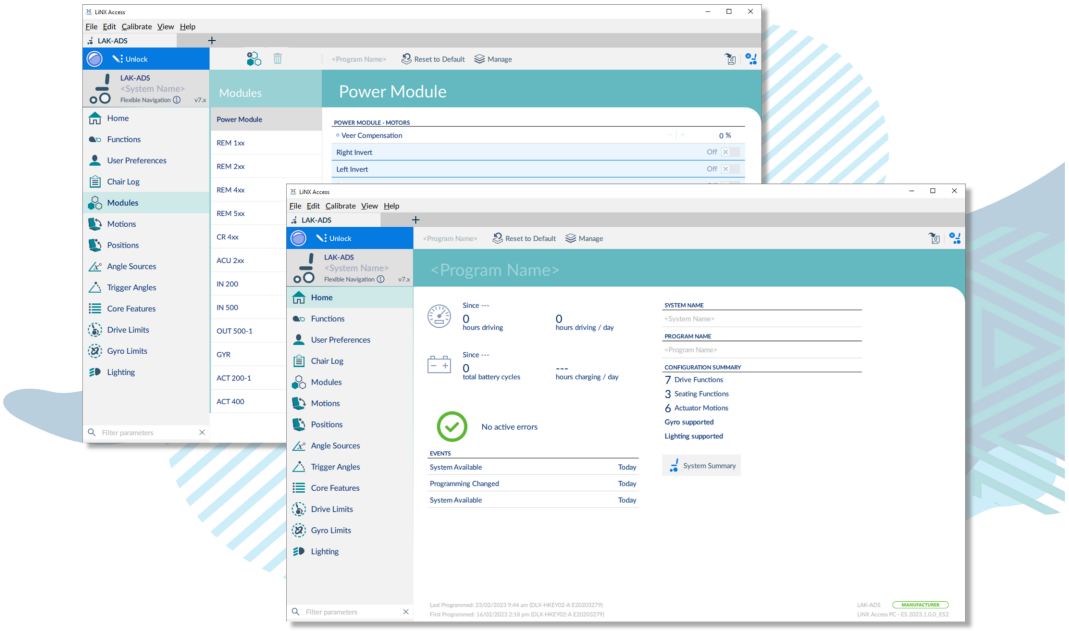
LiNX Access PC

Programming and diagnostic tool



dynamic™

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Welcome

1 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*

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1.5 Contents

1.5.1 Contents Overview

1.5.2 Contents Detailed

1.6 Glossary

A

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

C

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

O

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.

P

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.

Introduction to the LiNX Access PC tool

2 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

2.2 Features

- Move easily between wheelchair and files
- Instant wireless programming (live edit) and diagnostics
- Numeric, graphic and text parameter input
- Intuitive, user-friendly interface
- 10m working range

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

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.

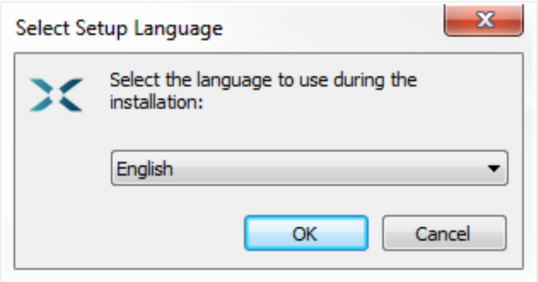

Figure 2: Select the language to use during installation

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**.

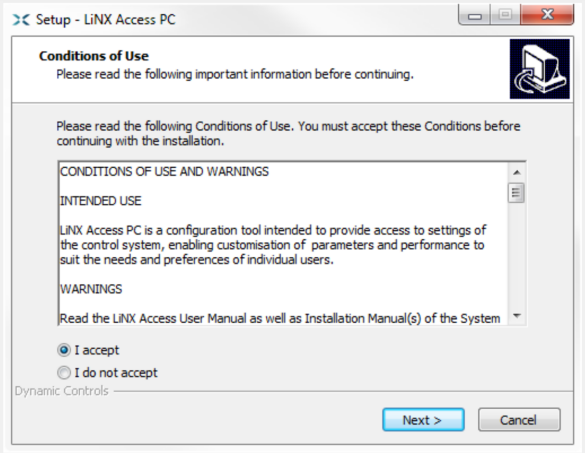

Figure 3: Accept conditions of use

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.

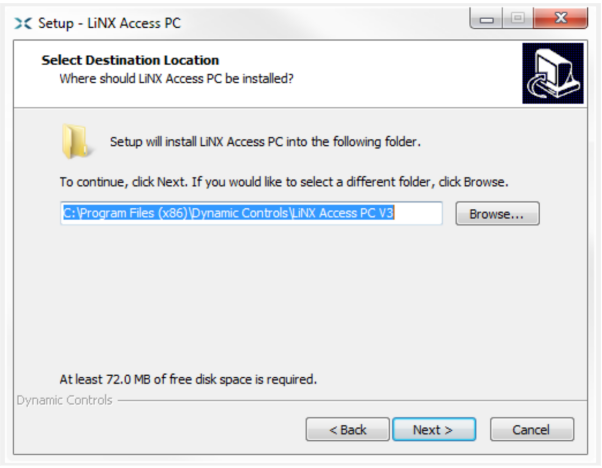

Figure 4: Destination folder screen

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.

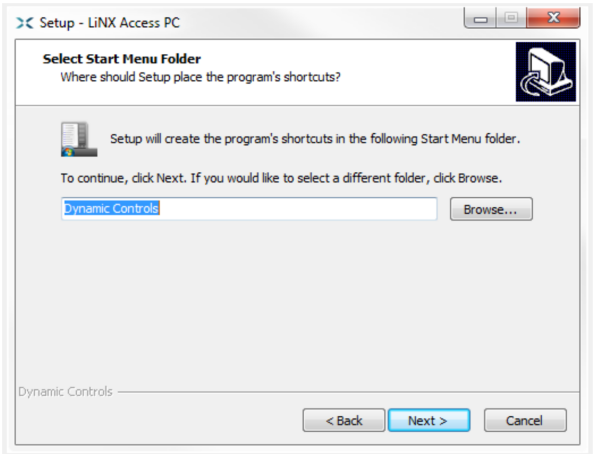

Figure 5: Start menu folder screen

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**.

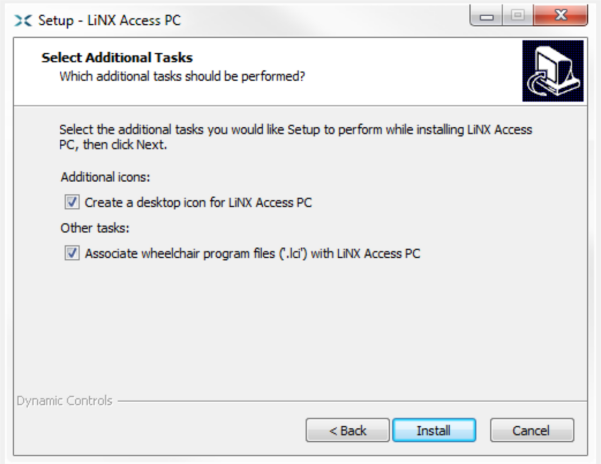

Figure 6: Select additional tasks

Step 6—finish

Click **Finish** to complete the installation.

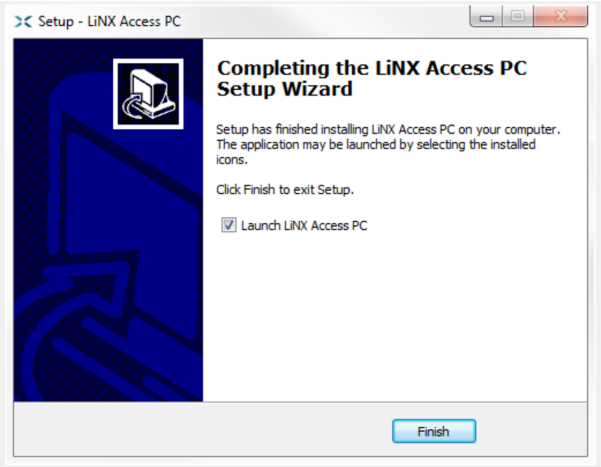

Figure 7: Finish screen

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*

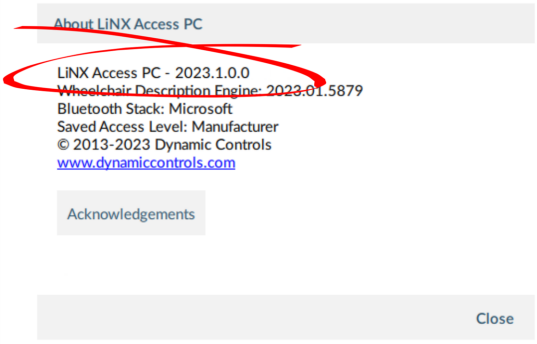

Figure 8: About screen

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

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.

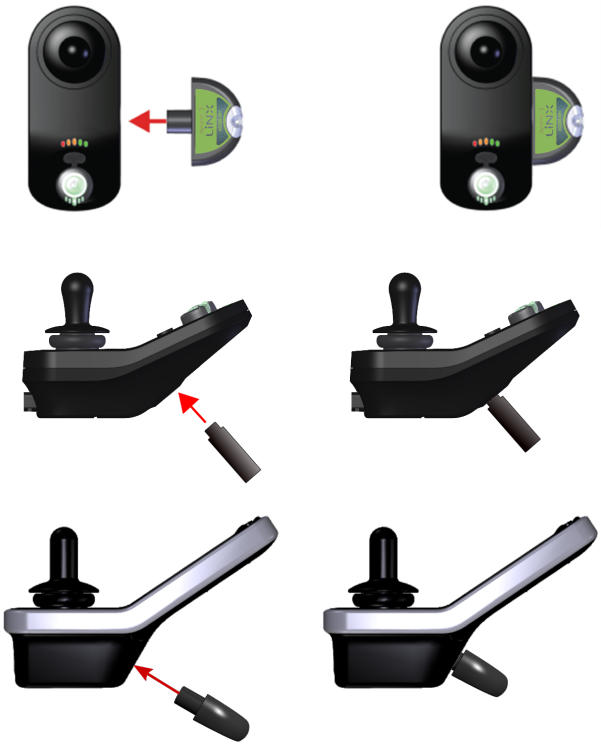

Figure 10: Inserting the LiNX Access Key (top: low profile remote module, middle: REM1xx, 2xx, bottom:REM400)

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:

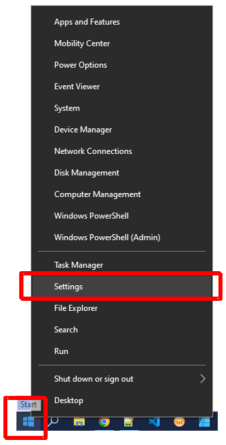

Figure 11: Select Settings

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*.

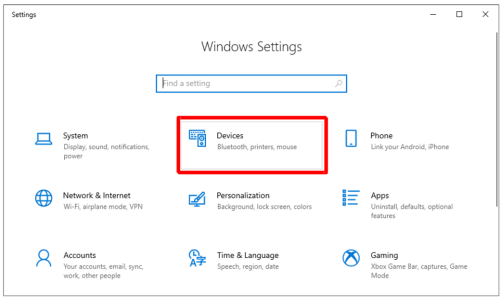

Figure 12: Click on Devices

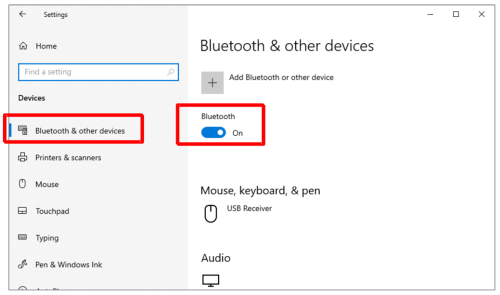

Figure 13: Bluetooth toggle button

3.5.2 Using an external USB Bluetooth adaptor

Figure 14: Example 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.

DO NOT install any drivers provided with the adaptor.

A tour of the LiNX Access PC tool

4 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.

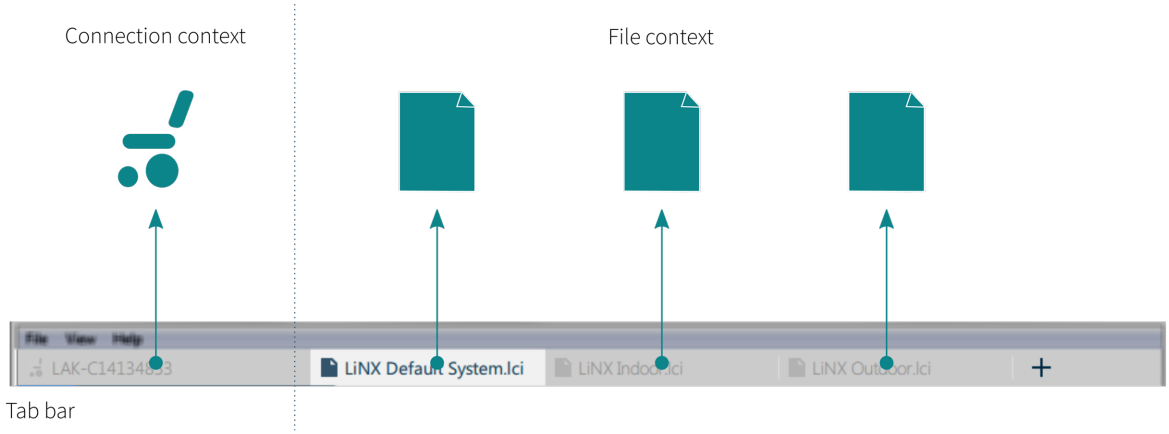

Figure 15: Tab bar with connection and file contexts

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.

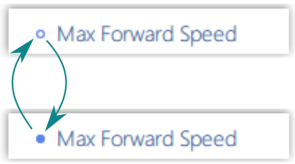

Figure 16: Live edit parameter change indication

Warning
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*.

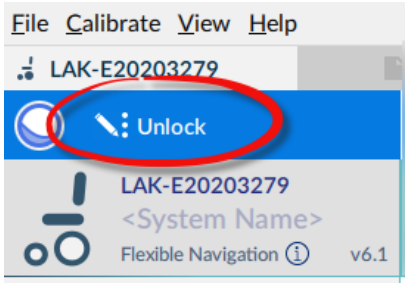

Figure 17: Unlocking bulk edit #1

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

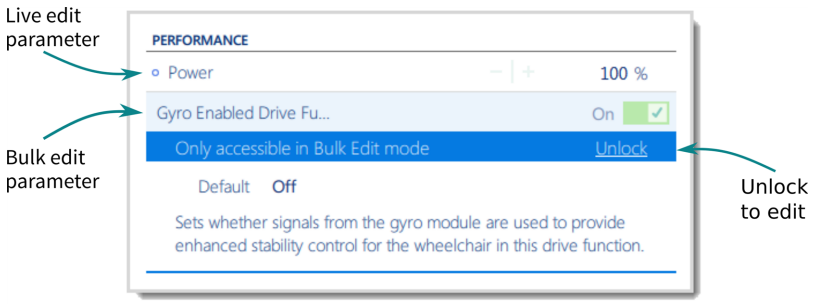

Figure 18: Unlocking bulk edit #2

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.

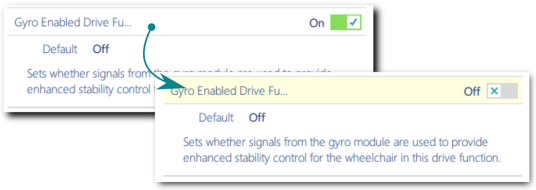

Figure 19: Bulk edit parameter change indication

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.

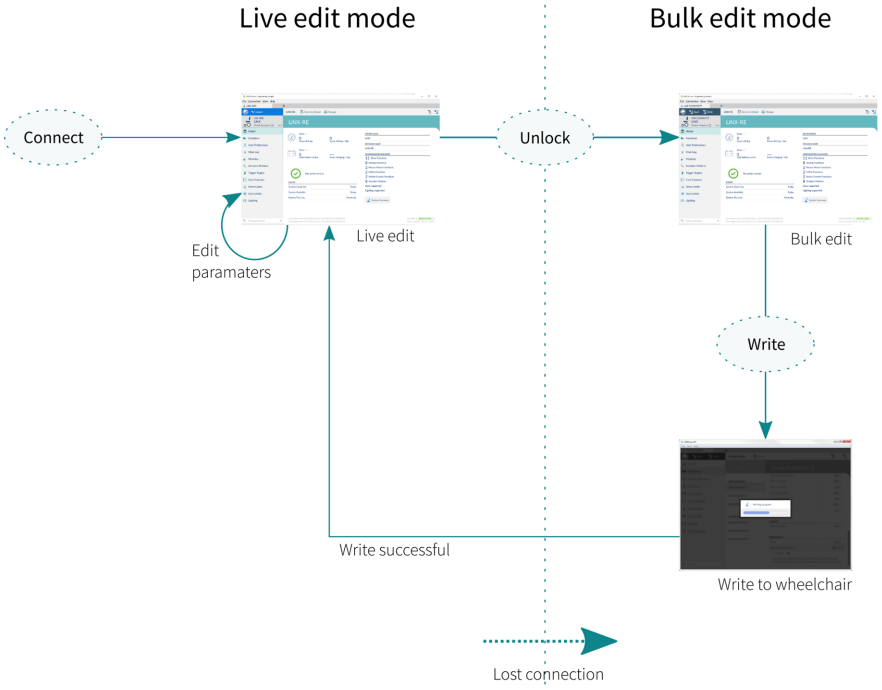

Figure 20: Working with live edit and bulk edit modes

4.3 Screens, screen bars and menus

4.3.1 Screen layout overview

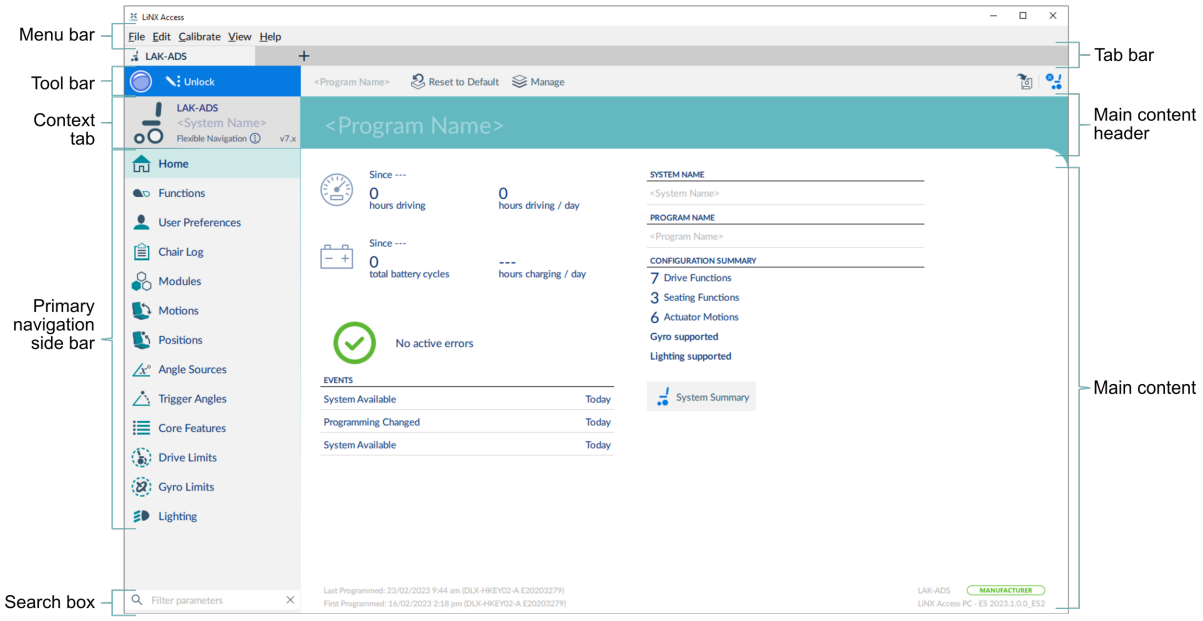

Figure 21: LiNX Access PC structure and features

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*.

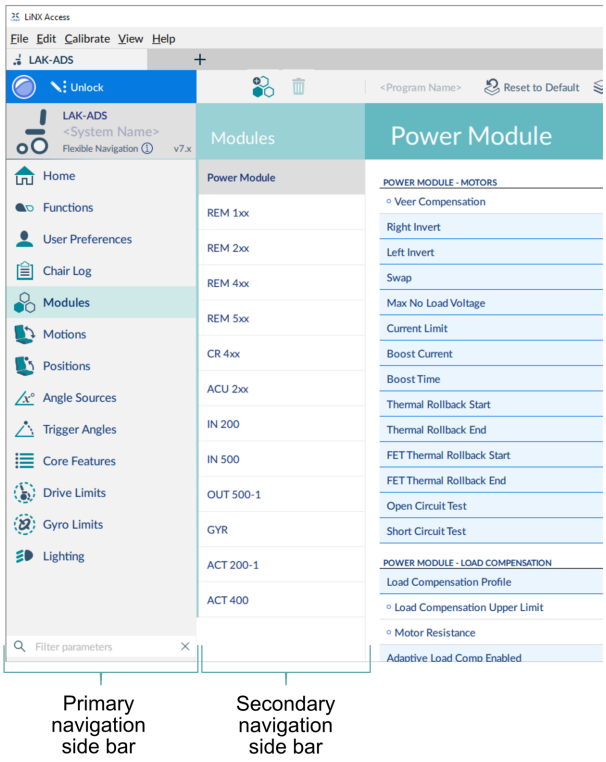

Figure 22: Primary and secondary navigation bars

4.3.2 Menu bar

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

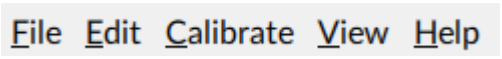

Figure 23: Main menu

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
Gyro	Use this option to set the correct gyro values to maximise the chair's control performance
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 *firmware upgrade screen* (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.

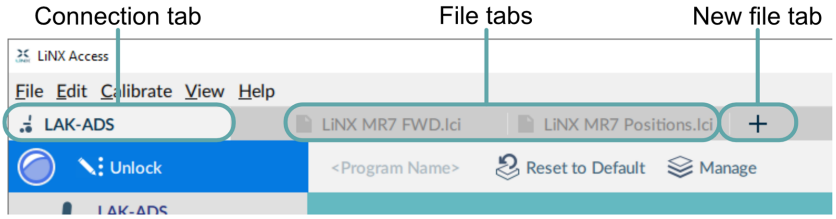

Figure 24: Tab bar showing connection and file tabs

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 25: Live edit

Live edit — icon pans from right to left with a wave motion

Figure 27: Bulk edit

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

Figure 26: Not connected

Disconnected — icon is greyed out and not animated

Figure 28: Powered off

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.

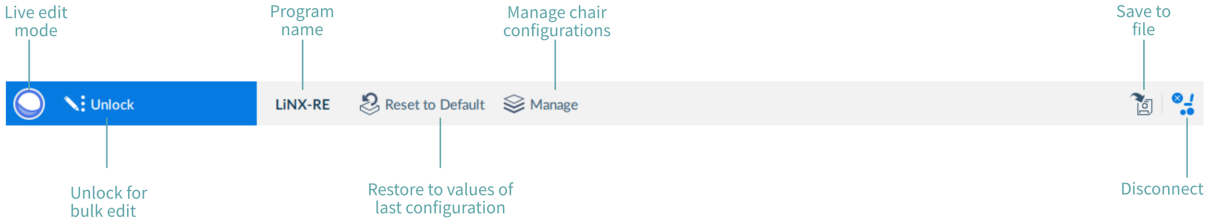

Figure 29: Toolbar - connection context - live edit

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.

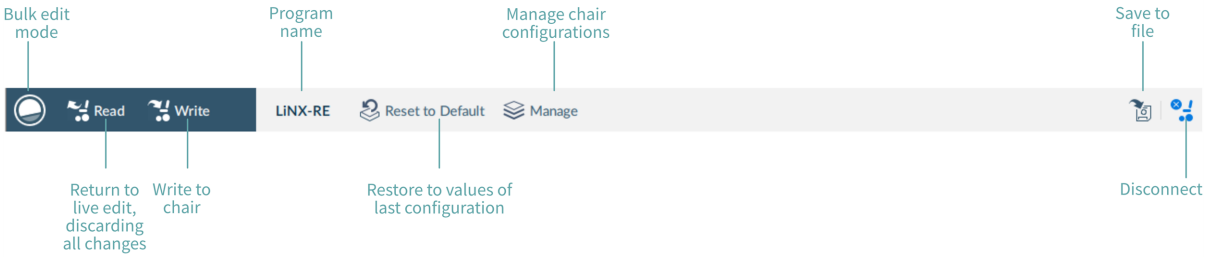

Figure 30: Toolbar - connection context - bulk edit

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.)

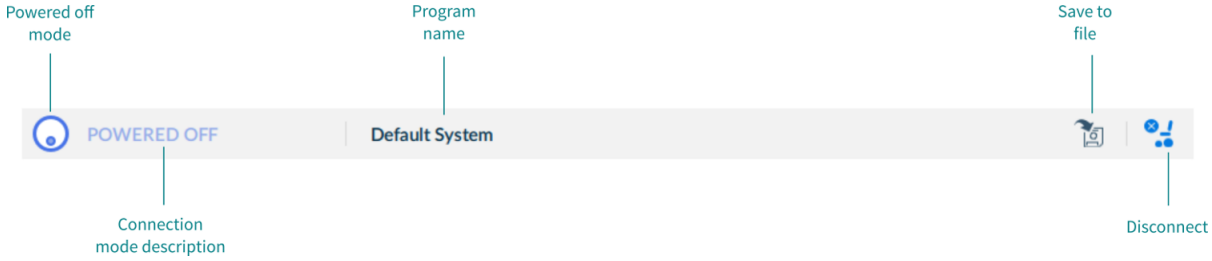

Figure 31: Toolbar - connection context - powered off

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".

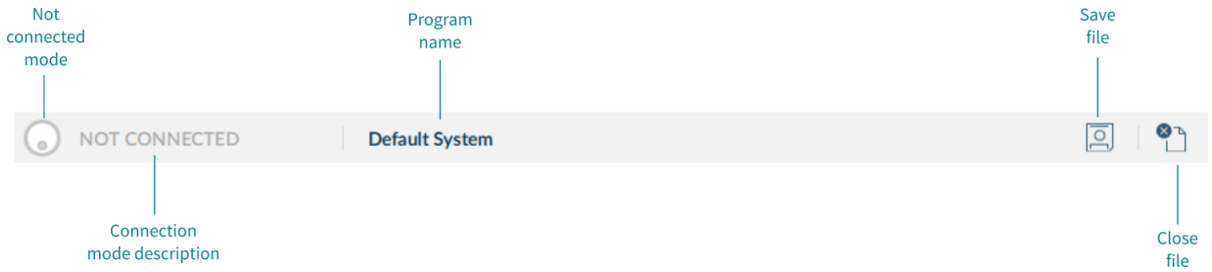

Figure 32: Toolbar - connection context - no connection

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.

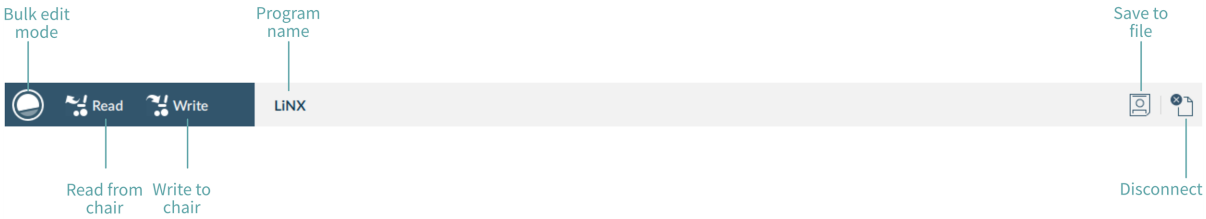

Figure 33: Toolbar - file context - bulk edit

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.)

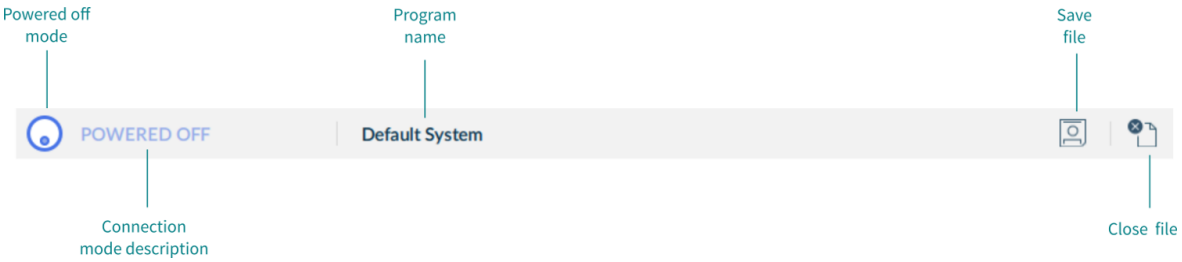

Figure 34: Toolbar - file context - powered off

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".

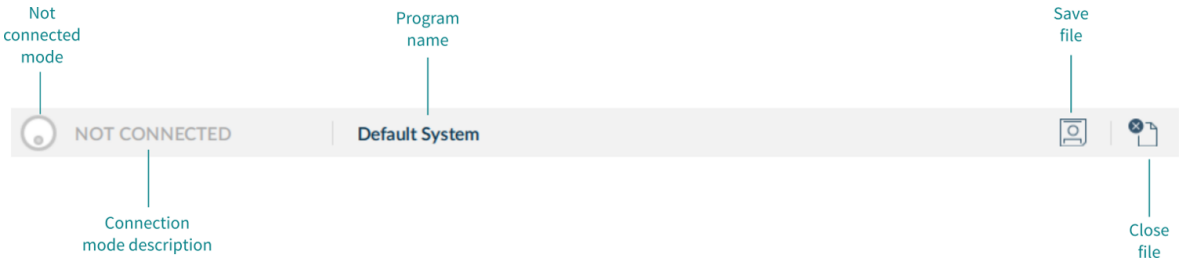

Figure 35: Toolbar - file context - no connection

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*.

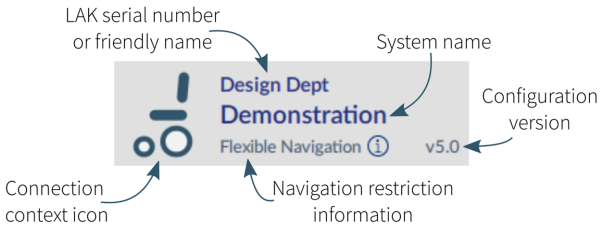

Figure 36: Context tab: connection mode

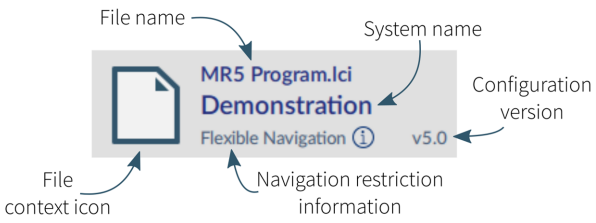

Figure 37: Context tab: file mode

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*.

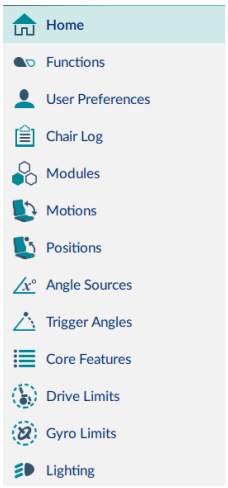

Figure 38: Primary navigation sidebar

The primary sidebar always displays on the left-hand side of the application.

The secondary sidebar displays only for certain primary navigation selections and appears to the right of the primary navigation sidebar.

Home is the default selection on the primary sidebar. Home displays the system dashboard 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.

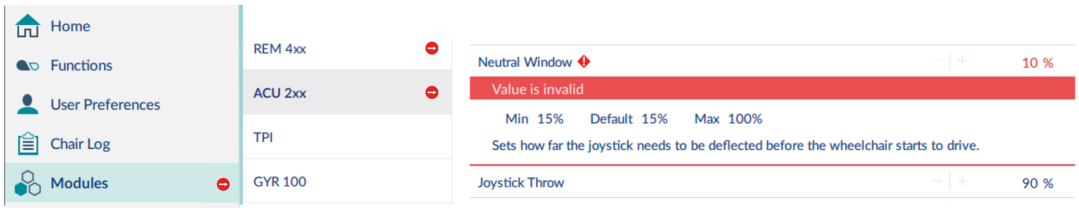

Figure 39: Red arrow navigation to invalid values

4.3.7 Filter parameters box

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

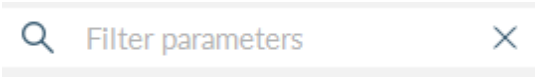

Figure 40: Filter parameters box

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

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.

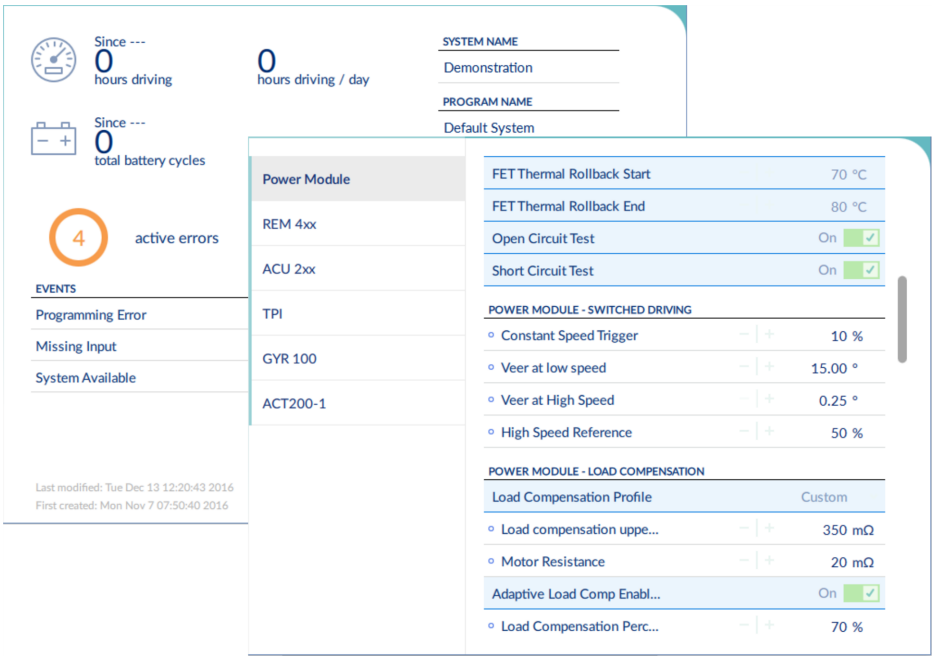

Figure 41: Home screen and power module screen

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.

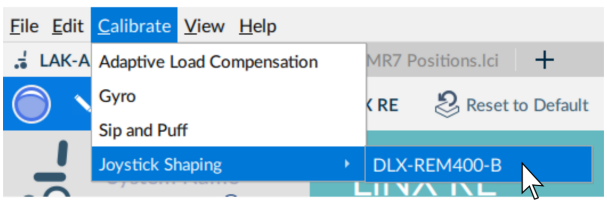

Figure 42: Calibrate menu

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

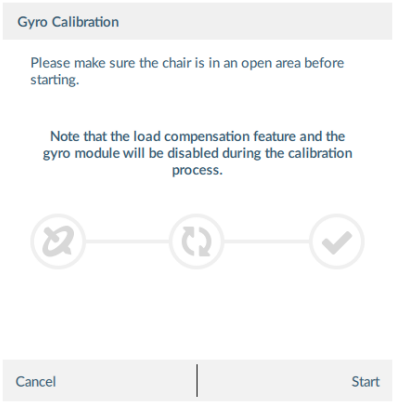

Figure 44: Gyro calibration screen

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

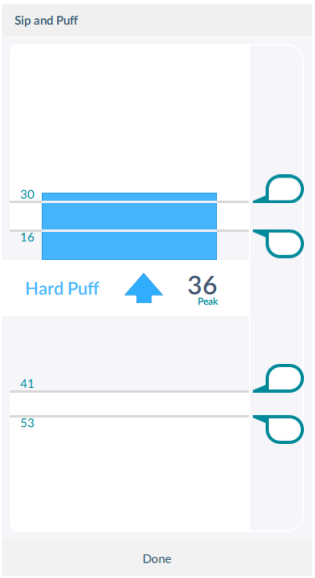

Figure 45: Sip and puff calibration screen

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

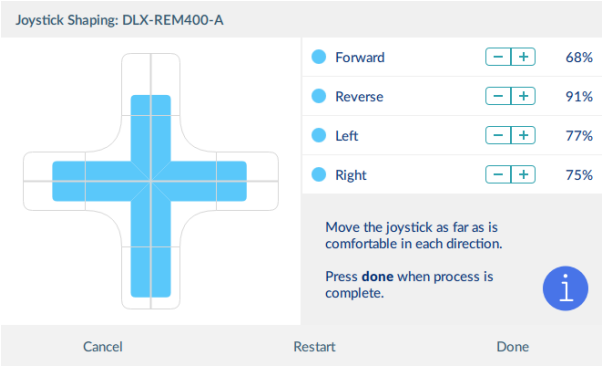

Figure 46: Joystick shaping calibration screen

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How to...

5 How to...

5.1 Open the LiNX Access PC tool

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.

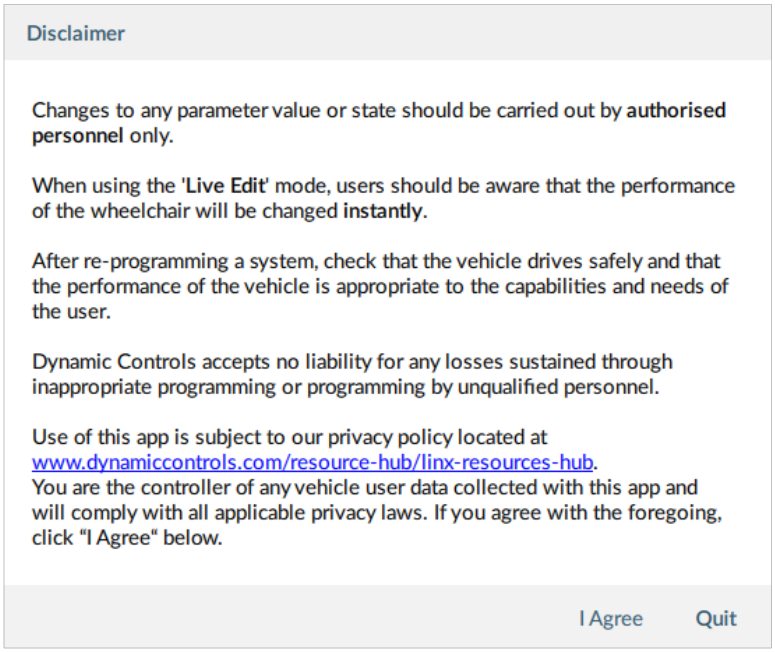


Figure 47: Disclaimer displayed when opening the application

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.*

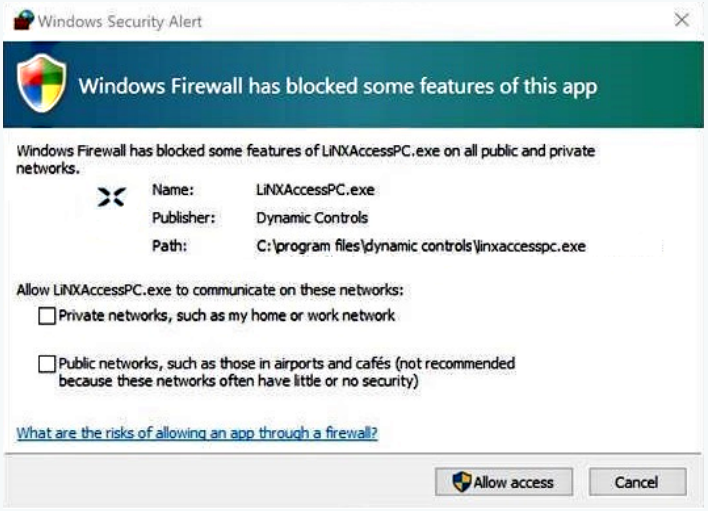


Figure 48: Windows security alert

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**.

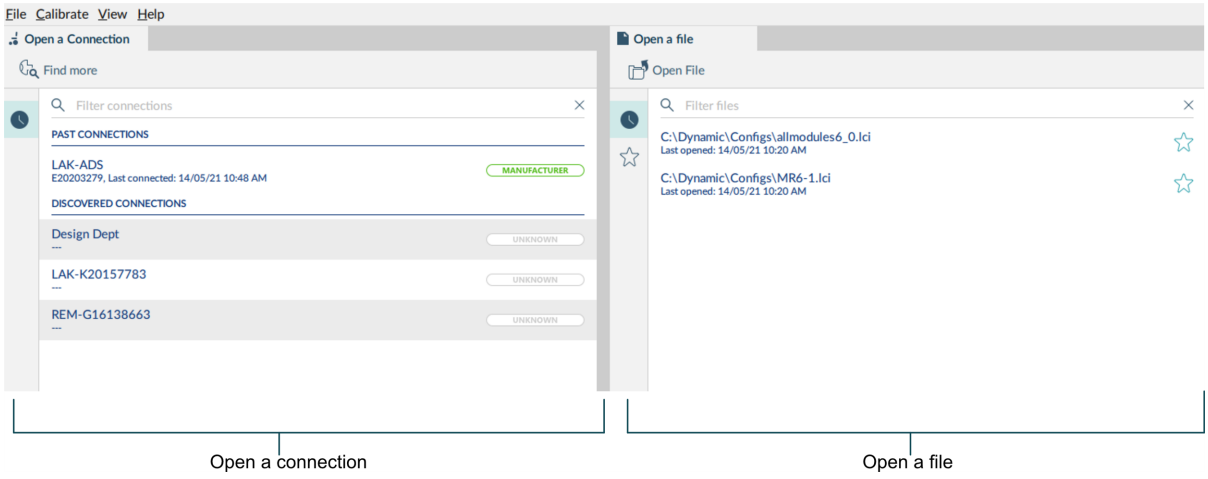


Figure 49: Context selection window

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.

5.3.2.1 Select a parameter

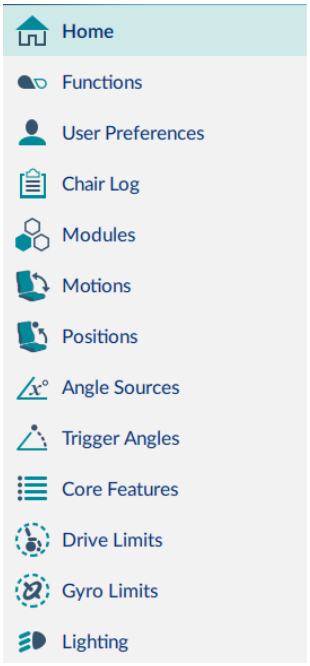


Figure 50: Primary sidebar

Select a parameter from one of the parameter groups (components) listed in the primary navigation sidebar‡1:

- **Functions** — for drive, seating and mouse mover functions
- **User preferences** — for drive, sleep, lock, user function navigation and control input / output, display, energy use, speedometer, and audible cues settings
- **Modules** — for modules (power modules, remote modules etc.)
- **Motions** — for actuator motions
- **Positions** — for memory positions
- **Angle Sources** — for angle sources
- **Trigger Angles** — for trigger angles and rules
- **Core features** — for battery management, anti-rollaway, actuators, firmware and system configuration
- **Drive limits** — for emergency deceleration and OEM limits
- **Gyro limits** — for OEM gyro limits
- **Lighting** — for position and turn indicators

‡1 - not all parameter groups are available in Distributor view

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.

Figure 52: Reading a configuration from the file context

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

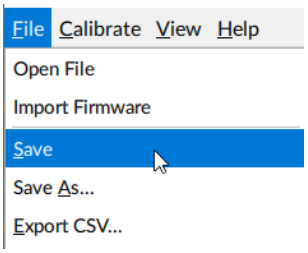


Figure 54: File menu

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

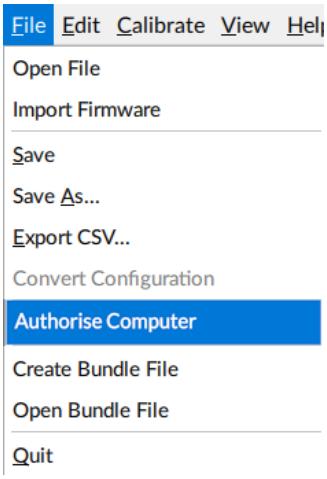


Figure 55: Authorise computer file

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.

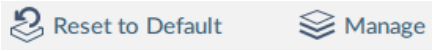


Figure 57: Manage configurations

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.

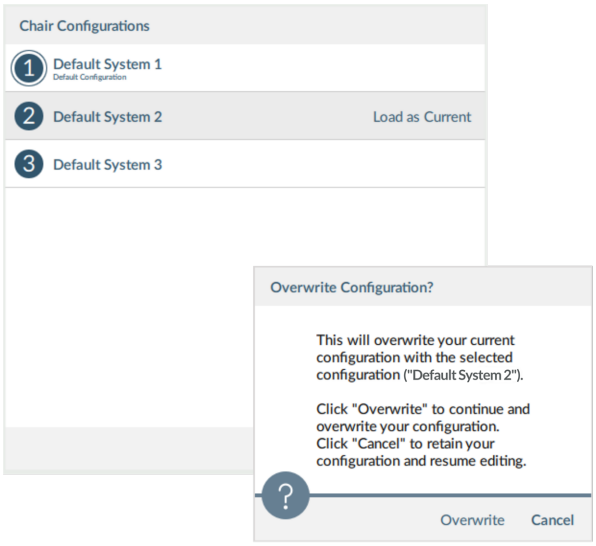


Figure 58: Set default configuration

5.3.7.3 Reset to default

To change the connected configuration to the default chair configuration:

1. 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.

Figure 59: Disconnect wheelchair

The system returns to the Connection Context screen.

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.

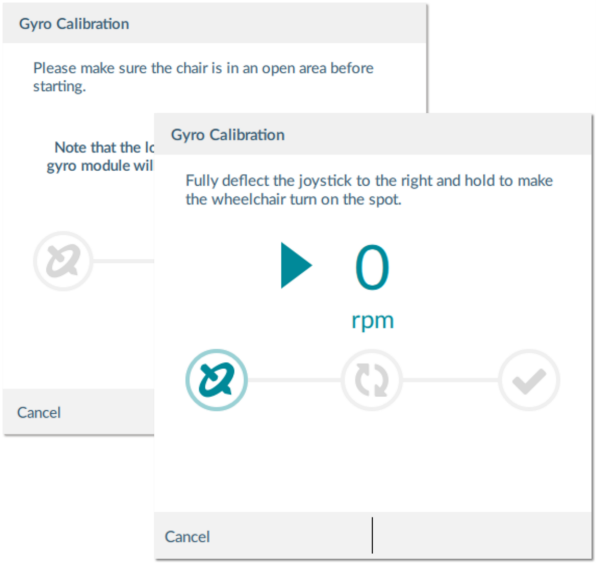


Figure 60: Tuning the gyro

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.

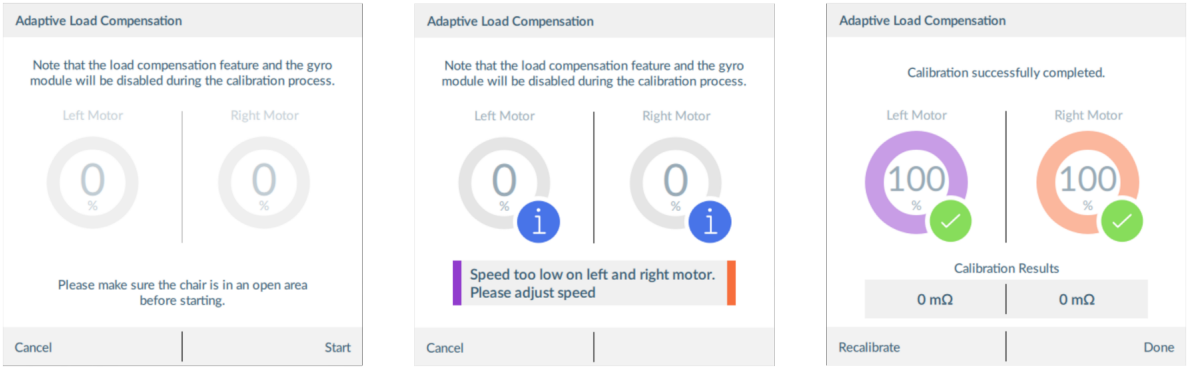


Figure 61: ALC calibration screens: start (left), interim results (middle), and calibration completed (right)

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.

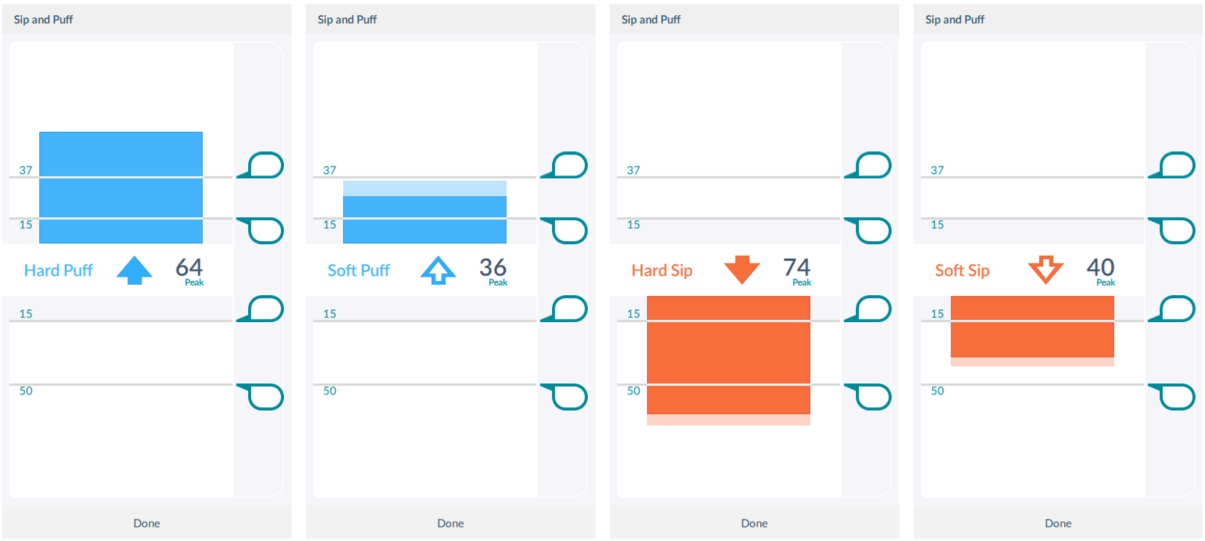


Figure 62: Sip and puff calibration — from left to right: hard puff, soft puff, hard sip, soft sip

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.

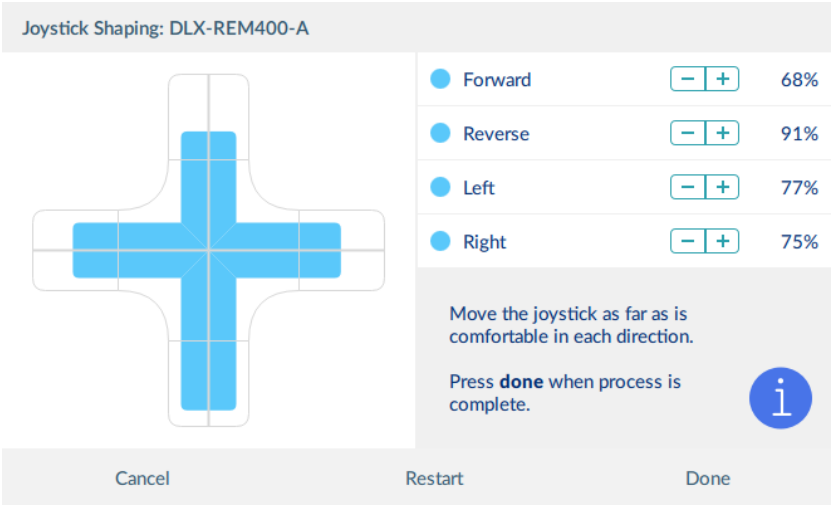


Figure 63: Joystick shaping calibration screen

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

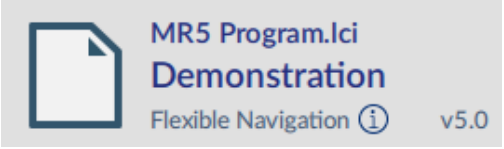
Memory positions that only use switch feedback are not updateable. If a memory position uses a mix of switch and angle feedback, actuators using angle feedback can be updated, but those using switch feedback will not be updated. All memory positions that include angle feedback are updateable with Manufacturer 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 ( ) - 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

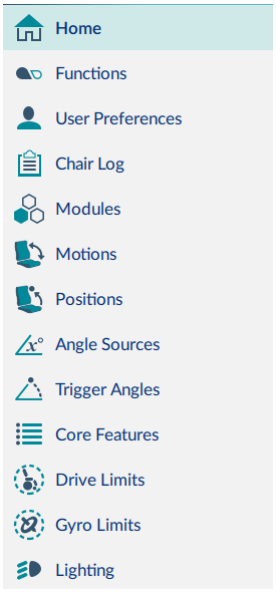


Figure 64: Primary navigation sidebar

Select a parameter from one of the parameter groups (components) listed in the primary navigation sidebar‡1:

- **Functions** — for drive, seating and mouse mover functions
- **User preferences** — for drive, sleep, lock, user function navigation and control input / output, display, energy use, speedometer, and audible cues settings
- **Modules** — for modules (power modules, remote modules etc.)
- **Motions** — for actuator motions
- **Positions** — for memory positions
- **Angle Sources** — for angle sources
- **Trigger Angles** — for trigger angles and rules
- **Core features** — for battery management, anti-rollaway, actuators, firmware and system configuration
- **Drive limits** — for emergency deceleration and OEM limits
- **Gyro limits** — for OEM gyro limits
- **Lighting** — for position and turn indicators

‡1 - not all parameter groups are available in Distributor view

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.

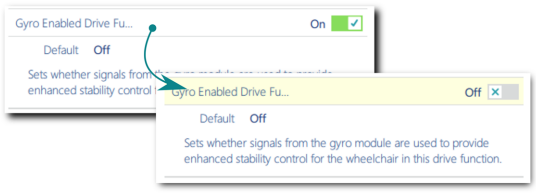


Figure 65: Bulk edit parameter change indication

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

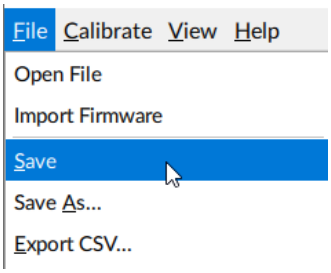


Figure 67: File menu

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

Figure 69: Write to a wheelchair

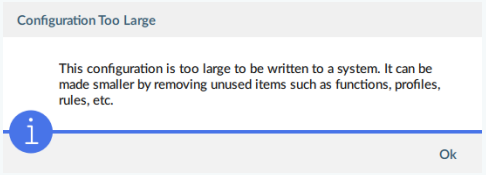
Note

*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

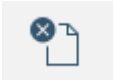


Figure 70: Close file

5.4.7 Remove a file from the file list

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

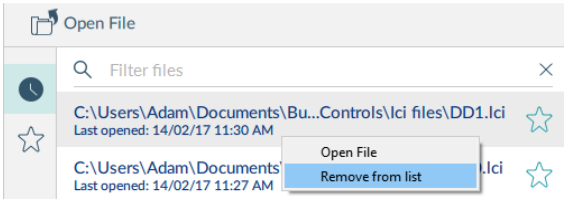


Figure 71: Remove file from list

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*
- *Drop-down list*
- *Switch*

5.5.1.1 Numerical

There are three ways to numerically edit a parameter:

1. 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.

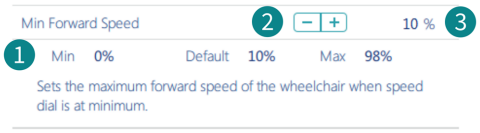


Figure 72: Editing a parameter numerically

5.5.1.2 Text-based

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

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.

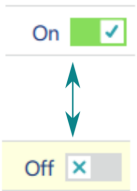


Figure 75: Switch selection

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.

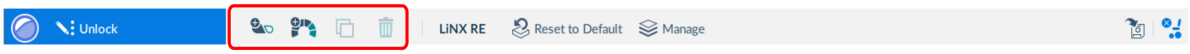


Figure 76: Profile and function actions in the toolbar

The actions are:

Add a profile

Add a function

Duplicate a function

Delete a profile or function

5.5.2.1 Add a profile

1. 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

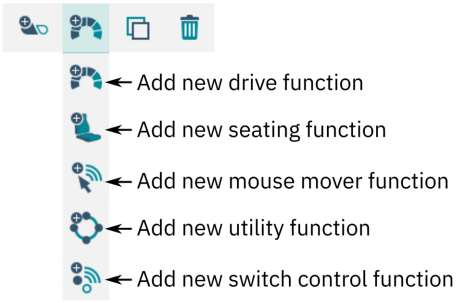


Figure 77: Add a function

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.

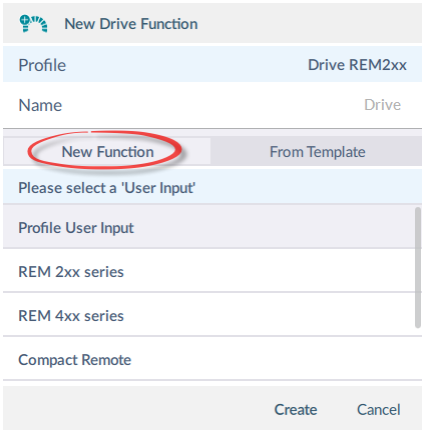


Figure 78: New drive function from default values

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.

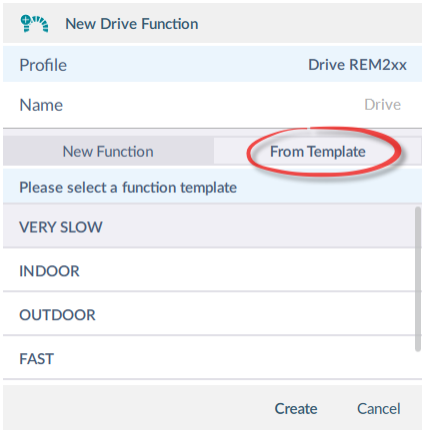


Figure 79: New drive function from template

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**.
4. Click the **Write** button to write the program to the chair; or, on the Application menu, save your changes to a file.

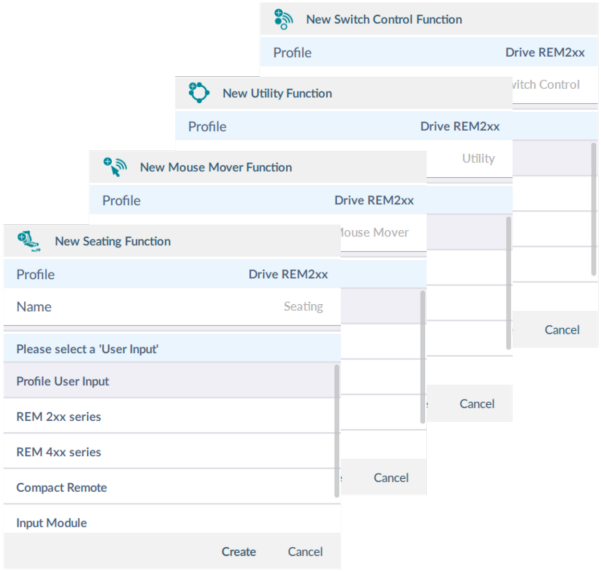


Figure 80: New function details

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.
2. Click the **Duplicate function** button.
   The duplicated function appears directly under the original function.
3. Edit the duplicated function as required.

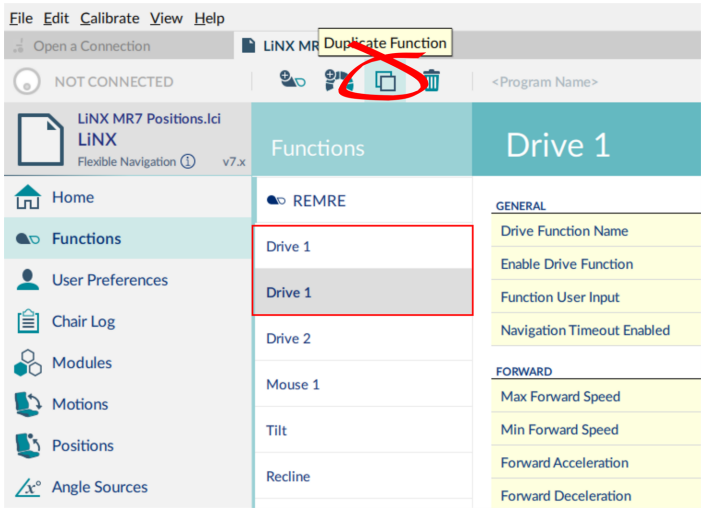


Figure 81: Duplicate a function

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.

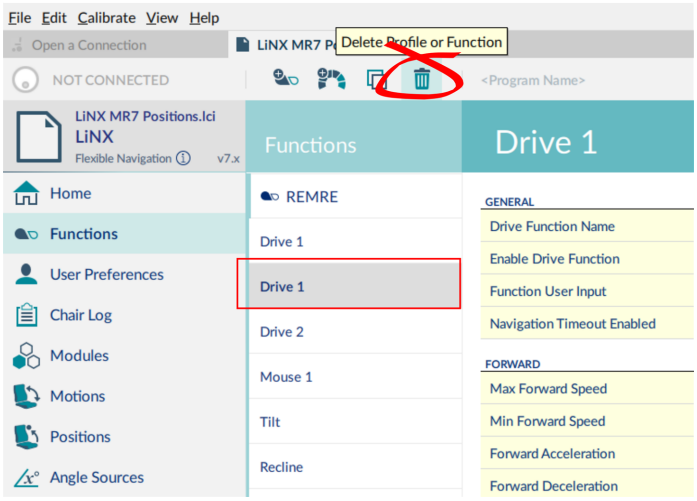


Figure 82: Delete a function

5.5.2.6 Move a function

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

1. 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.
2. Drag the function to the required position in the profile, or to another profile.

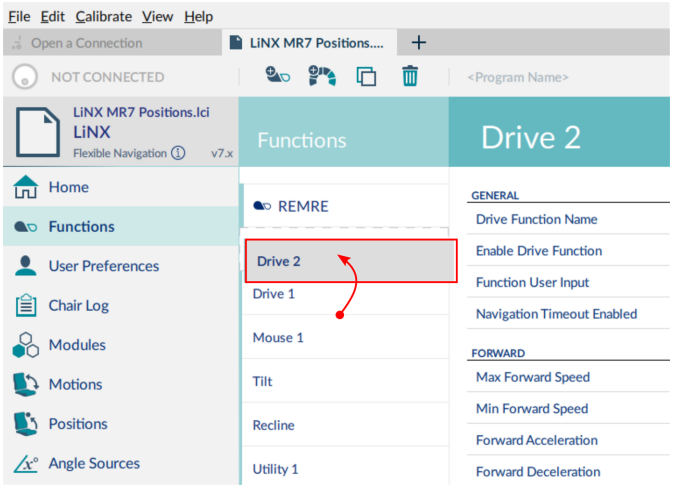


Figure 83: Reorder functions

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.

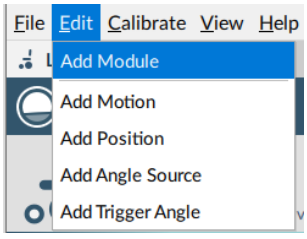


Figure 84: Edit - add module

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.

Figure 85: Add Module button

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.

Figure 86: Remove module button

5.5.3.2 Add and remove a motion

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.

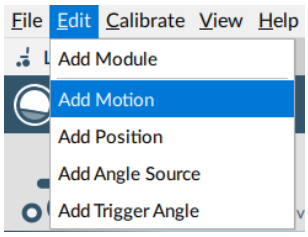


Figure 87: Edit - add motion

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.

Figure 88: Add motion button

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.

Figure 89: Remove motion button

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.

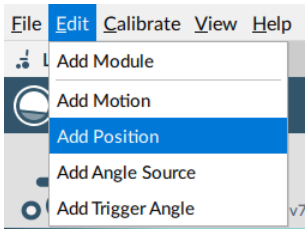


Figure 90: Edit - add position

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 91: Add position button

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.

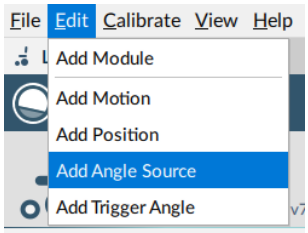


Figure 93: Edit - add angle source

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.

Figure 94: Add angle source button

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.

Figure 95: Remove angle source button

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.

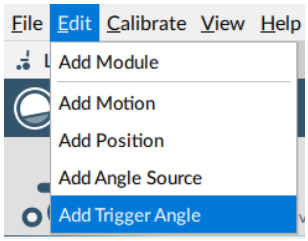


Figure 96: Edit - add trigger angle

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

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.

Figure 98: Remove trigger angle button

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.

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.

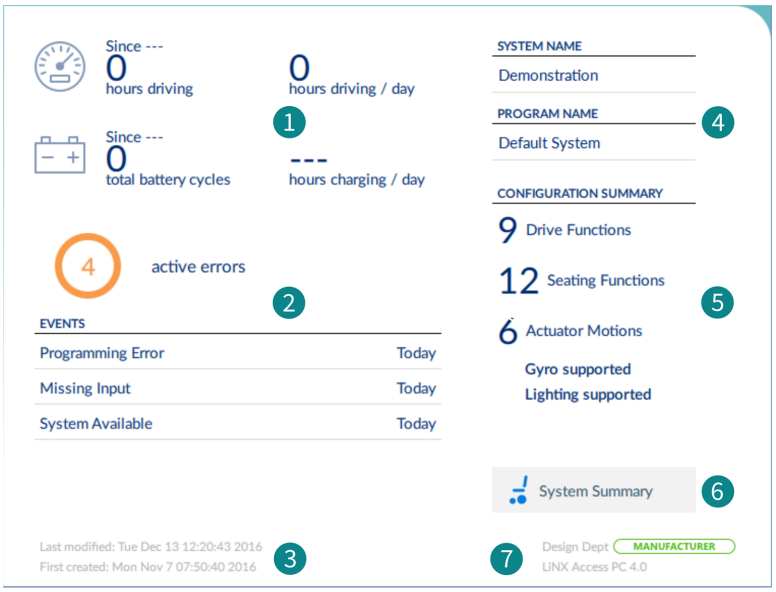


Figure 100: Viewing system information

The Home screen displays the following information:

1	Driving / battery information	Time statistics for driving and battery use
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 *Change the system and program name*.)
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 *View the system summary*.)
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

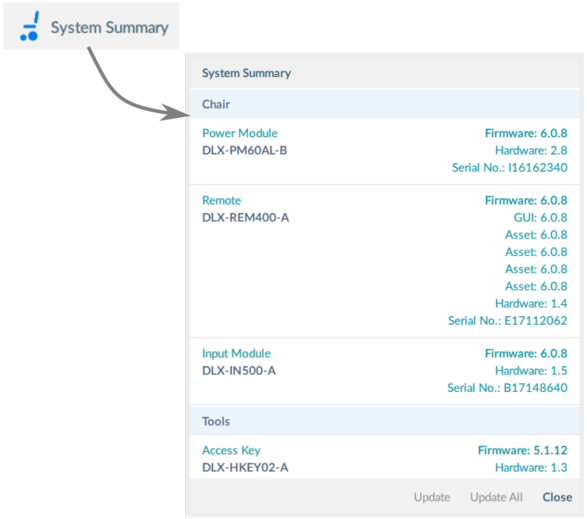


Figure 101: Viewing system summary

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.

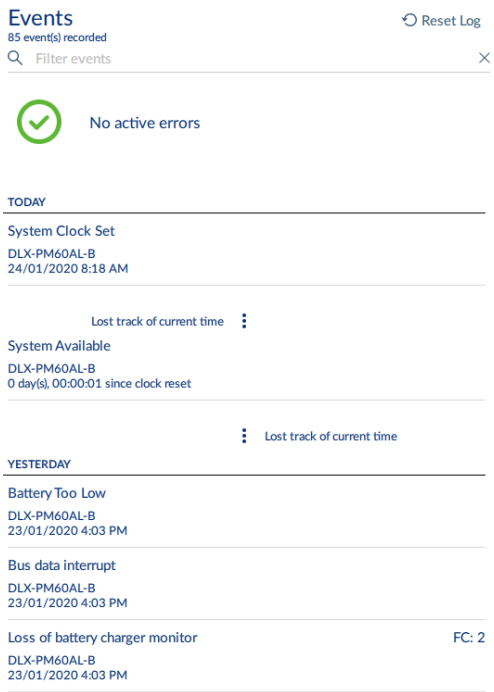


Figure 102: Section of the event log panel

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**.

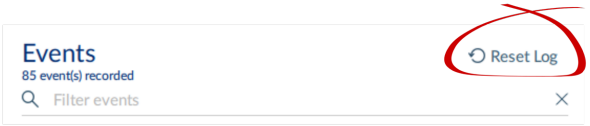


Figure 103: Reset log

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.

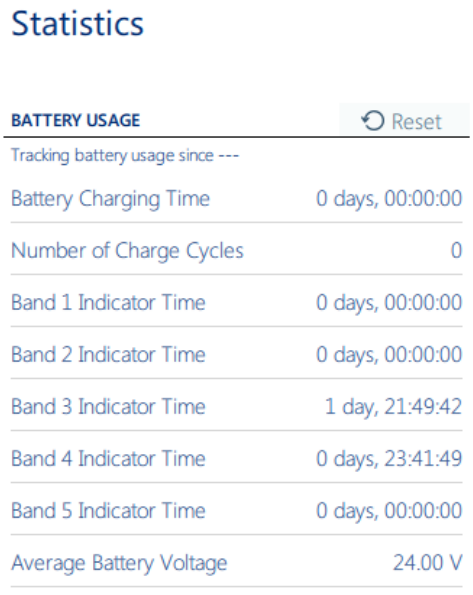


Figure 104: Section of the statistics panel

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.

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:

1. Enter a term in the **Filter parameters** box.
   Any parameter group containing the term is highlighted in the primary navigation sidebar.
2. Select a highlighted group.
   Any parameter containing the filter term is displayed in the main content area.

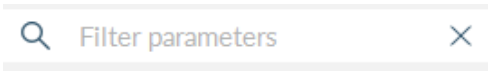


Figure 107: Search/filter tool

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.

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* (1), click on **Modules**.

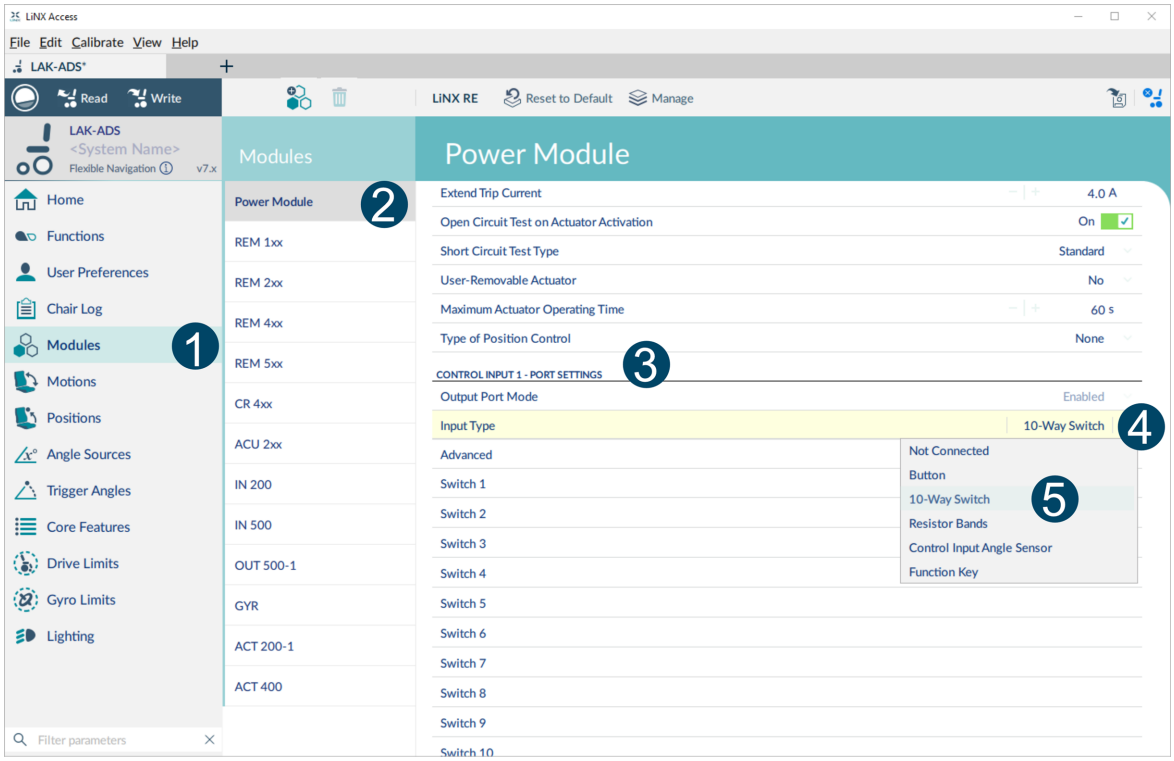


Figure 108: Selecting and configuring control IO inputs

2. From the secondary navigation sidebar *Figure 108* (2), 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* (3) 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* 5 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.

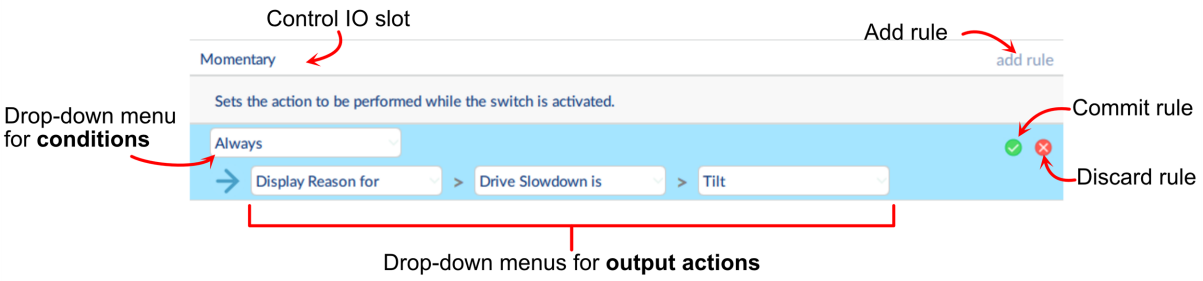


Figure 109: Example control IO slot

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.

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**.

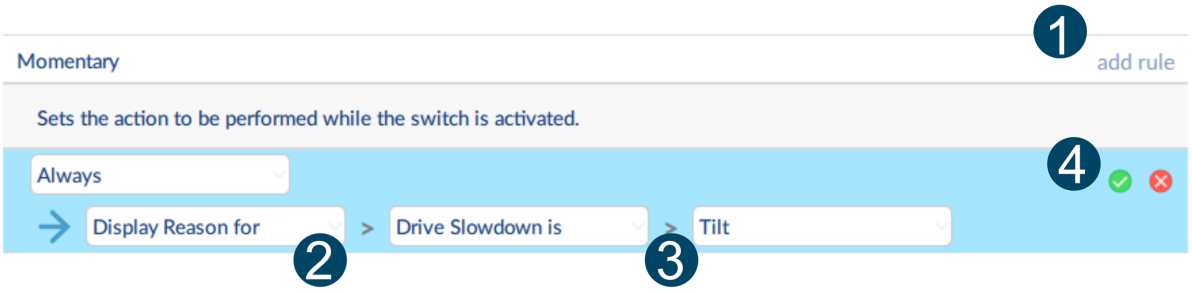


Figure 110: Configuring an always rule

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.
3. 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:

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 111* 1.
2. From the **conditions** drop-down menu, select a condition *Figure 111* 2.

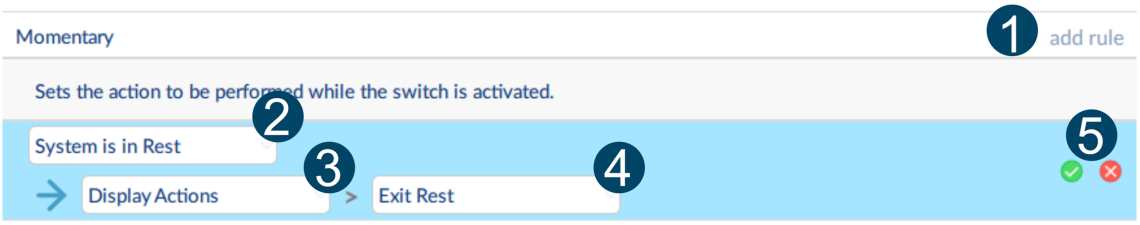


Figure 111: Configuring a conditional rule

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

Figure 112: Advanced settings

The use of these is described below:

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.

Input Port Debounce

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 button inputs cannot be configured: short press, long press, on press.

Enable Input

This option sets whether the input is enabled. Select On or Off.

Monitored

This option sets whether this input is monitored for electrical faults. Select On or Off.

Stability Checking

This option sets whether this input is monitored for signal stability. Select On or Off.

Normally Closed

This option sets whether the switch is normally-open or normally-closed. Select On or Off.

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

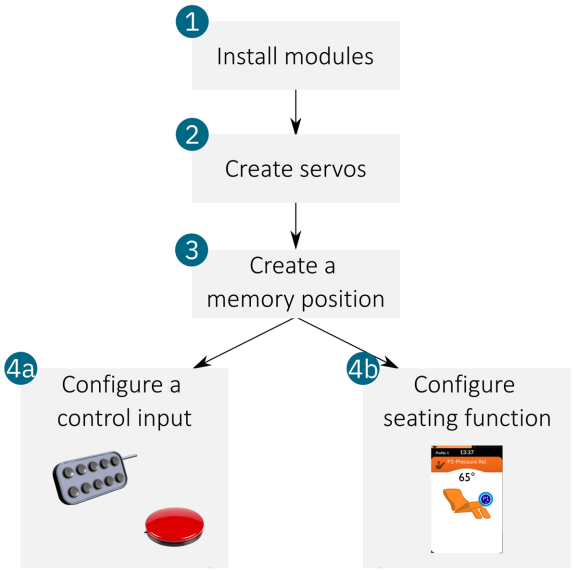


Figure 113: Setting up a memory position in four steps

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 sensor[1] 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)

[1]You 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.

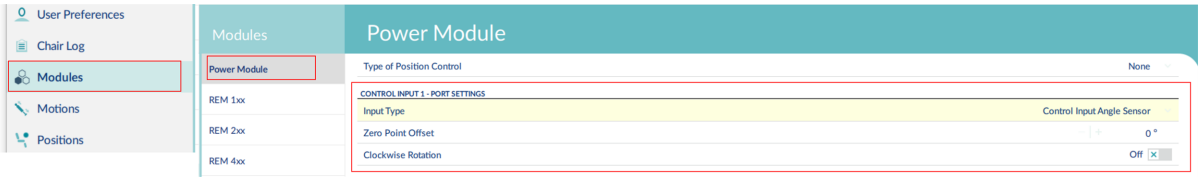


Figure 114: Specify the port to which the control input angle sensor is wired

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.

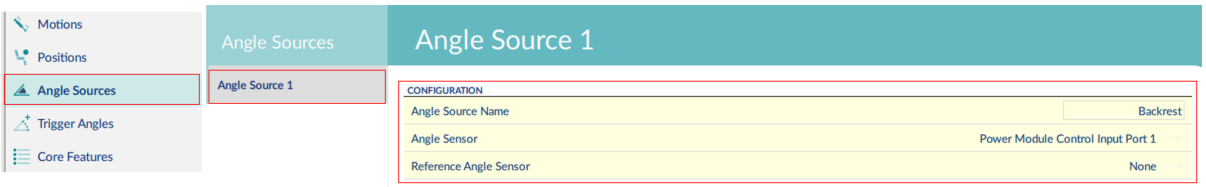


Figure 115: Select an Angle Source

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**.

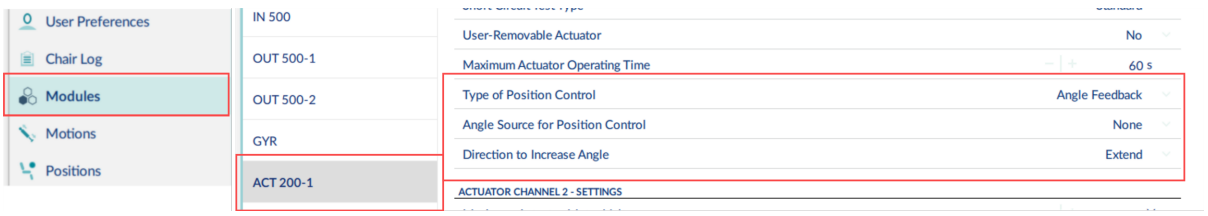


Figure 116: Create servos

- 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 — a new position will be added.

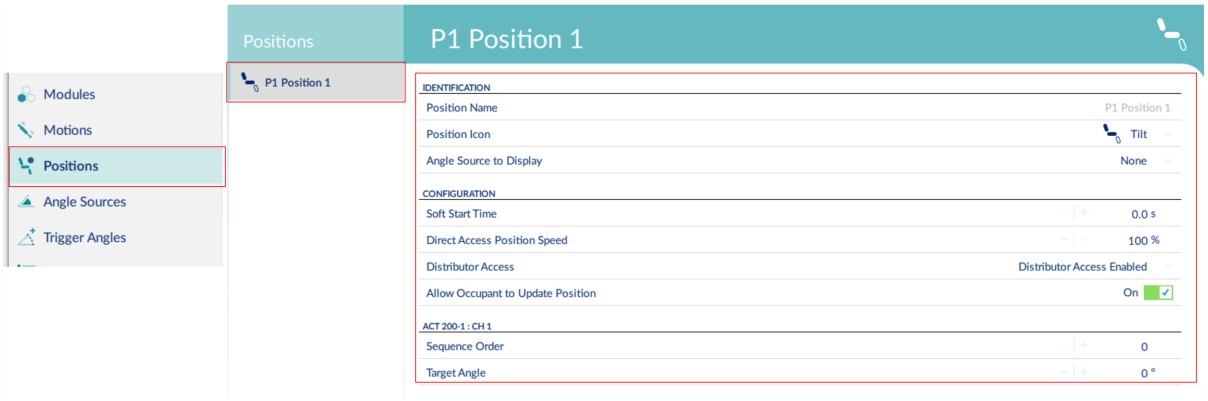


Figure 117: Configuring a Position

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 Order**[1]
- **Target Angle**[2]

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:

1. 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*.

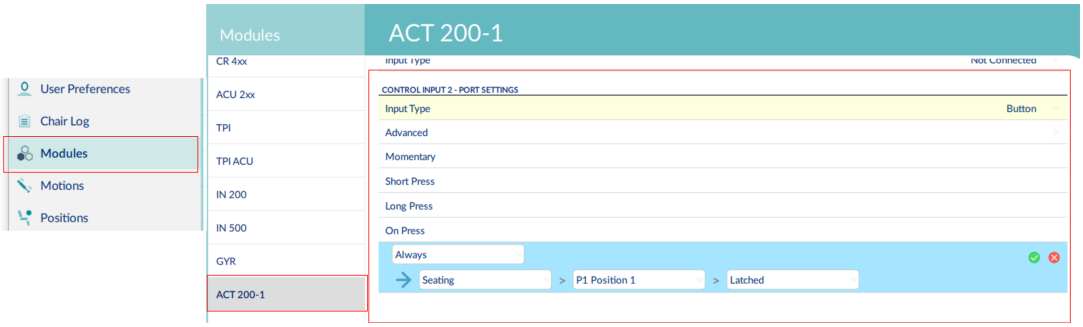


Figure 118: Configure a control input

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.

---

[1]The **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.

[2]The **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.

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*).

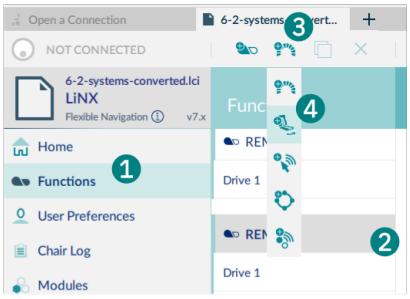


Figure 119: Creating a new seating function

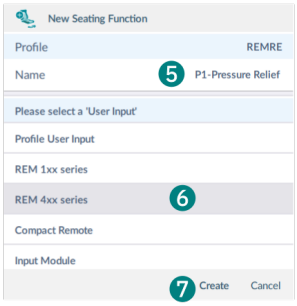


Figure 120: New Seating Function details

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.

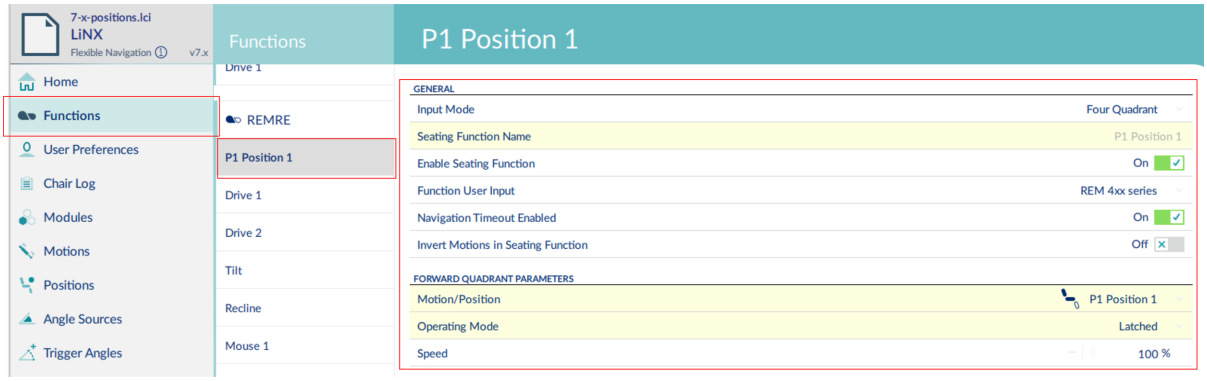


Figure 121: Seating functions - configuring a quadrant for position activation

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**.

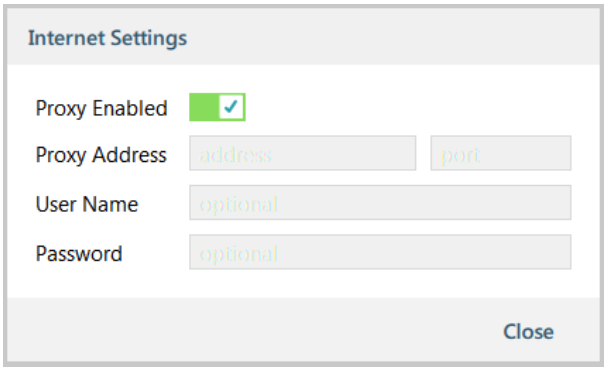


Figure 122: Setting up the proxy settings

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.

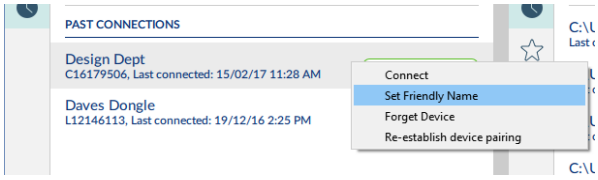


Figure 123: Set friendly name

3. Enter a new name into the *Friendly Name* text box.

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.

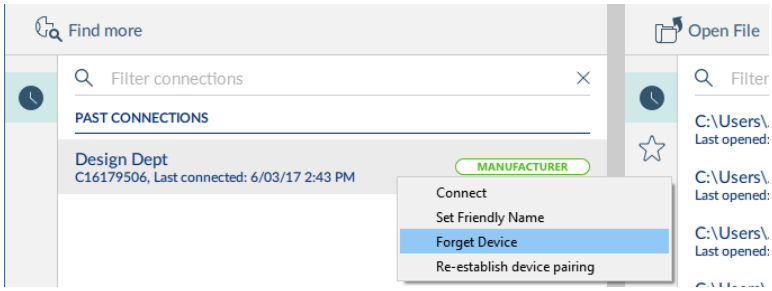


Figure 125: Forget device

Use the **Find more** option at the top-left of the connection screen to search for and re-display 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.

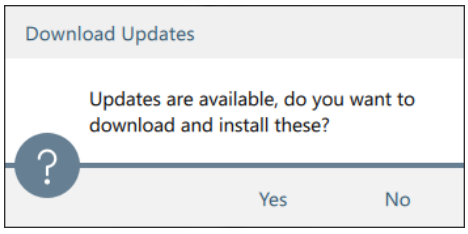


Figure 126: Download updates

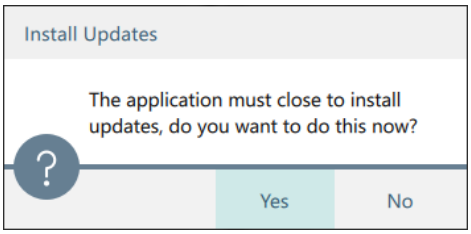


Figure 127: Install updates

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.

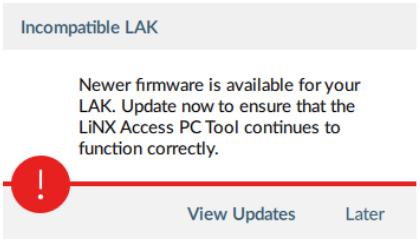


Figure 128: Incompatible LAK

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**.

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 bar and select from:

- View as Manufacturer
- View as Distributor

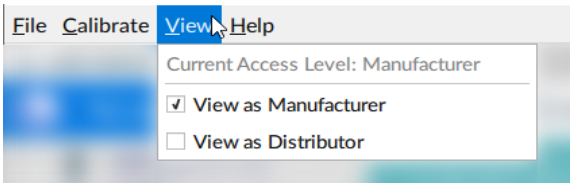


Figure 130: Selecting the view

Note

These menu items are available only to manufacturers.

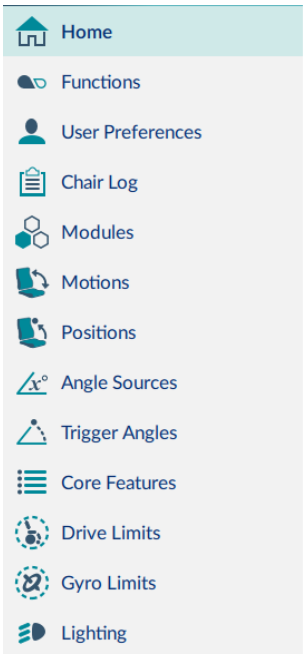


Figure 131: View as manufacturer

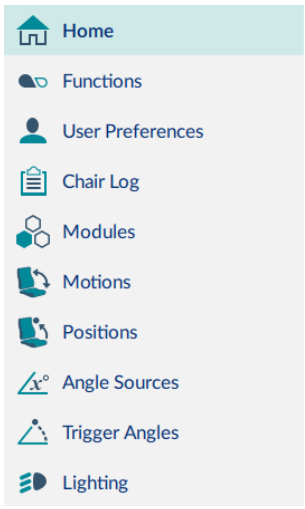


Figure 132: View as distributor

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

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.

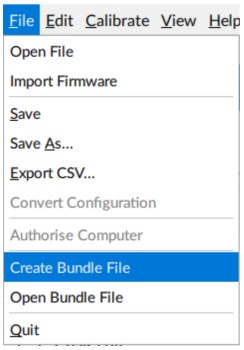


Figure 133: Create Bundle File menu

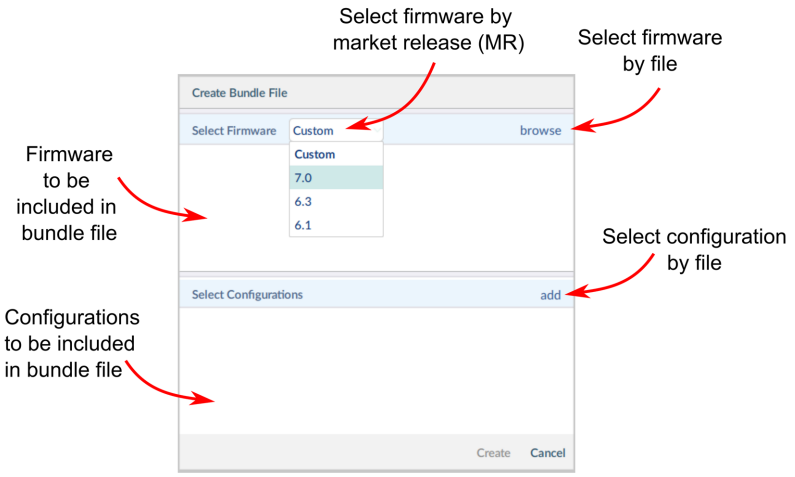


Figure 134: *Create Bundle File* dialogue

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.

Note

*If, after adding a file, you wish to remove it, right-click on the file and select **Remove** from the context menu — it will be removed immediately (Figure 135).*

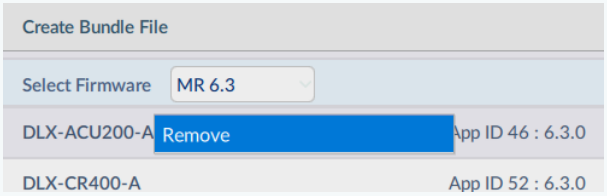


Figure 135: Removing firmware files

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.*

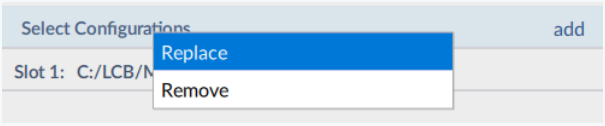


Figure 136: Replacing and removing configurations

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.

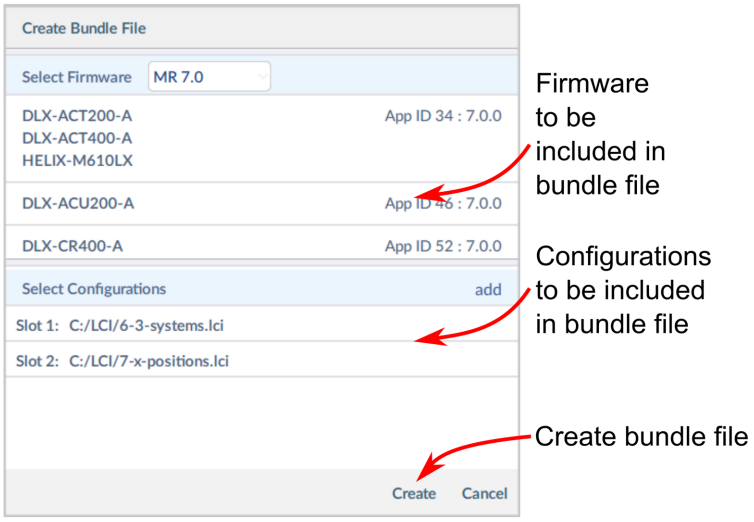


Figure 137: Create and save bundle file

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

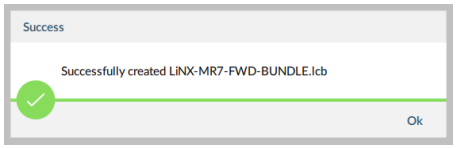


Figure 138: Success message

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.

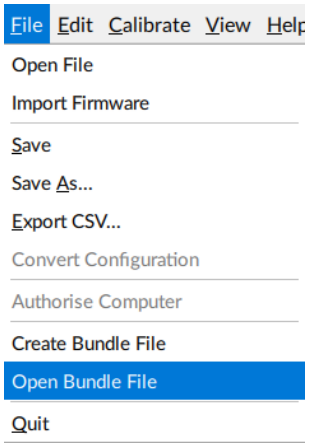


Figure 139: Open Bundle File menu

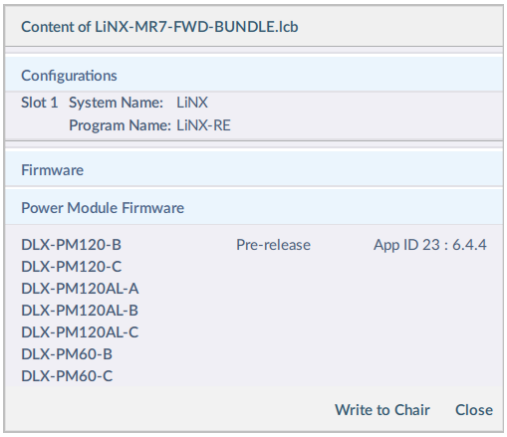


Figure 140: Writing the bundle file to the connected system

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*).

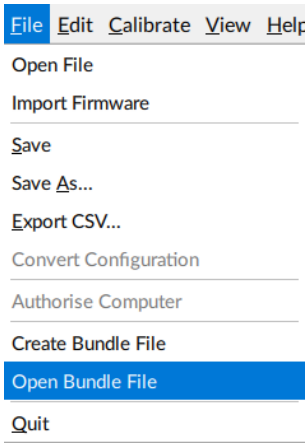


Figure 141: Open Bundle File menu

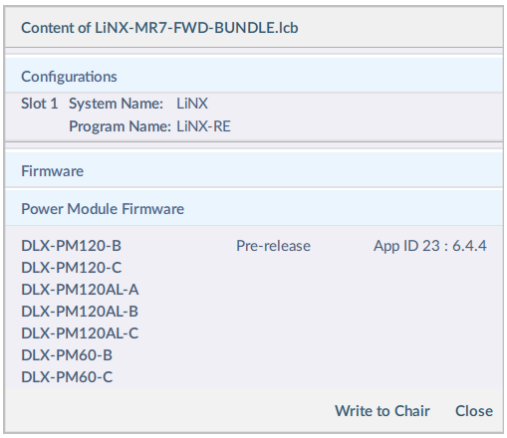


Figure 142: Writing the bundle file to the connected system

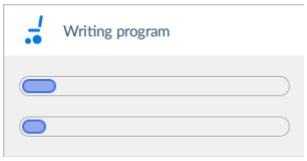


Figure 143: Write progress

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