

XPS-D

Universal High-Performance Motion Controller/Driver







User Interface Manual

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Original instructions.

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Universal High-Performance Motion Controller/Driver XPS-D Controller

1.0 Introduction

1.1 Scope of the Manual

The XPS is an extremely high-performance, easy to use, integrated motion controller/driver offering high-speed communication through 10/100/1000 Base-T Ethernet, outstanding trajectory accuracy and powerful programming functionality. It combines user-friendly web interfaces with advanced trajectory and synchronization features to precisely control from the most basic to the most complex motion sequences. Multiple digital and analog I/O's, triggers and supplemental encoder inputs provide users with additional data acquisition, synchronization and control features that can improve the most demanding motion applications.

To maximize the value of the XPS Controller/Driver system, it is important that users become thoroughly familiar with available documentation.

The present **XPS-D User Interface Manual** describes the Graphical User Interface (also called web interface) of the controller. It applies to several controller versions of the XPS-D family. Therefore, some details of the screenshots presented in this manual may slightly differ from reality (background picture or footer product name for instance).

1.2 Prerequisite

It is mandatory that the applicable **Start-Up Manual** (dedicated to your controller version) be thoroughly read and understood before going through the User Interface.

Particularly, Ethernet connection must be established between the computer and the controller, either directly or through a network.

1.3 Special case of HXP-ELEC-D controller

In case of XPS-D controller preconfigured to drive a Newport Hexapod (then referenced HXPxxx-ELEC-D), some menus may not be accessible, especially those dedicated to system/stage configuration (to prevent modifying the factory settings) On the other hand, several additional pages or features specific to hexpod group become available: see section 3.0.

1.4 System Environment

XPS-D web interface is compatible with Windows 7 and above.

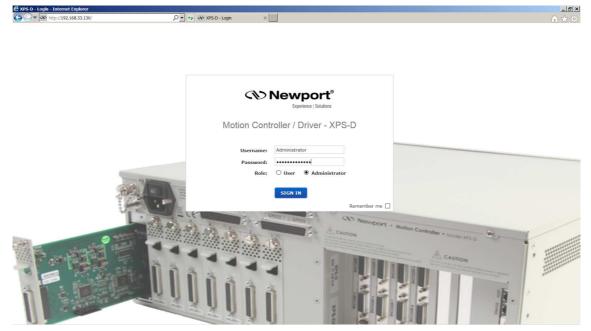
2.0 User Interface description

2.1 Interface Overview

The XPS software tools provide users a convenient access to the most common features and functions of the XPS controller. All software tools are implemented as a web interface. The advantage of a web interface is that it is independent from the user's operating system and doesn't require any specific software on the host PC.

When connected to the controller, a log-in menu pops up. There are two options to login to the XPS controller: as "User" or as "Administrator". Users can log-in only with User rights. Administrators can log-in with User or with Administrator rights by selecting the respective Role in the login page. When logged-in with Administrator rights, you have an extended set of tools available.

The predefined user has the log-in name **Anonymous**, Password **Anonymous**. The predefined Administrator has the log-in name **Administrator**, Password **Administrator**. Both the log-in name and the password are case sensitive. Select **"Remember me"** to save the login credentials.



Once logged, the main tab is displayed across the top of the XPS Motion Controller/Driver main program window, and lists each primary interface option. Each interface option has its own pull-down menu that allows the user to select various options by clicking the mouse's left button.

Administrator Menus (with Administrator Rights)

🗲 XPS-D - Internet Explorer									_ & ×
http://192.168.33.130/ http://192.16		<u>ب</u> ح	* CND XPS-D	×					合大帝
Newport [®]	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	
Experience Solutions	2-								

Sub-Menu for CONTROLLER (with Administrator Rights)

E XPS-D - Internet Explorer									_ & ×
C C C A A A A A A A A A A A A A A A A A		• • و	CAD XPS-D	×					合大章
									[Administrator logout]
Newport [®]	System	Stages	Controller	Files	Front panel	Terminal	Data acquis	ition Documentation	
Experience Solutions	-		<u> </u>					•	
	IP management	Users m	anagement	General information	Terminal co	nfigurator TC	L to API builder	Firmware update	

Restricted set of User Menus

🗲 XPS-D - Internet Explorer								X
G = ttp://192.168.33.130/		Q - +, <	XPS-D	×				☆ ☆
Newport [®]	System	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	

On the following pages, a brief description of each available tool is provided.

2.2 Restart and Reboot

After making changes to the hardware or software parameters a Restart or a Reboot of the controller will be a necessary to apply the changes. Restart is a quicker process than a Reboot.

- Restart = reload all configuration files.
- Reboot = reload files + re-initialize hardware.

2.3 Controller – Users Management

This tool allows managing User accounts. There are two types of users: Administrators and Users. Administrators have configurations rights. Users have restricted rights to use the system.

The following steps are needed to create a new user:

1. Click on "New Account" and the following window appears:

PS-D - Users management - Internet Ex	qlorer									_ 5
Thttp://192.168.33.130/		, ○ - + ₇	XPS-D - Users n	management ×						Administrator log
Newport®	System	Stages	Controller	Files F	ront panel	Termin	al Data ac	quisition	Documentatio	
Experience Solutions	IP management	Users man	agement	General information	Terminal c	onfigurator	TCL to API builde	er Firmwar	re update	
User accounts manag	ement									
Login	Role									
Administrator	Administrator (all right	s) EDIT					_			
Anonymous	Regular user	EDIT		Create a	new acco	unt	- 1			
NEW ACCOUNT				Logi	n: Technician	1	- I			
				New passwor	d: ••••••					
Warning: it is highly advised to c	hange user passwords f	rom factory settir		New password (confirm			÷			
				Rol	e: 🖲 User	O Administr	ator			
						ок	ANCEL			
			_		_	_	_			
lotion Controller / Driv	er - XPS-D								© 2017	Newport Corporation. All rights reserve

- 2. Type in a Login name, password, and role (User or Administrator).
- 3. Click "OK" to add the new access account.

on. All rights n

http://192.168.33.130/		٦Q	*7 CND XPS-D - Users	management ×						[Administrate
Newport®	System	Stages	Controller	Files	Front panel	Terminal	Data acqui	sition	Documentation	
Experience Solutions	IP management	Users	management	General informatio	n Terminal cor	figurator TC	L to API builder	Firmwar	re update	
Jser accounts manage	ement									
Login	Role									
Administrator	Administrator (all rights	EDIT	DELEAS							
Anonymous	Regular user	EDIT	DELETE							
Technician1	Regular user	EDIT	DELETE							
NEW ACCOUNT										
Varning: it is highly advised to ch	ange user passwords fro	om factory se	ettings.							

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2.4 Controller – IP Management

To access this Web Tool, users must be logged in with Administrator rights. This screen allows HOST Ethernet plug IP address management and setting (see **Start-Up Manual** for further details).

> <a> http://192.168.33.130/		<u>-</u> م							Administrator
Newport®	System	Stages	Controller	Files	Front panel	Terminal	Data acqu	isition Docum	entation
Experience Solutions	▼ IP management	Users n	management	General information	n Terminal co	nfigurator	TCL to API builder	Firmware update	
Static IP configuration									
Static IP address	192 . 168	. 33 .	130						
Netmask value	255 . 255	. 254 .	0						
Gateway IP address	192 . 168	. 33 .	253						
O Dynamic IP configuration									
MAC address	00:0b:ab:cb:ce:8	9							
Current IP address	192.168.33.130								
Netmask value	255.255.254.0								
Current gateway IP	192.168.33.253								
Remote IP address	192.168.254.254								
Subnet mask	255.255.255.0								
Command protocol security									
If you have old applications the enable the legacy protocol to doing so will expose your >	still support them. W	ARNING:	n						
Enable the legacy comman	nd protocol listener o	n port 5001							
5	SAVE CONFIGURATI	ION RE	воот						

2.5 Controller – General Information

This screen provides valuable information about the firmware and the hardware of the controller. It is an important screen for troubleshooting the controller. This screen also displays information about the IP configuration as well as TCL scripts which are currently running.

> http://192.168.33.130/		P - +	XPS-D - General	Information ×					<u>ि</u> र
	System	Stages	Controller	Files	Front panel	Terminal	Data acquisi	tion Documen	[Administrator
experience Solutions	IP managemen	ut Users man	agement C	Seneral informat	on Terminal co	figurator TC	CL to API builder	Firmware update	
	Components ve	ersion display							
Snapshot version	20170824								
Firmware version	XPS-D Firmware Star	ndard Installer							
Firmware build version	XPS Unified V1.0.12								
QNX kernel version									
Web server version									
Snapshot details	Refer to XPSFirmware	eHistory.pdf							
Stage database revision	StageDataBase V4.0	0 - Beta 3							
Control boards	PCI1 E5362D0_E4832D1	PCI2 E5362D0	PCI3	PCI4					
Available driver slots	8	2336200	<u>^</u>	^					
	:	IP configuratio	n						
Host IP address	192.168.33.130 (stat	ic)							
Host netmask	255.255.254.0								
Gateway IP address	192.168.33.253								
Ru	nning TCL scripts								
No runr	ing process at the mor	ment							

2.6 Controller – Terminal Configurator

Under **Controller** \rightarrow **Terminal configurator**, an Administrator user can specify which API functions will be displayed to all users in the **Terminal** webpage. Not all API functions may be useful to a given application especially after the application has been developed. For this purpose simplifying the Terminal display may be helpful.

- 1. Click a line to select/deselect the API function.
- 2. Once all desired API functions are selected, click RESTART CONTROLLER.

In the following example a total of 7 API functions were selected.

	http://192.168.33.130/		~ _	XPS-D - Termina	Consignation of [ک 🟠 Administrator
01		System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	
		IP manageme	nt Users m	anagement G	eneral inform	ation Terminal co	nfigurator TC	L to API builder Firmwa	are update	
Termi	nal functions allow	ved to users	5							
n this pa	age, the administrators can a	pecify which API f	unctions will be d	splayed to all users.						
	ne to select/deselect the API				selected APIs w	ill be visible in <u>Terminal</u>	(currently: 3 selecter	i)		
		RESTORE DE	FAULTS - SELEC		LECT ALL	RESTART CONTROL	FR			
			TRUETS SEEC	TALL UNSL	LEGIMLE					
	API	name				Descriptio	n			
Ø	FirmwareVersionGet			Return firmware	version from fir	mware.ref				
	FirmwareBuildVersionNu	mberGet		Return firmware	build version n	ımber				
	InstallerVersionGet			Return installer p	ack version					
	Reboot			Reboot the contr	oller					
	RestartApplication			Restart the Cont	oller					
	ControllerMotionKernelT	imeLoadGet		Get controller me	tion kernel tim	e load				
	ControllerRTTimeGet			Get controller co	rrector period a	nd calculation time				
	ControllerStatusGet			Get controller cu	rrent status and	reset the status				
	ControllerStatusRead			Read controller of	urrent status					
V	ControllerStatusStringGe	:t		Return the control	oller status strir	g				
	ElapsedTimeGet			Return elapsed t	me from contro	ller power on				
	ErrorStringGet			Return the error	string correspo	nding to the error code				

Newport[®]

http://192.168.33.130/		<u>ه - م</u>	* XPS-D - Terminal	×					ť
Newport® Experience Solutions	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	[Administ
Functions list ControllerStatusStringGet					Comn API to e				115
FirmwareVersionGet GatheringConfigurationSet GatheringDataGet Reboot TCLScriptExecute TCLScriptExecuteAndWait				^	Receive	td message		EXEC	
				~					
Command history					CLEAR HISTORY	GENERATE TCL	DISPLAY GATHERING	DATA DISPLAY EXTERNAL	GATHERIN
Command			Status Reply						j.

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2.7 Controller – TCL to API Builder

Under **Controller** \rightarrow **TCL to API builder**, users can write custom API functions from a TCL script then add the custom API to the terminal and launch the custom API.

Example

For this example, there must be a TCL file "ExcitationSignalSet.tcl" uploaded to the XPS controller.

Go to the XPS Controller \rightarrow TCL To API builder webpage:

1. Load the existing TCL script named ExcitationSignalSet.tcl by clicking on the folder icon in the text editor.



- **2.** In the Parameters list enter the arguments "char PositionerName[250], int Mode, double Frequency, double Amplitude, double Time".
- 3. Enter a description in the API description: "Set excitation signal mode from TCL".

Newport®	System	Stages	Controller	Files	Front panel	Termina	Data :	acquisition	Documentation	[Admir	in protocolo
User TCL functions list	IP managemen	t Users m	RESTARY APPL	ICATION	ion Terminal cor	trea trea trea strea strea	API descripti L generation splay errors global tr if (\$code sror") is rstringGet EF	ExcitationSigna ist: 250), int Mode on: Set excitation of history ind close proce- chandclose (sock cl argv = 5 chandclose (sock cl argv = 5 cock = 5 co	, double Frequency, double Amp signal mode from TCL *********** dure etID code APIName) { is {100 } {	tID \$code \$code - => \$code"	X
							out" timeout" i	if {\$code == -2 puts st set tcl if {\$code == -1 puts st h was closed by	dout "\$APIName ERROR => : _argv(0) "\$APIName ERROR	\$code : TCP => \$code : \$code : The	

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4. Save the custom API by clicking in the floppy disk icon in the text editor.



- **5.** In the TCL function list, "int ExcitationSignalSet(char PositionerName[250], int Mode, double Frequency, double Amplitude, double Time) // Set excitation signal mode from TCL" is added.
- **6.** Click "RESTART APPLICATION" to take in account the changes.
- 7. Connect to the website, go to the "Terminal" page and search for the new API, "ExcitationSignalSet," in the Function list.

Experience (Saudeer	n Stages Controlle	r Files	Front panel Terminal Data acquisition Documentation Function: ExcitationSignalSet Set excitation signal mode from TCL Arguments: char PositionerName[250] Enter parameter value SELECT POSITIONER OR GROUP	[Administrato
EventExtendedConfigurationActionGet EventExtendedConfigurationActionSet EventExtendedConfigurationTinggerGet EventExtendedConfigurationTinggerGet EventExtendedGet EventExtendedGet EventExtendedGet EventExtendedGet EventExtendedGet EventExtendedGet EventExtendedGet EventExtendedGet EventExtendedGet EventExtendedGet EventExtendeGetWetWetWetWetWetWetWetWetWetWetWetWetWe		^	Set excitation signal mode from TCL Arguments: char PositionenName[250] Enter parameter value SELECT POSITIONER OR GROUP	
EventExtendedConfigurationActionSet EventExtendedConfigurationTriggerSet EventExtendedConfigurationTriggerSet EventExtendedGen EventExtendedGentov EventExtendedGentov EventExtendedGento ExtendedGento Exte		^	Arguments: char PositionerName[250] Enter parameter value SELECT POSITIONER OR GROUP	
EventExtendedStart EventExtendedWait ExcitationSignalSet FileGatheringRename				
FileGatheringRename			int Mode Enter parameter value	
FirmwareBuildVersionNumberGet FirmwareVersionGet GatheringConfigurationGet GatheringConfigurationSet			double Frequency Enter parameter value double Amplitude Enter parameter value double Time Enter parameter value	
GatheringCurrentIndexGet GatheringCurrentNumberGet		~	CANCEL OK	
Command history			CLEAR MISSIONY GENERATE TCL DISPLAY GATHERING DATA DISPLAY EXTERNAL	GATHERING

Terminal - Internet Explorer		0 - 4	xPS-D - Terminal	×					
Newport® Experience Solutions	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	[Admini
Functions list						tion: ExcitationSi			
EventExtendedConfigurationA EventExtendedConfigurationA EventExtendedConfigurationT EventExtendedConfigurationT EventExtendedGet EventExtendedGet EventExtendedStart EventExtendedStart	ctionSet riggerGet			^	Argu char P Group int Mo 1	ments: ositionerName[250] i3.Pos de		TTIONER OR GROUP	
ExcitationSignalSet FileScriptHistoryRename FileScriptHistoryRename FirmwareBuildVersionNumber FirmwareVersionGet GatheringConfigurationSet GatheringConfigurationSet GatheringCurrentIndexGet	Get			_	500	: Frequency : Amplitude : Time			
GatheringCurrentNumberGet					CAI	NCEL DELP.	ок		
Command history						GENERATE TCL	DISPLAY GATHERING	G DATA DISPLAY EXTI	ERNAL GATHERIN

2.8 Controller – Firmware Update

Users can regularly update the controller with new firmware releases. Updating the firmware does overwrite the stages.ini or system.ini files if changes are required. The configuration will also be reset when upgrading the firmware hence the Configuration should be backed up prior to the firmware upgrade. Refer to the FirmwareHistory document which explains changes to the stages.ini and system.ini files, if any.

Refer to the XPS webpage at www.newport.com for more information including the FirmwareHistory document, the StageDataBase.txt file and the new firmware installer pack.

Updating the XPS Firmware

- 1. Download the firmware installer pack from the XPS webpage at www.newport.com.
- 2. Connect to the XPS controller. For more information see Start-Up Manual.
- 3. Login on to the XPS with Administrator rights.
- **4.** Go to Controller \rightarrow Firmware update.

			y • • •	XPS-D - Firmware update	×				[Administra
	L	System	Stages Co	ontroller Fil	es Front pan	e <mark>l Termina</mark>	I Data acquis	aition Documer	
and a second second		P management	Users manage	ment General ir	nformation Termir	al configurator	TCL to API builder	Firmware update	
Firmware install	log								
		update	log file content.	s					
017-06-24 21.34:331 017-08-24 21.36:371 & 017-08-24 21.38:371 & 01	Snapshot WARNING: Snapshot Selected System pa Second-st System pa Snapshot Dperating Backed up	is authentic a this controlle can be extract files success rtition succes rtition succes age bootloader rtition succes successfully e system kernel	nd looks consis r's firmware.re: ed without erro: ully backed up sfully formatte: sfully formatte: successfully in sfully mounted xtracted successfully in	ent f doesn't specify r i as a QNX4 filesy against bad block: istalled	ystem	v			
	Size	Uploaded		Action					
Firmware name	1		3:50 DOWNLOAD	INSTALL	ELETE				
Firmware name	77.2 Mb	2017-07-27 17:0							
		2017-07-27 17:0	9:14 DOWNLOAD	INSTALL	1.512				
snapshot-20170725.tbz	34.0 Mb				ELETE				

- 5. Click on UPLOAD FIRMWARE and select the installer pack file saved on the PC.
- 6. Click INSTALL and the following Confirmation window appears:

ware.ref doesn't specify an installer type
Confirmation
f Please confirm you want to install the following firmware snapshot:
snapshot-20170824.tbz
 This operation will take a few minutes, during which the system will be reformatted. The controller's configuration will be reset, so <u>backup your system.ini and stage.ini</u>! It will not destroy your user files, which are on a separate partition. Reset the controller's IP address to factory defaults Reset all user accounts to factory defaults YES, I confirm that I want to install this upgrade
INSTALL NOW CANCEL
ACUOI

- **7.** Select "Yes, I confirm that I want to install this upgrade." Resetting the controller IP address or user accounts is optional.
- 8. Click INSTALL NOW.

NOTE

This will reboot the controller and reset the controller configuration.



NOTE

Controller configuration files including stages.ini and system.ini files can be downloaded under Files→ Configuration files prior to updating the controller firmware. See chapter 2.31: "Files – Configuration Files" for more information.

2.9 System – Error file Display

The Error File Display is another important screen for troubleshooting the XPS controller. When the XPS encounters any error during booting, for instance due to an error in the configuration files or because the configuration is not compatible with the connected hardware, there are entries in the error log file that guides you to correct the error. If several consecutive boot sequences contain errors, they are all reported.

When no error is detected during the last system boot, this file becomes blank.

5-D - Error file display - Internet Explorer		. <u>-</u> م	XPS-D - Error file d	isplay ×					 ☆
	System	Stages	Controller	Files	Front pan	el Terminal	Data acquisition	Documentation	[Administrator lo
reference l'econome	Default config	juration Q	uick configuration	Manual co	nfiguration	Error file display	Previous error file display		
Ever las file contente									
Error log file contents									
		Error.lo	g						
						^			
						U			

2.10 System – Previous Error File Display

The Previous error file display shows all errors encountered during the previous series of consecutive faulty XPS boots once the last is OK. After the following boot (OK or not), this file becomes blank.

S-D - Previous error file display - Internel	t Explorer								_
http://192.168.33.130/		<u>-</u> م	· · · XPS-D - Previous e	rror file di ×					ကြ င် LAdministrator
Newport [®]	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	[Administrator
Experience Solutions	Default config	juration	Quick configuration	Manual con	figuration Err	or file display	Previous error file display		
Previous error log file o	contents								
		PreviousE	rror.log						
estartApplication: ReadPar Yri Sep 01 17:19:16 2017 - 1	****** Fri Sep	01 17:19:16	6 2017 *************	**********	*******	^			
ri Sep 01 17:19:16 2017 - 1	Error: AllGroup	::ReadSingl	leAxisGroup() failed	r -					
ri Sep 01 17:19:16 2017 - 1	Error: MotionKe	rnel : Read	dGroups() failed						
*********	****** Fri Sep	01 17:29:54	4 2017 *************	*********	******				
						~			

2.11 System – Default Configuration

With the help of this screen, a fast, basic configuration of the XPS controller can be done. For further information, refer to Configuration Manual.

1000	http://192.168.33.130/		D 🔹 🦘 👀 XPS-D - Default confi	guration ×				Administrator
2	lewport	System	Stages Controller	Files Front pa	anel Terminal	Data acquisition	Documentation	
		Default co	nfiguration Quick configuration	Manual configuration	Error file display	Previous error file display		
Defaul	t configuratio	on (for single a	axes)					
			•					
Slot	Stage model	Driver model	Configuration in StageDataBase	Name				
1	TRB25CC	XPS-DRV11	TRB@TRB25CC@XPS-DRV11	Group1.Pos				
2	VP-25XA	XPS-DRV11	VP@VP-25XA@XPS-DRV11	Group2.Pos				
2	VP-25XA UTS50CC	XPS-DRV11 XPS-DRV11	VP@VP-25XA@XPS-DRV11 UTS@UTS50CC@XPS-DRV11	Group2.Pos Group3.Pos	-			
					APPLY &			
3	UTS50CC	XPS-DRV11	UTS@UTS50CC@XPS-DRV11	Group3.Pos	APPLY & REBOOT			
3	UTS50CC BGS50CC	XPS-DRV11 XPS-DRV11	UTS@UTS50CC@XPS-DRV11 BGS@BGS50CC@XPS-DRV11	Group3.Pos Group4.Pos				
3 4 5	UTS50CC BGS50CC Unknown	XPS-DRV11 XPS-DRV11 none	UTS@UTS50CC@XPS-DRV11 BGS@BGS50CC@XPS-DRV11 Unknown configuration	Group3.Pos Group4.Pos Not used				

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2.12 System – Quick Configuration

The Quick configuration is very similar to the Default configuration as it also lists all detected hardware including Newport ESP compatible stages and motor drivers under the respectively columns Stage Model and Driver model. The Quick configuration differs in the source for stage configuration.

As a result, this screen also provides valuable information for diagnosing or troubleshooting the system.

For further information, refer to Configuration Manual.

Mewport Newport			,Q ▼ +9 <\$5 XPS-D - Q	uick configuration ×				Administrato
0	lewport	Systen	n Stages Control	er Files Front	panel Terminal	Data acquisition	Documentation	
		Default co	onfiguration Quick configurat	ion Manual configuration	Error file display	Previous error file display		
Quick	configuration	(for single a	xes)					
Slot	Stage model	Driver model	Configuration in stages.in	i Name				
1	TRB25CC	XPS-DRV11		✓ Not used				
2	VP-25XA	XPS-DRV11		Not used				
	UTS50CC	XPS-DRV11		✓ Not used				
3				V Not used				
3	BGS50CC	XPS-DRV11		V Not used				
	BGS50CC Unknown	XPS-DRV11		Not used Not used	APPLY & REBOOT			
4								
4 5	Unknown	none		Not used				

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2.13 System – Manual Configuration

Manual Configuration allows you to review the current system configuration or to define a new one. See Configuration Manual for further information.

> http://192.168.33.130/		P.∎	XPS-D - Manual co	nfiguration ×					1 Administra
	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	n Documer	
reformine Longours	Default config	guration Q	uick configuration	Manual conf	iguration Erro	or file display	Previous error file display	·	
Manual configuration									
n this page you can configure positi	oners and position	er groups for eact	supported positioner	group family. You	can also configure	a boot script to be r	in at system startup.		
When you're satisfied with the syste	m configuration, cl	ick the Apply and	I restart button to ap	ply your changes	and restart the cont	oller.			
 Boot script (optional) 									
Group families									
😑 Single axis groups (4 de	efined)					Click to fold			
		6		(0		0		
Group1 TRB@TRB25CC@XPS-DRV11-DIGITA	IL, slot 1: Pos VP@	Group VP-25XA@XPS-DRV1			OUP3 DRV11-DIGITAL, slot 3: Por	BGS@BGS50CC@	Group4 XPS-DRV11-DIGITAL, slot 4: Pos	Create a new grou	p
🔹 Spindle groups (0 defin	ed)								
🛨 XY axes groups (0 defin	ed)								
🛨 XYZ axes groups (0 defi	ned)								
 Multiple axes groups (0 	defined)								
CLEAR CONFIGURATION	APPLY AND	REBOOT							
Current system.ini [<u>hand ed</u>	it]				New syste	m.ini			

2.14 Stage – Add, Remove or Edit Stages

With the help of this screen, a stage from the Newport stage data base can be added to or removed from the personal stage data base, called stages.ini, as well as modified. On the left side of the screen, you can review the name of the stages that are already in stages.ini file. See **Configuration Manual** for details.

http://192.168.33.130/		, ○ • • ₇	COS XPS-D - Add, remov	e or edit ×					(Administra
	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documer	
	Add, remove	or edit stages	Create custom sta	ages Tur	ning Lissajous				
Add, remove or edit st	ages								
in this page, the administrators car	n configure the sta	ge configurations that	at will be selectable wh	nen building the	e controller configuration	for each positioner.		RESTART	APPLICATION REBOOT
Stages already in stages.in	i (5)				Stages in S	tageDataBase (6	60)		
Click on a stage to duplicate, renan	ne, modify or delet	e it.			Click on a stag	e family to browse the	e list of stage configuratio	ns in it.	
	-	-			BGM		BGS	DUMMY	FMS
3	O UMMY	SP	10		GTS		IDL165	IDL225	IDL280
	MMY_STAGE 0_DRIVER	TRB TRB25CC XPS-DRV11-DIGI	UTS UTS50 TAL XPS-DRV11-	CC	IDL5	60	ILS	IMS	LTA
					MFA		MTN	NPA	NPM
3					NPO		NPX	NPXY	NPXYZ
VP VP-25XA					ONE ONE	-XY	PR	PSM	RGV
XPS-DRV11-DIGITAL					RV		RVS	SR	TRA
					TRB		URB	URS	🚞 UTS
					UZM		UZS	VP	XM
					ZVR				
otion Controller / Drive									

2.15 Stages – Create Custom Stages

This web page is used to build stage configuration files for stages not found in the controller's StageDataBase.txt such as non-Newport stages.

The integrated web tool, **Stages** \rightarrow **Create custom stages**, is accessible when logged in as administrator. This web tool is designed to help users configure the XPS controller for motors and stages that are not included in the XPS general stage data base such as stages not manufactured by Newport. The tool generates a new entry in the customer's stage database, *stages.ini*, which is stored on the controller and is accessible through the webpage **Files** \rightarrow **Configuration files**.

Files Stages Controller Terminal Data acquisition Documentation System Front panel Newport® Add, remove or edit stages Create cu Tuning Lissajous m stage Add custom stage Motor drive interface Profile Backla Correcto Driver Encode Stage SAVE CLEAR Motion Controller / Driver - XPS-D

Refer to Configuration Manual for more information.

2.16 Stages – Tuning

2.16.1 Tuning – Auto-Scaling

Auto-scaling is only available with positioners that feature a direct drive motor such as the XM, ILS-LM, IMS-LM or RGV100BL. To guarantee consistent performance of these stages, it is strongly recommended to perform Auto-scaling once the load is attached to the stage. During auto-scaling, the XPS controller measures the mass (inertia for rotation stages) on the positioner and returns recommended values for the Scaling Acceleration parameter.

Repeat Auto-scaling with any major change of the payload on the positioner. With no major change of the payload, there is no need to redo Auto-scaling.

- To perform Auto-scaling, do the following:
- **1.** Select the main tab TUNING. Then select a positioner name. The following screen appears:

⊘ Newport [®]	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation		
	Add, remove	or edit stages	Create custom s	tages Ti	Lissajous					
ositioner tuning								Refresh del	ay (ms): 200 SET	
roup1.Pos V INITIALIZE	KILL	KILL ALL					Current position: -4	.91336 Absolute mo	we:	
ate: Not initialized state due to a (GroupKill or K	illAll command							AUTO-SCALING	
Corrector parameters			- Filters	parameters	5		Acquisition	parameters		
0							Gathering 1		×	
Type: Positioner corrector PIDFF a	pe: Positioner corrector PIDFF acceleration				ctor notch filters		Gathering 2		▼ ▼	
Closed loop status		1 (closed) 🗸	Notch frequency 1 (Hz) 0				Gathering 3		~	
KP		219000	Notch bar	ndwidth 1		0	Gathering 4		×	
KI		15600000	Notch gain 1	Notch gain 1	Notch gain 1		0	Gathering 5		×
KD		875	Notch free	quency 2 (Hz)		0				
KS		0.8	Notch bar	ndwidth 2		0	Number of poin	ts	1000	
Integration time (s)		1e+99	Notch gai	n 2		0	Frequency divid	er	10	
Derivative filter cut off frequency (Hz,)	4000					-			
GKP		0	Backlash	filter param	eters		Velocity		720	
GKI		0					Acceleration		1000	
GKD		0	100 Million (1997)	elocity cut-off		50	Minimum jerk ti	me	0.005	
K form		0	Current a	cceleration cut	-off frequency	50	Maximum jerk t	ime	0.05	
K feed forward acceleration (units/s/s)	1			SET SAVE TO	FILE CANCEL				
K feed forward jerk		0			SET SAVE TO	FILE	Distance to mov	re (relative)	0	
Mode:	Short settling	V						м	OVE CANCEL	
SET	SAVE TO FILE	CANCEL								

2. Click "Kill" if not in "Not initialized state", then click "Auto-scaling". The stage vibrates and an auto-scaling progress bar appears.

Newport [®]	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	
	Add, remove	or edit stages	Create custom s	tages Ti	▼ uning				
ositioner tuning								Refresh delay	(ms): 200 SET
Group1.Pos 🔽	KILL	KILL ALL					Current position: 0.3	2459 Absolute move:	
tate: Scaling calibration state									
- Corrector parameters				parameter	s		Acquisition p	arameters	
							Gathering 1		
Type: Positioner corrector PIDF	acceleration		Type: Po	sitioner corre	ctor notch filters		Gathering 2		~
Closed loop status		1 (closed)		Auto	scaling in prog	ress	athering 3		~
KP	219000						athering 4		> > > > >
KI		15600000	Please wait while	e the controller	attempts to auto-scale	this positioner's accel	eration. athering 5		<u> </u>
KD		875							
KS		0.8					umber of points		1000
Integration time (s)		1e+99					requency divider		10
Derivative filter cut off frequency (F	łz)	4000							
GKP		0	Backlash	filter param	eters		Velocity		720
GKI GKD		0	Current v	elocity cut-off	frequency	50	Acceleration		1000
		0		cceleration cut		50	Minimum jerk tim	e	0.005
K form K feed forward acceleration (units/s	(-)	0	Garreneo		equency	50	Maximum jerk tim	ie	0.05
K feed forward jerk	(5)	0			SET SAVE TO	FILE CANCEL			
k reeu torwaru jerk		0					Distance to move	(relative)	0
Mode	: Short settling	Y						MOV	CANCEL
SET	SAVE TO FILI	CANCEL					L		

3. When the auto-scaling routine is complete, the results are displayed. To save the recommended values and reboot the controller, click "Save". The positioner should now work properly.

▼		P - +₁	XPS-D - Tuning	×							ि र्ट I Administrator
Newport [®]	System	Stages	Controller	Files	Front panel	Terminal	Data a	cquisition	Documentati	on	
	Add, remove	or edit stages	Create custom s	ages T	uning						
Positioner tuning									Refresh	delay (ms): 20	IO SET
Group1.Pos V INITIALIZE	KILL	KILL ALL					Current p	osition: -0.58	584 Absolute	move:	
State: Not initialized state from scal	ing calibratio	1								ALT	0-SCALING
Corrector parameters			- Filters	parameter			а г	Acquisition pa	rameters ——		
								Gathering 1			
Type: Positioner corrector PIDFF	occeleration			Au	to-scaling result	9	- 10	Gathering 2			>>>>
Closed loop status		1 (closed)		Au	to-seaming result	.5		Gathering 3			V
KP		219000	Auto-scalir	g of this posit	oner's acceleration yield	ed the following value	2	Gathering 4 Gathering 5			~ ~
KI		15600000			87753.121		- 11	Gathering 5			<u> </u>
KD		875		Click « sav	e » to use this value and	reboot.					
KS		0.8						Number of points		10	0
Integration time (s)		1e+99			SA	CANCEL		Frequency divider		10	
Derivative filter cut off frequency (Hz)	4000									
GKP		0	Backlash	filter param	eters		-	Velocity		72	0
GKI		0						Acceleration		10	0
GKD		0		elocity cut-off		50		Minimum jerk time		0.0	5
K form		0	Current a	celeration cut	-off frequency	50		Maximum jerk time		0.0	5
K feed forward acceleration (units/s/s)	1			SET SAVE TO	FILE CANCEL					
K feed forward jerk		0			Ser Sinte to	CARCEL		Distance to move (relative)	0	
Moder	Short settling								· · · .		
	and a strong									MOVE	ANCEL
SET	SAVE TO FILE	CANCEL									
	XPS-D										_

NOTE

All other functions of the tuning page should be used only by experienced users.

2.16.2 Tuning – Auto-Tuning

NOTE

Apart from the Auto-scaling feature, which is described in the previous chapter, only experienced motion control users should use the TUNING tool of the XPS controller.

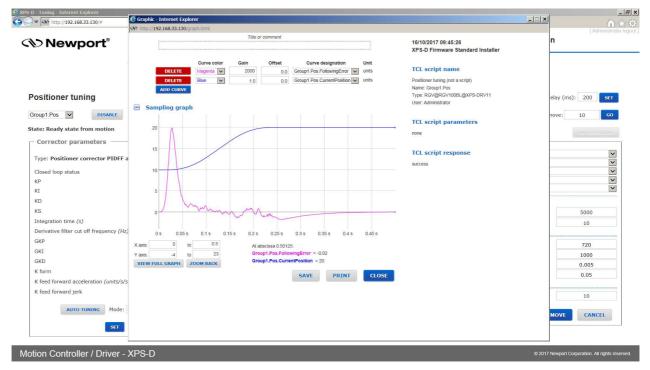
All Newport positioners are supplied with default tuning parameters that provide consistently high performance for the vast majority of applications. Use the Tuning tool with Newport positioners only when not fully satisfied with the dynamic behavior of the positioners. Auto-Tuning works best with direct drive stages. Friction drive or ballscrew drive systems may not result in optimum tuning using this feature.

The following is a brief description of the TUNING tool:

1. Select a positioner name. The following screen appears:

S-D - Tuning - Internet Explorer	• • ور	Stype-D - Tuning X	Â
when	System Stages	Controller Files Front panel Termi	Administra
Experience Solutions	dd, remove or edit stages	Create custom stages Tuning Lissajous	
Positioner tuning			Refresh delay (ms): 200 SET
Group1.Pos V INITIALIZE	KILL KILL ALL		Current position: -0.36361663 Absolute move:
itate: Not initialized state due to a G	roupKill or KillAll command		
- Corrector parameters		Filters parameters	Acquisition parameters
		A	Gathering 1
Type: Positioner corrector PID dual	FF voltage	Type: Positioner corrector filter list get (group (number	1) Gathering 2
Closed loop status	1 (closed) 🗸	There are no settable parameters for this filter.	Gathering 3
KP	3539		Gathering 4
KI	43245	Backlash filter parameters	Gathering 5
KD	0		
KS	0.8	Current velocity cut-off frequency 100	Number of points 1000
Integration time (s)	1e+99	Current acceleration cut-off frequency 100	Frequency divider 10
Derivative filter cut off frequency (Hz)	400	SEC SAVE ID FOR	
GKP	0	SEV SAVE OF THE OWN	Velocity 2
GKI	0		Acceleration 8
GKD	0		Minimum jerk time 0.05
K form	1		Maximum jerk time 0.05
K feed forward velocity (units/s)	4.308681672		0.05
K feed forward acceleration (units/s/s)	7.49235e-05		
Friction	0		Distance to move (relative) 0
Mode: SI	hort settling		MOVE CANCEL
SET	SAVE TO FILE CANCEL		
tion Controller / Driver - >	(PS-D		© 2017 Newport Corporation. All rights r

- 2. Using this screen, perform a data gathering with your current parameter settings:
 - 1. Initialize and home the positioner, then move to the desired start position (set the position in the "Absolute move" field on top righte and then click "Go").
 - 2. Under "Acquisition parameters", define the gathering data: For the stage tuning, it is recommended to gather only the following error and the current position.
 - 3. Define the frequency divisor. The frequency divisor defines the sampling rate of the gathering. A frequency divisor equal to one means one data point is gathered every servo cycle. With most positioners, it is sufficient to set a value of 10.
 - 4. Define the number of points in relation to the distance, the frequency divisor, the velocity and the acceleration.
 - 5. Define the velocity, acceleration and jerk time.
 - 6. Define a typical motion distance.
 - 7. When done, click "MOVE". The following page appears:



- **3.** If satisfied with the results, there is no need to tune the stage. If not satisfied, return to the tuning page by clicking "Close" and move back to the start position.
- 4. Next to the Auto-tuning button, there is a Mode field for Auto-tuning. Select "Short settling" or "High robustness". Choose "Short settling" to improve the settling time after a motion or to reduce the following error during the motion. Short settling will define "high" PID vales for your stage, but there is a risk of oscillation. Choose "High robustness" to improve the robustness of the motion system and to avoid oscillations during or after a motion. "High robustness", for instance, can avoid oscillations for a rotation stage with high payload inertia. When done with the selection, click Auto-tuning.
- 5. The stage vibrates for a couple of seconds. When done the following screen appears:

🗲 XPS-D - Tuning - Internet Explorer											_ 5 >
🚱 💭 🔻 http://192.168.33.130/#		,• • • ٩	XPS-D - Tuning	×							
Newport [®]	System	Stages	Controller	Files	Front panel	Terminal	Data	acquisition	Docu	mentation	[Administrator logout
	Add, remove	or edit stages	Create custom st	tages Tu	ning						
Positioner tuning										Refresh delay (ms	s): 200 SET
Group1.Pos V DISABLE	KILL	KILL ALL					Current	position: 10	00117	Absolute move:	10 GO
State: Ready state from auto-tuning											
Corrector parameters			- Filters	parameters			л г	- Acquisition	parameters	;	
								Gathering 1	FollowingE	rror	
Type: Positioner corrector PIDFF a	acceleration		Type: Pos	sitioner correc	tor notch filters			Gathering 2	CurrentPos	ition	>
Closed loop status		1 (closed) 🗸		Auto	-scaling succes	e	- 1	Gathering 3			✓
KP		134051.527		Auto	-scaling succes	5	- 1	Gathering 4 Gathering 5			~
KI		8641192.83	The position	ner's corrector p	arameters have been w	orked out successfully	·				
KD		649.86				ок					T
Integration time (s)		0.8						Number of point			5000
Derivative filter cut off frequency (Hz	,	1e+99 4000	-		1	· · · ·		Frequency divide	er		10
GKP	/	4000									
GKI		0	Backlash	filter parame	ters			Velocity			720
GKD		0	Current ve	elocity cut-off fr	equency	50		Acceleration			1000
K form		0		cceleration cut-		50		Minimum jerk tir			0.005
K feed forward acceleration (units/s/s		1						Maximum jerk ti	me		0.05
K feed forward jerk	″ <u>–</u>	0			SET SAVE TO F	TLE CANCEL					
K leed to waid jerk		0						Distance to mov	e (relative)		10
AUTO-TUNING Mode:	Short settling	Y								MOVE	CANCEL
SET	SAVE TO FIL	E CANCEL					l				
Motion Controller / Driver -	XPS-D									© 2017 Newport C	corporation. All rights reserved.

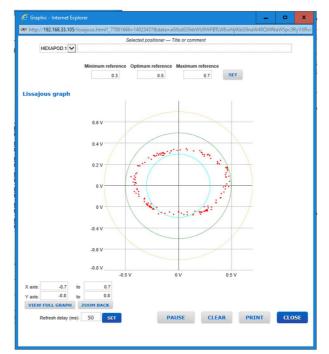
- **6.** Press "OK" in the pop-up window, the proposed modifications are colored in red. You must click "Set" to apply the new parameters. "Set" only changes the working parameters without saving them. Recover the previous parameters by rebooting the system.
- 7. To test the behavior of the motion system with the new parameters, repeat the same data gathering and compare the results. Make manual changes to the settings if necessary and verify the behavior.
- 8. To permanently save the settings to the stages.ini, press "SAVE TO FILE". "SAVE TO FILE" overwrites the current settings in your stages.ini. Press "SAVE TO FILE" only when fully satisfied with the results. For recovery, Newport recommends making a copy of the stages.ini with the old settings.

NOTE

For further information about the meaning of the different tuning parameters, see Features Manual.

2.17 Stages – Lissajous

This page shows the current amalog encoder signals. Refer to Features Manual for more details.



2.18 Front panel – Move

The Move page provides access to basic group functions like initialize, home, or motor disable, and executes relative and absolute moves where speed, acceleration and jerk time can be modified during motion (but not during the acceleration period).

The Move page also provides a convenient review of all important group information like group names, group states and positions. All motion groups are listed in the Move page.

- Click "Initialize". The State number changes from 0 to 42 and the Action button changes from "Initialize" to "Home".
- Click "Home". The stage starts moving to find its reference position. When done, the state number is 11 and the action button changes to disable.
- Enter an allowed absolute position value in the "Abs move 1" or "Abs move 2", or a relative move value in the "Relative move" field and click "Go". The stage moves to the new position.
- You can click on "Disable" to disable a stage. The Action button changes to "Enable".
- Click on "Enable" to enable the stage again without loosing encoder position.

⊘New	port [®]		n Stages	Controller	r Files Fro	ont panel Term	inal Data acquisition	Documentation	
expen	ence solutions	Move	Cycle Jog	Spindle	I/O control Device	status			
Move to posit	tion								
nove to posi-	lion								
Position	State	Action	Positioner	Parameters	Absolute move 1	Absolute move 2	Relative move		
-0.36361663	7	INITIALIZE	Group1.Pos	V1010/[SE1			3 (B)		
-2.9726	1	INITIALIZE	Group2.Pos	VIEW/SEI	- 22	(CD)	13 F		
6.227	1	INITIALIZE	Group3.Pos		60.				
-6.258268	1	INITIALIZE	Group4.Pos	VIEW/SET	60	60			
		KILL ALL							

Motion Controller / Driver - XPS-D

NOTE

A spindle group can do relative moves and absolute moves. So, it can be used in the Move page. See Features Manual for more information about Spindle moves.

NOTE

In case of XPS-D controller driving a hexapod, even though this Move page can be used to move each actuator independently, it is much easier to use HXP Tool or HXP Work page, through which all actuators will be simultaneously controlled to obtain the desired carriage motion.

2.19 Front panel – Cycle

The cycle page allows cycling of a stage. A cycle motion moves back and forth between two defined positions where speed, acceleration and jerk time can be modified during motion (but not during the acceleration period).

Position State Action Positione Parameters Position 1 Position 2 Dwell time Cycle -0.36361663 7 IMINITALIZE Group1.Pos Guinerel Iminitalize Group2.Pos Iminitalize Iminitalize Group2.Pos Iminitalize Iminitalize Group2.Pos Iminitalize	Newp Experie	Dort		Stages Cycle Jog	Controlle		Front pane Pevice status	l Terminal		Data acquisition	Documentation	[Administrat
-2.9726 1 INITIALIZE Group2.Pos Octored 1 Image: Constraint of the c				Positioner	Parameters	Position 1	Position 2	Dwell time		Cycle		
6.227 1 INITIALIZE Group3.Pos Composition Image: Composition	-0.36361663	7	INITIALIZE	Group1.Pos	9.00W/SE1			ms	4	- StOP ->		
-6.258268 1 Group4.Pos	-2.9726	1	INITIALIZE	Group2.Pos	VIEW/SEI			ms		S(02) >		
	6.227	1	INITIALIZE	Group3.Pos	V3(0)/S()			ms	1	3107 8		
KTLL ALL	-6.258268	1	INITIALIZE	Group4.Pos	VIEW/SET			ms	<	STOP		
			KILL ALL									
	efresh delay (in mill	iseconds):	200 SET									

Motion Controller / Driver - XPS-D

2.20 Front panel – Jog

The Jog page allows executing a jog motion. A jog motion is a continuous motion, where only the speed and acceleration are defined, but no target position. Speed and acceleration can be changed during the motion (but not during the acceleration period).

For a Jog motion, the jog mode must be enabled: click on the "Action" button to Initialize, Home and then Enable Jog.

▼ 1 http://192.16	58.33.130/	(- م	* XPS-D - Jog	×					
New			m Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	(Administrator log
Lips.		Move	Cycle Jog	Spindle I/	O control	Device status				
og to veloci	ty									
Position	State	Action	Positioner	Parameters	Jog					
-0.36361663	7	INITIALIZE	Group1.Pos	V#W/SEA	S102					
-2.9726	1	INITIALIZE	Group2.Pos							
6.227	1	INITIALIZE	Group3.Pos	V000/S0						
-6.258268	1	INITIALIZE	Group4.Pos	VIEW/SET						
		KILL ALL								
efresh delay (in mi	llisecond	s): 200 set	•							

Motion Controller / Driver - XPS-D

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2.21 Front panel – Spindle

The Spindle page provides similar functions to the Jog page. However, specific jog actions are replaced by spindle actions that only work for Spindle groups.

NOTE

Spindle configuration does not allow indexing of the rotary stage. For a rotary stage to have indexing and move more than 360 degrees, the user must configure the stage as a group type other than spindle and change the software travel limits, MinimumTargetPosition and MaximumTargetPosition, in the stages.ini file. Refer to section 2.14: "Stage – Add, Remove or Edit Stages" for more details. Additionally, the rotary may need to have optical travel limits disabled. Refer to the rotary stage User's Manual.

Motion Controller / Driver - XPS-D

2.22 Front panel – I/O Control

The I/O Control page shows the current states or values of all analog and all digital I/O's of the controller and allows the user to set all the analog and digital outputs of the controller.

		-			~			-										-			-			-				[Ad	
Newpor 🕫		Sys	tem		Sta	ges		Col	ntrol	ler		File	s	F	ron	t par	nel	Т	ermina	al	Data	acquis	sition	Docu	Imer	ntati	on		
Experience Solu	tions	Move		Cycl	Ð	Jog	þ	Spin	dle	1/9	o con	trol	1	Devic	e sta	tus													
/O control																													
					Dig	ital I	/0																						
Connector	1/0	1	2	3	4	5	6	7	3 9	1	0 1	1 1	2	13	14	15	16												
GPI03.DI	IN	\bigcirc	0	0	0	0	0)																				
GPI03.DO	OUT	\bigcirc	0	0	0	0	0)																				
GPI05.DI	IN	\bigcirc	0	\bigcirc	0	0	0						C	0	0	\bigcirc	\bigcirc												
GPI05.DO	OUT	\bigcirc	0	0	0	0	0						C	0	0	\bigcirc	\bigcirc												
GPIO6.DI	IN	\bigcirc	0	\bigcirc	\bigcirc	0							D	0	0	\bigcirc	\bigcirc												
GPI06.DO	OUT	\bigcirc	0	0	0	0	0						C	0	0	\bigcirc	\bigcirc												
					Ana	log 1	/0																						
Connector	I/	o	v	alue				Conn	ector		I/	0		v	alue	9													
GPIO4.ADC1	I	N	-0	.00152]	GP	104.D	AC1		OL	л [0	.0000	0	SE	т												
GPIO4.ADC2	I	N	-0	.00122	!		GP	t04.D	AC2		οι	л [0	.0000	0	SE	т												
GPIO4.ADC3	I	N	-0	.00152			GP	(04.D	АСЗ		οι	л [0	.0000	0	SE	т												
GPIO4.ADC4	I	N	-0	.00182			GP	t04.D	AC4		οι	л [0	.0000	0	SE	T												
GPIO4.ADC5	I	N	-0	.00091			GP	[04.D	AC5		ou	л	0	.0000	0	SE	т												

2.23 Front panel – Device Status

The Device Status page contains several sections.

2.23.1 Device Status – Positioner Errors

The Positioner Errors section is an important page for trouble-shooting. When encountering any problems during the use of the system, information about the errors related to the positioners are found in this page.

http://192.168.33.130/	Q • • • (4)	XPS-D - Devio	e status	×					
	System Stages C	ontroller	File	s Fi	ront panel	Terminal	Data acquisition	Documentation	[Admi
Experience Solutions	Move Cycle Jog Sp	indle	/O control	Device	e status				
Positioner errors									
		Group1	Group2	Group3	Group4				
		Pos	Pos	Pos	Pos				
	Positioner error state	ок	ОК	ОК	ок				
	I2C transfert error								
	GPIO transfert error								
	Fatal internal error								
Interferometer glitch error o	on axis or reference or Zygo P2 fatal error								
Interfero	meter no signal error on axis or reference								
На	ome search mechanical zero inconsistency								
	AqB and Sine/Cosine out of phase								
	Second driver in fault								
	First driver in fault								
X or Y co	rrection is out of encoder correction limits								
	Sine and Cosine radius error								
	Encoder frequency or coherance error								
	Encoder quadrature error								
	Plus end of run glitch								
	Minus end of run glitch								

2.23.2 Device Status – Hardware Status

The Hardware Status section is another important page for trouble-shooting, but not all information is related to an error.

 http://192.168.33.130/ 		ų		XPS-D - Device	status X					
	System	Stage	s Co	ontroller	Files	Front panel	Terminal	Data acquisition	Documentation	
citing to provide a	Move C	ycle Je	g Spi	indle l	O control	Device status				
Positioner errors										
Positioner errors										
Hardware status										
		Group1	Group2	Group3	Group4					
		Pos	Pos	Pos	Pos					
Externa	gathering error									
12	C transfert error									
GPIU Externa	gathering error									
P	CO pulses ended									
PCO	error (underrun)									
Interferometer glitch error on a	ixis or reference									
Interferometer no signal error on a	ixis or reference									
Second dr	iver powered on									
	iver powered on	×	×	×	×					
	nd driver in fault									
	st driver in fault									
X or Y correction is out of encoder										
Sine and Co.	sine radius error									
	AqB overspeed									
Encoder	quadrature error									

2.23.3 Device Status – Driver Status

The Driver Status section is another important page for trouble-shooting, but not all information is related to an error.

The type of status information that you can get depends on the drivers used.

http://192.168.33.130/		ب • • •	COS XPS-D - Device	status	×					[Administra
	System	Stages	Controller	File	s Fr	ont panel	Terminal	Data acquisition	Documentation	•
experience Soudions	Move Cy	ycle Jog	Spindle I	/O control	Device	status				
Positioner errors										
Hardware status										
Driver status										
			Group1 Pos	Group2 Pos	Group3 Pos	Group4 Pos				
		Driver in fe	ault							
		Inhibition in	put							
	TG is opened	or no stage connec	ted							
		Current or power li	imit							
		I□T or dynamic er	rror							
Initialization or Invalid pa	rameters or Digita	l stepper overrun er	rror							
	Thermistor fau	ilt or over temperat	ure							
afe STop or Internal fuse broken	or voltage out of r	ange, contact Newp	port							
	Short-circuit or	current following er	rror							
resh delay (in milliseconds):	200 SET									

2.24 Terminal

The Terminal screen allows the execution of all XPS controller functions. It also provides a convenient method for generating executable TCL scripts. For more details about TCL scripts, see **Features Manual**.

To execute a function from the Terminal, do the following:

- 1. Click to select a function, which then appears in the "API to execute" window.
- **2.** Define the arguments for the function.
- For functions with dynamic arguments "ADD BLOCK" and "REMOVE BLOCK" buttons are available. Alternatively, you can use a "," as a separator between different arguments.

									(Administrat
Newport® Experience Solutions	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	
Functions list									
GroupInitializeNoEncoderRess GroupInitializeWithEncoderCa GroupJogCurrentGet GroupJogModeDisable				^	Do an a	ion: GroupMove bsolute move	Absolute		
GroupJogModeEnable GroupJogParametersGet GroupJogParametersSet GroupKill					char Gi RV	oupName[250]	SELECT POSI	TIONER OR GROUP	
GroupMotionDisable GroupMotionEnable GroupMotionStatusGet GroupMoveAbort GroupMoveAbsolute					110 double	TargetPosition			
GroupMoveEndWait GroupMoveRelative GroupPositionCurrentGet GroupPositionSetpointGet				~	CAN	CEL	ADD BLOCK OK	REMOVE BLOCK	

Motion Controller / Driver - XPS-D

• For some arguments like ExtendedEventName, ExtendedActionName or GatheringType, the argument name is not directly accessible. In these cases, define the first part of the argument name, then click in the field again and define the second part of the argument name. See the example below for defining the GatheringType with the function GatheringConfigurationSet():

Step 1:

Click **"SELECT EXTERNAL GATHERING"** then select the positioner name and click **"OK"**.

Please choose an item from th Group1.Pos Group2.Pos	e list below.			
Group3.Pos			SELECT GATHERING	
Group4.Pos CorrectedEncoderPosition				
CorrectedSetpointPosition CorrectorOutput		ADD BLOCK	ок	
CorrectorOutputBeforeCompensati				
CorrectorOutputBeforeCompensati CorrectorOutputBeforeDamperFilte				
ок	CANCEL			
OK	CANCEL			

Step 2:

Click **"SELECT EXTERNAL GATHERING"** again then select the parameter name and click **"OK"**.

Please choose an item from the list b	pelow.			
Innerf-ollowingError ISRCorrectorTimeUsage ISRProfilerTimeUsage ISRServitudesTimeUsage RawCorrectorOutput RawCurrentPosition SetpointAcceleration	Â	ADD BLOCK	SELECT GATHERING	
SetpointPosition SetpointVelocity	ANCEL			

Step 3:

To add another parameter, click "ADD BLOCK". Repeat Step 1 and Step 2.

Function: GatheringConfigurationSet	
Configuration acquisition	
Argument:	
char Type[250]	
Group1.Pos.SetpointPosition SELECT GATHERING	
CANCEL HELP ADD BLOCK OK	
HISTORY GENERATE TCL DISPLAY GATHERING DATA	DISPLAY EXTERNA

When all arguments are defined, click "OK". Now review the final syntax of the 3. function and make final text changes, as needed. When done, click "Execute".

			xPS-D - Terminal	×					Administr
Newport®	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	1
Functions list					Comm	nand			
orospaniosies					API to	execute			
GroupInitializeNoEncoderRes GroupInitializeWithEncoderC				^	Group	MoveAbsolute(RV,110)	EXECU	TE
GroupJogCurrentGet	allbration								
GroupJogModeDisable					Receive	ed message			
GroupJogModeEnable									
GroupJogParametersGet GroupJogParametersSet									
GroupKill									
GroupMotionDisable									
GroupMotionEnable									
GroupMotionStatusGet									
GroupMoveAbort GroupMoveAbsolute				_					
GroupMoveEndWait									
GroupMoveRelative									
GroupPositionCurrentGet				~					

Motion Controller / Driver - XPS-D 4. When the function is executed, the controller's response code will appear in the Received message window and a description will appear below the Received message window. If the command was carried out successfully, 0 is returned. In all other cases, there will be an error code. Use the function ErrorStringGet() to get the error code description.

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M http://192.168.33.130/			y XPS-D - Terminal	×					[Administ
Newport [®]	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	L'accarde
Functions list					Comr	nand			
GroupInitializeNoEncoderRes	set					execute			
GroupInitializeWithEncoderC GroupJogCurrentGet	alibration			^	Group	MoveAbsolute(RV.11	0)	EXE	CUTE
GroupJogCurrentGet GroupJogModeDisable					Receiv	ed message			
GroupJogModeEnable					0,				
GroupJogParametersGet									
GroupJogParametersSet GroupKill									
GroupMotionDisable									
GroupMotionEnable									
GroupMotionStatusGet									
GroupMoveAbort GroupMoveAbsolute				_					
GroupMoveEndWait									
GroupMoveRelative									
GroupPositionCurrentGet				\sim	·				
GrounDocitionSatnointGat					The co	mmand was carried	out successfully.		
e									
Command history					CLEAR HISTORY	GENERATE TCI	DISPLAY GATHERING	DATA DISPLAY EXTERNA	L GATHERING
Command			us Reply						
GroupMoveAbsolute(Group	p2.Pos,1)	0							DELET

Motion Controller / Driver - XPS-D

The functions are listed in alphabetical order and can be searched for using the search bar at the top of the Function list. Functions listed are those available for display through the **Controller** \rightarrow **Terminal configurator** or functions available for the current system configuration. For example, if the system consists only of SingleAxis groups, no group specific functions for Spindles, XY groups, XYZ groups or MultipleAxis groups will be listed.

2.25 Data Acquisition – Easy Gathering

Under **Data acquisition** \rightarrow **Easy gathering**, users can define and save servo synchronous data gathering configurations for routine data acquisition operations including: time-based, event-based, or function based gathering. For more in-depth information regarding data gathering types, refer to **Features Manual**.

PS-D - Easy gathering - Internet Explorer		• • و	🖅 👀 XPS-D - Easy gat	thering ×					ŕ
Newport®	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	[Administr
Experience Solutions	Easy gathering	Easy ex	ternal gathering	Functional te	sts				
Data gathering									
Existing gathering confi	gurations				Config	uration name		SAVE CONFIGURATION	DELETE
						to start		ADD TRIGGER	(HELP)
						to collect		ADD DATA	HEIP
					REM		CurrentPosition		
					How r	nuch to collect		MODIFY	HELP
					Data c	ng frequency: 2 000 ollection duration: 1 samples, one every	0 seconds		
DISPLAY	т								
1									

Motion Controller / Driver - XPS-D

The following procedure describes how to use the webpage to configure easy data gathering. In the initial factory configuration, an example trigger and data configuration is set (see example in the image below). It should be deleted before starting a new gathering.

Configuration name	SAVE CONFIGURATION DE	
When to start REMOVE Immediate		ELP
What to collect REMOVE Group1.Pos.CurrentPosition		1 9 2
How much to collect	MODIFY	iei p
Sampling frequency: 2 000 Hz Data collection duration: 10 seconds 20 000 samples, one every 4 ticks		

Step 1: Configuration name

1. Enter a name for the Gathering Configuration. Example: Stage_Position.

Configuration name	SAVE CONFIGURATION	DELETE
Stage_Position		
When to start	ADD TRIGGER	HELP
Empty list. Please specify at least one trigger.		
What to collect	ADD DATA	HELP
Empty list. Please select at least one type of data to collect		
How much to collect	MODIFY	HELP
Sampling frequency: 2 000 Hz Data collection duration: 10 seconds 20 000 samples, one every 4 ticks		

Step2: When to start

This step configures the data collection trigger and is based upon the API function EventExtendedConfigurationTriggerSet([Actor].[Category].Event Name, Parameter1, Parameter2, Parameter3, Parameter4). For more information regarding this API, refer to **Features Manual**. If this section is not empty, delete example event trigger by clicking REMOVE.

- 1. Click on ADD TRIGGER and the following window appears.
- 2. From the list, highlight the group name, positioner name, TimerX or GPIO that triggers when to start collecting data and then click ADD. If the trigger selection is Immediately or Always, click OK and skip down to <u>Step 3: What to Collect</u>.

Example: Group1.Pos

Pleas	e choose an it	em from the	list be	low.
Group1				
Group1.Pos		^		
Group2 Group2.Pos				ADD
Group3				
Group3.Pos Group4				CLEAR
Group4 Group4.Pos				
GPIO4.ADC1		~		
GPIO4.ADC2				
Event name:	Group1.Pos			
Parameter 1:				
Parameter 2:				
Parameter 3:				
Parameter 4:				

3. From the list, highlight the event that starts the data gathering and then click ADD. Depending on the event selection, Parameters 1 through Parameter 4 need to be filled in.

Example: SGamma.ConstantVelocityState

Plea	se choose an item from	the list l	pelow.
SGamma.Con SGamma.Con SGamma.Con	nstantDecelerationEnd InstantDecelerationStart InstantDecelerationState InstantVelocityEnd InstantVelocityStart	^	ADD
SGamma.Mo SGamma.Mo SGamma.Mo	tionStart	~	CLEAR
Event name:	Group1.Pos.SGamma.C	onstant	/elocityStat
Parameter 1:			
Parameter 2:			
Parameter 3:			
Parameter 4:			

4. Click OK when the trigger has been specified. Example: Gathering starts when the constant velocity state is reached for positioner Group1.Pos.

Configuration name	SAVE CONFIGURATION	
Stage_Position		
When to start	ADD TRIGGER	HELP
REMOVE Group1.Pos.SGamma.ConstantVelocitySta	te	
What to collect	ADD DATA	HELP
Empty list. Please select at least one type of data to coll	lect.	
How much to collect	MODIFY	HELP
Sampling frequency: 2 000 Hz		
Data collection duration: 10 seconds		
20 000 samples, one every 4 ticks		

Step 3: What to collect

This step configures the data type to be collected and is based upon the API function GatheringConfigurationSet([DataType]). Refer to **Features Manual** for more information. If this section is not empty, delete example data collection type by clicking REMOVE.

- 1. Click on ADD DATA and the following window appears.
- **2.** From the list, highlight the positioner name or GPIO from which data will be collected and then click ADD. Example: Group1.Pos

	Data ty	pe selectio	n	
	Please choose an	item from the li	st belov	v.
Group1.Pos Group2.Pos			~	
Group3.Pos Group4.Pos				ADD
CorrectorOu	etpointPosition	protion		CLEAR
CorrectorOu	itputBeforeCompe itputBeforeCompe itputBeforeDampe	ensationFiltered	~	
Data	a type: Group1.P	os		
		O	к	CANCEL

3. If a positioner name is selected, from the list, highlight the data type to be collected and then click ADD. Example: CurrentPosition

Please	choose an item from the lis	t below	
CorrectorOutputDa CorrectorOutputDu CorrectorOutputPl CPUTotalLoadRat CurrentAcceleration	eforeExcitationCorrectorOut amperFilter ualPID D io	^	ADD
CurrentVelocity		~	
EstimatedVelocity			

4. Click OK when the data type has been specified. Example: once the trigger event occurs, current position values will be collected for positioner Group1.Pos.

Configuration name	SAVE CONFIGURATION	
Stage_Position		
When to start	ADD TRIGGER	HELP
REMOVE Group1.Pos.SGamma.ConstantVelocityState		
What to collect	ADD DATA	102
REMOVE Group1.Pos.CurrentPosition		
How much to collect	MODIFY	
Sampling frequency: 2 000 Hz Data collection duration: 10 seconds 20 000 samples, one every 4 ticks		

5. Repeat Step 3 Add Data to add other data types to be collected under this specific Gathering Configuration.

Step 4: How much to collect

This step specifies the sampling frequency and sampling duration for the gathering configuration and is based upon the API function

EventExtendedConfigurationActionSet(GatheringRun, Nb of points, Divisor, 0, 0). Refer to **Features Manual** for more information.

1. Click on MODIFY to specify the frequency at which data is collected and the duration of the data sampling. The maximum sampling frequency is at the XPS servo rate. *Example: Data will be collected at 2 kHz frequency for a total of 2 minutes.*

PI	ease set the sampling fr	equency ar	nfiguration nd duration of the data colle ncy: 8 000 Hz	ection.	
Requested frequency:	2000	Hz	Requested duration:	120	sec
Exact frequency:	2000	Hz	Exact duration:	120	sec
Sampling period:	0.5	msec	Number of samples:	240000	
				ок	CANCEL

Step 5: Save Configuration

- 1. Click on SAVE CONFIGURATION to save the gathering configuration.
 - Example: Gathering starts when the constant velocity state is reached for positioner Group1.Pos. Once the trigger event occurs, current position values will be collected for positioner Group1.Pos. Data will be collected at 2 kHz frequency for a total of 2 minutes.

Configuration name	SAVE CONFIGURATION	DEI EUE
Stage_Position		
When to start	ADD TRIGGER	9161.9
REMOVE Group1.Pos.SGamma.Constant	VelocityState	
What to collect	ADD DATA	BBR
REMOVE Group1.Pos.CurrentPosition		
How much to collect	MODIFY) (<u>aae</u>)
Sampling frequency: 2 000 Hz Data collection duration: 2 minutes		

Data collection duration: 2 minutes 240 000 samples, one every 4 ticks

Step 6: Start Gathering

1. To begin gathering data, click on START.

	vstem Sta	ges Controller	Files	Front panel	Terminal	Data acquisition	Documentation	[Administrat
	▼ sy gathering E	asy external gathering	Functional tes	ts				
Data gathering								
Existing gathering configura	tions			Config	uration name		SAVE CONFIGURATION	DELETE
Stage_Position				Stage	Position			
				When	to start		ADD TRIGGER	HILE
				REMO	Group1.Pos.S	Samma.ConstantVelocityStat	8	
				What t	to collect		ADD DATA	HELP
				REMO	Group1.Pos.C	urrentPosition		
				How m	nuch to collect		MODIFY	HELP
					ng frequency: 2 000 ollection duration: 2 r			
				240 00	0 samples, one every	4 ticks		

2. The controller then begins to monitor for the configured trigger.

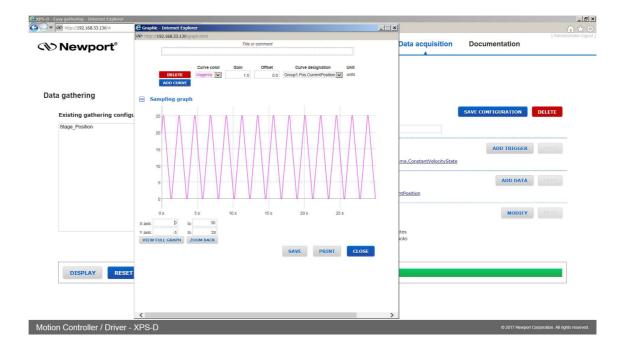
DISPLAY	ABORT	Waiting for trigger
	3.	Once the trigger event occurs, the data acquisition begins and a status bar appears.
DISPLAY	STOP	30 % completed

4. Once the data acquisition is complete, click on DISPLAY to view the data.

S-D - Easy gathering - Internet Explorer		÷ - ۹	y XPS-D - Easy gat	thering ×					(Administ
Newport®	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	
	Easy gathering	Easy ext	ernal gathering	Functional tes	ts				
Data gathering									
Existing gathering conf	igurations				Config	uration name	[SAVECONFIGURATION	0.011010
Stage_Position									
					When	o start		ADD TRIGGER	- HELE
					REMO	VE Group1.Pos.S	Gamma.ConstantVelocityState		
					What t	o collect		ADD DATA	HELP
					REMO	VE Group1.Pos.C	urrentPosition		
					How m	uch to collect		MODIFY	HELP
					Data co	ig frequency: 2 000 llection duration: 2 0 samples, one ever	minutes		
DISPLAY	at I	100 % comple	ted						

5. The Data Graph is displayed. Colors, cales, gains and offsets can be changed. The graph can be saved or printed. Click "Close" to return to Easy Gathering screen.

30



2.26 Data Acquisition – Easy External Gathering

Under **Data acquisition** \rightarrow **Easy external gathering,** users can define and save data gathering configurations for routine data acquisition operations triggered by an external device. For more in depth information regarding data gathering types, refer to **Features Manual**. In the initial factory configuration, an example trigger and data configuration is set. It should be deleted before starting a new gathering.

	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	
	System	Stages	Controller	Files	From panel	Termina		Documentation	
cypenence auduuns	Easy gathering	Easy ex	ternal gathering	Functional te	sts				
even al state such evines									
ernal data gathering									
Existing external gathe	ering configurat	ions			Confi	guration name		SAVE CONFIGURATION	DELETE
						to start			
						list. Please specify a	t laast one trigger	ADD TRIGGER	HELP
					Empty	nsc. Flease specify a	r least one argger.		
					What	to collect		ADD DATA	HELP
					Empty	list. Please select at	least one type of data to collec	t.	
					How	nuch to collect		MODIFY	
					20 00) samples, one every	external tick		
DISPLAY									

Motion Controller / Driver - XPS-D

The following procedure describes how to use the webpage to configure easy external data gathering.

Step 1: Configuration name

1. Enter a name for the Gathering Configuration. Example: Stage_Position.

Configuration name	SAVE CONFIGURATION	
Stage_Position		
When to start	ADD TRIGGER	HELP
Empty list. Please specify at least one trigger.		
What to collect	ADD DATA	HELP
Empty list. Please select at least one type of data to collec	t.	
How much to collect	MODIFY	HELP
240 000 samples, one every external tick		

Step 2: When to start

This step configures the data collection trigger and is based upon the API function EventExtendedConfigurationTriggerSet([Actor].[Category].Event Name, Parameter1, Parameter2, Parameter3, Parameter4). For more information regarding this API, refer to **Features Manual**. If this section is not empty, delete example event trigger by clicking REMOVE.

- 1. Click on ADD TRIGGER and the following window appears.
- 2. From the list, highlight Immediate or Always. Click ADD and then click OK.

Example: Immediate

	Trigger s	election	
Plea	se choose an item	from the list	below.
DIHighLow DILowHigh DIToggled ExcitationSign ExcitationSign		^	ADD
Jog.Constant	AccelerationEnd AccelerationStart AccelerationState VelocityEnd	~	CLEAR
Event name:	Immediate		
Parameter 1:			
Parameter 2:			
Parameter 3:			
Parameter 4:			
		ОК	CANCEL

Step 3: What to collect

This step configures the data type to be collected and is based upon the API function GatheringExternalConfigurationSet([DataType]). Refer to **Features Manual**. If this section is not empty, delete example data collection type by clicking REMOVE.

- 1. Click on ADD DATA and the following window appears.
- **2.** From the list, highlight the positioner name from which position data will be collected and then click ADD. *Example: Group2.Pos*

Please choose an	item from the list below.
Group1.Pos Group2.Pos Group3.Pos Group4.Pos ExternalLatchPosition GPI04.ADC1 GPI04.ADC1 GPI04.ADC3 GPI04.ADC4 GPI04.ADC4 GPI04.ADC5	ADD CLEAR
Data type: Group2.Pos	

3. From the list, highlight the data type ExternalLatchPosition, and then click ADD. *Example: ExternalLatchPosition*

Group4.Pos	
ExternalLatchPosition	^
GPIO4.ADC1	ADD
GPIO4.ADC2	
GPIO4.ADC3	
GPIO4.ADC4	CLEAR
GPIO4.ADC5	CLEAR
GPIO4.ADC6	
GPIO4.ADC7	~
GPIO4.ADC8	
Data type: Group2.Pos.Ext	ernall atchPosition

- 4. Click OK when the data type has been specified.
- 5. Repeat <u>Step 3 Add Data</u> to add other data types to be collected under this specific Gathering Configuration.

Step 4: How much to collect

This step specifies the number of data points per set. This step is based upon the API function EventExtendedConfigurationActionSet(ExternalGatheringRun, Nb of points, 1, 0, 0). Refer to **Features Manual** for more information.

1. Click on MODIFY to specify the number of data points to be collected. Example: 20000 data samples will be collected for every external trigger.

Sampling co	onfiguration
Please set the number of sa	mples of the data collection.
Number of samples:	20000 OK CANCEL

Step 5: Save Configuration

1. Click on SAVE CONFIGURATION to save the gathering configuration.

Example:

Stage_Position		
When to start	ADD TRIGGER	(HELP
REMOVE Immediate		
	ADD DATA	
what to collect		
What to collect REMOVE Group2.Pos.ExternalLatchPosition		

Step 6: Start Gathering

1. To begin gathering data, click on START.

		<u>• -</u> ۹	xPS-D - Easy ext	ernal gathe ×					G
Newport®	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation	[Administ
	Easy gathering	Easy ext	ernal gathering	Functional tes	ts		i a baar		
ernal data gathering									
Existing external gathe	ering configurat	ions			Conf	guration name		SAVE CONFIGURATION	DELETE
Stage_Position					Stag	e_Position			
					Whe	n to start		ADD TRIGGER	HELP
					REI	MOVE Immediate			
					Wha	to collect		ADD DATA	HELP
					REI	Group2.Pos.E	xternalLatchPosition		
					How	much to collect		MODIFY	
					20 00	0 samples, one every	external tick		
	_								
DISPLAY	IRT								
DISPLAY	RT								
DISPLAY	RT								
								© 2017 Newport (Corporation. All rights
n Controller / Driver	r - XPS-D	. 11					· · · ·		
n Controller / Driver	r - XPS-D 2. The c		er then in	mmedia	tely begi	ns to mo	nitor for the c	© 2017 Newport of	
n Controller / Driver	r - XPS-D		er then ii	mmedia	tely begi	ns to mo	nitor for the c		
n Controller / Driver	r - XPS-D 2. The c		er then in	mmedia	tely begi	ns to mo	nitor for the c		
on Controller / Driver	r- XPS-D 2. The c trigge			mmedia	tely begi	ns to mor	nitor for the c		
n Controller / Driver	r- XPS-D 2. The c trigge	er.		mmedia	tely begi	ns to mor	nitor for the c		
on Controller / Driver	r- XPS-D 2. The c trigge	ET.	f						ernal



4. Once the data acquisition is complete, click on DISPLAY to view the data just like for Easy Gathering.

2.27 Data Acquisition – Functional Tests

The FUNCTIONAL TESTS page allows running TCL scripts saved in the "/Admin/Public/Scripts/ FunctionalTests" folder of the XPS controller. Supplied in the firmware, the Functional Tests scripts will then display the results of a gathering file.

Select the TCL Script name then press "Execute script" to run the script or "Kill script" to stop its execution.

Newport [®] System Experience (Statures Functional tests		Controller cternal gathering	Files	Front panel	Terminal	Data acquisition	Documentation	[Administrator
Easy g	athering Easy ex	cternal gathering	Functional tests					
Functional tests								
unctional tests								
TCL script sel	ection							
TCL file name GetVersion.t	tel	~						
Arguments string Enter the TO	CL script's arguments							

Motion Controller / Driver - XPS-D

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2.28 Files – Gathering Files

In this webpage gathering files stored on the XPS controller can be downloaded, viewed, edited or deleted. To generate gathering files refer to **Features Manual**.

Download/Edit/View/Delete

Click on the gathering file name to open the file in the text editor and a window will appear with a graphical representation of the data. In the text editor the user can view, edit, save, save as or delete the gathering file (in the controller) and download it to the user's PC.

UPLOAD FILE

Click UPLOAD FILE to upload a gathering file from the user's PC to the XPS controller.

DOWNLOAD AS ZIP

Click DOWNLOAD AS ZIP to download all gathering files to the user's PC.

C XPS-D - Gathering files - Internet Explorer		, 0 ▼ + 4 00 x	PS-D - Gathering files X					==×
Newport®	System	Stages Co	ntroller Files	Front panel	Terminal	Data acquisition	Documentation	[Administrator logout
Experience Solutions	Gathering files	Trajectory files	TCL scripts Cont	figuration files L	og files			
							Text editor	
Gathering files					401		Text editor	
666.7 Mb free / 959.0 Mb total		 Display as listing Show all files 	DOWNLOAD	AS ZIP UPLOAD FI	E			Ŷ
1								
Gathering.dat								
								~
Motion Controller / Driver	- XPS-D						© 2017 Newp	ort Corporation. All rights reserved.

NOTE

Ensure the web browser zoom is set at 100% to avoid image corruption when displaying a gathering file.

Motion Controller / Driver - XPS-D

2.29 Files – Trajectory Files

In this webpage trajectory files stored on the XPS controller can be downloaded, uploaded, viewed, edited, created or deleted.

Download/Edit/View/Delete

Click on the trajectory file name to open the file in the text editor. In the text editor the user can view, edit, save, save as or delete the trajectory file (in the controller) and download it to the user's PC.

UPLOAD FILE

Click UPLOAD FILE to upload a trajectory file from the user's PC to the XPS controller.

DOWNLOAD AS ZIP

Click DOWNLOAD AS ZIP to download all trajectory files to the user's PC.

C XPS-D - Trajectory files - Internet Explorer		وہ • • 0	XPS-D - Trajector	y files X					×اة_ 0 ★ 0
	System	Stages	Controller	Files	Front panel	Termir	al Data acquisitio	on Documentation	[Administrator logout
Experience Solutions	Gathering files	Trajectory	files TCL sci	ipts Con	figuration files Lo	g files			
Trajectory files							882	Text editor	1 Z ×
666.7 Mb free / 959.0 Mb total		Display a	slisting	DOWNLOAD	AS ZIP UPLOAD FILE				^
This folder is empty.									
									,

Newport[®] ■

2.30 Files – TCL Scripts

In this webpage TCL script files stored on the XPS controller can be downloaded, viewed, edited or deleted. TCL scripts could also be uploaded through this webpage.

Download/Edit/View/Delete

Click on the TCL script file name to open the file in the text editor. In the text editor the user can view, edit, save, save as or delete the TCL script (in the controller) and download it to the user's PC.

UPLOAD FILE

Click UPLOAD FILE to upload a TCL script file from the user's PC to the XPS controller.

DOWNLOAD AS ZIP

Click DOWNLOAD AS ZIP to download all TCL script files to the user's PC.

RUN SCRIPT

Click RUN SCRIPT to launch the selected script. Several scripts can be launched.

KILL SCRIPTS

I

Click KILL SCRIPTs to stop all scripts.

http://192.168.33.130/#		,О 🔹 🍫 👀 XPS	-D - TCL scripts	×						()
	System	Stages Con	troller F	Files Front p	oanel Termi	inal Data ac	quisition	Documentation	Louis	1.50 010
estimation Loopandum	Gathering files	Trajectory files	TCL scripts	Configuration file	es Log files					
CL scripts				RUN SCRIPT	CILL SCRIPTS			cle1.tcl	ŵ 2	×
6.7 Mb free / 959.0 Mb total		Display as listing	D	OWNLOAD AS ZIP	UPLOAD FILE					í
FunctionalTests cvcl	e1.tcl	cycle2.tcl	cycle3.tcl	cycle4.tcl	+	TCL generation of		*****		
GetTCLLibraryVersion.tcl Gro	upHomeSearch.tcl	GroupInitialize.tcl	GroupMove	Absolute.tcl	4 S	trError"]	dClose (sockel) argv = -2 && \$code ! code2 [catch * {\$code2 != 0) { puts stdou	ID code AFIName} { != -108} { 'ErrorStringGet \$sock		
GroupMoveRelative.tcl NDRV	11 testbench	TestVersion.tcl	XPS AST Cycle.	tel	5		set tcl_ar lse { puts stdou	rgv(0) "\$APIName ERRO It "\$APIName \$strErro rgv(0) "\$APIName \$str1	c"	
	70321.tcl					imeout" CP timeout" }	<pre>{\$code == -2) { puts stdou set tcl_ar {\$code == -108}</pre>	[it "\$APIName ERROR => :gv(0) "\$APIName ERRO]	\$code : TCP R => \$code :	

2.31 Files – Configuration Files

In this webpage Configuration files stored on the XPS controller can be downloaded, uploaded, viewed, edited or deleted. Note: Users must be logged in with Administrator rights in order to access this webpage.

Download/Edit/View/Delete

Click on the configuration name to open the file in the text editor. In the text editor the user can view, edit, save, save as or delete the configuration file (in the controller) and download it to the user's PC.

UPLOAD FILE

Click UPLOAD FILE to upload a configuration file from the user's PC to the XPS controller. When uploading a file, take note of the file extension.

LOAD CONFIG

Click LOAD CONFIG to upload all configuration files as a zip file from the user's PC to the controller.

SAVE CONFIG

Click SAVE CONFIG to download all configuration files as a zip file from the controller to the user's PC.

UPDATE STAGE DB

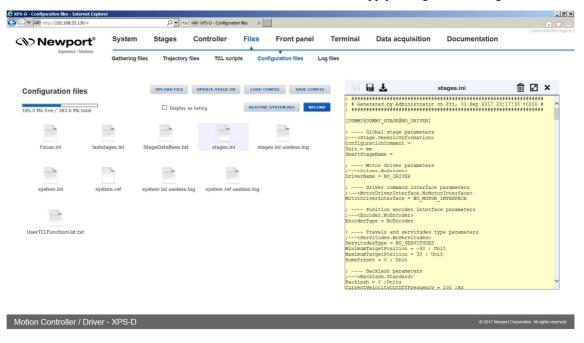
Click UPDATE STAGE DB to upload a new StageDataBase.txt file from the user's PC to the controller.

RESTORE SYSTEM.REF

Click RESTORE SYSTEM.REF to restore the original System.ref file as it was upon delivey.

RELOAD

Click RELOAD to reboot or restart controller to apply configuration changes.



2.32 Files – Log Files

In this webpage log files stored on the XPS controller can be downloaded, uploaded, viewed, edited or deleted. Note: Users must be logged in with Administrator rights in order to access this webpage.

Download/Edit/View/Delete

Click on the log file name to open the file in the text editor. In the text editor the user can view, edit, save, save as or delete the log file (in the controller) and download it to the user's PC.

UPLOAD FILE

Click UPLOAD FILE to upload a log file from the user's PC to the XPS controller. When uploading a file, take note of the file extension.

DOWNLOAD AS ZIP

Click DOWNLOAD AS ZIP to download all log files to the user's PC.

▼ http://192.168.33.130/#		2.4	ND XPS-D - Log files	×								LLL nistrat
	System	Stages	Controller	Files	Front panel	Tern	ninal	Data acquisition	Documentation		, 1100	
Experience accurums	Gathering files	Trajectory fil	es TCL scri	pts Cor	figuration files	og files						
.og files								*	Boot.log	Ŵ	Ø	×
66.7 Mb free / 959.0 Mb total		Display as li	sting	DOWNLOA	D AS ZIP UPLOAD FI	E	Boot Li XPS Uni	sting fied V1.0.12				
							D	ACUpdateDelay = 0.00	0008			
APIList.txt APIList	Extended.txt A	PIList Extended AllConfig.txt	Boot.log		Error.log		PCI_CIEB	pard #1				
							F m PCIAxis	RegisterIndex = 128,	erPlug #1) from CIE Board m PCIDriverRegisterIndex			
								RegisterValue = 8 2C Driver MUX values	: (0) 8, (1) 4, (2) 2 , (3) 1		
Log.log PCI CIE	Header.log PCI	CIE1 Header.log	PCI CIE2 Head	der.log Po	CI CIEBoard1 Axes.log		P m_PCIAxis PCIDriver	CI_CIEAxis #2 (Encode RegisterIndex = 192, RegisterValue = 4	erPlug #3) from CIE Board m_PCIDriverRegisterIndex	#1 OK: = 400,		
					h		P m_PCIAxis PCIDriver	CI_CIEAxis #3 (Encode RegisterIndex = 256, RegisterValue = 2	: (0) 8, (1) 4, (2) 2 , (3 erPlug #2) from CIE Board m_PCIDriverRegisterIndex	#1 OK: = 416,		
PCI CIEBoard1 Header.log P	CI CIEBoard2 Axes	.log PCI CIEBo	ard2 Header.log	Previous	Error.log		P m_PCIAxis	CI CIEAxis #4 (Encode	: (0) 8, (1) 4, (2) 2 , (3 erPlug #4) from CIE Board m_PCIDriverRegisterIndex	#1 OK:		
							I P m	2C Driver MUX values ZI_PCOManager _PCODivider = 1	: (0) 8, (1) 4, (2) 2 , (3) 1		
Zygo.log							P P	CI_PCOGenerator #1 0 CI_PCOGenerator #2 0 CI_PCOManager 0K (Con CI_CIEBoard #1 : Driv	c	er = 8	241810	27

Motion Controller / Driver - XPS-D

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2.33 Documentation

Under the webpage Documentation users can open and download XPS-D manuals, help files, drivers and example code.

XPS-D - Documentation - Internet Exp	lorer	و• • و	ST XPS-D - Documentation	×					_ 문 : ☆ 연
CN Newport Experience Solutions		Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation A	[Administrator logou
Documentation								DOWNLO	AD AS ZIP
Drivers	Help Files	Online resources (literature & downloads)	Visit www.newport		-D Configuration Manual.pdf	XPS-D Features Manual.pdf	XPS-D Start-Up Manual.pdf	XPS-D User Interface Manual.pdf	
XPSFirmwareHistory.pdf	XPS-Unified- ProgrammersManu								

Motion Controller / Driver - XPS-D

3.0 HXP-ELEC-D specific menus

When an XPS-D controller is preconfigured to drive a hexapod (referenced HXP-ELEC-D), some menus are different. They are described in this section.

3.1 System menu

Since the configuration is built in factory, the configuration pages of the XPS-D standard "System" menu are no longer available.

This menu only includes "Error file display" and "Previous error file display" pages:



3.2 Stages menu

For the same reason, the "Stages" menu (Administrator only) is restricted to "Lissajous" page:

← → ∞ http://192.168.33.105/		0 = 0	W HXP-D	~	च				-	-	× ¢ 0
Newport*	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	Documentation			or logout
	Lissajous										

3.3 Front panel menu

This main menu is emphasized with pages dedicated to hexapod which are described after:

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𝔊 Newport®	System	Stages	Conti	roller	Files	Front	panel	Terminal	Data acquisition	Documentation			or logout]
	HXP Tool	HXP Work	Move	Cycle	Jog	Spindle	I/O control	Device statu	5				

3.3.1 Front panel – HXP Tool

The HXP Tool page provides access to incremental moves and RightPath Trajectory moves along and around the axes of the Tool coordinate system. See Features Manual for details. A couple of comments about this page:

Position refers to the position of the Tool coordinate system in the Work coordinate system.

State refers to the state of the Hexapod group.

Action gray field next to Group state is a dynamic action button. Its function changes according to the group state. It allows to Initialize, Home and Disable the hexapod.

KILL ALL stops all motion and sets the Hexapod to the "Not Initialized" state.

Coordinate lists the coordinate (X, Y, Z, U, V, or W).

Under **Incremental move,** it is possible to increment individual coordinates by entering a value in one of the six fields and pressing the "<" or ">" button next to the input window. It is also possible to increment all six coordinates at the same time ("<" and ">" button next to the "All togheter" mention).

Increm. trajectory allows executing RightPath Trajectory motions. After choosing the type of trajectory (Line, Rotation or Arc), and entering the definition parameters, the motion is launched by pressing "GO" button.

Coordinate systems area displays and allows changing the different coordinate systems. These changes are not saved automatically in "system.ini" file.

Reset buttons reloads the genuine coordinate system (saved in system.ini).

Set permanent saves the coordinate system in system.ini file

Refresh delay (in milliseconds) sets screen update delay for position and group state.

New	port	System	Stages	COIL	troller	Files	Front p	aner	Termin		acquisition	Documentation	
		HXP Tool	HXP Work	Move	Cycle	Jog	Spindle	I/O cont	rol Dev	ice status			
Hexapod Too	ol fram	e											
Position	State	Action	Coordinate	e Incr	emental m		Increm. tra						
-0.081455768			X axis Z		0		0		7				
0.020384606			Y axis ↔		0		0						
-14.962852940			Z axis ‡		0		0						
-0.005250848	- 11	DISABLE	U axis 🗠		0								
0.002620972			۷ axis ۹		0								
0.031251317			W axis J		0								
		KILL ALL			All together		GO						
Coordinate sy	stems	х	Y	z	U	v	w	_			1		
Tool in Carriage		0.000	0.000	25.000	0.000	0.00	0.0	000 RE	SET SET	PERMANENT	_		
Base in World		0.000	0.000	25.000	0.000	0.0	0.0	000 RE	SET SET	PERMANENT	_		
Work in World		0.000	00.840	209.000	0.000	0.00		000	ISET SET	PERMANENT	-		
		7	o change a referen	ce frame, cl	ick on a cell a	nd change it	s value						
		: 200 SET											

3.3.2 Front panel – HXP Work

The HXP Work page is similar to the HXP Tool page. It provides access to incremental moves and RightPath Trajectory moves along and around the axes of the Work coordinate system, but also to absolute moves in Work. See Features Manual for details.

More over, the ">>" buttons can be used to fill the "Absolute move" parameters with current position values, either individually or "All together".

New	port	System	stages	Con	troller	Files	Front	panel	Term	inal Data a	cquisition	Documer	ntation	
		HXP Tool	HXP Work	Move	Cycle	Jog	Spindle	I/O contro		evice status				
lexapod Wo	rk fram	e												
Position	State	Action	Coordinate	Ab	solute mov	/e 1	Absolute	move 2	In	cremental move	Increm. tra Line O Rota			
-0.081455782			X axis 2	*	0	GO	» 0	GO	•	0	0			
0.020385436			Y axis ↔	*	0	60	» 0	60	1	0	0			
-14.962854198		DISABLE	Z axis ‡	*	0	GO	» 0	60		0 🕨	0			
-0.005249504	- 11	DISABLE	U axis 🗠	*	0	GO		00	•	0 🕨				
0.002620583			۷ axis ۵	*	0	GO	* 0	GO	4	0				
0.031253706			W axis o	*	0	GO	» 0	GO	•	0				
		KILL ALL		*	All together	60	» All tog	ether 60	•	All together	60			
Coordinate sy	stems	x	Y 7	2	U	v	w							
Tool in Carriage		0.000	0.000	25.000	0.000	0.00	0 0	.000 RES	τ 💽	SET PERMANENT				
Base in World		0.000	0.000	25.000	0.000	0.00	0 0	.000 RES	T E	SET PERMANENT				
Work in World		0.000	0.000 2	09.000	0.000	0.00	00 0	.000 RES	т <mark>с</mark>	SET PERMANENT				
		1	To change a reference	ce frame, cl	ick on a cell a	nd change its	s value							
efresh delay (in mi	lliseconds):	200 SET												

3.4 Files menu

3.4.1 Files – Configuration files

This page remains available (for Administrator only) even though the configuration is built in factory. It may be used by experimented users or with the help of Newport support to make configuration changes directly in the configuration files.

However, a "**FACTORY SETTINGS**" button is added to simply allow retrieving all the original configuration files. This affects the HEXAPOD group but also the additional single axes if any.

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<>>> Newport [®]	System Sta	ges Controller	Files Front panel	Terminal	Data acquisition	Documentation	[Administrator logout]
	Gathering files	Trajectory files TCL scri	pts Configuration files	Log files			
Configuration files	[AD FILE UPDATE STAGE DB Display as listing Show "useless" files	LOAD CONFIG SAVE CON FACTORY SETTINGS REL		a 2 - 1	Text editor	â 2 ×
Geometry RRP5.ini Hexapoo	Matrix.txt StageD	ataBase.txt stages.in	i system.ini				
system.ref							
							ý
HXP-D Motion Controlle	er / Driver - XP	S-a062	_			© 2018 Newport C	prporation. All rights reserved.

After pressing this button, the following window appears. Tick the files you want to restore and click "RESET FILES".

_		
35	Confirmation	
1	You can choose here which configuration file(s) you want to reset to factory settings.	
	Geometry_RRPS.ini HexapodMatrix.txt StageDataBase.txt stages.ini system.ini system.ref	
	Please select which one(s) to restore and confirm your choice.	
	Your current settings will be erased, so back them up first if necessary!	
	RESET FILES CANCEL	

A message pops up to inform restore success. Click OK to restart the controller and reload the new configuration.

Restore success		
The operation completed successfully. Press OK to make the con	troller reload the new	configuration.
	ок	CANCEL

Service Form

Your Local Representative

Tel.: _____

	Fax:
Name:	Return authorization #:
Company:	(Please obtain prior to return of item)
Address:	Date:
Country:	Phone Number:
P.O. Number:	
Item(s) Being Returned:	
Model#:	Serial #:
Description:	
Reasons of return of goods (please list any specific problems):	

Visit Newport Online at: www.newport.com

North America & Asia

Newport Corporation 1791 Deere Ave. Irvine, CA 92606, USA

Sales Tel.: (800) 222-6440 e-mail: sales@newport.com

Technical Support Tel.: (800) 222-6440 e-mail: tech@newport.com

Service, RMAs & Returns Tel.: (800) 222-6440 e-mail: service@newport.com

Europe

MICRO-CONTROLE Spectra-Physics S.A.S 9, rue du Bois Sauvage 91055 Évry CEDEX France

Sales

Tel.: +33 (0)1.60.91.68.68 e-mail: france@newport.com

Technical Support e-mail: tech_europe@newport.com

Service & Returns Tel.: +33 (0)2.38.40.51.55

