

LiNX Access PC

Programming and diagnostic tool





LiNX Access PC GBK54033 Issue 12 Apr 2024

Page left blank intentionally

1 Welcome

1.1 Introduction	2
1.2 Using this manual	2
1.3 Important information	2
1.4 Copyright, trademarks and acknowledgements	2
1.5 Contents	4
1.5.1 Contents Overview	4
1.5.2 Contents Detailed	5
1.6 Glossary	8

Welcome





1.1 Introduction

Welcome to the LiNX Access PC tool user manual. The LiNX Access PC tool is an application for Windows PCs and laptops, and is used for:

- configuring the Dynamic Controls range of LiNX wheelchair controllers
- viewing real-time and historical diagnostic information

1.2 Using this manual

This manual will help you to understand, install, and use the LiNX Access PC tool.

This manual uses the following information boxes to convey important and useful information:

🛕 Warning

Warnings provide important information that must be followed in order to install, configure, and use the product safely and efficiently. Not following the instructions given in a warning can potentially lead to equipment failure, damage to surrounding property, injury or death.

🗾 Note

Notes provide supporting information in order to install, configure, and use the product. Not following the instructions given in notes or precautions can lead to equipment failure.

🚺 See also

The "See also" box provides cross-references to help you navigate the installation manual more easily.

1.3 Important information

Due to a policy of continuous product improvement, Dynamic Controls reserves the right to update this product and manual without notice. This issue of the manual supersedes all previous issues. Previous issues must not be used.

The latest version of this manual can be downloaded from Dynamic Controls' website at *www.dynamiccontrols.com*

1.4 Copyright, trademarks and acknowledgements

Dynamic Controls, the Dynamic logo and the LiNX logo are trademarks of Dynamic Controls. All other brand and product names, fonts, and company names and logos are trademarks or registered trademarks of their respective companies. Dynamic Controls owns and will retain all trademark rights; and Dynamic Controls or its licensors own and will retain all copyright, trade secret and other proprietary rights, in and to the documentation.

All materials contained within this manual, in printed or electronic format, are protected by copyright laws and other intellectual property laws.

iPhone, iPod touch, iPad and iTunes are trademarks of Apple Inc., registered in the U.S. and other countries.

The Bluetooth[®] word, mark, and logos are registered trademarks owned by Bluetooth[®] SIG, Inc., and any use of such marks by Dynamic Controls is under license.

© Copyright 2013–2024 Dynamic Controls. All rights reserved



1.5 Contents

1.5.1 Contents Overview

1 Welcome	1
2 Introduction to the LiNX Access PC tool	11
3 Installation	13
4 A tour of the LiNX Access PC tool	19
5 How to	35
6 Index	85

1.5.2 Contents Detailed

1 Welcome	1
1.1 Introduction	2
1.2 Using this manual	2
1.3 Important information	2
1.4 Copyright, trademarks and acknowledgements	2
1.5 Contents	4
1.5.1 Contents Overview	4
1.5.2 Contents Detailed	5
1.6 Glossary	8
2 Introduction to the LiNX Access PC tool	11
2.1 What it does	
2.2 Features	
2.3 Version information	12
2.3.1 The LiNX Access PC tool	12
2.3.2 LiNX Systems	12
3 Installation	
3.1 System requirements	14
3.2 Installing the software	14
3.3 Checking and getting the latest version	16
3.4 The LiNX Access Key	17
3.5 Using Bluetooth on a computer	18
3.5.1 Using built-in Bluetooth	18
3.5.2 Using an external USB Bluetooth adaptor	18
4 A tour of the LiNX Access PC tool	19
4.1 Programming contexts	20
4.1.1 Viewing the contexts	20
4.2 Modifying a program	20
4.2.1 Live edit	20
4.2.2 Bulk edit	21
4.2.3 Working with live edit and bulk edit	22
4.3 Screens, screen bars and menus	23
4.3.1 Screen layout overview	23
4.3.2 Menu bar	24
4.3.3 Tab bar	25
4.3.4 Toolbar	26
4.3.5 Context tab mode	29
4.3.6 Primary and secondary navigation sidebars	30
4.3.7 Filter parameters box	
4.3.8 Main content area	31
4.3.9 Utility screens	31
5 How to	35
5.1 Open the LiNX Access PC tool	37
5.2 Select the context	38
5.3 Connection context tasks	39

5.3.1 Connect to a wheelchair	
5.3.2 Modify a program	
5.3.3 Write a program to a wheelchair	
5.3.4 Read a program from a wheelchair	
5.3.5 Save a program as a file	
5.3.6 Authorise computer (store the Access Level Certificate)	
5.3.7 Manage chair configurations	
5.3.8 Disconnect from a wheelchair	
5.3.9 Tune the gyro	
5.3.10 Tune adaptive load compensation (ALC)	
5.3.11 Calibrate sip and puff	
5.3.12 Joystick shaping	
5.3.13 Update memory positions	
5.4 File context tasks	
5.4.1 Open a file	
5.4.2 Modify a file	
5.4.3 Save a file	
5.4.4 Read a program from a wheelchair	
5.4.5 Write a program to a wheelchair	
5.4.6 Close a file	
5.4.7 Remove a file from the file list	
5.5 Common tasks	
5.5.1 Edit and modify parameters	
5.5.2 Profile and function actions	
5.5.3 Add and remove components	
5.5.4 Change the system and program name	
5.5.5 View system information	
5.5.6 View the system summary	
5.5.7 View the error and event logs	
5.5.8 View statistics	
5.5.9 Searching	
5.6 Configure control inputs and outputs (control IO)	
5.6.1 Select and configure an input	
5.6.2 Configure an always rule	
5.6.3 Configure a conditional rule	
5.6.4 Configure advanced settings	
5.7 Configure memory positions	
5.7.1 Overview	
5.7.2 Step 1 - Install modules	
5.7.3 Step 2 - Create servos	
5.7.4 Step 3 - Create memory position	
5.7.5 Step 4a - Configure a control input	
5.7.6 Step 4b - Configure seating function	
5.8 Tool utilities	
5.8.1 Configure Internet settings	
5	

5.8.2 Set friendly name	76
5.8.3 Forget device	
5.8.4 Check for new version	
5.8.5 Upgrade firmware	
5.8.6 View as manufacturer or distributor	
5.9 Manage configurations and firmware with bundle files	
5.9.1 Creating a bundle file	
5.9.2 Distributing a bundle file	
5.9.3 Viewing the contents of a bundle file	
5.9.4 Programming from a bundle file	
6 Index	



1.6 Glossary

Α

Access Key

A Bluetooth programming adaptor that plugs into the XLR connector of the remote module. See also: Pairing (Bluetooth) and Connection (Bluetooth).

С

Connection (Bluetooth)

The process of linking two Bluetooth devices together each time they are within range of each other and data is about to be exchanged between them. This process occurs after the devices have paired - see Pairing (Bluetooth).

CWD

Centre wheel drive.

E

EMC

Electromagnetic compatibility.

ESD

Electrostatic discharge.

F

FWD

Front wheel drive.

I

iOS

Operating system used by portable Apple devices such as iPhone, iPad, and iPod touch.

L

LED

Light emitting diode



0

OBC

On-board charger — a battery charger that is permanently wired to the power module via the utility connector.

OEM

Original equipment manufacturer.

OON

Out Of Neutral — a safety condition to prevent: 1) the wheelchair driving if the remote module's joystick is not in the central/neutral position when the system is powered up or after a function change, or, 2) a seating motion if the seating motion's control input is in its activated state when the system is powered up or after a function change.

Ρ

P&D tools

This term refers to the programming and diagnostic tools: LiNX Access iOS and LiNX Access PC.

Pairing (Bluetooth)

Pairing is the process of establishing a connection between two Bluetooth devices (e.g. a LiNX Access Key and an iPhone or a PC) for the FIRST time. Compare "Connection (Bluetooth)".

PIN

Personal identification number.

R

RWD

Rear wheel drive.

S

S-curve processing

This describes Dynamic Controls' software processing techniques to provide the user with a smooth and controllable response when changing speed input demands. S-curve processing is responsible for all soft start acceleration/deceleration, soft finish acceleration/ deceleration, including forward, reverse and turn movements.

U

User input

A generic term to describe any input device that operates a user function such as driving or seating. This includes, but not limited to, a remote module's joystick, a switch array (such as a head array) and a buddy button.

2 Introduction to the LiNX Access PC tool

2.1 What it does	
2.2 Features	
2.3 Version information	
2.3.1 The LiNX Access PC tool	
2.3.2 LiNX Systems	

Introduction to the LiNX Access PC tool



2.1 What it does

The LiNX Access PC tool connects wirelessly to a LiNX wheelchair controller to:

- read and write control configurations
- display diagnostic information



Figure 1: LiNX Access PC tool

interface

• Intuitive, user-friendly

10m working range

- 2.2 Features
 - Move easily between wheelchair and files
 - Instant wireless programming (live edit) and diagnostics
 - Numeric, graphic and text parameter input

2.3 Version information

2.3.1 The LiNX Access PC tool

This manual has been written for the LiNX Access PC tool, version 2024.1.0 and later. For information regarding the previously released versions, please see the downloads section on the Dynamic Controls website: *www.dynamiccontrols.com*

2.3.2 LiNX Systems

The LiNX Access PC tool has been designed to support all versions of the LiNX family of wheelchair controllers.

🛕 Warning

Performance adjustments must only be made by healthcare professionals or by persons who completely understand the adjustment process and the capabilities of the wheelchair user.

Before upgrading the firmware of the system, or a module in the system, always ensure that the battery charge level is sufficient and the park brakes are not manually or electronically released.

Incorrect settings, or programming in a location that is not safe, can cause injury to the user and bystanders, or damage to the wheelchair and surrounding property.

After you have configured the wheelchair, check to make sure that it performs to the specifications entered in the programming procedure. If the wheelchair does not perform to specifications, reprogram it. Repeat this procedure until the wheelchair performs to specifications. If the wanted operation cannot be reached, contact your service agent.

Ensure that the deceleration parameters are always higher than the acceleration parameters for a safe response. It is the responsibility of the health care professional to make sure that the user is capable of both cognitively understanding and physically operating the programmed features and functions.

With inappropriate programming settings, certain features and options may not be accessible or perform as expected.

Where any inconsistencies about chair status occur between the LiNX System and that reported by a programming tool, the user should take the status as reported by the LiNX System as correct.



3 Installation

3.1 System requirements	
3.2 Installing the software	
3.3 Checking and getting the latest version	
3.4 The LiNX Access Key	
3.5 Using Bluetooth on a computer	
3.5.1 Using built-in Bluetooth	
3.5.2 Using an external USB Bluetooth adaptor .	

Installation



3.1 System requirements

To use the LiNX Access PC tool, you need a:

- copy of the tool's installation software
- LiNX wheelchair control system
- LiNX Access Key
- PC or laptop with a Bluetooth connection

The LiNX Access PC tool operates on Windows 10 64-bit, and later.

The minimum PC specifications are:

Screen resolution	1024 × 768 px
Processor	2.4 GHz Dual Core CPU
Free space on hard drive	4 GB
Memory (RAM)	2 GB
Bluetooth	3.0

3.2 Installing the software

Download the latest LiNX Access PC installer (.msi file) software from the Dynamic Controls website at *www.dynamiccontrols.com*. Double-click the downloaded installer file and follow the on-screen instructions.

Step 1-select language for installation

- 1. Select your choice of language from the drop-down box.
- 2. Click OK to continue.



Figure 2: Select the language to use during installation

Step 2-accept conditions of use

Before proceeding, read and fully understand the *Conditions of Use* and *Warnings* in this dialogue.

- 1. Select I accept.
- 2. Click Next.



Figure 3: Accept conditions of use

Step 3—select destination folder

Save the application to the suggested folder or to an alternative folder.

To save to the suggested folder, click **Next** to continue.

To save to an alternative folder:

- 1. Click **Browse** and select a different folder.
- 2. Click **Next** to continue.

Step 4—select Start Menu folder

Save the application's shortcuts to the suggested Start Menu folder or to an alternative folder.

To save to the suggested folder, click **Next** to continue.

To save to an alternative folder:

- 1. Click **Browse** and select a different folder.
- 2. Click Next to continue.



Figure 4: Destination folder screen



Figure 5: Start menu folder screen

Step 5—select additional icons and tasks

By default, a desktop icon is added for the LiNX Access PC tool, and the wheelchair program file (*.lci) is associated with the tool.

- 1. Check / uncheck the options, as required.
- 2. Click Install.

LiNX Access
Cancel

Figure 6: Select additional tasks

Step 6-finish

Click **Finish** to complete the installation.



Figure 7: Finish screen

3.3 Checking and getting the latest version

To view the installed version of the tool, click **Help | About** from the menu bar.

To get the latest version of the tool:

- click Help | Check for updates; or
- check the Dynamic Controls website at www.dynamiccontrols.com



Figure 8: About screen

🗾 Note

An Internet connection is required when checking for updates. If an Internet connection is unavailable, the following message is displayed:

Failed to check for updates. The software was unable to connect to the Internet. Please check that your network settings are correct and try again.



If your computer uses a proxy server to connect to the internet, you will need to configure your network settings—see 5.8.1 Configure Internet settings.

If Internet access is available but the LiNX Access PC tool is not able to check for updates, it is possible that your organisation's network policy does not permit connections to unapproved websites. In this case you will need to have the following URL added to your organisation's network whitelist: https://mage.dynamiccontrols.com/

3.4 The LiNX Access Key

LINX

A LiNX Access Key (LAK) is required for the LiNX Access PC tool to communicate via Bluetooth with a LiNX system. Two versions of the LiNX Access Key are available: a manufacturer version, and a distributor version. The version determines your level of access to programming functions.



Figure 9: LiNX Access Keys

- **Distributors**: Providers, dealers, therapists and wheelchair service agents (DLX-HKEY01-A (orange label in *Figure 9*))
- **Manufacturers**: OEMs and certain service agents (DLX-HKEY02-A (green label in *Figure 9*))

See *5.8.6 View as manufacturer or distributor* for further information. The key plugs directly into the remote module's XLR connector.



Figure 10: Inserting the LiNX Access Key (top: low profile remote module, middle: REM1xx, 2xx, bottom:REM400)



3.5 Using Bluetooth on a computer

You will need a Bluetooth connection to communicate between the LiNX Access PC tool and a LiNX system.

Use a computer's built-in Bluetooth function (usually found on laptops) or an external USB Bluetooth adaptor.

3.5.1 Using built-in Bluetooth

If your computer has a built-in Bluetooth module (usually, but not exclusively found on laptops), you will need to enable it. To do this:



Figure 11: Select Settings

1. Right-click on the Windows Start button and select Settings from the menu – *Figure 11*.

2. Click on **Devices** – *Figure 12*.

3. Click on Bluetooth and other devices – Figure 13.

4. Set the **Bluetooth** toggle button to On – Figure 13.



Figure 12: Click on Devices

← Settings		-)
A Home	Bluetooth & other devices		
Find a setting	Add Bluetooth or other device		
Devices			
Bluetooth & other devices	Bluetooth On		
🔓 Printers & scanners			
C Mouse	Mouse, keyboard, & pen		
Touchpad	USB Receiver		
Typing			
d ⁶ Pen & Windows Ink	Audio		
	\Box		

Figure 13: Bluetooth toggle button

3.5.2 Using an external USB Bluetooth adaptor



If your computer has no Bluetooth capability, plug an external USB Bluetooth adaptor (Figure 14) into a USB port. The Windows operating system will detect and install the appropriate drivers for the adaptor.

Figure 14: Bluetooth adaptor

Example USB DO NOT install any drivers provided with the adaptor.

4 A tour of the LiNX Access PC tool

4.1 Programming contexts	
4.1.1 Viewing the contexts	
4.2 Modifying a program	
4.2.1 Live edit	20
4.2.2 Bulk edit	21
4.2.3 Working with live edit and bulk edit	22
4.3 Screens, screen bars and menus	23
4.3.1 Screen layout overview	23
4.3.2 Menu bar	
4.3.3 Tab bar	25
4.3.4 Toolbar	
4.3.5 Context tab mode	
4.3.6 Primary and secondary navigation sidebars	
4.3.7 Filter parameters box	
4.3.8 Main content area	31
4.3.9 Utility screens	

A tour of the LiNX Access PC tool

This chapter gives an overview of the tool, what it does and how to find your way around it.

4.1 Programming contexts

The LiNX Access PC tool has two programming contexts:

- **Connection context**: access and program a system while directly connected to the LiNX system on a wheelchair
- File context: access and edit a program stored as a file on your device

4.1.1 Viewing the contexts

The LiNX Access PC tool uses tabs to display the contexts:

- The connection context is always under the left-most tab
- All other tabs (to the right of the connection tab) are used for files

To switch between connection context and file context, simply click the appropriate tab.



Figure 15: Tab bar with connection and file contexts

4.2 Modifying a program

Programs can be modified in one of two modes:

- Live edit
- Bulk edit

They define when parameters are written to the wheelchair.

4.2.1 Live edit

Live edit is available in the connection context only — that is, when connected to a wheelchair.

Live edit writes and applies parameter changes immediately to the wheelchair as you enter them. This is useful for quickly setting up and testing.



When in live edit, only live edit parameters can be edited. Live edit parameters are identified by a circular icon next to the parameter name.

When a live edit parameter is edited the icon momentarily changes to a filled circle to indicate it has been updated.



Figure 16: Live edit parameter change indication

🛕 Warning

LINX

In live edit, changes to parameters take immediate effect, changing the wheelchair's performance immediately.

Warning

There is no function to undo a change in live edit. Save a copy of the existing program before live editing to enable you to restore settings if required.

4.2.2 Bulk edit

Bulk edit is available in connection context and file context.

In bulk edit, all parameters are editable but none are written to the wheelchair immediately. They are written to the wheelchair when the Write function is selected.

In file context, all parameters are bulk edit parameters.

In connection context, bulk edit parameters are identified by a blue background and must be unlocked to be editable.

You can unlock bulk edit in one of three ways:

1. Click on the **Unlock** button located at the top-left of the screen – *Figure* 17.



Figure 17: Unlocking bulk edit #1

- 2. Open any bulk edit parameter and click **Unlock** *Figure 18*.
- 3. Use the keyboard shortcut **Ctrl + B**.





Figure 18: Unlocking bulk edit #2

After clicking Unlock, the LiNX Access PC tool switches over from live edit to bulk edit, and all parameters become editable.

When a parameter is modified in bulk edit, its background colour changes to yellow. The yellow background reverts to white when you write it to the wheelchair or save the file.

Gyro Enabled Drive Fu	P On 🗸	
Default Off		
Sets whether signals from enhanced stability contro	Gyro Enabled Drive Fu	Off ×
	Default Off	
	Sets whether signals from the gyro modul enhanced stability control for the wheelch	e are used to provide air in this drive function.

Figure 19: Bulk edit parameter change indication

4.2.3 Working with live edit and bulk edit

By default, live edit is enabled every time the system is powered on and connected to the LiNX Access PC tool (including after a write and power cycle). The application remains in live edit until bulk edit is unlocked. When bulk edit is unlocked, the application switches to bulk edit and live edit is disabled. The application remains in bulk edit until the system is written to and power-cycled.









4.3 Screens, screen bars and menus

_	보 LiNX Access			- 🗆 X
Menu bar –	<u>File Edit Calibrate View Help</u>			
	.≓ LAK-ADS +			lab bar
Tool bar –		<program name=""> 🕺 Reset to Default 📚 Manage</program>		Ĩu °.
Context – tab	LAK-ADS System Name> Flexible Navigation ① v7.x			Main content header
Primary navigation side bar	Image: Home Image: Constructions Image: Construction of the second o	Since Durs driving O hours driving O hours driving / day Since O total battery cycles hours charging / day VEXTS System Available	system Name <system name<br="">PROGRAM NAME <program name»<br="">CONFGUERTON SUMMARY 7 Orive Functions 3 Seating Functions 6 Actuator Motions Cyro supported Lighting supported Lighting supported System Summary Forday</program></system>	- Main content
	Drive Limits Gyro Limits Lighting	Last Programmed: 23/02/2023 9-44 am (DUX+HE/Y02 A E20203279)	LA	KADS MANNACTURE
Search box –	Q Filter parameters X	First Programmed: 16/02/2023 2:18 pm (DLX-HKEY02-A E20203279)	UN	X Access PC - ES 2023.1.0.0_ES2

4.3.1 Screen layout overview



Figure 21 shows the typical layout of the LiNX Access PC tool: the primary navigation sidebar on the left, and the *main content area* on the right.

The displayed contents depend on what is selected from the primary (or secondary, if relevant) navigation bar, as shown in *Figure 22*.

For further information about the primary and secondary navigation sidebars, see *Primary and secondary navigation sidebars*.

25 LINX Access				
Eile Edit Calibrate View Help				
LAK-ADS	+			
Unlock	🔰 🦉	<program name=""> 🐉 Reset to Default</program>		
LAK-ADS <system name=""></system>		Power Module		
Flexible Navigation (1) v	7.x			
Home	Power Module	POWER MODULE - MOTORS		
Functions	REM 1xx	• Veer Compensation		
User Preferences		Right Invert		
A	REM 2xx	Left Invert		
E Chair Log	REM 4xx	Swap		
A Modules	DEM Sur	Max No Load Voltage		
Motions	REM 5XX	Current Limit		
A Positions	CR 4xx	Boost Current		
- Positions	ACII 2xx	BoostTime		
<u>x</u> ° Angle Sources		Thermal Rollback Start		
🐴 Trigger Angles	IN 200	Thermal Rollback End		
Core Features	IN 500	FET Thermal Rollback Start		
E) Daine Limite		FET Thermal Rollback End		
	001 500-1	Open Circuit Test		
Cyro Limits	GYR	Short Circuit Test		
Lighting	ACT 200-1	POWER MODULE - LOAD COMPENSATION		
		Load Compensation Profile		
	ACT 400	• Load Compensation Upper Limit		
		 Motor Resistance 		
 Filter parameters 	×	Adaptive Load Comp Enabled		
Primary	Secondary			
navigation	navigation			
side bar	side bar			





4.3.2 Menu bar

The menu bar is located at the top-left of the tool. Each menu item is described next.

<u>File Edit Calibrate View Help</u> Figure 23: Main menu

File			
Menu item	Function		
Open File	Open a program to edit		
Import Firmware	Open a dialog to select a firmware file		
Save	Save active program (as a file)		
Save As	Save active program (as a file) with a different name		
Export CSV	Export parameter settings to CSV file		
Convert Configuration	Convert current configuration to newer version		
Authorise Computer	Permit computer to edit files offline		
Create Bundle File	Create a file containing configurations and/or firmware upgrades		
Open Bundle File	View and write a bundle file		
Quit	Close the application		
Edit			
Menu item	Function		
Add Module	Add a LiNX module to your configuration		
Add Motion	Add a new motion to your configuration		
Add Position	Add a new memory position to your configuration		
Add Angle Source	Add a new angle source to your configuration		
Add Trigger Angle	Add a new trigger angle to your configuration		
Calibrate			
Menu item	Function		
Adaptive Load Compensation	Use this option to enable the system to assess the chair's motor loadings in order to give more consistent motor speed		

Sip and Puff	Use this option to calibrate the chair's sip and puff controls
Joystick shaping	Use this option to set the joystick's maximum deflection in each
	quadrant

View

Menu item	Function		
View as Manufacturer	Display settings available for OEMs (this menu item is available only to OEMs)		
View as Distributor	Display settings available for providers, dealers, therapists		

Help

Menu item	Function
Check for Updates	Check online for application updates
Internet Settings	Set proxy settings
Set Application Language	Choose language for UI
Enter Firmware Upgrade Mode	Access the <i>firmware upgrade screen</i> (It is also accessible from the System Summary button)
Support Request	Access support contact details. Automatically create log file to send to support team
About	Display application information

4.3.3 Tab bar

When a wheelchair connection or file is open, the Tab bar displays. The Tab bar lets you open and quickly access a connection or files.

Connection tab	File tabs		New file tab	
🔀 LiNX Access				
<u>File Edit Calibrate View H</u> elp				
🚽 LAK-ADS	LiNX MR7 FWD.lci	LiNX MR7 Posi	tions.lci +	
O V: Unlock	<program name=""></program>	Reset to Default	😂 Manage	
I LAK-ADS				

Figure 24: Tab bar showing connection and file tabs

4.3.3.1 Connection tab

The connection tab is fixed to the left edge of the application and is always visible, even with no connection active.

Selecting this tab shows the current connection, or a list of available connections.

The text in the connection tab shows a connection's LAK serial number or, if set, its friendly name. If there is no connection, the words *Open a Connection* display.

4.3.3.2 File tab

File tabs are to the right of the connection tab. Any number of files can be open at any one time.

Each open file has its own tab. Closing a file closes the tab. The tab text is the file name and extension. If the name is too long for the tab, an ellipsis (...) displays.

🗾 Note

If parameters under a tab change, an asterisk (*) is appended to the tab's text (ie. filename.lci*) until the changes are saved.

When neither a file nor connection is open, the context view displays (See " Context selection window" on page 38). This is a split screen view with the connection context on the left and the file context on the right.



4.3.4 Toolbar

4.3.4.1 Toolbar overview

The toolbar's display depends on:

- the context (connection or file)
- whether it is connected to a system
- whether it is in live edit or bulk edit mode

Toolbar section	Displays (where relevant)
Left hand	 the connection state (as an animated, circular, edit status icon) a connection mode description, or, the read and write buttons
Middle	 the function action options the program name an option to reset the wheelchair to default settings an option to manage the wheelchair configuration
Right hand	 a file save as option an option to close the current connection

4.3.4.2 The edit status icon

The edit status icon describes the current edit mode.



Figure 27: Bulk edit



Bulk edit mode — icon sways left and right with a flat horizon



Figure 28:

Powered off

Disconnected — icon is greyed out and not animated

Powered off — icon is not animated

4.3.4.3 Connection context on the toolbar

Figure 29 shows the toolbar when connected to a wheelchair and in **live edit** mode. The icon is animated. The text "LIVE EDIT MODE" displays.

Live edit is the default mode on connection.



Figure 29: Toolbar - connection context - live edit

Figure 30 shows the toolbar when connected to a wheelchair and in **bulk edit** mode. The icon is animated and the read and write buttons display.

Bulk edit mode	Program name	Manage chair configurations	Save to file
Read 💥 Write	LiNX-RE 🖏 Re	set to Default 😂 Manage	2 2
Return to Write to live edit, chair discarding all changes	Rest last	ore to values of configuration	Disconnect

Figure 30: Toolbar - connection context - bulk edit

Figure 31 shows the toolbar when connected to a wheelchair and the chair has been powered off. The icon is not animated. The description displays "POWERED OFF". (When you power on, your connection is automatically reinstated.)

Figure 31: Toolbar - connection context - powered off

Figure 32 shows the toolbar when there is no connection to a wheelchair. The icon is greyed out and not animated. The description displays "NOT CONNECTED".

4.3.4.4 File context on the toolbar

Figure 33 shows the toolbar when editing a file and in **bulk edit** mode. The icon is animated and the read and write buttons display.

Figure 33: Toolbar - file context - bulk edit

Figure 34 shows the toolbar when editing a file in **bulk edit** mode and the chair has been powered off. The icon is not animated. The description displays "POWERED OFF". (When you power on, the PC LiNX Access tool returns to the previous connection in live edit mode.)

Figure 34: Toolbar - file context - powered off

Figure 35 shows the toolbar when editing a file when there is no connection to a wheelchair. The icon is greyed out and not animated. The description displays "NOT CONNECTED".

Figure 35: Toolbar - file context - no connection

4.3.5 Context tab mode

The context tab mode appears on the top, left-hand side of the screen under the toolbar. The information it displays depends on the context (connection or file) — see *Figure 36* and *Figure 37*.

In connection mode, the information displayed is:

- Connection context icon: a wheelchair icon
- LAK serial number or friendly name: friendly name is displayed if it has been entered, otherwise the LAK's serial number is displayed (see *5.8.2 Set friendly name*).
- **System name**: the name of the system (see *5.5.4 Change the system and program name*)
- Navigation restriction information: click on the information link to reveal what navigation restrictions are placed on the system. The information displayed depends on the modules in the system. See the *LiNX Systems Installation Manual* for more information about navigation restrictions.
- Configuration version: displays the version of the system's current configuration.

In file mode, the information displayed is:

- File context icon: a file icon
- File name: the name of the current program file
- **System name**: the name of the system (see *5.5.4 Change the system and program name*)
- Navigation restriction information: click on the information link to reveal what navigation restrictions are placed on the system. The information displayed depends on the modules in the system. See the *LiNX Systems Installation Manual* for more information about navigation restrictions.
- **Configuration version**: displays the version of the system's current configuration.

4.3.6 Primary and secondary navigation sidebars

The primary and secondary navigation sidebars (see *Figure 22* and *Figure 38*) enable you to drill into the system's functions and parameters and display them in the *Main content area*.

To view parameters, click a menu item below **Home**. The information displays in the main content area.

4.3.6.1 Invalid values

A white arrow in a red circle next to an item on the primary navigation sidebar indicates an invalid value.

To reach the invalid value, click the item and follow the arrows that appear. Edit the value as required.

Home						
So Functions		REM 4xx	•	Neutral Window 🔶		10 %
Luser Preferences		ACU 2xx	•	Value is invalid		
🚊 Chair Log		ТРІ		Min 15% Default 15% Max 100% Sets how far the joystick needs to be deflected before the wheelchair starts	to drive.	
Modules	٥	GYR 100		Joystick Throw	- +	90 %

Figure 39: Red arrow navigation to invalid values

4.3.7 Filter parameters box

The filter parameters box is at the bottom of the primary navigation sidebar.

Use it like a search function to quickly locate parameters. (See *5.5.9 Searching.*)

Figure 40: Filter parameters box

4.3.8 Main content area

The main content area displays information from a selected menu item on a navigation sidebar (primary or secondary).

Figure 41 below shows two examples of main content area information: the home screen's dashboard and a power module screen.

Since		SYSTEM NAME		
O hours driving	O hours driving / day	Demonstration		
	,	PROGRAM NAME		
-+ O		Default System		
total battery cycles	Power Module	FET Thermal Rollback Start	- +	70 °C
\frown		FET Thermal Rollback End	- +	80 °C
4 active errors	REM 4xx	Open Circuit Test		On 🗸
	ACU 2xx	Short Circuit Test		On 🔽
Programming Error	TPI	POWER MODULE - SWITCHED DRIVING		
Missing Input		 Constant Speed Trigger 		10 %
System Available	GYR 100	 Veer at low speed 		15.00 °
-,	ACT200-1	• Veer at High Speed		0.25 °
		• High Speed Reference		50 %
		POWER MODULE - LOAD COMPENSATION		
Last modified: Tue Dec 13 12:20:43 2016 First created: Mon Nov 7 07:50:40 2016		Load Compensation Profile		Custom
	_	• Load compensation uppe		350 mΩ
		Motor Resistance		20 mΩ
		Adaptive Load Comp Enabl		On 🗸
		 Load Compensation Perc 	- +	70 %

Figure 41: Home screen and power module screen

4.3.9 Utility screens

Utility screens display only when particular hardware or features are available.

Four utility screens are currently available in the LiNX Access tool:

- Adaptive Load Compensation (ALC) calibration
- Gyro calibration
- Sip and Puff calibration
- Joystick shaping

Access the four utility screens from the *Calibrate* menu in the Menu bar and then follow the instructions on the selected screen.

Figure 42: Calibrate menu

4.3.9.1 Adaptive load compensation (ALC) calibration

The Adaptive Load Compensation (ALC) calibration utility calculates motor resistance values to help provide a consistent motor speed.

See also

5.3.10 Tune adaptive load compensation (ALC)

Figure 43: ALC calibration screen

4.3.9.2 Gyro calibration

The Gyro calibration utility helps you set up a gyro module.

A gyro module must be connected to the system to make this utility available.

See also 5.3.9 Tune the gyro

Gyro Calibration
Please make sure the chair is in an open area before starting.
Note that the load compensation feature and the gyro module will be disabled during the calibration process.
ØØØ

Figure 44: Gyro calibration screen

Start

Cancel

4.3.9.3 Sip and puff calibration

Sip and puff calibration lets you set sip and puff thresholds via your input module.

An input module must be connected to the system to make this utility available.

See also 5.3.11 Calibrate sip and puff

Figure 45: Sip and puff calibration screen

4.3.9.4 Joystick shaping calibration

Joystick shaping lets you reduce the extent the joystick has to be deflected to reach full demand in one or more quadrants.

See also 5.3.12 Joystick shaping

Figure 46: Joystick shaping calibration screen

Page 34

5 How to...

5.1 Open the LiNX Access PC tool	37
5.2 Select the context	38
5.2 Connection context tasks	30
5.3 Connection context tasks	20
5.3.2 Modify a program	
5.3.2 Write a program to a whoelebair	10
5.3.4 Pood a program from a whoolchair	40 10
5.3.5 Save a program as a file	40 11
5.3.6 Authorise computer (store the Access Level	41
Cortificato)	11
5.3.7 Manage chair configurations	41 12
5.3.8 Disconnect from a wheelchair	42 13
5.3.9 Tupe the dyro	4 5 //3
5.3.10 Tupe adaptive load compensation (ALC)	45 ЛЛ
5.3.10 Fulle adaptive toda compensation (AEC)	 ЛЛ
5.3.12 Toystick sharing	
5.3.13 Update memory positions	
5.4 File context tasks	40
5.4 1 Open a file	47
5.4.1 Open a file	47
5.4.2 Floury a file	47 ЛО
5.4.5 Save a me	49 ЛО
5.4.5 Write a program to a wheelchair	50
5.4.6 Close a file	50
5.4.7 Remove a file from the file list	50
5.5 Common tasks	51
5.5 Common tasks	JI
5.5.2 Profile and function actions	51
5.5.2 Add and remove components	52
5.5.4 Change the system and program name	50
5.5.5 View system information	60
5.5.6 View the system summary	61
5.5.0 View the error and event logs	61
5.5.8 View statistics	62
5 5 9 Searching	64
5.6 Configure control inputs and outputs (control IO)	64
5.6.1 Select and configure an input	65
5.6.2 Configure an always rule	67
5.6.2 Configure a conditional rule	07
5.6.4 Configure advanced settings	07
5.7 Configure memory positions	70
5.7 1 Overview	70
5.7.2 Step 1 - Install modules	70
5.7.2 Step 1 - Install modules	70
5.7.4 Step 3 - Create memory position	
5 7 5 Step 4a - Configure a control input	73
5.7.6 Step 4b - Configure seating function	74
5.8 Tool utilities	76

How to...

5.8.1 Configure Internet settings	
5.8.2 Set friendly name	76
5.8.3 Forget device	77
5.8.4 Check for new version	
5.8.5 Upgrade firmware	
5.8.6 View as manufacturer or distributor	79
5.9 Manage configurations and firmware with bundle files	
5.9.1 Creating a bundle file	80
5.9.2 Distributing a bundle file	82
5.9.3 Viewing the contents of a bundle file	
5.9.4 Programming from a bundle file	

5.1 Open the LiNX Access PC tool

LINX

- 1. Open the LiNX Access PC tool on your PC or laptop using the installed shortcut or icon. A disclaimer displays.
- 2. Read the disclaimer and click I Agree to continue.

Disclaimer
Changes to any parameter value or state should be carried out by authorised personnel only.
When using the 'Live Edit' mode, users should be aware that the performance of the wheelchair will be changed instantly.
After re-programming a system, check that the vehicle drives safely and that the performance of the vehicle is appropriate to the capabilities and needs of the user.
Dynamic Controls accepts no liability for any losses sustained through inappropriate programming or programming by unqualified personnel.
Use of this app is subject to our privacy policy located at <u>www.dynamiccontrols.com/resource-hub/linx-resources-hub</u> . You are the controller of any vehicle user data collected with this app and will comply with all applicable privacy laws. If you agree with the foregoing, click "I Agree" below.
I Agree Quit

Figure 47: Disclaimer displayed when opening the application

A Warning

When using the LiNX Access PC tool, the user of the LiNX Access PC tool must:

- ensure that programming has completed correctly, and verify that the program has written as requested;
- test vehicle safety after programming;
- ensure that the user is capable of understanding and driving the vehicle.

By clicking on "I Agree" in the disclaimer (see Figure 47), the user of the LiNX Access tool understands that these responsibilities and risks are accepted by them.

🗾 Note

If this is the first time that the LiNX Access PC tool application has been opened since installation, when you click on the **I Agree** button (Figure 47, above), a Windows Security Alert dialogue box (Figure 48) may appear stating that Windows Firewall has blocked some network features for this application. This is normal. To continue, select the appropriate networks that you wish to operate on and then click on the **Allow access** button.

etworks. Name: LiNXAccessPC.exe Publisher: Dynamic Controls Path: C:\program files\dynamic controls\linxaccesspc.exe low LiNXAccessPC.exe to communicate on these networks: Private networks, such as my home or work network Public networks, such as those in airports and cafés (not recommended because these networks often have little or no security)	Windows Firewa	has blocked som	e features of LiNXAccessPC.exe on all public and private
Publisher: Dynamic Controls Path: C:\program files\dynamic controls\linxaccesspc.exe low LINXAccessPC.exe to communicate on these networks: Private networks, such as my home or work network Public networks, such as those in airports and cafés (not recommended because these networks often have little or no security)	networks.	Name:	LiNXAccessPC.exe
Path: C:\program files\dynamic controls\linxaccesspc.exe low LINXAccessPC.exe to communicate on these networks: Private networks, such as my home or work network Public networks, such as those in airports and cafés (not recommended because these networks often have little or no security)		Publisher:	Dynamic Controls
low LINXAccessPC.exe to communicate on these networks: Private networks, such as my home or work network Public networks, such as those in airports and cafés (not recommended because these networks often have little or no security)		Path:	C:\program files\dynamic controls\inxaccesspc.exe
 Private networks, such as my home or work network Public networks, such as those in airports and cafés (not recommended because these networks often have little or no security) 	Allow LiNXAcces	PC.exe to comm	inicate on these networks:
Public networks, such as those in airports and cafés (not recommended because these networks often have little or no security)	Private ne	tworks, such as i	ny home or work network
	Public net because t	works, such as th hese networks of	ose in airports and cafés (not recommended ten have little or no security)

5.2 Select the context

After opening the application, the context selection screen displays. It has two tabs:

- Open a connection (left-hand tab): connect to a wheelchair through a LiNX Access Key (LAK) this is the **connection context**.
- Open a file (right-hand tab): access a file stored on your computer this is the **file context**.

<u>F</u> ile g	<u>C</u> alibrate <u>V</u> iew <u>H</u> elp				
🥫 Open a Connection		Open a file			
Ga	Find more		ď	Open File	
•	Q Filter connections	×	•	Q Filter files	×
	PAST CONNECTIONS	- 8	• ~~	C:\Dynamic\Configs\allmodules6_0.lci Last opened: 14/05/21 10:20 AM	23
	LAK-ADS E20203279, Last connected: 14/05/21 10:48 AM CMANUFACTURE DISCOVERED CONNECTIONS		W	C:\Dynamic\Configs\MR6-1.lci Last opened: 14/05/21 10:20 AM	\$
	Design Dept				
	LAK-K20157783	\supset			
	REM-G16138663				
	ا Open a connection			Open a file	



🗾 Note

Double-click a connection or file to open it.



5.3 Connection context tasks

The following tasks apply to the connection context — that is, when you are working on a connected wheelchair. (For file context tasks, see *5.4 File context tasks*.)



5.3.1 Connect to a wheelchair

To connect the LiNX Access PC tool with the wheelchair:

- 1. Power up a LiNX wheelchair system.
- 2. Insert a LAK into the remote module's XLR port.
- 3. Open the LiNX Access PC tool application. (See 5.1 Open the LiNX Access PC tool.)
- 4. From the **Open a connection** tab, either:
 - select a LAK from the **PAST CONNECTIONS** list;
 - click the **Find more** button (top left) to force the application to search for more LAKs; or
 - if the list is too long to read, enter a LAK name into the **Search** text box to locate the LAK in the list.

After selecting a LAK, the PC tool connects to the wheelchair and displays its configuration program.

5.3.2 Modify a program

To modify a program, first select a parameter and then edit it.

Home	Select a parameter from one of the parameter groups
So Functions	(components) listed in the primary navigation sidebar ⁺¹ :
Luser Preferences	 Functions — for drive, seating and mouse mover functions User preferences — for drive, sleep, lock, user function
🖆 Chair Log	navigation and control input / output, display, energy use,
Andules	speedometer, and audible cues settings
Motions	 Modules — for modules (power modules, remote modules etc.)
V Positions	 Motions — for actuator motions
$\underline{/x^{\circ}}$ Angle Sources	 Positions — for memory positions
📩 Trigger Angles	 Angle Sources — for angle sources
E Core Features	 Trigger Angles — for trigger angles and rules
() Drive Limits	 Core features — for battery management, anti-rollaway, actuators, firmware and system configuration
(😥) Gyro Limits	• Drive limits — for emergency deceleration and OEM limits
Dighting	 Gyro limits — for OEM gyro limits
Figure 50: Primary sidebar	Lighting — for position and turn indicators ‡1 - not all parameter groups are available in Distributor view

5.3.2.1 Select a parameter

기 Note

Parameter groups displayed in the primary navigation sidebar depend on the modules in the connected system. If the connected system does not include a module (for example, lighting or a gyro) it will not appear in the sidebar. A secondary sidebar displays for certain parameter groups. It appears to the right of the primary navigation sidebar to help you drill down further through the parameter lists.

5.3.2.2 Edit a parameter

Parameters can be modified in a number of ways:

- numerically (see 5.5.1.1 Numerical)
- by text (see 5.5.1.2 Text-based)
- from a drop box (see 5.5.1.3 Drop-down list)
- via a switch (see 5.5.1.4 Switch)

There are two edit modes:

- live edit (see 4.2.1 Live edit) and
- bulk edit (see 4.2.2 Bulk edit).

A live edit is written and applied to the wheelchair immediately as the edit is made. Bulk edits are written to the wheelchair when the **Write** function is applied by the user.

Warning

In live edit, changes to parameters take immediate effect, changing the wheelchair's performance immediately. There is no function to undo a change in live edit. Save a copy of the existing program before live editing to enable you to restore settings if required.

5.3.3 Write a program to a wheelchair

In connection context and working in live edit, there is no need to write a program to a wheelchair because all parameter changes are written to the wheelchair instantly.

In bulk edit, you write to the wheelchair by clicking the **Write** button in the tool bar.



Figure 51: Writing parameters—bulk edit

After clicking **Write**, the PC tool performs the following tasks:

- 1. Writes the program to the wheelchair.
- 2. Power cycles the wheelchair.
- 3. Reads the program from the wheelchair.
- 4. Reads diagnostic information from the wheelchair.
- 5. Reverts to live edit.

5.3.4 Read a program from a wheelchair

The configuration program is automatically read and displayed from a wheelchair system when you connect to it in the connection context. To read a program in the file context:



- 1. Click the "+" tab and select a file.
- 2. Click **Read** (from wheelchair) on the tool bar. The program is read from the wheelchair to the file.





🗾 Note

If you click **Read** in connection context's bulk edit, the system returns you to live edit and any changes you made are lost. In file context, click **File | Save** (or **Save As**) after reading the program if you wish to save it to the file.

5.3.5 Save a program as a file

To save the connected program as a file:

- Click the Save to file button on the toolbar; or
- Click File on the menu bar and select either Save or Save As... from the menu.

For all options, a *Save File As* dialogue will open.

- Select an appropriate folder and enter a name into the **File Name** text box.
- Click Save to finish the file will be saved with a .lci extension.



Figure 53: Save to file button
File Calibrate View Help
Open File
Import Firmware
Save
Save As...
Export CSV...

Figure 54: File menu

5.3.6 Authorise computer (store the Access Level Certificate)

To edit files offline, you need to authorise your computer by storing an Access Level Certificate, taken from a connected LiNX Access Key, to your computer.

The certificate determines how you view and edit offline programs (*.lci files).

There are two supplied levels of access:

- Distributor
- Manufacturer

To edit your files with a distributor's access level, you need to store a certificate from a distributor-level LiNX Access Key (DLX-HKEY01-A).

To edit your files with a manufacturer's access level, you need to store a certificate from a manufacturer-level LiNX Access Key (DLX-HKEY02-A).

If you do not store your certificate from your LiNX Access Key, you will have read-only access to your stored files, and will not be able to edit them.



5.3.6.1 How to store the Access Level Certificate

To store the Access Level Certificate:

- 1. Connect to a LiNX system.
- 2. Click on the File menu.
- 3. Click Authorise Computer.

A message displays saying how many authorisations remain and asks if you want to continue. (You can only perform this operation ten times.)

- Click the Authorise button to continue.
 A message displays when the authorisation is complete.
- 5. Click **OK** to finish.

Eile	<u>E</u> dit	<u>C</u> alibrate	<u>V</u> iew	<u>H</u> el			
Ope	Dpen File						
mpo	mport Firmware						
<u>S</u> ave	ave						
Save	Save <u>A</u> s						
<u>E</u> xpo	xport CSV						
Con	vert Co	onfiguration	1				

Authorise Computer

Create Bundle File

Open Bundle File

Quit

Figure 55: Authorise computer

Se Manage



Figure 56: Completing the authorisation

5.3.7 Manage chair configurations

5.3.7.1 Use the tool bar controls

To manage the chair configurations, use the **Reset to Default** and **Manage** controls on the tool bar.

5.3.7.2 Set default chair configuration

- 1. Click Manage to open the chair configuration list.
- 2. Select the configuration you require from the list.
- 3. Select Load as Current.
- 4. Click **Discard** on the dialog that appears.

The selected dialog becomes the current and default configuration. "Default Configuration" appears under it.



🔊 Reset to Default

Figure 57: Manage configurations

Figure 58: Set default configuration



5.3.7.3 Reset to default

LINX

To change the connected configuration to the default chair configuration:

- Click Reset to Default on the tool bar. A notification displays, with Discard and Cancel buttons, warning that the reset process overwrites the existing configuration.
- 2. Click **Discard** to reset the default and overwrite the connected configuration.

🕖 Note

The default chair configuration means the last connected configuration.

If chair configurations are not supported, such as in LiNX LE systems, the Reset button will not be displayed.

5.3.8 Disconnect from a wheelchair

To disconnect from a connected wheelchair, click the Disconnect wheelchair button on the right-hand side of the toolbar.



The system returns to the Connection Context screen.

Figure 59: Disconnect wheelchair

5.3.9 Tune the gyro

🚺 Note

A gyro module must be connected and enabled in the current drive function before continuing. Gyro tuning is available only in live edit. For more information on gyro tuning, refer to the LiNX Systems Installation Manual (GBK54036).

- 1. From the menu bar, click on Calibrate | Gyro
- 2. Follow the instructions on the screen.



Figure 60: Tuning the gyro



5.3.10 Tune adaptive load compensation (ALC)

🚺 Note

Adaptive load compensation (ALC) must be enabled before tuning. To enable ALC:

- 1. From the primary sidebar, click on **Modules**.
- 2. Click on **Power Module** in the secondary sidebar.
- 3. Scroll down the parameters to the section **Power Module Load Compensation**, enable **Bulk Edit**, and switch on **Adaptive Load Comp Enabled**.
- 4. Click on the **Write** to chair button.

To tune adaptive load compensation:

- 1. From the menu bar, click on **Calibrate | Adaptive Load Compensation**. The ALC calibration screen is displayed.
- 2. Read the instructions and then click on **OK**.
- 3. Follow the instructions on the screen, as they are presented, to complete the calibration.



Figure 61: ALC calibration screens: start (left), interim results (middle), and calibration completed (right)

5.3.11 Calibrate sip and puff

🗾 Note

An input module must be connected and *Sip and Puff* enabled in the module before calibrating. To enable Sip and Puff:

- 1. From the primary sidebar, click on Modules.
- 2. Click on **IN 500**.
- 3. Click User Input Configuration, unlock Bulk Edit, and select Sip and Puff from the User Input Configuration drop-down menu.
- 4. Click Write to chair button.

5.3.11.1 Open sip and puff calibration

- 1. From the menu bar, click on **Calibrate | Sip and Puff**. The sip and puff calibration screen is displayed.
- 2. Calibrate sip and puff as required, using the sliders on the right of the screen to set the levels as required for hard puff, soft puff, hard sip and soft sip.



Sip and Puff			Sip and Puff		Sip and Puff			Sip and Puff		
37		Q	_ 37	Q	37		Ω	37		Ω
15		J	15		15		J	15		σ
Hard Puff			Soft Puff 🔥 36) k	Hard Sip	74 Peak		Soft Sip		
15		\mathbf{Q}	15	\square	15		\mathbf{Q}	15		\square
50			50		50			50		D
	Done		Done			Done			Done	
	Figure 62	: Sip ai	nd puff calibration —	- from left	to right: hard	puff, soft	puff, h	ard sip, so	oft sip	

🖊 Note

Refer to the LiNX System Installation Manual (GBK54036) for technical details on how to calibrate sip and puff.

5.3.12 Joystick shaping

1. From the menu bar, click on **Calibrate | Joystick Shaping | [choose remote module]**. The calibration screen opens with an instruction explaining how to perform the calibration.

🖊 Note

- Select Cancel at any time to exit the calibration screen without saving any changes.
- Select **Restart** at any time to reset the calibration screen and display the configuration's existing values.
- Select **Done** when you are finished. This will exit the screen and save any values that have changed.
- 2. Ask the user to deflect the joystick in all four directions. The user can deflect the joystick in any of the quadrants, in any order, but should be deflected to a point that is comfortable and repeatable. Note that the + and buttons next to the quadrant parameters can be used to fine-tune the values.
- 3. Once the user has completed deflecting the joystick in each quadrant, tap on the **Done** button to exit the calibration screen. At this point, the calibration values, as indicated with the light blue bars and also shown numerically in the parameter interface, will be saved to the configuration.



Figure 63: Joystick shaping calibration screen

🗾 Note

Refer to the LiNX System Installation Manual (GBK54036) for technical details on joystick shaping.

5.3.13 Update memory positions

Memory positions can be updated using the LiNX Access PC tool. This is useful for manufacturers when creating positions, and also distributors and therapists when working with users to fine-tune or replace a memory position.

When updating a memory position, each **Target Angle** parameter related to the selected position is updated with the current, corresponding angle source measurements from the connected chair.

🗾 Note

Memory positions that only use switch feedback are not updateable. If a memory position uses a mix of switch and angle feedback, actuators using angle feedback can be updated, but those using switch feedback will not be updated. All memory positions that include angle feedback are updateable with Manufacturer access level. With Distributor access level, memory positions that have been configured by the Manufacturer to have no Distributor access and to not Allow Occupant to Update Position will not be updateable.

To update a memory position's target angles from its current angle settings:

- 1. reposition the chair's seating to the new target position using motions (such as recline, tilt etc.)
- 2. from the LiNX Access PC tool, locate the position you wish to overwrite:
 - click on **Positions** in the primary sidebar
 - select the position that you wish to update from the secondary sidebar
- 3. click on the **Update Position** button at the top of the screen (^{SUD}) all **Target Angles** associated with this position will be updated according to the current angle source measurements from the chair.

5.4 File context tasks

The following tasks apply to the file context — that is, when you are working on files stored on your computer. (For connection context tasks, see 5.3 Connection context tasks.)



5.4.1 Open a file

You can choose to open a file:

- when opening the tool
- when the tool is open
- from the File menu

After selecting a file, the PC tool opens the file under its own tab — the tab displays the file name.

5.4.1.1 When opening the tool

- 1. Open the LiNX Access PC tool application. (See 5.1 Open the LiNX Access PC tool.)
- 2. From the **Open a file** tab:
 - select a file from the list; or
 - press the Open file button (top left) to open the Open file dialogue; or
 - if the list is too long to read, enter a LAK number in the **Filter parameters** text box to locate the LAK in the list

5.4.1.2 When the tool is open

- 1. Click the new file tab (+) in the tab bar.
- 2. From this tab:
 - select a file from the list, or
 - press the Open file button (top left) to open the Open file dialogue, or
 - enter a file name into the **Filter parameters** text box to locate the file from the list

5.4.1.3 From the File menu

- 1. Click File | Open file (or Ctrl + O).
- 2. Find the file with the Open file dialogue.

5.4.2 Modify a file

To modify a program on a file, first select a parameter and then edit it.

5.4.2.1 Select a parameter



🗾 Note

A secondary sidebar is displayed for certain parameter groups. It appears to the right of the primary navigation sidebar and helps you drill deeper through parameter lists.

5.4.2.2 Edit a parameter

Parameters can be modified in a number of ways:

- Numerically (see 5.5.1.1 Numerical)
- By editing text (see 5.5.1.2 Text-based)
- From a drop box (see 5.5.1.3 Drop-down list)
- Via a switch (see 5.5.1.4 Switch)

In file context, parameters can only be modified in bulk edit mode (see *4.2.2 Bulk edit*). When you edit a parameter in bulk edit mode, its background colour changes to yellow. The yellow background reverts to white when the file is saved or written to a wheelchair.



Figure 65: Bulk edit parameter change indication



5.4.3 Save a file

Save a file with its existing name or with a different name.

5.4.3.1 Save a file with its existing file name

- Click the Save file button, Figure 66, (right-hand-side of the tool bar); or
- Click File on the menu bar and select Save from the drop-down menu, Figure 54.



Figure 66: Save file button

<u>F</u> ile	<u>C</u> alibrate	<u>V</u> iew	<u>H</u> elp		
Open File					
Import Firmware					
<u>S</u> ave	;	N			
<u>Save</u> Save	<u>A</u> s	2			

Figure 67: File menu

5.4.3.2 Save a file with a different name

- Click File | Save As... from the drop-down menu. A Save File As dialog opens.
- Select an appropriate folder.
- Enter a name into the File Name text box.
- Click the Save button to finish. The file is saved with a .lci extension.

5.4.4 Read a program from a wheelchair

To read a program from a wheelchair to a .lci file on your computer:

- 1. In the connection context, connect to a wheelchair.
- 2. Open a .lci file:
 - Click File | Open File.
 - Browse to the file you require.
 - Click Open.
- 3. Click **Read** (top-left of screen) to read the program file from the wheelchair to the .lci file.



Figure 68: Read from a wheelchair

4. Save the file.

🖊 Note

The **Read** and **Write** buttons are available only when a wheelchair is connected.

5.4.5 Write a program to a wheelchair

Write a program from a file to a wheelchair by clicking the Write (to wheelchair) button when connected to a wheelchair.

After you click Write, the PC tool:

- · writes the program to the connected wheelchair
- power cycles the wheelchair
- reads the program from the wheelchair
- · reads diagnostic information from the wheelchair

Note

LINX

The Read and Write buttons are available only when a wheelchair is connected.

Note /

Oversized configurations cannot be written to the system. If the current configuration becomes too large to be written to the system, a pop-up is displayed advising that unused items, such as profiles, functions, and rules, should be removed to reduce its size. The LiNX Access tool checks for oversized configurations:

- before writing to a system
- on completion of editing functions and profiles
- after adding (duplicating) a function
- after deleting a function
- after adding/deleting a motion, position, trigger angle or angle source
- after adding/deleting a module
- after a migration
- after loading a configuration

5.4.6 Close a file

Close a file using the Close file button on the right-hand side of the tool bar. If you attempt to close a file with changes pending, a dialogue opens with options to:

- Save save the changes before closing
- Discard discard the changes and close the file
- Cancel cancel the file and close the action

5.4.7 Remove a file from the file list

Right-click a file in the open file dialog and select Remove from list.











Close file





5.5 Common tasks

This section describes tasks common to both the connection context and the file context.

5.5.1 Edit and modify parameters

There are several ways to edit and modify parameters:

- Numerically
- Text-based

Switch

• Drop-down list

5.5.1.1 Numerical

There are three ways to numerically edit a parameter:

- Click Min, Default or Max to set the parameter value to one of the displayed values.
- 2 Left-click the -/+ buttons to decrease or increase the parameter's value respectively. Clicking and holding the -/+ buttons changes the value more quickly than single clicks.
- 3 Double-click the value and change it directly via the keyboard press the **Enter** button to set the value.

5.5.1.2 Text-based

Click in a text box and use the computer keyboard to edit and enter text.

Forwa	rd Speed		2	- +	10 %
Min	0%	Default	10%	Max 9	8%
Min iets the	0% maximum	Default forward speed	10% of the wh	Max 9 eelchair whe	8% n speed

Figure 72: Editing a parameter numerically

SYSTEM NAME	
Demo	

Figure 73: Editing text

5.5.1.3 Drop-down list

Click the drop-down list to select an option.



Figure 74: Drop-down selection

5.5.1.4 Switch

Click the switch to change the parameter's value.

The value displayed is the current value.



Figure 75: Switch selection

5.5.2 Profile and function actions

In bulk edit:

- profiles can be added and deleted
- functions can be added, deleted, duplicated and moved

Select **Functions** in the primary navigation sidebar, and profile and function actions appear in the toolbar.



5.5.2.1 Add a profile

Click the Add profile button.
 A new profile appears with a red indicator next to it. The red indicator displays until you add functions to the profile.



- 2. *Add functions* to the profile.
- 3. Press the **Write** button to write the program to the chair; or, on the Application menu, save your changes to a file.

5.5.2.2 Delete a profile

🚺 Note

A profile cannot be deleted until its functions are deleted.

- 1. *Delete all the functions* in the profile to be deleted.
- 2. Select the profile.
- 3. Click the Delete button.
- 4. Click the **Write** button to write the program to the chair or, on the Application menu, save your changes to a file.



5.5.2.3 Add a function

To add a new function:

- 1. Click the Add function button.
- 2. Select a function from the drop-down list:
- New Drive Function
- New Seating Function
- New Mouse Mover Function
- New Utility Function
- New Switch Control Function



If **New Drive Function** is selected in step 2 above, the next steps are detailed in *5.5.2.3.1 New drive function*.

If New Seating Function, New Mouse Mover Function or New Utility Function is selected in step 2 above, the next steps are detailed in *5.5.2.3.2 New seating, mouse mover, utility or switch control function*.

5.5.2.3.1 New drive function

When adding a drive function from step 2 above, the New Drive Function dialog box appears. In this dialog box, you have a choice to add the new drive function with **default values** or add it with values from a **template**.

Drive function based on default values

- 1. Enter a function name.
- 2. Select the **New Function** tab
- 3. Select a user input from the User Input list.
- 4. Click Create.
- 5. Click the **Write** button to write the program to the chair; or, on the Application menu, save your changes to a file.

Q *** New Drive Function		
Profile	Drive REM2xx	
Name	Drive	
New Function	From Template	
Please select a 'User Input'		
Profile User Input		
REM 2xx series		
REM 4xx series		
Compact Remote		
	Create Cancel	
Figure 78: New driv	Figure 78: New drive function from	

default values



Drive function from template

- 1. Enter a function name.
- 2. Select the From Template tab
- 3. Select a template from the template list.
- 4. Click Create.
- 5. Click the **Write** button to write the program to the chair; or, on the Application menu, save your changes to a file.

9 ** New Drive Function	
Profile	Drive REM2xx
Name	Drive
New Function	From Template
Please select a function temp	late
VERY SLOW	
INDOOR	
OUTDOOR	
FAST	
	Create Cancel

Figure 79: New drive function from template

5.5.2.3.2 New seating, mouse mover, utility or switch control function

For seating, mouse mover and utility functions, in the dialog box that appears:

- 1. Enter a function name.
- 2. Select a user input from the user input list.
- 3. Click Create.
- Click the Write button to write the program to the chair; or, on the Application menu, save your changes to a file.

	-					
			🖏 Ne	w Switch Control F	unction	
			Profile			Drive REM2xx
		🏷 New U	tility Functio	'n		vitch Control
		Profile		1	Drive REM2xx	
	New N	Aouse Mover Fu	nction		Utility	
	Profile			Drive REM2xx		
New S	eating Function			louse Mover		
Profile		D	rive REM2x	ĸ		
Name			Seating			
Please select	a 'User Input'					Cancel
Profile User I	nput					
REM 2xx ser	ies				Cancel	
REM 4xx ser	ies					
Compact Ren	note			: Cancel		
Input Module						
		Create	Cancel			

Figure 80: New function details



5.5.2.4 Duplicate a function

🖊 Note

A duplicated function has the same name as the original function. Give the duplicated function a unique name.

- 1. Select the function you wish to duplicate.
- Click the Duplicate function button.
 The duplicated function appears directly under the original function.
- 3. Edit the duplicated function as required.

<u>File Edit Calibrate View Help</u>		
📲 Open a Connection	LINX MR Duplicate Function	
NOT CONNECTED	۵. 📬 🗂	<program name=""></program>
LiNX MR7 Positions.lci LiNX Flexible Navigation ① v7.x		Drive 1
Home		GENERAL
Q ⊽ Functions	Drive 1	Drive Function Name
User Preferences	Drive 1	Enable Drive Function Function User Input
Chair Log	Drive 2	Navigation Timeout Enabled
🚱 Modules		FORWARD
Motions	Mouse 1	Max Forward Speed
	Tilt	Min Forward Speed
Positions	Dealing	Forward Acceleration
$\underline{x^{\circ}}$ Angle Sources	Recline	Forward Deceleration

Figure 81: Duplicate a function

🚺 Note

The duplicated function's parameters appear highlighted in yellow until the program is written or saved.

5.5.2.5 Delete a function

- 1. Select the function you wish to delete.
- 2. Click the **Delete** button.

🛕 Warning

A function is deleted immediately when you click the delete button.

<u>File Edit Calibrate View Help</u>		
Jopen a Connection		
NOT CONNECTED	🖦 🐏 🔽	<program name=""></program>
LiNX MR7 Positions.lci LiNX Flexible Navigation ① v7.x	Functions	Drive 1
Home		GENERAL
So Functions	Drive 1	Drive Function Name
		Enable Drive Function
Ser Preferences	Drive 1	Function User Input
Chair Log	Drive 2	Navigation Timeout Enabled
Andules		FORWARD
	Mouse 1	Max Forward Speed
Desitions	Tilt	Min Forward Speed
		Forward Acceleration
$\underline{x^{\circ}}$ Angle Sources	Recline	Forward Deceleration





5.5.2.6 Move a function

Functions can be reordered by dragging and dropping inside a profile or between profiles.

- Click and hold the function you wish to move. The function moves slightly up and to the right and a dashed box
- appears beneath it.Drag the function to the required position in the profile, or to another profile.



Figure 83: Reorder functions

5.5.3 Add and remove components

A number of components, such as modules, motions, positions, etc., can be added or removed as required. All components can be added from the **Edit** menu item. Also, if a component family is selected from the primary navigation sidebar, components can be added or removed using the add/remove icons above the secondary navigation bar. These are detailed next.

5.5.3.1 Add and remove a module

Add a module from the Edit menu

From the menu bar, click on **Edit** | **Add Module** – a pop-up window will open with a list of modules. Select a module from this list and click on the **Create** button to add it to your configuration.



Figure 84: Edit - add module

Add a module from the secondary navigation sidebar

Click on **Modules** in the primary navigation sidebar and then click on the **Add Modules** button (*Figure 85*) that is located at the top of the secondary navigation sidebar.



Remove a module from the secondary navigation sidebar

Click on **Modules** in the primary navigation sidebar. Select a module from the secondary navigation sidebar to remove. Click on the **Remove** button (*Figure 86*) that is located at the top of the secondary navigation sidebar.

5.5.3.2 Add and remove a motion

LINX

Add a motion from the Edit menu From the menu bar, click on Edit | Add Motion.

Click on **Motions** in the primary navigation sidebar to view the new motion in the secondary navigation sidebar.

Add a motion from the secondary navigation sidebar Click on Motions in the primary navigation sidebar and then click on the Add Motion button (*Figure 88*) that is located at the top of the secondary navigation sidebar.

Remove a motion from the secondary navigation sidebar Click on **Motions** in the primary navigation sidebar. Select a motion from the secondary navigation sidebar to remove. Click on the **Remove** button (*Figure 89*) that is located at the top of the secondary navigation sidebar.

5.5.3.3 Add and remove a position

Add a position from the Edit menu From the menu bar, click on Edit | Add Position.

Click on **Positions** in the primary navigation sidebar to view the new position in the secondary navigation sidebar.

Add a position from the secondary navigation sidebar Click on **Positions** in the primary navigation sidebar and then click on the **Add Position** button (*Figure 91*) that is located at the top of the secondary navigation sidebar.





Figure 87: Edit - add motion



Figure 88: Add motion button





Figure 90: Edit - add position



Remove a position from the secondary navigation sidebar

Click on **Positions** in the primary navigation sidebar. Select a position from the secondary navigation sidebar to remove. Click on the **Remove** button (*Figure 92*) that is located at the top of the secondary navigation sidebar.



Figure 92: Remove position button

🚺 See also See "Update memory positions" on page 46

5.5.3.4 Add and remove an angle source

Add an angle source from the Edit menu

From the menu bar, click on **Edit | Add Angle Source**.

Click on Angle Sources in the primary navigation sidebar to view the new angle source in the secondary navigation sidebar.



Figure 93: Edit - add angle source

Add an angle source from the secondary navigation sidebar

Click on **Angle Sources** in the primary navigation sidebar and then click on the Add Angle Source button (Figure 94) that is located at the top of the secondary navigation sidebar.

Remove an angle source from the secondary navigation sidebar

Click on Angle Sources in the primary navigation sidebar. Select an angle source from the secondary navigation sidebar to remove. Click on the **Remove** button (*Figure 95*) that is located at the top of the secondary navigation sidebar.

5.5.3.5 Add and remove a trigger angle

Add a trigger angle from the Edit menu From the menu bar, click on Edit | Add Trigger Angle.

Click on Trigger Angles in the primary navigation sidebar to view the new trigger angle in the secondary navigation sidebar.



Figure 96: Edit - add trigger angle





source button



Figure 95: Remove angle source button



Add a trigger angle from the secondary navigation sidebar

Click on **Trigger Angles** in the primary navigation sidebar and then click on the **Add Trigger Angle** button (*Figure 97*) that is located at the top of the secondary navigation sidebar.



Figure 97: Add trigger angle button

Ш

Figure 98: Remove

trigger angle button

Remove a trigger angle from the secondary navigation sidebar

Click on **Trigger Angles** in the primary navigation sidebar. Select a trigger angle from the secondary navigation sidebar to remove. Click on the **Remove** button (*Figure 95*) that is located at the top of the secondary navigation sidebar.

5.5.4 Change the system and program name

The system and program names are located in the top-right of the **Home** view and can be edited directly there.



Figure 99: System and program name

To change the system and program names:

- 1. Click **Home** on the primary navigation sidebar.
- 2. Click in the System Name or Program Name text box and edit the name.
- 3. Save your changes:
 - When working in connection context's live edit mode or bulk edit mode: click **Write** to write your changes to the wheelchair.
 - When working in file context: click File | Save to save your changes to the file.

기 Note

The system name cannot be changed with a distributor-level LiNX Access Key.



5.5.5 View system information

Click **Home** in the primary navigation sidebar to display an overview of the connected system.

Since Ohours driving + O total battery cycles	0 hours driving / day 1 hours charging / day	SYSTEM NAME Demonstration PROGRAM NAME Default System CONFIGURATION SUMMARY 9 Drive Functions 12 Seating Functions	4
Programming Error	Today	6 Actuator Motions	
Missing Input	Today	Gyro supported Lighting supported	
System Available	Today		
		System Summary	6
Last modified: Tue Dec 13 12:20:43 2016 First created: Mon Nov 7 07:50:40 2016	3	Design Dept MANUFACTU	RER

Figure 100: Viewing system information

The Home screen displays the following information:

2	Events	An overview of events
3	File information	Time stamps for when the configuration was created and last modified
4	System and program name	The system and program names. These are editable. (See <i>Change the system and program name</i> .)
5	Configuration summary	Overview of modules, features and functions on the connected system
6	System summary	Click to view version information about the modules in the connected system. (See <i>View the system</i> <i>summary</i> .)
7	LiNX Access information	LAK and application details



5.5.6 View the system summary

The system summary displays version information about the modules in the connected system.

:

To view, click the **System Summary** button (see item 6 in *Figure 100*) at the lower-right of the home screen.

The system summary displays each module with its firmware status:

- A green marker indicates the firmware is up-to-date
- A white arrow on a blue background indicates the firmware is out-of-date and an upgrade is available

🚺 Note

To upgrade the firmware, see 5.8.5 Upgrade firmware

System Summary		
	System Summary	
	Chair	
	Power Module DLX-PM60AL-B	Firmware: 6.0.8 Hardware: 2.8 Serial No.: I16162340
	Remote DLX-REM400-A	Firmware: 6.0.8 GUI: 6.0.8 Asset: 6.0.8 Asset: 6.0.8 Asset: 6.0.8 Asset: 6.0.8 Hardware: 1.4 Serial No.: E17112062
	Input Module DLX-IN500-A	Firmware: 6.0.8 Hardware: 1.5 Serial No.: B17148640
	Tools	
	Access Key DLX-HKEY02-A	Firmware: 5.1.12 Hardware: 1.3
		Update Update All Close

Figure 101: Viewing system summary

5.5.7 View the error and event logs

To view the wheelchair's event log, select **Chair Log** from the primary navigation sidebar. The event log is displayed on the left-hand-side of the main content area. It shows active and historical errors (from today and the past week).

Active errors display at the top of the log. The active errors screen displays faults that:

- are current on the connected LiNX system
- if in file context, were current when the file was read from the wheelchair

For all errors, the following information is recorded:

- event name describes the active error
- module displays the location of the error
- event code displays the flash code

System events are shown below the active errors. For all events, the following information is recorded:

- event name describes the event
- module displays the event location
- event code displays an event code, if any (For errors, this will be the flash code)
- time stamp date and time event occurred (Not available on LiNX LE systems)

To view more information about an event in the chair log, click the event and its description displays.

Events	🔿 Reset Log
Q Filter events	×
No active errors	
TODAY	
System Clock Set	
DLX-PM60AL-B 24/01/2020 8:18 AM	
Lost track of current time	
System Available	
DLX-PM60AL-B 0 day(s), 00:00:01 since clock reset	
Lost track of currer	nt time
YESTERDAY	
Battery Too Low	
23/01/2020 4:03 PM	
Bus data interrupt	
DLX-PM60AL-B 23/01/2020 4:03 PM	
Loss of battery charger monitor	FC: 2
DLX-PM60AL-B 23/01/2020 4:03 PM	
Figure 102: Section of the event	log panel

Use Filter events to display events based on filter terms you enter.

Clear the filter, in the connection context: click the X on its right. Clear the event log, in the connection context: click **Reset Log**.





5.5.8 View statistics

The LiNX system records statistics for battery use and driving.

To view the wheelchair's statistics, select **Chair Log** from the primary navigation sidebar.

The statistics display on the right-hand side of the main content area, showing battery and drive statistics.

Battery usage displays at the top of the panel. Drive statistics display below the battery statistics. Battery statistics are detailed in the following table.

Statistics

BATTERY USAGE	🖸 Reset
Tracking battery usage since	
Battery Charging Time	0 days, 00:00:00
Number of Charge Cycles	0
Band 1 Indicator Time	0 days, 00:00:00
Band 2 Indicator Time	0 days, 00:00:00
Band 3 Indicator Time	1 day, 21:49:42
Band 4 Indicator Time	0 days, 23:41:49
Band 5 Indicator Time	0 days, 00:00:00
Average Battery Voltage	24.00 V

Figure 104: Section of the statistics panel



Battery usage statistics	Details
Battery Charging Time	The length of time the batteries have been charged for
Number of Charge Cycles	The number of times the batteries have been charged
Band 1 Indicator Time	The total time the LiNX system is operated with the state of charge between 0 and 20%
Band 2 Indicator Time	The total time the LiNX system is operated with the state of charge between 20% and 40%
Band 3 Indicator Time	The total time the LiNX system is operated with the state of charge between 40% and 60%
Band 4 Indicator Time	The total time the LiNX system is operated with the state of charge between 60% and 80%
Band 5 Indicator Time	The total time the LiNX system is operated with the state of charge between 80% and 100%
Average Battery Voltage	The average battery voltage over the last 31 days
Last Charge Timestamp	The date and time the batteries were last put on charge
Number of High Battery Events	The number of high battery warnings
Number of Low Battery Events	The number of low battery warnings
Number of Deep Discharge Warnings	The number of deep discharge warnings

To view more information about a battery statistic: click a statistic, and a description displays. To reset the battery statistics' values: click **Reset**, when in the connection context, at the top of the battery statistics.



Figure 105: Reset battery statistics in connection context

🗾 Note

Resetting the battery statistics resets the enhanced battery gauge algorithm. If your system uses the enhanced battery gauge: after resetting the battery statistics, we recommend placing the wheelchair's batteries on charge for a complete charging cycle so the enhanced battery gauge can display an accurate state of charge.

Drive statistics are shown below the battery statistics. (Use the scroll bar to access them.)

Drive statistic	Details
Average Motor Current	The average current drawn across all motors while driving
Maximum Left Motor Current	The peak measured motor current
Maximum Left Motor Current Time	Time spent drawing the "Maximum Drive Current Draw"
Maximum Right Motor Current	The peak measured motor current
Maximum Right Motor Current Time	Time spent drawing the "Maximum Drive Current Draw"
Powered Up Time	The total time the wheelchair controller is powered up
Drive Time	The total time the wheelchair has been driven
Average Daily Drive time	Average drive time over a 24 hour period, and averaged over previous 24 hour periods

Drive statistic	Details
Time Near Maximum Current	The duration the current was within 20% of maximum threshold
Trip Distance	The total distance travelled by this wheelchair in meters since being reset by the user.
Total Distance Travelled	The total distance travelled by this wheelchair since being reset by a service agent.

To view more information about a drive statistic: click a statistic, and a description displays. To reset the drive statistics' values: click **Reset**, when in the connection context, at the top of the drive statistics.

 DRIVE STATISTICS	O Reset
Figure 106:	Reset drive statistics

5.5.9 Searching

Use the **Filter parameters** tool (at the bottom of the primary navigation sidebar) to locate a parameter quickly.

To find a parameter:

 Enter a term in the Filter parameters box. Any parameter group containing the term is highlighted in the primary navigation sidebar.



Figure 107: Search/filter tool

Select a highlighted group.
 Any parameter containing the filter term is displayed in the main content area.

To clear the Filter parameters box and any displayed filtered items, click the X on the right of the box. The box empties and the main content area reverts to its previous state.

5.6 Configure control inputs and outputs (control IO)

On selected LiNX modules, you can configure a control input (CI) to select and control an output (CO) such as another LiNX module, function or feature.

An input, for example, can be an external buddy button connected to a control input pin on a power module, a multi-way switch connected to a CI pin on an input module, or one of the rocker buttons on a remote module. Outputs include seating, lighting, horns, and function selection.

Control IO can be configured with unconditional or conditional rules. An unconditional rule (or **always** rule) is applied to an output when you want to ensure that the output is activated whenever its input is triggered.

A conditional rule (using **if** and **if/else**) is applied to control IO where you want the activation of an output to be subject to the state or function of the system at the time the input is triggered. That is, instead of an output always activating when its input is triggered (like the always rule), it will activate only if the condition is true.



LINX

🖊 Note

For more detailed descriptions about conditional control IO, including worked examples, see the LiNX System Installation Manual (GBK54036).

This section describes how to set up control IO for your system:

- 1. Select and configure an input
- 2. Configure an always rule
- 3. Configure a conditional rule
- 4. Configure advanced settings

5.6.1 Select and configure an input

1. From the primary navigation sidebar *Figure 108* , click on **Modules**.



Figure 108: Selecting and configuring control IO inputs

- From the secondary navigation sidebar *Figure 108* , labelled **Modules**, select the module that your input is connected to. For example, if you have a buddy button connected to one of the CI pins on the power module, select *Power Module*. If you want to use one of the multi-function buttons on the REM400, select *REM4xx*.
- 3. Scroll down until you find the **Port Settings** *Figure 108* for the control input that you want to configure. For example, if you want to add a power button to the left jack socket on a REM400, scroll down until you find *Left Jack Socket (J1) Tip Port Settings*.

- 4. Under **Port Settings**, click on **Input Type** *Figure 108*⁽⁴⁾ to reveal which input types are available for the input. These differ depending on the module and your LiNX Access Key access level (OEM/dealer). Input types available will be one or more of the following:
 - Not Connected
 - 10-Way Switch
 - Resistor Bands
 - Button
 - Power Button
 - Function Key
- 5. Click on one of the Input Types *Figure 108* ⁶ to reveal its control IO slots:
 - If you select **10-Way Switch**, ten slots named **Switch 1** through to **Switch 10** are displayed.
 - If you select **Resistor Bands**, ten slots named **Band 1** through to **Band 10** are displayed.
 - If you select **Button**, four slots (button types) are displayed: **Momentary**, **Short Press**, **Long Press** and **On Press**.
 - If you select **Power Button** or **Function Key**, no slots are displayed and there is no further action required.

🕖 Note

Complex configurations, which have been pre-configured for the manufacturer, are not configurable through the tool. For these slots:

- if the slot can be defined in a simple way, the slot will display the configuration summary and show this icon:
- if the slot cannot display the configuration summary, because of its complexity, it will display 'Restricted' and the slot will show this icon:

An example control IO slot, when opened, is shown in *Figure 109*. To open a slot, hover your mouse pointer over it and click on the **add rule** button when it appears on the right-hand side of the slot.



When creating a rule, the slot background is blue. The slot comprises a single drop-down menu to select conditions (default is **Always**, meaning no conditions), and one or more



drop-down menus to select output actions. On the right-hand side of the slot are the commit rule and discard rule buttons. Click on the commit rule button when you have finished creating this rule to tell the system to use this rule. Once committed, the slot's blue background is removed. If you no longer want this rule, click on the discard rule button to delete it.

기 Note

Each time you select a condition or output action in the control IO slot, it is saved automatically for you. However, the rule will not be used in the system until you click on the **Commit rule** button.

5.6.2 Configure an always rule

To configure an **always** rule, you need to configure an output from the list of output actions in the control IO slot.

1. Hover your mouse pointer over a control IO slot and click on the add rule button

when it appears on the right-hand side of the slot *Figure 110* **1**. Make sure the **conditions** dropdown menu is set to **Always**.

Momentary	add rule
Sets the action to be performed while the switch is activated.	
Always	4 🛛 😵
Display Reason for Prive Slowdown is Tilt	

Figure 110: Configuring an always rule

- 2. Click on the first **output action** drop-down menu, which is on the left-hand side, under the **conditions** dropdown menu, and select an output action *Figure 110* **2**.
- Click on the second and third output action drop-down menus (if available) to refine the output action *Figure 110*³.
- 4. Click on the **Commit rule** button (check mark) to commit the rule *Figure 110* **4**.

To add more **Always** rules, repeat steps 1–4 above — note that each rule must be committed (using the **Commit rule** button) before another rule can be added.

5.6.3 Configure a conditional rule

Conditions are selected from the conditions list. To assign a condition to your rule:

- Hover your mouse pointer over a control IO slot and click on the add rule button when it appears on the right-hand side of the slot *Figure 111* .
- 2. From the **conditions** drop-down menu, select a condition *Figure 111* ².



Momentary	1 add rule
Sets the action to be performed while the switch is activated.	•
System is in Rest	
Display Actions Exit Rest	

Figure 111: Configuring a conditional rule

- 3. From the first **output action** drop-down menu, which is on the left-hand side, under the **conditions** dropdown menu, select an output action *Figure 111*³.
- 4. Click on the second and third output action drop-down menus (if available) to refine the output action *Figure 111* 4.
- 5. Click on the **Commit rule** button (check mark) to commit the rule *Figure 111* **5**.

To add more **Conditional** rules, repeat steps 1–5 above — note that each rule must be committed (using the **Commit rule** button) before another rule can be added.

5.6.4 Configure advanced settings

The advanced settings allow you to (optionally) configure the control inputs further. Click on the **Advanced** button (*Figure 112*) to reveal the following options:

- Stop Driving and Seating
- Input Port Debounce
- Enable Input
- Monitored
- Stability Checking
- Normally Closed

2	\succ	
\subseteq	Advanced	
	Stop Driving and Seating	Off 🗸
	Input Port Debounce	0.0 s
	Monitored	Off ×
	Stability Checking	On 🗸
	Normally Closed	Off ×
	Enable Input	On 🗸

Figure 112: Advanced settings

The use of these is described below:

Stop Driving and Seating

Stop Driving and Seating

This option ensures any activation of this control input will cause driving and

seating operations to stop. Select On or Off.

Off



Input Port Debounce

Input Port Debounce	0.0 s

This option sets the time the signal on the input port has to be stable for, before the system responds to the input. Set the Input Port Debounce time by clicking on the + and - buttons. If it is set to zero seconds, no debounce is applied.

🗾 Note	
When Input Port Debounce is set to any value greater than zero, the following b	outton inputs
cannot be configured: short press, long press, on press.	
Enable Input	
Enable Input	On 🗸
This option sets whether the input is enabled. Select On or Off.	
Monitored	
Monitored	On 🗸
This option sets whether this input is monitored for electrical fau or Off.	ults. Select On
Stability Checking	
Stability Checking	On 🔽
This option sets whether this input is monitored for signal stabili Off.	ity. Select On or
Normally Closed	
Normally Closed	On 🗸
This option sets whether the switch is normally-open or normall Select On or Off.	y-closed.
See also	

For more detailed descriptions about the advanced settings, and worked examples using these steps, see the LiNX System Installation Manual (GBK54036).

5.7 Configure memory positions

The following is an abridged, and more generic version of the LiNX Application Note *Memory Positions - Installation and Configuration*. Its intention is to help you locate the parameters you will need to set up an angle sensor-based memory position using the LiNX Access PC tool.

5.7.1 Overview



Figure 113: Setting up a memory position in four steps

Figure 113 shows the four steps to install and configure a LiNX system with memory positions. It starts with installing the necessary modules (1), creating the servos (2), and then creating a memory position (3). After creating the memory position, you then have a choice on how to operate it: you can either set up a control input (4a), for example, a buddy button, or set up a seating function (4b) to operate it from a remote module.

5.7.2 Step 1 - Install modules

Install and connect the required actuators, actuator modules, and angle sensors to the wheelchair and then edit the port settings and angle sources.

5.7.2.1 Port settings

For each control input angle sensor¹ in your system, specify the port that it is wired to. The **Port Settings** (*Figure 114*) are found under **Modules | [module] | CONTROL INPUT [n] - PORT SETTINGS** (where [module] is a connected module such as the power module or actuator module, and [n] is the control input number). For example, if the angle sensor is connected to control input 1 on the power module, select **Modules | Power Module | CONTROL INPUT 1 - PORT SETTINGS**.

- Change Input Type to Control Input Angle Sensor.
- Edit Zero Point Offset, if applicable (depends on your installation)
- Edit Clockwise Rotation, if applicable (depends on your installation)



¹You do not have to do this for actuator module angle sensors — the actuator module connects to the LiNX system via the LiNX bus and its angle sensor is recognised on power-up.


User Preferences		Dewer Medule	
🗎 Chair Log	Modules	Power Module	
S Modules	Power Module	Type of Position Control	None
·	DEM 1w	CONTROL INPUT 1 - PORT SETTINGS	
Notions	NEM IX	Input Type	Control Input Angle Sensor
Y Positions	REM 2xx	Zero Point Offset	- + 0°
	REM 4xx	Clockwise Rotation	Off ×

Figure 114: Specify the port to which the control input angle sensor is wired

5.7.2.2 Angle sources

Identify and map each angle sensor that has been installed to specific, named angles called "Angle Sources". Select **Angle Sources** from the primary navigation bar and then select an unused angle source from the secondary navigation bar (*Figure 115*) — the default name for these sources is *Angle Source 1*, *Angle Source 2*, etc.

🚺 Note

If **Angle Sources** is not available in the primary sidebar, you can add it by selecting the **Edit** menu at the top of the screen and then clicking on **Add Angle Source**.

- Click on **Angle Source Name** and rename the source to something more appropriate and memorable ('Backrest', for example, if the source measures the angle of the backrest).
- Click on the **Angle Sensor** drop-down box and select which angle sensor you will be using for this angle source.
- If you intend to use a relative angle for position control, select a second angle sensor from the **Reference Angle Sensor** drop-down box.

 Motions Positions 	Angle Sources	Angle Source 1	
Angle Sources	Angle Source 1	CONFIGURATION	
A Trigger Angles		Angle Source Name	Backrest
		Angle Sensor	Power Module Control Input Port 1
Core Features		Reference Angle Sensor	None

Figure 115: Select an Angle Source

5.7.3 Step 2 - Create servos

Create one or more servos by linking the angle sources to the actuator channels.

Locate the actuator channel settings for the module you are using under **Modules** | [module] | ACTUATOR CHANNEL [n] - SETTINGS (where [module] is a power module or actuator module, and [n] is the actuator channel number). For example, if you are using actuator channel 1 on the ACT200-1 module, the settings parameters can be found under Modules | ACT200-1 | ACTUATOR CHANNEL 1 - SETTINGS.

0.11-0.1	IN 500	onore on one rose rypo	0.001000.0
User Preferences		User-Removable Actuator	No
🗎 Chair Log	OUT 500-1	Maximum Actuator Operating Time	- + 60 s
Solution Modules	OUT 500-2	Type of Position Control	Angle Feedback
Notions	CVD	Angle Source for Position Control	None
	GYR	Direction to Increase Angle	Extend
Y Positions	107000 4		
	ACT 200-1	ACTUATOR CHANNEL 2 - SETTINGS	

Figure 116: Create servos



- Select the type of position control for this actuator channel from the **Type of Position Control** drop-down box.
- Select the angle source that will be associated with this actuator from the **Angle Source for Position Control** drop-down box — the names in the drop-down box are derived from the **Angle Sources** you created in step 1.
- With **Direction to Increase Angle**, select the direction this actuator will move in order to increase the angle during position control. Set to **Extend** if the angle of the angle source increases when the actuator extends; set to **Retract** if the angle of the angle source increases when the actuator retracts. To help you with this, use Live Diagnostics in the LiNX Access iOS tool to monitor the angle readings while operating the actuator.

5.7.4 Step 3 - Create memory position

Name and define a memory position using its identification and actuator parameters.

From the primary sidebar, click on **Positions** and select an unused position from the secondary sidebar — *Figure 117*. If you need to add a new one, click on the **Add Position** button \Im — a new position will be added.

	Positions	P1 Position 1	`_ o
0	P1 Position 1	IDENTIFICATION	
Modules		Position Name	P1 Position 1
Notions		Position Icon	San
Y Positions		Angle Source to Display	None 🗸
Angle Sources]	CONFIGURATION	
		Soft Start Time	- + 0.0 s
∠ ⁺ Trigger Angles		Direct Access Position Speed	100 %
-		Distributor Access	Distributor Access Enabled
		Allow Occupant to Update Position	On 🗾 🗸
		ACT 200-1 : CH 1	
		Sequence Order	- + o
		Target Angle	- + 0 °

Figure 117: Configuring a Position

🖊 Note

If **Positions** is not available in the primary sidebar, you can add it by selecting the **Edit** menu at the top of the screen and then clicking on **Add Position**.

Under the identification section, edit the following parameters:

- Position Name
- Position Icon
- Angle Source to Display (useful for display remote modules only)



Under the channel section, edit the following parameters:

- Sequence Order¹
- Target Angle²

You may also consider editing the following parameters under the configuration section:

- Soft Start Time
- Direct Access Position Speed
- Distributor Access
- Allow Occupants to Update Position

5.7.5 Step 4a - Configure a control input

```
Set up a control input to activate a memory position.
```

Follow the steps below to specify which port the control input (button/switch) is connected to, and then set its behaviour — that is, for example: when pressed momentarily by the user, activate and latch the named memory position:

 From the LiNX Access tool, go to Modules | [module] | CONTROL INPUT [n] - PORT SETTINGS (where [module] is a power module or actuator module, and [n] is the control input number) — see *Figure 118*.

	Modules	ACT 200-1
	CR 4xx	input iype inot connected =
0 User Preferences	ACU 2xx	CONTROL INPUT 2 - PORT SETTINGS
Chair Log		Input Type Button
	TPI	Advanced
Sector Modules	TPIACU	Momentary
Notions		Short Press
	IN 200	Long Press
Y Positions	IN 500	On Press
	GYR	Always 🔗 🖉
	ACT 200-1	Seating P1 Position 1 Latched

Figure 118: Configure a control input

- 2. Under **Port Settings**, click on **Input Type** and select **Button** or **10-Way Switch** this will reveal its control IO slots: *Momentary*, *Short Press*, *Long Press*, and *On Press*.
- 3. Select "add rule" when hovering over your chosen control IO slot.
- 4. Leave the first drop-down box as **Always**.
- 5. From the second drop-down box, select **Seating**.
- 6. From the third drop-down box, select the name of the Position, for example: **P1 Position 1**.
- 7. From the fourth drop-down box, select **Latched**.
- 8. Click on the **tick** button (white tick, green background) to save this input.

²The **Target Angle** is set between -180° and +180° with a resolution of 1°. When an actuator drives as part of this memory position, it stops when it reaches the target angle.



¹The **Sequence Order** determines at which point, if at all, the actuator channel powers during the operation of this memory position. Any channel whose Sequence Order is set to zero is not used in the memory position operation. If different values are used (except zero), the actuator channels drive in order, one after the other, starting with the lowest number - that is, 1 first, 2 second, etc. If the same value is used across channels, they power at the same time.

Your memory position is now ready to be used. Test its operation with the control input created above.

5.7.6 Step 4b - Configure seating function

Set up a seating function to activate a memory position.

Follow the steps below to create a new seating function and then configure a quadrant to activate the memory position.

5.7.6.1 Create function

- 1. Click on the **Functions** menu item in the primary sidebar *Figure 119-1*.
- 2. Click on a profile *Figure 119-2*.
- 3. Click on the **New Function** button [₱] − *Figure 119-3*.
- 4. Click on the **New Seating Function** button [№] *Figure 119-4*. The **New Seating Function** window is displayed (*Figure 120*).





Figure 119: Creating a new seating function



In the **New Seating Function** window:

- 5. Add the name of the memory position *Figure 120-5*
- 6. Select a remote module *Figure 120-6*.
- 7. Click on the **Create** button *Figure 120-7*.

5.7.6.2 Configure quadrant

Set **Input Mode** (under the **General** settings, *Figure 121*) to **Four Quadrant** — memory positions cannot be used when Input Mode is set to either *Forward/Reverse* or *Left/Right*.

Select a quadrant that will activate the memory position (for example, forward quadrant), and set its parameters as follows:

- click on the Motion/Position drop-down box and select the position;
- click on the **Operating Mode** drop-down box and select **Latched**;
- set the Speed.

Your memory position is now ready to be used. Test its operation with the seating function created above.





7-x-positions.lci LiNX Flexible Navigation ① v7.x	Functions	P1 Position 1	
d Home	Drive 1	GENERAL	
Eunctions		Input Mode	Four Quadrant
	C REMRE	Seating Function Name	P1 Position 1
User Preferences	P1 Position 1	Enable Seating Function	On 🗸
🗎 Chair Log	Drive 1	Function User Input	REM 4xx series
🔒 Modules		Navigation Timeout Enabled	On 🗸
Notions	Drive 2	Invert Motions in Seating Function	Off ×
1	Tilt	FORWARD OUADRANT PARAMETERS	
- Positions	Pecline	Motion/Position	P1 Position 1
Angle Sources		Operating Mode	Latched
$ extstyle{}^{+}$ Trigger Angles	Mouse 1	Speed	- + 100 %



See also

See "Update memory positions" on page 46



5.8 Tool utilities

5.8.1 Configure Internet settings

If your computer accesses the Internet via a proxy server, you will need to configure your Internet settings.

To do this:

- 1. Click Help > Internet Settings.
- 2. Select the **Proxy Enabled** switch.
- 3. Add the following details^{‡1}:
 - Proxy address and port
 - User name
 - Password
- 4. Click Close.

Internet Setting	5	
Proxy Enabled	v	
Proxy Address		
User Name		
Password		
		Close

Figure 122: Setting up the proxy settings

🖊 Note

#1 – You may need to consult your IT department for this information.

5.8.2 Set friendly name

The LiNX Access Key is normally identified with the letters 'LAK' followed by a series of characters – for example: LAK-L12147605. Each name is unique, but identifying one key from another may become difficult when there are several names.

You can change the names to friendly names using the **Set Friendly Name** feature:

- 1. Open a Connection tab. You may have to close your connection if you are already in the connection context.
- 2. Select **Set Friendly Name** from the menu.
- 3. Enter a new name into the *Friendly Name* text box.

PAST	CONNECTIONS				¢
Desi C161	ign Dept .79506, Last connected: 15/02/17 11:28 AM	Conr	nect	ŵ	L
Dave L121	es Dongle 46113, Last connected: 19/12/16 2:25 PM	Set Fi Forge Re-es	riendly Name et Device stablish device pa	iring	
					(
	Figure 123: Set frie	ndly n	ame		
	Figure 123: Set frie Bluetooth Friendly Name	ndly n	ame		
	Figure 123: Set frie Bluetooth Friendly Name Enter a new friendly name: Design Dept	ndly n	ame		

Figure 124: Entering the friendly name

- 4. Click OK. After clicking OK:
- the wheelchair power-cycles
- the friendly name updates
- the confirmation screen displays



5.8.3 Forget device

To remove a LiNX Access Key from the *context selection screen*, right-click the key and select **Forget Device** from the menu.

It will then not appear in the connection list.

G	Find more		ď	Open File
0	Q Filter connections	×	•	Q Filter
	Design Dept	MANUFACTURER	☆	C:\Users\ Last opened:
	C16179506, Last connected: 6/03/17 2:43 PM	Connect Set Friendly Name		C:\Users\ Last opened:
		Forget Device		C:\Users\ Last opened:
		Re-establish device pairing		CAUL



Use the **Find more** option at the top-left of the connection screen to search for and redisplay the key in the list.

5.8.4 Check for new version

The PC tool automatically^{‡1} checks for updated software (for the PC tool) and firmware. This operation requires an Internet connection. It is only performed once in a 24 hour period.

If application updates are available, a notification displays asking if you want to download them^{‡2}.

• Click Yes to continue.

After downloading, a notification displays asking if you want to install the updates^{‡2}.

• Click Yes to continue.



🗾 Note

‡1—To manually check for updates, click on the main menu: Help | Check for update. (An Internet connection is required.)

‡2—Only new versions of the application software require a download confirmation. If new firmware is available, it will be downloaded at the same time as the application software, but it will not be installed. Installation of firmware is a manual operation that lets you choose when to upgrade each module.



If new firmware is available, a notification displays.

• Click **View Updates** to view the firmware modules that need updating and to select the modules you wish to update.

See *Upgrade firmware* for information on how to upgrade the firmware.

Inco	ompatible LAK		
	Newer firmw LAK. Update LiNX Access function corre	are is available for y now to ensure that PC Tool continues t ectly.	vour the o
		View Updates	Later
	Figure 128:	Incompatible	LAK

5.8.5 Upgrade firmware

🚹 Warning

Before upgrading firmware, ensure the battery level is not low, and the wheelchair is in a safe and stable state – for example, place it on blocks to elevate it from the ground.

DO NOT upgrade firmware when the wheelchair is on a slope, or when the park brakes are disengaged.

To access the module firmware upgrade screen:

- 1. Ensure the system is in connection context.
- 2. Click the Home menu item in the navigation sidebar.
- 3. Click the System Summary button.

The system summary displays each module with its firmware status:

• A white arrow on a blue background indicates the firmware is out-of-date and an upgrade is available

Firmware can be upgraded on modules individually or all at once.

To upgrade individually:

• Select a single module and click the **Update** button.

To update all at once:

• Click Update All.

System Summary		
DLX-PM60AL-B I16162340		Firmware: 5.0.0 Hardware: 2.8
DLX-REM400-A E17112062		Firmware: 5.0.0 GUI: 5.0.0 Asset: 5.0.0 Asset: 5.0.0 Hardware: 1.4
DLX-IN500-A B17148640		Firmware: 5.0.0 Hardware: 1.5
• DLX-HKEY01-A A21766145		Firmware: $4.0.10 \rightarrow 5.0.0$ Hardware: 0.1
	Update	Update All Close

Figure 129: Firmware status in System Summary

🚺 See also

5.9 Manage configurations and firmware with bundle files



5.8.6 View as manufacturer or distributor

Manufacturers and distributors have different access levels when using the LiNX Access PC tool:

- Manufacturers have access to all parameters
- Distributors have access to a limited number of the parameters

For a manufacturer to understand the distributor's view of these parameters, the manufacturer can change the PC tool's display to show distributor parameters only.

This is useful when, for example, a manufacturer remotely (including by telephone or email) helps a distributor configure a wheelchair and needs to see the wheelchair's parameters from a distributor's perspective.

To change views, click View from the Menu	<u>F</u> ile <u>C</u> alibrate <u>View</u> <u>}</u> <u>H</u> elp
bar and select from:	Current Access Level: Manufacturer
 View as Manufacturer 	✓ View as Manufacturer
 View as Distributor 	View as Distributor
	Figure 130: Selecting the view
Note	
These menu items are available only to manufacturers.	
Home	Home
Q ► Functions	Solutions
Luser Preferences	Luser Preferences
Chair Log	[Chair Log
😽 Modules	Modules
Notions	Notions
Positions	V Positions

 x° Angle Sources

Trigger Angles

Figure 132: View as distributor

E Lighting

 x° Angle Sources

Trigger Angles

Core Features

Drive LimitsGyro LimitsLighting

Figure 131: View as manufacturer

5.9 Manage configurations and firmware with bundle files

To help manage and distribute LiNX configurations and firmware upgrades, the manufacturer can use a bundle file. A bundle file is a collection of files that can be used to program a system either at the time of manufacture, or in the field. For instance, the bundle file can be used to:

- program a LiNX system at the time of manufacture this ensures all chairs are programmed with the same configuration and firmware;
- rescue a system in the field to get it back to a default / known state;
- update systems in the field after a manufacturer's configuration update.

5.9.1 Creating a bundle file

LINX

A bundle file is created by the manufacturer, and can include one or more of the following:

- chair configurations (these have the file extension .lci);
- firmware upgrades (these have the file extension .lfiz).

Once created, the bundle file will have the extension **.** *lcb*.

To create a bundle file, click on File | Create Bundle File (*Figure 133*) from the main menu — the Create Bundle File dialogue opens (*Figure 134*). Firmware that you choose to be included in the bundle file will be displayed in the top half of the dialogue, and configurations that you choose to be included in the bundle file will be displayed in the lower half of the dialogue. To continue, follow the three steps below.



Figure 134: Create Bundle File dialogue

STEP 1: Add firmware files (optional)

To add firmware files to your bundle file, you can either select files specific to a market release (MR) or select them manually using a file explorer.

Select files specific to a market release

Click on the dropdown box, located top and middle of the dialogue, and select one of the MR items (*Figure 134*). The firmware field in the dialogue will be populated with the relevant firmware files associated with your chosen MR.



Note, when choosing to select firmware this way, the **browse** button (top, right of the dialogue) will no longer be available.

Select files manually

Click on the **browse** button on the right-hand side of the dialogue to add files manually. An **Open File** dialogue opens, where you can locate and select a firmware file (*.lfiz). The selected file is added to the firmware field in the dialogue. Repeat to add further firmware files.

7 Note		
If, after adding a file, you wish to remove it, right-click	Create Bundle File	
on the file and select Remove from the context menu –		
it will be removed immediately (Figure 135).	Select Firmware MR 6.3	
	DLX-ACU200-A Remove App ID 46 : 6.3	.0
	DLX-CR400-A App ID 52 : 6.3	.0
	Figure 135: Removing firmware files	

STEP 2: Add configuration files (optional)

To add configuration files (maximum 8) to your bundle file, click on the **add** button that is located on the right-hand side of the *Select Configurations* title bar (*Figure 134*). An **Open File** dialogue opens, where you can locate and select a configuration file (*.lci). The selected file is added to the next available configuration slot. Repeat to add further configurations.

🗾 Note

Right-click on any configuration and select either **Replace** or **Remove** from the context menu if you would like to replace or remove the configuration from the slot (Figure 136). If **Replace** is chosen, you will be able to select a replacement configuration. If **Remove** is chosen, the configuration is removed from the slot immediately.

	Select Configura	ions	add
		Replace	
п	Slot 1: C:/LCB/N	Remove	
0			
-	Figure 136	· Replacing and removing con	figurations

STEP 3: Create the bundle file

To create the bundle file, click on the **Create** button at the base of the dialogue (*Figure 137*) — a **Save File As** dialogue opens from which you can locate a suitable folder to save the file to. Note that the file (which will be saved with a .lcb extension) is automatically given the name of the first configuration file that was selected in step 2, above. If this name is inappropriate, you can rename it. Click the **Save** button to finish.



Create Bundle File	
Select Firmware MR 7.0	Firmware
DLX-ACT200-A DLX-ACT400-A HELIX-M610LX	App ID 34 : 7.0.0 to be included in
DLX-ACU200-A	App ID 46 : 7.0.0
DLX-CR400-A	App ID 52 : 7.0.0 Configurations
Select Configurations	add to be included
Slot 1: C:/LCI/6-3-systems.lci	in bundle file
Slot 2: C:/LCI/7-x-positions.lci	
	Create bundle file
	Create Cancel

Figure 137: Create and save bundle file

When the bundle file is created and saved, a **Success** pop-up is displayed — click on **Ok** to continue.

Success					
s	uccessfully	created LiNX-M	1R7-FWD-B	UNDLE.Icb	
					Ok
			-		

Figure 138: Success message

5.9.2 Distributing a bundle file

Once a bundle file has been created, it can be used by the manufacturer or distributed to a customer for use in the field. When distributing the file, the file can be sent by email or via media such as thumb drives, CD/DVDs etc.

🖊 Note

A bundle file is a binary file that can only be read by the LiNX Access tools. This is useful from a security point of view when distributing the bundle file to, for example, a distributor, since the files cannot be altered by the recipient.

5.9.3 Viewing the contents of a bundle file

To view the contents of an existing bundle file:

- 1. From the main menu, click on **File | Open Bundle File** (*Figure 139*) an *Open file* dialogue opens.
- 2. Locate your bundle file (*.lcb) in the *Open file* dialogue and then click on **Open** to continue.
- 3. View the files presented in the bundle file dialogue (*Figure 140*).
- 4. Click on the **Close** button when you have finished viewing the files.



<u>File</u> <u>E</u> dit <u>C</u> alibrate <u>V</u> iew <u>H</u> elp	Content of LiNX-MR7-FWD-BUNDLE.lcb
Open File Import Firmware	Configurations Slot 1 System Name: LiNX
Save	Program Name: LiNX-RE
Save <u>A</u> s	Firmware
Export CSV	Power Module Firmware
Convert Configuration	DLX-PM120-B Pre-release App ID 23 : 6.4.4 DLX-PM120-C
Authorise Computer	DLX-PM120AL-A DLX-PM120AL-B
Create Bundle File	DLX-PM120AL-C
Open Bundle File	DLX-PM60-C
Quit	Write to Chair Close

Figure 139: Open Bundle File menu

Figure 140	Writing the	bundle	file to the	connected system
inguio 240.	The second secon	Barrato	into to the	oonnootoa oyotonn

5.9.4 Programming from a bundle file

To program a system from a bundle file:

- 1. Connect to a LiNX system.
- 2. From the main menu, click on File | Open Bundle File (*Figure 141*) — an *Open file* dialogue opens.
- 3. Locate your bundle file (*.lcb) in the Open file dialogue and then click on **Open** to continue.
- 4. Review the files presented in the bundle file dialogue (Figure 142) and then click on the Write to Chair button. The bundle file will be written to the connected system, during which the write progress is displayed (Figure 143).

<u>F</u> ile	<u>E</u> dit	<u>C</u> alibrate	<u>V</u> iew	<u>H</u> elp
Ope	n File			
Impo	ort Firr	nware		
<u>S</u> ave	•			
Save	e <u>A</u> s			
<u>E</u> xpo	ort CS	/		
Con	vert C	onfiguration	n	
Auth	orise	Computer		
Crea	te Bur	ndle File		
Ope	n Bun	dle File		
<u>Q</u> uit				
Figu	re 14	1: Open F	Bundle	File

menu

Content of LINX-MR7-FW	D-BUNDLE.lcb		
Configurations			
Slot 1 System Name: LiN Program Name: LiN	IX IX-RE		
Firmware			
Power Module Firmware			
DLX-PM120-B DLX-PM120-C DLX-PM120AL-A DLX-PM120AL-B DLX-PM120AL-C DLX-PM60-B DLX-PM60-C	Pre-release	App ID 23	: 6.4.4
		Write to Chair	Close

.:	Writing program
Figu	re 143: Write progress

Figure 142: Writing the bundle file to the connected system

Page 84



LINX

6 Index

1

10-Way Switch 66

Α

About 25 Access Level Certificate 41-42 Active Errors 61 Actuator 39 ACT200 71 Actuator Motions 39, 48 Adaptive Load Comp Enabled 44 Adaptive Load Compensation 24, 31-32, ΔΔ Add Angle Source 24 Add Function 53 Add Module 24 Add Motion 24 Add Position 24 Add Profile 52 Add Rule 67 Add Trigger Angle 24 ALC 31-32 ALC (Adaptive Load Compensation) 44 Always Rules 64 Angle Sensor 70 Angle Sources 39, 48 Anti-Rollaway 39 Audible Cues 39 Authorise Computer 24, 41-42 Average Battery Voltage 63 Average Drive Time 63 Average Motor Current 63

В

Band 66 Band 1 Indicator Time 63 Band 2 Indicator Time 63 Band 3 Indicator Time 63 Band 4 Indicator Time 63 Band 5 Indicator Time 63 Battery 12, 39, 63 Charging 63 Management 39 Usage 60 Battery Charging Time 63 Battery Gauge 63 Battery Usage 62 Bluetooth 18 Buddy Button 64 Bulk Edit 20, 22, 26, 40 parameter change indication 22 Bundle File 24 Create 24 Open 24 Button 18, 21, 37, 66

С

Calibrate 24, 31 Adaptive Load Compensation 44 Calibrate Sip and Puff 44 Calibration Screen 32, 44 Chair Configurations 42 Chair Log 62 Charge Cycles 63 Check for Updates 16, 25, 77 Clockwise Rotation 70 Commit Rule 67 Conditional Rules 64 Conditions 67 Conditions of Use 15 Configuration Summary 60, 66 Configuration Too Large 50 Connect 39, 42 Connection 38 Context 26 Open 38 Connection Context 43 Connection Context Tasks 39 Connection tab 25 Context Screen 38 Control Input 39, 64 Control Input Angle Sensor 70 Control IO 64 Control IO Slot 66 Controls 2, 12, 14, 24, 42, 91 Convert Configuration 24 Core Features 39, 48 Create Bundle File 24

Creating A Bundle File *80* CSV *24*

D

Deep Discharge Warnings 63 Default Chair Configuration 42 Delete a Profile 52 Diagnostics *i*, 2, 12, 40, 72 Discard 43 Discard Rule 67 Disclaimer 37 Disconnect 43 Display Settings 24 Distributing A Bundle File 82 Distributor 41 Distributor Access 46 **Distributors** 79 DLX-HKEY01-A 17, 41 DLX-HKEY02-A 17, 41 Drive 14 Statistics Average Drive time 63 Average Motor Current 63 Drive Time 63 Maximum Left Motor Current 63 Maximum Left Motor Current Time 63 Maximum Right Motor Current 63 Maximum Right Motor Current Time 63 Powered Up Time 63 Time Near Maximum Current 64 Total Distance Travelled 64 Trip Distance 64 Drive Function 43 Drive Limits 39, 48 Drive Statistics 63 Drive Time 63 Driving / Battery Information 60 Drop-down List Operations 51 Duplicate Function 55 Dynamic 2, 12, 14, 91

Emergency Deceleration 39 Enable Input 68-69 Enter Firmware Upgrade Mode 25 Error and Event Logs 61 Event Code 61-62 Event Name 61-62 Events 60 Examples 31, 65 Export CSV 24

F

File 24, 38, 41-42, 49 Close 50 Context 28 Information 60 Modify 47 Name 41 Remove 50 Save 49 File Context Tasks 47 File Information 60 File tab 25 Firmware Upgrade 78 Forget Device 77 Forward 74 Forward Quadrant 74 Friendly Name 76 Function Move 56 Functions 21, 39, 48

G

Gyro 24, 39 Gyro calibration 31-32 Gyro Limits 39, 48 Gyro Module 32, 43

Н

Help 25 High Battery Events 63 Home 78

Ι

Import Firmware 24

Ε

Edit 24

IN 500 44 Indicators 39 Turn 39 Input Mode 74 Input Module 32, 44 Input Port Debounce 68-69 Input Type 66 Installation 14, 70 Internet Settings 25 Invalid Value 30

J

Jack Socket 65 Joystick shaping 24 Joystick Shaping 31, 45 Joystick Shaping Calibration 33

L

LAK (LiNX Access Key) 17, 25, 38 Language 14, 25 Last Charge Timestamp 63 Layout Overview 23 LCI Extension 41 Lighting 39, 48 LiNX Access Information 60 LiNX Access IOS Tool 72 LiNX Access Key 14, 17 LiNX Access Key (LAK) 17, 38 LiNX Access PC Tool 2, 12, 14, 19, 37 LiNX Access Tools 82 LINX LE 43 Live Diagnostics 72 Live Edit 20, 26 Mode 20, 40 Parameter change indication 21 Load Compensation 24, 31, 44 Long Press 66 Low Battery Events 63

Μ

Main Content Main Menu *24, 80* Manufacturer Manufacturers Maximum Left Motor Current Maximum Left Motor Current Time 63 Maximum Right Motor Current 63 Maximum Right Motor Current Time 63 Memory Position 24 Menu bar Calibrate 24 Edit 24 File 24 Help 25 View 24 Menu Bar 24 Mode 48 Modules 39, 48 Momentary 66 Monitored 68-69 Motions 24, 39, 46 Motor 24,63 Motor Resistance 32 Mouse Mover 39 Move a Function 56

Ν

Navigation 23, 39 Navigation Restrictions 29 New Drive Function 53 New Mouse Mover Function 53 New Seating Function 53 New Utility Function 53 Normally Closed 68-69 Not Connected 26 Number of Charge Cycles 63 Number of Deep Discharge Warnings 63 Number of High Battery Events 63 Number of Low Battery Events 63 Numerical Operations 51

0

On Press 66 Open a file 38 Open Aa File 38, 47 Open Bundle File 24 Open File 24 Open the LiNX Access PC tool 37 Operating Mode 74 Output Action 67 Oversized configurations 50

Ρ

Parameter Edit 40, 48 Parameter Groups 39-40 Parameter Interface 45 Parameters 12, 20, 40 Park Brakes 12, 78 Performance 12, 21, 40 Port Settings 65 Positions 39, 48 Power 39, 91 Power Button 66 Power Module 31, 39, 44 Power ON 27 Powered Off 26 Up Time 63 Powered Up Time 63 Primary Side Bar 30, 40, 48 Profile and Function Actions 52 Profiles 50 Program Modify 39 Name 59 Changing 59 Read 40 Program 49 Read (from wheelchair) 41 Save As File 41 Write 40, 50 Program Name 26, 59-60 Programming *i*, *12*, *17*, *20*, *37* Procedure 12 Proxy Server 17, 76

Q

Quit 24

R

Read *40* Remote Module *17, 39, 74* Requirements *14* Reserved *3* Reset Drive Statistics 64 Reset Log 62 Reset to Default 43 Resistor Bands 66 Restricted 66 Reverse 74

S

Save 24, 41, 49 Save As... 24, 41 Save To File 41 Search Box 30 Searching 64 Seating Functions 53, 75 Secondary Side Bar 30, 40 Serial Number 25 Set Application Language 25 Short Press 66 Sip and Puff 24, 32, 44 Sip and Puff Calibration 31 Specifications 12, 14 Speedometer And Odometer 39 Stability 68 Stability Checking 68-69 Statistics 62-63 Status 12, 26, 61 Status Icon Edit 26 Stop Driving and Seating 68 Store the Access Level Certificate 42 Support Request 25 Switch 40,66 Operations 51 Switch Control 53 Function 53 Switches 22 System Name 59-60 Changing 59 Summary 60 System Information 60 Viewing 60 System Name 29, 59 System Requirements 14

System Summary 25, 78 Viewing 61

Т

Tab Bar 20, 25 Tab Context 29 Template 53 Testing 20 Text-Based Operations 51 Time Near Maximum Current 64 Toolbar 26 Total Distance Travelled 64 Trigger Angle 24 Trigger Angles 39, 48 Trip Distance 64 Tune Adaptive Load Compensation (ALC) 44 Tune the Gyro 43 Turn 39

U

Update 78 Update All 78 Update memory positions 46 Updates 25 User Function Navigation 39 User Input 44 User Input Configuration 44 User Preferences 39, 48 Utility 31, 53 Function 53-54 Utility Screens 31

۷

Version 2, 12, 16, 24, 60 Versions 77 View 24 View as Distributor 24 View as Manufacturer 24 View Updates 78

W

Wheelchair Configuration 26 Whitelist 17 Windows Firewall Windows Security Alert Wireless Programming Write *40*

Ζ

Zero Point Offset 70

Dynamic Controls HQ

39 Princess Street Riccarton Christchurch 8041 New Zealand

PO Box 1866 Christchurch 8140 New Zealand

Phone: +64 3 962 2519 Fax: +64 3 962 2966

Dynamic Europe Limited

Unit 7, Finepoint Way Kidderminster Worcestershire DY11 7FB United Kingdom

GB VAT No. 487 3377 02, Registered in England No. 2385287

Phone: +44 1562 826 600 Fax: +44 1562 824 694

All enquiries: eusales@dynamiccontrols.com

North America Phone: 1-855-207-9942

All enquiries: sales@dynamiccontrols.com

Dynamic Controls Asia (Taiwan)

Floor 4-2, No. 59, Tien Hsiang Road Chung Shan District Taipei 10452 Taiwan R.O.C.

Phone: +886 955 335 243 Fax: +886 225 981 562

All enquiries: asiasales@dynamiccontrols.com

Dynamic Controls Asia (China) Phone: +86 512 6289 2847

All enquiries: asiasales@dynamiccontrols.com



We are Dynamic

Dynamic is a world-leading designer and manufacturer of electronic controls for power wheelchairs and scooters.

Find out about us



Resource Hub

Find product information and downloads relating to all our current products.

Need a resource? We have you covered.



LiNX Knowledge Base

A collection of task-based 'how to...' articles, concepts, application notes and videos.

> LiNX Knowledge Base

dynamic