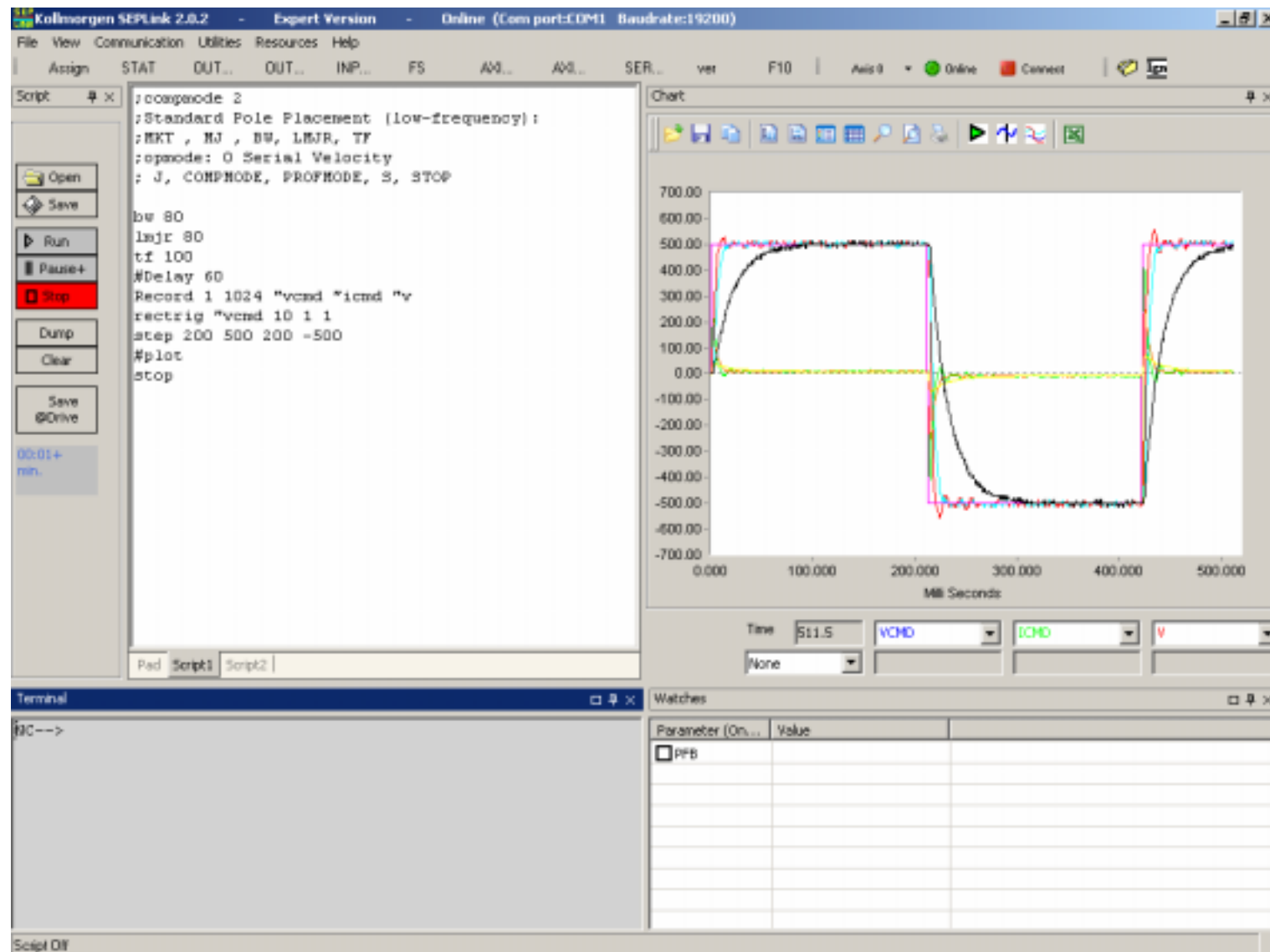


SEPLink Introduction ver 2.0.2



Why SEPLink



SEPLink mission, helping develop and supporting OEM CD and Custom drives

KOLLMORGEN
Servotronix

Menu's

Hot Keys

Communication

Ignite

Script

Chart

Terminal

Watches

Script Window

Script

Open

Save

Run

Pause+

Stop

Dump

Clear

Save @Drive

00:42+ min.

```
;compmode 2
;Standard Pole Placement (low-frequency):
;MKT , MJ , BW, LMJR, TF
;opmode: 0 Serial Velocity
; J, COMPMODE, PROFMODE, S, STOP

bw 80
lmjr 80
tf 100
#Delay 60
Record 1 1024 "vcmd "icmd "v
rectrig "vcmd 10 1 1
step 200 500 200 -500
#plot
stop

#f
{ ClearPad
{ Delay
{ EndLog
{ Goto
{ Label
{ Log
```

#Goto <Label Name>: Jump to the label name

{ Message { Print
{ NewLog { Reset
{ Pad { Skiplf
{ PadLog { Terminal
{ Pause { WaitFor
{ Plot { Watch
{ YAxis

Pad Script1 Script2

Add Tab
Remove Tab
Rename Tab

Run
Run Selection
Stop
Clear
Open
Save

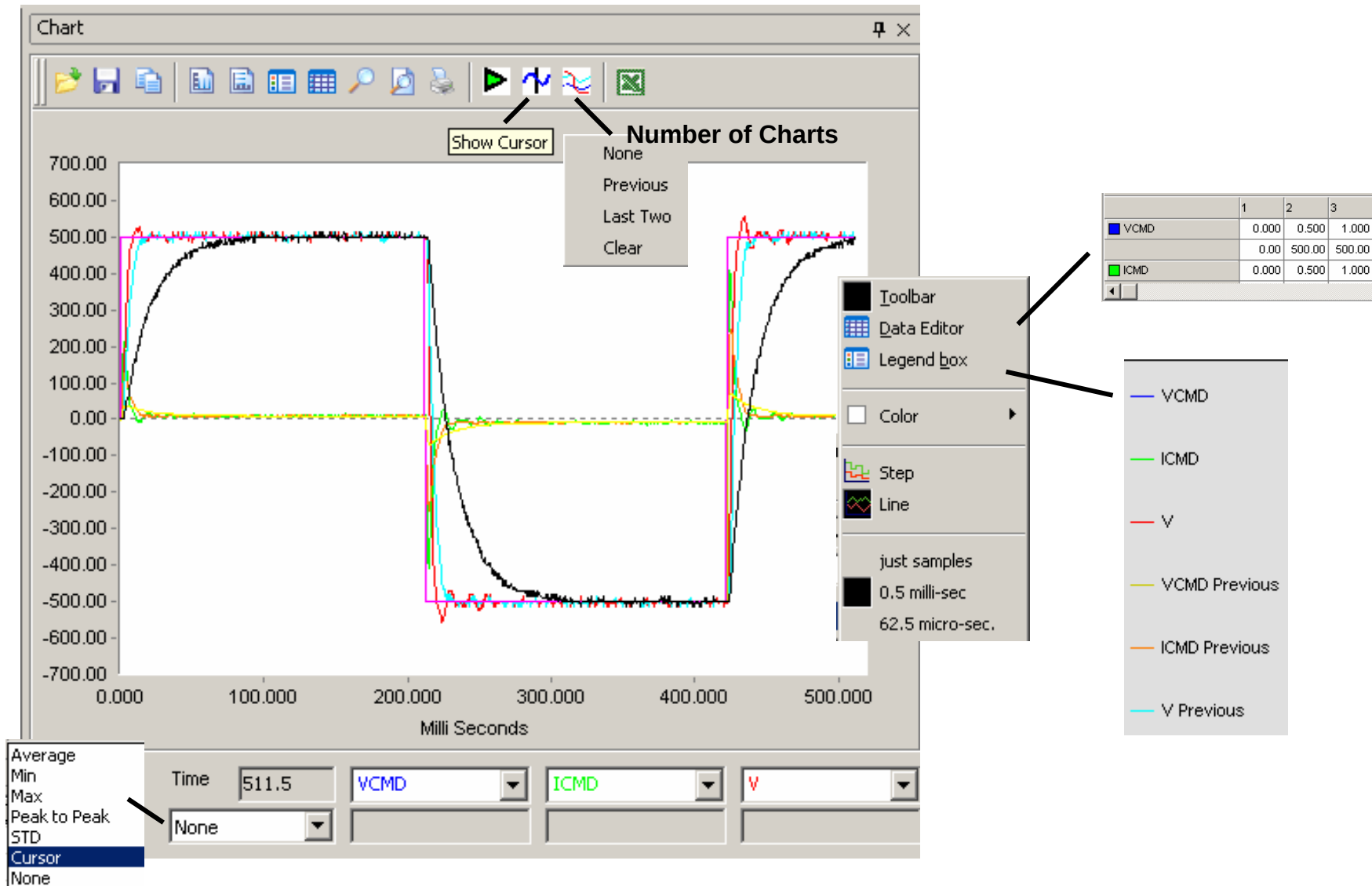
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Undo Ctrl+Z
Select All Ctrl+A

Assign Fn-Key

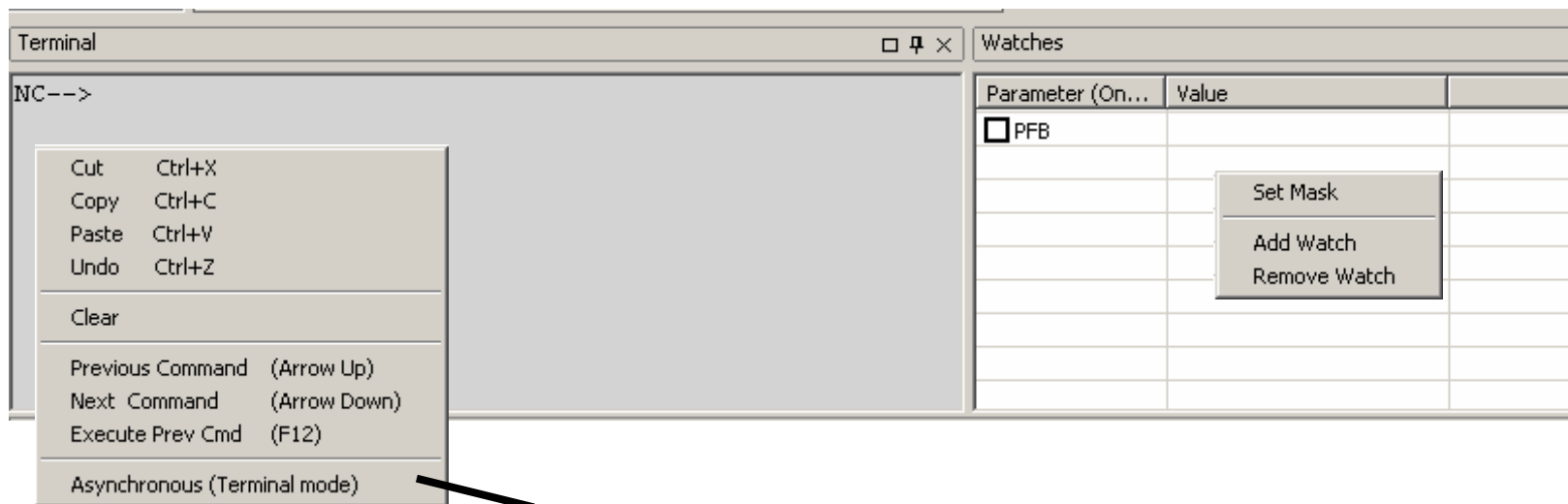
✓ Auto Complete

Color Settings

Chart Window



Terminal Window, Watches Windows



Synchronous and Asynchronous communication

1. Synchronous communication

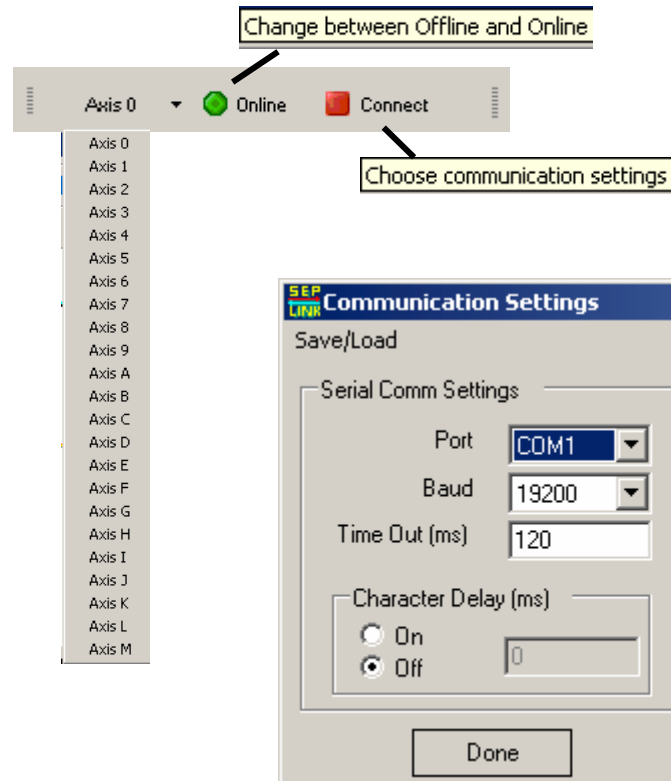
- In the synchronous communication mode every executed command awaits its response , blocking all other operations in SEPLink. This mode is used to enable the scripts, watches and terminal accessing the communication channel in a synchronized manner.
- The script , watches and terminal can all work in synchronous mode.
- e.g. typing pfb in the terminal will not send the 'p','f' and 'b' characters until the enter button is pushed. The response will be shown in the terminal only when the hole response is received.

2. Asynchronous communication

- in the asynchronous communication mode, data is transmitted to the drive directly when the SEPLink receives it, not awaiting a response. Data is shown directly when received, not awaiting the hole response to arrive.
- Only the terminal can work in asynchronous mode.
- e.g. typing pfb in terminal will directly send 'p' followed 'f' and 'b'. Pressing enter will send the CR to the drive. The response will be shown in the terminal character by character that arrives to the communication channel.

Like Motionlink Terminal

Communication



Menu's



File View Communicat

Open Workspace
Save Workspace
Clear Workspace

Open Script
Save Script
Clear Script

Open Plot
Save Plot
Clear Plot

Email Report

Exit

View Communication Utilities

Full Screen
Restore Original Settings

Communication Utilities

Settings
Go Online (Ctrl+S)

Utilities Resources

Bit Manipulation
Excel
Map File
Ignite

Resources Help

QRG
Add/Remove Resource

Main
7 - Segment
Velocity Control
Velocity Tuning

Help

SEPLink Help
SEPLink email

Release Notes
License Agreement
About SEPLink

Connect to server (User)
Connect to server (Expert)

SEP LINK Resource Manager

Resource Name	Resource Path
Main	C:\Program Files\SEPLink\help\SEP-CD\Series5.html
7 - Segment	C:\Program Files\SEPLink\help\SEP-CD\Led_display\Led_display.html
Velocity Control	D:\eng\Documentation\Standard Products\CD Series 2\App Notes\VelocityControl.pdf
Velocity Tuning	D:\eng\Documentation\Standard Products\CD Series 2\App Notes\VelocityTuning.pdf

Remove

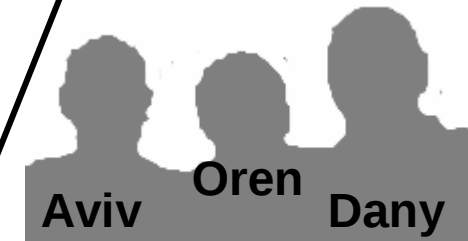
Add New Resource

Resource Path Browse

Resource Name

Add

Close



SEP LINK About SEPLink

SEPLink for Expert2.0.2
Copyright Kollmorgen Corp. 2006

License Agreement

Release Notes

SEPLink email

SEPLink help

Docking windows library done by Magic Library www.dotnetmagic.com

Close



Motor DATA Library



Open

Look in: MotionLink motors

6sm.M03
AKM_rotary.M03
Direct_drive_DOR.M03
Direct_drive_RBE.M03
Goldline_custom.M03
Goldline_rotary.M03

SEP
LINK

MOTOR DB (with ADO.NET)

Motor family: AKM Motors

Motor Details

MotorType: 3
MotorModel: AKM11B*
PeakCurrent: 4.7 amps
ContCurrent: 1.2 amps
Max Speed: 8000 rpm
Back EMF: 10 vrms/1000 pm
BEMF COMP%: 50 percent
Rotor Inertia: 2E-06 kg-m^2
Min Inductance: 12.5 millihenries
Motor Poles: 6 mag. poles
AGain at Peak I: 90 percent
AGain at Cont I: 100 percent
AGain at Zero I: 100 percent
Torque Adv P: 28 elec. degrees
Torque Adv C: 10 elec. degrees
Speed Adv at V: 22 elec. degrees
Speed Adv 1/2 V: 7 elec. degrees

MotorTable

ID	MotorType	MotorModel	PeakCurrent	ContCurrent	Max Speed	Back EMF	BEMF COM
1	3	AKM11B*	4.7	1.2	8000	10	50
2	3	AKM12C*	6.1	1.5	8000	13	50
3	3	AKM13C*	5.9	1.5	8000	18	50
4	3	AKM21E	12.4	3.1	7000	10	50
5	3	AKM22E*	10.9	2.7	8000	20	50
6	3	AKM23D	8.8	2.2	5000	34	50
7	3	AKM23F*	17.2	4.3	8000	18	50
8	3	AKM24D*	8.8	2.2	4000	41	50
9	3	AKM24F*	15.6	3.9	8000	23	50
10	3	AKM31C	5.5	1.4	2500	55	50
11	3	AKM31E	12	3	6000	26	50
12	3	AKM32D*	8.9	2.2	2500	59	50
13	3	AKM32H	22	5.5	8000	25	50
14	3	AKM33E*	10.3	2.6	2000	71	50
15	3	AKM33H	22.5	5.6	5500	33	50
16	3	AKM41E*	11.4	2.9	3000	46	50
17	3	AKM41H	22.4	5.6	6000	24	50

First < Previous < Next > Last > | Open Cancel

Record: 1 of 1

Exercise, over night test running



Repeat the following:

Jog the motor CW one rev at 100 RPM

Jog the motor CCW one rev at 100 RPM

Make sure you are at OPMODE 8 (Position loop)

Hint:

MI 8192 100; one rev CW at 100 RPM

MI -8192 100; one rev CCW at 100 RPM

Exercise, Velocity loop Manual Tuning



COMPmode 2

Standard Pole Placement (low-frequency):

MKT , MJ , BW, LMJR, TF

OPmode: 0 Serial Velocity

J, COMPmode, PROFmode, S, STOP

BW 10

LMJR 80

TF 100

#Delay 60

RECORD 1 1024 "vcmd "icmd "v

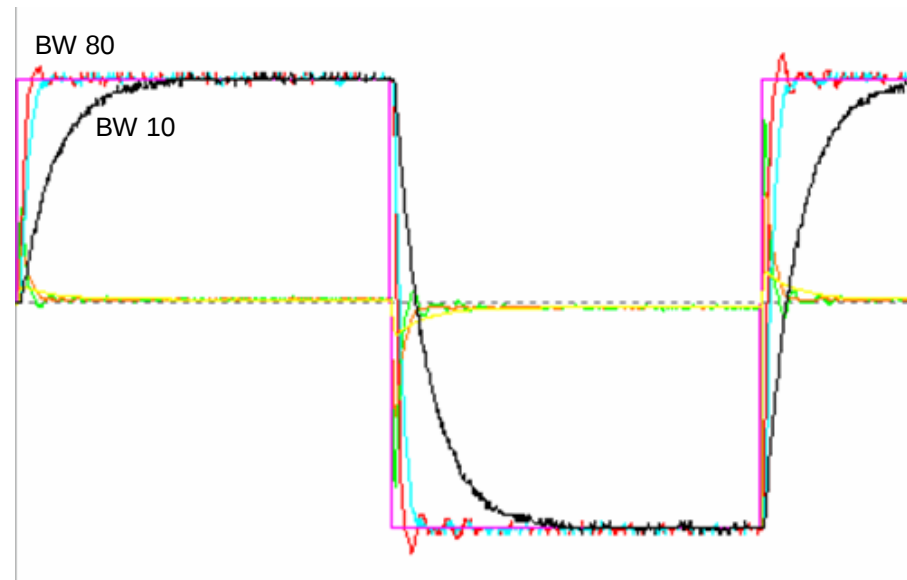
RECTRIG "vcmd 10 1 1

STEP 200 500 200 -500

#DELAY 500

STOP

#PLOT



Manual Tuning of the Velocity Controller



1. Set the operation mode to serial velocity, using OPMODE 0.
2. Set the velocity compensator to “standard pole- placement”, or PP, using COMPMODE 2.
3. Enable the drive using EN.
4. Set the desired bandwidth using BW command. It is recommended to set the initial value low (10 Hz), BW 10 and then work up.
5. Set the load inertia ratio to zero using LMJR 0. The load inertia value LMJR is expressed in percent of the rotor inertia.
The range for LMJR is 0 to 10,000. It represents a range of load: rotor inertia ratios ranging from 0: 1 to 100: 1 (For example, to set a 10: 1 ratio between the load inertia and the motor inertia, use the command LMJR 1000). At this point the step response should have the maximum overshoot, but the control loop should be stable (low gains).
6. Activate the recording mechanism to record the velocity command, the current command, and the actual (feedback) velocity, using RECORD 1 1024 VCMD ICMD V.
7. Jog the motor in constant low speed, using J value1 command (For example, start with the command, J 150)
8. Activate the recording trigger, using RECTRIG VCMD value2 20 1. Value2 should be greater than value1 in the previous stage (For example, RECTRIG VCMD 200 20 1).
9. Jog the motor to a higher value than specified in the RECTRIG command. This is actually the step command. The higher the step, the better are the results. The step should not be below 300 [RPM] (For example, J 500).
10. The recording takes about half a second. After this period of time, reduce the motor speed.
11. Verify that the recording process is terminated using RECDONE command.
12. Dump the recorded data to the serial port using GET command.
13. Analyze the results.
If the current command is saturated (gets absolute values of ILIM) during the process, reduce the step or reduce the bandwidth, and return to step 6.
14. Inspect the feedback velocity:
If there is an undershoot or oscillations, reduce LMJR to the mean value of the present LMJR and the last LMJR where an overshoot exists, and return to step 6.
If there is an overshoot, increase LMJR by 100 and return to step 6.
Repeat this process until the overshoot is minimum or nearly in a “Non overshoot” situation. (The estimated load inertia may be queried by LMJR.)