

XPS-RL

Universal High-Performance Motion Controller/Driver





Quick Start

Warranty

Newport Corporation warrants that this product will be free from defects in material and workmanship and will comply with Newport's published specifications at the time of sale for a period of one year from date of shipment. If found to be defective during the warranty period, the product will either be repaired or replaced at Newport's option.

To exercise this warranty, write or call your local Newport office or representative, or contact Newport headquarters in Irvine, California. You will be given prompt assistance and return instructions. Send the product, freight prepaid, to the indicated service facility. Repairs will be made and the instrument returned freight prepaid. Repaired products are warranted for the remainder of the original warranty period or 90 days, whichever comes first.

Limitation of Warranty

The above warranties do not apply to products which have been repaired or modified without Newport's written approval, or products subjected to unusual physical, thermal or electrical stress, improper installation, misuse, abuse, accident or negligence in use, storage, transportation or handling. This warranty also does not apply to fuses, batteries, or damage from battery leakage.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE. NEWPORT CORPORATION SHALL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE PURCHASE OR USE OF ITS PRODUCTS.

©2017 by Newport Corporation, Irvine, CA. All rights reserved.

Original instructions.

No part of this document may be reproduced or copied without the prior written approval of Newport Corporation. This document is provided for information only, and product specifications are subject to change without notice. Any change will be reflected in future publishings.

Table of Contents

	Waran	nty	<u>ii</u>
	Prefac	e	<u>v</u>
1.0	Intro	oduction	1
1.1	Scope	of the Manual	1
1.2	Defini	tions and Symbols	2
	1.2.1	General Warning or Caution	2
	1.2.2	Electric Shock	2
	1.2.3	European Union CE Mark	2
	1.2.4	"ON" Symbol	2
	1.2.5	"OFF" Symbol	2
1.3	Warni	ngs and Cautions	3
1.4	Genera	al Warnings and Cautions	3
2.0	Getti	ing Started	5
2.1	Unpac	king and Handling	5
2.2	Inspec	tion for Damage	5
2.3	Packir	ng List	5
2.4	System	n Setup	6
	2.4.1	Proper Ventilation	6
	2.4.2	Power ON	7
2.5	Conne	ecting to the XPS-RL	7
	2.5.1	Straight Through Cables (Black)	7
	2.5.2	Cross-Over Cables (Gray)	8
	2.5.3	Direct Connection to the XPS-RL Controller	8
	2.5.4	Connecting the XPS-RL to a Corporate Network using Static IP Conf	iguration 11
	2.5.5	Configuring the XPS-RL for Connection to a Corporate Network Us Dynamic IP Configuration	sing 12
	2.5.6	Recovering a lost IP configuration	14
2.6	Config	guring the Controller	16
	2.6.1	Default Configuration	17
	2.6.2	Quick Configuration for Newport Positioners	19
	2.6.3	Manual Configuration for Newport Positioners	21
	2.6.4	Manual Configuration for non Newport stages	
2.7	System	n Shut-Down	

3.0	XPS-RL Controller/Driver Documentation	27
Servi	e Form	29

Confidentiality & Proprietary Rights

Reservation of Title

The Newport Programs and all materials furnished or produced in connection with them ("Related Materials") contain trade secrets of Newport and are for use only in the manner expressly permitted. Newport claims and reserves all rights and benefits afforded under law in the Programs provided by Newport Corporation.

Newport shall retain full ownership of Intellectual Property Rights in and to all development, process, align or assembly technologies developed and other derivative work that may be developed by Newport. Customer shall not challenge, or cause any third party to challenge, the rights of Newport.

Preservation of Secrecy and Confidentiality and Restrictions to Access

Customer shall protect the Newport Programs and Related Materials as trade secrets of Newport, and shall devote its best efforts to ensure that all its personnel protect the Newport Programs as trade secrets of Newport Corporation. Customer shall not at any time disclose Newport's trade secrets to any other person, firm, organization, or employee that does not need (consistent with Customer's right of use hereunder) to obtain access to the Newport Programs and Related Materials. These restrictions shall not apply to information (1) generally known to the public or obtainable from public sources; (2) readily apparent from the keyboard operations, visual display, or output reports of the Programs; (3) previously in the possession of Customer or subsequently developed or acquired without reliance on the Newport Programs; or (4) approved by Newport for release without restriction.

Sales, Tech Support & Service

North America & Asia Newport Corporation 1791 Deere Ave. Irvine, CA 92606, USA

Sales Tel.: (877) 835-9620 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 France Tel.: +33 (0)1.60.91.68.68 e-mail: france@newport.com

Sales Germany Tel.: +49 (0) 61 51 / 708 – 0 e-mail: <u>germany@newport.com</u>

Sales UK Tel.: +44 (0)1635.521757 e-mail: <u>uk@newport.com</u>

Technical Support e-mail: tech_europe@newport.com

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

Service Information

The user should not attempt any maintenance or service of the XPS Series Controller/Driver system beyond the procedures outlined in this manual. Any problem that cannot be resolved should be referred to Newport Corporation. When calling Newport regarding a problem, please provide the Tech Support representative with the following information:

- Your contact information.
- System serial number or original order number.
- Description of problem.
- Environment in which the system is used.
- State of the system before the problem.
- Frequency and repeatability of problem.
- Can the product continue to operate with this problem?
- Can you identify anything that may have caused the problem?

Newport Corporation RMA Procedures

Any XPS-RL Series Controller/Driver being returned to Newport must be assigned an RMA number by Newport. Assignment of the RMA requires the item's serial number.

Packaging

XPS-RL Series Controller/Driver being returned under an RMA must be securely packaged for shipment. If possible, re-use the original packaging.



Universal High-Performance Motion Controller/Driver XPS-RL

1.0 Introduction

1.1

Scope of the Manual

From the XPS, the XPS-RL inherits the extremely high performance, 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.

The XPS-RL holds all of these features in a more compact and mobile package.

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

The XPS-RL Quick Start is delivered as a hard copy with the controller.

The XPS-RL User's Manual, Programmer's and Software Drivers manuals are PDF files accessible from the controller disk which can be downloaded from the controller website under the tab Documentation.

.NET assemblies and corresponding sources are available from the controller disk which can be downloaded from the controller website under the tab Documentation -> Drivers & Examples.

LabVIEW VIs with examples are also available to download from the Newport website.

The **Quick Start** is the getting-started part of the system. It serves as an introduction and as a reference. It includes:

- 1. Unpacking and Handling
- 2. Inspection for Damage
- 3. Packing List
- 4. System Setup
- 5. Connecting the XPS-RL

1.2 Definitions and Symbols

The following terms and symbols are used in this documentation and also appear on the XPS-RL Series Controller/Driver where safety-related issues occur.

1.2.1 General Warning or Caution



Figure 1: General warning or caution symbol.

The Exclamation Symbol in Figure 1 may appear in Warning and Caution tables in this document. This symbol designates an area where personal injury or damage to the equipment is possible.

1.2.2 Electric Shock



Figure 2: Electrical shock symbol.

The Electrical Shock Symbol in Figure 2 may appear on labels affixed to the XPS-RL Series Controller/Driver. This symbol indicates a hazard arising from dangerous voltages. Any mishandling could result in damage to the equipment, personal injury, or even death.

1.2.3 European Union CE Mark



Figure 3: CE mark.

The presence of the CE Mark on Newport Corporation equipment means that it has been designed, tested and certified to comply with all current and applicable European Union (CE) regulations and recommendations.

1.2.4 "ON" Symbol



The "ON" Symbol in Figure 4 appears on the power switch of the XPS-RL Series Controller/Driver. This symbol represents the "Power On" condition.

1.2.5 "OFF" Symbol



Figure 5: "OFF" symbol.

The "Off" Symbol in Figure 5 appears on the power switch of the XPS-RL Series Controller/Driver. This symbol represents the "Power Off" condition.

1.3 Warnings and Cautions

The following are definitions of the Warnings, Cautions and Notes that may be used in this manual to call attention to important information regarding personal safety, safety and preservation of the equipment, or important tips.



WARNING

Situation has the potential to cause bodily harm or death.



CAUTION

Situation has the potential to cause damage to property or equipment.

WARNING



This product is equipped with a 3-wire grounding type plug. Any interruption of the grounding connection can create an electric shock hazard. If you are unable to insert the plug into your wall plug receptacle, contact an electrician to perform the necessary alterations to ensure that the green (green-yellow) wire is attached to earth ground.

System earthing must be of type earthed neutral (TN-) as defined by CEI60364.

NOTE

Additional information the user or operator should consider.

1.4 General Warnings and Cautions

The following general safety precautions must be observed during all phases of operation of this equipment.

Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and the intended use of the equipment.

- Heed all warnings on the unit and in the operating instructions.
- To prevent damage to the equipment, read the instructions in this manual for the selection of the proper input voltage.
- Only plug the Controller/Driver unit into a grounded power outlet.
- Ensure that the equipment is properly grounded to earth ground through the grounding lead of the AC power connector.
- Route power cords and cables where they are not likely to be damaged.
- Use Proper Power Cord

Use only the power cord specified for this product and certified for the country of use.

- The system must be installed in such a way that the power switch and the power connector remain accessible to the user.
- Disconnect or do not plug-in the AC power cord under the following conditions:
 - If the AC power cord or any other attached cables are frayed or damaged.
 - If the power plug or receptacle is damaged.
 - If the unit is exposed to rain or excessive moisture, or liquids are spilled on it.

- If the unit has been dropped or the case is damaged.
- If the user suspects service or repair is required.
- Keep air vents free of dirt and dust and obstructions.
- Keep liquids away from unit.
- Do not expose equipment to excessive moisture (>85% humidity).
- Do not operate this equipment in an explosive atmosphere.
- Disconnect power before cleaning the Controller/Driver unit. Do not use liquid or aerosol cleaners.
- Do not open the XPS-RL Controller/Driver stand alone motion controller. There are no user-serviceable parts inside the XPS-RL Controller/Driver.
- Return equipment to Newport Corporation for service and repair.
- Dangerous voltages associated with the 100–240 VAC power supply are present inside Controller/Driver unit. To avoid injury, do not touch exposed connections or components while power is on.
- Follow precautions for static-sensitive devices when handling electronic circuits.

2.0 Getting Started

2.1 Unpacking and Handling

It is recommended that the XPS-RL Controller/Driver be unpacked in your lab or work site rather than at the receiving dock. Unpack the system carefully; small parts and cables are included with the equipment. Inspect the box carefully for loose parts before disposing of the packaging. You are urged to save the packaging material in case you need to ship your equipment.

2.2 Inspection for Damage

XPS-RL Controller/Driver has been carefully packaged at the factory to minimize the possibility of damage during shipping. Inspect the box for external signs of damage or mishandling. Inspect the contents for damage. If there is visible damage to the equipment upon receipt, inform the shipping company and Newport Corporation immediately.

WARNING



Do not attempt to operate this equipment if there is evidence of shipping damage or you suspect the unit is damaged. Damaged equipment may present additional personnel hazard. Contact Newport technical support for advice before attempting to plug in and operate damaged equipment.

2.3 Packing List

Included with each XPS-RL controller are the following items:

- XPS-RL Quick Start.
- XPS-RL controller.
- Cross-over cable, gray, 3 meters.
- Straight-through cable, black, 5 meters.
- Power cord.

If there are missing hardware or have questions about the hardware that were received, please contact Newport.



CAUTION

Before operating the XPS-RL controller, please read chapter 1.0 very carefully.

2.4 System Setup

This section guides the user through the proper set-up of the motion control system. If not already done, carefully unpack and visually inspect the controller and stages for any damage. Place all components on a flat and clean surface.



CAUTION

No cables should be connected to the controller at this point!

First, communication to the controller must be established before stages can be connected.

NOTE

The controller is delivered with slot 1 configured as a dummy stage, hence once communication to the controller is established the controller is usable. To access full functionality of the controller, stages must be connected.

2.4.1 Proper Ventilation



Figure 6: Installing driver cards.

Due to the high power of the XPS-RL controller (180 W for the CPU and 300 W for the drives), ventilation is very important.

To ensure a good level of heat dissipation, the following rules must be followed:

- **1.** It is strictly forbidden to use the XPS-RL controller without the cover properly mounted on the chassis.
- **2.** The surrounding ventilation holes at the sides and back of the XPS-RL unit must be free from obstructions that prevent the free flow of air.

2.4.2 Power ON

- Plug the AC line cord supplied with the XPS-RL into the AC power receptacle on the rear panel.
- Plug the AC line cord into the AC wall-outlet. Turn the Main Power Switch to ON (located on the Rear Panel).
- The system must be installed in such a way that power switch and power connector are accessible by the user.
- There is a beep about 50 seconds after power on when the controller has finished booting. If the controller boots properly, beep is happy-sounding, otherwise a sad-sounding beep is emitted.
- There is also an Inhibit switch with a BNC connector in the rear of the XPS-RL. The Inhibit switch is directly linked by hardware to cut off motor power supply.

2.5 Connecting to the XPS-RL

XPS-RL supports 10/100/1000 Mbps Ethernet networking:

1. Direct connection PC-to-XPS-RL.

The DHCP server active on the Ethernet plug identified "REMOTE" will automatically configure the connected computer to make it ready for communication with the XPS-RL controller.

2. Network connection.

The Ethernet plug identified "HOST" must be used to connect the XPS-RL controller to a Network. Before connection, the controller IP setting must be set by the Network administrator.

Two cables are provided with the motion controller:

- Cross-over cable used when connecting the XPS-RL directly to a PC.
- Straight Ethernet cable used when connecting the XPS-RL through an intranet.

2.5.1 Straight Through Cables (Black)

Standard Ethernet straight through cables are required when connecting the device to a standard network hub or switch.





Figure 7: Straight through cables.

2.5.2 Cross-Over Cables (Gray)

Standard Ethernet cross over cables are required when connecting the device directly to the Ethernet port of a PC.



Figure 8: Ethernet cross over cables.

2.5.3 Direct Connection to the XPS-RL Controller

For a direct connection between a PC and the XPS-RL controller you need to use the crossover cable and the REMOTE connector at the back of the XPS-RL.



Figure 9: Direct connection to the XPS-RL using cross-over cable.

REMOTE Connection

The REMOTE plug has a DHCP server, which automatically assigns an IP address on the PC's Ethernet card. Ensure the Local Area Connection is set to Obtain an IP address automatically. After connecting the REMOTE connector on the back of the XPS-RL to the PC. Open Internet Browser and connect to <u>http://192.168.254.254</u>.

When the PC is connected to the XPS-RL, an Unidentified network will appear in your active networks found under Control Panel > Network and Sharing Center.

Control Panel +	All Control Panel Items Network and Sharing C	Center	👻 🍫 Search Con 🔎
<u>File Edit View Tools H</u> elp			
Ele Edit View Iools Help Control Panel Home Manage wireless networks Change adapter settings Change advanced sharing settings	View your basic network informatio	an and set up connections See full map Internet Connect or disconnect Access type: Internet Connections: Internet Connection 5 (newp) Access type: No Internet access Connections: I Local Area Connection 5 Access type: No Internet access Connections: I Local Area Connection 5 ad hoc, or VPN connection; or set up a router or access point. wired, dial-up, or VPN network connection. sther network computers, or change sharing settings.	0
	Troubleshoot problems Diagnose and repair network problem	ns, or get troubleshooting information.	
See also HomeGroup Intel® PROSet/Wireless Tools Internet Options Windows Firewall			

Following is the procedure to verify the Ethernet card address is set to Obtain an IP address automatically.

This procedure is for the Windows 7 operating system (almost similar process for Windows 8):

- 1. Start Button > Control Panel > Network and Sharing Center => Change adapter settings.
- 2. Right Click on Local Area Connection Icon and select Properties.

Local Area Connection Properties								
Networking Authentication Sharing								
Connect using:								
Intel(R) Ethemet Connection (3) I218-LM								
Configure								
This connection uses the following items:								
✓ Client for Microsoft Networks ✓ ■ QoS Packet Scheduler ✓ ■ File and Printer Sharing for Microsoft Networks ✓ ▲ Internet Protocol Version 6 (TCP/IPv6) ✓ ▲ Internet Protocol Version 4 (TCP/IPv4) ✓ ▲ Internet Protocol Version 4 (TCP/IPv4) ✓ ▲ Link-Layer Topology Discovery Mapper I/O Driver ✓ ▲ Link-Layer Topology Discovery Responder								
Install Uninstall Properties								
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.								
OK Cancel								

3. Highlight Internet Protocol Version (TCP/IP, TCP/IP4) and click on "Properties".

General	Alternate Confi	guration					
You car this cap for the	get IP settings a ability. Otherwis appropriate IP se	assigned e, you ne ettings.	automat ed to as	ically if y k your r	your n networ	etwork s k admini	supports strator
<u>o</u>	tain an IP addre	ss autom	atically				
_© U <u>s</u>	e the following I	P address					
<u>I</u> P ad	ldress:				1.		
Sybr	et mask:						
<u>D</u> efa	ult gateway:				1		
() ()	tain DNS server	address	automat	ically			
- O Us	<u>e</u> the following D	NS serve	r addres	ses:			
Prefe	erred DNS server	1					
<u>A</u> lter	nate DNS server	:					
V	aļidate settings u	ipon exit				Adva	anced

4. Verify Obtain an IP address automatically is selected and click "OK".

Once Obtain an IP address automatically is selected, you are ready to connect to the XPS-RL controller.

Following is the procedure for connecting to the controller:

5. Open Internet Browser and connect to http://192.168.254.254

Login:	
Username:	Administrator
Password:	Administrator (Please see the picture below).
Role:	Administrator

NOTE

Please note that the login text is case sensitive.



Once logged in, the XPS-RL has established a direct connection to the local computer.

If you don't want to connect the XPS-RL controller through a Corporate Network you may skip to Section 2.6: "Configuring the Controller".

NOTE

If you want to change the IP address of the XPS-RL controller, follow the explanation in the next section. It is necessary to keep using the gray cross-over Ethernet cable to connect the XPS-RL controller directly to the PC.

2.5.4 Connecting the XPS-RL to a Corporate Network using Static IP Configuration

Once you are logged in using the previously described steps for direct connection, you can change the IP configuration of the controller in order to connect the XPS-RL over a Network. Select "**Controller**" of the web-site and select the sub-menu "**IP management**".

Nevvport, Dyrrings Solutions	System Stages	Controller Files	Front panel T	erminal Data acquisition	Documentation	[Administration
management	ir management Osers	General Informat	ion Terminal consgurat			
management					are update	
Ctatic ID configuration						
· acacie in contiguration						
Static IP address 192	. 168 . 32 . 209					
Netmask value 255	. 255 . 254 . 0					
S Gateway IP address 192	. 168 . 33 . 253					
Dynamic IP configuration						
MAC address 00:0b:a	b:86:2e:0f					
Current IP address 192.168	1.32.209					
Netmask value 255.255	.254.0					
Current gateway IP 192.168	1.33.253					
Remote IP address 192.165	.254.254					
Subnet mask 255.255	255.0					
		and a state of the				
SAVE CONF	IGURATION REBOOT	and and a state of the state of	and Ors			
	1 6 5	(a)			An other sectors and the sector of the secto	
	Charles and a start	1 1 1 2	0.00			
				100 100 100 Inter		
			Bill .		- Day - Marine	
	2 2 1					
		2 .	3		8 20 10 10 10 10 10 10 10 10 10 10 10 10 10	
			(A)	m. 5 2 2		
		1 1 1 1 1 1 1 1 1 1		A REAL & REAL & REAL & REAL	the second se	

The Static IP address, the Netmask value and the Gateway IP address must be provided by your Network Administrator to avoid network conflicts. Once you have these addresses, you can input them in the IP configuration window as shown above. The above shown addresses are only examples.

NOTE

To avoid conflict with the REMOTE Ethernet plug, the IP address must be different from 192.168.254.

NOTE

For the majority of Networks, the setting above for the Netmask value will work. However, for larger networks (200 computers or more), the Netmask value address must be verified with the IT department. In most cases and for larger networks, the Netmask value is set to 255.255.0.0.

Once the appropriate addresses for the Static IP configuration are set, click on "SAVE CONFIGURATION" and the following screen appears:



Click "OK" and reboot the controller by clicking "REBOOT".

A pop-up windows appears showing the "**REBOOT IN PROGRESS**". When the boot sequence is complete, the user is redirected to the login page. The time to reboot is about 50 seconds.

Connect the CAT-5 network cable (black) to the HOST connector of the XPS-RL controller and to your network.

After restarting the controller, open the Internet browser and connect using your given Static IP address.

If you don't want to connect directly to the Corporate Network using the Dynamic IP Configuration, skip to Section 2.6: "Configuring the Controller".

2.5.5 Configuring the XPS-RL for Connection to a Corporate Network Using Dynamic IP Configuration

It is recommended to ask your IT department to configure the XPS-RL to your network to avoid any issue with your network policies and rules.

- Connect to the XPS-RL as described in Section 2.5.3: "Direct Connection to the XPS-RL Controller".
- Connect the host plug to your network using a direct cable.
- Get to Controller \rightarrow IP management web page
- Select dynamic IP as shown below:

Newport.	System	Stages	Controller	Files F	ront panel	Terminal	Data acquisition	Documenta	ation
Experience Solutions	IP managemer	nt Users	management	General informatio	n Terminal	configurator	TCL to API builder F	irmware update	
IP management									
— Static IP configuration	on								
Static IP add	lress 192	. 168 .	32. 209						
Netmäsk v	alue 255	. 255 .	254 . 0						
🗹 Gateway IP add	lress 192	. 168 .	33 . 253						
Dynamic IP configure	ation								
MAC add	lress 00:0b:at	b:86:2e:0f							
Current IP add	lress 192.168	.32.209							
Netmask v	alue 255.255	.254.0							
Current gatewa	y IP 192.168	.33.253							
Remote IP add	iress 192.168	.254.254							
Subnet	nask 255.255	.255.0							
	-	(•)	000000	255 100					
	SAVE	CONFIGURA	TION						
		1	a) and a second second	1.000	A	10000			
-	0.0.			1.1			10° 0° 0° 0° 0° 0		
		You de	and in			0.0.0000			
		200 Q		2.280 E	In Int			0.000	
8 - C	10	20	1		: B1 - M1	S DY	La	1	
	n à	2 3			5	即副			
 1.1.2.4 			h 22		100	4.7	1000		
147.10		8 8	1 E) m		1 25 19	10 2			

NOTE

It is needed to connected the controller to the network using the HOST plug before Reboot. If not, the controller will wait for the network DHCP and a timeout will happen. Click the "SAVE CONFIGURATION" button and the following screen appears:



Click "**OK**" and reboot the controller by clicking "**REBOOT**". Wait for controller to reboot, open the internet browser and connect to REMOTE You can see the dynamic IP address in **Controller** \rightarrow **General**.

	254.254					(Ad	O D ministrator
Newport.	System Stages Co	ntroller Files	Front panel	Terminal	Data acquisiti	ion Documen	tation
Expenses Solutions	IP management Users manag	ement General informa	tion Terminal	configurator	TCL to API builder	Firmware update	
	Components version displa	y					
Firmware version	XPS-RL Unified V0.3.8 Beta5						
QNX kernel version	QNX kernel configuration V2.1.4 Be		node)				
Web server version	XPS-RL 2.0.0-beta4 (20151027)						
Installer version	Refer to XPSFirmwareHistory.pdf						
Stage database revision	StageDataBase V3.0.2						
Internal hardware	Slot 1 Slot 2	Slot 3 Slot	4				
Number of available slots	4		-				
Host IP address	192.168.32.209 (DHCP)						
Host netmask	255.255.254.0						
Gateway IP address	192.168.33.253						
				& are			
	Running TCL scripts	- 1975 - 1975	· · · · · · · · · ·	11000			
Nor	Running TCL scripts						

The IP address delivered by your DHCP is displayed above.

In case the XPS-RL cannot negotiate an IP address from the DHCP the displayed address will be 0.0.0.0. In that case contact your IT department.

Remove the REMOTE cable and, if needed, configure your PC back to its original Ethernet configuration, you have saved before modification.

Make sure that the standard CAT-5 network cable (black) is connected to the HOST connector of the XPS-RL controller and to your network.

Open your internet browser and use the dynamic IP address.



Check with your IT department that the lease time set at the DHCP is longer than the time you plan to leave the XPS-RL switched off otherwise you will lose your dynamic address and will need to connect to the REMOTE to know the new assigned one by the DHCP.

NOTE

Do not use Dynamic IP configuration if your DHCP server uses Windows NT 4.0

2.5.6 Recovering a lost IP configuration

If you want to recover a lost IP configuration, you need to connect the PC directly to the REMOTE connector at the back of the XPS-RL with the gray cross-over cable.



Figure 10: Direct connection to the XPS-RL using a cross-over cable and the REMOTE connector.

First, the IP address on the PC's Ethernet card must be set to Obtain IP Address Automatically.

1. Open Internet Browser and connect to http://192.168.254.254

Login:	
Username:	Administrator
Password:	Administrator (Please see the picture below).
Role:	Administrator

NOTE

Please note that the login text is case sensitive.

← → C http://192.168.254.254		B O :
	Newport. Exprinera Sulders	
	Motion Controller / Driver - XPS-RL	
	Password:	
	STGN IN Remember me 💿	
		Ter an
ñ 29 10		

Once you are logged in, you can change the IP configuration by following the steps described in section 2.5.4 or 2.5.5 depending on your configuration.

NOTE

If you want to reset the IP address to the default factory setting, follow the section 2.5.4 to set the IP address back to 192.168.0.254.

2.6 Configuring the Controller

When the IP address is configured, the controller can be configured for the stages:

- Switch off the XPS-RL controller.
- Install driver boards inserting from left (driver 1) to right (driver 4) when looking at the rear of the controller.
- If less than four driver boards are used, the remaining slots must be disabled with the appropriate slot covers that were delivered with the controller.
- Connect the stages or motion devices.
- Switch on the XPS-RL controller and wait for the end of the boot sequence (approximately 50 seconds).
- Open an internet browser and connect to http://<your fixed IP address> (if connected to REMOTE plug, address is http://192.168.254.254)



Login:

Username: Administrator Password: Administrator Role: Administrator

There are three possibilities to configure the controller: Default configuration, quick configuration and manual configuration. Default configuration is the simplest method to configure the controller, but has some limitations:

- Default configuration works only with Newport ESP compatible positioners.
- Default configuration configures all detected positioners as single axis groups. However, single axis groups provide limited functionality (no synchronized motion, no trajectories, no XY or XYZ compensation). To take full benefit of the capabilities of the XPS-RL controller, a manual configuration is needed.
- For non-Newport stages or very old Newport stages, manual configuration is required. See chapter Appendix F: "Configuration Wizard" in the XPS-RL User's Manual.
- Manual configuration is also required for some vacuum compatible stages (no ESP chip) and for stages with adjustable home position (-1, 0, +1), if the home position is changed from the standard position 0 to -1 or +1. The positions +1 and -1 require different settings in the stage data base, as the home switch position is not recognized by the ESP chip.

2.6.1 Default Configuration

When logged in as Administrator, select "**System**" then "**Default configuration**". The following screen appears:



If you want to continue, click the "OK" button and the following page appears:

🐼 XPS-RL - Default configur. 🗙								
← → C 🗋 http://192.168	.254.254							S 0 ≡
(Newport,	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	[Administrator logout
Experience Solutions	Default configuration		Quick configuration	Manua	I configuration	Error file display	Previous error file displa	ау

Default configuration (for single axes)

Slot	Stage model	Driver model	Configuration in StageDataBase	Name
1	Unknown	XPS-DRV01	Unknown configuration	Not used
2	RV120PP	XPS-DRV01	RV@RV120PP@XPS-DRV01	Group1.Pos
3	BGS50PP	XPS-DRV01	BGS@BGS50PP@XPS-DRV01	Group2.Pos
4	LTA-HS	XPS-DRV01	LTA@LTA-HS@XPS-DRV01	MyGroup.MyPositioner



Check, if all connected stages are recognized by the system. To change the Group name type in desired name under the Name column. If all connected stages are recognized, click "APPLY & REBOOT".



When the controller has finished booting login, select "**Front panel**", and then select "**Move**". The following screen appears:

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 position value in the "Absolute move 1" field and click "GO". The stage moves to this absolute position.

Your system is now ready to use. For more advanced functions, please read the XPS-RL User's Manual.

NOTE

In "DEFAULT-CONFIGURATION" the default group type is set as SingleAxis. To set the positioners to a different group type, use manual configuration.

2.6.2 Quick Configuration for Newport Positioners

Before using Quick Configuration, it is needed to populate the stages.ini file with the needed configurations, using "Add, remove or edit" stages under the main tab "Stages" (see chapter 2.6.3).

When logged in as Administrator, select "**System**", then "**Quick configuration**". The following screen appears:

✓	iick configurat ×	254.254								
COD IN	ewport.	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	(Adminis	trator logout on
	Experience Solutions	Default configu	iration (Quick configuration	Manua	al configuration	Error file display	Previous error file displa	у	
Quick	configuration	n (for single a	axes)							
Slot	Stage model	Driver mode	l Config	uration in stages	.ini	Name	APPLY &			
					Wa	irning				
		_	The pa	ge you requested needs This will res	s to kill all po et them all t	sitioner groups in ord	er to access to hardwan state.	e.		
					Do you war	nt to continue ?	OK CANCEL			
			-	-		00 0	A	-		
							00000000	A CURA		
			0.0	0.0.0	à.	0.0.0000000				
		33					551		1	
30			2 .	1.1	3	and the second second				
2				İ İ	i .	1	100			
Motion	Controller	/ Driver -)	(PS-RL	-				©2015 Newport	Corporation. All rights	reserved.

If you want to continue, click the "**OK**" button and the following page appears:

	http://192.168.	254.254					<mark>s</mark> 0 =
	ewport.	System S	Stages Controller F	iles Front panel	Terminal	Data acquisition	[Administrator logout
wiek	Experience Solutions	Default configur	ation Quick configuration	Manual configuration	Error file display	Previous error file display	у
Slot	Stage model	Driver model	Configuration in stages.ini	i Name			
1	Unknown	XPS-DRV01		▼ Not used			
2	RV120PP	XPS-DRV01		Not used			
3	BGS50PP	XPS-DRV01		Not used	REBOOT		
4	LTA-HS	XPS-DRV01	RV@RV120PP@XPS-DRV01	Not used			
						A 200 	
0	000						

Check, if all connected stages are recognized by the system under Stage model. Use the drop down menu to select the stage configuration for the selected axis. The drop down menu lists stage configuration(s) available from the stages.ini file stored on the XPS-RL controller. To add stage parameters to the stages.ini file click on "**Stages**" then click "**Add, remove or edit stages**".

If all stages are recognized and after selecting the stage parameters, click "APPLY & **REBOOT**" and the following page appears:



To configure the XPS-RL click "**PROCEED**". The controller reboots and the Login screen appears (this may take about 50 seconds).

When the controller has finished booting, Login, select "**Front panel**", and then select "**Move**". The following screen appears:



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 position value in the "Absolute move 1" field and click "GO". The stage moves to this absolute position.

Your system is now ready to use. For more advanced functions, please read the XPS-RL User's Manual.

NOTE

In "Quick-configuration" the default group type is SingleAxis. To set the positioners to a different group type, use "Manual configuration".

2.6.3 Manual Configuration for Newport Positioners

Manual configuration provides users access to all capabilities of the XPS-RL controller.

For manual configuration, users first need to build the stage data base using the web tool "**Add, remove or edit stages**" under the main tab "**Stages**". When adding a new stage from this web tool, the controller copies the parameters from its internal database (which contains parameters for all Newport stages) and stores these parameters in a file called stages.ini. Hence, the stages.ini file contains the parameters for only a subset of stages as defined by the user. Users can assign any name for their stages. The default name is the Newport part number, but in some cases it makes sense to use a different name. This way, for instance, it is possible to add the same set of parameters several times in the stage data base under different stage names. Later, you can modify certain parameters, like travel ranges or PID settings, to optimize the stage for different applications.

All stage parameters can be modified using the Web Tool "Add, remove or edit stages" under the main tab "Stages". Click on a stage to duplicate, rename, modify or delete it. Another Web Tool for modifying stage parameter can be found under "Files" \rightarrow "Configuration files" using the text editor (see chapter 4.31 of the User's Manual for details). Alternatively, the stage parameters can be modified directly in the stages.ini file using a text editor. The stages.ini file is located in the Config folder of the XPS-RL controller. This folder is accessible via ftp.

When all stages are added to the stages.ini file, build the system using the web tool "Manual Configuration" under the main tab "System". In this tool, the stages get assigned to positioners and the positioners get assigned to motion groups. Please refer to chapter 6.3 (in the XPS-RL User's Manual) for details on the different motion groups and their specific features. The group name and positioner name can be any user given name. Once the system has been built, all system information is stored in a file called system.ini. Also, the system.ini file is located in the Config folder of the XPS-RL controller and can be viewed or edited from the Web Tool text editor under "Files" \rightarrow "Configuration files".

The following describes the different steps needed to add a stage, to modify the stage parameters and to build a manual configuration. Chapter 4.0 in the XPS-RL User's Manual provides further information about some of the steps described here.

Once you are logged in as Administrator, click on "Stages" and then click on "Add, remove or edit stages".

- XPS-RL - Add, remove or C X ← → C 🗋 http://192.168.254.254 **6 0 =** Stages Controller Front panel Terminal System Files Data acquisition Documentation Newport, Add, remove or edit stages Create custom stages Tuning Add, remove or edit stages In this page, the administrators can configure the stage configurations that will be selectable when building the controller configuration for each RESTART APPLICATION Stages already in stages.ini (0) Stages in StageDataBase (598) Click on a stage family to browse the list of stage configure Click on a stage to duplicate, rename, modify or delete it. ns in it. BGM BGS CMA DUMMY GTS FMS ILS IMS LTA MFA MTM MTN NPA NPM NPC NPX) NPXYZ PSN URS UZN UZS Motion Controller / Driver - XPS-RI
- 1. The following screen appears:

- 2. Click on the family name from the Stages in StageDataBase list and a pop up window appears.
- 3. Click the part number corresponding to your hardware.
- 4. Select the driver (corresponding to your hardware) and configuration.

For all continuous rotation stages, you can choose between a "regular" stage configuration and a "Spindle" configuration. A Spindle is a specific rotary device (no indexing) with a periodic position reset at 360° (by default), meaning 360° equals 0°. When defining the stage as Spindle in the stages.ini, you must assign this stage also to a Spindle group in the system configuration and vice versa. For details about Spindles, please refer to section 6.3 in the XPS-RL User's Manual.

For some stages, you can choose between "regular" initialization or LMI (Large Move Initialization). The LMI method produces a larger movement of the stage for commutation and could be used if "regular" initialization fails.

5. The box "Use ESP Compatibility for Hardware detection" is checked by default. If your stage has an ESP chip inside (see the ESP-compatible sticker on the stage) this box should remain checked. Otherwise, with vacuum compatible stages or with old Newport stages, or with non-Newport stages, uncheck this box.

6. Click on "ADD" to add the stage to the stages.ini file.

Once all stages have been added to the stages.ini file, you can review or modify these parameters from the screen "Add, remove or edit stages" under the main tab "Stages" by clicking on the stage name icon. A pop up windows appears which allows the user to make changes.

NOTE

From this screen, you have access to all stage parameters. Only experienced users should modify these parameters. For the exact meaning of the different parameters, please refer to Appendix F: "Configuration Wizard" in the XPS-RL User's Manual.

7. When all stages have been added to the stages.ini file, click on "Manual configuration" under "System". The following screen appears:

	5.254.254							S (
Newport,	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	(Administrato
Experience Solutions	Default confi	guration (Quick configuration	Manua	▼ I configuration	Error file display	Previous error file displa	ау
Manual configurat	ion							
n this page you can configur	e positioners and p	ositioner groups	for each supported po	sitioner group	o family. You can also	configure a boot scrip	t to be run at system startup.	
Vhen you're satisfied with th	e system configura	ation, click the A	pply and reboot butb	on to apply y	our changes and rest	art the controller.		
Boot script (option	nal)							
Group families								
🛨 Single axis group	s (0 defined)							
🛨 Spindle groups (() defined)							
+ XY axes groups (0 defined)							
XY7 axes groups	(0 defined)							
Multiple avec gro	une (0 dofinod)							
in manupic axes gro	ups (o defined)							
_								
CLEAR CONFIGURATION	APPL	Y AND REBOO	-					
CLEAR CONFIGURATION	APPL	Y AND REBOO			(D) (A 100)			
CLEAR CONFIGURATION	M APPL	Y AND REBOO			New system.ini			
CLEAR CONFIGURATION	nd edit	Y AND REBOO	T M Wed, 21 Oct 2015 17	:09:06 GMT =	New system.ini	manual configuratio	n by Administrator on Med, 23	1 Oct 2015 18:33:14 GMT
CLEAR CONFIGURATION	nnd edit)	Y AND REBOO	T N Wed, 21 Oct 2015 17	:09:06 GMT 4	New system.ini ; ====================================	manual configuratic	n by Administrator on Hed, 23	1 Oct 2015 18:33:14 GMT
CLEAR CONFIGURATION	M APPI	Y AND REBOO	n ked, 21 Oct 2015 17	:09:06 GMT :	New system.ini ; arrange from ; arrange from ; arrange from ; arrange from the form	manual.configuratio	n by Administrator on Ned, 23	1 Oct 2015 18:33:14 GvT
CLEAR CONFIGURATION Current system.ini [htt = Generated from quick or GENERAL] GOTSCriptFileName - oorScriptFileName -	M APPL	Y AND REBOO	T N Hee, 22 Oct 2015 17	:09:06 GHT :	New system.ini ; = Generated from ; = Generated from ; = Generated [General] BootScriptFileName BootScriptFargument;	manual configuratic starting to the starting of the starting o	n by Administrator on Med, 23	1 oct 2015 18:33-14 orr
CLEAR CONFIGURATION Current system.ini [https://www.configuration.com/ # Generated from quick or Generated from quick or costscriptileName - optiscriptileName - optiscriptileName - geouptis]	M APPL md edit)	Y AND REBOO	n keç, 21 Oct 2015 17	:09:06 GHT =	New system.ini ; denerated from ; denerated from ; denerated from (GENERAL) BootScriptFileName BootScriptFileName (GENUPS)	nanusi configuratio	n by Administrator on Med. 21	1 oct 2015 18:33:14 (9)T
CLEAR CONFIGURATION Current system.ini [hz Generated from quick or Generated from quick or Generated from quick or Generation of the system Gours] ingestatione - Groups, (ingestatione - Groups, (M APPL and edit)	Y AND REBOO	n ked. 21 Oct 2015 17	:09:06 GMT #	New system.ini 5, == Generated from 5, == Generated from 1 GENERALJ BootScriptFileName BootScriptArgument GEROUPS] SingloAkSISNUs - SingloAkSISNUs -	nausi, configurati nausi, configurati nausi ana sa	by Assistant on Med, 21	1 Oct 2015 18:33:14 Grff
CLEAR CONFIGURATION Current system.ini [he second system.ini [he second system.ini [he second system] GENERAL]	nd edit)	Y AND REBOO	n Hee, 23 Ger 2015 17	:09:06 GHT f	New system.ini ; = Gerepated from ; = setterated from ; = setterated soci5criptFileName BootScriptArgument (GROUPS) SingleAvisInUse = SaindleInUse = SaindleInUse = SaindleInUse =	negual, configuratio	n by Administrator on Med, 23	0 Oct 2015 18:33:34 OFT
CLEAR CONFIGURATION Current system.ini [ht Generated from pulst or construction of the system construction of the system optimization of the system sindartance = Vizing = Vizing = Vizing =	nd edit)	Y AND REBOO	n kee, 21 OCT 2015 17	:09:06 GHT #	New system.ini ; = defeated foom ; = defeated foom ; = defeated foom social system in the system BootScript&gument (BROUPS) SignleAtSITUUSe = SystemContext X/ITUUSe = N/LTUPSe = The system Strate system in the system N/LTUPSe system in the system System in the system in the system N/LTUPSe system in the system in the system N/LTUPSe system in the system in the system in the system N/LTUPSe system in the system in the system in the system System in the system i		n by Assistativetor on Med, 23	

8. Click on one of the "Group families".

For example, if you are setting up two ILS stages, you can set them up as two "Single axis groups", one "XY axes groups" or one or two "Muliple axes groups".

9. Click on "Create a new group" and the following pop up window appears:

C nttp://192.168.254.	254						S (Administrati
Newport, S	ystem Stages C	ontroll	er Files	Front panel Te	rminal Data	acquisition	Documentation
Experience Solutions	fault configuration Quick	configur	ation Manual	configuration Error fi	ile display Previ	ous error file disp	lay
nual configuration							
nis page you can configure posi*1	lanars and noritionar arouns for as	ich cunnor	ted positioner group	familiu. You can alea conflour	a a boat corint to bo nu	a at system startup.	
n you're satisfied with the sys		C	reate a new	XY axes group			
Boot script (optional)							
Group families	Grou	p name:	XY1				
🛨 Single axis groups (0	Initialization se	equence:	Together	•			
🛨 Spindle groups (0 def	X ma	apping		Y ma	apping		
XY axes groups (0 def	File name:			File name:			
	Line number:	0		Line number:	0		
	Column number:	0		Column number:	0		
Create a new group	Max position error:	0		Max position error:	0		
(Case)	X pos	itioner		Y pos	sitioner		
🛨 XYZ axes groups (0 de	X positioner name:	PosX		Y positioner name:	PosY	- 11	
🛨 Multiple axes groups (Slot:	1	۲	Slot:	1	•	
	Stage:		٣	Stage:		•	
LEAR CONFIGURATION	Use a 2nd positioner			Use a 2nd positioner		100	
					OK CAL	NCEL	· · · · · ////
rent system.ini [hand c						1.0	
	***********		*******		*********	**********	******
Generated from quick configur	ration by Administrator on Wed,	21 Oct 2	815 17:09:06 GMT #	# Generated from manual of annual of annual statements and annual statements annual s	configuration by Admi	nistrator on Wed,	21 Oct 2015 18:33:14 GMI
JERAL]				GENERAL)			
ScriptEileName =		in :	0 0	BootScriptFileName =	19		
ScriptArguments =				SootScriptArguments =			

10. Enter the group name as well as the positioner names.

Any group name and any positioner name can be used. In this example the group name is TRB_XY and the X positioner name is TRB25_X. The home sequence can be either "**Together**" or "**X then Y**".

The other fields refer to the error compensation (mapping) of the XPS-RL controller, see chapter 10.0 for details. For the first configuration, don't enter anything in these fields.

11. Enter the appropriate Slot number. The Slot number is the axis number where the stage is physically connected to the XPS-RL controller. Looking at the rear of the controller, plug number 1 is the first plug on the left and the number increases to the right.

Years into you you gan on the property of the contract of the contract of the contract of the property of the contract of the c) Newport,	System Stages C	ontroller	Files	Front panel Te	rminal Data a	cquisition	Docume	ntation
Anual configuration the page you can configure poor The can be determined and the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the manufacture areas frame. And can be determined at the determined at the determined at the determined areas frame. And can be determined at the determined at	Experience Solutions	Default configuration Quick	configurati	ion Manual (configuration Error fi	le display Previou:	s error file displa	ıy	
the page you can configure pool have and additionance for a land of a difference and a factor and a difference and a differen	lanual configuratio	n							
Here wave satisfied with the system. Fill (optional) Boot script (optional) Group families Single axis groups (o) Single axis groups (o) Y axes groups (o) Y axes groups (o) Create a new group Y axes groups (o) Wutbje axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y axes groups (o) Y boitoner name: D clumn number: O clumn number: O clumn number: Stor: 1 ax positioner name: REST Stor: Stor: Stor: <	this page you can configure p	ogitionare and notitionar around for as	ich cunnorter	I nositionar aroun t	amily. You can also configure	a a host corint to be run at	evetam etartup.		
Boot script (optional) Group families Group name: TRB_X' Single axis groups (0 File name: Cube number: Cube	hen you're satisfied with the s	vsl	Cr	eate a new)	(Y axes group				
Stroup families Group name: TR8_XV Single axis groups (0 de Spindle groups (0 de Greate a new group Create a new group Create a new group Create a new groups (0 de Spindle gro	Boot script (optional)			ti antee group				
Single axis groups (0 der Spindle groups (0 der X races groups (0 der Create a new group Create a new group Create a new group Max position error: 0 Max position error: 0 X positioner name: TR25_X Stot: 1 Stot: 1 Stape: TRB@TRB25CC@* Use a 2nd positioner CLEAR CONFIGURATION E Gewarded from sefull2 configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 1432110 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 143211 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 143211 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 143210 00T # 1 4 Gewarded from menual configuration by Administrater on Thu, 22 Oct 2015 143210 00T # 1 4 Gewarded from menual configuration by Administrater on Thu for the form form form form form form form form	Group families	Grou	p name:	TRB XY					
Spindle groups (0 def X races groups (0 def X races groups (0 def Strakes groups (0 def Max position error: 0 Currante a new group Max position error: 0 X races groups (0 def Multiple axes groups Max position error: 0 X positioner name: m225_X Stot: 1 Stot: 1 Stage: TRB@TRB2CC@T Use a 2nd positioner Currant system.int [hand.	 Single axis groups (0 Initialization se	equence:	Together	•		- 11		
X races groups (0 de X races groups (0 de Create a new group Create a new group File name: 0 Image: 0 X races groups (0 de X races groups (0 de Max position error: 0 X positioner Y positioner X races groups (0 de Max position error: 0 X positioner Y positioner X positioner name: TR25_X Y positioner Y positioner X positioner name: TR25_X Stot: 1 Stot: 2 Stot: 1 Stage: TREGTRB25CCG Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner Image: Trace tr	+ Spindle groups (0 d	ef X ma	opping		V ma	opping	-		
His fame: His fame: Line number: 0 Create a new group Column number: Max position error: 0 Max position error: 0 Multiple axes groups () d X positioner Y positioner name: TR25_X Stot: 1 Stot: 1 Stot: 1 Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner It demarated from senal: ctract from senal: configuration by Addinistration on Thu, 22 Oct 2015 51431010 Off a demarated from senal: sterarted from senal: configuration by Addinistration on Thu, 22 Oct 2015 51431010 Off a demarated from senal: sterarted from senal: configuration by Addinistration on Thu, 22 Oct 2015 14321010 Off a demarated from senal: sterarted from senal: configuration by Addinistration on Thu, 22 Oct 2015 14321010 Off a demarated from senal: sterarted from senal: configuration by Addinistration on Thu, 22 Oct 2015 1432110 Off a demarated from senal: sterarted from senal: configuration by Addinistration on Thu, 22 Oct 2015 1432110 Off a demarated from senal: sterarted from senal: configuration by Addinistration on Thu, 22 Oct 2015 1432110 Off a demarated from senal:	XY axes groups (0 d	ef et	apping			apping			
Line number: 0 Create a new group	0	File name:			File hame:	-			
Create a new group Wax positioner error: 0 Max positioner error: 0 Column number: 0 Max positioner error: 0 Max positioner error: 0 Max positioner error: 0 Column error: 0 Max positioner error: 0 Column error: 0 Stage: TRB0TRB25CC@ Use a 2nd positioner Column error: 0 Column error: 0	(****)	Line number:	0		Line number:	0			
Create a new group Max position error: 0 Max position error: 0 Wax position error: 0 X positioner Y positioner Y positioner X positioner name: TR25_X Y positioner Multiple axes groups Sidt: 1 • Multiple axes groups Sidt: 1 • Sidt: 1 • Sidt: 0 Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner Reserated from default configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by Addinistrator on Thu, 22 Oct 2015 14/32/16 OTF ; 1 d centrated from nemal configuration by A		Column number:	0		Column number:	0			
X 72 axes groups (0 d) X positioner name: Y positioner name: Y positioner name: RB25_X Multiple axes groups X positioner name: Im225_X Y positioner name: RB25_Y Side: 1 • Side: 2 • Side: 1 • Side: 2 • Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner • arrent system.inii [httd: • • • • tenerated from defails configuration by Addinistrater in Thu, 22 Oct 2015 143201 00 TF is • • • tenerated from defails configuration by Addinistrater in Thu, 22 Oct 2015 143201 00 TF is • • • tenerated from defails configuration by Addinistrater in Thu, 22 Oct 2015 143201 00 TF is • • • tenerated from defails configuration by Addinistrater in Thu, 22 Oct 2015 143202 00 Tenerated from nameal configuration by Addinistrater on Thu, 22 Oct 2015 143202 00 Tenerated from defails tenerated from defails tenerated from defails tenerated from nameal configuration by Addinistrater on Thu, 22 Oct 2015 143202 00 Tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from defails tenerated from	Create a new group	Max position error:	0		Max position error:	0			
X7 2 axes proups (u a X positioner name: TH225_X V positioner name: TH225_Y Stot: 1 Stot: 1 Stot: 2		X pos	itioner		Y pos	sitioner			
Multiple axes groups Slot: Slope: Sl	XYZ axes groups (0	X positioner name:	TRB25_X		Y positioner name:	TRB25_Y			
CLEAR CONFIGURATION Stage: TRB@TRB25CC@ Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner CK CANCEL CK CANCEL CK CANCEL CK CANCEL CK CANCEL CK CANCEL CK CANCEL CK CK CK CK CK CK CK CK CK CK CK CK CK	Hultiple axes group	Slot:	1	٠	Slot:	2 *			
CLEAR CONFIGURATION Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner Use a 2nd positioner CANCEL CAN		Stage:	TRB@TR	B25CC@▼	Stage:	TRB@TRB25CC@ •			
orcent system.ini [hand. CANCEL @ enerated from default configuration by Administrator on Thu, 22 Oct 2015 14:33:18 Off # : 4 Generated from nemail configuration by Administrator on Thu, 22 Oct 2015 14:37:07:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Administrator on Thu, 22 Oct 2015 14:37:07 (default) intervention by Adminintervention by Administrator on Thu, 22 Oct 2015 14:37:0	CLEAR CONFIGURATION	Use a 2nd positioner			Use a 2nd positioner				
urrent system.ini [hand. * Generated from effeils configuration by Addinistrator on Thu, 22 Oct 2015 14:33:10 OTT *, * 6 Generated from enval configuration by Addinistrator on Thu, 22 Oct 2015 14:27:102 OF DIRAL] Storight Inter = Contract Inter = (Storight Inter =)		1				OK CANCE	L R		
e demonsted from default configuration by Administrator on Thu, 22 Oct 2015 14:33:18 Off # 4 demonsted from newalt configuration by Administrator on Thu, 22 Oct 2015 14:37:02 O	urrent system.ini [<u>hand</u>	<u>L (</u>						000	
a elementer frem element consportation dy Administration en huy 20 oct dus 1435120 off - oceanized menter frem elements consportation by Parimeter and the constant of the second s		erennesseeren anderen anderen an Th		ALE 14.22.18 CMT	. ;		istrator on Thu		
IENERAL] botšcriptilellane = Bootšcriptilellane =									
DotScriptFileName = BootScriptFileName =	ENERAL]				[GENERAL]				
botScriptArguments = BootScriptArguments =	otScriptFileName = = = = = = = = = = = = = = = = = = =		à 2		BootScriptFileName = BootScriptArguments =	12			
	tion Controllor /	Driver - YPS-PI					©2015 Newport	Corporation. All	rights reser

12. Select the Stage Name from the list of stages. These stage names refer to the stages defined with the Web Tool "Stage Management".

13. Click on "**OK**" to return to the initial screen.

🐼 XPS-RL - Manual configur 🗙 🔪								
- → C http://192.168	.254.254							60
Newport,	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	[Administrator lo
Experience Solutions	Default confi	iguration	Quick configuration	Manua	I configuration	Error file display	Previous error file disp	olay
Manual configuration	on							
In this page you can configure	positioners and p	ositioner group	for each supported po	sitioner grou	p family. You can also	configure a boot scri	pt to be run at system startup	
When you're satisfied with the	system configura	ation, click the /	pply and reboot butt	on to apply y	our changes and res	tart the controller.		
Boot script (option	al)							
Group families								
 Single axis groups 	(0 defined)							
+ Spindle groups (0	defined)							
XY axes groups (1	defined)							
TRB_XT TRB@TRB200C@VP5-DRVD TRB@TRB200C@VP5-DRVD XYZ axes groups (Multiple axes group	Y 1. slot 1 (TRB25_X) 1. slot 2 (TRB25_Y) 0 defined) ups (0 defined)	Create a ne) w group		Dr. Ann	Å 000	Annual Annua	
CLEAR CONFIGURATION	APPI	Y AND REBOO			New system.i	ni 👫 🕵		
; # Generated from default	configuration by	Administrator	on Thu, 22 Oct 2015	14:33:18 GM	T #; # Generated fr	om manual configura	tion by Administrator on Thu	, 22 Oct 2015 16:40:34 GMT
[GENERAL] BootScriptFileName =			ÌÌÌ	à	(GENERAL) BootScriptFileNa	me =		
Notion Controller	/ Driver -	XPS-RI			for ford the second		©2015 Newpo	rt Corporation. All rights resen

14. Continue the same way with the other motion groups.

15. When done, click on **"APPLY AND REBOOT**" to complete the system configuration. The controller re-boots and the following message appears:

🖉 🐼 XPS-RL - Manual configur 🗙 🔪								
← → C http://192.168.2	254.254							<mark>6</mark> 0 ≡
Newport.	System	Stages	Controller	Files	Front panel	Terminal	Data acquisition	[Administrator logout]
Experience Solutions	Default confi	guration	Quick configuration	Manua	al configuration	Error file display	Previous error file displa	у
Manual configuratio	n							Â
In this page you can configure a	ositioners and n	ositioner group	for each supported pos	itioner grou	in family. You can also	configure a boot sorin	to he run at system startun	
When you're satisfied with the	system configura	ation, click the	apply and reboot butto	on to apply y	your changes and rest	art the controller.	to be full at system startup.	
 Boot script (optional 	1)							
Group families								
 Single axis groups 	(0 defined)							
🛨 Spindle groups (0 d	lefined)							
XY axes groups (1)	defined)			_			-	
			Co	nfirmati	ion requested			
0		П	ne current system.ini f Are	ile will be ov you sure yo	verwritten, and the co ou want to proceed ?	ntroller will reboot !		
TRB_TRB25CC@XPS-DRV01 TRB@TRB25CC@XPS-DRV01	slot 1 (TRB25_X) slot 2 (TRB25_Y)	Crea			PROCEED	CANCEL		
 XYZ axes groups (0 	defined)							
🛃 Multiple axes group	os (0 defined)		O manual O				A 3000	
CLEAR CONFIGURATION	APPL	Y AND REBOO	0.00					
					(0)P 1+2			
Current system.ini [han	d edit]	20			New system.i	ni 🕈 🖾 I	1 -	
;								*******
; ####################################	HALFORNESS OF DA	AUNINISCRACO		14+955910 Gr	an +; + Generated +r	unandal configurat.		
[GENERAL] BootScriptFileName =			Î	i .	[GENERAL] BootScriptFileNa			
Motion Controller	/ Driver -	XPS-RI					©2015 Newport	Corporation. All rights reserved.

Click on "PROCEED".

When the controller has finished booting (this may take about 50 seconds), you are redirected to the login page. Login then select "**Front panel**", then select "**Move**". The following screen appears (Group names will be different according to your definition):



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 is "DISABLE". Enter an allowed position value in the "Absolute move 1" field and click "GO". The stage moves to this absolute position.

Your system is now ready to use. For more advanced functions, please read the rest of this manual.

2.6.4 Manual Configuration for non Newport stages

To configure the XPS-RL controller to stages or positioning devices not made by Newport, use the tool "**Create custom stages**" under the main tab "**Stages**". For detailed information about this tool, please refer to Appendix F: "Configuration Wizard" in the XPS-RL User's Manual.

2.7 System Shut-Down

To shut down the system entirely, perform the following procedure:

Wait for the stage(s) to complete their moves and come to a stop.

Turn off the power using the power switch located above the power cord at the back of the controller.

3.0 XPS-RL Controller/Driver Documentation

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

The User's Manual & Motion Tutorial

This book contains the majority of the information about the XPS-RL system. This reference manual also provides an exhaustive overview of the XPS-RL architecture, and a complete description of its features and capabilities. It contains the following sections:

- System overview (Hardware, front and rear panels descriptions, Ethernet connection, programming).
- Getting started guide (unpacking, inspection, system set up, connection, configuration).
- Software tools description (web site interface).
- FTP (File Transfer Protocol) Connection.
- Maintenance and service (cleaning, service, troubleshooting).
- Explanations of XPS-RL architecture (state diagrams, motion groups, units).
- Motion modes (move, jog, master slave, analog tracking).
- Trajectories (line-arc, splines, PVT, PT, conventions, mathematical explanations).
- Compensation (backlash, linear error correction, positioner/XY/XYZ mapping).
- Event triggers (event, actions, examples).
- Data gathering (internal and external).
- Triggers (position compare output, position capture).
- Control loops (XPS-RL servo loops, filtering and limitation, feed forward loops and servo tuning).
- Analog encoder calibration.
- Introduction to XPS-RL Programming.
- Appendices: hardware, general I/O description, power inhibit connector, GPIO connectors, PCO connector, motor driver boards pinning diagrams, and analog encoder connector.

The Programmer's Manual

This book is the general programmer's guide for the experienced user. It provides explanations of all functions and a list of all API's with complete syntax (TCL and DLL prototypes), parameters, errors, and short descriptions. It refers to the motion tutorial for more thorough explanations on some features. It details:

- TCP/IP communication explanations and functions.
- Firmware features and list of API's by groups: General features, Positioners, Single Axis groups, XY groups, XYZ groups, Multiple Axes groups, analog and digital I/O's, gathering, events and actions, TCL programming, version).
- Examples of motion processes.

The Software Drivers Manual

This book provides all information about software tools and drivers shipped with the XPS-RL:

- . NET assemblies (32 & 64 bits).
- Examples for common languages.

Downloading Documentation

In order to provide user's access to the most actual documentation, the User's Manual, Programmer's Manual, and the Software Drivers Manual are only supplied as software copies. They can get accessed from the XPS web site:

- 1. Follow directions on Section 2.5: Connecting to the XPS-RL
- 2. After logging in, click on the "Documentation" tab

Service Form

Your Local Representative

Tel.:	
Fax:	

Name: Return authorization #: (Please obtain prior to return of item) Company:___ Address: Date: _ Phone Number: Country:_ Fax 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

