

Invacare® LiNX

en Controls System
Service Manual



DEALER: Keep this manual.
The procedures in this manual MUST be performed by a qualified technician.



Yes, you can.®

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Invacare reserves the right to alter product specifications without further notice.

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1 General

1.1 About this manual

This service manual contains information about assembly, adjustment and advanced maintenance of the product. In order to ensure safety when handling the product, read the manual carefully and follow the safety instructions.

For pre-sale and user information, please see the user manual. Find the user manual on Invacare's website or contact your Invacare representative (see addresses at the end of this manual).

1.2 Symbols in this manual

In this manual, hazard statements are indicated by symbols. The symbols are accompanied by a signal word that indicates the severity of the risk.



WARNING

Indicates a hazardous situation that could result in serious injury or death if it is not avoided.



CAUTION

Indicates a hazardous situation that could result in minor or slight injury if it is not avoided.



IMPORTANT

Indicates a hazardous situation that could result in damage to property if it is not avoided.



Gives useful tips, recommendations and information for efficient, trouble-free use.



This symbol identifies a list of various tools, components and items which you will need in order to carry out certain work.

1.3 General information

- Service and maintenance work must be carried out taking this service manual into account.

- It is imperative that you observe safety information.
- Information about operation or about general maintenance and care work on the mobility device should be taken from Service manual.
- You can find information about ordering spare parts in the spare parts catalogue.
- Spare parts **MUST** match original Invacare parts. Only use spare parts which have been approved by Invacare.
- We reserve the right to make any alterations on the grounds of technical improvements.
- For more information about the product, for example product safety notices and product recalls, contact your local Invacare representative. For address and website see back page of this manual.
- The mobility device may only be maintained and overhauled by qualified personnel.
- The minimum requirement for service technicians is suitable training, such as in the cycle or orthopedic mechanics fields, or sufficiently long-term job experience.
 - Experience in the use of electrical measuring equipment (multimeters) is also a requirement.
 - Special Invacare training is recommended.
- Alterations to the mobility device which occur as a result of incorrectly or improperly executed maintenance or overhaul work lead to the exclusion of all liability on the side of INVACARE.
- If you have any problems or questions contact Invacare Service.

1.4 Images in this manual

The detailed images in this manual are given marks to identify various components. Component marks in text and operational instructions always relate to the image directly above.

2 Safety

2.1 Safety information



WARNING!

The procedures in this service manual, must be performed by a specialized dealer or qualified service technician.

- Do not handle this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as user manuals, installation manuals or instruction sheets supplied with this product or optional equipment.



The information contained in this document is subject to change without notice.

2.2 Safety notes on the electrical system



WARNING!

Fire and burn hazard due to electrical shorts

- The mobility device must be completely switched off before removal of voltage-carrying components. To do this, remove the batteries. For information about removing the batteries, refer to the service manual of the particular wheelchair.
- Avoid short-circuiting the contacts when carrying out measurements on voltage-carrying components.



WARNING!

Risk of injury or damage due to electrical shorts

- Connector pins on cables connected to the power module can still be live even when the system is off.
- Cables with live pins should be connected, restrained or covered (with non-conductive materials) so that they are not exposed to human contact or materials that could cause electrical shorts.
 - When cables with live pins have to be disconnected, for example, when removing the bus cable from the remote for safety reasons, make sure to restrain or cover the pins (with non-conductive materials).



Risk of damage to the connector pins

- If you touch the connector pins, they can become dirty or they can be damaged by electrostatic discharge.
 - Do not touch the connector pins.

To maximize performance, minimize EMC emissions, maximize EMC and ESD immunity, and to keep the cabling of the wheelchair safe and tidy, observe the following guidelines:

- All wiring should comply with the requirements of ISO7176-14.
- Keep all cables as short as possible.
- All cables used should be resistant to fire to VW-1 (UL 1581) or similar.
- Avoid wire loops, especially loops of single wires instead of wire pairs.
- Try to run wires in pairs or bunches. For example, run the battery's positive and negative wires together, and the motor's positive and negative wires together. Bind wires together and fix them to the chassis.
- Do not route the cables (including the motor cable) near the motor case, where possible.
- Make sure that all vehicle sub-frames, particularly the motors and controller case, are electrically connected.
- Do not use the vehicle frame as the earth return. Any electrical low-resistance connection to the frame is a safety risk and is not allowed by international safety standards.
- To minimize electromagnetic emissions by the motor brushes, it may be necessary to fit capacitors between the brush holders and the motor case. Make sure that the leads are kept as short as possible. A suitable capacitor is 4n7, 2kV Ceramic.
- For best electrical performance, the wire size must be as large as possible, but no larger than what the crimp in the connector can withstand. Always use the correct tool for crimping.
- Recommended minimum wire sizes are shown in the wiring sections.
- For low-current signals, do not use wire sizes smaller than 0.5 mm²/20 AWG, because smaller wires are physically not strong enough for this application.
- The type of cable used must be appropriate for the mechanical and environmental abuse it is likely to encounter.
- Do not use damaged or abused cables. A damaged cable can potentially produce localized heat, sparks or arcing, and as such it can cause a fire.
- Protect all cables against possible contact with flammable material.
- If an extension loom is fitted, mount it with the female connector facing horizontal or downwards, and protect it from direct splashing. If the extension loom is to be used for frequent disconnection, mount the female connector so that it faces downwards.

3 Assembly

3.1 Tightening torques


CAUTION!

Risk of damage to mobility device due to improperly tightened screws, nuts or plastic connections.

- Always tighten screws, nuts etc. to the stated tightening torque.
- Only tighten screws or nuts which are not listed here fingertight.

The tightening torques stated in the following list are based on the thread diameter for the nuts and bolts for which no specific values have been determined. All values assume dry and de-greased threads.

| Thread | Tightening torque in Nm $\pm 10\%$ |
|--------|------------------------------------|
| M4 | 3 Nm |
| M5 | 6 Nm |
| M6 | 10 Nm |
| M8 | 25 Nm |
| M10 | 49 Nm |
| M12 | 80 Nm |
| M14 | 120 Nm |
| M16 | 180 Nm |

3.2 Imperial to metric conversion chart

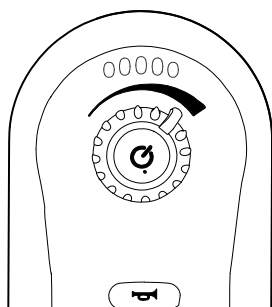
You can use this chart as an orientation to find the right tool size.

| IMPERIAL | METRIC |
|----------|--------|
| inch | mm |
| 5/64 | 1.9844 |
| 3/32 | 2.3813 |
| 7/64 | 2.7781 |
| 1/8 | 3.1750 |
| 9/64 | 3.5719 |
| 5/32 | 3.9688 |
| 11/64 | 4.3656 |
| 3/16 | 4.7625 |
| 13/64 | 5.1594 |
| 7/32 | 5.5563 |
| 15/64 | 5.9531 |
| 1/4 | 6.3500 |
| 17/64 | 6.7469 |
| 9/32 | 7.1438 |

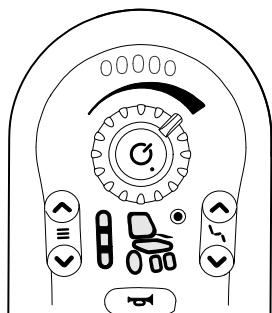
| IMPERIAL | METRIC |
|----------|---------|
| inch | mm |
| 19/64 | 7.5406 |
| 5/16 | 7.9375 |
| 21/64 | 8.3344 |
| 11/32 | 8.7313 |
| 23/64 | 9.1281 |
| 3/8 | 9.5250 |
| 25/64 | 9.9219 |
| 13/32 | 10.3188 |
| 27/64 | 10.7156 |
| 7/16 | 11.1125 |
| 29/64 | 11.5094 |
| 15/32 | 11.9063 |
| 31/64 | 12.3031 |
| 1/2 | 12.7000 |
| 33/64 | 13.0969 |
| 17/32 | 13.4938 |
| 35/64 | 13.8906 |
| 9/16 | 14.2875 |
| 37/64 | 14.6844 |
| 19/32 | 15.0813 |
| 39/64 | 15.4781 |
| 5/8 | 15.8750 |
| 41/64 | 16.2719 |
| 21/32 | 16.6688 |
| 43/64 | 17.0656 |
| 11/16 | 17.4625 |
| 45/64 | 17.8594 |
| 23/32 | 18.2563 |
| 47/64 | 18.6531 |
| 3/4 | 19.0500 |
| 49/64 | 19.4469 |
| 25/32 | 19.8438 |
| 51/64 | 20.2406 |
| 13/16 | 20.6375 |
| 53/64 | 21.0344 |
| 27/32 | 21.4313 |
| 55/64 | 21.8281 |
| 7/8 | 22.2250 |

3.3 Overview components

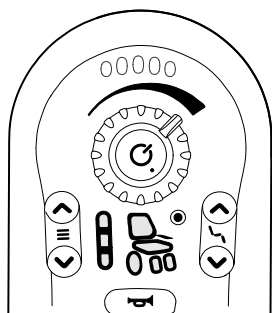
Remote modules



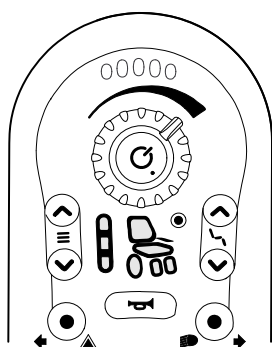
- DLX-REM110**
- Drive function



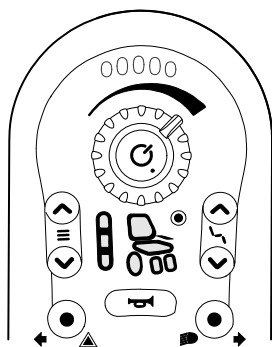
- DLX-REM210**
- Drive function
 - Powered seating function
 - Up to two actuators



- DLX-REM211**
- Drive function
 - Powered seating function
 - Two or more actuators

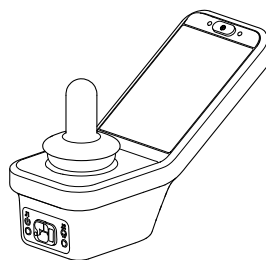


- DLX-REM215**
- Drive function
 - Powered seating function
 - Up to two actuators
 - Lighting function

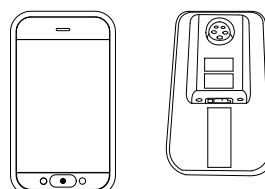


- DLX-REM216**
- Drive function
 - Powered seating function
 - Two or more actuators
 - Lighting function

Remote modules

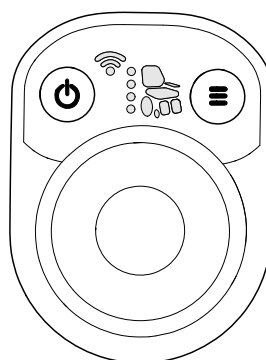


- DLX-REM400**
- Touch screen interface to facilitate:
 - Multiple drive functions
 - Multiple powered seating functions
 - Two or more actuators
 - Lighting function
 - Multipurpose buttons
 - 3.5 mm jack sockets

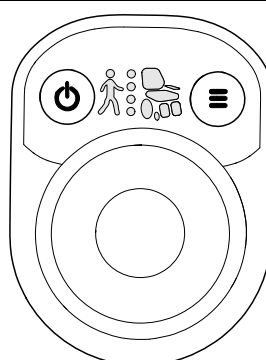


- DLX-REM500**
- Touch screen interface to facilitate:
 - Multiple drive functions
 - Multiple powered seating functions
 - Two or more actuators
 - Lighting function
 - Multipurpose buttons
 - 3.5 mm jack sockets

Secondary remote modules

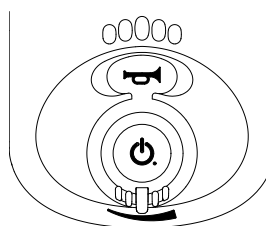


- DLX-CR400**
Compact Remote
- On/Off button
 - Menu button
 - Display for drive, seating and connectivity functions



- DLX-CR400LF**
Compact Remote Low Force
- As compact remote
 - With low force joystick

- DLX-ACU200**
Attendant Control Unit
- On/Off respectively Select button
 - Menu button
 - Display for drive and seating functions and "who's in charge" indication

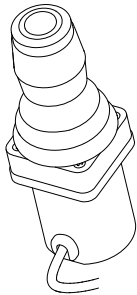


- DLX-REM050**
- Attendant control unit with drive function

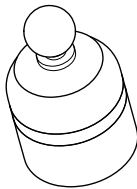
ASL components



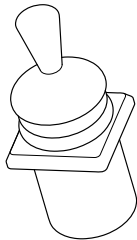
ASL 138
Extremity Control Joystick



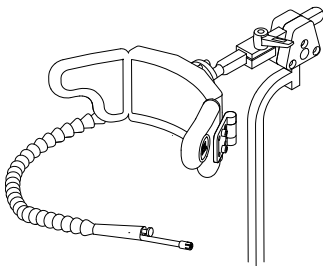
ASL 133
Compact Single Switch Joystick



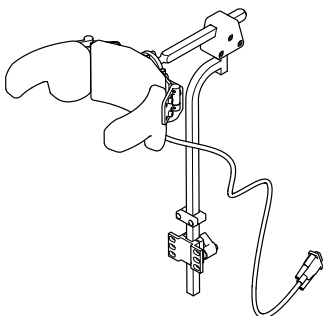
ASL 130
Micro Extremity Control Joystick



ASL 132
Compact Joystick

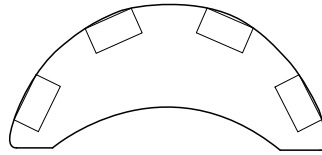


ASL 109
Sip and Puff Head Array

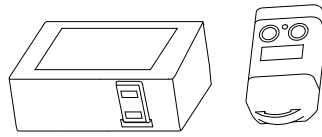


ASL 104/ASL 104P
Head Array

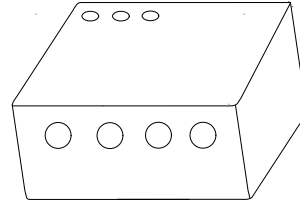
ASL components



ASL 106
Four Switch Proximity Array



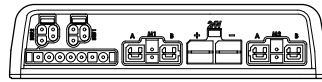
ASL 504
Remote Stop Switch



Wireless Accessories for ATOM:

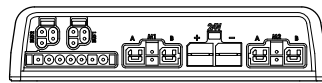
- Wireless Mouse Emulator ASL 558
- Wireless Triple Switch Receiver ASL 557-3

Power modules



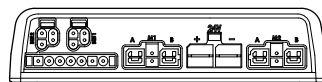
DLX-PM60

- 63 A maximum current
- 2 x bus sockets
- Dynamic Load Compensation
- Adaptive Load Compensation
- Utility port
- Real-time clock



DLX-PM75

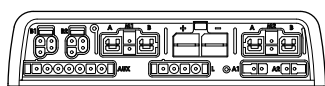
- 78 A maximum current
- 2 x bus sockets
- Dynamic Load Compensation
- Adaptive Load Compensation
- Utility port
- Real-time clock



DLX-PM120

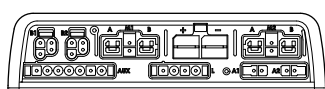
- 120 A maximum current
- 2 x bus sockets
- Dynamic Load Compensation
- Adaptive Load Compensation
- Utility port
- Real-time clock

Power modules



DLX-PM75AL

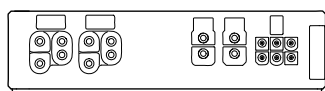
- 78 A maximum current
- 2 x bus sockets
- Dynamic Load Compensation
- Adaptive Load Compensation
- Utility port
- 2 x actuators
- 3 x lights
- Real-time clock



DLX-PM120AL

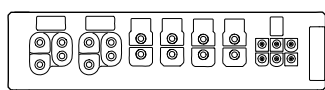
- 120 A maximum current
- 2 x bus sockets
- Dynamic Load Compensation
- Adaptive Load Compensation
- Utility port
- 2 x actuators
- 3 x lights
- Real-time clock

LiNX seating modules and interfaces



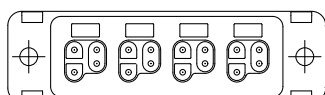
DLX-ACT200

- 2 x actuator channels
- 2 x bus ports
- 1 x 6-pin general purpose input (GPI) port
- Module status LED
- Actuator power provided through the bus



DLX-ACT400

- 4 x actuator channels
- 2 x bus ports
- 1 x 6-pin general purpose input (GPI) port
- Module status LED
- Actuator power provided through the bus

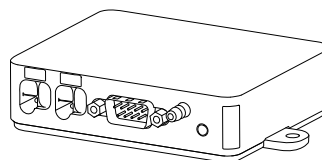


GLM-CONX4

4-way connector

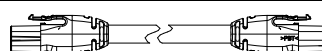
- Expansion block to connect to additional, multiple modules in a LiNX system

LiNX seating modules and interfaces

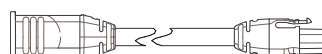


DLX-IN500
Input module

- DB9 connector for proportional and switched inputs
- 12 V (200 mA) power supply
- Sip and puff nozzle
- Jack input (stereo)
- 2 x LiNX bus connector
- Activity indicator displaying input demands

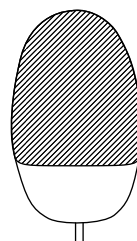


Bus cable; length from 300 up to 2500 mm



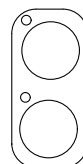
Extension loom; length 640 and 900 mm

Powered seating accessories



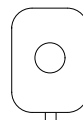
ASL300
Egg switch

- Momentary switch
- Normally open
- Mono jack



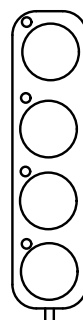
Stereo button switch

- 2 switches
- Stereo jack



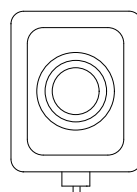
Stereo toggle switch

- Toggle switch
- Normally open
- Stereo jack



4-way button switch

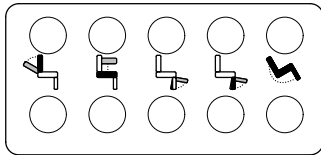
- 4 switches
- DB9 connector



4-way toggle switch

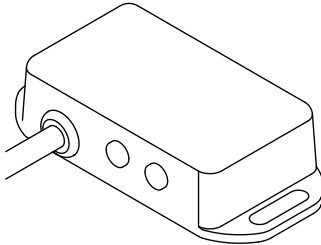
- 4 toggle directions
- DB9 connector

Powered seating accessories



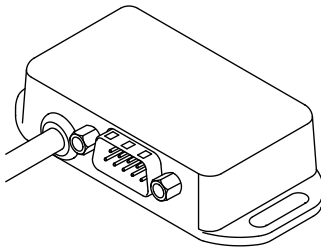
10 way switch

- Hardware-only module that provides simple, direct access to powered seating functions



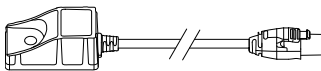
DLX-FKEY01

- For systems with one physical actuator
- Powered seating control through egg switch, stereo button switch or stereo toggle switch



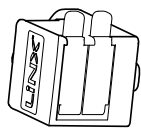
DLX-FKEY02

- For systems with two or more physical actuators
- Powered seating control through 4-way button switch or 4-way toggle switch



**DLX-GYR100
LiNX G-Trac module**

- stabilizes wheelchair's driving behavior



**DLX-USB02
LiNX USB charger**

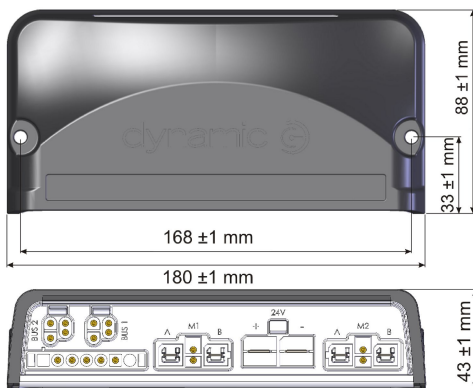
- 2 USB charger ports
- 1 A charging current per port
- Protective rubber bungs

3.4 Power module mounting

The mounting orientation of the power module that is specified by Invacare per wheelchair model must be kept.

Dimensions of the power modules

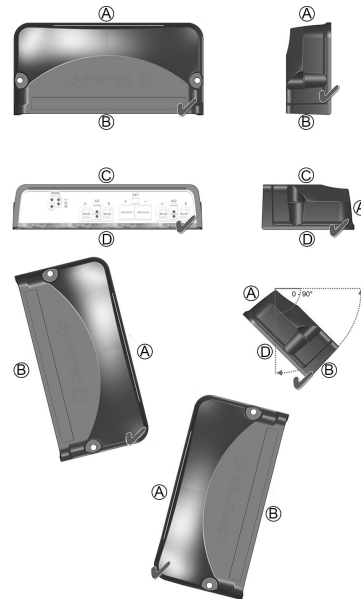
DLX-PM60, DLX-PM75, DLX-PM120



DLX-PM75AL, DLX-PM120AL



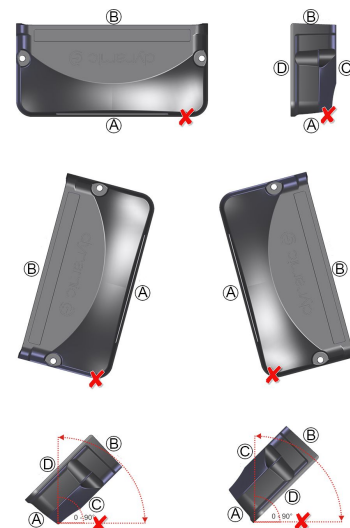
Correct mounting



- Ⓐ Rear
- Ⓑ Connectors
- Ⓒ Top
- Ⓓ Base

The power modules can be placed on its side or at an angle. When placing the power modules at an angle, ensure that the connectors Ⓑ facing downwards, so that the connector recesses will not collect or retain foreign matter or liquids.

Incorrect mounting




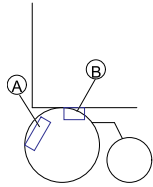
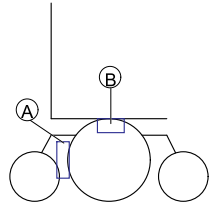
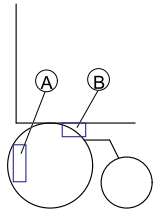
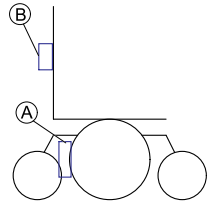
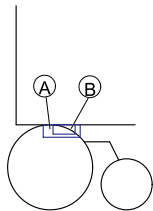
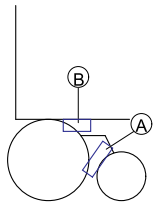
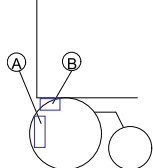
- Ⓐ Rear
- Ⓑ Connectors
- Ⓒ Top
- Ⓓ Base

Testing

The LiNX system must be fully tested after all modules and cables have been installed.

3.5 Mounting positions on wheelchairs

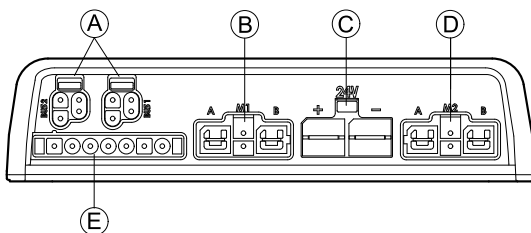
 The positions of the power modules Ⓐ and DLX-ACT200/400 Ⓑ depending on wheelchair model and —configuration are shown in the table below. For further information about access to the components, refer to the Service manual of the particular wheelchair model.

| Rear Wheel Drive | | Center Wheel Drive | |
|--|---|--|---|
| Fox |  | TDX SP2, TDX SP2 narrow base, TDX SP2 wide base with Modulite seat |  |
| Kite, Kite HD |  | TDX SP2 narrow base and TDX SP2 wide base with Ultra Low Maxx seat |  |
| Bora/Spectra XTR, Spectra XTR HD w/o lifter/tilt module |  | | |
| Bora/Spectra XTR, Spectra XTR HD w lifter/tilt module |  | | |
| Storm ⁴ , Storm ⁴ X-plore, Storm ⁴ Max ¹ |  | | |

1 no DLX-ACT200/400 on Storm⁴ Max

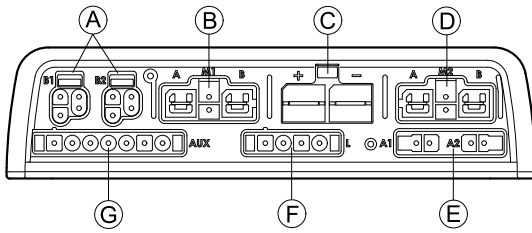
3.6 Port pin-outs

DLX-PM60, DLX-PM75, DLX-PM120



- Ⓐ LiNX communication bus
- Ⓑ Motor / park brake port M1
- Ⓒ Battery port
- Ⓓ Motor / park brake port M2
- Ⓔ Utility port

DLX-PM75AL, DLX-PM120AL



- Ⓐ LiNX communication bus
- Ⓑ Motor / park brake port M1
- Ⓒ Battery port
- Ⓓ Motor / park brake port M2
- Ⓔ Actuator ports
- Ⓕ Lighting port
- Ⓖ Utility port

3.7 Port configurations (Factory set-up)

Actuator ports, properties and behavior per actuator are defined by Invacare. You can change speed, direction and operation mode. This is done in different menus, refer to *7.5 Modifying seating parameters, page 62*.

Seating motion

The seating movement is called seating motion. The seating motion defines the icon displayed on the user interface, overall speed, the individual actuators and their speeds. A seating motion can control one or more actuators. There are six seating motions defined in the factory set-up.

Seating function

The seating function is the user input and defines how the motion is operated.

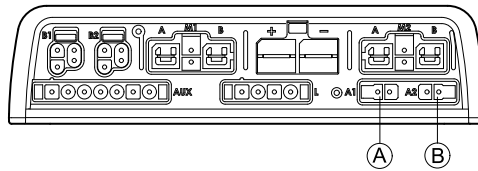
The “AL” power modules that feature actuators and lights, have two actuator ports. If required, the system is completed with the DLX-ACT200 or DLX-ACT400, based on the configuration. The following chapters detail the port set-up per module/configuration.

3.7.1 Port configurations for systems with DLX-REM2xx (EU-Version with Modulite seat)

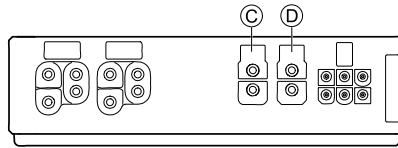
| Channel | Seating motion (Icon) | Seating function (Operation) |
|---------|---|------------------------------|
| Ⓐ | Tilt | Proportional FWD/REV |
| Ⓑ | Recline | Proportional FWD/REV |
| Ⓒ | Right leg | Both legs |
| Ⓓ | Left leg/ Center-mounted legrest | |
| Ⓔ | Lifter | Proportional FWD/REV |

Port configuration without lifer

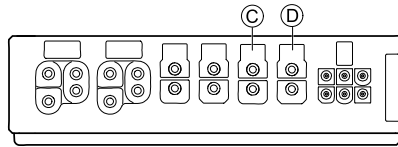
Power module



DLX-ACT200

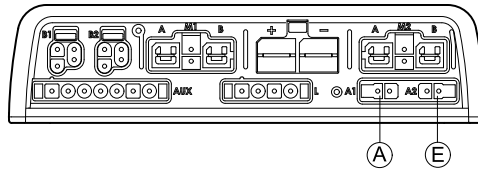


DLX-ACT400

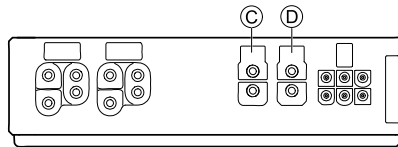


Port configuration with lifer

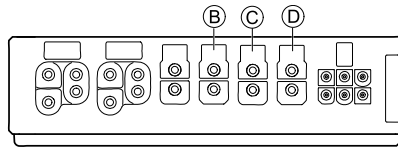
Power module



DLX-ACT200



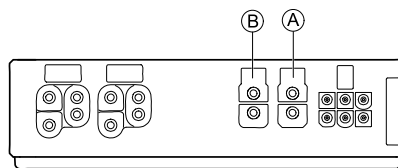
DLX-ACT400






3.7.2 Port configuration for non-expandable systems (US version)











Non-expandable systems are fitted with external switches and a functionkey, to control the powered seating functions. For more information about functionkeys, refer to chapter 3.7.4 *Port configurations for functionkeys*, page 15.

Single actuator systems

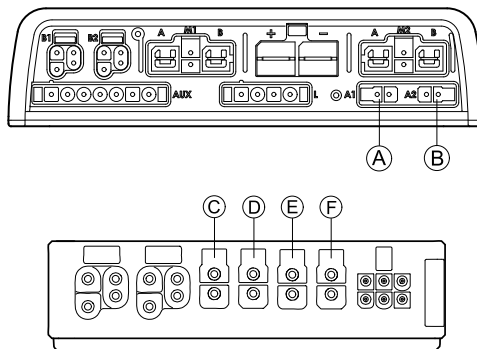




| Channel | Seating motion (Icon) | Seating function (Operation) |
|---------|---|------------------------------|
| Ⓐ | Recline only  | Proportional FWD/REV |
| Ⓑ | Tilt only  | Proportional FWD/REV |
| Ⓑ | LNx only  | Proportional FWD/REV |





Two actuator systems

| Channel | Seating motion (Icon) | Seating motion (Icon) | Seating motion (Icon) | Seating motion (Icon) | Seating motion (Icon) | Seating function (Operation) |
|---------|---|--|---|---|---|------------------------------|
| Ⓐ | Tilt  | Tilt  | Recline  | Left leg  | Recline  | Proportional FWD/REV |
| Ⓑ | Lifter  | LNx  | LNx  | Right leg  | Tilt  | Proportional FWD/REV |

3.7.3 Port configuration for systems with DLX-REM400 and DLX-REM500 (with Ultra Low Maxx seat)



| Channel | Seating motion (Icon) | Seating function (Operation) |
|---------|---|------------------------------|
| Ⓐ | Tilt  | Proportional FWD/REV |
| Ⓑ | Lifter  | Proportional FWD/REV |

| Channel | Seating motion (Icon) | Seating function (Operation) |
|---------|--|------------------------------|
| © | Legrest right  | Proportional FWD/REV |
| © | Legrest left  | Proportional FWD/REV |
| © | LNK  | Proportional FWD/REV |
| © | Recline  | Proportional FWD/REV |

3.7.4 Port configurations for functionkeys

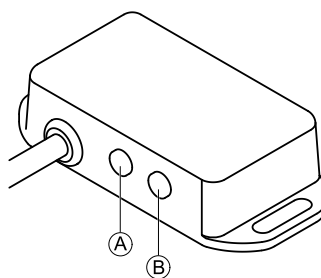
If the system is fitted with an external switch, to control the powered seating functions (except a 10 way switch), a functionkey is required to interface the switches. There are four different configurations of functionkeys. The type of functionkey determines the behavior of the system in regards to the control of actuators.

Type 1: Single Actuator System (SAS)

This functionkey is for systems with one physical actuator. It is available in two different configurations:

- FKEY01: actuator control through switches only
- FKEY01TDC: actuator control through switches and joystick

Independent of type FKEY01 or FKEY01TDC the external switches to control the powered seating functions, must be plugged into the Jack sockets, see table below.

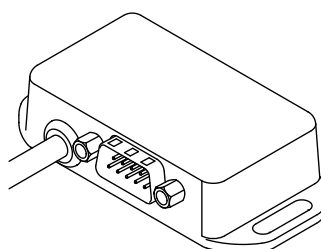


- © Mono jack to connect egg switch
- © Stereo jack to connect stereo button switch or stereo toggle switch

Type 2: Multi-Actuator System (MAC)

This functionkey is for systems with two or more physical actuators. It is available in two different configurations:

- FKEY02: actuator control through switches only
- FKEY02TDC: actuator control through switches and joystick



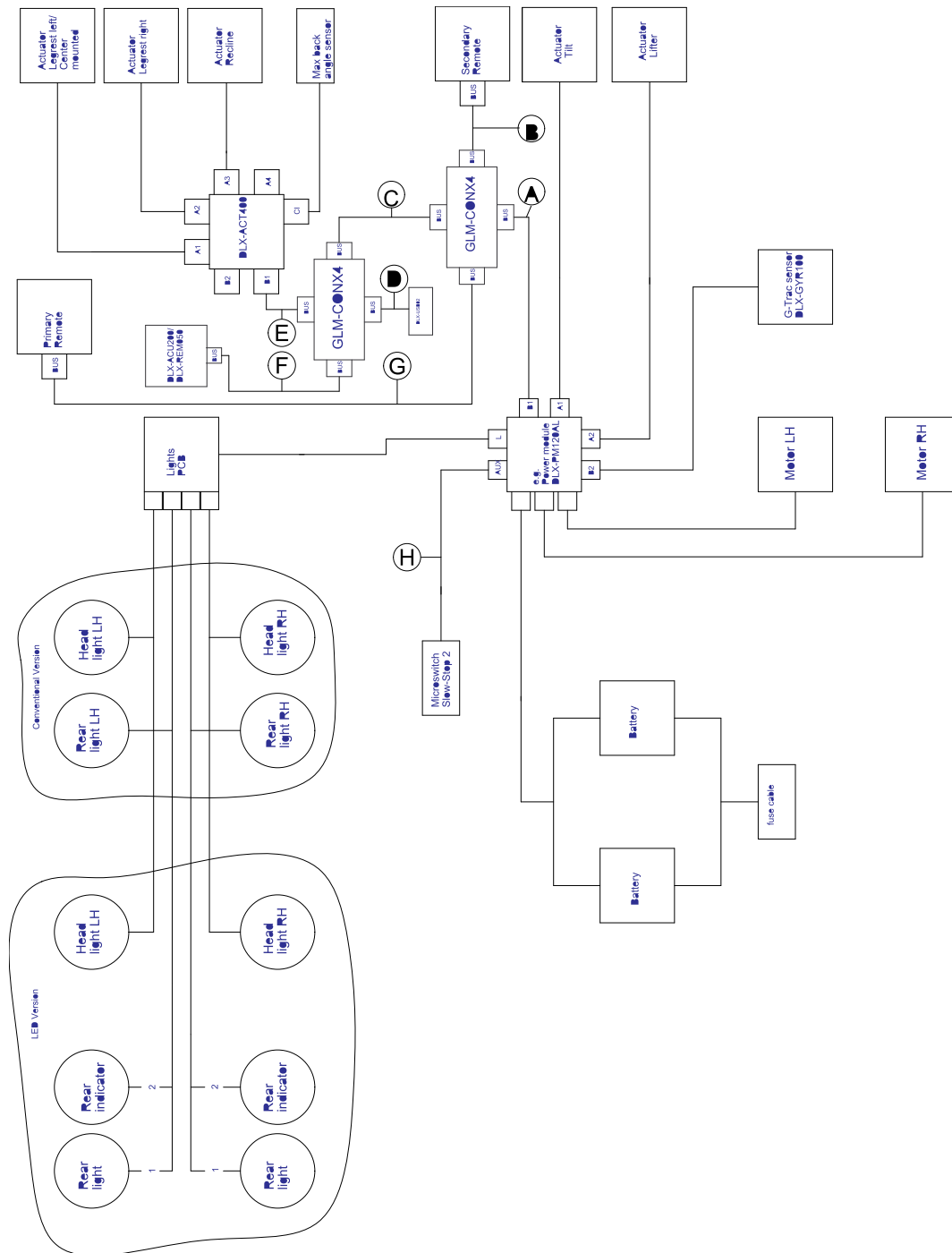
Independent of type FKEY02 or FKEY02TDC the 4-way button switch or the 4-way toggle switch must be plugged into the DB9 socket.

3.8 Wiring diagrams

The following diagrams show the wiring for a wheelchair in a complex configuration including multiple actuators, lights and attendant control unit.

To identify the required cable length, see tables below or measure the cable after removing it.

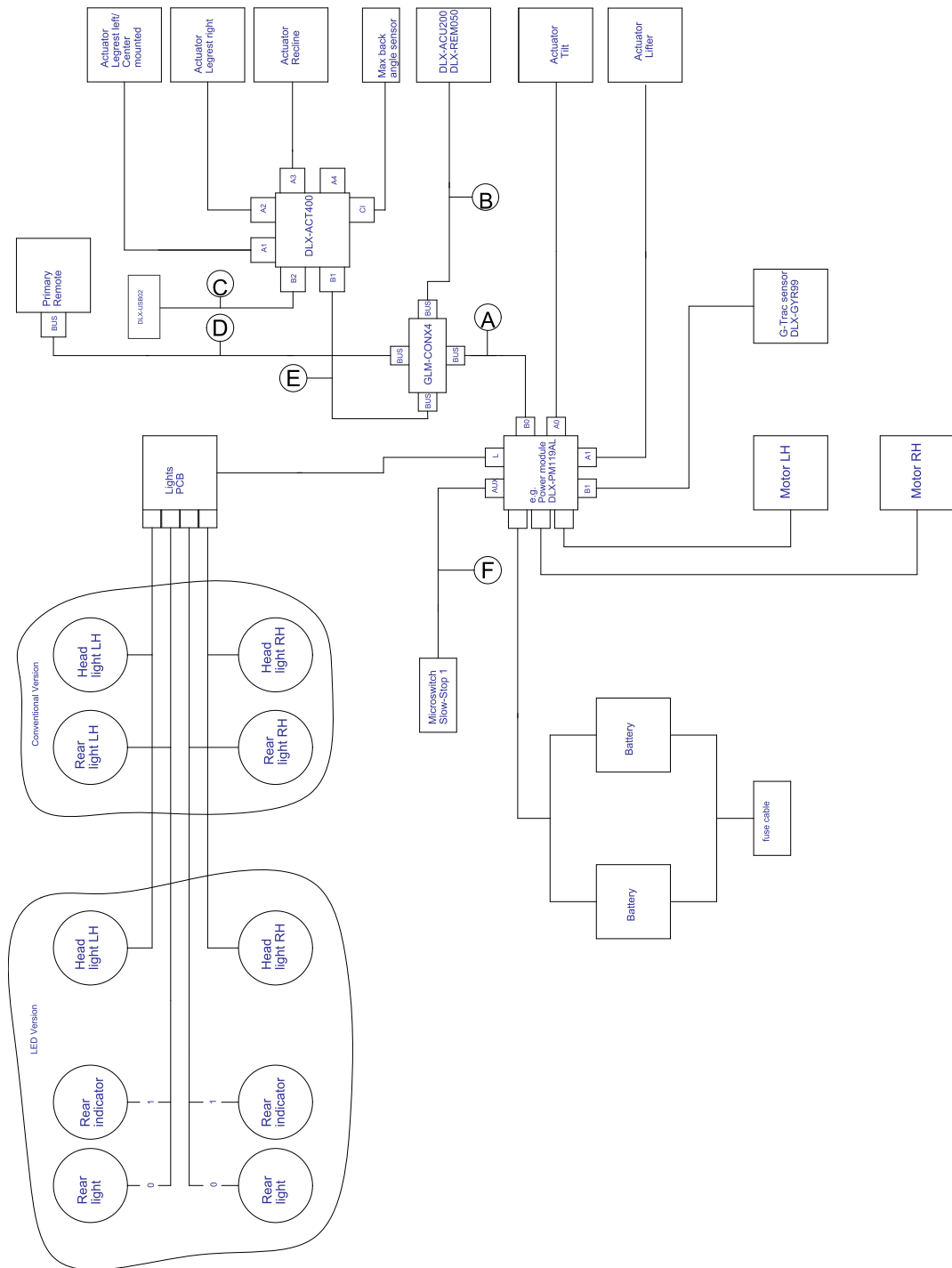
Wiring for configurations of Modulate seat with lifter, tilt, recline, powered elevating legrests, lights, attendant control unit, secondary remote, DLX-ACT400 and USB charger




Cable length may vary depending on mounting positions of primary and secondary remotes and of 4-way connector GLM-CONX4.

| Model | A | B | C | D | E | F | G | H |
|--|-----------|-----------|----------|----------|----------|-----------|-----------|----------|
| Kite | • 2500 mm | • 1500 mm | • 300 mm | • 700 mm | • 700 mm | • 1500 mm | • 1700 mm | • 700 mm |
| Spectra XTR ² HD, Bora/Spectra XTR Standard | • 1700 mm | • 1700 mm | • 300 mm | • 700 mm | • 700 mm | • 1200 mm | • 1500 mm | • 700 mm |
| TDX SP2 | • 1500 mm | • 1200 mm | • 300 mm | • 300 mm | • 700 mm | • 1000 mm | • 1200 mm | • 300 mm |
| Storm ⁴ , Storm ⁴ X-plore | • 1500 mm | • 1200 mm | • 300 mm | • 500 mm | • 300 mm | • 1200 mm | • 1500 mm | • 300 mm |

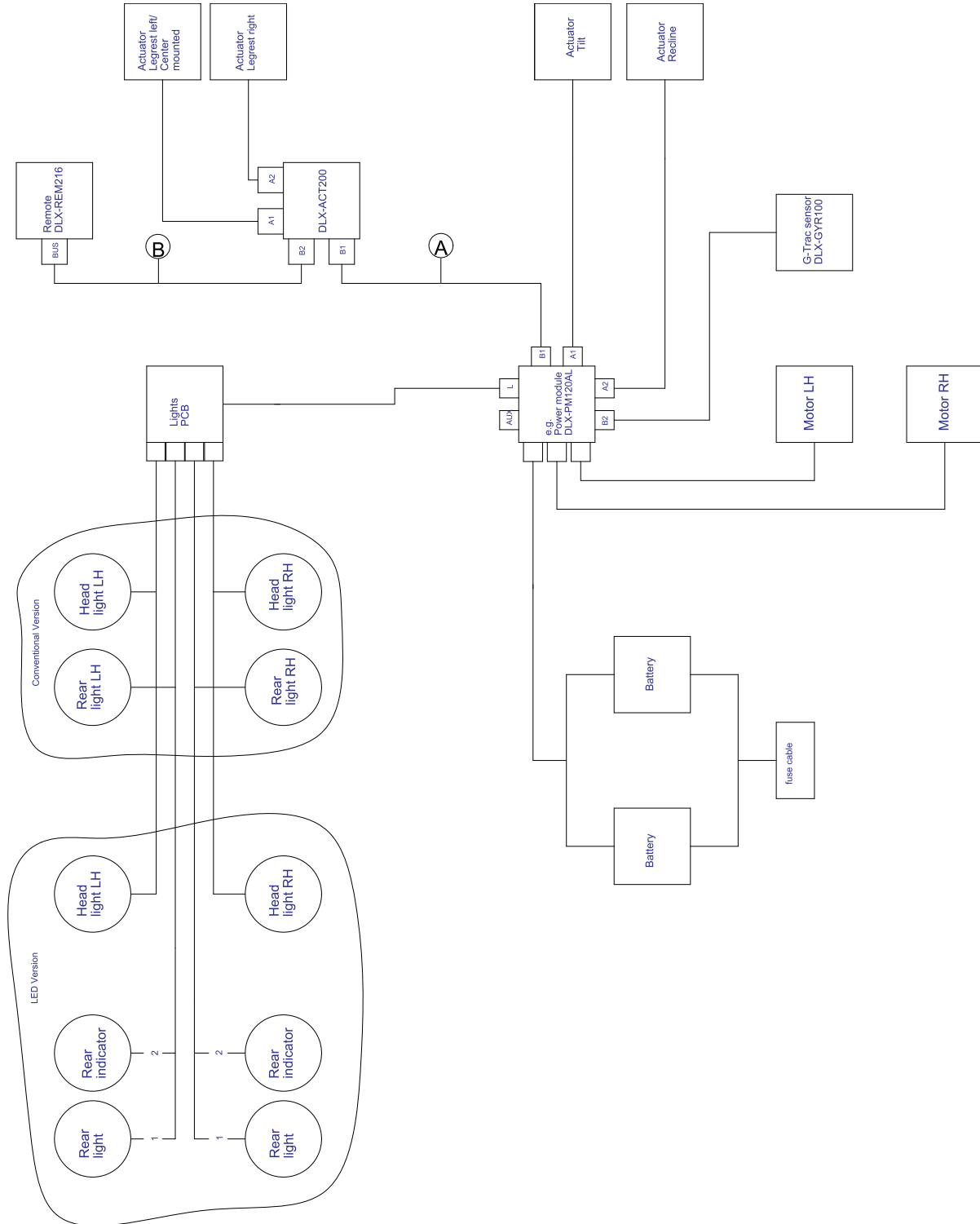
Wiring for configurations of Modulite seat with lifter, tilt, recline, powered elevating legrests, lights, attendant control unit, DLX-ACT400 and USB charger



 Cable length may vary depending on mounting positions of primary and secondary remotes and of 4-way connector GLM-CONX4.

| Model | A | B | C | D | E | F |
|--|---|---|--|---|--|--|
| Kite | <ul style="list-style-type: none"> 2500 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> 700 mm | <ul style="list-style-type: none"> 1700 mm | <ul style="list-style-type: none"> 700 mm | <ul style="list-style-type: none"> 700 mm |
| Spectra XTR ² HD, Bora/Spectra XTR Standard | <ul style="list-style-type: none"> 1700 mm | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 700 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> 700 mm | <ul style="list-style-type: none"> 700 mm |
| TDX SP2 | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> 1000 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> 700 mm | <ul style="list-style-type: none"> 300 mm |
| Storm ⁴ , Storm ⁴ X-plore | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 500 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 300 mm |

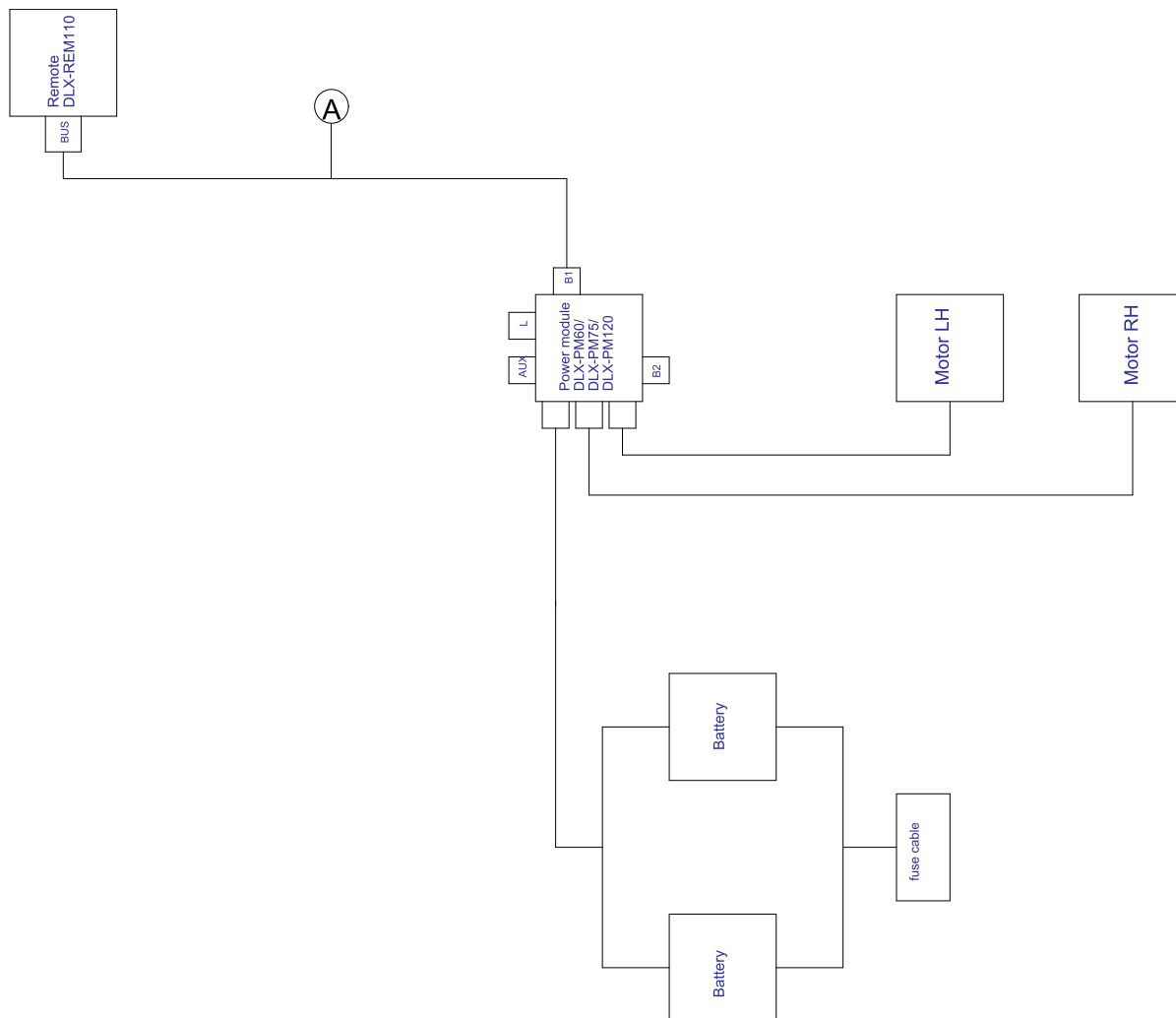
Wiring for configurations of Modulite seat with tilt, recline, powered elevating legrests, lights and DLX-ACT200



i Cable length may vary depending on mounting positions of primary and secondary remotes.

| Model | A | B |
|--|---|---|
| Kite | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> 1500 mm |
| Spectra XTR ² HD, Bora/Spectra XTR Standard | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> 1500 mm |
| TDX SP2 | <ul style="list-style-type: none"> 1700 mm | <ul style="list-style-type: none"> 1000 mm |
| Storm ⁴ , Storm ⁴ X-plore | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 1500 mm |

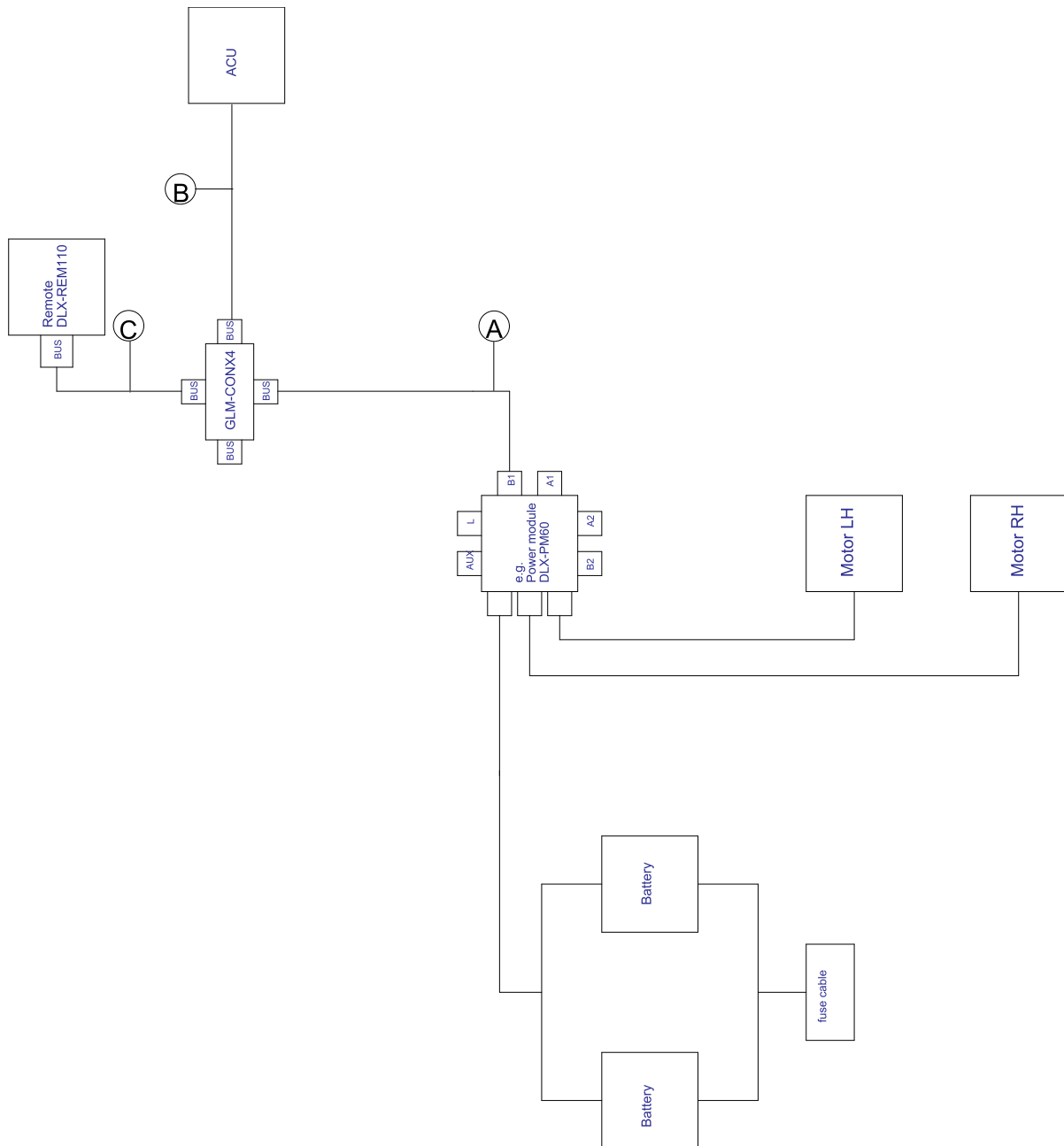
Wiring for Drive only configuration of Modulite seat




i Cable length may vary depending on mounting positions of primary remote.

| Model | A |
|--|--|
| Kite | <ul style="list-style-type: none"> 2000 mm |
| Spectra XTR ² HD, Bora/Spectra XTR Standard | <ul style="list-style-type: none"> 2000 mm |
| TDX SP2 | <ul style="list-style-type: none"> 1500 mm |
| Storm ⁴ , Storm ⁴ X-plore | <ul style="list-style-type: none"> 2000 mm |
| Fox | <ul style="list-style-type: none"> 300 mm + 640 mm extension loom |

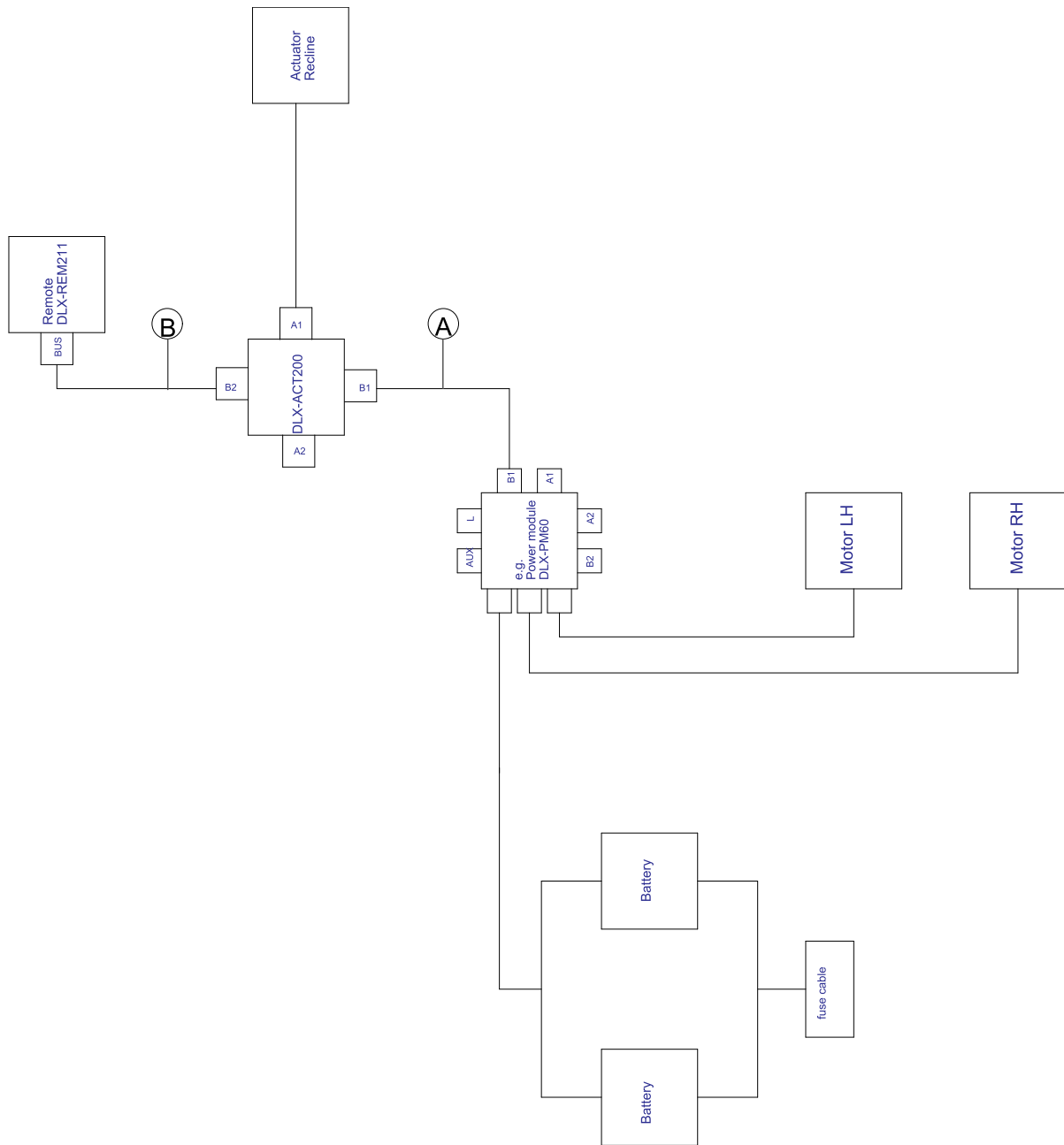
Wiring for Fox with Modulite Drive only with ACU




 Cable length may vary depending on mounting positions of primary and secondary remotes and of 4-way connector GLM-CONX4.

| | |
|---|---|
| Ⓐ | <ul style="list-style-type: none"> • 1000 mm |
| Ⓑ | <ul style="list-style-type: none"> • 1200 mm |
| Ⓒ | <ul style="list-style-type: none"> • 1000 mm |

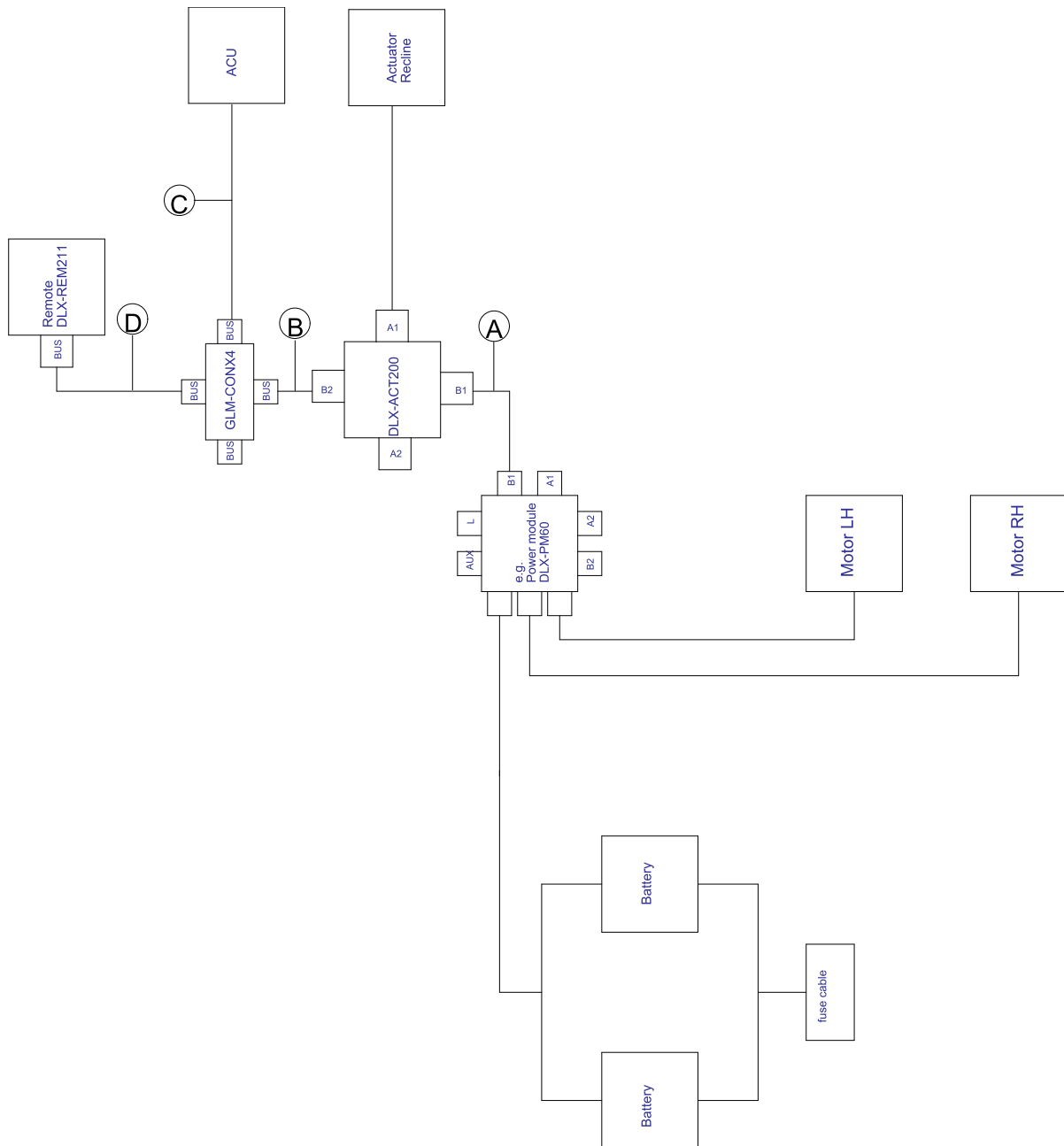
Wiring for Fox with Modulite Recline only




 Cable length may vary depending on mounting positions of primary remote.

| | |
|---|---|
| Ⓐ | <ul style="list-style-type: none"> • 1000 mm |
| Ⓑ | <ul style="list-style-type: none"> • 1000 mm |

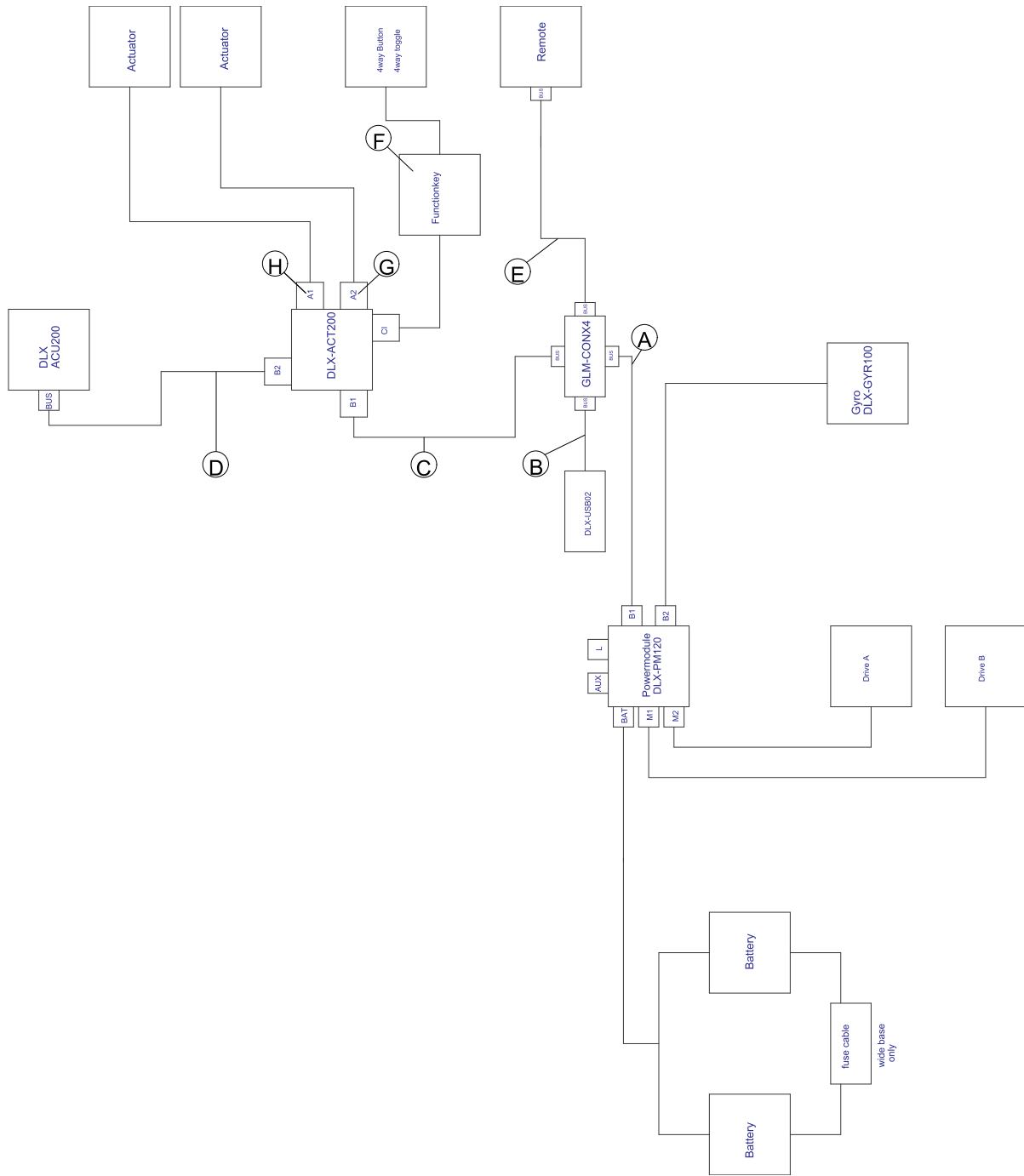
Wiring for Fox with Modulite Recline only and ACU



 Cable length may vary depending on mounting positions of primary and secondary remotes and of 4-way connector GLM-CONX4.

| | |
|---|---|
| Ⓐ | <ul style="list-style-type: none"> • 1000 mm |
| Ⓑ | <ul style="list-style-type: none"> • 300 mm |
| Ⓒ | <ul style="list-style-type: none"> • 1200 mm |
| Ⓓ | <ul style="list-style-type: none"> • 1000 mm |

Wiring for Non expandable systems with Ultra Low Maxx seat (US only)

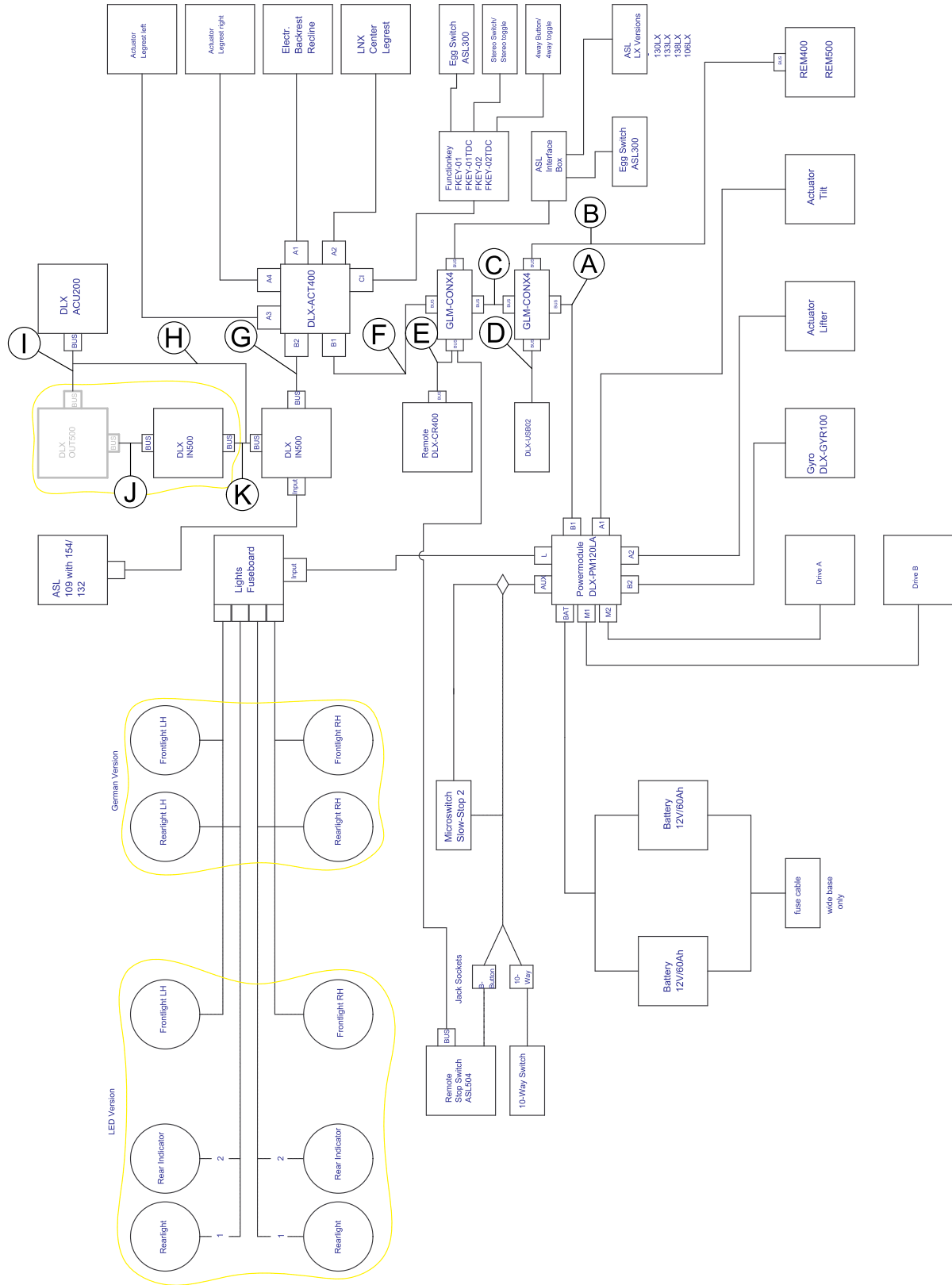



i Cable length may vary depending on mounting positions of primary and secondary remotes and of 4-way connector GLM-CONX4.


| Configuration | A | B | C | D | E | F | G | H |
|---------------|---|--|--|--|---|---|--|---|
| Recline only | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 700 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> Function-key FKEY-01/FKEY01 TDC | <ul style="list-style-type: none"> not used | <ul style="list-style-type: none"> Recline connected |
| Tilt /Recline | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 700 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> Function-key FKEY-02/F- | <ul style="list-style-type: none"> Tilt connected | <ul style="list-style-type: none"> Recline connected |

| Configuration | Ⓐ | Ⓑ | Ⓒ | Ⓓ | Ⓔ | Ⓕ | Ⓖ | Ⓗ |
|---------------|---|--|---|--|---|---|---|--|
| | | | | | | | KEY02 TDC | |
| LNX only | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> Function-key FKEY-01/FKEY01 TDC | <ul style="list-style-type: none"> LNX connected | <ul style="list-style-type: none"> not used |
| Tilt only | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> Function-key FKEY-01/FKEY01 TDC | <ul style="list-style-type: none"> Tilt connected | <ul style="list-style-type: none"> not used |
| Dual legs | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> Function-key FKEY-02/FKEY02 TDC | <ul style="list-style-type: none"> Legrest right connected | <ul style="list-style-type: none"> Legrest left connected |
| Recline/LNX | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> Function-key FKEY-02/FKEY02 TDC | <ul style="list-style-type: none"> LNX connected | <ul style="list-style-type: none"> Recline connected |
| Tilt/LNX | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> Function-key FKEY-02/FKEY02 TDC | <ul style="list-style-type: none"> LNX connected | <ul style="list-style-type: none"> Tilt connected |
| Tilt/Lifter | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1200 mm | <ul style="list-style-type: none"> 300 mm | <ul style="list-style-type: none"> 1500 mm | <ul style="list-style-type: none"> Function-key FKEY-02/FKEY02 TDC | <ul style="list-style-type: none"> Lifter connected | <ul style="list-style-type: none"> Tilt connected |

Wiring for configurations with Ultra Low Maxx seat




 Cable length may vary depending on mounting positions of primary and secondary remotes and of 4-way connector GLM-CONX4.

 Depending on configuration, the Egg switch ASL300 can be connected to the primary remote.

| Configuration | w tilt, w recline, w/o lifter | w tilt, w/o recline, w/o lifter | w tilt, w recline, w lifter | w tilt, w/o recline, w lifter |
|----------------|-------------------------------|---------------------------------|-----------------------------|-------------------------------|
| Ⓐ | • 1200 mm | • 1200 mm | • 1500 mm | • 1500 mm |
| Ⓑ | • 1500 mm | • 1700 mm | • 1700 mm | • 1700 mm |
| Ⓒ | • 700 mm | • 1200 mm | • 700 mm | • 1200 mm |
| Ⓓ | • 300 mm | • 300 mm | • 300 mm | • 300 mm |
| Ⓔ ¹ | • 1700 mm | • 1200 mm | • 1200 mm | • 1200 mm |
| Ⓕ | • 300 mm | • 300 mm | • 300 mm | • 300 mm |
| Ⓖ | • 300 mm | • 300 mm | • 300 mm | • 300 mm |
| Ⓗ | • 300 mm | • 300 mm | • 300 mm | • 300 mm |
| Ⓘ | • 300 mm | • 300 mm | • 300 mm | • 300 mm |
| Ⓙ | • 300 mm | • 300 mm | • 300 mm | • 300 mm |
| Ⓚ | • 300 mm | • 300 mm | • 300 mm | • 300 mm |


1 Bus port either for DLX-CR400 or for Remote Stop Switch. Cannot be combined.

3.9 Mounting the primary remotes

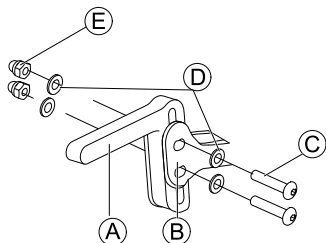
 For more information about how remote holders are mounted to the wheelchair, refer to the service manual of the seating system.

3.9.1 Mounting DLX-REM1XX and DLX-REM2XX for Modulite

Standard remote holder

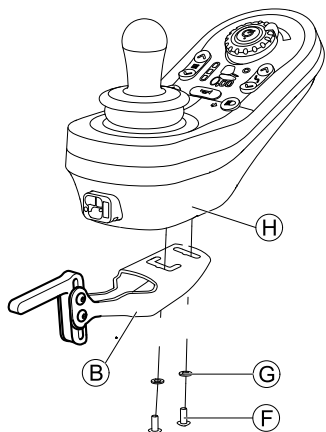
-  • 3 mm Allen key
- 8 mm wrench

1.




Mount joystick holder **A** to remote adapter **B** with screws **C**, washers **D** and nuts **E**.

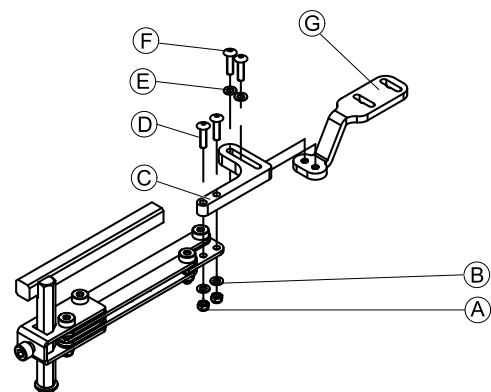
2.



Mount remote **H** to remote adapter **B** with screws **F** and washers **G**.

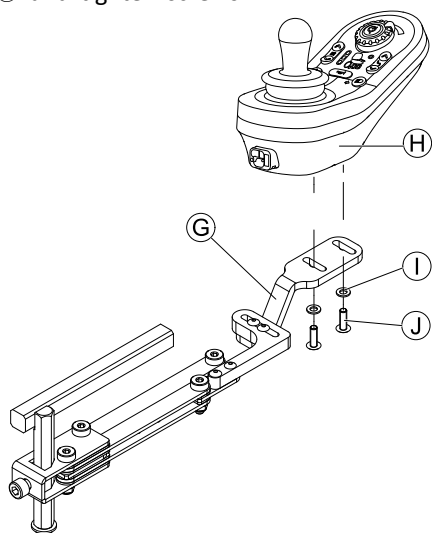
Swing away remote holder

-  • 4 mm Allen key
- 3 mm Allen key
- 8 mm wrench
- 10 mm wrench



1. Pull screws **D** through bracket **C**, remote holder and washers **B**.
2. Tighten screws with nuts **A**.



3. Pull screws ⑥ through washers ⑤, bracket ③ and bracket ④ and tighten screws.
- 4.

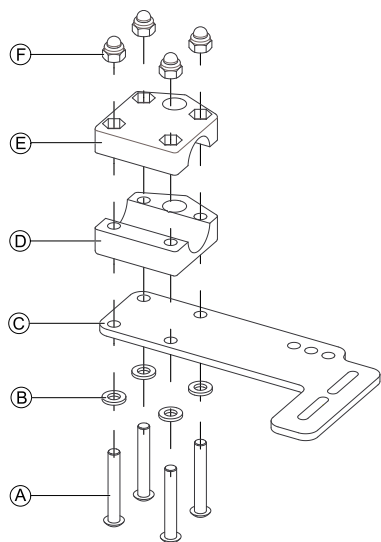


Tighten remote ⑧ with screws ⑩ and washers ⑪ to bracket ③.

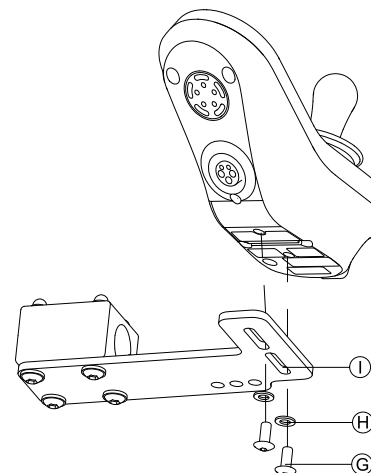
Remote holder for attendant

The remote is fitted to the wheelchair using a bracket on the push handle or the push bar.

-  • 4 mm Allen key
-  • 3 mm Allen key



1. Pull screws ① through washers ②, mounting plate ③ and bottom side of bracket ④.
2. Tighten bottom side of the bracket to push bar with the top side of the bracket ⑤ and nuts ⑥.
- 3.





Fix remote to bracket ① with screws ③ and washers ④ .

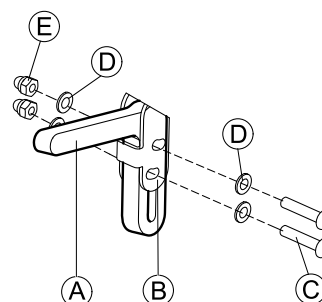
For mounting positions, refer to 3.10.3 *Mounting the DLX-REM050*, page 33.

3.9.2 Mounting DLX-REM2XX for Ultra Low Maxx

Standard remote holder

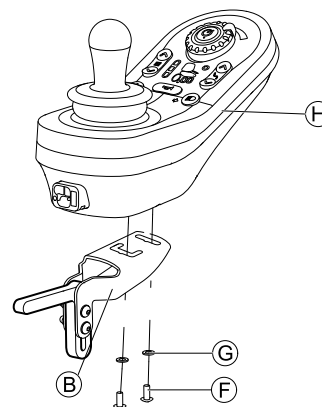
-  • 3 mm Allen key
-  • 8 mm wrench

- 1.







Mount joystick holder ① to remote adapter ② with screws ③, washers ④ and nuts ⑤.

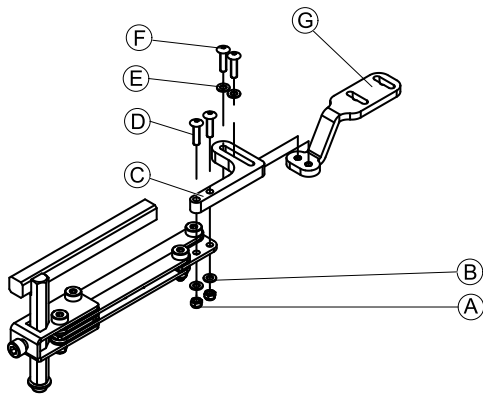
- 2.



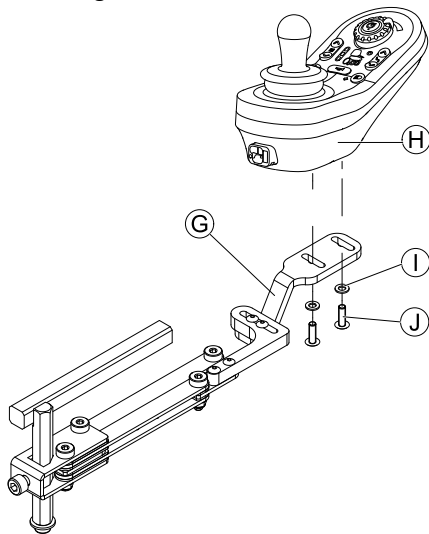
Mount remote ⑧ to remote adapter ② with screws ⑥ and washers ⑦.

Swing away remote holder

-  • 3 mm Allen key
-  • 4 mm Allen key
-  • 8 mm wrench
-  • 10 mm wrench



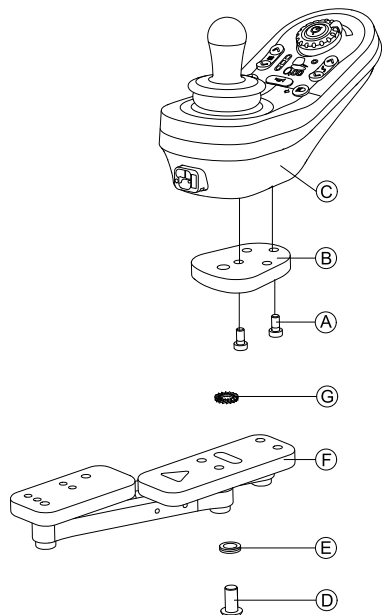
1. Pull screws ④ through bracket ③, remote holder and washers ②.
2. Tighten screws with nuts ①.
3. Pull screws ⑥ through washers ⑤, bracket ③ and bracket ⑦ and tighten screws.
- 4.



Tighten remote ⑧ with screws ⑩ and washers ① to bracket ③.

Quad Link remote holder

- 3 mm Allen key
- 5 mm Allen key



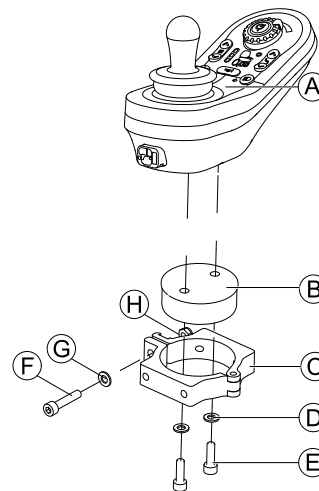
1. Mount LiNX remote adapter ② with screws ① to remote ③.
 - ! The LiNX remote adapter can be turned 90° right or left for more adjustment options.
2. Mount remote to Quad Link ⑥ with screw ④, Nord-Lock washer ⑤ and serrated lock washer ⑦.
 - ! Tighten screw ④ with a maximum torque of 25 Nm.

Remote holder for attendant

The remote is fitted to the wheelchair using a bracket on the push handle or the push bar.

- 3 mm Allen key
- 5 mm Allen key
- 8 mm wrench

1.



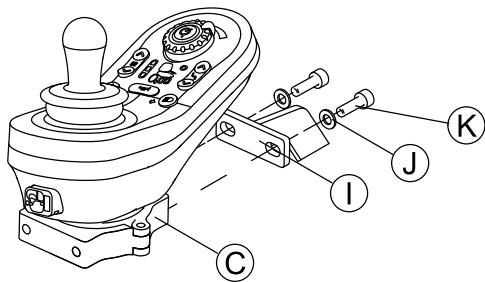
Mount remote ① with and support drum ② to clamp ③ with screws ⑤ and washers ④.

2.

! Risk of damage to the remote
 The maximum torque to tighten the screw is 1 Nm.
 – Do not exceed this rating as it may damage the remote.

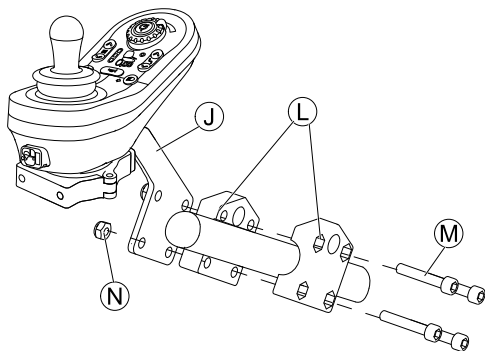
Fix support drum ② in clamp ③ with screw ⑤, washer ④ and nut ⑥.

3.



Attach clamp **C** to bracket **I** with screws **K** and washers **J**.



4.



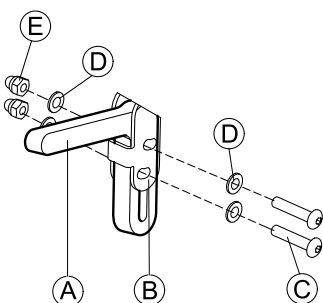
Attach bracket **I** to gripper clamp **L** with screws **M** and nuts **N**.

3.9.3 Mounting the DLX-REM400

Standard remote holder

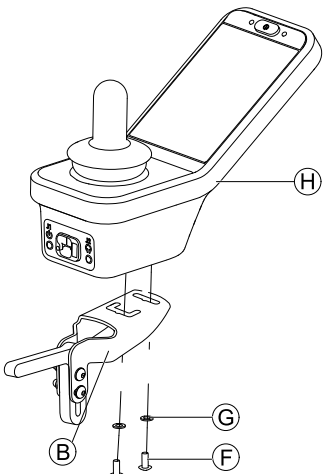
-  • 3 mm Allen key
-  • 8 mm wrench

1.







Mount joystick holder **A** to remote adapter **B** with screws **C**, washers **D** and nuts **E**.

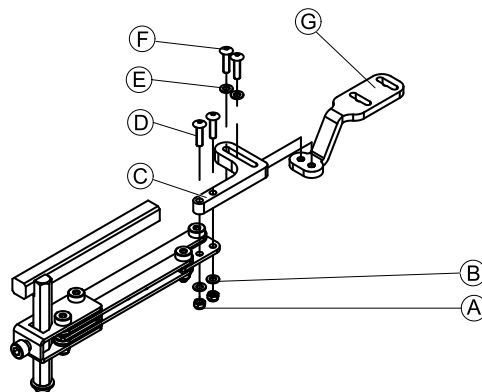
2.



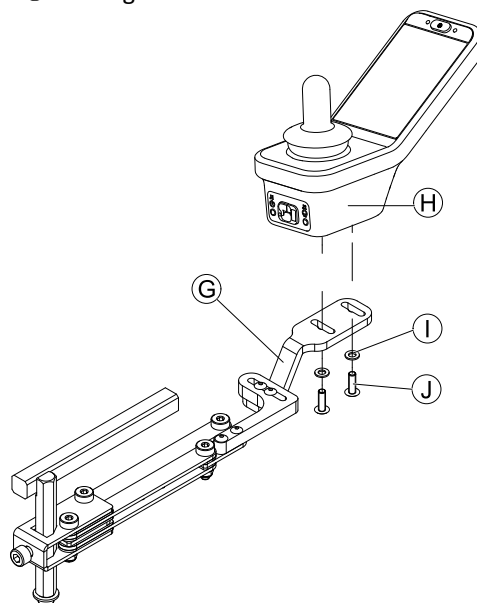
Mount remote **H** to remote adapter **B** with screws **F** and washers **G**.

Swing away remote holder

-  • 4 mm Allen key
-  • 3 mm Allen key
-  • 8 mm wrench
-  • 10 mm wrench





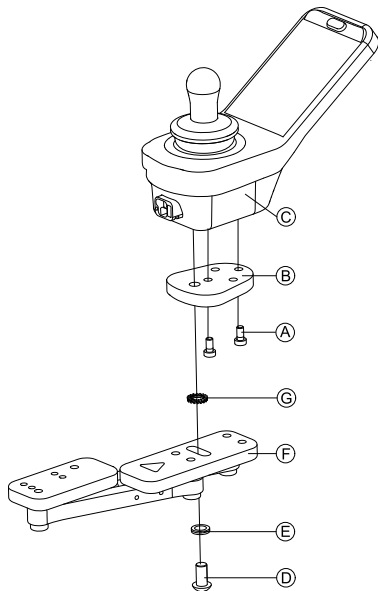
1. Pull screws **D** through bracket **C**, remote holder and washers **B**.
2. Tighten screws with nuts **A**.
3. Pull screws **F** through washers **E**, bracket **C** and bracket **G** and tighten screws.
- 4.




Tighten remote with screws **A** to bracket **G**.

Quad Link remote holder


-  • 3 mm Allen key
-  • 5 mm Allen key



1. Mount LiNX remote adapter (B) with screws (A) to remote (C).




 The LiNX remote adapter can be turned 90° right or left for more adjustment options.

2. Mount remote to Quad Link (F) with screw (D), Nord-Lock washer (E) and serrated lock washer (G).

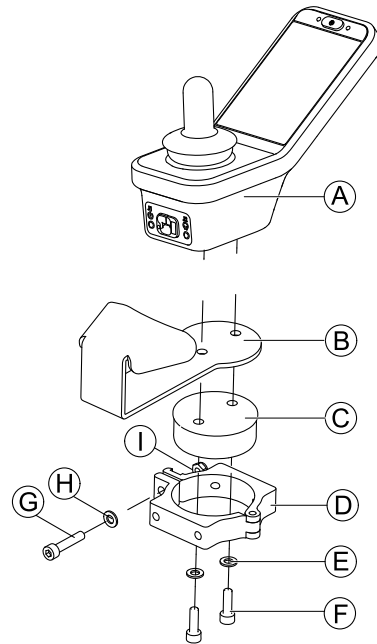
 Tighten screw (D) with a maximum torque of 25 Nm.

Remote holder for attendant

The remote is fitted to the wheelchair using a bracket on the push handle or the push bar.

- | | |
|---|------------------|
|  | • 3 mm Allen key |
|  | • 5 mm Allen key |
|  | • 8 mm wrench |

1.



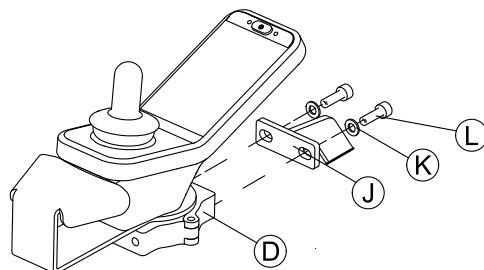
Mount remote (A) with support (B) and support drum (C) to clamp (D) with screws (F) and washers (E).

2.

! **Risk of damage to the remote**
 • The maximum torque to tighten the screw is 1 Nm.
 – Do not exceed this rating as it may damage the remote.

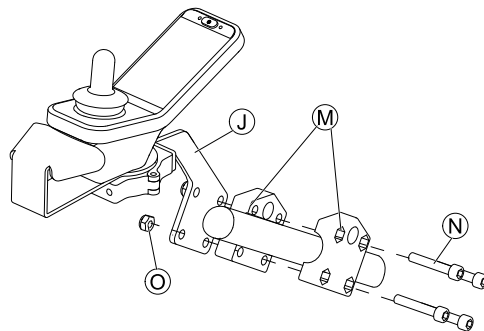
Fix support drum (C) in clamp (D) with screw (G), washer (H) and nut (I).

3.



Attach clamp (D) to bracket (J) with screws (L) and washers (K).




4.

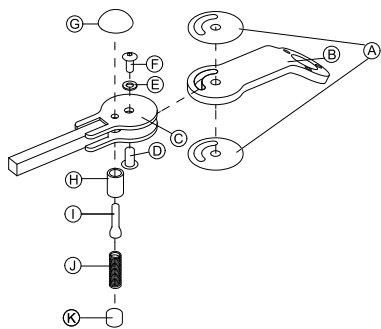


Attach bracket (J) to gripper clamp (M) with screws (N) and nuts (O).

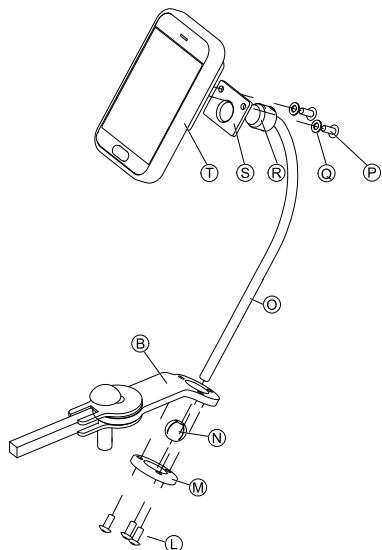
3.9.4 Mounting the DLX-REM500

Swing away remote holder

- | | |
|---|--|
|  | • 3 mm Allen key |
|  | • 4 mm Allen key |
|  | • Medium-strength thread-locking fluid, e.g. Loctite 243 |



1. Connect slip sticker **A** with joint arm **B** and insert into support **C**.
2. Fix with sleeve nut **D**, washer **E** and screw **F**.
i Apply medium-strength thread-locking fluid to screw **F**.
3. Insert locking bolt **H** and compression spring **I** through support **C** and joint arm **B**.
4. Fix with locking knob **G** and grub screw **J**.
i Apply medium-strength thread-locking fluid to grub screw **J**.
- 5.





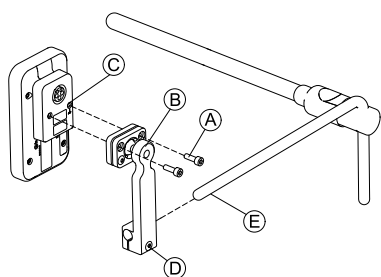
Insert bracket **O** into joint arm **B**, clamp ball **N** and clamp ring **M**.

Fix with screws **L**.

6. Mount remote **T** to support plate **S** and clamping bush **R** with washers **Q** and screws **P**.

Nucleus remote holder

-  • 4 mm Allen key
-  • 3/16" Allen key







1. Mount remote **C** to bracket **B** with screws **A**.
2. Pull bracket **B** over nucleus **E**.
3. Tighten bracket to nucleus with screw **D**.

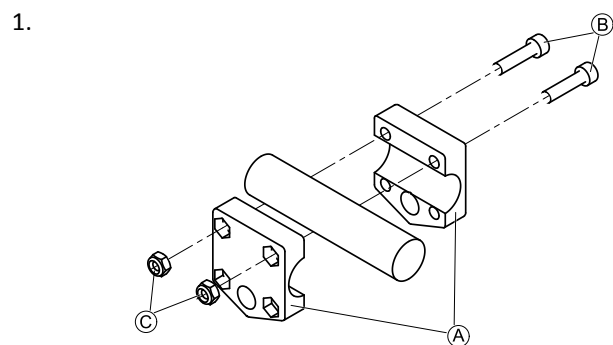
3.10 Mounting the secondary remotes

i For more information about how remote holders are mounted to the wheelchair, refer to the service manual of the seating system.

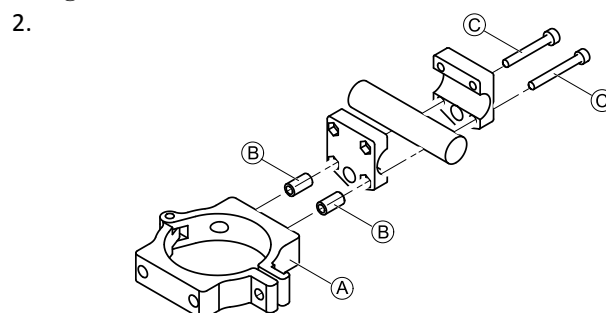
3.10.1 Mounting the DLX-ACU200

Mounting for Modulte seating system

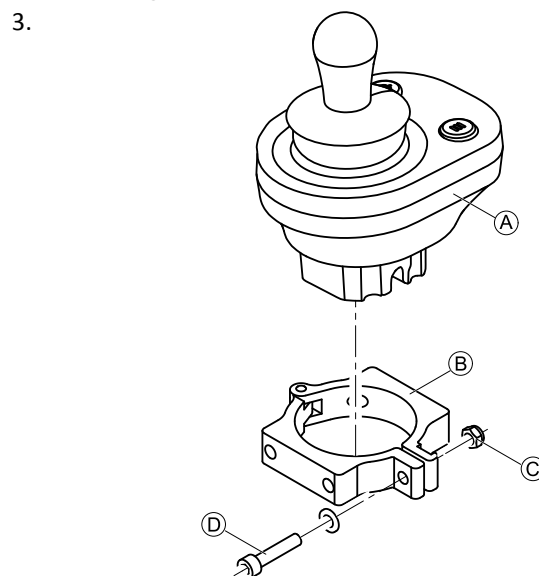
-  • 3 mm Allen key
-  • 5 mm Allen key
-  • 8 mm wrench
-  • 10 mm wrench



Attach gripper clamp **A** to tube with screws **B** and nuts **C**.






Attach clamp **A** and spacers **B** to gripper clamp with screws **C**.



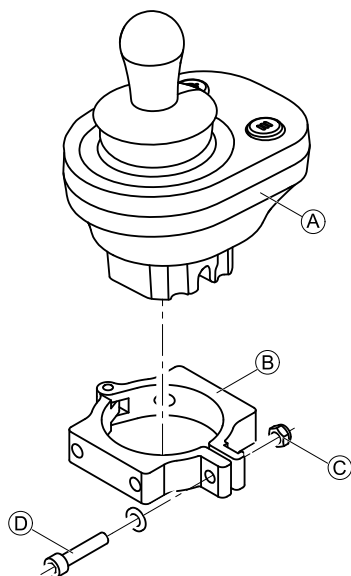
! **Risk of damage to the remote**
 • The maximum torque to tighten the screw is 1 Nm.
 – Do not exceed this rating as it may damage the remote.

Set remote (A) in clamp (B) and tighten screw (D) and nut (C).

Mounting for Ultra Low Maxx seating system

-  • 3 mm Allen key
-  • 5 mm Allen key
-  • 8 mm wrench

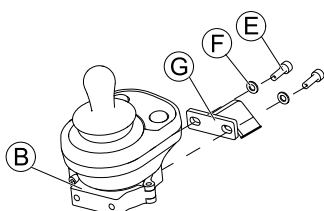
1.



! Risk of damage to the remote
 The maximum torque to tighten the screw is 1 Nm.
 – Do not exceed this rating as it may damage the remote.

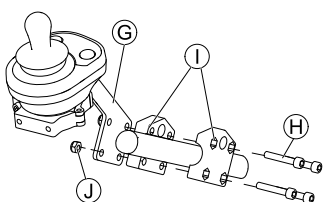
Set remote (A) in clamp (B) and tighten screw (D) and nut (C).

2.



Attach clamp (B) to bracket (G) with screws (E) and washers (F).

3.






Attach bracket (G) to gripper clamp (I) with screws (H) and nuts (J).

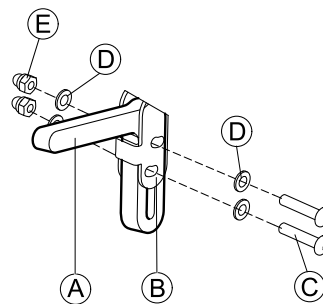
3.10.2 Mounting the DLX-CR400

and DLX-CR400LF

Standard remote holder

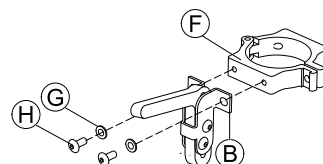
-  • 3 mm Allen key
-  • 4 mm Allen key
-  • 8 mm wrench

1.



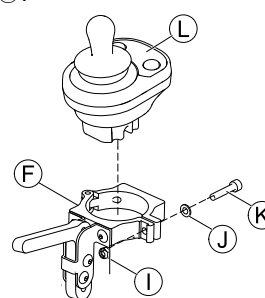
Mount joystick holder (A) to DLX-CR400 adapter (B) with screws (C), washers (D) and nuts (E).

2.



Attach clamp (F) to DLX-CR400 adapter (B) with washers (G) and screws (H).



3.

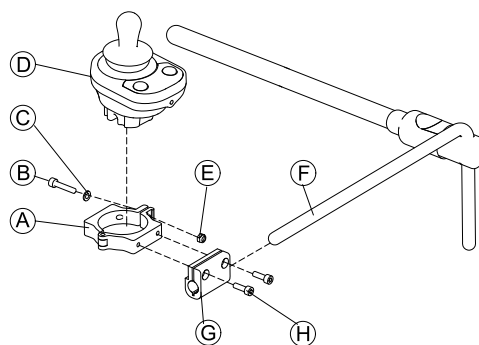


! Risk of damage to the remote
 The maximum torque to tighten the screw is 1 Nm.
 – Do not exceed this rating as it may damage the remote.

Set remote (L) in clamp (F) and tighten screw (K) and washer (J) with nut (I).

Nucleus remote holder

-  • 4 mm Allen key
-  • 8 mm wrench





1.

! Risk of damage to the remote
 The maximum torque to tighten the screw is 1 Nm.
 – Do not exceed this rating as it may damage the remote.

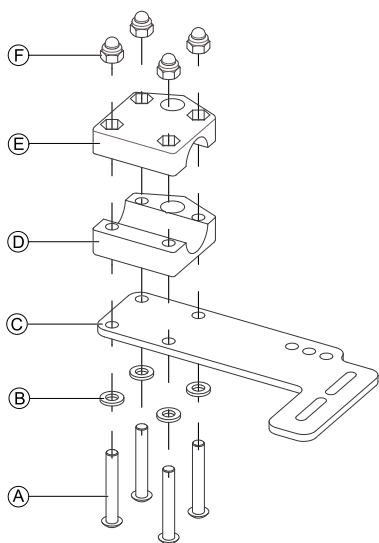
Set remote ④ in clamp ① and tighten screw ② and washer ③ with nut ⑤.

2. Pull clamp bracket ⑥ over nucleus ⑦.
3. Attach clamp ① to clamp bracket ⑥ and fix everything with screws ⑧.

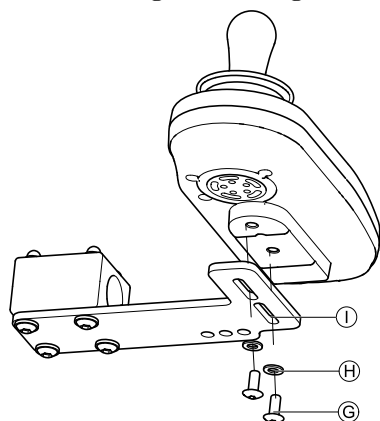
3.10.3 Mounting the DLX-REM050

-  • 4 mm Allen key
-  • 3 mm Allen key

The attendant control unit is fitted to the wheelchair using a bracket on the push handle or the push bar.



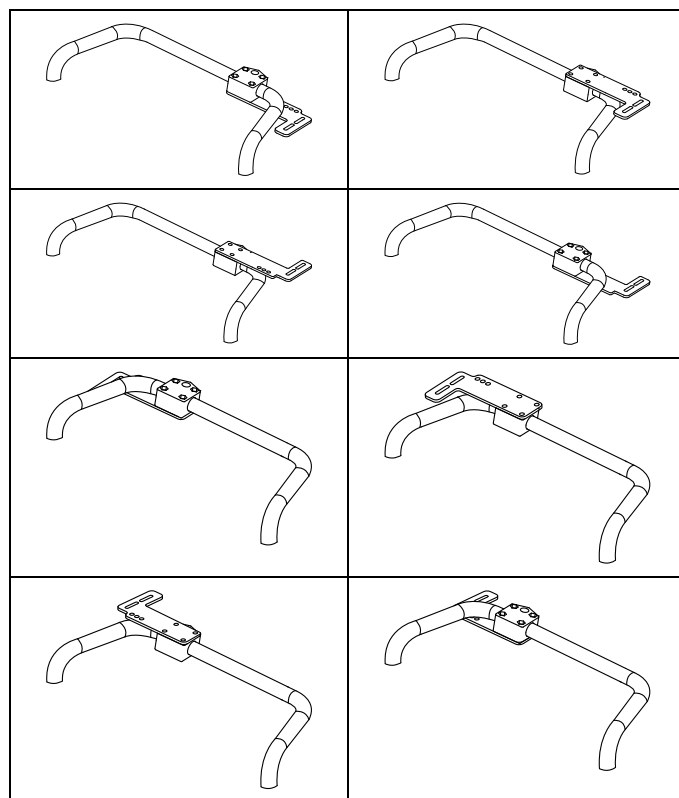
1. Pull screws ① through washers ②, mounting plate ③ and bottom side of bracket ④.
2. Tighten bottom side of the bracket to push bar with the top side of the bracket ⑤ and nuts ⑥.
- 3.




Pull screws ③ through washers ④ bracket ⑤ and attendant control unit.

4. Tighten screws.
5. Connect attendant control unit.

Mounting positions






3.11 Mounting the ASL components

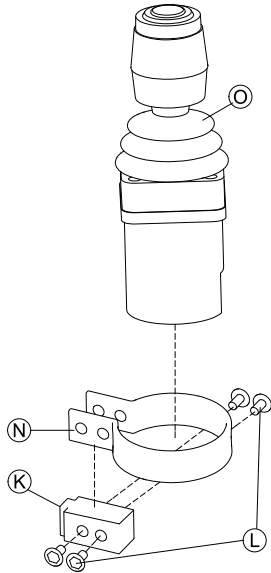
 For more information about how remote holders are mounted to the wheelchair, refer to the service manual of the seating system.

3.11.1 Mounting the Compact Single Switch Joystick

Lateral tray mount

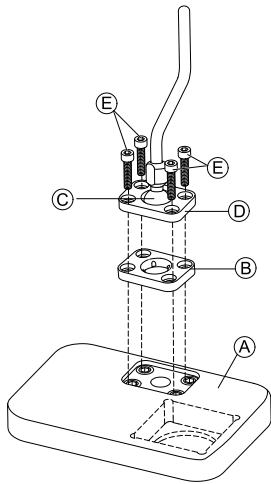
-  • 1/8" Allen key
-  • 5/32" Allen key
-  • 3/16" Allen key

1.



Insert joystick © in clamp N, pull clamp over adapter block K and fix with screws L.

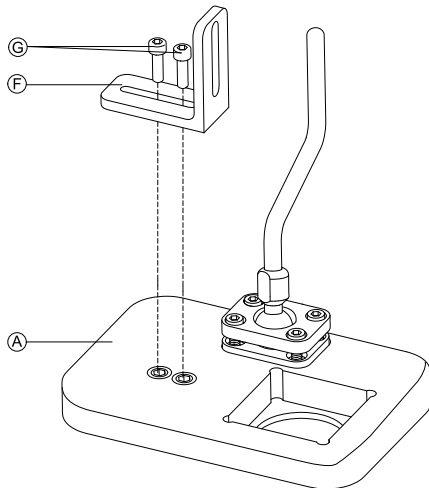
2.



Insert clamp plate B into cutout on tray A.

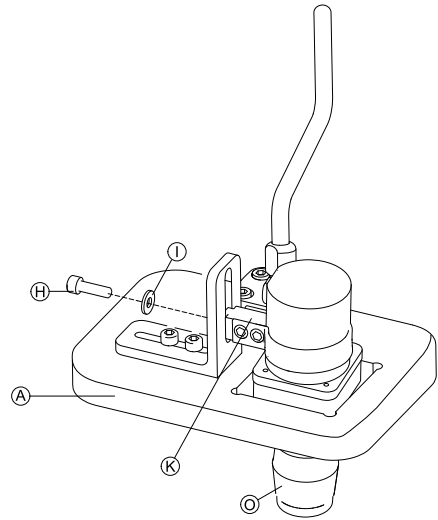
3. Fix clamp plate B, clamp ball C and upper clamp plate D with screws E.

4.



Mount angle bracket F with screws G to tray A.

5.



Insert remote © into tray A.

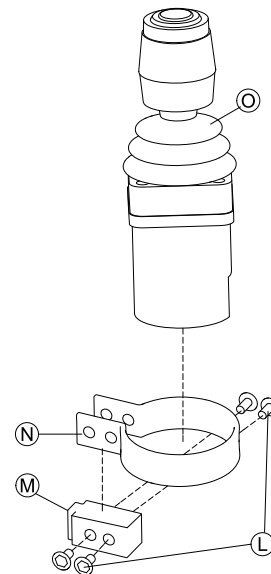
6. Fix adapter block K to angle bracket F with screw H and washer I.

Nucleus tray mount



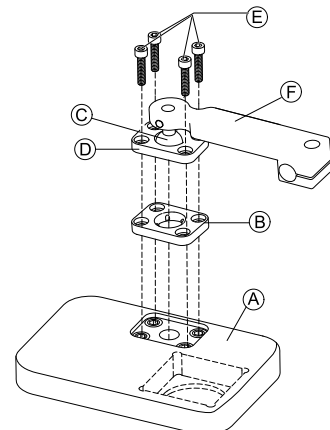
- 1/8" Allen key
- 5/32" Allen key
- 3/16" Allen key

1.



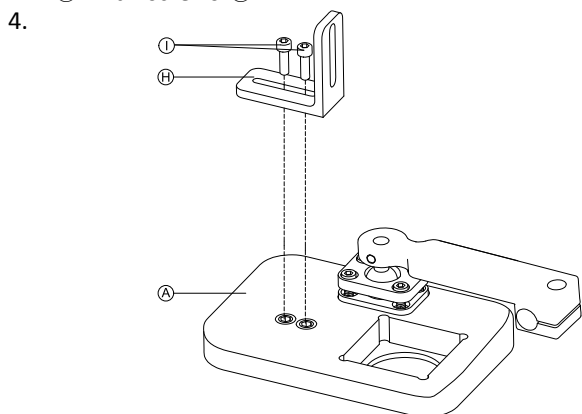
Insert joystick © in clamp N, pull clamp over adapter block M and fix with screws L.

2.

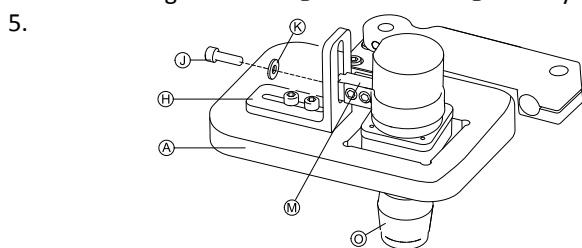


Insert clamp plate B into cutout on tray A.

3. Fix clamp plate **B**, clamp ball **C** and upper clamp plate **D** with screws **E**.

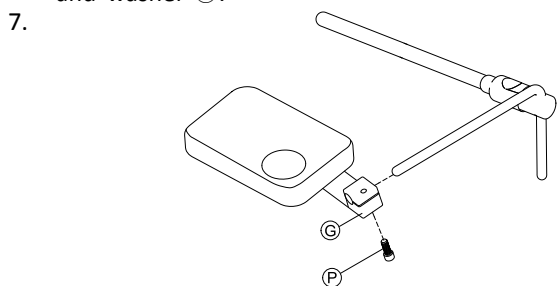


Mount angle bracket **H** with screws **I** to tray **A**.





Insert remote **O** into tray **A**.

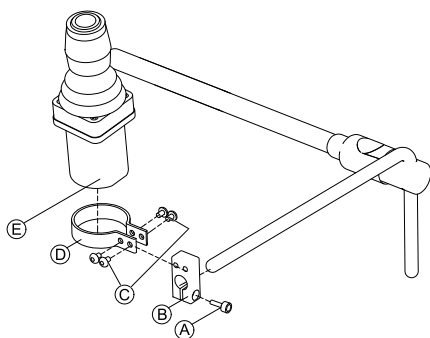
6. Fix adapter block **M** to angle bracket **H** with screw **J** and washer **K**.



Pull hitch mount **G** over nucleus and tighten with screw **P**.

Nucleus only mount




-  • 1/8" Allen key
-  • 5/32" Allen key

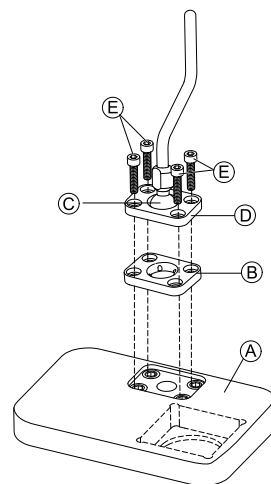


1. Pull adapter block **B** over nucleus and tighten with screw **A**.
2. Insert remote **E** into clamp **D**.
3. Mount clamp **D** to adapter block **B** with screws **C**.

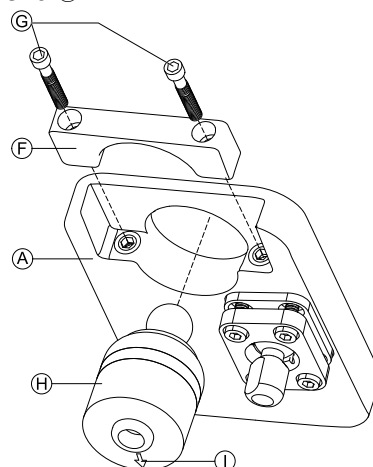
3.11.2 Mounting the Micro Extremity Control Joystick

Lateral tray mount

-  • 1/8" Allen key
-  • 5/32" Allen key
-  • 3/16" Allen key






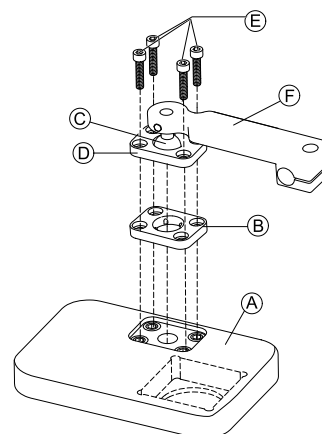
1. Insert clamp plate **B** into cutout on tray **A**.
2. Fix clamp plate **B**, clamp ball **C** and upper clamp plate **D** with screws **E**.
- 3.



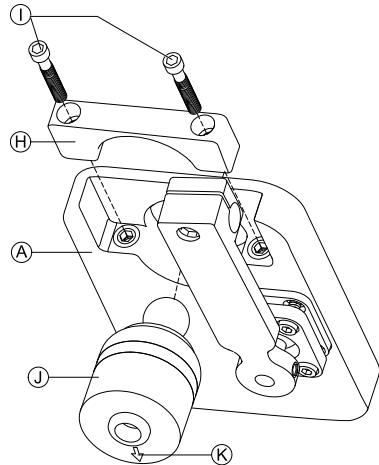
Insert remote **H** from below into tray **A**. Make sure, arrow **I** shows into reverse driving direction.

Nucleus tray mount

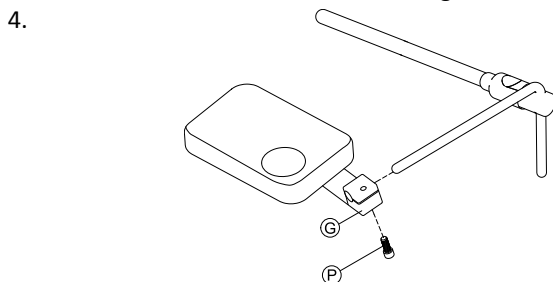
-  • 1/8" Allen key
-  • 5/32" Allen key
-  • 3/16" Allen key



1. Insert clamp plate **B** into cutout on tray **A**.
2. Fix clamp plate **B**, clamp ball **C** and upper clamp plate **D** with screws **E**.



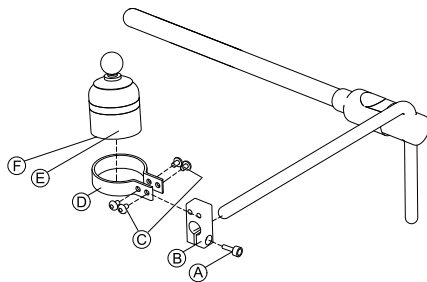
Insert remote **I** from below into tray **A**. Make sure, arrow **K** shows into reverse driving direction.



Pull hitch mount **G** over nucleus and tighten with screw **P**.

Nucleus only mount

- 1/8" Allen key
- 5/32" Allen key

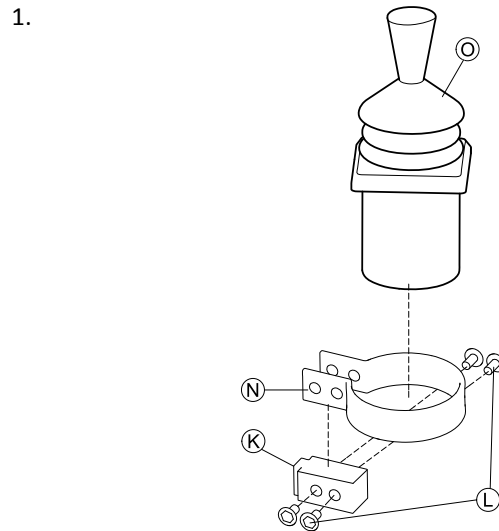


1. Pull adapter block **B** over nucleus and tighten with screw **A**.
2. Insert remote **E** into clamp **D**. Make sure, arrow **F** (not visible in picture) shows into reverse driving direction.
3. Mount clamp **D** to adapter block **B** with screws **C**.

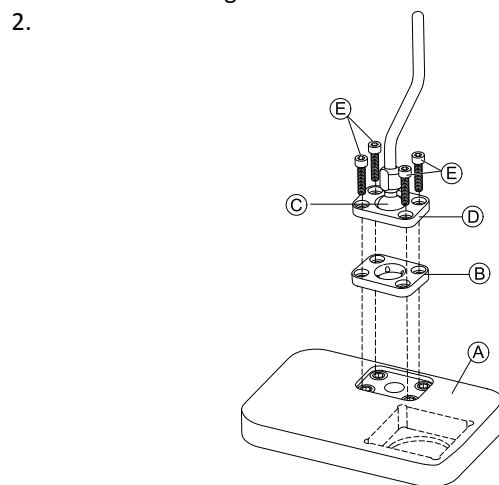
3.11.3 Mounting the Pediatric Compact Joystick

Lateral tray mount

- 1/8" Allen key
- 5/32" Allen key
- 3/16" Allen key

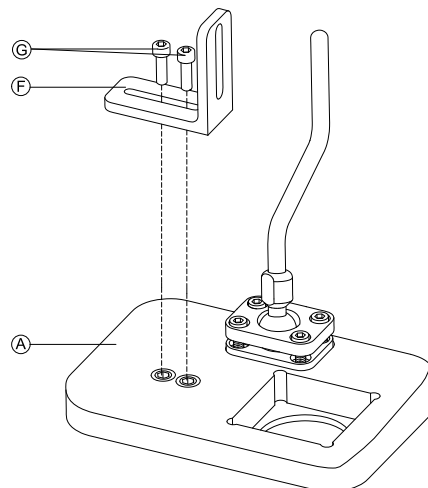


Insert remote **O** into clamp **N**. Pull clamp over adapter block **K** and tighten with screws **L**.



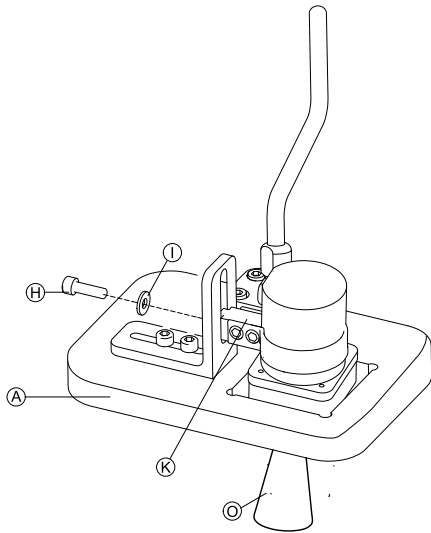
Insert clamp plate **B** into cutout on tray **A**.

3. Fix clamp plate **B**, clamp ball **C** and upper clamp plate **D** with screws **E**.
- 4.






Mount angle bracket **F** with screws **G** to tray **A**.

- 5.

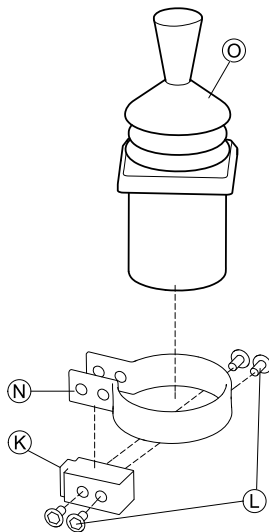


Fix adapter block **K** to angle bracket **H** with screw **I** and washer **J**.

Nucleus tray mount

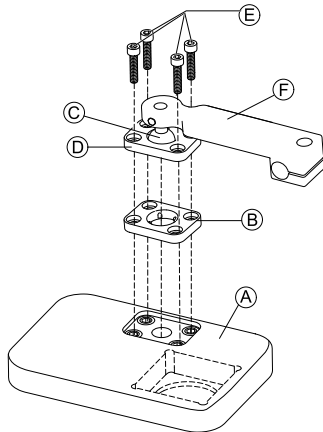
-  • 1/8" Allen key
-  • 5/32" Allen key
-  • 3/16" Allen key

1.



Insert remote **O** into clamp **N**. Pull clamp over adapter block **K** and fix with screws **L**.

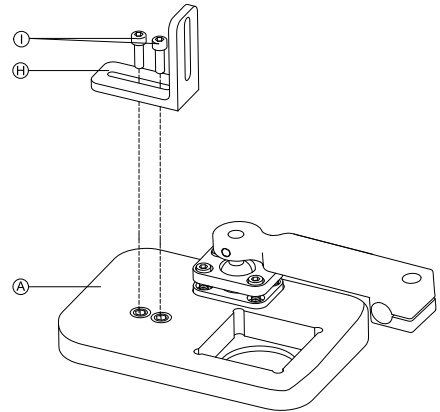
2.



Insert clamp plate **B** into cutout on tray **A**.

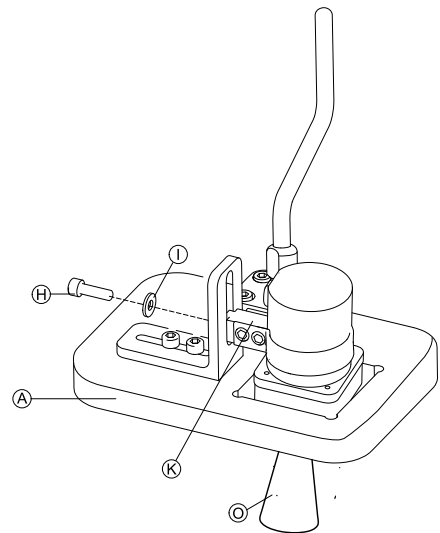
3. Fix clamp plate **B**, clamp ball **C** and upper clamp plate **D** with screws **E**.

4.



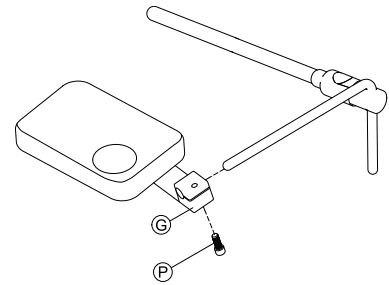
Mount angle bracket **H** with screws **I** to tray **A**.

5.





Fix adapter block **M** to angle bracket **H** with screw **I** and washer **K**.

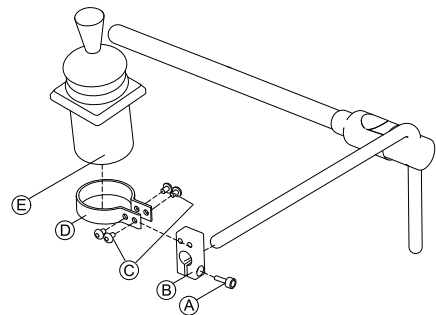
6.



Pull hitch mount **G** over nucleus and tighten with screw **P**.

Nucleus only mount

-  • 1/8" Allen key
-  • 5/32" Allen key



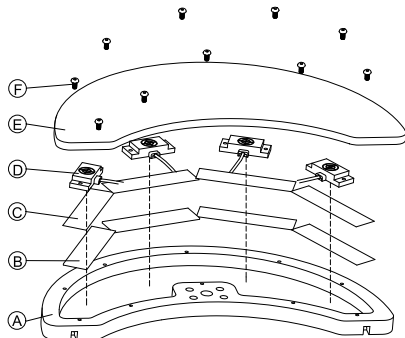
1. Pull adapter block **B** over nucleus and tighten with screw **A**.
2. Insert remote **E** into clamp **D**.
3. Mount clamp **D** to adapter block **B** with screws **C**.

3.11.4 Mounting the eclipse tray with proximity sensors



- 3/32" Allen key
- 5/32" Allen key
- 3/16" Allen key
- 4x loop straps 25x100 mm
- 4x hook straps 25x100 mm

1.



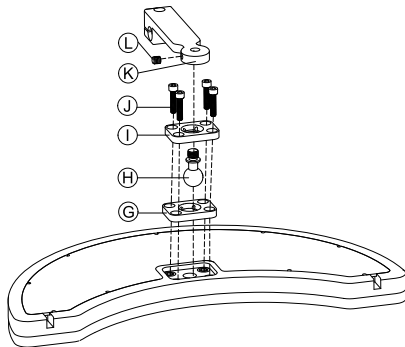
Fix hook straps **B** inside eclipse tray **A**.

2. Cut loop straps **C** accordingly shape of proximity sensors **D**.
3. Fix loop straps to proximity sensors.
4. Fix loop straps to hook straps.
- 5.

Pay attention that wiring of proximity sensors fit into intended gaps.

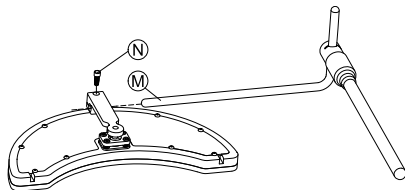
Fix coverage **E** to eclipse tray with screws **F**.

6.



Insert clamp plate **G** into cutout on eclipse tray.

7. Fix clamp plate, clamp ball **H** and upper clamp plate **I** with screws **J**.
8. Screw hitch mount **K** to clamp ball with grub screw **L**.
- 9.



Pull hitch mount over nucleus **M** and tighten with screw **N**.

3.12 Mounting the 10 way switch



For more information about how 10 way switch holders are mounted to the wheelchair, refer to the service manual of the seating system.

While mounting the 10 way switch or changing the labeling, the orientation spot **A** must face downwards, see table below.

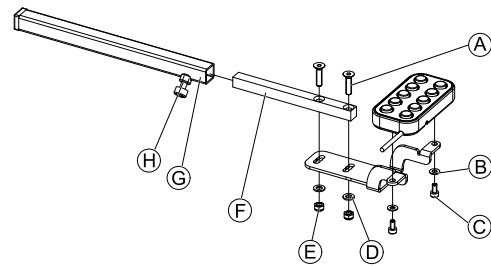
| Orientation right | Orientation wrong |
|-------------------|-------------------|
| | |

3.12.1 Mounting the 10 way switch for Modulite

Mounting at the front

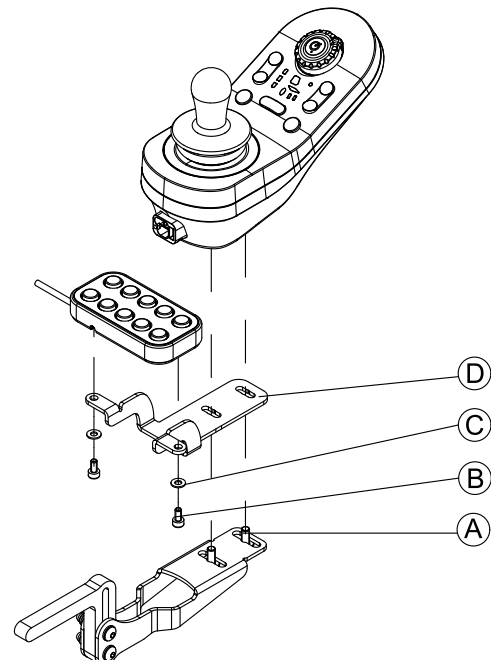


- 3 mm Allen key
- 4 mm Allen key
- 8 mm wrench



1. Tighten 10 way switch to bracket with screws **C** and washers **B**.
2. Tighten bracket to remote mounting tube **F** with screws **A**, washers **D** and nuts **E**.
3. Insert remote mounting tube inside mounting bracket **G**.
4. Adjust 10 way switch to desired position.
5. Tighten wing screw **H**.

In combination with DLX-REM211/DLX-REM216

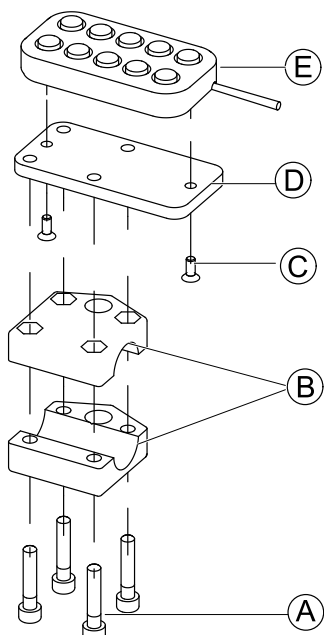


1. Tighten 10 way switch to bracket **D** with screws **B** and washers **C**.
2. Tighten bracket to remote mounting bracket with screws **A**.

Mounting at the rear (for attendants)



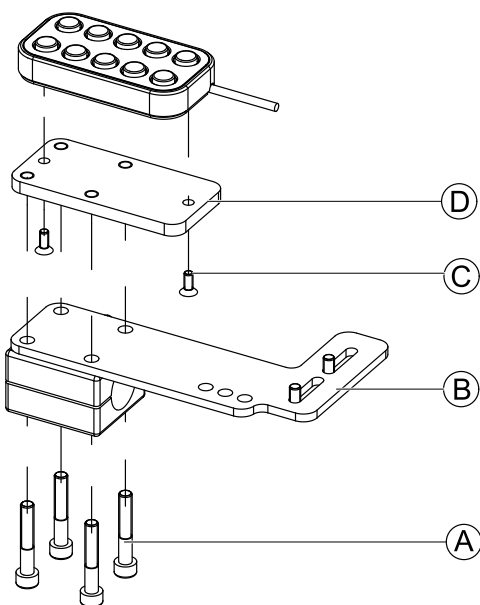
- 3 mm Allen key
- 4 mm Allen key




The 10 way switch is fitted to the rear of the wheelchair using a bracket B on the push handle or push bar.

1. Tighten mounting plate D with screws C to 10 way switch E.
2. Pull screws A through bracket B and mounting plate D.

In combination with DLX-REM050 (attendant control unit)





1. Tighten 10 way switch to mounting plate D with screws C.
2. Tighten mounting plate D to mounting plate B with screws A.

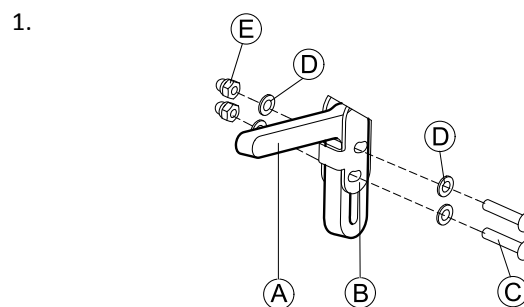
 For the possible positions of the attendant control unit, refer to 3.9.3 Mounting the DLX-REM400, page 29.

3.12.2 Mounting the 10 way switch for Ultra Low Maxx

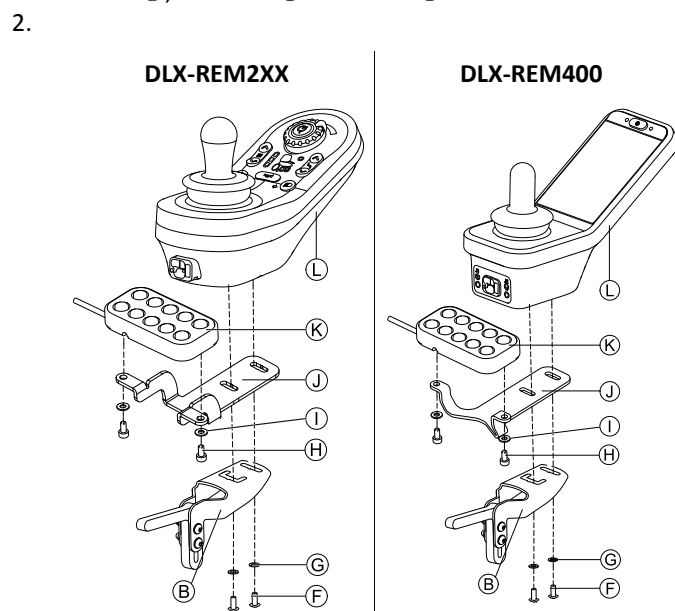
Mounting at the front

In combination with DLX-REM2XX or DLX-REM400

-  • 3 mm Allen key
-  • 8 mm wrench



Mount joystick holder A to remote adapter B with screws C, washers D and nuts E.



Mount remote L to remote adapter B and support sheet J with screws F and washers G.

3. Mount 10 way switch K to support sheet J with screws H and washers I.

For more information about mounting the 10 way switch for attendants, refer to the service manual of the Ultra Low Maxx.

4 Overview LiNX Access tools

The LiNX system is programmed during manufacturing with default settings. These settings can be modified with a programming tool to suit the user.

The LiNX system can be programmed with one of two programming and diagnostic tools:

- LiNX Access iOS tool used with Apple’s iPhone, iPad and iPod touch with iOS 9.0 or later and
- LiNX Access PC tool used with Windows-based PCs or laptops with Windows 7 or later.

The programming and diagnostic tools communicate with a LiNX system via Bluetooth. The Bluetooth capability of a LiNX system is provided by a LiNX Access Key inserted into the remote module’s XLR socket.

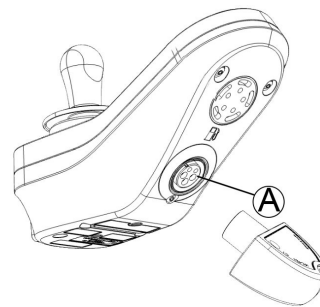
If your PC does not have built-in Bluetooth, then a Bluetooth adaptor plugged into a spare USB port can be used instead.

Both, the iOS and the PC programming tools, offer a Live edit mode that allows certain parameters to be programmed, and take effect, while the system is live (e.g. while driving). For more information, refer to *6.3.4 Modifying a program, page 53*.

4.1 The LiNX Access Key

- ! – The LiNX Access Key is recommended for indoor use only, or outdoors in dry conditions.
- The LiNX Access Key must not be plugged in when in radio frequency (RF) sensitive environments.
- Always inspect the LiNX Access Key for damage before using it.
- Ensure that the LiNX Access Key is fully inserted into the XLR socket before use.
- Confirm that the connection is made to the wheelchair that is to be programmed by checking the LED on the LiNX Access Key.
- Take care while driving around during tuning of the wheelchair not to damage the LiNX Access Key by hitting a solid object. Always keep a clear distance from any objects that could damage the LiNX Access Key.
- The surface of the LiNX Access Key can get hot if left in direct sunlight for long periods.
- Do not leave the LiNX Access Key connected to the system when the wheelchair is powered down or when the wheelchair is to be stored for a long time, as the Access Key will continue to draw from the batteries when the system is off. If left in place, the expected storage life of the system will not be met and the batteries may be damaged.

The LiNX Access Key provides the Bluetooth connection for a programming tool to communicate with a LiNX system.



The LiNX Access Key plugs directly into the remote module’s XLR port (A). REM2xx displayed in picture, works for REM400 and REM500 the same way.

The LiNX Access Key has a blue status indicator to show when it is:

- powered up, but not connected (indicator flashes slowly),
- connecting (indicator flashes quickly) or
- connected (indicator permanently on).

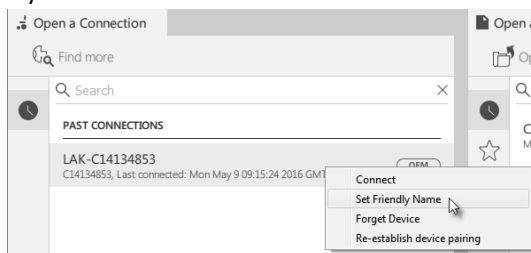
If the blue status indicator turns completely off while trying to connect, or while connected, remove the LiNX Access Key from the remote module, wait for 5 seconds and the reinsert it into the remote module before trying to connect again.

Before the programming tools can be used for programming and diagnostics, you need to pair the devices, which is the process of connecting the devices via Bluetooth. The pairing process differs depending on the programming tool that is used.

4.1.1 Rename LiNX Access Key (only possible with LiNX Access PC tool)

The LiNX Access Key is normally identified with the letters **LAK** followed by a series of characters, for example: **LAK-L12147605**. Although each name is unique, identifying one key from another may become difficult when you have more than one LiNX Access Key. As an option, you can change the names of the keys to more familiar names.

1. Right-click on LiNX Access Key in **Open a Connection** tab. You may have to close your connection if you are already in a connection context.



Select **Set Friendly Name** option from context menu.

- 3.

Enter new name into text box and click **OK** button.

After clicking **OK** button the wheelchair is power-cycled and the friendly name is updated. A confirmation screen is displayed, informing you that the name was changed successfully.

4.2 Overview Functions

| | Top level parameter categories | Parameter subcategories | |
|------------------------------|---------------------------------|--|------------------|
| LiNX Access Tool (iOS or PC) | Chair Configs | | |
| | Restore to Default Config | | |
| | Diagnostics/Chair Log | For details see following table | |
| | Live Diagnostics ¹ | | Speed Demand |
| | | | Turn Demand |
| | | | Motor Voltage |
| | | | Motor Current |
| | | | Motor Resistance |
| | | | Battery Voltage |
| | | | Speed Dial |
| | System Summary | System modules with hardware number, firmware number and serial number | |
| | Functions | Different kind of functions and profiles | |
| | User Preferences | | Drive Settings |
| | | | Switched Driving |
| | | Sleep Settings | |
| | | Lock Settings | |
| | | User Function Navigation | |
| Chair Setup | For details see following table | | |
| Lighting | | Turn indicators | |
| | | Position | |

1 Live Diagnostics only available in **Connection context mode**.

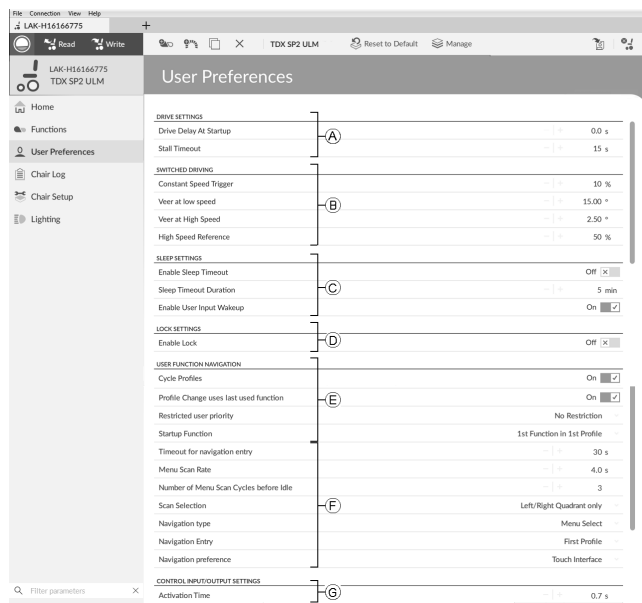
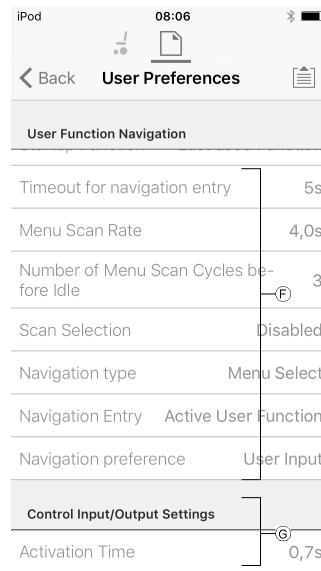
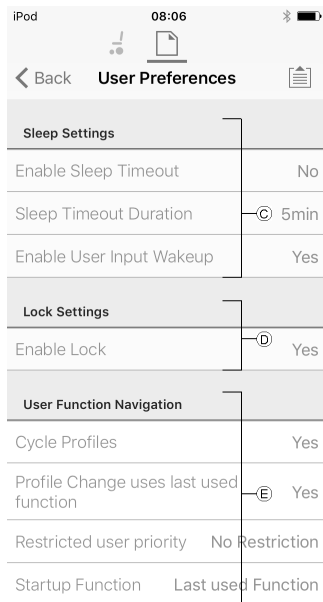
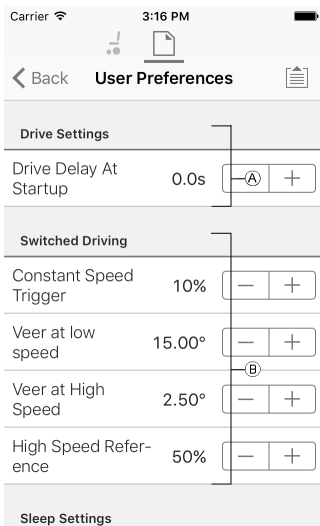
| Top level parameter | Parameter subcategories | |
|-----------------------|-------------------------|-------------------|
| Diagnostics/Chair Log | Active Errors | Active error list |
| | Chair Log/Event Log | Log |
| | Chair Statistics | Battery usage |
| | | Drive statistics |

| Top level parameter | Parameter subcategories | | |
|---------------------|-------------------------|-------------------------------------|--|
| Chair Setup | Modules | Power Module | Power Module <ul style="list-style-type: none"> • Motors • Load Compensation |
| | | Primary Remotes | Control Inputs/Outputs 1–4 |
| | | | Display Settings |
| | | | User Input |
| | | Control Inputs/Outputs Jack Sockets | |
| | | Secondary Remotes | User Input |
| | | TPI | User Input |
| | | | Control Inputs/Outputs 4–32 |

| Top level parameter | Parameter subcategories | | |
|---------------------|-------------------------------|-----------------------------|------------------------------------|
| | | Input Module | User Input |
| | | | Control Inputs/Outputs Jack Socket |
| | | ACT200 ¹ | Angle Sensor - Triggers |
| | | | Control Inputs/Outputs 1-4 |
| | | ACT400 ¹ | Angle Sensor - Triggers |
| | | | Control Inputs/Outputs 1-4 |
| | Actuator Motions ¹ | Seating Motion ¹ | Identification |
| | | | Behavior |
| | | | Actuator Channels |

1 Optional

4.2.1 Overview User Preferences



| | | |
|---|--------------------------------------|---|
| Ⓐ | Drive Settings | Drive Delay At Startup: Allows time delay to be set up between power-up and driving. |
| Ⓑ | Switched Driving | <p>These parameters set veer behavior of drive functions which use switched inputs, for example a Sip and Puff array. They are unique to switched driving and independent of forward, reverse and turn parameters that are used in driving and turning with proportional inputs, such as joysticks.</p> <p>Constant Speed Trigger: Sets minimum forward / reverse speed during veer. If wheelchair is stationary or travelling at a low speed (lower than Constant Speed Trigger), speed ramps up to Constant Speed Trigger. Once at Constant Speed Trigger, speed remains constant.</p> <p>Veer at Low Speed: Provides possibility of maximum veering at lowest speed. Value must be set greater than Veer at High Speed. Speed at which Veer at Low Speed is applied is set by Constant Speed Trigger.</p> <p>Veer at High Speed: Is set to produce less veering at higher speeds. Value must be less than Veer at Low Speed. Speed at which Veer at High Speed is applied is set by High Speed Reference.</p> <p>High Speed Reference: Sets point at which Veer at High Speed is applied. When wheelchair travels at speeds lower than this, veer is defined by graph between Veer at Low Speed and Veer at High Speed. For all speeds higher than High Speed Reference, amount of veer applied is the same as that set by Veer at High Speed.</p> |
| Ⓒ | Sleep Settings | <p>Enable Sleep Timeout: Determines whether system goes to sleep after a period without user activity.</p> <p>Sleep Timeout Duration: Sets amount of time without user activity before system goes to sleep, if sleep is enabled.</p> <p>Enable Joystick Wakeup: Determines whether deflecting joystick can wake system from sleep.</p> |
| Ⓓ | Lock Settings | Enable Lock: Determines whether system can be locked by pressing power button for four seconds. |
| Ⓔ | User Function Navigation | <p>Cycle Profiles: User profile menu either cycles or stops at each end. Parameter determines, if profile menu can cycle around when stepping through it.</p> <p>Profile Change uses last function: Sets behavior of system to enter last used function of profile when particular profile is changed into.</p> <p>Restricted user priority: Selection for setting system user change restrictions.¹</p> <p>Startup Function: Sets default user function on startup as either first user function of first profile or last used user function.</p> |
| Ⓕ | User Function Navigation | Refer to <i>9.8 Enable indirect navigation, page 84</i> for more information. |
| Ⓖ | Control Input/Output Settings | Activation Time: Sets maximum time between two button presses to be recognized as double press and minimum time to detect long button press. ² |

1 Risk of injury or damage

- When setting either occupant or attendant as restricted user in user-in-charge-system, consideration needs to be given to whether benefit outweighs risk, since restricted user is unable to take control from user by activating power button in emergency.



CAUTION!

Risk of injury or damage

- When setting either occupant or attendant as restricted user in user-in-charge-system, consideration needs to be given to whether benefit outweighs risk, since restricted user is unable to take control from user by activating power button in emergency.

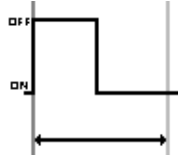
A restricted user is an occupant or attendant that is prevented from being user-in-charge once a system is powered up. By default, there are no restricted users in a LiNX system and both the attendant and the occupant can request to be user-in-charge at any time by pressing power button. However, for safety and other reasons, it may

be appropriate to restrict the attendant or occupant from becoming user-in-charge after power-up. If restricted, any request to be user-in-charge is denied.

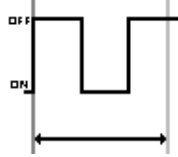
To restrict a user, set this parameter to:

- **No Restriction:** Default
- **Occupant Priority:** to restrict attendant.
- **Attendant Priority:** to restrict occupant.
- **No Change Allowed:** to restrict attendant and occupant.

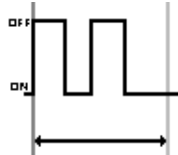
2 Parameter is used to distinguish between a single button press, a double-press and a long button press.



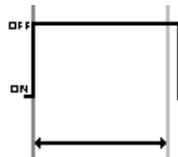
If duration time is less than **Activation Time**, input is detected as single press.



If duration of two button presses is greater than **Activation Time**, input is detected as two single presses.



If duration of two button presses is less than **Activation Time**, input is detected as double-press.



If duration of single button press is greater than **Activation Time**, input is detected as long press.

5 Suggested programming procedure



CAUTION!

Risk of injury or damage

- Perform following procedure in a large open environment, preferably outdoors. Make sure wheelchair cannot crash into other people or objects.
- Be prepared for unexpected wheelchair movement in event of a faulty installation.
- If wheelchair becomes uncontrollable, perform an emergency stop by turning LiNX system off.

The following outlines a suggested programming procedure for setting up the LiNX system. It is not prescriptive and should be used as a guideline only.

The following chapters show the preferred order in which to program the parameters, what effects the parameters have on the wheelchair and also how the various parameters interact with each other.

1. Power-up test
2. Check motor orientation
3. Set load compensation
4. Adjust speed settings
5. Adjust acceleration settings

The programming procedure is suitable for LiNX systems with or without a LiNX Gyro module fitted.

- For gyro-based systems, perform steps 1–3 without the gyro connected and then steps 4 and 5 with gyro connected.

5.1 Step 1 – Power-up test

Before programming, ensure that the system powers up successfully. Press and release the power button on the remote module. The status indicator should light green.



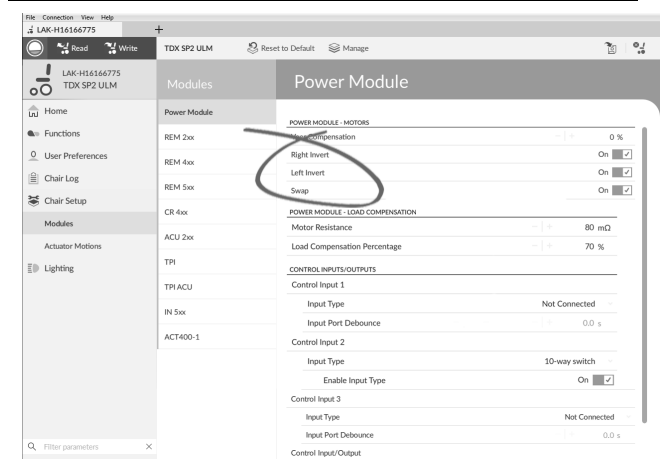
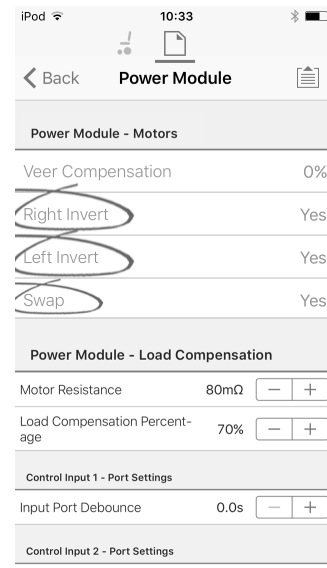
If the battery cable or loom has not been correctly connected, the status indicator does not turn on.

If the status indicator flashes red, check the motors and park brakes as they may not have been connected properly. For more information about error codes, refer to the user manual of the remote.

5.2 Step 2 – Check motor orientation

Step 2 ensures that the motors are configured correctly.

1.



Open **Chair Setup** → **Modules** → **Power Modules**.

Check for Motor Inversion

To detect motor inversion, deflect joystick slightly forwards.

- If wheelchair moves backwards instead of forwards, toggle both **Left Invert** and **Right Invert** parameters.
- If wheelchair turns on the spot, only one motor is inverted. To begin with, just toggle **Left Invert** parameter and deflect joystick forwards again. If wheelchair moves backwards, wheelchair now has both motors inverted. Toggle **Left Invert** and **Right Invert** parameters to fix this issue.

Before continuing, make sure that wheelchair moves correctly forwards and backwards.

Check for Motor Swap

To detect motor swap, deflect joystick to left. If wheelchair moves right, toggle **Swap** parameter.

Before continuing, make sure that wheelchair moves correctly forwards, backwards, left and right.

5.3 Step 3 – Set load compensation

Load compensation relies on accurate motor resistance values to work effectively. The motor resistance values can

be calculated manually, from observation, or automatically with Adaptive Load Compensation (ALC).

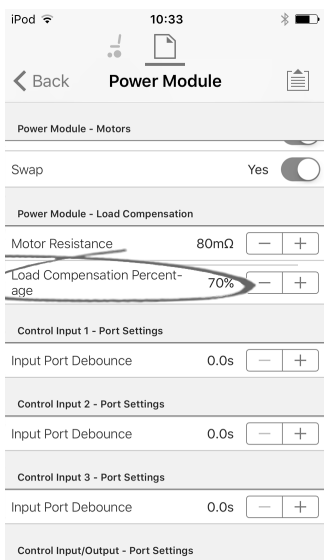
Invacare recommends adding the motor resistance values automatically, using Adaptive Load Compensation. Adaptive Load Compensation is a process that learns the resistance value of each motor automatically, individually and with mΩ accuracy. Because a separate and accurate resistance value is applied to each motor, the wheelchair's drive performance is significantly improved.

Adaptive Load Compensation is enabled by default, so the Motor Resistance parameter value is not used.

For more information about ALC Calibration application with iOS tool, refer to 5.3.1 *Calibrating Adaptive Load Compensation (iOS tool)*, page 46.

For more information about ALC Calibration application with PC tool, refer to 5.3.2 *Calibrating Adaptive Load Compensation (PC tool)*, page 46.

After learning the motor resistance values with ALS Calibration application, drive the wheelchair and observe its performance over various surfaces and at different speeds.



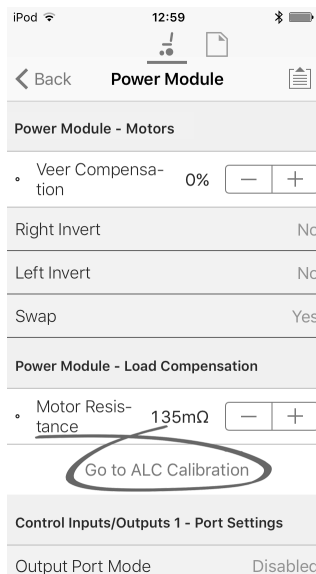
- increase value of this parameter if wheelchair drives more sluggish than anticipated.

Load Compensation Percentage is only applied when Adaptive Load Comp Enabled is set to on.

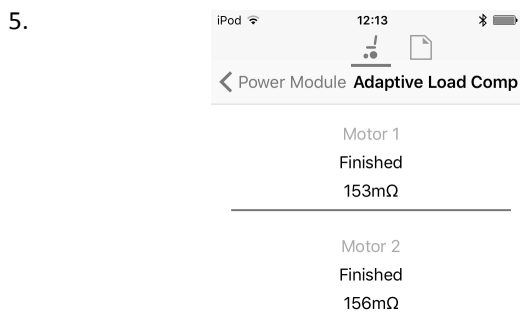
5.3.1 Calibrating Adaptive Load Compensation (iOS tool)

If the electronics or the motors have been changed, you need to calibrate the Adaptive Load Compensation (ALC).

- From **Home** screen click on **Chair Setup**.
- Click on **Power Module**.
- Scroll down to **Power Module – Load Compensation** section.



Click on **Go To ALC Calibration**.



Start Tuning

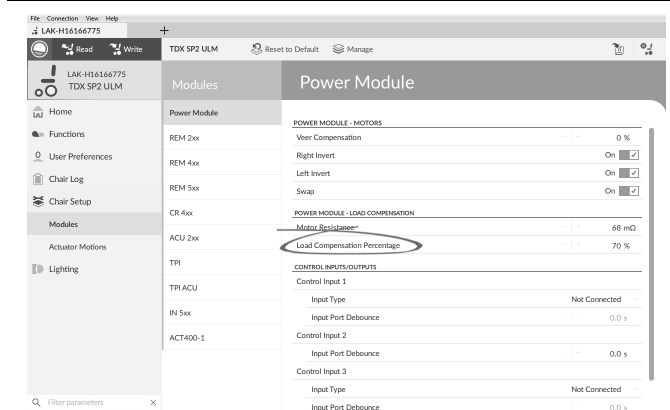
Drive the chair until both the left and right motor compensation processes have been completed.

Tap on **Start Tuning**.

- Follow instructions on the screen.

5.3.2 Calibrating Adaptive Load Compensation (PC tool)

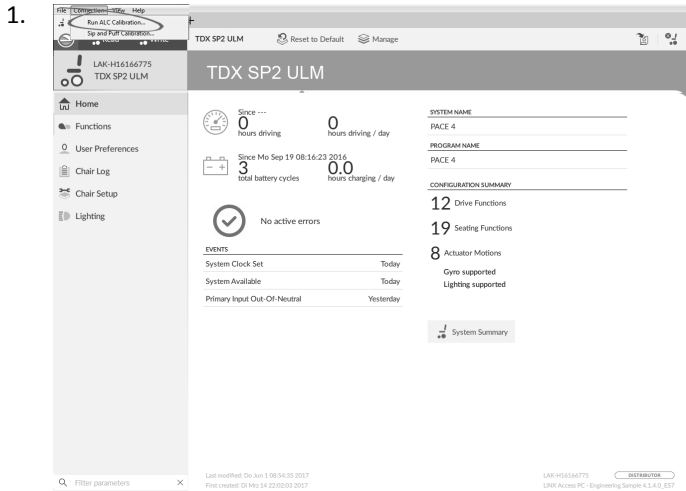
If the electronics or the motors have been changed, you need to calibrate the Adaptive Load Compensation (ALC).



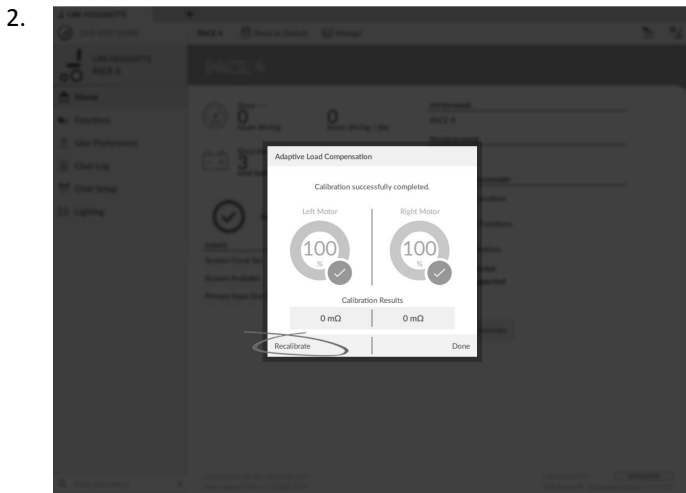
Open **Chair Setup** → **Modules** → **Power Module**.

If the wheelchair does not perform as desired, the effect of the adaptive load compensation can be adjusted using the **Load Compensation Percentage** parameter:

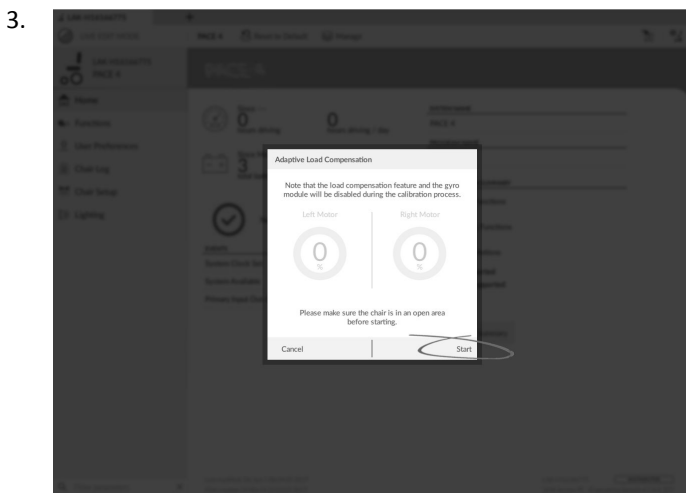
- reduce value of this parameter if wheelchair drives more aggressively than anticipated.



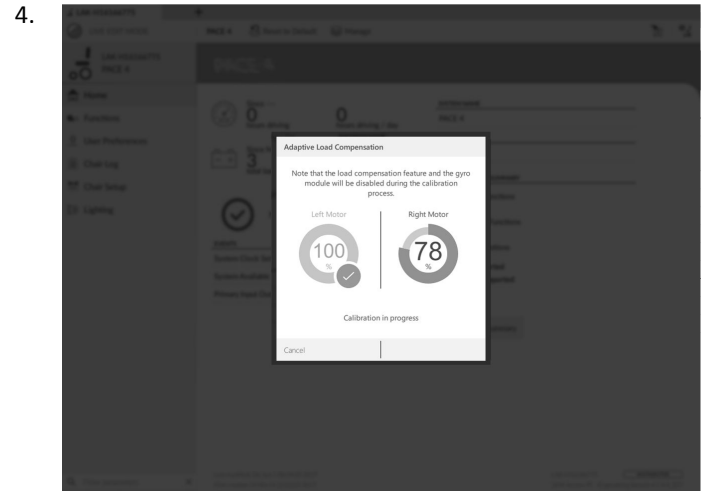
Click on **Connection** menu.
Select **Run ALC Calibration**.



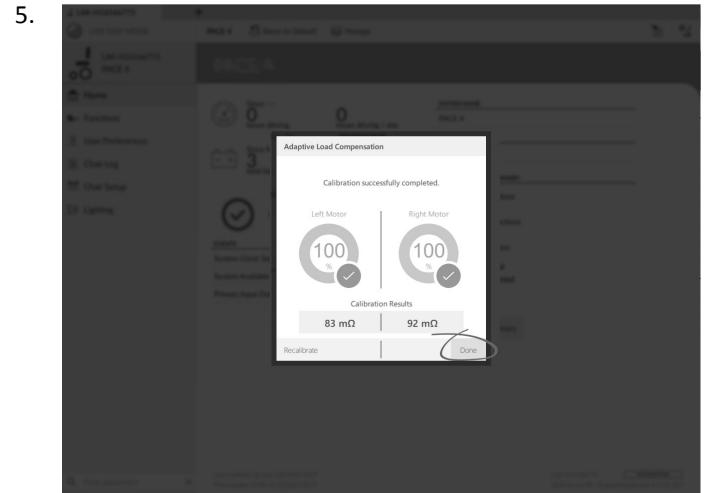
Click on **Recalibrate**.



Click on **Start**.



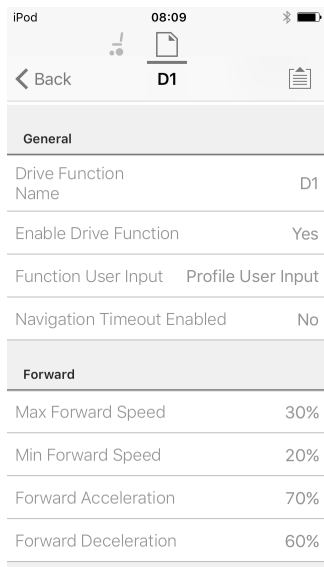
Drive chair until both left and right motor compensation processes have been completed.



Click on **Done**.

5.4 Step 4 – Adjust speed settings

The following parameters must be set for each drive function.



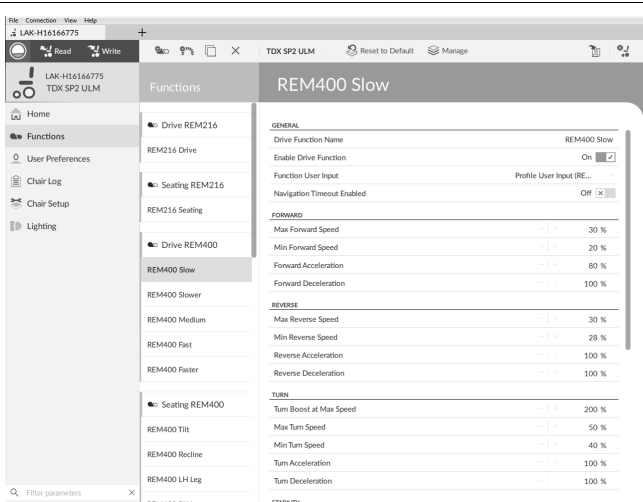
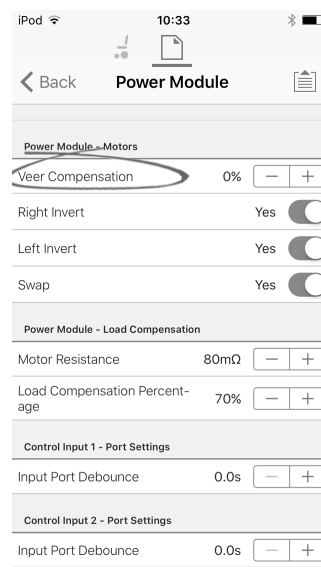
Adjust turn speed

Set speed dial or slider to maximum and deflect joystick either left or right to turn wheelchair on spot. Wait until wheelchair reaches a steady turning speed. Adjust **Max Turn Speed** parameter until turn speed seems like a comfortable maximum.

Set speed dial or slider to minimum position to adjust **Min Turn Speed**.

Adjust veer compensation

1.



1. Open **Functions** → open desired drive function.

Adjust forward speed

Top speed of wheelchair can be reduced if desired. Set speed dial or slider to maximum and deflect joystick forward. Adjust **Max Forward Speed** parameter until forward speed seems like comfortable value.

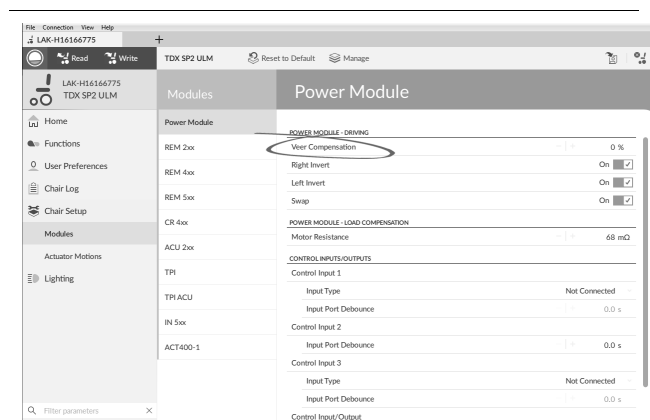
Adjust reverse speed

There is nothing physically preventing motors from driving at same speed in reverse as forward. Set speed dial or slider to maximum and deflect joystick in reverse. Adjust **Max Reverse Speed** parameter to set how fast wheelchair drives in reverse for comfortable and safe ride. Default is 50 % of maximum forward speed.

Adjust minimum drive speeds

Set speed dial or slider to minimum and deflect joystick fully forward. Adjust **Min Forward speed** until desired minimum forward speed is reached.

Set speed dial or slider to minimum and deflect joystick fully in reverse. Adjust **Min Reverse speed** until desired minimum reversing speed is reached.



Open **Chair Setup** → **Modules** → **Power Modules**.

If wheelchair's motors do not perform exactly the same as each other, wheelchair does not drive in a straight line. To compensate differences between motors, adjust **Veer Compensation** parameter.

5.5 Step 5 – Adjust acceleration settings

The following parameters must be set for each drive function.

| General | |
|----------------------------|--------------------|
| Drive Function Name | D1 |
| Enable Drive Function | Yes |
| Function User Input | Profile User Input |
| Navigation Timeout Enabled | No |
| Forward | |
| Max Forward Speed | 30% |
| Min Forward Speed | 20% |
| Forward Acceleration | 70% |
| Forward Deceleration | 60% |

speed. Adjust **Forward Acceleration** parameter if wheelchair gets up to steady speed too quickly or slowly. Repeat until acceleration feels comfortable and safe.

Adjust forward deceleration

To set deceleration rate in forward direction, release joystick once wheelchair has reached steady forward speed. Adjust **Forward Deceleration** parameter if wheelchair slows down too quickly or slowly. Repeat until deceleration feels comfortable and safe.

Adjust reverse acceleration

Set speed dial or slider to maximum and deflect joystick fully in reverse. Wait until wheelchair reaches steady reverse speed. Adjust **Reverse Acceleration** parameter if wheelchair gets up to steady speed too quickly or slowly. Repeat until acceleration feels comfortable and safe.

Adjust reverse deceleration

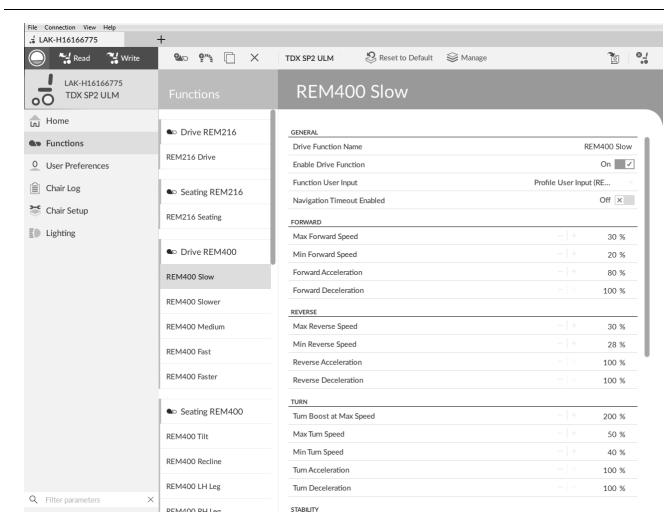
To set deceleration rate in reverse direction, release joystick once wheelchair has reached steady reverse speed. Adjust **Reverse Deceleration** parameter if wheelchair slows down too quickly or slowly. Repeat until deceleration feels comfortable and safe.

Adjust turn acceleration

Set speed dial or slider to maximum and deflect joystick either left or right to turn wheelchair on spot. Wait until wheelchair reaches steady turning speed. Adjust **Turn Acceleration** parameter if wheelchair gets up to steady turning speed too quickly or slowly. Repeat until acceleration feels comfortable and safe.

Adjust turn deceleration

To set deceleration rate when turning, release joystick once wheelchair has reached steady turning speed. Adjust **Turn Deceleration** parameter if wheelchair slows down too quickly or slowly. Repeat until deceleration feels comfortable and safe.



1. Open **Functions** → open desired drive function.

Adjust forward acceleration

Set speed dial or slider to maximum and deflect joystick fully forward. Wait until wheelchair reaches steady forwards

6 Using the LiNX Access iOS tool

6.1 Navigation bar

The navigation bar is located at the top of each screen. The content of the navigation bar changes depending on the screen you are viewing.

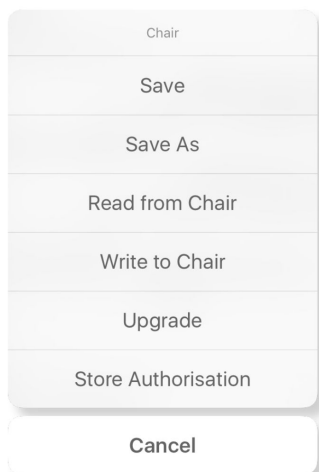


- Ⓐ Context switch (switch between connection and file context mode)
- Ⓑ Application menu button (edit button)
- Ⓒ Program name / screen name
- Ⓓ Close / navigate to previous screen

6.1.1 Application menu

The content of the application menu changes depending in which context mode you are working with: **Connection context** or **File context**.

Connection context

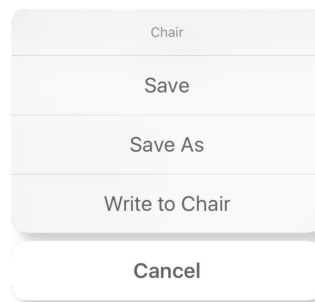


To work on a connected wheelchair, select **Connection context**. If you are not connected to a LiNX system the **Connect to device** screen is displayed. Otherwise, the last screen that you were working with, is displayed.

The following options are available in connection context:

- **Save** – save the configuration as a LiNX configuration file (.lci)
- **Save As** – save the configuration as a LiNX configuration file (.lci) with a different name
- **Read from Chair** – read the configuration from the connected LiNX system
- **Write to Chair** – write the configuration to the connected LiNX system
- **Upgrade** – go to firmware upgrade mode
- **Store authorization** – store an Access Level Certificate

File context



To work on a saved file, select **File context**. If you do not have a file open, the **Load from file** screen is displayed. Otherwise, the last screen that you were working on is displayed.

The following options are available in file context:

- **Save** – save the configuration as a LiNX configuration file (.lci)
- **Save As** – save the configuration as a LiNX configuration file (.lci) with a different name
- **Write to Chair** – write the configuration to the connected LiNX system

Selecting context mode



Click on the context switch at any time to toggle between **Connection context** and **File context**. The selected context displays a colored bar beneath the context switch icon.

6.1.2 Changing the program name



By default, the program name and system name are composed of the wheelchair configuration. The program name can be changed to a more familiar name.

| | | |
|---|------------|--|
| Ⓐ | Propulsion | R = Rear wheel drive |
| | | C = Center wheel drive |
| | | F = Front wheel drive |
| Ⓑ | Model | 01 = Kite |
| | | 02 = TDX SP2 |
| | | 03 = Bora/Spectra |
| | | 04 = Fox |
| | | 05 = Storm ⁴ , Storm ⁴ X-plore |
| | | 06 = Storm ⁴ Max |

| | | |
|---|----------------------|---|
| © | Power Module | A = not used |
| | | B = not used |
| | | C = DLX-PM60 |
| | | D = DLX-PM60LA |
| | | E = DLX-PM75 |
| | | F = DLX-PM75LA |
| | | G = DLX-PM120 |
| | | H = DLX-PM120LA |
| © | Speed | 03 |
| | | 06 |
| | | 08 |
| | | 10 |
| | | 12 |
| © | Powered positioning | A0 = w/o actuators |
| | | A1 = Powered "fixed pivot" tilt up to 20° |
| | | A2 = Powered Tilt (0°-30°) with CoG shift |
| | | A3 = Seat lifter with powered tilt (300 mm, 30°), CoG shift |
| | | A4 = Powered tilt 12° |
| | | A5 = Seat lifter with powered tilt (300 mm, 28°), CoG shift |
| | | A6 = Column lifter 250 mm & fixed pivot tilt 25° |
| | | A7 = Recaro with fixed pivot tilt 25° |
| | | A8 = Recaro with column lifter 250 mm & fixed pivot tilt 25° |
| | | A9 = UL Maxx with tilt (0°-50°), CoG shift |
| | | B0 = UL Maxx with combined lifter & tilt (300 mm, 45°), CoG shift |
| © | Standard user remote | A00 = DLX-REM1XX/DLX-REM2XX + DLX-REM050 |
| | | A01 = DLX-REM2XX + LNX |
| | | A02 = DLX-REM2XX + ADP |
| | | A03 = DLX-REM2XX + Pivot Plus |
| | | A04 = DLX-REM2XX/400 + ACU200 |
| | | B01 = DLX-REM400 + 4Q-P + LNX |
| | | B02 = DLX-REM400 + 4Q-P + ADP |
| | | B03 = DLX-REM400 + 4Q-P + Pivot Plus |
| | | C01 = DLX-REM400 + 3Q-D + LNX |
| | | C02 = DLX-REM400 + 3Q-D + ADP |
| | | C03 = DLX-REM400 + 3Q-D + Pivot Plus |
| | | C04 = DLX-REM400 + 4Q-D + LNX |
| | | C05 = DLX-REM400 + 4Q-D + ADP |
| | | C06 = DLX-REM400 + 4Q-D + Pivor Plus |

| | | |
|---|--------------|-----------------|
| © | Light system | T = Traditional |
| | | L = LED |
| | | X = w/o light |
| © | Revision | |

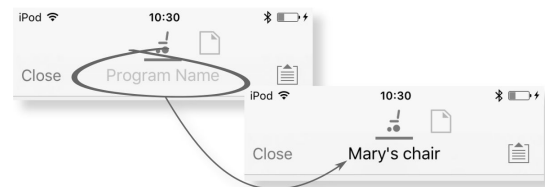
The program name in the picture is for a Center Wheel drive TDX SP2 with a DLX-REM120LA, 8 km/h, Seat lifter with powered tilt and CoG shift, Standard LiNX and LED light. The revision of the program name is 00.



The new program name is saved depending on the mode you are working in.

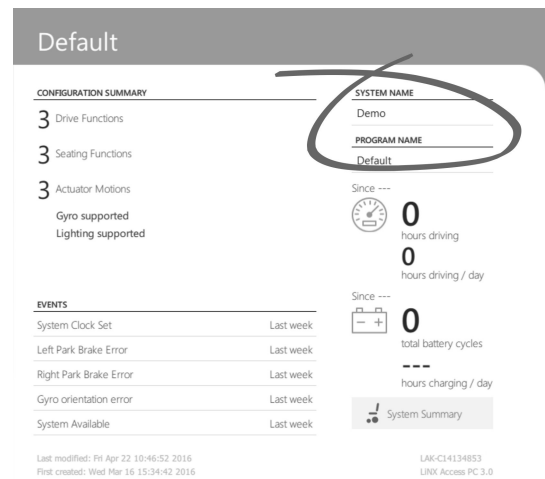
- If you are working in **Connection context** and **Live edit** mode, changes are automatically written to the wheelchair.
- If you are working in **Connection context** and **Bulk edit** mode, click on **Write** button to save changes.
- If you are working in **File context**, click on **Save** button to save changes.

iOS tool



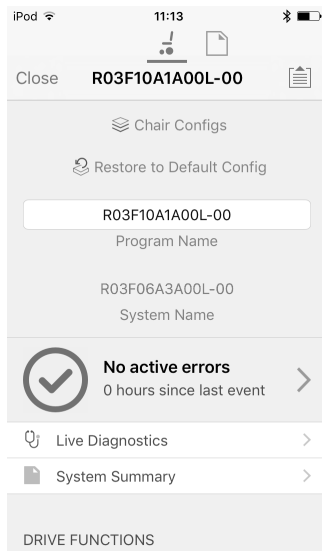
1. Click on **Program Name** in the navigation bar – a keyboard is displayed.
2. Edit program name.
3. Click **Return**.

PC tool



1. From **Home** screen click on **Program Name** text box.
2. Edit program name.

6.2 Home screen



The **Home** screen is the first screen you see after connecting to a wheelchair or opening a configuration file. From the **Home** screen you can access the following programming and information screens:

- Chair configurations
- Active errors / Chair Log
- Live diagnostics (only in Connection context mode)
- System Summary
- Drive functions
- Seating functions
- User preferences
- Chair setup

6.3 Connection context actions



The following tasks are only relevant for the **Connection context** mode. For tasks related to the **File context** mode, refer to *6.4 File context actions, page 55*.

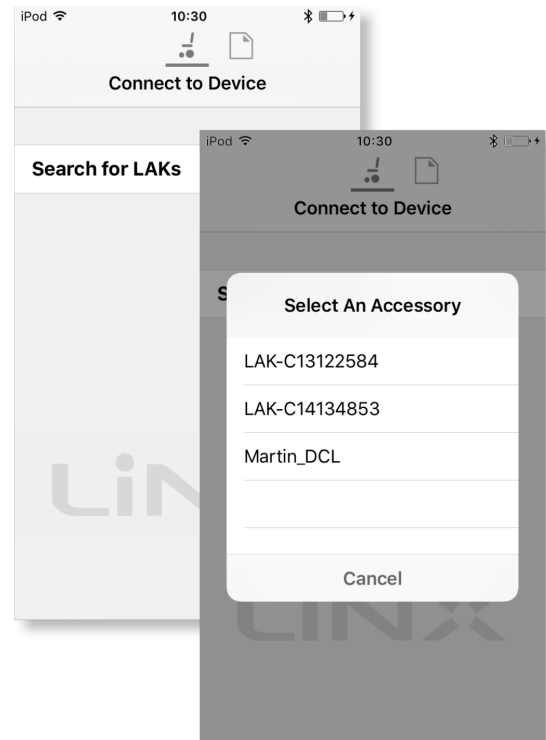
6.3.1 Connect to device screen

The **Connect to device** screen is displayed when you are in **Connection context** before connecting to a LiNX system. From this screen you can search for and connect to a LiNX Access Key (LAK).

Connecting the LiNX Access iOS tool with a wheelchair

1. Power up LiNX wheelchair system.
2. Insert LiNX Access Key into the remote module.
3. Open LiNX Access iOS tool application.
4. Select **Connection context** mode.

5.

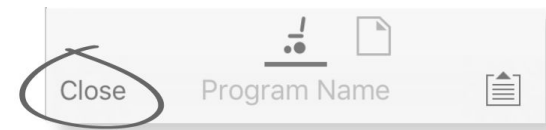


Click on **Search for LAKs** and select one from dialogue box **Select an Accessory**.

6. A **Warning** screen is displayed. Read the warning and click on **I Agree** button to continue.

Disconnecting

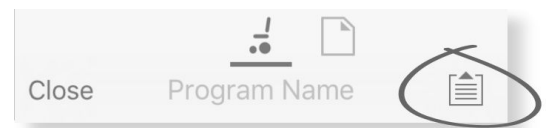
1.



Click on **Close** button.

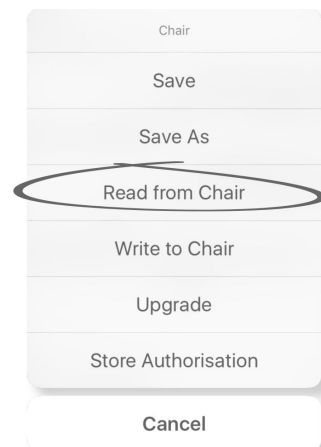
6.3.2 Reading a program from the wheelchair

1.



Click on **Application menu** button.

2.




Select **Read from Chair**.

6.3.3 Selecting a wheelchair configuration

The factory set-up for the power module provides one wheelchair configuration. If you order a power module

as a spare part, it is provided with multiple wheelchair configurations. Select the one you need.

1. Click on **Chair Configs** at the top of **Home** Screen. **Chair config** screen is displayed.
2. Click on named wheelchair configuration. A **Warning** screen is displayed.
3. Click on **Yes** to proceed with the selection.
4. Click on **Back** button to return to **Home** screen.

 When a new wheelchair configuration is selected, the system automatically power cycles before the wheelchair configuration becomes active.

6.3.4 Modifying a program


To modify a program, first select a parameter from one of the parameter sections listed on the **Home** screen:


- Drive functions
- Seating functions
- User preferences
- Chair setup




Parameters can be modified numerically or graphically, refer to *9 Modifying wheelchair configuration with PC tool*, page 77.

Parameters can be modified in live edit mode or in bulk edit mode.

Live edit mode

 When in live edit mode, changes to parameters will take immediate effect, changing the performance of the wheelchair immediately.

 There is no function to undo a change in live edit mode, so make sure, you save a copy of the existing program so that you can restore settings if you need to.

| Forward | | | |
|--|------|---|---|
|  Max Forward Speed | 30% | - | + |
|  Min Forward Speed | 10% | - | + |
|  Forward Acceleration | 100% | - | + |

Not all parameters can be updated in live edit mode, these are identified by a circular icon in front of the parameter name.

Live edit mode allows certain parameters to be written to the controller immediately. This is useful for speeding up the process of setting up or testing various applications and scenarios.

Bulk edit mode

| Forward | | |
|------------------------------|---------|--------|
| Max Forward Speed | | 70% |
| Only accessible in Bulk Mode | | Unlock |
| Low | Default | High |
| 35% | 100% | 100% |


Sets the maximum forward speed of the wheelchair.

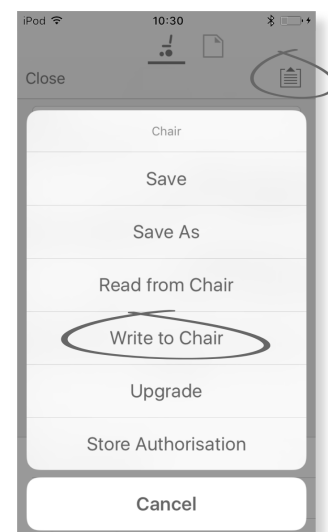
Certain parameters can only be edited in bulk edit mode, these are identified by a colored background. To edit these parameters, bulk edit mode must be unlocked before proceeding.

In bulk edit mode, parameters are not written to the controller immediately. They are written to the controller, when you select **Write to Chair**, refer to *6.3.5 Writing a program to the wheelchair*, page 53.

By default, live edit mode is enabled every time the system is powered up, including after a power cycle. The application remains in live edit mode until bulk edit mode is unlocked. At this point the application changes to bulk edit mode while live edit mode is disabled. The application remains in bulk edit mode until the system is power-cycled.


6.3.5 Writing a program to the wheelchair

 This feature is only available when a wheelchair is connected.



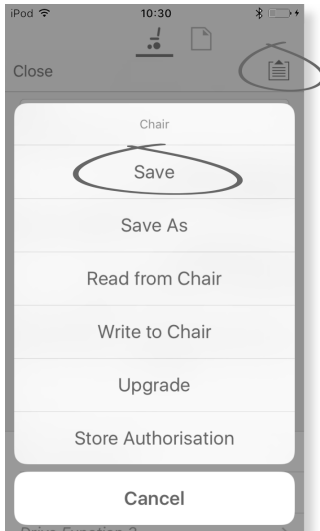
1. Click on **Application menu** button.
2. Select **Write to Chair**.

After writing to the wheelchair, the LiNX Access tool cycles the system's power and automatically reconnects to the system.

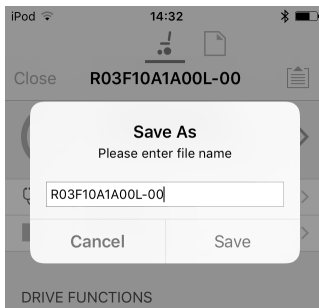
 The **Application menu** dialogue in this picture shows all available options, when you are in **Connection context**. In **File context** the selection is more limited.

6.3.6 Saving programs

Using Save



1. Click on **Application menu** button.
2. Select **Save**.
- 3.



When using **Connection context mode**, a **Save As** menu opens up automatically. Enter a file name or the program prompts the current program name with “-1” if already existing.

4. After saving the program, the LiNX Access tool displays a message with the file’s name and that saving was successful.
5. Click on **Dismiss** to remove the message and continue.

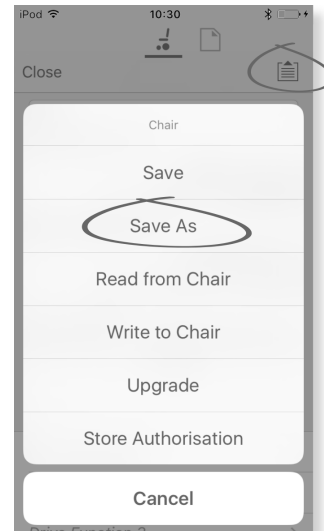
i All files are saved with a .lci extension. If the Program name has been set, then the file is saved with the Program Name. If not, the file is saved with a date /time stamp as follows:

YYYYMMDD-HHMMSS.lci (YYYY is year, MM is month, DD is day, HH is hour, MM is minute, SS is second). Subsequent saves will retain the last saved file name and overwrite previously saved files. To save a file without overwriting an existing file, us Save As, refer to .

i The **Application menu** dialogue in this picture shows all available options, when you are in **Connection context**. In **File context** the selection is more limited.

Using Save As

To save a program as file with a different name.

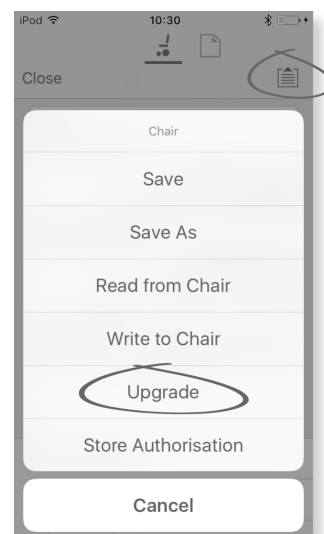


1. Click on **Application menu** button.
2. Select **Save As**. After saving the program, the LiNX Access tool displays a message with the file’s name and that saving was successful.
3. Click on **Dismiss** to remove the message and continue.

i All files are saved with a .lci extension. If the file has not been saved before, and if the program name has been set, then the file is saved with the program name. If the file has been saved before with the program name, then the file is saved with a numerical value appended to the program name. If the program name has been set, then the file is saved with the program name. If not, the file is saved with a date / time stamp as follows: YYYYMMDD-HHMMSS.lci (YYYY is year, MM is month, DD is day, HH is hour, MM is minute, SS is second).

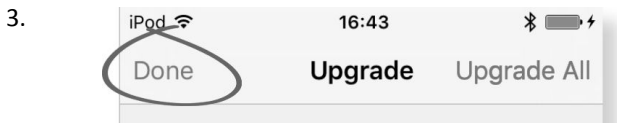
i The **Application menu** dialogue in this picture shows all available options, when you are in **Connection context**. In **File context** the selection is more limited.

6.3.7 Upgrading firmware

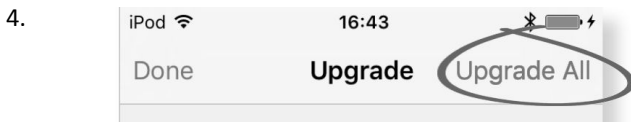


1. Click on **Application menu** button.
2. Click on **Upgrade**. The screen displays **Entering Firmware Upgrade Mode – please wait...**

If the connected modules are up to date, the screen displays **FIRMWARE UP TO DATE** with a list of the connected modules and their respective versions. If one or more modules need upgrading, these is displayed under **NEW FIRMWARE AVAILABLE**.



If no modules require upgrading, click **Done** button to finish.



If one or more modules require upgrading, click on single module to upgrade it or click on **Upgrade All** button. During a module upgrade, a progress bar is displayed. Once the upgrade has completed, its status is displayed (succeeded or failed) to the side of the module name.

5. Click **Done** button to finish.

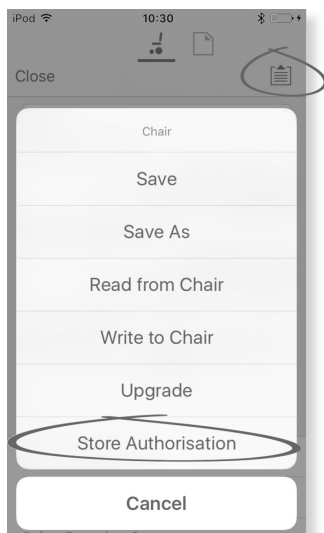
6.3.8 Storing the LAK certificate

The **Access Level Certificate** determines how you view and edit offline programs (.lci files) when in the **File context** mode. The **Access Level Certificate** is taken from a connected LiNX Access Key and provides the levels to your stored files.


To edit your files with a distributor's access level, you will need to store an **Access Level Certificate** from a distributor-level LiNX Access Key.

If you do not store your **Access Level Certificate** from your LiNX Access Key, you have read-only access to your stored files and you are not able to edit them.

Storing the certificate



1. Connect to LiNX system.
2. Click on **Application menu** button.
3. Select **Store Authorisation** option. A message is displayed showing how many authorizations remain and if you want to continue. LiNX Access Keys only permit three **Store Authorisation** operations.
4. Click on **Store option** to continue or **Don't store** to cancel the action.

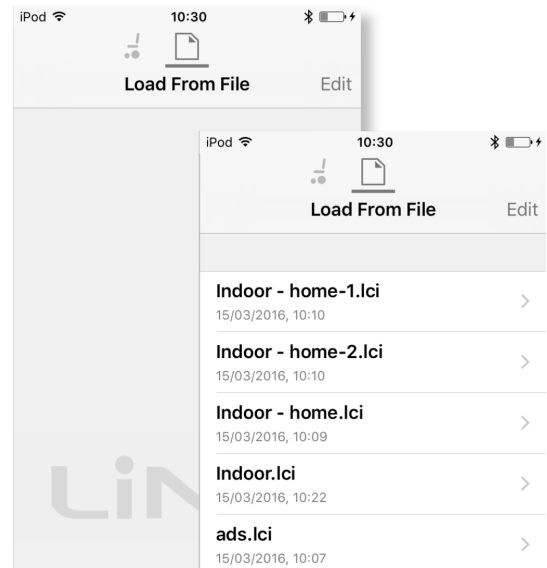
 If the LiNX Access iOS tool application is removed from your iOS device, the **Access Level Certificate** is lost.

6.4 File context actions



The following tasks are only relevant when in the **File context** mode. For tasks related to the **Connection context** mode, refer to 6.3 *Connection context actions*, page 52.

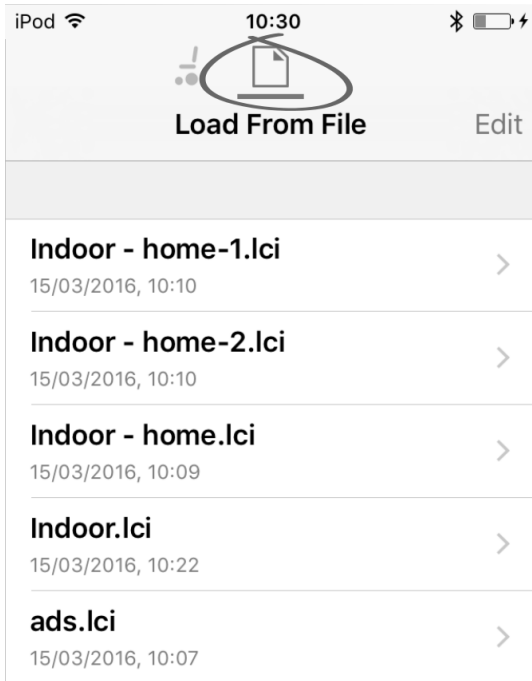
6.4.1 Load from file screen



The **Load from file** screen is displayed when you are in **File context** before opening a file. If LiNX configuration files (.lci) exist on your device, then they are displayed. From this screen you can:

- View the available configuration files
- Open a configuration file for editing
- E-mail a configuration file
- Delete a configuration file

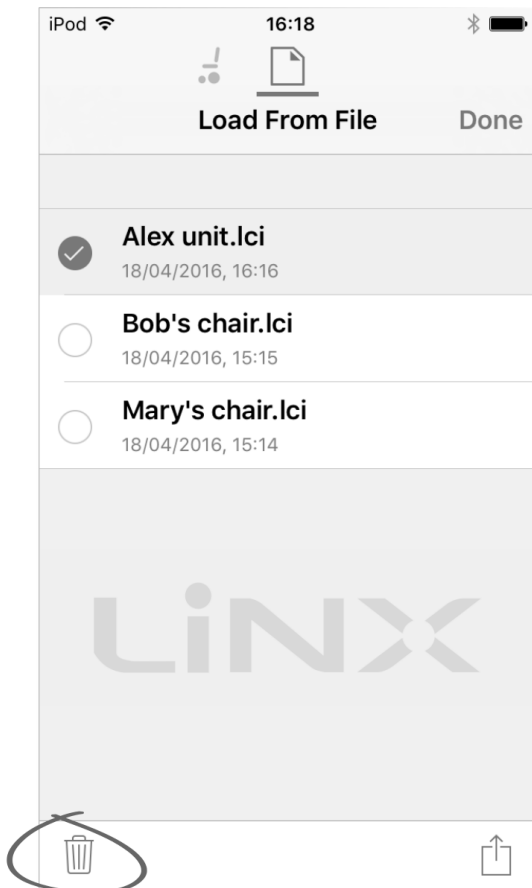
6.4.2 Opening files



1. Select **File connection** screen.
2. Choose file from the list displayed in the **Load From File** screen.

For information about saving files and writing to a wheelchair refer to 8.5.4 *Save a program as a file*, page 75 and 6.3.5 *Writing a program to the wheelchair*, page 53.

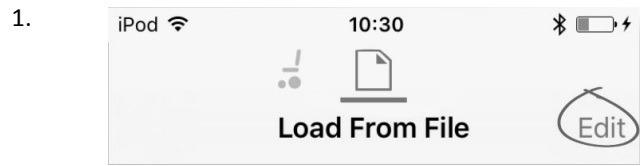
6.4.3 Deleting files



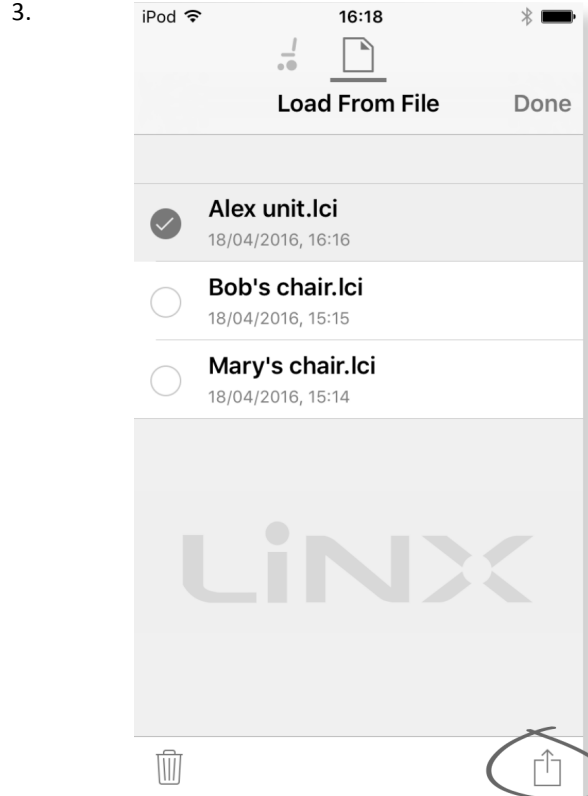
1. Select **Edit** from **Load from File** screen.
2. Select one or more files from the file list.

3. Click on trash can icon at the bottom of the screen.
4. Click on **Done** to finish.

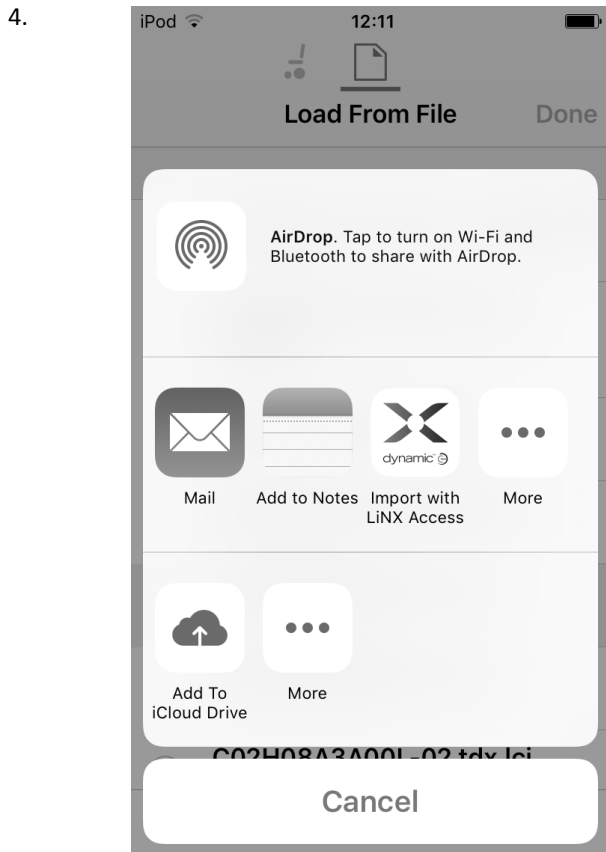
6.4.4 E-mailing files



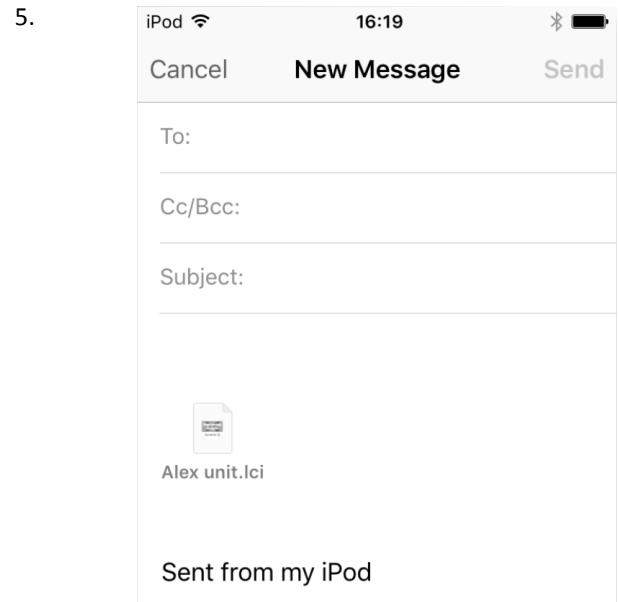
1. Select **Edit** from **Load From File** screen.
2. Select one or more files from file list.



Click on **E-mail** button.



The iOS Share Sheet opens up. Select desired option.



If you choose your mail client, selected program files are added as attachments to e-mail. Complete e-mail and click on **Send**.


6. Click on **Done** to finish.

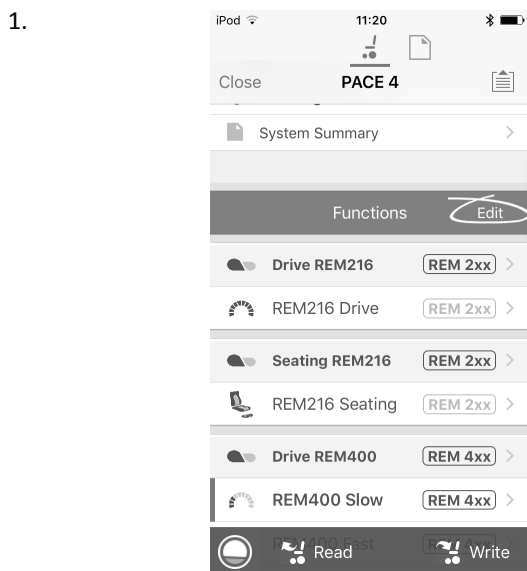
7 Modifying wheelchair configuration with iOS tool

7.1 Profile and function actions

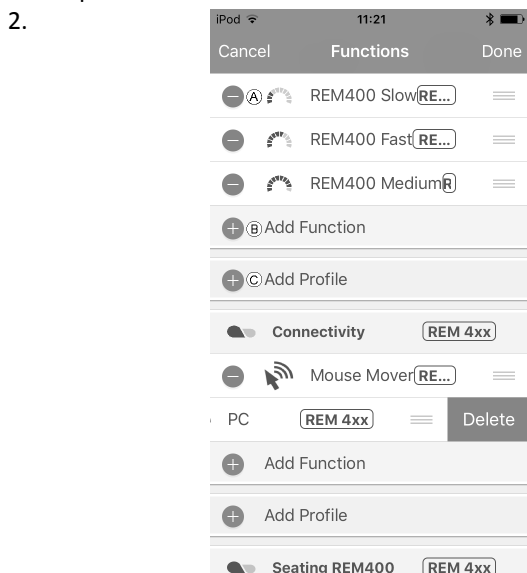
In bulk edit mode:

- profiles can be added and deleted,
- functions can be added, deleted, copied and moved.

 A system always includes a REM2xx Drive Function profile and a REM2xx Seating Function profile. These cannot be moved or deleted.




Tap **Edit** in Functions title bar.



Select desired profile or function action.

- Ⓐ Delete function or profile
- Ⓑ Add function
- Ⓒ Add profile

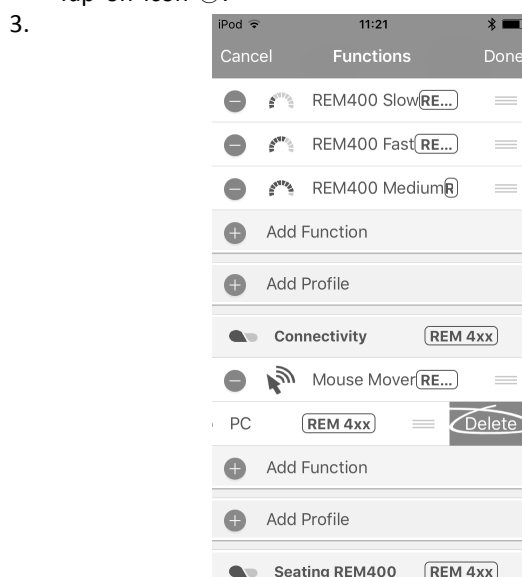
Delete function of profile

 A profile cannot be deleted until its functions are deleted.

1. Select function or profile you want to delete.
- 2.



Tap on icon Ⓒ.

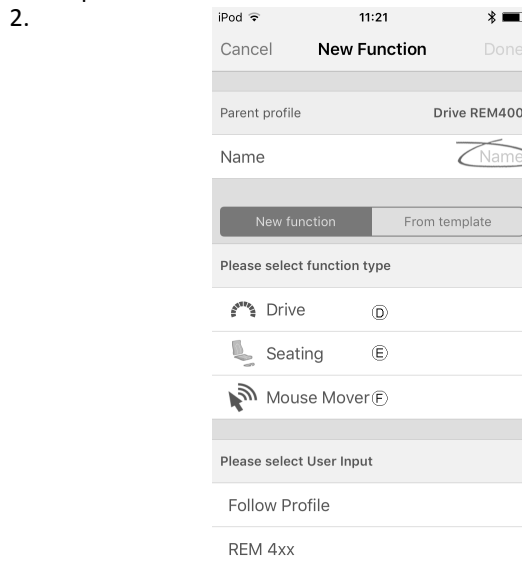


Confirm action with tapping **Delete** button that appears next to function or profile.

4. Tap **Done** to return to **Home** screen.

Add new function

1. Tap on icon Ⓑ.



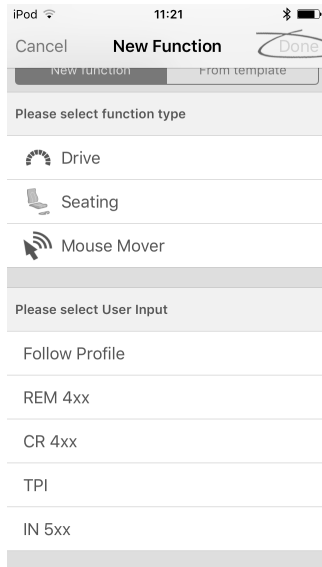
Enter function name.

Tap on icon Ⓓ to add drive function.

Tap on icon Ⓔ to add seating function.

Tap on icon Ⓕ to add connectivity function.

3.



Select **User Input**.

Tap **Done**.


4. Tap **Done** to return to **Home** screen.

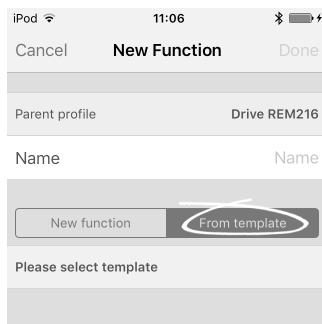
For more information about modifying the drive parameters, refer to *7.3 Modifying drive parameters graphically, page 61*.

For more information about modifying the seating parameters, refer to *7.5 Modifying seating parameters, page 62*.

For more information about setting up a mouse mover, refer to the user manual of the remote.

Add function from template

1. Tap on icon .
2. Enter function name.
- 3.



Tap **From template**.

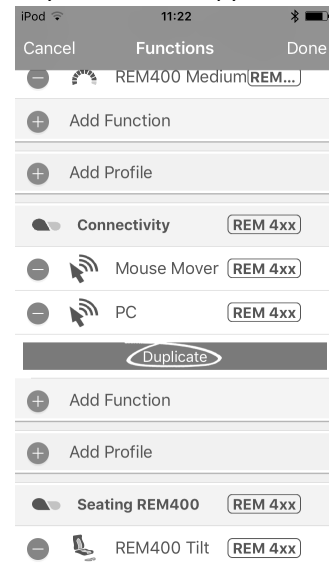
Select desired template.

Tap **Done**.

4. Tap **Done** to return to **Home** screen.

Copy function

1. Tap on function you want to copy.
- 2.



Tap on **Duplicate**.

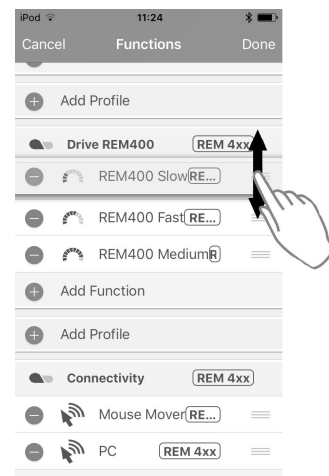
Copied function appears directly under original function.

3. Tap **Done** to return to **Home** screen.
4. Return to **Home** screen to edit function as required.

Move function

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


1.

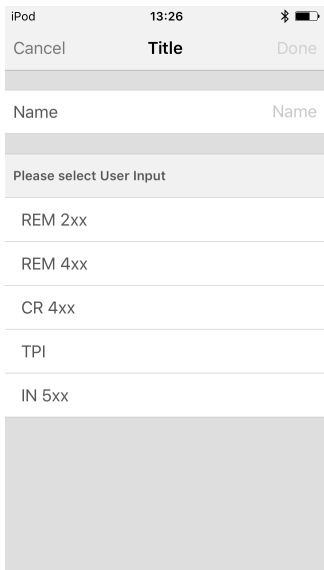


Tap and hold function you want to move. Function moves slightly up and to the right.

2. Drag function to required position in same or another profile.
3. Tap **Done** to return to **Home** screen.

Add profile


1. Tap on icon .



Enter profile name.

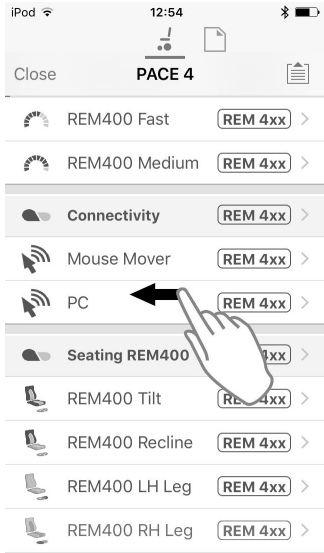
Select **User Input**.

2. Add function to profile.
3. Tap **Done** to return to **Home** screen.

 User Navigation Error is displayed as long as no function is added to the new profile.

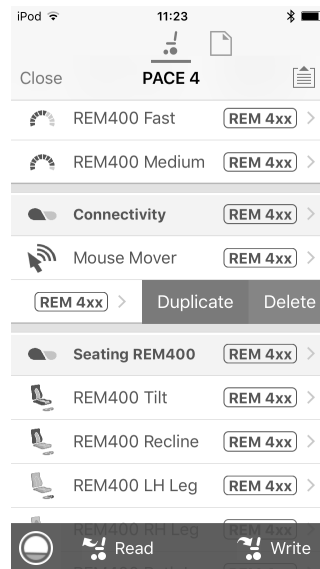
Delete or duplicate function (Quick access)

1. Select function you want to delete or copy from **Home** screen.
- 2.



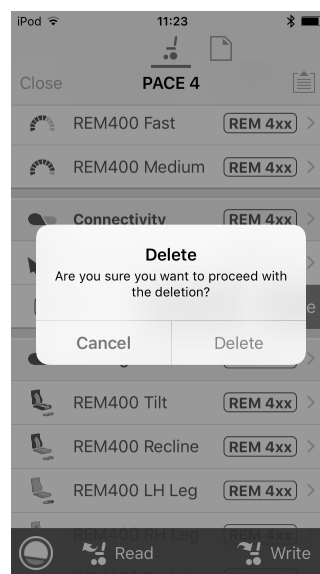
Tap and pull function to left.

- 3.



Tap **Duplicate** or **Delete**.

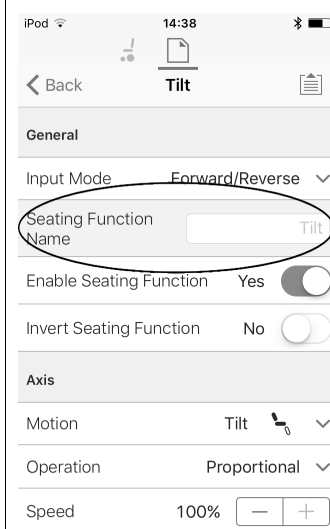
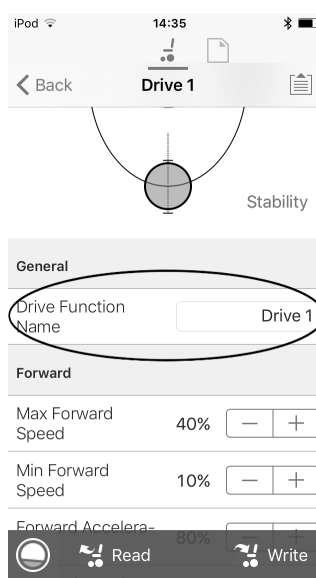
- 4.



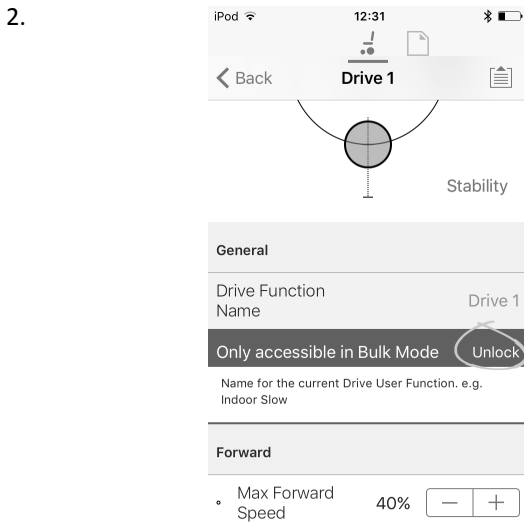
Confirm, if you want to delete function.

7.2 Modifying function and profile names

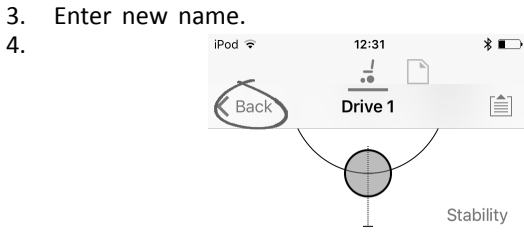
Function names



1. Open Drive or Seating function. Tap on field with function name.

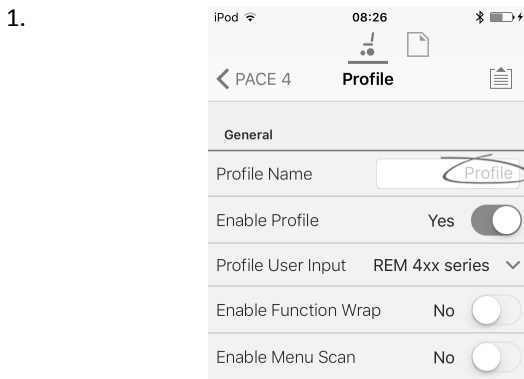


Unlock **Bulk Mode** before modifying the name.



Tap on **Back**.

Profile names



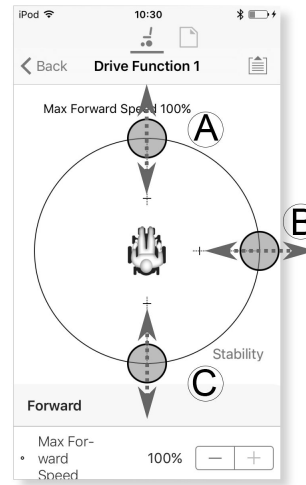
Open profile. Tap on field with function name.

2. Enter new name.
3. Tap on **Back**.

7.3 Modifying drive parameters graphically

A number of drive parameters can be edited graphically only with the iOS Access Tool. The speed graph is shown at the top of the parameter list. All other graphs are accessed from this screen, as detailed in the following sections.

Editing speed settings

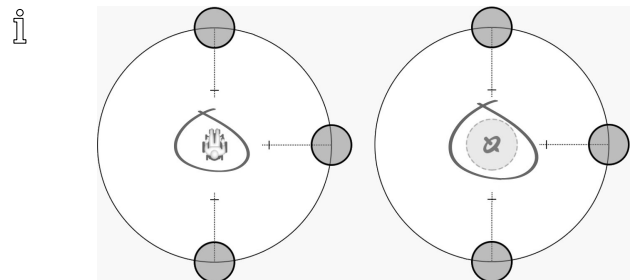


The Speed graph allows you to adjust:

- **Maximum Forward Speed** (A)
- **Maximum Turn Speed** (B)
- **Maximum Reverse Speed** (C)

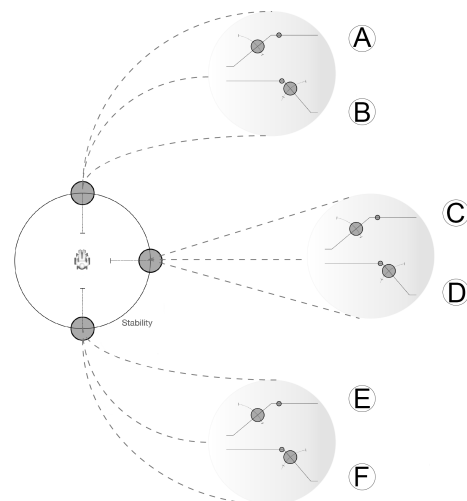
1. Tap and drag the colored circles inwards or outwards to decrease or increase parameter values.

The exact value for each parameter is shown at the top of the screen when adjusting the parameter and it is also displayed in the parameter list.



If a gyro module is enabled, the graphic in the center of the graph changes from a person in a wheelchair to a gyroscope to indicate that the parameter being changed are gyro-specific.

Editing acceleration / deceleration settings



The acceleration / deceleration parameters are only accessible through the Speed graph screen. To edit one of the acceleration or deceleration settings, press and hold one of the colored circles in the Speed graph screen.

- Press and hold the **Max Forward Speed** circle to be taken to the Forward acceleration (A) / deceleration (B) screen.
- Press and hold the **Max Turn Speed** circle to be taken to the Turn acceleration (C) / deceleration (D) screen.
- Press and hold the **Max Reverse Speed** circle to be taken to the Reverse acceleration (E) / deceleration (F) screen.

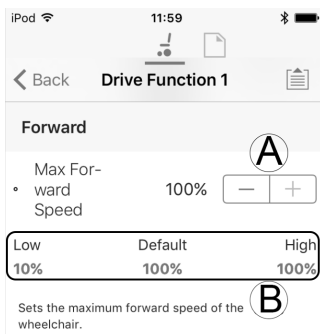
For each acceleration / deceleration parameter, the acceleration value can be modified with the upper graph, the deceleration value can be modified with the lower graph.

1. Press and drag the colored circles to decrease or increase the parameter values. All changes to the acceleration / deceleration values are displayed at the top of the screen.


7.4 Modifying drive parameters numerically


All drive parameters can be edited numerically.

1. Select a parameter to edit.
2. Click on the parameter's name to open the parameter's details. Default, minimum and maximum values will be displayed, as well as the parameter's summary.
3. There are different ways to modify the parameters:



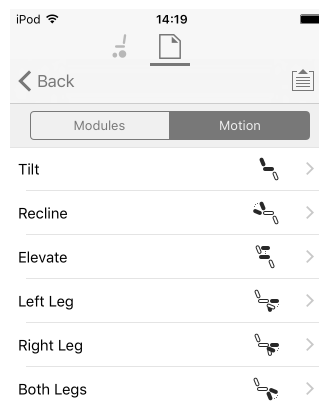
- a. Increment and decrement the parameter with the plus (+) and minus (-) buttons (A). Click these buttons to change the value in discrete steps or click and hold the buttons to change the value more quickly.
- b. Set the parameter value by clicking on the **Low**, **Default** or **High** buttons (B).

 When you edit a parameter's value, its background color will change to indicate that it has changed from its previous value. Once the value is written to the controller (or file), the background will revert to white.

 When in live edit mode, it might be difficult to see the parameter background changing since the live edit operation can take place very rapidly.

7.5 Modifying seating parameters

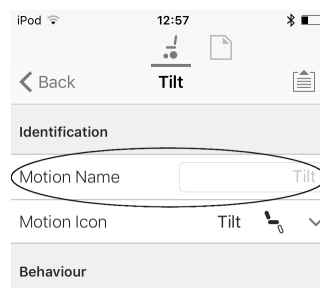
Seating motion



1. From **Home** screen click on **Chair Setup**.
2. Click on **Motion**.
3. Select seating motion you want to change.

Changing motion name

- 1.

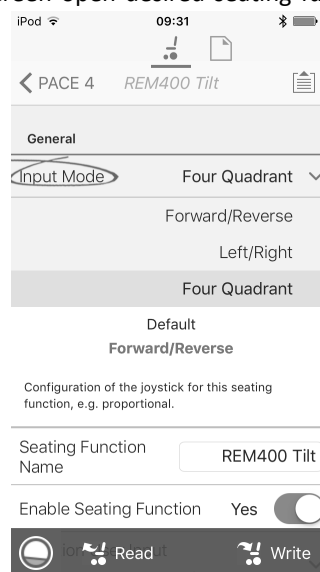


2. Tap on field **Motion Name**.
2. Unlock **Bulk Mode** before modifying name.
3. Tap on **Back**.

Seating function

This parameter sets how the joystick operates a motion. The joystick can control the motion as a switch or as a proportional controller. There are four switch-type modes and one proportional-type mode.

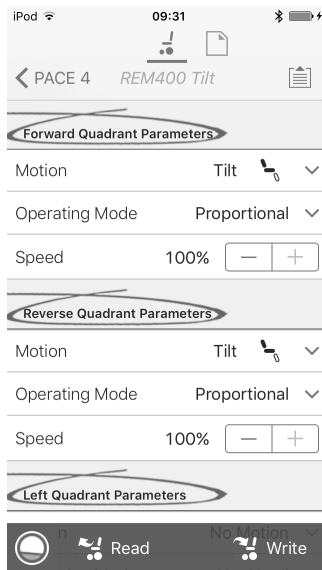
1. From **Home** screen open desired seating function.
 - a.



Input Mode: Configuration of user input for this seating function.

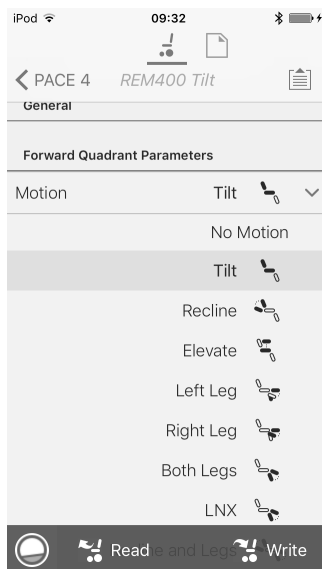
- **Forward/Reverse:** Moving joystick forward or reverse to control motion.

- **Left/Right:** Moving joystick left or right to control motion.
- **Four Quadrant:** Using all four joystick quadrants to control motions.



If **Four Quadrant** is selected, all quadrant parameters can be edited individually.

b.



Motion: If the joystick is used to control a motion, then select the motion from the list of available motions.

If the joystick is not used to control a motion, then select **No Motion** from the list.

c. **Operating Mode:**

| Switch-type | Proportional type |
|----------------|-------------------|
| | |
| Switched | Proportional |
| Latched | |
| Toggle | |
| Toggle / latch | |

Choose one of the switch-type modes to operate the motion at a fixed speed. The motion is activated when the joystick is deflected past the **Joystick Switch Threshold** (B) into either the forward (A) or backward (C) quadrants. Refer to 7.6 **Joystick Switch Threshold**, page 64 how to modify the **Joystick Switch Threshold**. Choose the proportional-type mode to operate the motion at a speed that is proportional to the joystick's position. The motion is activated when the joystick is deflected out of neutral into either the forward (A) or backward (C) quadrants.

If the joystick is not used to control this motion, then set this parameter to Not Used.

| Operation | Purpose |
|-----------|---|
| Switched | Activates the motion in the extend / retract direction for the duration that the joystick is deflected forwards / backwards and its position is greater than Joystick Switch Threshold. The motion is deactivated when it reaches its end-of-travel or when the joystick's position is less than the Joystick Switch Threshold. |
| Latched | Activates and latches the motion in the extend /retract direction when the joystick is momentarily deflected forwards / backwards across the Joystick Switch Threshold. The motion is deactivated when the motion reaches its end-of-travel or the joystick is deflected again across the Joystick Switch Threshold. |

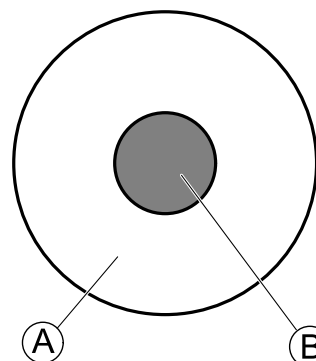
| Operation | Purpose |
|------------------|---|
| Toggle | Activates the motion in one direction (extend or retract) for the duration that the joystick's position is greater than Joystick Switch Threshold. The motion is deactivated when it reaches its end-of-travel or when the joystick's position is less than Joystick Switch Threshold. The direction of the motion toggles between extend and retract for each new activation. |
| Toggle / latched | Activates and latches the motion in one direction (extend or retract) by momentarily deflecting the joystick across the Joystick Switch Threshold. The motion is deactivated when the motion reached its end-of-travel or the joystick is deflected again across the Joystick Switch Threshold. |
| Proportional | Deflecting the joystick forwards /backwards activates the motion in the extend / retract direction for the duration that the joystick is deflected. The motion is deactivated when it reaches its end-of-travel or when the joystick is returned to the neutral position. The speed of this motion is controlled by the amount of deflection from the neutral position and scaled further by using the Speed parameter. |
| Not Used | No operation. |

- d. **Speed:** For the switch-type operations (Switched, Latched, Toggle, Toggle / latched), this parameter applies the speed of the motion when the joystick crosses the **Joystick Switch Threshold**. For the proportional operation, this parameter sets the maximum speed at which the motion will travel when the joystick is deflected to 100 % of its travel. For all other positions of joystick deflection the applied speed will be scaled down accordingly.

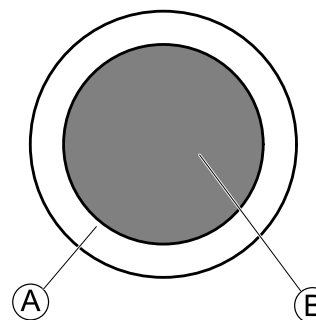
7.6 Joystick Switch Threshold

Sets the percentage of joystick movement required to activate an output when the joystick is operating as a switched input device.

When the joystick is used as a switched input device, this parameter specifies how far the joystick has to be pushed before its state changes (OFF (B) to ON (A)) and activates an output. The **Joystick Switch Threshold** value is a percentage of the joystick's full travel and should be set according to the user's needs. For example:

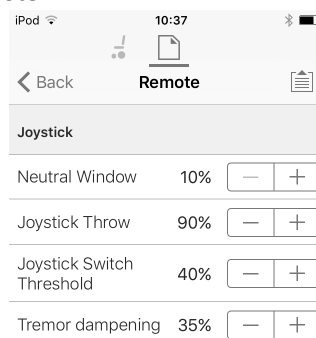


for users that have difficulty moving the joystick , set **Joystick Switch Threshold** to a low value, such as 40 % or less,



for users that lack fine motor control or are subject to hand tremors, set **Joystick Switch Threshold** to a high value, such as 80 %, to avoid unintentional switching.

1. From **Home** screen click on **Chair Setup**.
2. Click on **Modules**.
3. Click on **Remote**.
- 4.



Set the desired percentage.

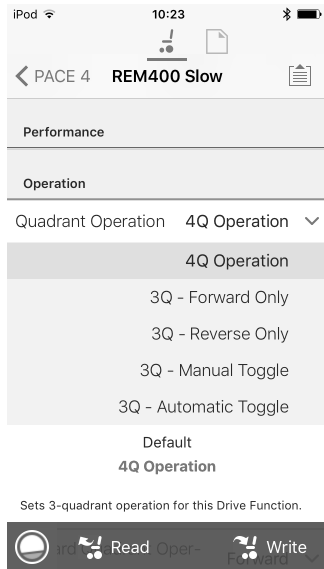
Tremor dampening

Use this parameter to reduce the effect of hand tremors on the joystick. Low values are suitable for users with low frequency (slow) tremors. Higher values will suit users with higher frequency (fast) tremors. Setting the parameter value to 0 % results in no tremor dampening.

7.7 Adjust quadrant operation

This parameter sets the drive function's user input to operate in 3-quadrant (3Q) or 4-quadrant (4Q) mode. Typically, the 4Q mode is chosen with joystick-based inputs or arrays, that provide 4 quadrants, for example, a Sip and Puff array. The 3Q mode is chosen for user inputs that provide 3 quadrants, for example, a head array.

1. From **Home** screen open desired drive function.



The options are:

- **4Q Operation**
- **3Q - Forward Only**
- **3Q - Reverse Only**
- **3Q - Manual Toggle**
- **3Q - Automatic Toggle**

4Q Operation

When **4Q Operation** is selected, each quadrant is assigned a unique direction from forward, reverse, left and right, this is the default mode. To change these default directions, the quadrants can be reassigned with a different direction by setting the following parameters:

- **Forward Quadrant Operation**
- **Reverse Quadrant Operation**
- **Left Quadrant Operation**
- **Right Quadrant Operation**

It is not necessary that all quadrants are assigned unique directions. If required, one or more quadrants can share the same direction. For example, **Forward Quadrant Operation** and **Reverse Quadrant Operation** can both be set to **Forward**. For more information about adjusting the drive direction, refer to *7.7.1 Adjust drive directions, page 65*.

3Q - Forward Only

When **3Q - Forward Only** is selected, the user input can drive the wheelchair forward, left and right.

If required, each quadrant can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q - Forward Only** mode.

3Q - Reverse Only

When **3Q - Reverse Only** is selected, the user input can drive the wheelchair reverse, left and right.

If required, each quadrant can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q - Reverse Only** mode.

3Q - Manual Toggle

When **3Q - Manual Toggle** is selected, the user input can drive the wheelchair forward, reverse, left and right. The forward and reverse directions are controlled by the user toggling an external switch.

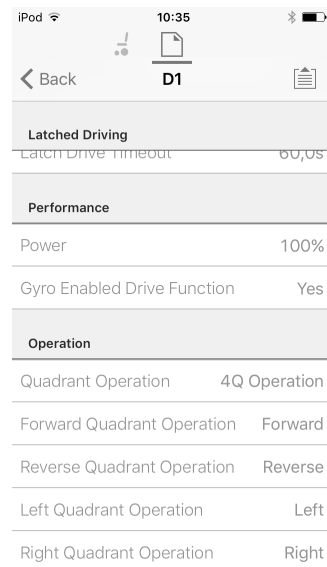
If required, each quadrant can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q - Manual Toggle** mode.

3Q - Automatic Toggle

When **3Q - Automatic Toggle** is selected, the user input can drive the wheelchair forward, reverse, left and right. The forward and reverse directions are controlled by the user toggling the forward quadrant.

If required, each quadrant input can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q - Automatic Toggle** mode.

7.7.1 Adjust drive directions



Forward Quadrant Operation

This parameter sets the direction that the wheelchair moves when the forward quadrant of the user input is selected. Options available are:

- **Forward**
- **Reverse**
- **Left**
- **Right**
- **Ignored**

If **Ignored** is selected, the wheelchair does not move in any direction when the input's forward quadrant is selected.

Reverse Quadrant Operation

This parameter sets the direction that the wheelchair moves when the reverse quadrant of the user input is selected. Options available are:

- **Forward**
- **Reverse**

- **Left**
- **Right**
- **Ignored**

If **Ignored** is selected, the wheelchair does not move in any direction when the input's reverse quadrant is selected.

This parameter is not available when quadrant operation is set to any of the 3Q modes.

Left Quadrant Operation

This parameter sets the direction that the wheelchair moves when the left quadrant of the user input is selected. Options available are:

- **Forward**
- **Reverse**
- **Left**
- **Right**
- **Ignored**

If **Ignored** is selected, the wheelchair does not move in any direction when the input's left quadrant is selected.

Right Quadrant Operation


This parameter sets the direction that the wheelchair moves when the right quadrant of the user input is selected. Options available are:

- **Forward**
- **Reverse**
- **Left**
- **Right**
- **Ignored**

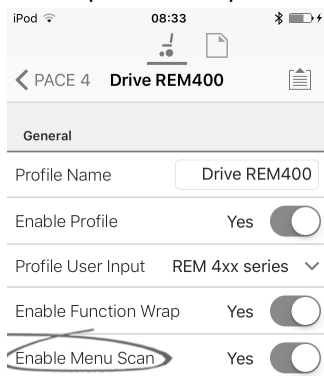
If **Ignored** is selected, the wheelchair does not move in any direction when the input's right quadrant is selected.

7.8 Enable indirect navigation

For the iOS tool, there is only **Menu Scan** with **Navigation Timeout** available at the moment.

 Steps 1 and 2 must be made in each desired profile and function.

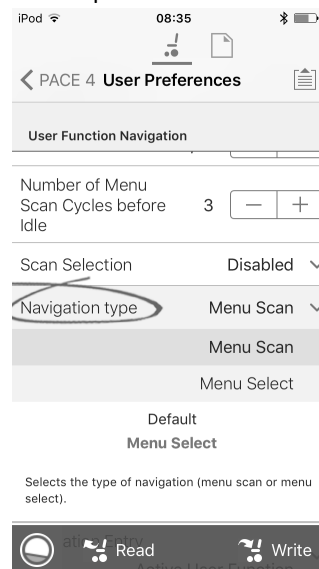
1. From **Home** screen open desired profile.
- 2.



Set **Enable Menu Scan** to **Yes**.

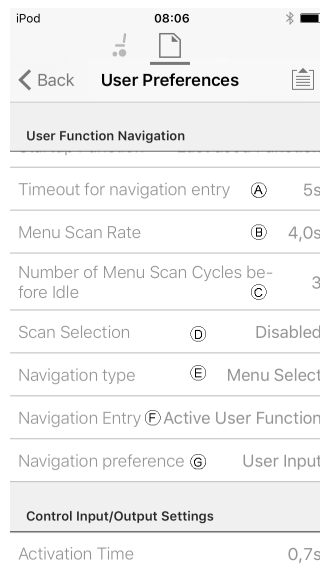
3. From **Home** screen open desired function.

4. Set **Navigation Timeout** to **Yes**.
5. From **Home** screen open **User Preferences**.
- 6.



Set **Navigation type** to **Menu Scan**.

Other parameters




| | |
|---|--|
| Ⓐ | Timeout for navigation entry: Sets inactivity time required before system enters navigation mode, for navigation mode with Navigation Timeout only. |
| Ⓑ | Menu Scan Rate: Sets rate at which menu scan iterates through menu, for Menu Scan only. |
| Ⓒ | Number of Menu Scan Cycles before Idle: Number of times menu is iterated through before going to idle, assuming no user selection, for Menu Scan only. |
| Ⓓ | Scan Selection: Configures which quadrants of Primary input can be used to make selections, for Menu Scan only. |
| Ⓔ | Navigation type: Selects type of navigation. |
| Ⓕ | Navigation Entry: Sets entry point to menu. |
| Ⓖ | Navigation preference: Selects whether navigation using touch interface has preference over navigation using user input. If user input is selected, display highlights current selection. |

7.9 Installing / Setting up alternative inputs

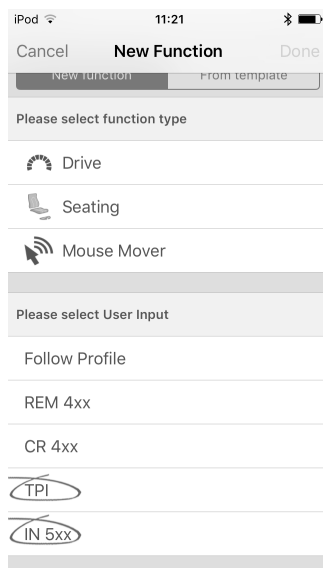
There are different types of alternative inputs, that interface differently to the system. Connect the components to the particular inputs, see table below.

| Component | Input |
|--------------------------------|--------------------|
| Sip and Puff breath tube kit | Input Module IN5xx |
| Sip and Puff Head Array | Input Module IN5xx |
| Pediatric Compact Joystick | Input Module IN5xx |
| Head Array | TPI |
| Chin control | TPI |
| Compact Single Switch Joystick | TPI |
| Four Switch Proximity Array | TPI |
| Remote Stop Switch | Power Module |


 To install a Remote Stop Switch, just connect to the Power Module using the interface cable and the 4-way connector using the Bus cable, see wiring diagram 3.8 *Wiring diagrams*, page 16. Programming is not necessary.

Programming

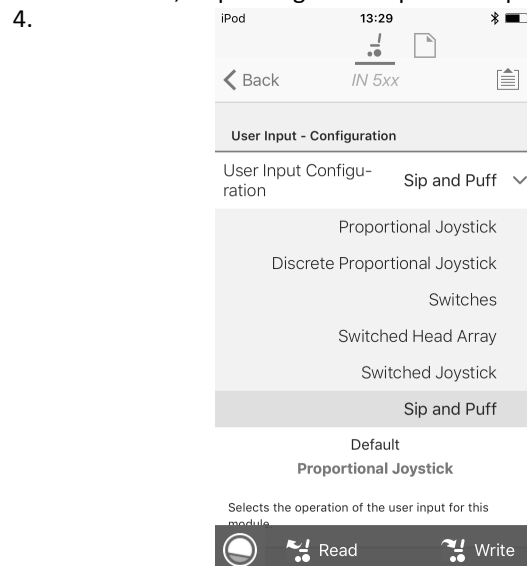
1. Add new profile or add user function to existing profile. For more information about adding profiles and functions, refer to 7.1 *Profile and function actions*, page 58.
- 2.



Set **User Input** to **TPI** or to **IN 5xx**, depending on component input.

 Same procedure for drive, seating and connectivity functions.


3. From **Home** screen open **Chair Setup** → **Modules** → **IN 5xx** or **TPI**, depending on component input.



Set **User Input Configuration** to desired component. Options are:

- Proportional Joystick: Pediatric Compact Joystick, Chin Control, Compact Single Switch Joystick
- Discrete Proportional Joystick: not used
- Switches: Four Switch Proximity Array, Sip and Puff Head Array
- Switched Head Array: Head Array
- Switched Joystick: not used
- Sip and Puff: Sip and Puff

5. Depending on component, modify other parameters. For switched inputs, such as Sip and Puff, parameters are found under **User Preferences**, refer to 4.2.1 *Overview User Preferences*, page 42.

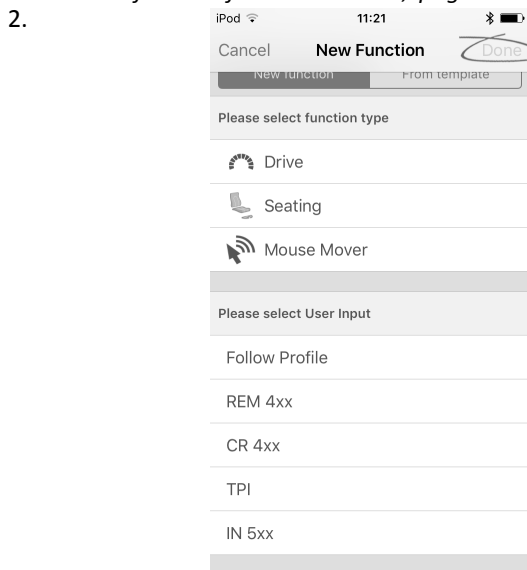
 For more information about installing a Sip and Puff, refer to 7.10 *Sip and Puff installation*, page 67.

7.10 Sip and Puff installation


A Sip and Puff module is included in the input module.

A Sip and Puff module provides the user with the ability to activate four digital inputs with their breath via a tube depending on pressure level, hard or soft, and direction, sip or puff. These inputs can be used to control driving or seating actions.

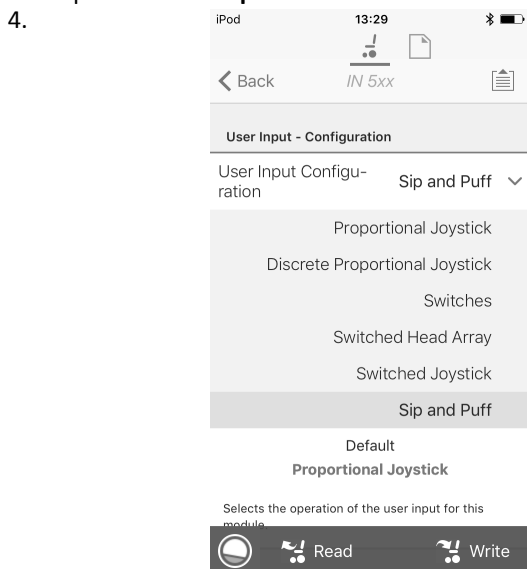
1. Add user function for Sip and Puff module. For more information about adding profiles and functions, refer to *7.1 Profile and function actions, page 58.*



Set **User Input** to **IN 5xx**.

 Same procedure for drive, seating and connectivity functions.


3. Open **Chair Setup** → **Modules** → **IN 5xx**.



Set **User Input Configuration** to **Sip and Puff**.

5. Calibrate Sip and Puff module, refer to *7.10.1 Sip and Puff calibration, page 68.*
6. Open **User Preferences** to adjust veer behavior for switched inputs. For more information refer to *4.2.1 Overview User Preferences, page 42.*

7.10.1 Sip and Puff calibration

 Primary input operations, such as driving, are disabled when using the calibration tool. This is for safety reasons to prevent unintended operation when calibrating.

There are three pressure zones for each pressure direction (sip and puff):

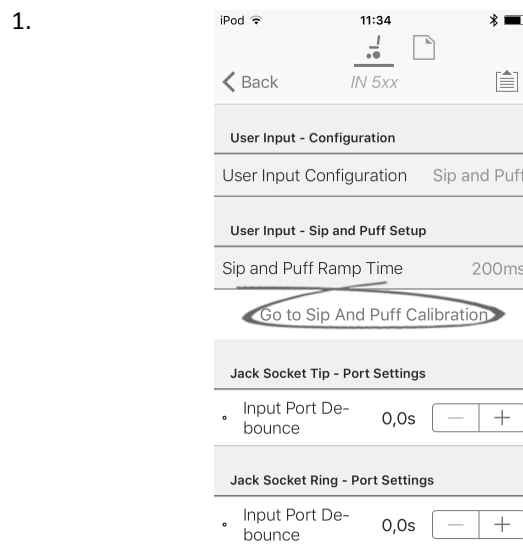
- Neutral zone,
- soft zone and
- hard zone.

The Sip and Puff module's response to a sip or puff input, depends on which zone the pressure falls within: hard or soft. Pressures within the neutral zone are ignored.

Since all users have different capabilities, the Sip and Puff module can be calibrated to change the size and position of these zones. The zones need to be set so that a user can control the wheelchair comfortably and consistently. A Sip and Puff calibration tool is used to determine the pressure thresholds that define the zones. These thresholds are:

- Minimum limit for soft puff,
- minimum limit for hard puff,
- minimum limit for soft sip and
- minimum limit for hard sip.

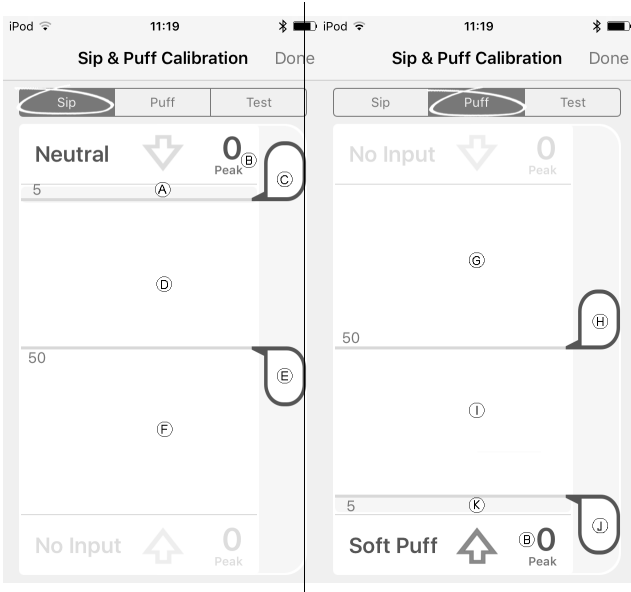
To calibrate the Sip and Puff module, you have to record pressure measurements from a series of pressure samples performed by the user and adjust the four pressure thresholds accordingly.



From **Home** screen open **Chair Setup** → **Modules** → **IN 5xx**.

2. Tap on **Go to Sip And Puff Calibration**.

3.



| | |
|-----|--|
| (A) | Neutral zone for sip input |
| (B) | Pressure level |
| (C) | Threshold slider to adjust minimum limit for soft sip |
| (D) | Soft zone for sip input |
| (E) | Threshold slider to adjust minimum limit for hard sip |
| (F) | Hard zone for sip input |
| (G) | Hard zone for puff input |
| (H) | Threshold slider to adjust minimum limit for hard puff |
| (I) | Soft zone for puff input |
| (J) | Threshold slider to adjust minimum limit for soft puff |
| (K) | Neutral zone for puff input |

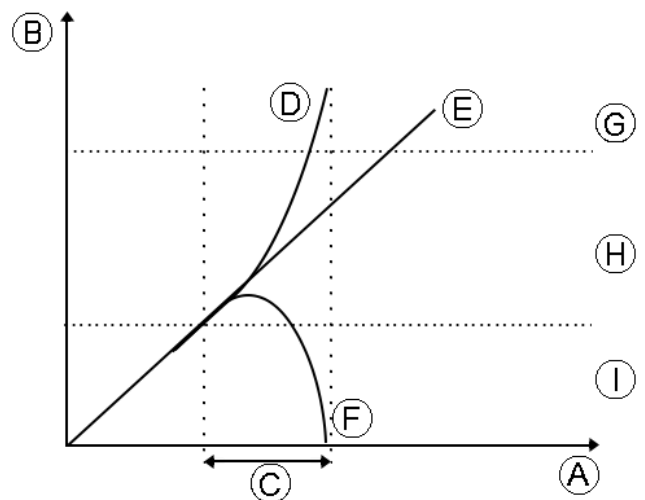
4. If **Sip** tab is open, user performs hard sip and soft sip in no specific order.
 If **Puff** tap is open, user performs hard puffs and soft puffs in no specific order.
 For each sip and puff, a pressure level (B) is recorded on calibration tool. Based on these recorded levels, you determine best level at which to set each pressure threshold.

- Drag corresponding Threshold sliders.
 - For soft sip, drag threshold slider (C) to position just above user’s soft sip. Any subsequent pressure above threshold slider (C) is in neutral zone (A) and is ignored. Pressure below threshold slider (C) and threshold slider (E) is in soft zone (D) and determined as soft sip.
 - For hard sip, drag threshold slider (E) to position just above user’s hard sip. Pressure above threshold slider (E) is not considered as hard sip. Pressure below threshold slider (E) is in hard zone (F) and determined as hard sip.
 - For soft puff, drag threshold slider (I) to position just below user’s soft puff. Any subsequent pressure below threshold slider (I) is in neutral zone (K) and is ignored. Pressure above threshold slider (I) and below threshold slider (H) is in soft zone (I) and determined a soft puff.
 - For hard puff, drag threshold slider (H) to position just below user’s hard puff. Pressure below threshold slider (H) is not considered as hard puff. Pressure above threshold slider (H) is in hard zone (G) and determined as hard puff.

Sip and Puff Ramp Time

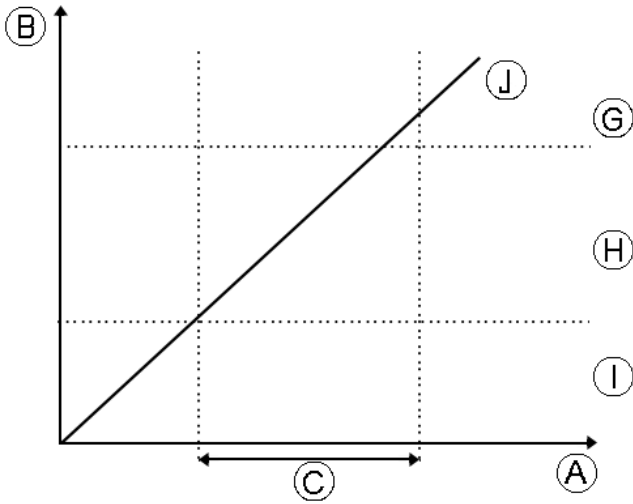
The **Sip and Puff Ramp Time** defines the amount of time that a pressure input must remain in the soft zone before it is registered as a soft sip or puff. Consequently, it also provides:

- Time for a user to cross from the neutral zone to the hard zone and
- a filter for any noise (unintentionally pressures) at the zone boundaries.



The ramp time (C) begins at the point where the pressure input (D), (E) or (F) crosses into soft zone (H) — either from neutral zone (I), when pressure is increasing, or from hard zone (G), when pressure decreases. A pressure input (D) that reaches the hard zone before ramp time expires, is registered as a hard sip or puff. A pressure input (E) within soft zone at the end of ramp time is registered as a soft sip

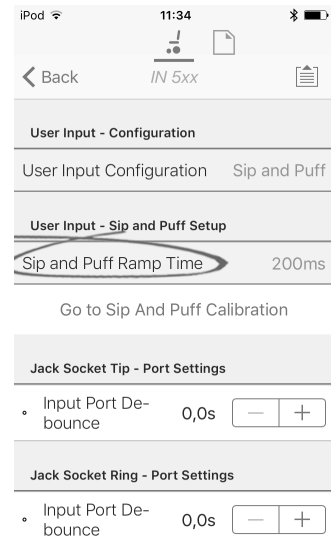
or puff. Pressure inputs ⑥ that fall away into neutral zone before ramp time expires are not registered as an input.



When setting **Sip and Puff Ramp Time**, consideration should be given to users, who cannot produce a hard sip or puff within the ramp time. If ramp time is set too low, a user may not be able to reach the hard zone ③ in time and a soft sip or puff is registered instead of the intended hard sip or puff. For users who need more time to reach hard zone, the

ramp time ① needs to be extended, so the pressure input ④ is registered as a hard sip or puff.

1. From **Home** screen open **Chair Setup** → **Modules** → **IN 5xx**.
- 2.



Adjust **Sip and Puff Ramp Time**.

8 Using the LiNX Access PC tool

8.1 Installing the software

Double-click on the LiNX Access PC tool installation software and follow the on-screen instructions.

Step 1

Select the language to use during installation.

1.



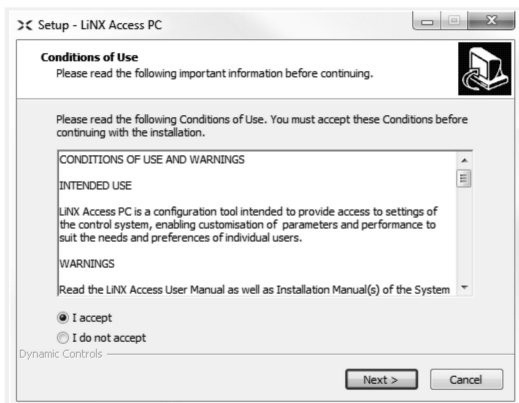
Select your choice of language from drop-down box.

2. Click **OK** to continue.

Step 2

Before proceeding, make sure that you read and fully understand the Conditions of Use and Warnings presented in the dialogue.

1.



Select **I accept** option.

2. Click **Next** button.

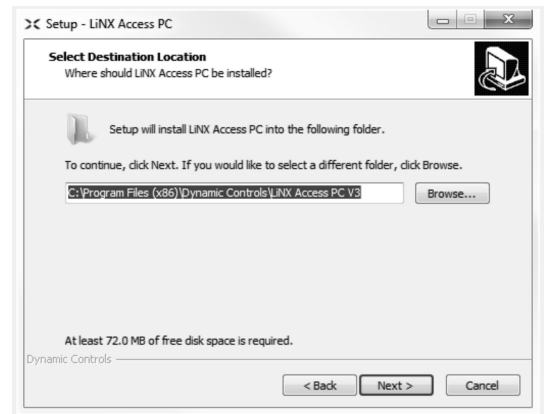
Step 3

For your convenience, the application can be saved to an alternative folder instead of the suggested folder.

If the suggested folder is suitable, click **Next** to continue with the set up.

If you want to change the folder:

1.



Click on **Browse** button and select different folder.

2. Click **Next** to continue.

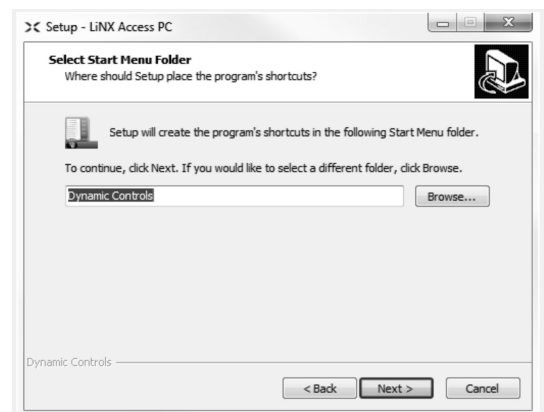
Step 4

The application's shortcut can be saved to an alternative folder also, instead of the suggested folder.

If the suggested folder is appropriate, click **Next** to continue with the set up.

If you want to change the folder:

1.



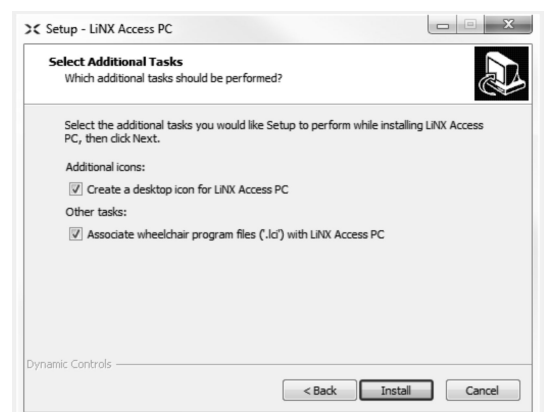
Click on **Browse** button and select different folder.

2. Click **Next** to continue.

Step 5

By default, a desktop icon will be added for the LiNX access PC tool and the wheelchair program files (*.lci) will be associated with the LiNX Access PC tool.

1.



Check / uncheck as appropriate.

2. Click **Install**.

Step 6



Click **Finish** to complete the installation.

8.1.1 Using Bluetooth on a computer

You need a Bluetooth connection to communicate between the LiNX Access PC tool and a LiNX system. You can use a computer's built-in Bluetooth adaptor (usually found on laptops) or an external USB Bluetooth adaptor.

Using built-in Bluetooth adaptor

Switch on the built-in Bluetooth adaptor (refer to computer's manual for help on this).

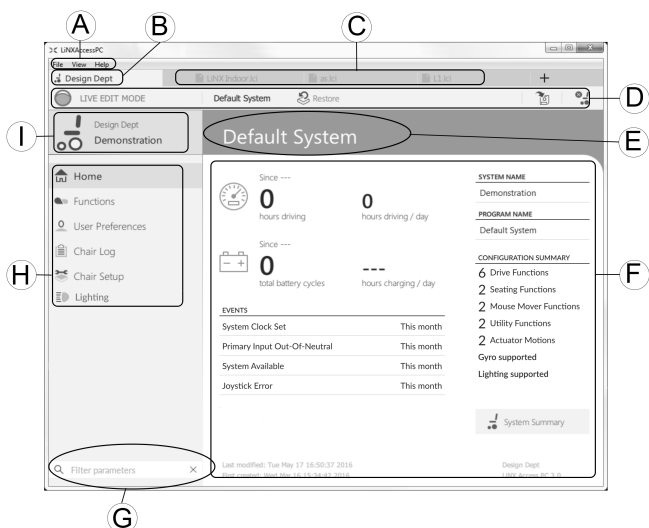
Using an USB Bluetooth adaptor

Plug in the external USB Bluetooth adaptor into a spare USB port. The Windows operating system detects and installs the appropriate drivers for the adaptor. Do not install any drivers that may have been provided with the adaptor.

8.2 Layout overview

Layout may change whether connected or not.

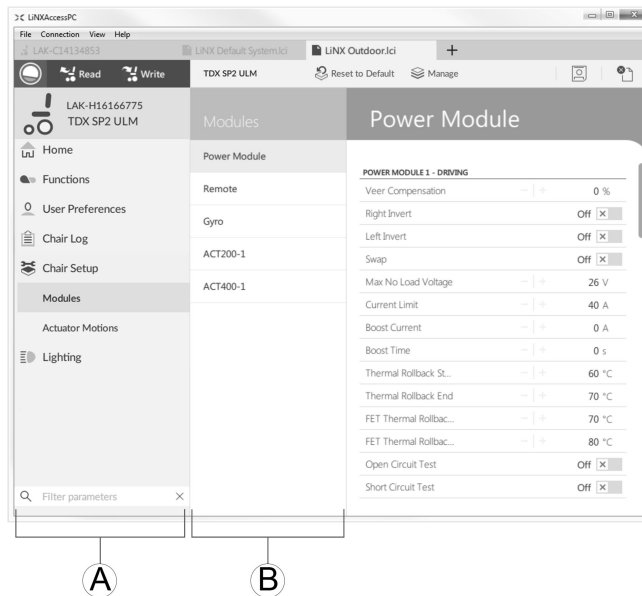
Home screen



- A Menu bar
- B Connection tab
- C File tabs

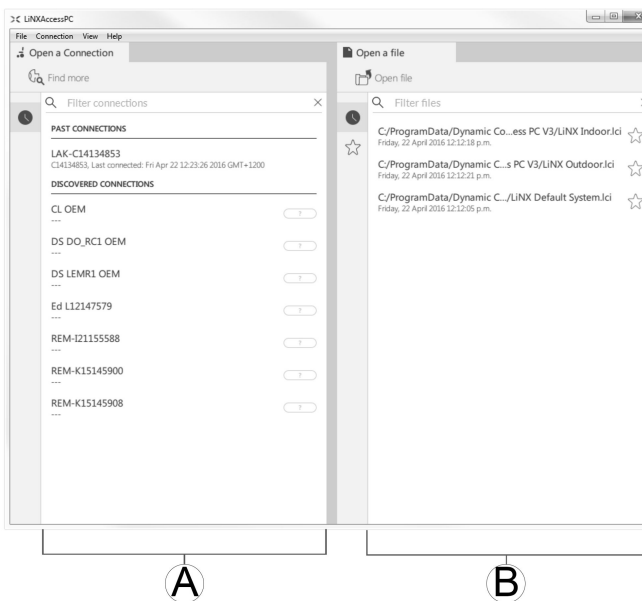
- D Tool bar
- E Main content header
- F Main content
- G Filter parameters box
- H Primary navigation side bar
- I Tab context

Secondary navigation side bar



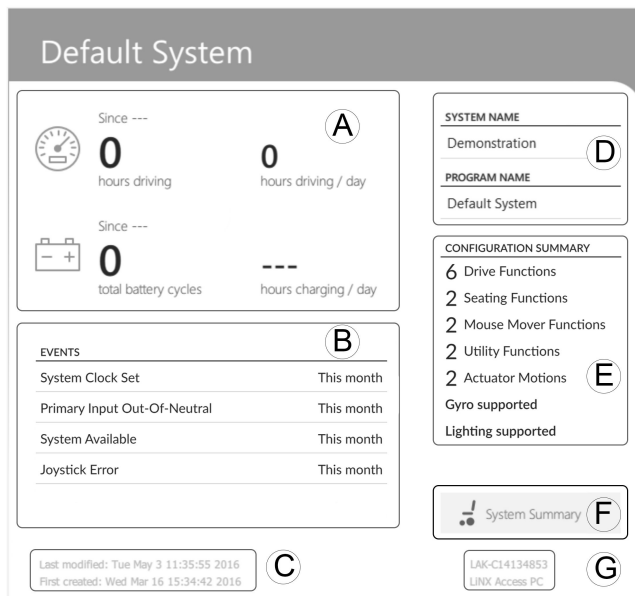
The secondary navigation bar **B** is only displayed for certain primary navigation bar selections **A** and provides a means to drill down further through the features, functions and parameters.

Opening



- A Open a connection
- B Open a file

System information



| | | |
|---|-------------------------------|--|
| Ⓐ | Driving / battery information | Displays time statistics for driving and battery use. |
| Ⓑ | Events | Displays overview of events. |
| Ⓒ | File information | Displays time stamps for when the configuration was created and last modified. |
| Ⓓ | System name and program name | Displays the system and program name. |
| Ⓔ | Configuration summary | Overview of modules, features and functions for the connected system. |
| Ⓕ | System summary | Click to view version information about the modules in the connected system. |
| Ⓖ | LiNX Access information | Displays LiNX Access Key and application details. |

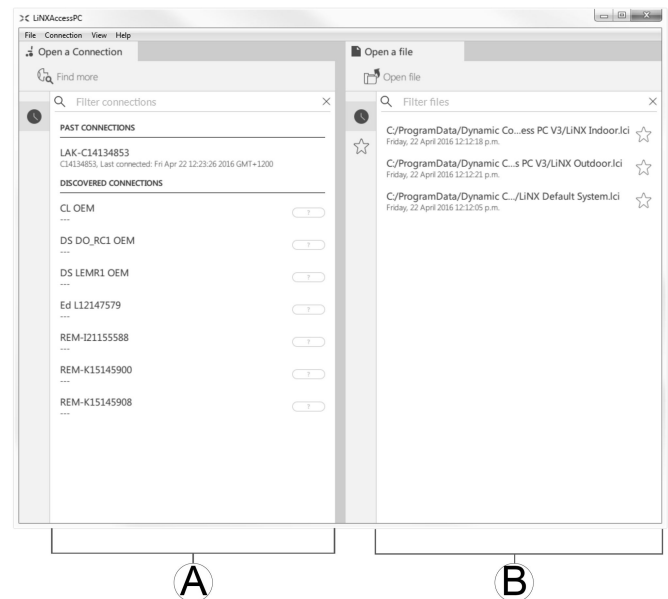
8.3 Concepts

The LiNX Access PC tool provides many tools and features to simplify configuring and programming LiNX modules and systems.

Two important concepts are:

- context modes
- editing modes

Context modes



The context modes allow you to work with configuration files both online (that is with a connected system) and offline (that is with files stored on your computer) simultaneously. There are two context modes:

- **Connection context** Ⓐ. The PC tool interacts with a connected system. From the Open a connection tab, you can connect to a wheelchair through a LiNX Access Key.
- **File context** Ⓑ. The PC tool interacts with stored files on your computer. From the Open a file tab, you can access a file stored on your computer.



The connection tab is always found on the left side of the application's screen. You can only have one connection tab open at any time.

File tabs are always placed to the right of the application's screen. The application allows multiple file tabs to be open at any time.

Editing modes

The LiNX Access PC tool offers two parameter editing modes that define when parameters are written to the wheelchair. These modes are:

- **Live edit** (connection context only).
- **Bulk edit**.

For more information about the editing modes, refer to [6.3.4 Modifying a program, page 53](#).


8.4 Checking and getting the latest version

The LiNX Access PC tool automatically checks for updated software and firmware. This operation requires an Internet connection and is only performed in a 24 hour period. If application updates are available, a notification is displayed asking if you want to download the updates. Click on **Yes** button to continue. After the application updates have been downloaded, a notification is displayed, asking if you want to install the updates. Click on **Yes** button to continue.

To manually check for updates, you can either:

- check the Dynamic Controls website at www.dynamiccontrols.com or
- from the main menu on the LiNX Access PC tool, click on **Help** and then on **Check for updates**.

To view which version you have installed, click on **Help** on the menu bar and then click on **About**.

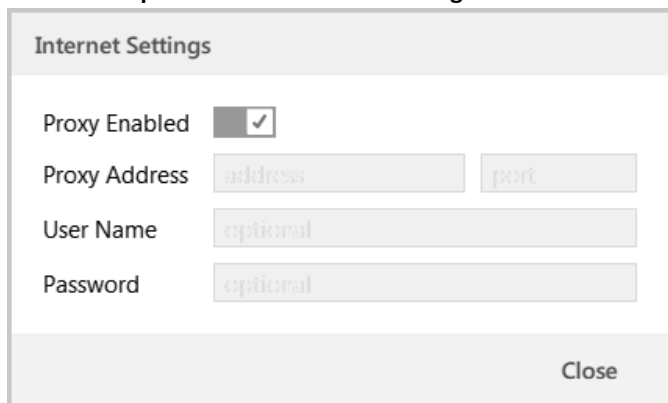
 An Internet connection is required when checking for updates. If an Internet connection is unavailable, the following message is displayed:

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

If your computer uses a proxy server to connect to the Internet, then you need to configure your Internet settings.

Configuring Internet settings

1. Click on **Help** and select **Internet Settings**.
- 2.



Enable proxy settings by clicking on **Proxy Enabled** switch.

3. Add following details (you may need to consult your IT department for this information):
 - **Proxy address and port**
 - **User name**
 - **Password**
4. Click on **Close** button.

8.5 Connection context actions



The following tasks are only relevant for the **Connection context** mode. For tasks related to the **File context** mode, refer to *6.4 File context actions, page 55*.

8.5.1 Connecting/Disconnecting the LiNX Access PC tool

Connecting to a wheelchair

1. Power up LiNX system.
2. Insert LiNX Access Key into remote module.
3. Open LiNX Access PC tool application.
4. From the **Open a connection** tab:
 - a. Select LiNX Access Key from list under **PAST CONNECTIONS**, or
 - b. click **Find more** button (top left) to force application to search for more LiNX Access Keys, or
 - c. if list is too long to read, enter LiNX Access Key into **Filter connections** text box to locate LiNX Access Key in list.

After selecting a LiNX Access Key, the LiNX Access PC tool connects to the wheelchair and reads its configurations.

Disconnecting from a wheelchair



To disconnect from a connected wheelchair, click the **Disconnect** icon on the right-hand side of the tool bar.

8.5.2 Write a program to a wheelchair

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



If you are working in bulk edit mode, you can write to the wheelchair by clicking on the **Write** button in the tool bar.

After clicking **Write**, the LiNX Access PC tool will perform the following tasks:

- Write the program to wheelchair.
- Power cycle wheelchair.
- Read program from wheelchair.
- Read diagnostic information from wheelchair.

After the Write operation, the LiNX Access PC tool reverts to live edit mode.

8.5.3 Read a program from a wheelchair

The configuration program is automatically read from a wheelchair system when you connect to it. However, you can manually read the configuration program from the connected wheelchair by placing the LiNX Access PC tool in bulk edit mode or file context mode.

To read configuration from bulk edit mode

1. Change to bulk edit mode by unlocking bulk edit parameter.
- 2.



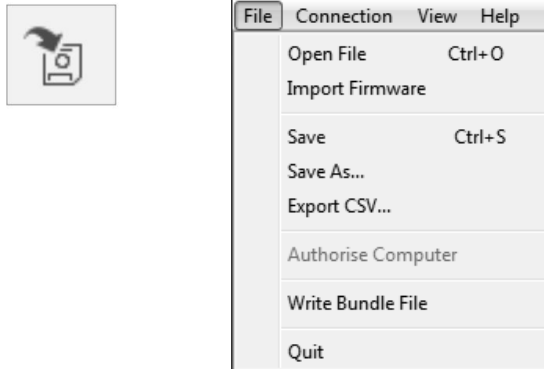
Click on **Read** (from wheelchair) icon in tool bar.

To read a configuration from file context

1. Open file by clicking on **New file** tab (+) and selecting existing file.
2. Click on **Read** (from wheelchair) icon in tool bar.

8.5.4 Save a program as a file

1.

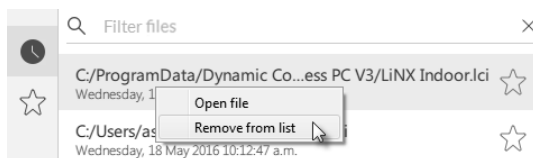


Click on **Save to file** button or click on **File** in menu bar and select either **Save** or **Save As...** from menu.

2. **Save File As** dialogue opens.
3. Select appropriate folder.
4. Enter name into **File name** box.
5. Click on **Save** button to finish. The file is saved with .lci extension.

Remove a file from the file list

1.



Right-click on file in **Open file** dialogue and select **Remove from list**.

8.5.5 Storing the LAK certificate

To edit files offline, you need to authorize your computer by storing the LiNX Access Key (LAK) certificate.

The LAK certificate determines how you view and edit offline programs (.lci files) and is taken from a connected LiNX Access Key to provide one of two levels of access, that are:

- Distributor and
- Read-only.

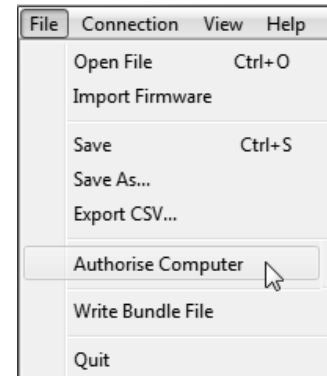
To edit your files with a Distributor's access level, you need to store an LAK certificate from a LiNX Access Key.

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

To store LAK certificate:

1. Connect to LiNX system.
2. Click on **File** menu.

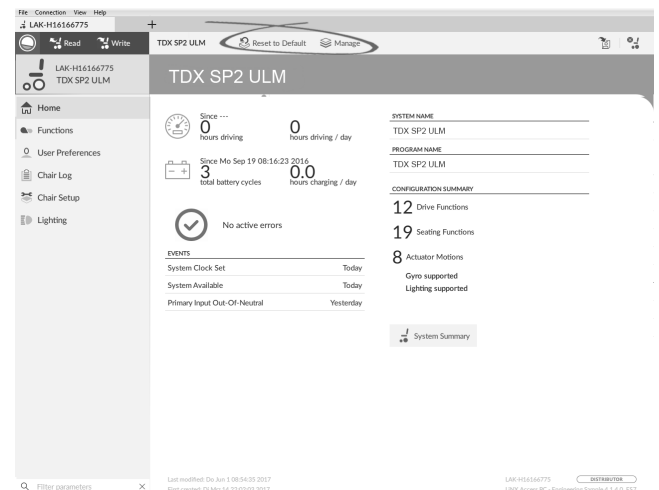
3.



Select **Authorise Computer** option. A message is displayed telling you how many authorizations remain (you can only perform this operation three times) and asks if you want to continue.

4. Click on **Authorise** button to continue.
5. A message is displayed when the authorization is complete. Click on **OK** button to finish.

8.5.6 Manage chair configurations



Set default wheelchair configuration



1. Click **Manage** to open wheelchair configuration list.
2. Select required configuration from list.
3. Select **Load as Current**.
4. A message is displayed warning you, that current configuration will be overwritten. Click either on **Discard** to finish or **Cancel** if you do not want to finish.

Reset to default wheelchair configuration



To reset the connected wheelchair configuration to the selected default wheelchair configuration:

1. Click on **Reset to Default** button on the tool bar.
2. A message is displayed warning you, that the reset process will overwrite all existing parameters. Click either on **Discard** to finish or **Cancel** if you do not want to finish.

The default chair configuration means the last connected configuration.

If chair configurations are not supported, such as in LiNX LE systems, **Reset to Default** button is not displayed.

8.6 File context actions



The following tasks are only relevant when in the **File context** mode. For tasks related to the **Connection context** mode, refer to *8.5 Connection context actions, page 74*.

8.6.1 Open/Close a file

If the LiNX Access PC tool is not open

1. Open LiNX Access PC tool.
2. From **Open a file** tab:
 - a. select file from list, or
 - b. click **Open file** button (top left) to open the **Open file** dialogue, or
 - c. if list is too long to read, enter file name into **Filter files** text box to locate file in list.
3. Select file.

If the LiNX Access PC tool is already open

1. Click on **New file** tab (+).
2. From this tab:
 - a. select file from list, or
 - b. click **Open file** button (top left) to open the **Open file** dialogue, or
 - c. enter file name into **Filter files** text box to locate file in list.
3. Select file.

Open via File menu

1. Click on **File** menu.
2. Select **Open file** to open the **Open file** dialogue.
3. Select file.

After selecting a file, the LiNX Access PC tool opens the file under its own tab. The tab is named with the file name.

Close a file



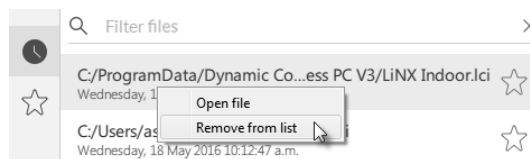
Close a file using the **Close file** button, located on the right-hand side of the tool bar. If you attempt to close a file with changes pending, a dialogue opens with the options to:

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

For information about modifying parameters, refer to *9 Modifying wheelchair configuration with PC tool, page 77*. For information about saving files, refer to *8.5.4 Save a program as a file, page 75*. For information about reading a program, refer to *8.5.3 Read a program from a wheelchair,*

page 74 and for information about writing a program to a wheelchair, refer to *8.5.2 Write a program to a wheelchair, page 74*.

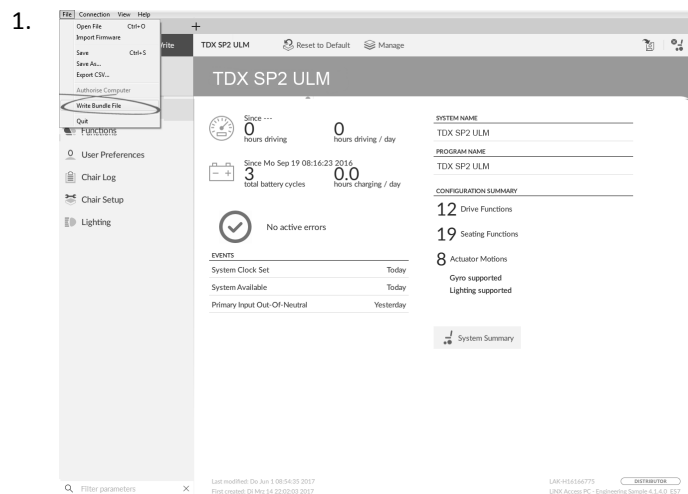
8.6.2 Remove a file from list



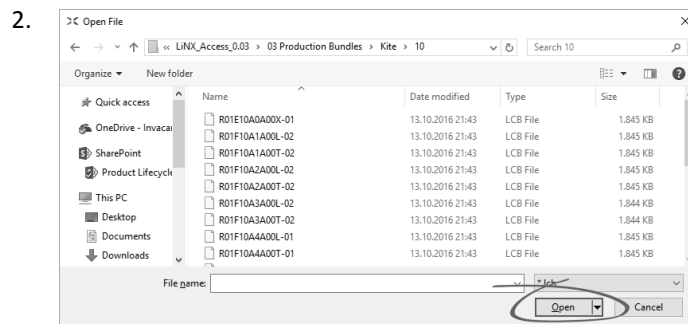
Right-click on a file in the open file dialogue and select **Remove from list**.

8.6.3 Writing bundle files to a chair

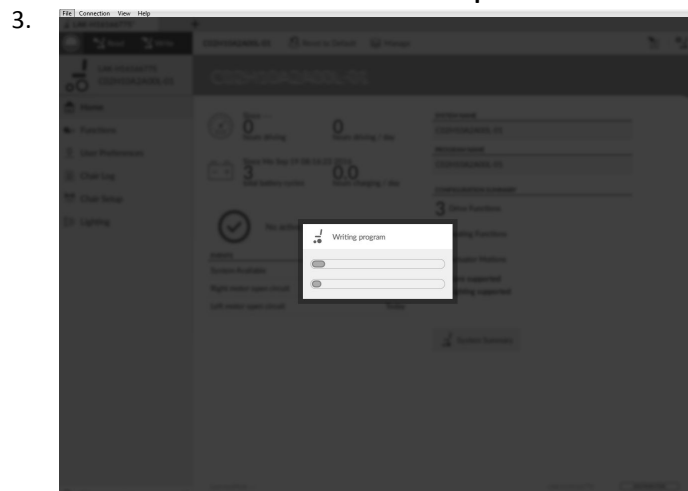
Bundle files can be written to a connected chair. Bundle files can include wheelchair configurations and/or firmware files.



Click on **File** menu.
Select **Write Bundle File**.



Select desired bundle file and click **Open**.




Bundle file is written to chair.

9 Modifying wheelchair configuration with PC tool

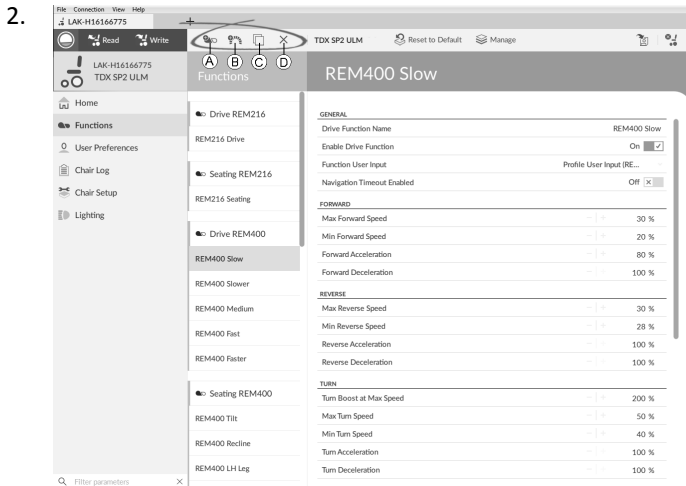
9.1 Profile and function actions

In bulk edit mode:

- profiles can be added and deleted,
- functions can be added, deleted, copied and moved.

 A system always includes a REM2xx Drive Function profile and a REM2xx Seating Function profile. These cannot be moved or deleted.

1. Open Functions.



Select desired profile or function action in the toolbar.


- Ⓐ Add profile
- Ⓑ Add function
- Ⓒ Copy function
- Ⓓ Delete function or profile

Add profile



Click on icon Ⓐ.
New profile is displayed in **Functions**.

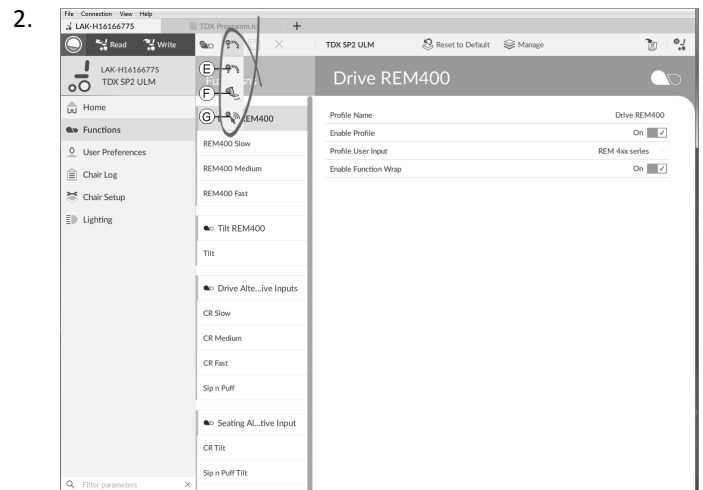
2. Change name of profile, refer to *9.2 Modifying function and profile names, page 78*.

 New profile is displayed as invalid as long as no function is added to the profile.

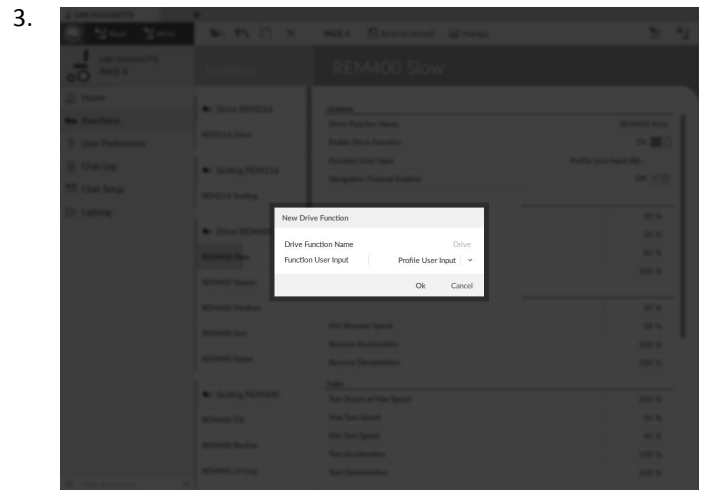
Add user function



Click on icon Ⓑ.



Click on icon Ⓔ to add drive function.
Click on icon Ⓕ to add seating function.
Click on icon Ⓖ to add connectivity function.
Dialog box is displayed.



Enter a function name.


4. Select **Function User Input**.
5. Click **OK**.

For more information about modifying the drive parameters, refer to *9.3 Modifying drive parameters, page 78*.

For more information about modifying the seating parameters, refer to *9.4 Modifying seating parameters, page 78*.

For more information about setting up a mouse mover, refer to the user manual of the remote.

Copy function

1. Select function you want to copy.
2. 

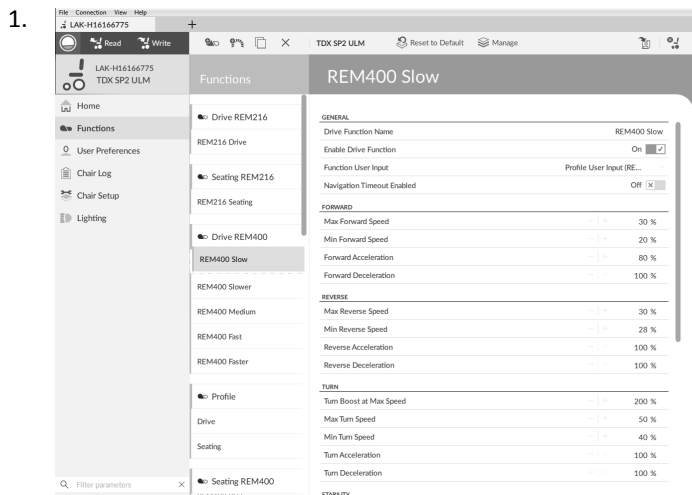
Click on icon Ⓒ.

Copied function appears directly under original function.

3. Edit function as required.

Move function

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



1. Click and hold function you want to move. Function moves slightly up and to the right and a dashed box appears beneath it.
2. Drag function to required position in same or another profile.

Delete function of profile

- A function is deleted immediately when the delete button is clicked.
- A profile cannot be deleted until its functions are deleted.

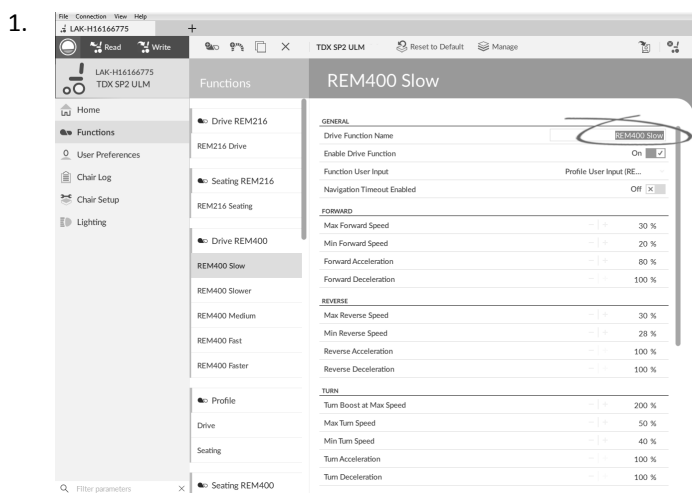
1. Select function or profile you want to delete.
- 2.



Click on icon

9.2 Modifying function and profile names

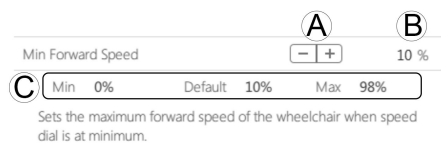
- Only changing **Drive Function Name** displayed. Changing **Seating Function Name, Mouse Mover Function Name or Profile Name** works the same way.



1. Click on function name.
2. Enter new function name.

9.3 Modifying drive parameters

1. Select a parameter to edit.
2. Click on the parameter's name to open the parameter's details. Default, minimum and maximum values will be displayed, as well as the parameter's summary.
3. There are different ways to modify the parameters:



- a. Increment and decrement the parameter with the plus (+) and minus (-) buttons . Click these buttons to change the value in discrete steps or click and hold the buttons to change the value more quickly.
 - b. Double-click on the value and change it directly via the keyboard — press **Enter** to set the value.
 - c. Set the parameter value by clicking on the **Min**, **Default** or **Max** buttons .
- When you edit a parameter's value, its background color will change to indicate that it has changed from its previous value. Once the value is written to the controller (or file), the background will revert to white.
 - When in live edit mode, it might be difficult to see the parameter background changing since the live edit operation can take place very rapidly.

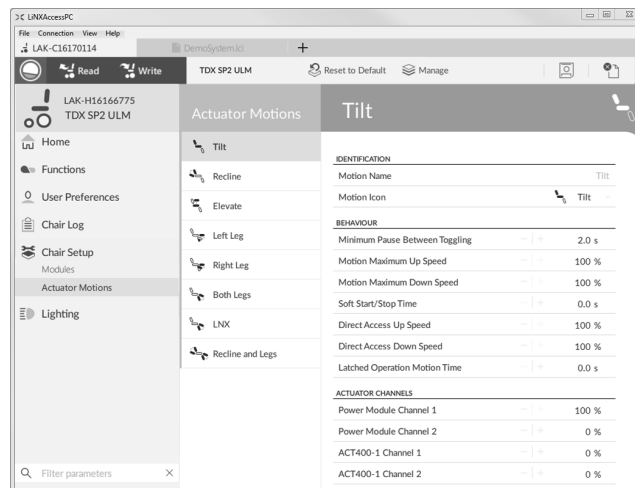
Drop-down list



Click on the drop-down list to select an option.

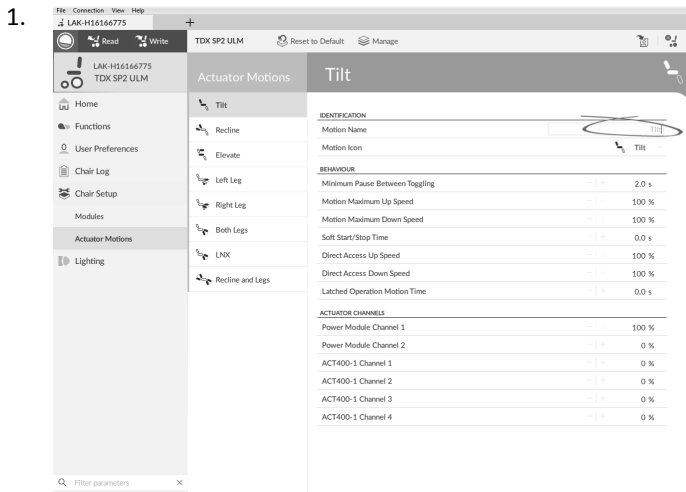
9.4 Modifying seating parameters

Seating motion



1. Open **Chair Setup** → **Actuator Motions** → select seating motion you want to change.

Changing motion name

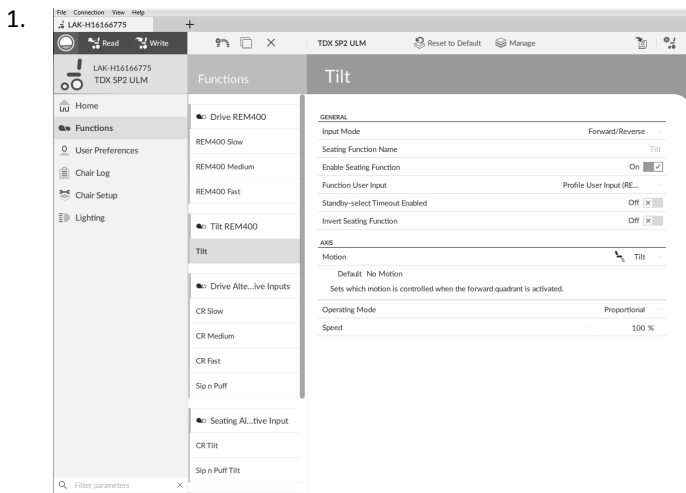


Click on **Motion Name**.

2. Enter new motion name.

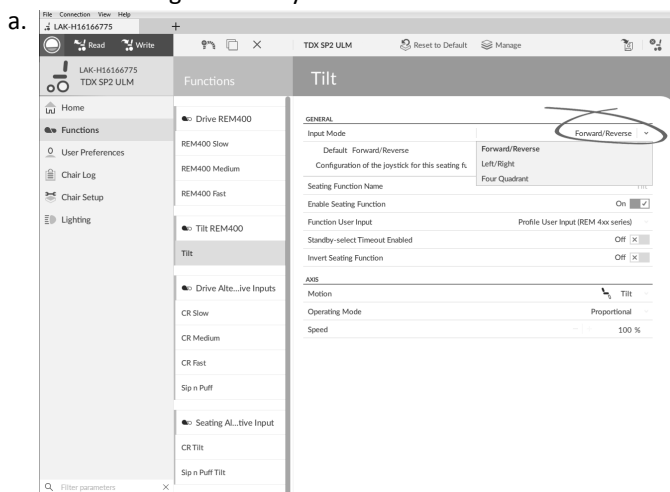
Seating function

This parameter sets how the joystick operates a motion. The joystick can control the motion as a switch or as a proportional controller. There are four switch-type modes and one proportional-type mode.



Click on **Functions**.

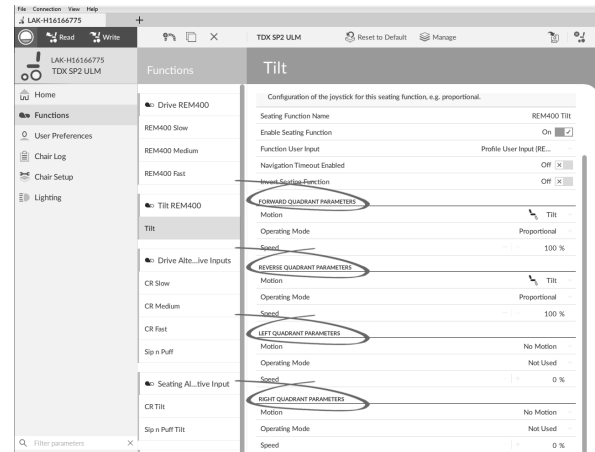
2. Click on seating function you want to edit.



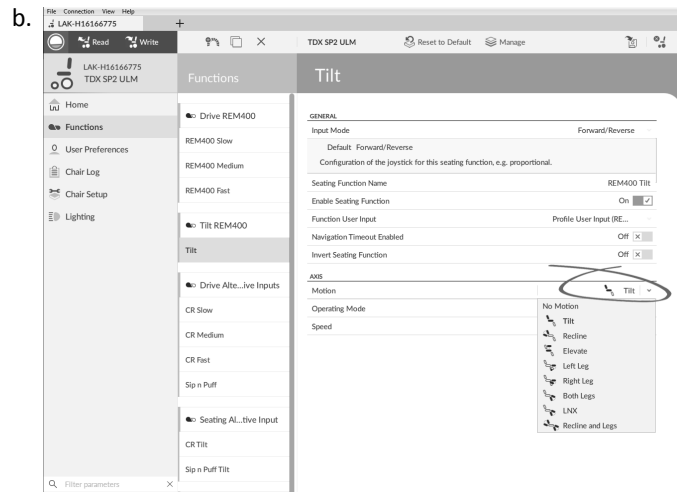
Input Mode: Configuration of user input for this seating function.

- **Forward/Reverse:** Moving joystick forward or reverse to control motion.

- **Left/Right:** Moving joystick left or right to control motion.
- **Four Quadrant:** Using all four joystick quadrants to control motions.



If **Four Quadrant** is selected, all quadrant parameters can be edited individually.



Motion: If the joystick is used to control a motion, then select the motion from the list of available motions.

If the joystick is not used to control a motion, then select **No Motion** from the list.

c. **Operating Mode:**

| Switch-type | Proportional type |
|--|-------------------|
| | |
| Switched | Proportional |
| Latched | |
| Toggle (only available in Four Quadrant operation) | |
| Toggle / latch (only available in Four Quadrant operation) | |

Choose one of the switch-type modes to operate the motion at a fixed speed. The motion is activated when the joystick is deflected past the **Joystick Switch Threshold** **Ⓑ** into either the forward **Ⓐ** or backward **Ⓒ** quadrants. Refer to *7.6 Joystick Switch Threshold, page 64* how to modify the **Joystick Switch Threshold**.

Choose the proportional-type mode to operate the motion at a speed that is proportional to the joystick's position. The motion is activated when the joystick is deflected out of neutral into either the forward **Ⓐ** or backward **Ⓒ** quadrants.

If the joystick is not used to control this motion, then set this parameter to Not Used.

| Operation | Purpose |
|-----------|--|
| Switched | Activates the motion in the extend / retract direction for the duration that the joystick is deflected forwards / backwards and its position is greater than Joystick Switch Threshold. The motion is deactivated when it reaches its end-of-travel or when the joystick's position is less than the Joystick Switch Threshold. |
| Latched | Activates and latches the motion in the extend /retract direction when the joystick is momentarily deflected forwards / backwards across the Joystick Switch Threshold. The motion is deactivated when the motion reaches its end-of-travel or the joystick is deflected again across the Joystick Switch Threshold. |
| Toggle | Activates the motion in one direction (extend or retract) for the duration that the joystick's position is greater than Joystick Switch Threshold. The motion is deactivated when it reaches its end-of-travel or when the joystick's position is less than Joystick Switch Threshold. The direction of the motion toggles between extend and retract for each new activation. |

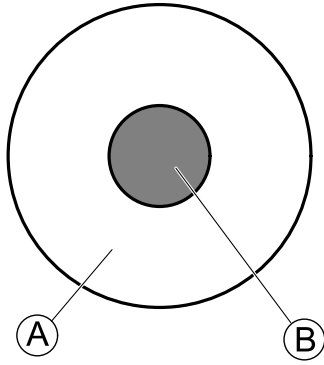
| Operation | Purpose |
|------------------|---|
| Toggle / latched | Activates and latches the motion in one direction (extend or retract) by momentarily deflecting the joystick across the Joystick Switch Threshold. The motion is deactivated when the motion reached its end-of-travel or the joystick is deflected again across the Joystick Switch Threshold. |
| Proportional | Deflecting the joystick forwards /backwards activates the motion in the extend / retract direction for the duration that the joystick is deflected. The motion is deactivated when it reaches its end-of-travel or when the joystick is returned to the neutral position. The speed of this motion is controlled by the amount of deflection from the neutral position and scaled further by using the Speed parameter. |
| Not Used | No operation. |

- d. **Speed:** For the switch-type operations (Switched, Latched, Toggle, Toggle / latched), this parameter applies the speed of the motion when the joystick crosses the **Joystick Switch Threshold**. For the proportional operation, this parameter sets the maximum speed at which the motion will travel when the joystick is deflected to 100 % of its travel. For all other positions of joystick deflection the applied speed will be scaled down accordingly.

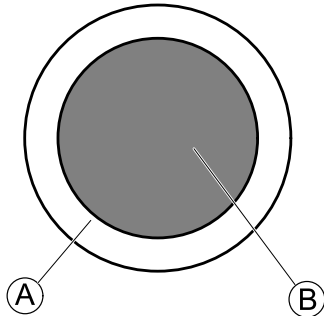
9.5 Joystick Switch Threshold

Sets the percentage of joystick movement required to activate an output when the joystick is operating as a switched input device.

When the joystick is used as a switched input device, this parameter specifies how far the joystick has to be pushed before its state changes (OFF **Ⓑ** to ON **Ⓐ**) and activates an output. The **Joystick Switch Threshold** value is a percentage of the joystick's full travel and should be set according to the user's needs. For example:



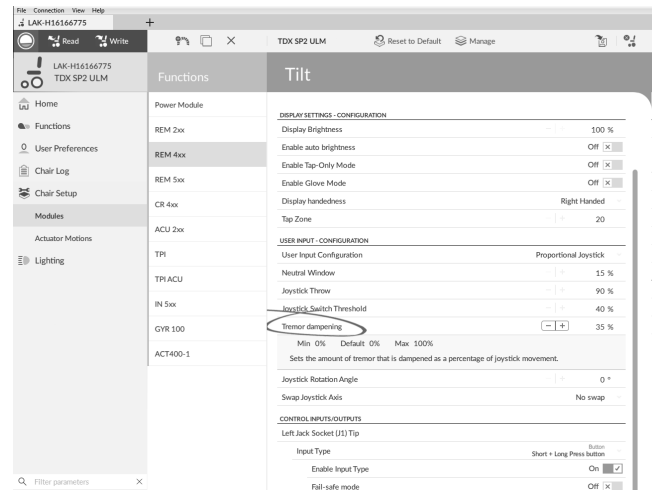
for users that have difficulty moving the joystick , set **Joystick Switch Threshold** to a low value, such as 40 % or less,



for users that lack fine motor control or are subject to hand tremors, set **Joystick Switch Threshold** to a high value, such as 80 %, to avoid unintentional switching.

3. Click on remote you want to edit.
4. Set the desired percentage.

Tremor dampening



Use this parameter to reduce the effect of hand tremors on the joystick. Low values are suitable for users with low frequency (slow) tremors. Higher values will suit users with higher frequency (fast) tremors. Setting the parameter value to 0 % results in no tremor dampening.

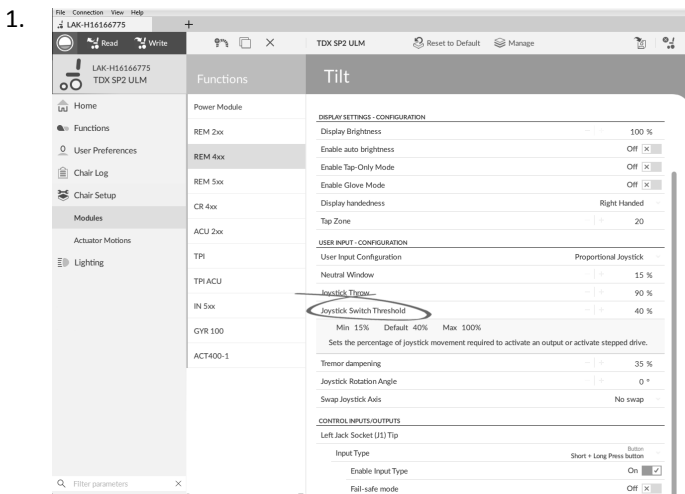
9.6 Setting up a system for latched driving

To set up a wheelchair for latched driving, an external stop switch must be fitted to the wheelchair. Ideally, the external stop switch should be highly visible and easily accessible to provide an extra level of safety and security for the user.

Connect the external stop switch to a control input. Invacare recommends to connect the external stop switch to the input module. The external stop switch should be a single pole, normally-open switch. Mostly latched driving is used in combination with a Sip and Puff array, where the lip switch serves as external stop switch.

Configure external stop switch parameters

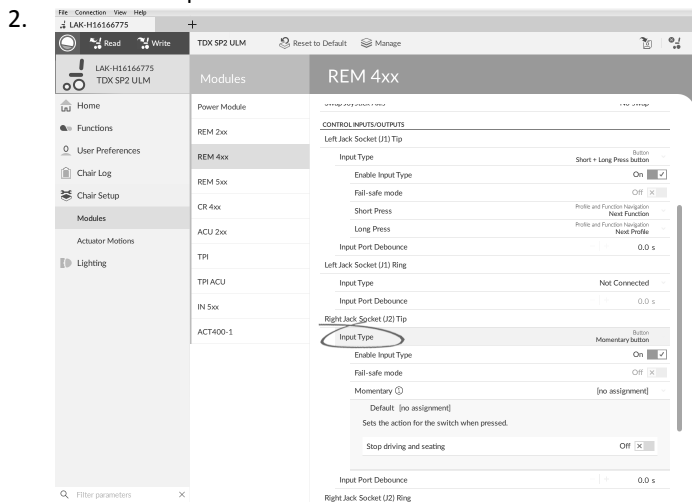
Configure following parameters to set up the external stop switch.



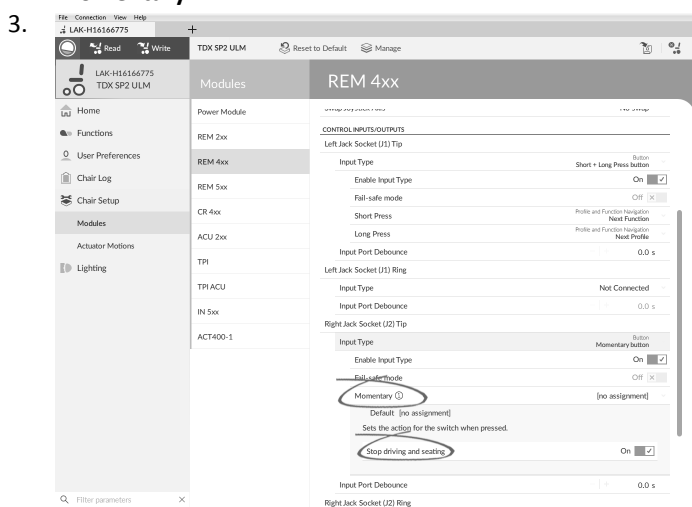
Click on **Chair Setup**.

2. Click on **Modules**.


1. Open **Chair Setup** → **Modules** → desired input to which external stop switch is connected.



Set **Input Type** to desired input, for example, **Momentary**.



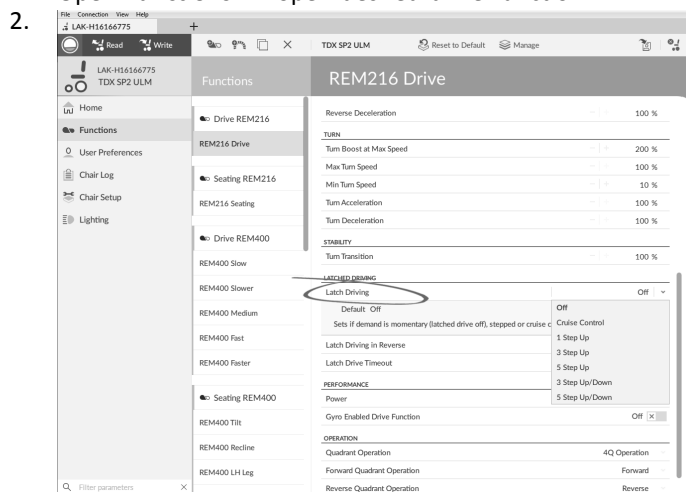
Click on information icon next to **Momentary**. Enable **Stop driving and seating**.

 You do not need to assign a function to the switch.

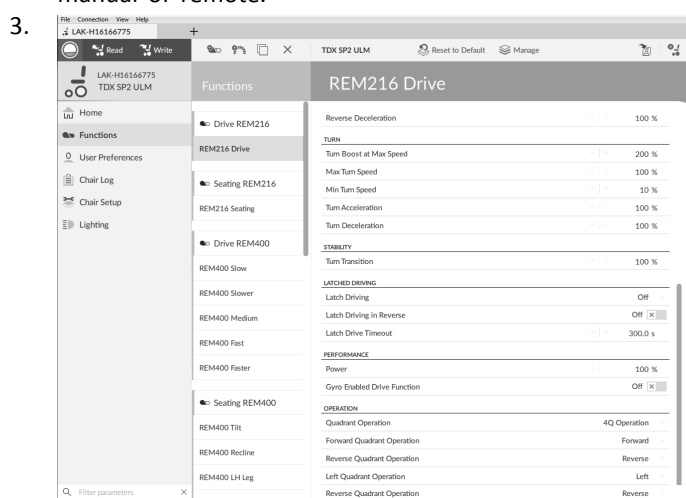
Configure latch drive parameters

The following parameters can be set individually for each drive function.

1. Open **Functions** → open desired drive function.



Set type of latched driving with **Latched Driving**. For more information about types of latched driving, refer to user manual of remote.

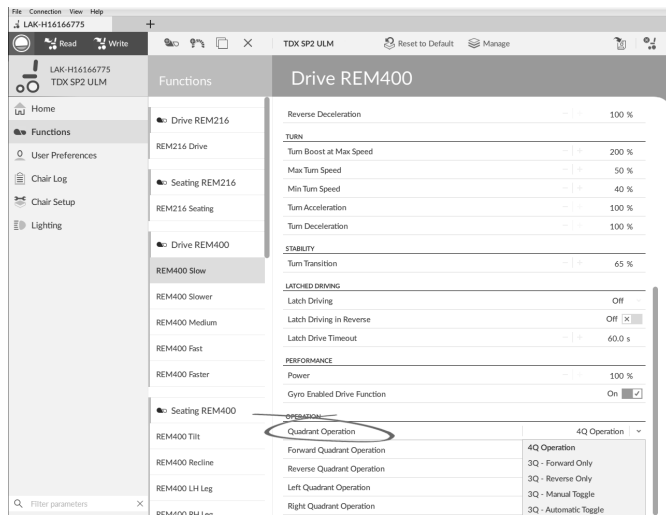


Set **Latched Driving in Reverse** parameter to **On**, to allow latched driving in reverse.

4. Set maximum time that driving is latched without input from user with **Latched Drive Timeout** parameter.

9.7 Adjust quadrant operation

This parameter sets the drive function's user input to operate in 3-quadrant (3Q) or 4-quadrant (4Q) mode. Typically, the 4Q mode is chosen with joystick-based inputs or arrays, that provide 4 quadrants, for example, a Sip and Puff array. The 3Q mode is chosen for user inputs that provide 3 quadrants, for example, a head array.

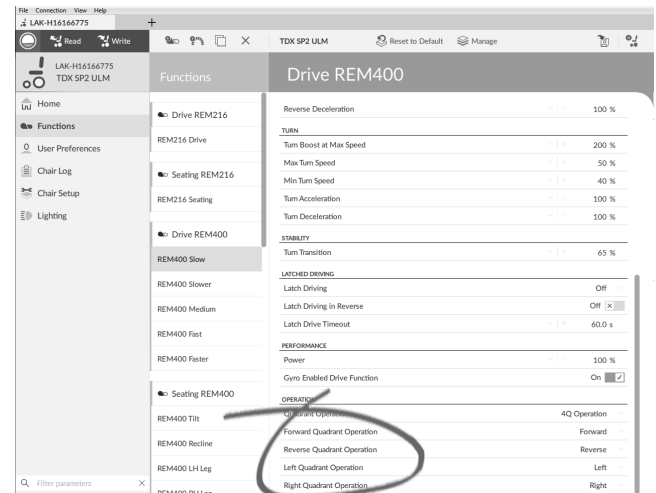


3Q - Automatic Toggle

When **3Q - Automatic Toggle** is selected, the user input can drive the wheelchair forward, reverse, left and right. The forward and reverse directions are controlled by the user toggling the forward quadrant.

If required, each quadrant input can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q - Automatic Toggle** mode.

9.7.1 Adjust drive directions



The options are:

- **4Q Operation**
- **3Q - Forward Only**
- **3Q - Reverse Only**
- **3Q - Manual Toggle**
- **3Q - Automatic Toggle**

4Q Operation

When **4Q Operation** is selected, each quadrant is assigned a unique direction from forward, reverse, left and right, this is the default mode. To change these default directions, the quadrants can be reassigned with a different direction by setting the following parameters:

- **Forward Quadrant Operation**
- **Reverse Quadrant Operation**
- **Left Quadrant Operation**
- **Right Quadrant Operation**

It is not necessary that all quadrants are assigned unique directions. If required, one or more quadrants can share the same direction. For example, **Forward Quadrant Operation** and **Reverse Quadrant Operation** can both be set to **Forward**. For more information about adjusting the drive direction, refer to *9.7.1 Adjust drive directions, page 83*.

3Q - Forward Only

When **3Q - Forward Only** is selected, the user input can drive the wheelchair forward, left and right.

If required, each quadrant can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q - Forward Only** mode.

3Q - Reverse Only

When **3Q - Reverse Only** is selected, the user input can drive the wheelchair reverse, left and right.

If required, each quadrant can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q - Reverse Only** mode.

3Q - Manual Toggle

When **3Q - Manual Toggle** is selected, the user input can drive the wheelchair forward, reverse, left and right. The forward and reverse directions are controlled by the user toggling an external switch.

If required, each quadrant can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q - Manual Toggle** mode.

Forward Quadrant Operation

This parameter sets the direction that the wheelchair moves when the forward quadrant of the user input is selected. Options available are:

- **Forward**
- **Reverse**
- **Left**
- **Right**
- **Ignored**

If **Ignored** is selected, the wheelchair does not move in any direction when the input's forward quadrant is selected.

Reverse Quadrant Operation

This parameter sets the direction that the wheelchair moves when the reverse quadrant of the user input is selected. Options available are:

- **Forward**
- **Reverse**
- **Left**
- **Right**
- **Ignored**

If **Ignored** is selected, the wheelchair does not move in any direction when the input's reverse quadrant is selected.

This parameter is not available when quadrant operation is set to any of the 3Q modes.

Left Quadrant Operation

This parameter sets the direction that the wheelchair moves when the left quadrant of the user input is selected. Options available are:

- **Forward**
- **Reverse**
- **Left**
- **Right**

• Ignored

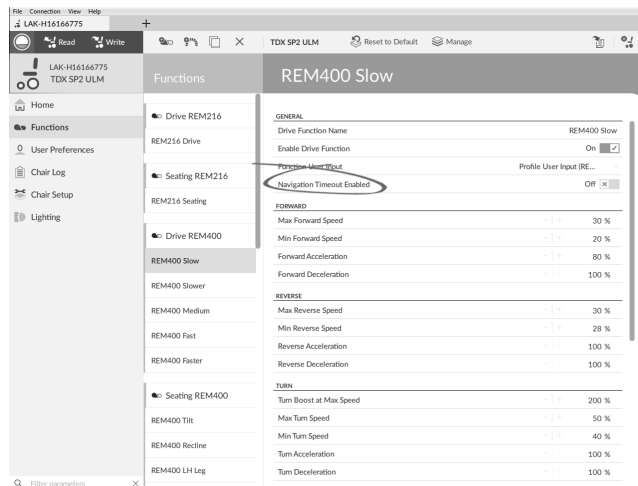
If **Ignored** is selected, the wheelchair does not move in any direction when the input's left quadrant is selected.

Right Quadrant Operation

This parameter sets the direction that the wheelchair moves when the right quadrant of the user input is selected. Options available are:

- Forward
- Reverse
- Left
- Right
- Ignored

If **Ignored** is selected, the wheelchair does not move in any direction when the input's right quadrant is selected.



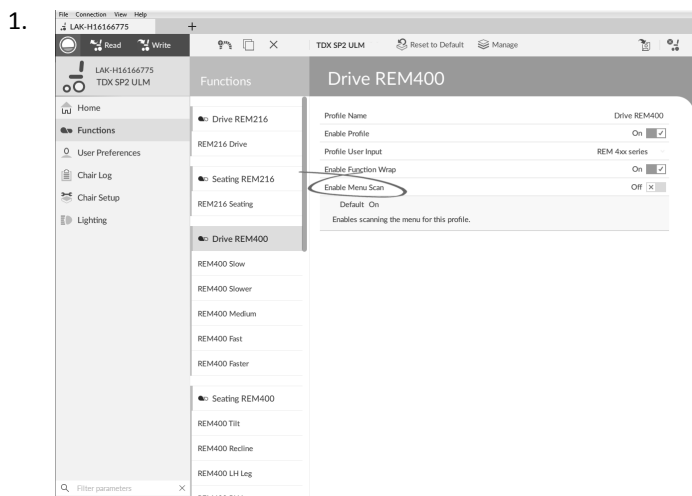
Open Functions → Desired function

9.8 Enable indirect navigation

Depending on which type of indirect navigation should be activated for the user, different main parameters must be enabled.

Steps 1 and 2 must be made in each desired profile and function.

If **Menu Select** without **Navigation Timeout** is enabled, an external switch has to be programmed to enter navigation mode. For more information about programming external switches, refer to 9.9 *Programming external switches, page 85.*

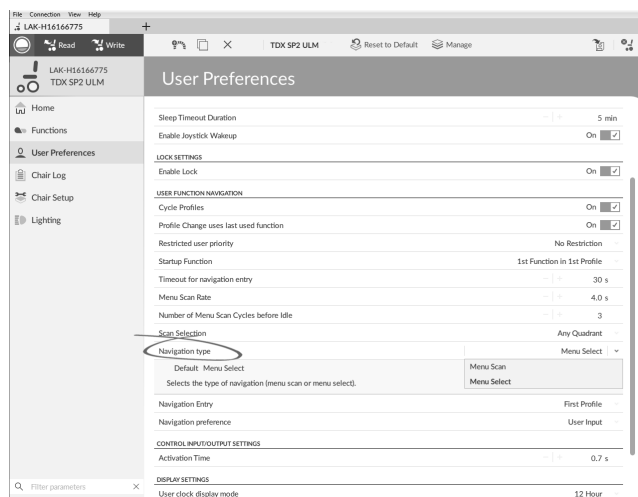


Open Functions → Desired profile

| | |
|---|---|
| Menu Select without Navigation Timeout | Enable Menu Scan Off <input type="checkbox"/> |
| Menu Select with Navigation Timeout | Enable Menu Scan Off <input type="checkbox"/> |
| Menu Scan without Navigation Timeout | Enable Menu Scan On <input checked="" type="checkbox"/> |
| Menu Scan with Navigation Timeout | Enable Menu Scan On <input checked="" type="checkbox"/> |

2.

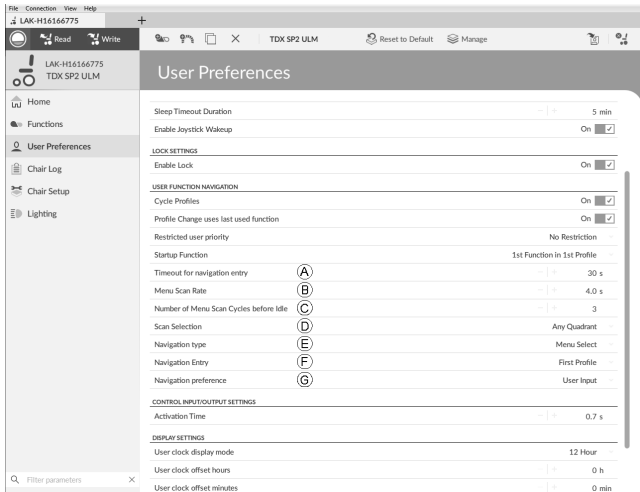
3.



Open User Preferences

| | |
|---|-----------------------------|
| Menu Select without Navigation Timeout | Navigation type Menu Select |
| Menu Select with Navigation Timeout | Navigation type Menu Select |
| Menu Scan without Navigation Timeout | Navigation type Menu Scan |
| Menu Scan with Navigation Timeout | Navigation type Menu Scan |

Other parameters

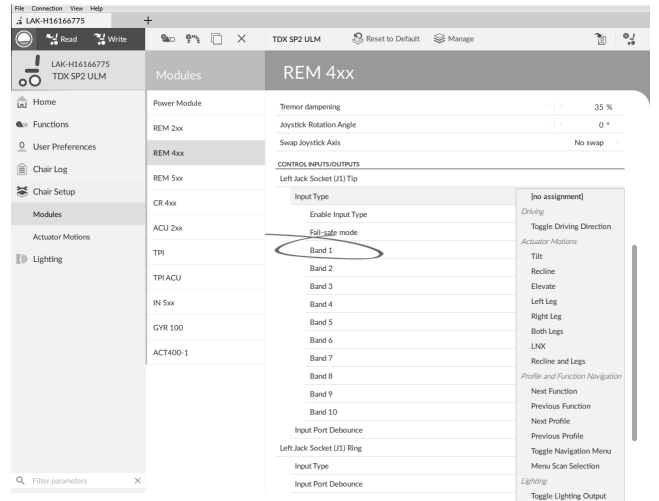


| | |
|---|--|
| A | Timeout for navigation entry: Sets inactivity time required before system enters navigation mode, for navigation mode with Navigation Timeout only. |
| B | Menu Scan Rate: Sets rate at which menu scan iterates through menu, for Menu Scan only. |
| C | Number of Menu Scan Cycles before Idle: Number of times menu is iterated through before going to idle, assuming no user selection, for Menu Scan only. |
| D | Scan Selection: Configures which quadrants of Primary input can be used to make selections, for Menu Scan only. |
| E | Navigation type: Selects type of navigation. |
| F | Navigation Entry: Sets entry point to menu. |
| G | Navigation preference: Selects whether navigation using touch interface has preference over navigation using user input. If user input is selected, display highlights current selection. |

The options are:

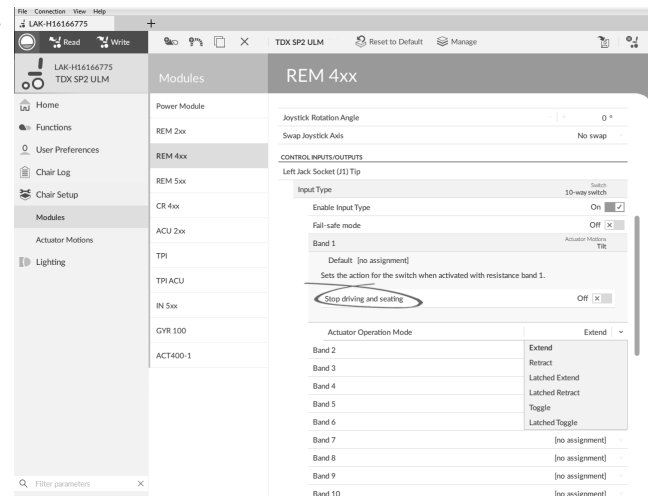
- **Not Connected**
- **10-way switch**
- **17-way switch**
- **Momentary button**
- **Short + Long Press button**

2.



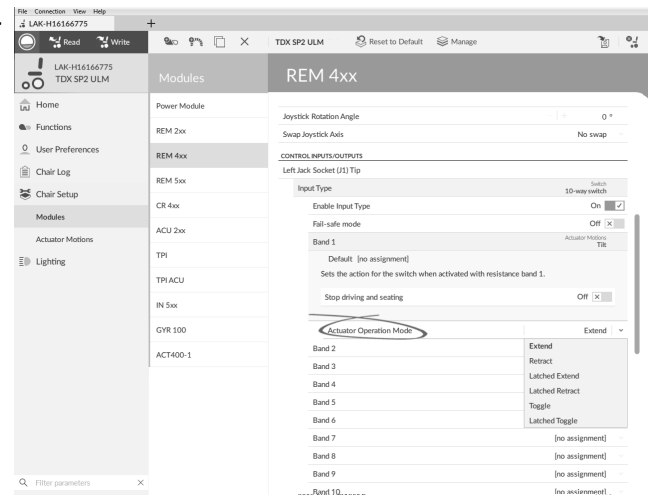
If **10-way switch** or **17-way switch** is selected, assign desired actions to **Band 1** to **Band 10** or **Band 17**.

a.



Open parameter by clicking on parameter name. Select if **Stop driving and seating** should be enabled or not by moving slider. For more information about this parameter, refer to *9.6 Setting up a system for latched driving, page 81*.

b.



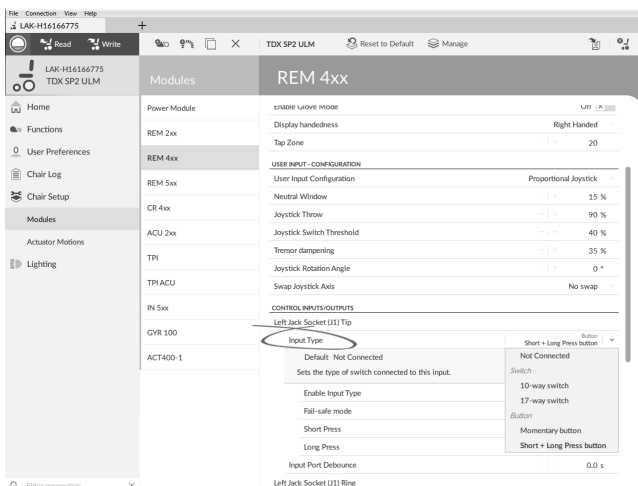
If actuator motion is assigned to parameter, **Actuator Operation Mode** must be selected.

9.9 Programming external switches

There are a lot of possibilities to connect external switches to the system, for example, jack sockets.

It is exemplary described how to program external switches which are connected to the jack sockets of the DLX-REM400 and DLX-REM500.

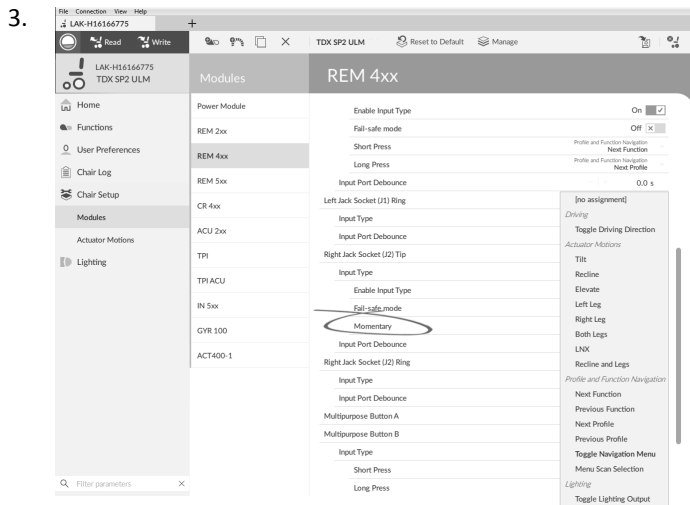
1.



Choose **Input Type**.

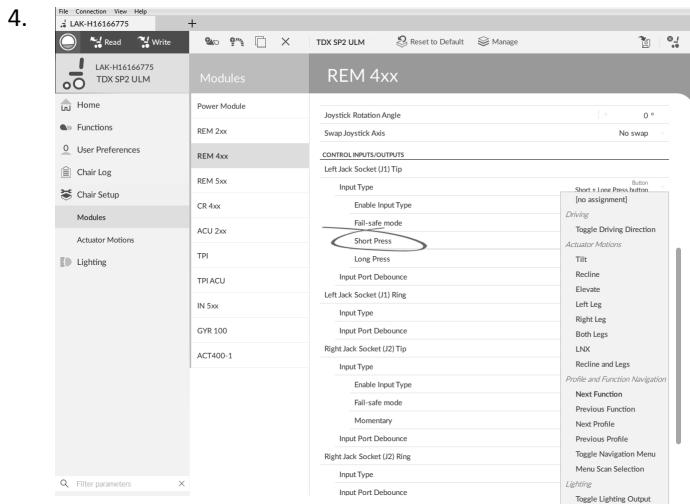
The options are:

- **Extend**
- **Retract**
- **Latched Extend**
- **Latched Retract**
- **Toggle**
- **Latched Toggle**



If **Momentary** button is selected, assign desired action to button.

- Open parameter by clicking on parameter name. Select if **Stop driving and seating** should be enabled or not by moving slider. For more information about this parameter, refer to *9.6 Setting up a system for latched driving, page 81*.
- If actuator motion is assigned to parameter, **Actuator Operation Mode** must be selected.



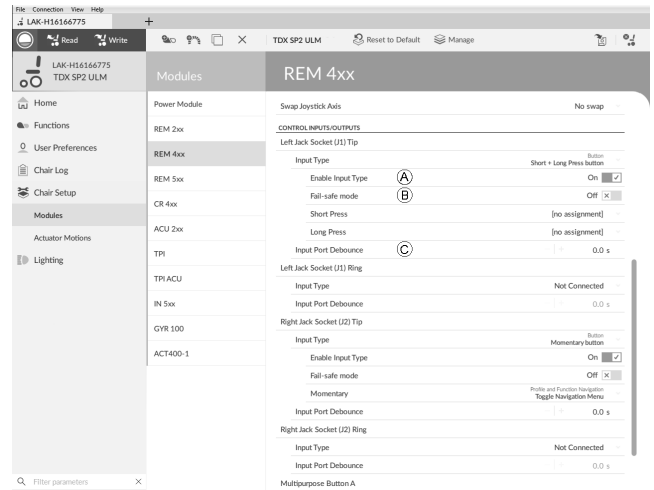
If **Short + Long Press** button is selected, assign desired action to **Short Press** and **Long Press**.

- If actuator motion is assigned to parameter, **Actuator Operation Mode** must be selected.



If the external switch should be used to enter indirect navigation, assign **Toggle Navigation Menu** action to parameter.

Other parameters



| | |
|---|---|
| A | Enable Input Type: When set, Input Type is enabled. |
| B | Fail-safe mode: When turned on, external switch must not be removed from input, otherwise wheelchair does not drive. |
| C | Input Port Debounce: This parameter determines when to response to input. If input signal is present for a duration less than time set by parameter, controller does not response to it. |

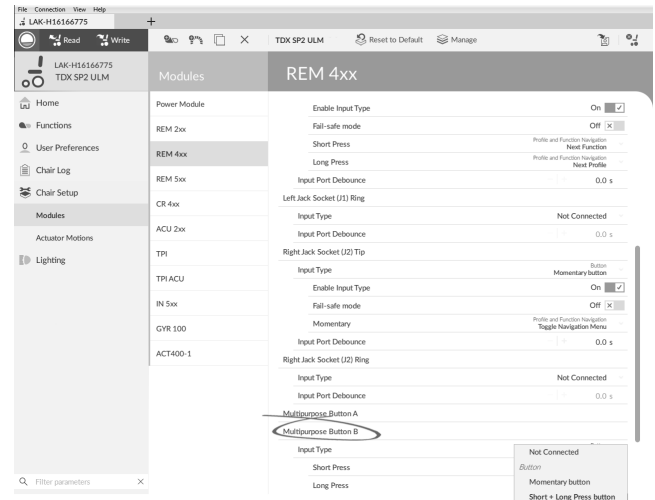


Input Port Debounce can be useful when, for example, the controller needs to ignore spurious signals such as those generated by a ball switch when driving over rough terrain.

9.10 Programming multipurpose buttons

Programming the multipurpose buttons is similar to programming external switches.

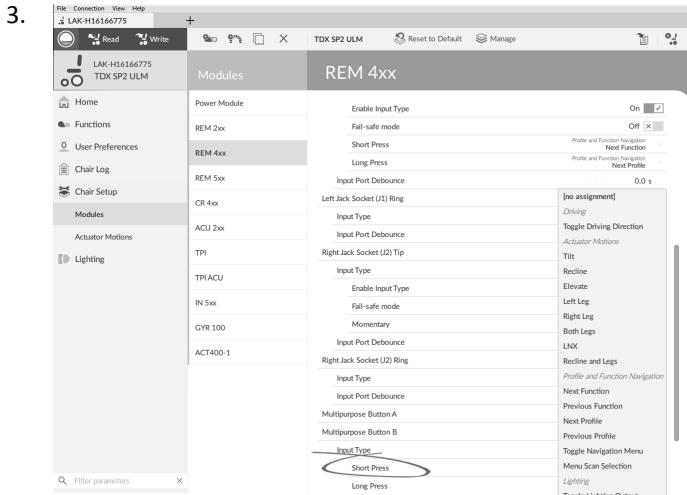
- Open **Chair Setup** → **Modules** → **REM 4xx** or **REM 5xx**.
-



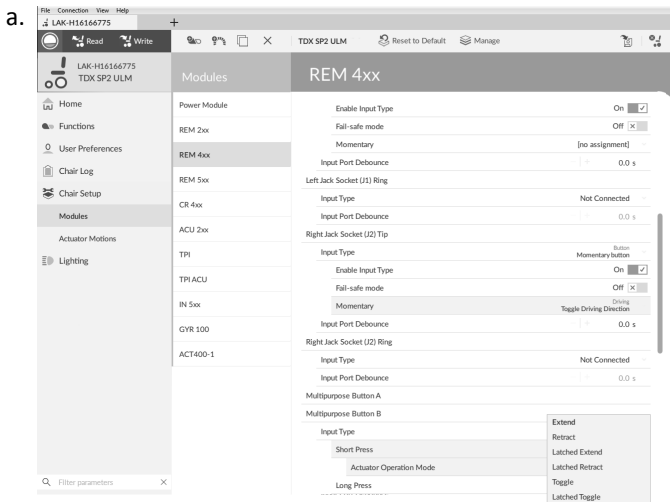
Choose **Input Type**.

The options are:

- **Not Connected**
- **Momentary button**
- **Short + Long Press button**



If **Short + Long Press button** is selected, assign desired action to **Short Press and Long Press**.



If actuator motion is assigned to parameter, **Actuator Operation Mode** must be selected. The options are:

- **Extend**
- **Retract**
- **Latched Extend**
- **Latched Retract**
- **Toggle**
- **Latched Toggle**

4. If **Momentary button** is selected, assign desired action to button.
 - a. If actuator motion is assigned to parameter, **Actuator Operation Mode** must be selected.

9.11 Installing / Setting up alternative inputs

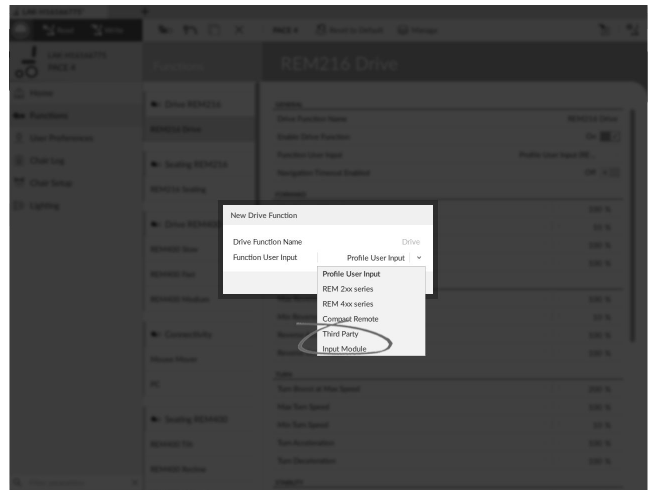
There are different types of alternative inputs, that interface differently to the system. Connect the components to the particular inputs, see table below.

| Component | Input |
|--------------------------------|--------------------|
| Sip and Puff | Input Module IN5xx |
| Sip and Puff Head Array | Input Module IN5xx |
| Pediatric Compact Joystick | Input Module IN5xx |
| Head Array | TPI |
| Chin control | TPI |
| Compact Single Switch Joystick | TPI |
| Four Switch Proximity Array | TPI |
| Remote Stop Switch | Power Module |

To install a Remote Stop Switch, just connect to the Power Module using the interface cable and to the 4-way connector using the Bus cable, see wiring diagram 3.8 *Wiring diagrams*, page 16. Programming is not necessary.

Programming

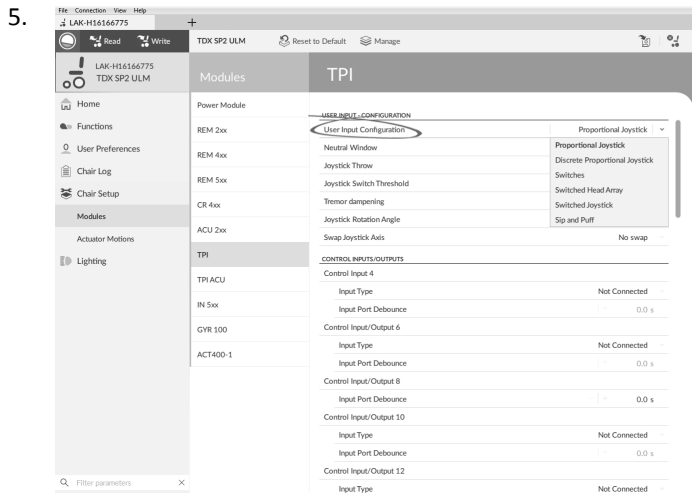
1. **Open Functions.**
2. Add new profile or add user function to existing profile. For more information about adding profiles and functions, refer to 9.1 *Profile and function actions*, page 77.
- 3.



Set **Function User Input** to **Input Module** or to **Third Party**, depending on component input.

Same procedure for drive, seating and connectivity functions.

4. Open **Chair Setup** → **Modules** → **IN 5xx** or **TPI**, depending on component input.




Set **User Input Configuration** to desired component.

Options are:

- Proportional Joystick: Pediatric Compact Joystick, Chin Control, Compact Single Switch Joystick
- Discrete Proportional Joystick: not used
- Switches: Four Switch Proximity Array , Sip and Puff Head Array
- Switched Head Array: Head Array
- Switched Joystick: not used
- Sip and Puff: Sip and Puff

6. Depending on component, modify other parameters. For switched inputs, such as Sip and Puff, parameters are found under **User Preferences**, refer to *4.2.1 Overview User Preferences, page 42*.

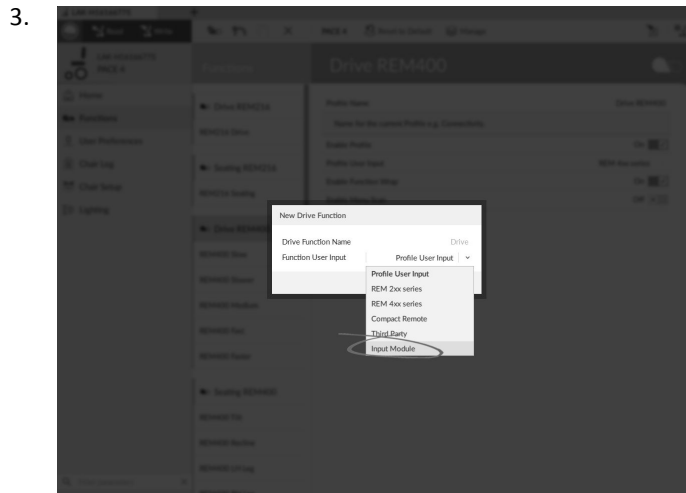
 For more information about installing a Sip and Puff, refer to *9.12 Sip and Puff installation, page 88*.

9.12 Sip and Puff installation


A Sip and Puff module is included in the input module.

A Sip and Puff module provides the user with the ability to activate four digital inputs with their breath via a tube depending on pressure level, hard or soft, and direction, sip or puff. These inputs can be used to control driving or seating actions.

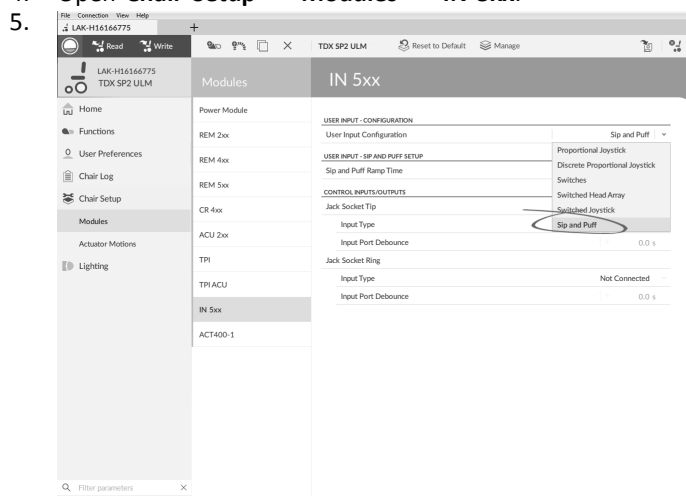
1. Open **Functions**.
2. Add user function for Sip and Puff module. For more information about adding profiles and functions, refer to *9.1 Profile and function actions, page 77*.



Set **Function User Input** to **Input Module**.

 Same procedure for drive, seating and connectivity functions.


4. Open **Chair Setup** → **Modules** → **IN 5xx**.



Set **User Input Configuration** to **Sip and Puff**.

6. Calibrate Sip and Puff module, refer to *9.12.1 Sip and Puff calibration, page 88*.
7. Open **User Preferences** to adjust veer behavior for switched inputs. For more information refer to *4.2.1 Overview User Preferences, page 42*.

9.12.1 Sip and Puff calibration

 Primary input operations, such as driving, are disabled when using the calibration tool. This is for safety reasons to prevent unintended operation when calibrating.

There are three pressure zones for each pressure direction (sip and puff):

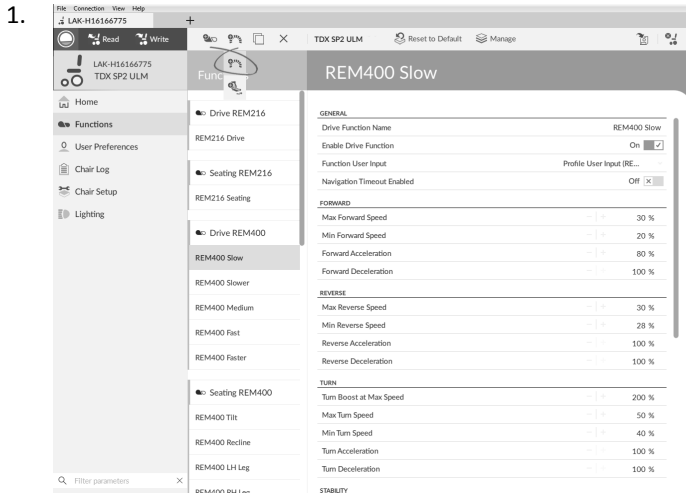
- Neutral zone,
- soft zone and
- hard zone.

The Sip and Puff module's response to a sip or puff input, depends on which zone the pressure falls within: hard or soft. Pressures within the neutral zone are ignored.

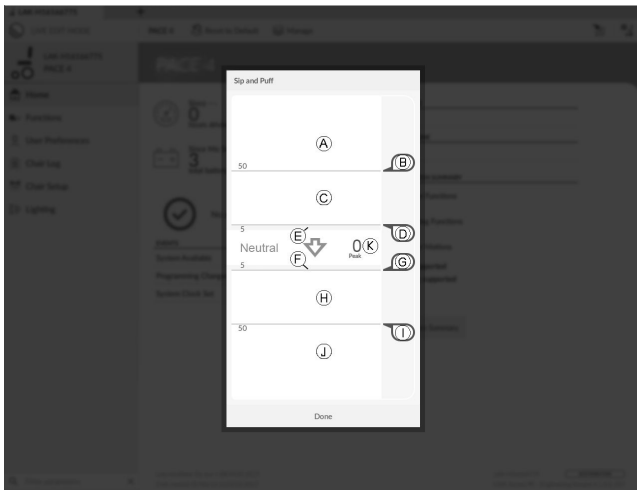
Since all users have different capabilities, the Sip and Puff module can be calibrated to change the size and position of these zones. The zones need to be set so that a user can control the wheelchair comfortably and consistently. A Sip and Puff calibration tool is used to determine the pressure thresholds that define the zones. These thresholds are:

- Minimum limit for soft puff,
- minimum limit for hard puff,
- minimum limit for soft sip and
- minimum limit for hard sip.

To calibrate the Sip and Puff module, you have to record pressure measurements from a series of pressure samples performed by the user and adjust the four pressure thresholds accordingly.



1. Open **Connection** in menu bar.
2. Select **Sip and Puff Calibration**.
- 3.



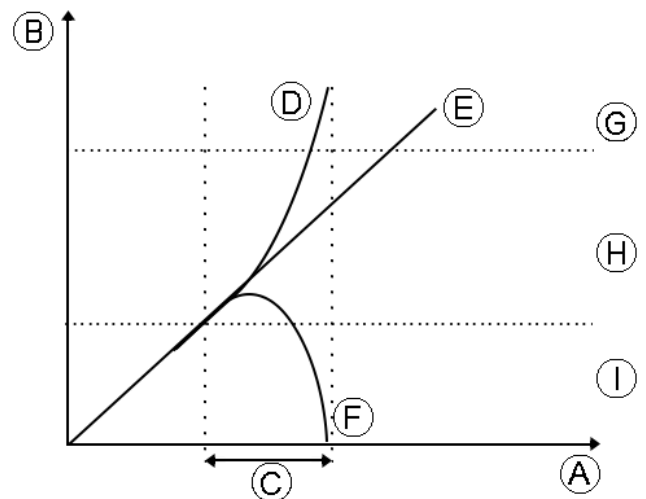
| | |
|---|--|
| Ⓐ | Hard zone for puff input |
| Ⓑ | Threshold slider to adjust minimum limit for hard puff |
| Ⓒ | Soft zone for puff input |
| Ⓓ | Threshold slider to adjust minimum limit for soft puff |
| Ⓔ | Neutral zone for puff input |
| Ⓕ | Neutral zone for sip input |
| Ⓖ | Threshold slider to adjust minimum limit for soft sip |
| Ⓗ | Soft zone for sip input |
| Ⓘ | Threshold slider to adjust minimum limit for hard sip |
| Ⓙ | Hard zone for sip input |

4. User performs hard puff, soft puff, hard sip and soft sip in no specific order. For each sip and puff, a pressure level Ⓚ is recorded on calibration tool. Based on these recorded levels, you determine best level at which to set each pressure threshold.
5. Drag corresponding Threshold sliders.
 - For soft puff, drag threshold slider ⓓ to position just below user's soft puff. Any subsequent pressure below threshold slider ⓓ is in neutral zone Ⓟ and is ignored. Pressure above threshold slider ⓓ and below threshold slider Ⓑ is in soft zone Ⓒ and determined a soft puff.
 - For hard puff, drag threshold slider Ⓑ to position just below user's hard puff. Pressure below threshold slider Ⓑ is not considered as hard puff. Pressure above threshold slider Ⓑ is in hard zone Ⓐ and determined as hard puff.
 - For soft sip, drag threshold slider ⓐ to position just above user's soft sip. Any subsequent pressure above threshold slider ⓐ is in neutral zone Ⓠ and is ignored. Pressure below threshold slider ⓐ and threshold slider Ⓢ is in soft zone Ⓗ and determined as soft sip.
 - For hard sip, drag threshold slider Ⓢ to position just above user's hard sip. Pressure above threshold slider Ⓢ is not considered as hard sip. Pressure below threshold slider Ⓢ is in hard zone Ⓡ and determined as hard sip.

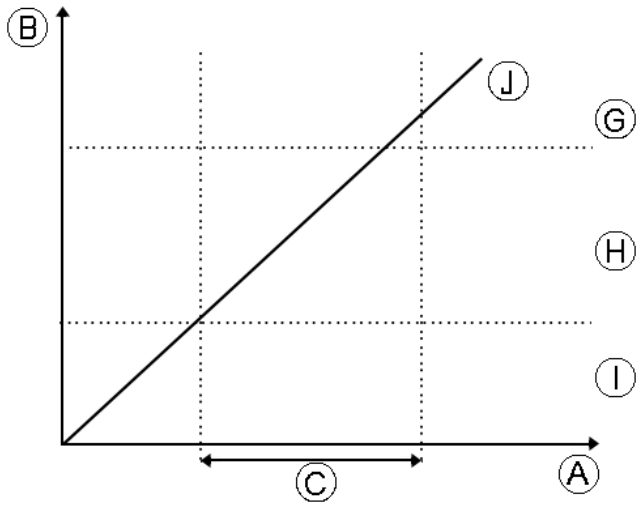
Sip and Puff Ramp Time

The **Sip and Puff Ramp Time** defines the amount of time that a pressure input must remain in the soft zone before it is registered as a soft sip or puff. Consequently, it also provides:

- Time for a user to cross from the neutral zone to the hard zone and
- a filter for any noise (unintentionally pressures) at the zone boundaries.



The ramp time Ⓒ begins at the point where the pressure input ⓓ, Ⓟ or Ⓠ crosses into soft zone Ⓗ — either from neutral zone Ⓢ, when pressure is increasing, or from hard zone Ⓙ, when pressure decreases. A pressure input ⓓ that reaches the hard zone before ramp time expires, is registered as a hard sip or puff. A pressure input Ⓟ within soft zone at the end of ramp time is registered as a soft sip or puff. Pressure inputs Ⓠ that fall away into neutral zone before ramp time expires are not registered as an input.



When setting **Sip and Puff Ramp Time**, consideration should be given to users, who cannot produce a hard sip or puff within the ramp time. If ramp time is set too low, a user may not be able to reach the hard zone ⑥ in time and a soft sip or puff is registered instead of the intended hard sip or puff. For users who need more time to reach hard zone, the ramp time ③ needs to be extended, so the pressure input ① is registered as a hard sip or puff.

1. Open **Chair Setup** -> **Modules** -> **IN 5xx**.
2. Adjust **Sip and Puff Ramp Time**.

10 Diagnostics

Dagnostic options:

- System Summary
- Active Errors
- Event Log
- Chair Statistics
- Real-time diagnostics

10.1 Viewing System Summary



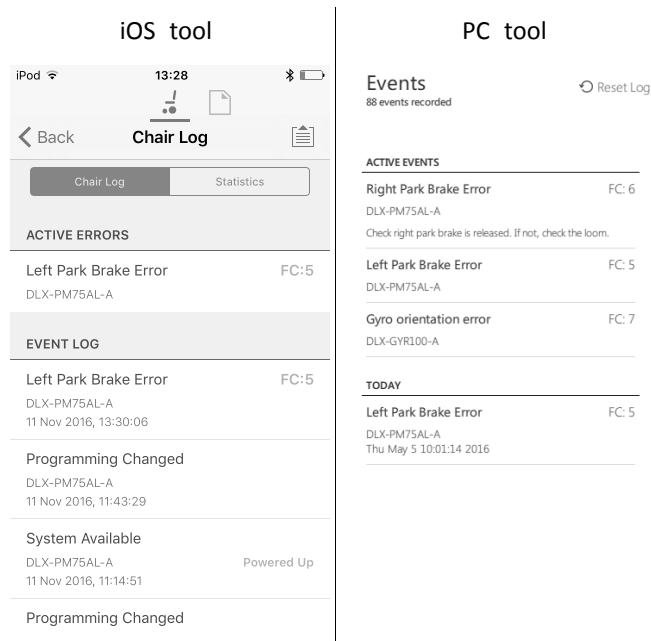
Click on the **System Summary** button to view the **System Summary** screen.

The **System Summary** screen displays details of the system's connected modules, such as:

- Connected modules
- Module software version
- Module serial number
- Access Level of LiNX Access Key

Click on **Back** or **Close** button, to exit the **System Summary**.

10.2 Viewing Active Errors



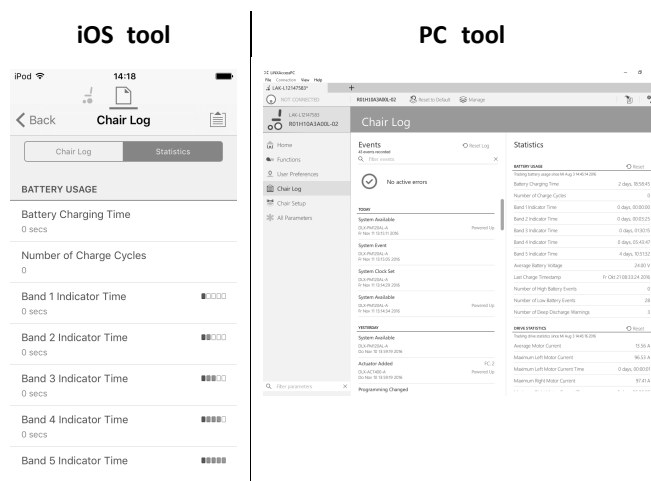
Click on the **Active Errors** button to view which errors, if any, are current. Each entry in this log displays the error, its flash code (e.g. FC5) and the component where the error is. Click on the error entry to reveal an error description with more helpful information about the error.

Click on **Back** or **Close** button to exit **Active Errors**.

10.3 Viewing Chair Statistics

Go to **Chair Log** to view a comprehensive list of current system statistics. The chair statistics are divided into the following sections:

- Battery usage
- Drive statistics



Reading battery usage

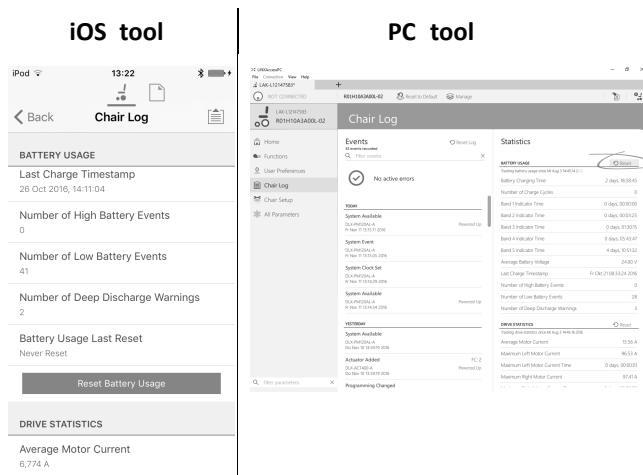
To view more information about a battery statistic, click on a statistic and a helpful description is displayed in the local help panel.

The available statistics are detailed in the following table.

| Battery usage statistics | Details |
|-----------------------------------|--|
| Battery Charging Time | The time that 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 a state of charge between 20 and 40%. |
| Band 3 Indicator Time | The total time the LiNX system is operated with a state of charge between 40 and 60%. |
| Band 4 Indicator Time | The total time the LiNX system is operated with a state of charge between 60 and 80%. |
| Band 5 Indicator Time | The total time the LiNX system is operated with a 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 when 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. |
| Battery Usage Last Reset | Date when these statistics were last reset. |

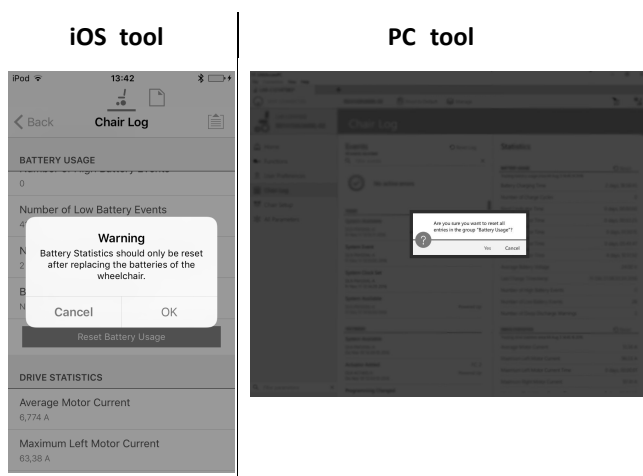
Resetting battery usage

1.



Click on **Reset Battery Usage** button.

2.



Click on **OK** or **Yes** to continue.

Reading drive statistics

To view more information about a drive statistic, click on the statistic and a description is displayed in the local help panel.

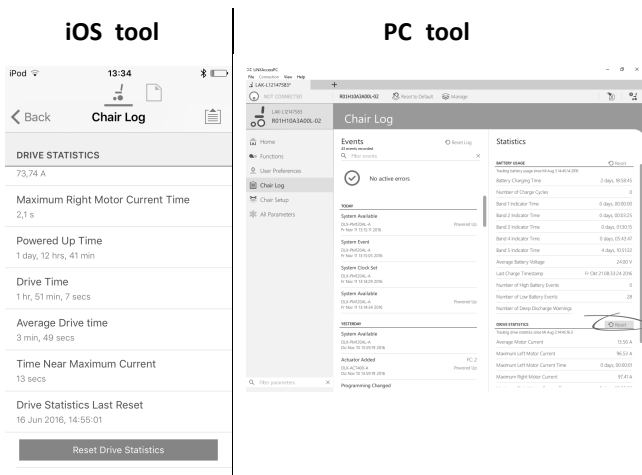
The available statistics are detailed in the following table.

| 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 that the wheelchair controller is powered up. |
| Drive Time | The total time that the wheelchair has been driven. |
| Average Drive Time | Average drive time. |

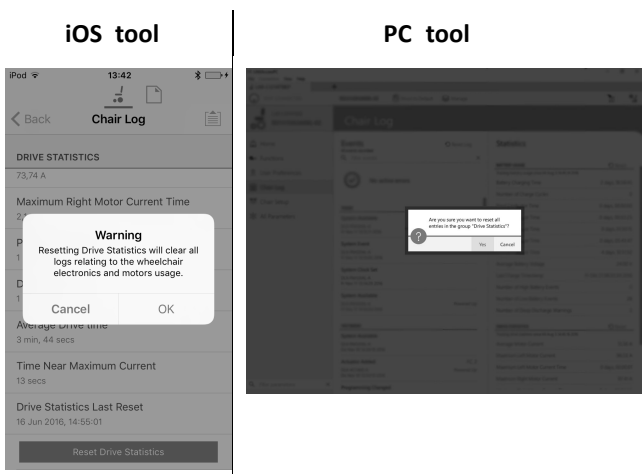
| | |
|-----------------------------|---|
| Drive statistic | Details |
| Time Near Maximum Current | The duration the current was within 20% of maximum threshold. |
| Drive Statistics Last Reset | Date when these statistics were last reset. |

Resetting drive statistics

1.



2.



Click on **OK** or **Yes** to continue.

Click on **Back** or **Close** button to exit the **Chair Statistics**

10.4 Viewing real-time diagnostics

The real-time diagnostics are only available when the LiNX Access iOS tool is connected to a wheelchair.

Click on the **Real Time Diagnostics** button to view the following real-time graphs and data.

- Speed demand (%)
- Turn Demand (%)
- Left Motor
 - Voltage (V)
 - Current (A)
 - Resistance (mΩ)
- Right Motor
 - Voltage (V)
 - Current (A)
 - Resistance (mΩ)
- Battery Voltage (V)
- Speed Dial (%)

Click on **Back** button to exit **Real Time Diagnostics**.

10.5 Clearing the event log

This feature is only available when a wheelchair is in **Connection context** mode.

PC tool



To clear the event log, click on the **Reset Log** button at the top of the logs.

Invacare Sales Companies

Australia:

Invacare Australia PTY. Ltd.
1 Lenton Place, North Rocks NSW
2151
Australia
Phone: 1800 460 460
Fax: 1800 814 367
orders@invacare.com.au
www.invacare.com.au

United Kingdom:

Invacare Limited
Pencoed Technology Park, Pencoed
Bridgend CF35 5AQ
Tel: (44) (0) 1656 776 222
Fax: (44) (0) 1656 776 220
uk@invacare.com
www.invacare.co.uk

Canada:

Invacare Canada LP
570 Matheson Blvd E. Unit 8
Mississauga Ontario
L4Z 4G4, Canada
Phone: (905) 890 8300
Fax: (905) 501 4336

Eastern Europe, Middle East & CIS:

Invacare EU Export
Kleiststraße 49
D-32457 Porta Westfalica / Germany
Tel: (49) (0)57 31 754 540
Fax: (49) (0)57 31 754 541
webinfo-eu-export@invacare.com
www.invacare-eu-export.com

Ireland:

Invacare Ireland Ltd,
Unit 5 Seatown Business Campus
Seatown Road, Swords, County Dublin
Tel : (353) 1 810 7084
Fax: (353) 1 810 7085
ireland@invacare.com
www.invacare.ie

New Zealand:

Invacare New Zealand Ltd
4 Westfield Place, Mt Wellington 1060
New Zealand
Phone: 0800 468 222
Fax: 0800 807 788
sales@invacare.co.nz
www.invacare.co.nz



Manufacturer:

Invacare Deutschland GmbH
Kleiststraße 49
D-32457 Porta Westfalica
Germany

