		-							
	Executes adjustment suitable for relatively high-rigidity mechanism, such as a ball screw or linear motor. Select this type if there is no applicable mechanism.										
	Distance										
	The moving range from the current value	e is specified.									
	786 X 1000 =	786000	[reference unit	ts]							
	(-99990 - 99990) (Setting invalid range : -131 - 131)	3.0	[Rotation]								
	Tuning parameters										
		Next >	Cano	:el							

Set "Switching the moment of inertia" to "1: A moment of inertia is not presumed".

•

Set "Mode Selection" to "2: For Positioning".

•

Set "Mechanism Selection" to "2: Ballscrew mechanism".

•

Ensure the Moving Range is set to "3.0" rotations, click "Next".

•

You will receive another warning ? click "Yes" to send parameters to the drive.

You will then see the following Tuning Screen:

Lig Autoruning - Automatic setting AXIS#1									
Waiting for execution Oscillation level measurement Gain search	- Servo ON/OFF operation	F Servo ON							
behaviour evaluation									
		_							
Tuning completed	Mode selection								
	2:For positioning								
	Mechanism selection								
	2:Ball screw mechani	ism or linear motor							
	Distance								
Notch filter	786000	[reference units]							
OAnti-res Adj	3.0	[Rotation]							
Vib Suppress	0.0								
Precautions	< Back Fit	nish Cancel							

•

Click "Servo ON".

•

Click "Start Tuning", the ServoPack will then tune itself.

•

Click "Finish" when tuning is complete.

•

At this point the ServoPack and motor are tuned. Execture a Software Reset to be sure everything is back in good operation

Mode Switch:

By default the Yaskawa drive will change modes of operation at 200% of rated torque. This will result in a sudden change in drive behaviour, which we do not want. Centroid recommends Mode Switch is disabled under normal running. The steps to disable Mode Switch are detailed below.



•

Locate Parameter 10B, the default setting is shown below:

Parameter Editing	: SGDV-****01*							
	Display Mode User Level 2 : Control Mode 13	Level 2 (To th : All Control M	e adjustment. Iode) _		Display Se	tting 👌	Import tomize
All constant number	Function Selection(Pn0xx-) Gain(Pn1:	xx-) Position	n(Pn2xx-) S	peed(Pn3xx-) Tor	que(Pn4xx-)	Sequence	(Pn5xx-) VO S	\$igı ∢
NU.	Memoria of Inaction Dation	100	0/11L	100 W	0	20000	100	<u> </u>
Philos	2nd Speed Loop Cain	400	70	100 %	10	20000	400	
D P0104	2nd Speed Loop Gain	2000	0.01mp	40.0 HZ	10	20000	400	
	2nd Speed Loop Integral Time Constant	2000	0.1/2	20.00 ms	10	20000	2000	- T
	End Fostion Loop Gain	400	0.1/5	40.075	0	20000	400	
D Po10A	Feed Forward Either Time Constant	0	70 0.01mp	0.00 mp	0	6400	0	
	Application Function for Gain Slegget	0000H	0.01115	0.00 ms	•	0400	0000H	
Odioit	Mode Switch Selection	0 . 11666	-	-	-	-	000011	-
1 digit	Speed Loop Control Method	0 : Pl.con	-	-	-	-	-	
2diait	Reserved (Do not change)	0 · Reser	-	-	-	-	-	
3digit	Reserved (Do not change.)	0 · Reser	-	-	_	-	-	
Pn10C	Mode Switch (torque reference)	200	%	200 %	0	800	200	
	Mode Switch (speed reference)	0	min-1	0 min-1	0	10000	0	
1 I P010D		-	min-1/s	0 min-1/s	0	30000	0	
Pn10D	Mode Switch (acceleration)	U I			-		-	
Pn10D Pn10E Pn10F	Mode Switch (acceleration) Mode Switch (position error pulse)	0	reference	0 reference units	0	10000	0	

Click edit on Parameter 10B and change the setting to : No mode switch function available as shown below:

Edit						
Pn10B Application Function for Gain Slecect Switch						
0 : Uses internal torque reference as the condition (Level setting : Po10C)						
0 : Uses internal torque reference as the condition (Level setting : Pn10C) Uses internal torque reference as the condition (Level setting : Pn10C) Uses speed reference as the condition (Level setting : Pn10D) Uses acceleration as the condition (Level setting : Pn10E) Uses sostion error pulse as the condition (Level setting : Pn10F)						
4 : No mode switch function available						
digit 2 Reserved (Do not change.)						
0 : Reserved (Do not use.)						
digit 3 Reserved (Do not change.)						
0 : Reserved (Do not use.)						
0000 н						
OK Cancel						

•

Hit OK, you will then see the changed parameters highlighted green, Press Write to send the changed parameters to the Drive.

Pn10B	Application Function for Gain Slecect	0004H	-	-	-	-	0000H
Odigit	Mode Switch Selection	4 : No m	-	-	-	-	-
1 digit	Speed Loop Control Method	0 : PI con	-	-	-	-	-
2digit	Reserved (Do not change.)	0 : Reser	-	-	-	-	-
3digit	Reserved (Do not change.)	0 : Reser	-	-	-	-	-
Pn10C	Mode Switch (torque reference)	200	%	200 %	0	800	200

•

The drive will need to be reset to apply the changes made.

Centroid Configuration:

Once the Yaskawa is setup, there are certain parameters on the Centroid control that need set. These are detailed below.

Centroid Parameter Configuration:

Control Parameters 357 through 364 are the Drive Max RPM settings. They must match the maximum RPM of the Drive / Motor configuration for each axis. They will typically be set to 3000

Centroid Jog Configuration:

The Max Rate needs to be set under the Jog Parameters screen. To calculate max rate you should multiply the maximum theoretical speed of the axis by 0.85 to maintain some overhead for control. The following formula should be used:

(Max Motor RPM / Turns Ratio) * 0.85

Centroid PID Configuration:

We are now ready to start tuning the PID on the Centroid side. This should be tuned as per any velocity mode drive on CNC11. The recommended starting PID values for Yaskawa drives are as follows:

Кр	Ki	Kd	Limit	Kg	Kv1	Ка	Accel
0.0400	0.0001	0.0000	256000	0.0000	80.0000	0.0000	0.7000

Document History

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