1、简介

本书"Getting started"详细描述了使用 BHOS 位置控制器的基本步骤,阐述了设备的运行过程,并指导如何进行 BHOS 3610 系统安装和 设置。

2、最小系统外部连线

图示组成最小应用系统。



1)选择电源(+11V---+36VDC),连接到驱动器 BHOS3610。注意 电源电压超过+40V 会损坏驱动器。

- 2) 选择电机, 电机的 A、B、C 三相分别连接到对应位置。
- 3) 增量式光电编码器和霍尔连接线连接到驱动器信号输入端。
- 4) RS-232 串行通讯电缆与主机连接(PC)。

3、安装和设置

3、1 步骤 一:软件安装

使用 BHOS CD-ROM 安装软件。CD 中包含 BHOS 控制器安装和运行时所需信息和工具。

系统最小配置要求:

Win95、Win98、Windows ME、Windows NT 4.0
Windows 2000、XP
486 处理器,16 MB 内存
50 MB 硬盘
分辨率 800*600, 256 色监视器

请根据以下步骤进行安装:

1) 插入光盘。

2)点击 CD 中可执行文件 "BHOSsetup.exe" 进行安装,不过一般情况下光盘插入后系统会自动安装。

 按照对话框提示,将其安装在一个路径下(推荐使用: C:\Program Files\Beihe Tech Configure)。

检查"开始"菜单中是否有"Beihe BHOS"以及桌面上是否有 "BHOS Configure.exe"的快捷方式。

BHUSSEtup Setup: Installation Uptions	BHOSsetup Setup: Installation Folder
Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.	Setup will install BHOSsetup in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Select components to install: 🛛 🕅 BHOS (required) Menu Shortcuts	Destination Folder
Space required: 3.6MB Cancel Nullsoft Install System v2.27 Next >	Space required: 3.6MB Space available: 5.4GB Cancel Nullsoft Install System v2:27 < <u>Back Install</u>

4) 编辑或卸载 BHOS 软件。

运行"开始"菜单中"Beihe BHOS"目录下的 unistall.exe,并按照提示继续。

3、2步骤二:系统设置

这一部分将设置 BHOS3610 驱动系统, 你必须知道系统的一些技术参数。这里会使用到 BeiheTech 的目录或参数表。

驱动系统设置:

1)供电

开启 BHOS3610 的电源

2) 开启 "BHOS_UserConfigure Test Version 1.20"或更高版本 在首次使用时,需要对软件根据使用的驱动器型号进行固件配 置。出现下面的添加固件对话框:

BHOS_UserConfigure	Test Version 1.20.0.	8 [Node 1]					- I X
<u>File</u> <u>Communication</u> <u>Stat</u>	us <u>P</u> arameter S <u>e</u> rvio	te <u>W</u> izards <u>V</u> iew <u>F</u>	<u>t</u> elp				
👕 Node 1 💽 🏅	8 🔏 🕜 📼 🎾	12 Q J & 9	(백)				
Wizards	DataRecording	I/O Monitor	Command Analyser	7			
	Position Mode	Velocity Mode	Current Mode	Master Enco	der Mode	Step Direction Mode	
	Object Dictionary	Device Control	Profile Posi	tion Mode	Homing Mode	Profile Velocity Mod	le
Startup Wizard							
	O Star	se Firmware File			×	n fault	
Regulation Tuning	A a n	, new BHOS Version djust the graphica weeds the correspon	has been connect 1 user interface ding firmware fi	ed! In order to , the program le!	,	All Objects	-
Firmware Downl		elect the correct C:\ Infos				is Value	
I/O Configur		Software Hardware Application Application	BHDS : 0x2032 0x6210 0x0000 0x0000				
Parameter Export/I			<u>K</u>	·			
Diagnostic Wizard							
	3 ERRORS FOUND!						
	<u>C</u> lear Errors	History	Error/Warning	Description			
CANopen 🚽	Error Info	First Error Second Error	0x8120 0x7320	Failure number Failure number	· Ox8120 not i · Ox7320 not i	n Error/Warning list n Error/Warning list	
Ready						Monitor S	Stopped //

根据使用的驱动器型号选择适配的固件,软件会自动加载并设置。 以后在打开程序此对话框不再出现。用户就可以进行下面的操作啦。

3) "Startup Wizard" 步骤 1: 外部线路

- a) 检验硬件是否安装正确。
- b) 如果已阅读"Getting Started"说明书,单击"Confirm that you`ve

read the 'Getting Started' document" 按钮。

Startup Wizard	×
ology	Step 1: Minimum External Wiring! Please read the 'Getting Started'
[echn c	Confirm read the 'Getting Started' document
eiHe 7	INFO: All documentations are available on <u>http://www.beihetech.com</u> .
	< 上一步 (1) 下一步 (1) > 取消

c)单击"Next"进行"下一步"操作。

4) "Startup Wizard"步骤 2: 串口 RS232 通讯连接设置

a)检验串口 RS232 线路是否正确。

b)单击"Search Communication Setting"自动搜索 COM 端口和 调整波特率。

Startup Wizard	
80 -	Step 2: Communication Setting!
iHe Technolo	Select the correct communication Communication © RS232 or © CANopen Interface RS232 Serial Port COM1 Baudrate 38400
Be	
	< 上一步 (B) 下一步 (B) > 取消

c)如果发现了一个正确的连接设备。

d)单击"OK"按钮进行确认

e)单击"下一步"继续

5) "Startup Wizard" 步骤 3: 选择电机类型

a)选择电机类型。BHOS3610适用于无刷电机(Beihe BH motor)和 直流有刷伺服电机(Beihe DC motor)。

Startup Wizard	[Node 1]
BeiHe Technology http://www.beihetech.com	Step 3: Motor Type Select the correct motor Beihe Brush Motor O Beihe DC motor Beihe Brushless Motor O Beihe BH motor
	〈上一步(36) 下一步(33) 〉 取消

b) 单击"下一步"继续

6) "Startup Wizard"步骤 4: 设置 BH 类型电机极对数

a)选择正确的极对数

Startup Wizard	[Node 1]
ology h.com	Step 4: Motor Pole Pair Select the correct number of
seiHe Techn http://www.beihetec	Number of pole NOTE: All standard beihe BH motors have 1 pole pair ! Change this value only if
	< 上一步 (B) 下一步 (B) > 取消

b) 单击"下一步"继续

7) "Startup Wizard"步骤 5: 设置 BH 类型电机参数

Startup Wizard	[Node 1]			×
iHe Technology	Step 5: Motor Data Select the correct motor data Max. permissible Nominal (max. continuous) Max. output current Thermal time constant	! (see cata 3000 5000 10000 4.0	alogue rpm mA mA s	
Be	< 上一步 @ 下	一步(11) >	取消	_

- a)选择电机限速
- b)选择最大连续电流
- c)选择绕组的热时间常数
- d)单击"下一步"继续
- 8) "Startup Wizard"步骤 6: 设置 BH 电机位置传感器类型:

Startup Wizard	[Node 1]
δΰ _ε	Step 6: Position Sensor Type
iHe Technolo	Select the correct position C 3-channel incremental encoder with lin - channel A, A\ - channel B, B\ - channel Index, C 2-channel incremental encoder with lin - channel A, A\ - channel B, B\ C Hall Sensors (> block commut
Be	
进 权 台 里 仕 同	世界米王

- a)选择位置传感器类型
- b) 单击"下一步"继续

c) 使用霍尔传感器时注意:

为了更好的实现它的作用,请在使用过程中遵守以下规则

WARNING!	WARNING! WARNING!
The option 'Ha	ll Sensors' results in a low
Only the follo	wing application cases
Position	Multi Pole BH Motors (4 pole pairs
Velocity	Velocity higher than 1000 rpm (1 pole
Current	No

d) 请在单击"Accept"按钮之前仔细阅读这些警告

9) "Startup Wizard"步骤 7: 设置 BH 类型电机位置分辨率

a) 输入使用的光电编码器的分辨率

Startup Wizard	[Node 1]
BeiHe Technology http://www.beihetech.com	Step 7: Position Resolution Enter the correct encoder resolution ! Encoder pulse/turn Position 4000 qc/turn The encoder determines the position resolution! Position Resolution [qc/turn] = 4* Encoder Enhanced Startup Wizard Mod
	< 上一步 (B) 下一步 (B) > 取消

b) 单击"下一步"继续

10) "Startup Wizard" 步骤 8: 总结

- a) 窗口简短显示了关于配置参数的总结
- b) 如果设置时有错误, 单击"BACK"返回去重新修改
- c)如果不想每次在进入BHOS用户界面时使用向导,取消选择

"Always start this wizard after program start"

BeiHe Technology http://www.beihetech.com	Step 8: Summary Now you have configured the BHOS ! Communication via RS232 - COM1 Transfer Rate 38400 baud Motor Type beihe BH motor Position Sensor 2-channel incremental Position 4000 qc/turn Always start this wizard after prog
	< 上一步 (B) 完成 取消

d)如果所有设置是正确的,单击"完成(Finish set)"关闭设置向导。

11)保存并激活参数

Save & Activate	×
The configured parameters are going to be saved and activated by a reset! Do want to continue ?	
<u>Yes</u> <u>N</u> o	

a) 单击"Yes"继续

BHO5_Us	erConfigure 🔀
⚠	The parameters are saved and activated!
	确定

b) 单击"OK"确定

12) 清除 CAN 错误

现在可执行目标代码将被加载,因为 CAN 通讯并没有被连接,错误提示框 "CAN in Passive Error Mode"出现。

DS_UserConfigur	re Test Version 1.20.0.8 tatus Parameter Service	[Node 1] Wittards View He	b.			
lode 1 💌	78 78 10 🗢 🤌 K	2 A 2 A 2	#			
Wizards						
7	Step Direction Mode	DataRecordin	g I/O Monitor Command Analyser			
	Object Dictionary	Device Control	Profile Position Mode Homing Mode Profile Velocit	y Mode Position Mode Velo	oity Mode	Current Mode Master Encoder Mode
ard						
	Object Dict	tionary Acce	\$\$			The BHOS H is in fault
tion.						
	[Today	Culture	Vee	T	Laure	Active Object System Paramete
)	0x6005	0x00	Har Following Error	107.01.32	RT RT	2000
<u>.</u>	0x6076	0x01	Current Regulator P-Gain	Int16	RF	2498
n.e	- 0x60P6	0±02	Current Regulator I-Gain	Int16	ET	351
	0x60F9	0x01	Speed Regulator F-Gain	Int16	EW	8064
>	0x6099	0x02	Speed Regulator I-Gain	Int16	KY	611
7	Ox607B	0x01	Position Regulator P-Gain	Int16	ET	1967
	0x60FB	0x02	Position Regulator I-Gain	Int16	EW	25
	0x8098	Owors	Fosition Regulator D-Gain	Intl6	XX	695
r	0.4075	0±04	Velocity Feedlorward Factor	0Int16	EF	0
	0x6075	0=00	Acceleration Feedforward Factor	UIntib Wat16	11	10
	0x6410	0:00	Continuent Convent Linit	018116	17	5000
1	0:6410	0:01	Ontant Convent Limit	10Intio	1.4	10000
	0=6410	0+03	PolaPair Sumbar	107=+8	27	2
	0+6410	0x04	Bayinal Sneed in CurrentHode	IIInt16	EF	3000
	0+6410	0x05	Thermal Time Constant Winding	107:116	RW	40
	0x2001	0x00	CAN Bitrate	UTet16	RT .	0
	0x2002	0x00	ES212 Bandrate	IIInt16	EF	3
•	0+2008	0+00	Hiscallaneous Configuration	107.116	RW	ŏ
tie	0x2210	0x01	Encoder Fulse Sunher	UTet16	RT .	1000
d	0v2210	0x02	Position Sensor Type	IIInt16	EF	2
	0+2210	0+04	Position Sensor Polarity	IIInt16	RW	0
•	0.000					
•						
£						
•						
	1 FREDR FOIDTH Co	macted MOS: Sof	twareYersion: 0x2032 MardwareYersion: 0x6410 #xxNumber: (Dv0000 AreVersion: 0x0000		
	Clear Preas	History	rror/Warning Description			
		atest Error E	rror Ox8120 CAN in Error Passive Mode			
	Error Info					
	, ,					Mod
	•					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
i 🙈 🏹 🚺	BH05_UserCo	nfigure Tes				

a)单击"Clear Errors"清除"CAN in Error Passive Mode"的错误。

b)如果出现其他错误,请检查线路和初始配置。更多错误信息请参考 BHOS 文件夹。

c)现在 BHOS 已经准备好可以进行增益调谐和校准了。

3.3 校准调谐增益

BHOS_UserConfigure 提供了自动校准增益的功能,可以调谐电流环、 速度环和位置环的增益。自动调谐功能带来了很大的方便,但是却不能 保证最佳校准参数。但自动调谐方便了手动调谐。

建议使用下面的方法进行自动增益调谐和校准:

3.3.1 启动自动调节工具

a)在BHOS_UserConfigure 用户界面,双击"Regulation Tuning"进行自动调节。

	Step Direction Mode	DataRecording	I/O Monitor Cor	mand Analyser						
	Object Dictionary	Device Control	Profile Position Mode	Homing Mode	Profile Velocity Mode	Position Mode	Velocity Mode	Current Mode	Master Encoder Mode	
\mathbf{y}	Object Dict	ionary Acces	s					The	BHOS 📕 is disal	iled 📑
									Active Object	System Parameter
	Index	SubIndex	Nume			Type	Access	Value		
	0x6065	0x00	Max Following Error			UInt32	ET	2000		
	0x6076	0±01	Current Regulator F-Ga Current Regulator I-Ga	5		Int15	ET .	2498		
	0x6079	0x01	Speed Regulator F-Gain			Int16	EW	8064		
	0x60F9	0x02	Speed Regulator I-Gain			Int16	R.W	611		
	0x6073	0x01	Position Regulator P-G.	uin		Int16	ET	1567		
	0x60FB	0x02	Position Regulator I-G	sin.		Int16	EW	25		
	0x6078	0x03	Position Regulator D-G	in		Int16	KT	698		
	0x6093	0x04	Velocity Feedforward F	uctor .		UInt16	ET	0		
	0x5075	0-00	Acceleration Feedforwar	d factor		UIntib Wet16	11	10		
	0x6410	0+01	Continuous Current Lin			UIInt16	17	5000		
	0x6410	0x02	Output Current Linit			UInt16	EF	10000		
r	0x6410	0x03	FoleFair Sumber			UInt8	RT .	2		
	0x6410	0x04	Maximal Speed in Currer	stffode		UInt16	EW	3000		
	- 0x6410	0x05	Thermal Time Constant 1	finding		UInt16	EF	40		
	0x2001	0x00	CAN Bitrate			UInt16	ET	0		
	0x2002	0x00	RS232 Baudrate			UInt16	EW	3		
	0x2008	0100	Hiscellaneous Configure	ation		UInt18	EX.	0		
e	0x2210	0x01	Encoder Fulse Sumber			UInt16	NY IN	1000		
	0x2210	0:02	Position Sensor Type			UIntib IIIntif	2.1	2		
	UNLETO	0.01	Torren balanti rotarr	<i>y</i>		ouncro				
	NO ERROR Co	amented BHOS: Softw	eareVersion: 0x2032 Har	hwareVersion: 0x64	0 AppNumber: 0x0000	AppVersion: 0x0000				
	Clear Frenz	Gatery Pre	or/Warning Description							
	gayna ana ona		and a second second							
	geror Into									

3.3.2 启动自动调节电流环

首先,调节电流校准器

a) 设定默认值

julation Tuning [Node 1]	2
Regulator to Performance Integral of Abs(Error) Step Current Step Current Step 1000 mA Enhanced	Current Step
The BHOS is [] Best	Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state
reriormance L r-wain 1-wain	Auto Mame Value Delta Proportional Gain 2498 0
J	☑ Integral Gain 351 0
Performance I P-Gain I-Gain	
	E
lose Regu	lation Tunin

b) 单击"Start Tuning"按钮开始自动调节



c)用外力制动电机轴直到电流校准器完成自动校准,在电流环调准过程中,不可以使电机的轴转动。

Turr	ent Regulation	n Tuning		×
	WARNING!	WARNING!	WARNING!	
	<mark>Block the mo</mark> Otherwise th damage	<mark>otor</mark> to tun he motor is g	e the current oing to rotate and may	
	Do you want	to continue?		
		Yes	<u>N</u> o	

d) 单击"Yes"按钮继续

e)现在开始自动校准。它会花些时间为电流搜索合适的校准增益。为 了下一步分析,所有的调谐步骤都会显示出来

End of Regulation Tuning
-End of Regulation Tuning
If the new regulation gains do not meet your regulation requirements,
Do you want to restart the regulation tuning?
<u>I</u> es <u>No</u>

f) 单击"NO"继续

g)如果出现错误则调谐自动停止,请确认并修改错误。接下来进行初始参数设置。

The <i>BHOS</i> 📕 is	Error Found!	1 x 3
Best		Show Error List

清除错误,然后继续进行自动校准。

The <i>BHOS</i> dis	Error Found!
Best	Show Error List

- 3. 3. 3启动自动调节速度环(Auto-tuning of the Velocity Regulator)
- a) 在"Regulation Tuning"菜单中选择"Velocity Regulator"
- b) 设置默认值(也可以根据需要修改设置)

Regulator to Performance Step Current Regulator Velocity Regulator Position Regulator Current Step Current	Regulator to Performance Step Current Regulator Velocity Regulator Position Regulator Current Step Current	lation Tuning [Node 1]	
The BHOS is Image: The set Tuning Tuning Performance I P-Gain I-Gain Next Evaluation Image: Training Image: Training Image: Training Image: Training Performance I P-Gain I-Gain Image: Training Image: Training Image: Training Image: Training Image: Training Image: Training Image: Training	The BHOS is Image: The set	Regulator to Current Regulator Performance Current Regulator Position Regulator Step Current Step Current Step 1000 mA	Current Step Current Step Current Regulator (Encoder)
Best Next Evaluation Performance I P-Gain I-Gain Auto Name Value Delta Performance I P-Gain I-Gain Proportional Gain 2728 0 Performance I P-Gain I-Gain Proportional Gain 2728 0 Performance I P-Gain I-Gain Performance I P-Gain I-Gain Performance I P-Gain I-Gain Performance I P-Gain I-Gain Performance I P-Gain I-Gain Performance I P-Gain I-Gain	Best Next Evaluation Performance I P-Gain I-Gain Image: State Sta	The BHOS is	Tuning ■
Performance I P-Gain I-Gain Iming Integral Gain 2728 Performance I P-Gain I-Gain Iming Integral Gain 351 Iming Integral Gain 10 Iming Iming Iming Iming Iming Iming <td>Performance I P-Gain I-Gain Image: State of the st</td> <td>Best</td> <td>Next Evaluation</td>	Performance I P-Gain I-Gain Image: State of the st	Best	Next Evaluation
Image: Second	Performance Index Variation: 12.99%	Performance I P-Gain I-Gain	Auto Name Value Delta
Tuning Performance I P-Gain I-Gain Tuning Tuning Process is STOPPED!	Tuning Integral Gain 351 0 Performance I P-Gain Integral Gain 351 0 Ferformance Index Variation: 12.99% Integral Gain 351 0	99586 2728 351	✓ Proportional Gain 2728 0
Performance I P-Gain I-Gain Tuning Process is STOPPED! Ferformance Index Variation: 12.998.	Performance Index Variation: 12.99%	Tuning	Integral Gain 351 O
		Performance Index Veriation: 12 99%	Tuning Process is STOPPED!

c) 单击"Start Tuning"按钮开始



d)确保电机轴无负载运转,单击"Yes"按钮继续

/elo	city Regulatio	n Tuning		x
	WARNING!	WARNING!	WARNING!	
	Connect the The mus Otherwise th	load to the m t be free e motor may d	otor ! to tune the velocity amage the	
	Do you want	to continue?		
		<u>Y</u> es)	<u>N</u> o	

e)现在自动校准开始。它会花些时间为电压搜索合适的校准增益。 在这个过程中电机会向两个方向转动。为了下一步分析,所有的调谐 步骤都将显示出来。

End of Regulation Tuning	×
-End of Regulation Tuning	
If the new regulation gains do not meet your regulation requirements,	
Do you want to restart the regulation tuning?	
<u>Y</u> es	

f) 单击"NO"继续

g)如果出现错误则调谐自动停止,请确认并修改错误。接下来进行 初始参数设置。

The BHOS	is Error Found	
Best		Show Error List

清除错误,然后继续进行自动校准。

The BHOS is	Error Found!
Best	Show Error List

3.3.4 启动自动调节位置环(Auto-tuning of the Position Regulator)

- a) 在"Regulation Tuning"菜单中选择"Position Regulator"
- b) 设置默认值(也可以根据需要修改设置)

ulation Tuning [Node 1]				
Regulator to Position Regulator Performance Current Regulator Velocity Regulator Position Regulator Step Profile Position Step Profile Position 2000 qc Enhanced		ofile Generator	Current Regulator	Motor
The BHOS is	P 9	P + I - Tuning	g Auto	Tuning 💌
Performence T P-Cain T-Cain D-Cain	hex (None	Value	Delte
Terrormance L I-Wain I-Wain D-Wain		Propertional Gain	1567	Derta
		Integral Gain	25	0
Tuning		Differential Gain	698	0
			<u> </u>	adhaadhaadhaadhaadhaadhaadhaadhaadhaadh
Performance Index Variation: 12.99%	Ē			
lose Regu	lation 7	unin		

c) 单击"Start Tuning" 按钮开始



d)确保电机轴能够运转,单击"Yes"按钮继续

WARNING!	WARNING!	WARNING!	
Connect the 1	load to the m	otor !	
The must	. be able to z domogo the r	to both directions!	
	, damage che i	echanics :	
Do you want †	to		

e)现在自动校准开始。它会花些时间为位置环搜索合适的校准增益。 在这个过程中电机会向两个方向转动。为了下一步分析,所有的调谐 步骤都将显示出来。

End of Regulation Tuning	x
- End of Regulation Tuning-	7
If the new regulation gains do not meet your regulation requirements,	
Do you want to restart the regulation tuning?	
<u>Y</u> es	-

f) 单击"NO"继续

g)如果出现错误则调谐自动停止,请确认并修改错误。接下来进行 初始参数设置。

The BHOS	📕 is	Error Found!	1 x
Best			Show Error List

清除错误,然后继续进行自动校准。

The BHOS is	Error Found!
Best	Show Error List

3. 4 手动调节参数

如果自动调节出现错误或自动调节的结果不够理想,则用手动调节。 通过反复校准增益,改变系统参数启动单步调节,并检查已记录的数 据。

按照以下步骤操作:

a) 在对话框中选择"Manual Tuning"模式

Regulator to Performance	Current Regulator Integral of Abs(Error)	Current Step
Step Current Step	Current Step	Inhanced Encoder
The BHOS	ļis	Next Evaluation
Performanc	e I P-Gain I-Gain	Auto Name Value Delta
99586	2728 351	Proportional Gain 2728 O
funing		Integral Gain 351 0
Performanc	e I P-Gain I-Gain	
306433	3410 351	Tuning Process is STOPPED!
99586	2728 351	
97991	2728 351	The set of
84666	2728 351	
96031	2728 351	
95031	2727 351	
103000	2727 438	
101662	1819 351	
104614	5451 351	
102337	2727 264	
102464	2727 438	
97997	2727 351	
107828	4543 351	
102715	3635 351	ى ئەرلىرىغە يەرلىرىغان قىلىرىلىرىغى بىرى يەرلىرىيىل تەرىپىرى بەرك <mark>ى تەركىم بىلىرىم بىلىكى بىرا</mark> تەركىمى تەركىمى تە
90136	3635 351	the place start is the fightest of a descent in the start of the start start and a little start and the start of the start
Performance Ind	2908 351	

b) 进入"Next Evaluation"并改变校准器出现的校准增益设置

IF I	Next Ev	¢ \$ ✔ ≫ valuation	Tuning	Manual	Tuning 💌
	Auto	Name		Value	Delta
		Proportional Gain		1567	0
		Integral Gain		25	0
		Differential Gain		698	0

提示:

找到电流和电压校准器的初始值,增加和减小参数进行比较结果,观 测记录的结果进行单步调试。

特别对于位置校准器,以下规则会有很大帮助:

Start values:	"Integral Gain"=0 (积分参数=0)
	"Proportional Gain" = 2* "Differential gain"
	(比例参数是微分参数的2倍)
Overshoot:	减少"Proportional Gain" 或增加"Differential Gain"
Position Error:	增加"Proportional Gain"和"Differential Gain"
Integral Gain:	如果其他两个增益是理想的,调整"Integral Gain"。

增加"Integral Gain"直到静态位置偏差足够小。

c) 点击启动新的运动,判断已记录的数据

:	Next Ev	● the stion	Tuning	Manual	Tuning 💌
	Auto	Name		Value	Delta
		Proportional Gain		1567	0
		Integral Gain		25	0
1		Differential Gain		698	0
	Tuning	Process is STOPPE	D!		

d)重复操作直到对所有的校准增益满意为止。

3.5保存所有调节的增益参数

自动调节找到的所有增益参数校准都被保存在电脑上了。但要长期保存,必须把数据保存在 BHOSxxxx 上。

a) 单击"Save button"保存

Ø	8	�│୶│৵∣⊘∣	Tuning	Manual	Tuning 💌
1	Next E Auto	valuation Name		Value	Delta
		Proportional Gain		1567	0
	N N	Integral Gain Differential Gain		25 698	0 0

b) 单击"YES"按钮继续

BHO5_Us	erConfigure 🔀
⚠	Do you really want to save the regulation gains?
	<u>是(y)</u> 否(N)

c) 单击"确定"保存所有参数



4、结束语

现在 BHOS3610 已经可以在给定的调试模型中运行。如果想进行 高级设置请参照 BHOS3610 其他应用文件。