

Invacare[®] LiNX

en Controls System Service Manual



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

Yes, you can:

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1 General

1.1 Introduction

This document contains important information about assembly, adjustment and advanced maintenance of the product. To ensure safety when handling the product, read this document and the user manual carefully and follow the safety instructions.

Find the user manual on Invacare's website or contact your Invacare representative. See addresses at the end of this document.

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

Before reading this document, make sure you have the latest version. You find the latest version as a PDF on the Invacare website.

For pre-sale and user information, see the user manual.

For more information about the product, for example product safety notices and product recalls, contact your Invacare representative. See addresses at the end of this document.

1.2 General Information

Service and maintenance work must be carried out taking this document into account.

Note that there may be sections in this document, which are not relevant to your product, since this document applies to all available models (on the date of printing). If not otherwise stated, each section in this document refers to all models of the product.

The models and configurations available in your country can be found in the country-specific sales documents.

It is imperative that you observe safety information.

Information about operation or about general maintenance and care work on the product should be taken from service manual.

Assembly of accessories might not be described in this document. Refer to the manual delivered with the accessory. Additional manuals can be ordered from Invacare. See addresses at the end of this document.

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.

The product 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 your provider.

1.3 Symbols in This Manual

Symbols and signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. See the information below for definitions of the signal words.



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.

NOTICE

Tips

Tools

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.

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Identifies required tools, components and items which are needed to carry out certain work.

Other Symbols

(Not applicable for all manuals)



UK Responsible Person Indicates if a product is not manufactured in the UK. Triman

Indicates recycling and sorting rules (only relevant for France).

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.

 $\mathring{\parallel}$ The information contained in this document is subject to change without notice.

2.2 Safety notes on the electrical system

WARNING!

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.

Â

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 da

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 ±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

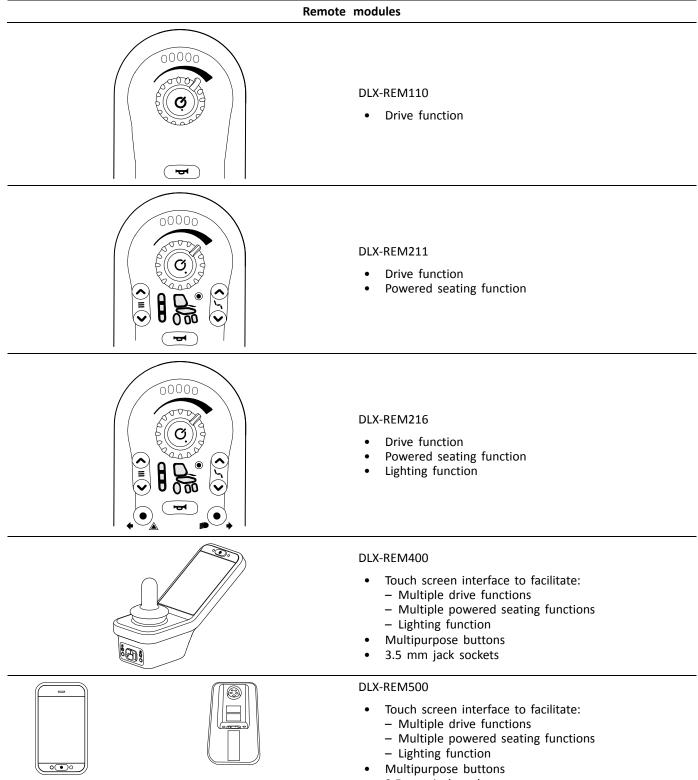
3.2 Imperial to metric conversion chart

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
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

IMPERIAL	METRIC
inch	mm
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

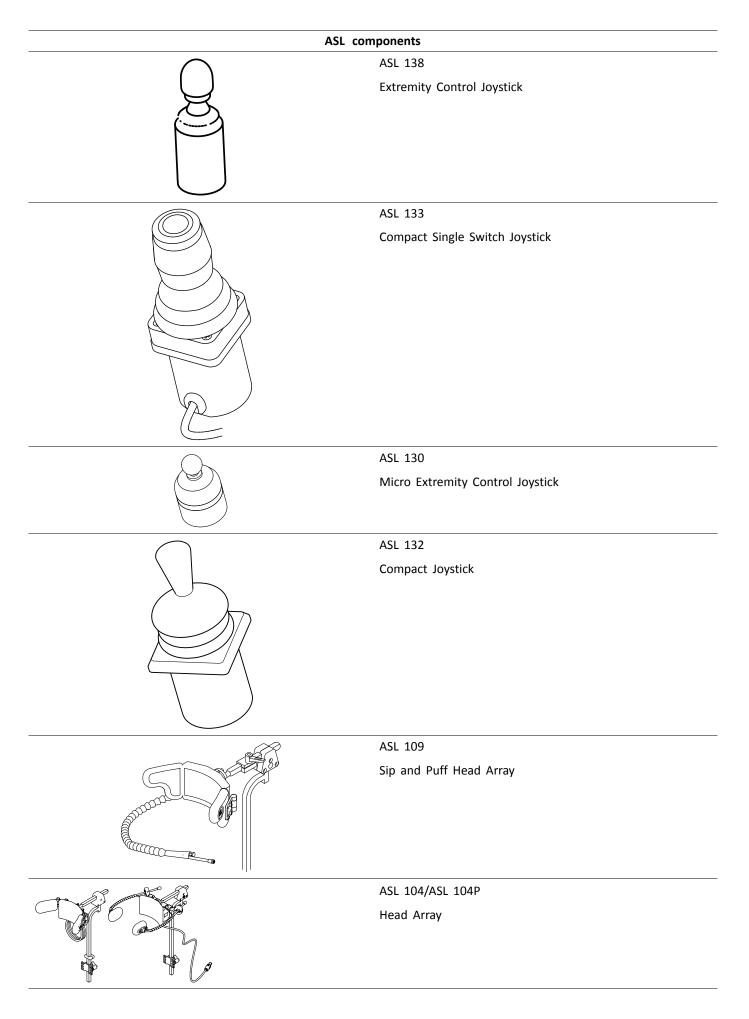
3.3 Overview Components



• 3.5 mm jack sockets

Secondary remote modules LINX IDC Intuitive Dual Control On/Off button • • Speed dial Display for drive direction indicator • DLX-CR400 **Compact Remote** ଁ୦ Ξ On/Off button ٠ 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 **(()**) Ξ On/Off respectively Select button • • Menu button • Display for drive and seating functions and "who's in charge" indication DLX-REM050 00000 Attendant control unit with drive function • **Pot** O.

Jo To



ASL components		
	ASL 106	
	Four Switch Proximity Array	
	ASL 504 Remote Stop Switch	
00000	 Wireless Accessories for ATOM: Wireless Mouse Emulator ASL 558 Wireless Triple Switch Receiver ASL 557-3 	
P	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	
	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	g 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
	 DLX-IN200 Input module DB9 connector for proportional and switched inputs 12 V (200 mA) power supply Jack input (stereo) 2 x LiNX bus connector Activity indicator displaying input demands
	 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
	 DLX-OUT500 Output module DB9 connector for switched outputs Jack output (stereo) 2 x LiNX bus connector Status indicator
	Bus cable; length from 300 up to 2500 mm
	Extension loom; length 640 and 900 mm
Powere	d seating accessories
	ASL300 Egg switch • Momentary switch • Normally open • Mono jack
	Stereo button switch • 2 switches • Stereo jack

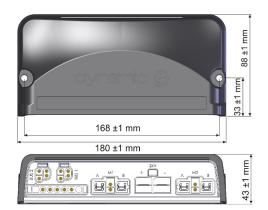
Powered seating accessories		
\bigcirc	Stereo toggle switch Toggle switch 	
	Normally openStereo jack	
\bigcirc	4–way button switch	
	 4 switchesDB9 connector	
	4-way toggle switch	
	4 toggle directionsDB9 connector	
	10–way switch	
	 Hardware-only module that provides simple, direct access to powered seating functions 	
	DLX-FKEY01	
200	 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	
₩ <u> </u>	stabilizes wheelchair's driving behaviour	
The second se	DLX-USB02 LiNX USB charger	
	 2 USB charger ports 1 A charging current per port Protective rubber bungs 	
	DLX-TILT201–A Angle sensor	
	measures backrest angle	

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

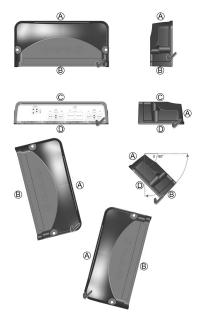
DLX-PM60, DLX-PM75, DLX-PM120



DLX-PM75AL, DLX-PM120AL



Correct mounting



- (A) Rear
- (B) Connectors
- © Top
- D 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 (B) facing downwards, so that the connector recesses will not collect or retain foreign matter or liquids.

Incorrect mounting



- (A) Rear
- B Connectors
- © Top
- D 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 (A) and DLX-ACT200/400 (B) 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.

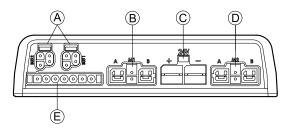
Rear Wh	eel Drive	Center W	heel Drive
AVIVA RX with Modulite seat	B	Pronto M41, TDX SP2, TDX SP2 narrow base, TDX SP2 wide base with Modulite seat	
AVIVA RX with Ultra Low Maxx seat		TDX SP2 narrow base and TDX SP2 wide base with Ultra Low Maxx seat	
Bora/Spectra XTR, Spectra XTR HD w/o lifter/tilt module	A B		

Rear Wh	eel Drive	Center Wheel Drive
Bora/Spectra XTR, Spectra XTR HD w lifter/tilt module	B	
Fox	A B	
Kite, Kite HD	A B	
Storm ⁴ , Storm ⁴ X-plore, Storm ⁴ Max ¹		
Stream ¹		

1 no DLX-ACT200/400 on Storm⁴ Max and Stream

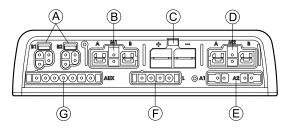
3.6 Port pin-outs

DLX-PM60, DLX-PM75, DLX-PM120



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

DLX-PM60AL, DLX-PM75AL, DLX-PM120AL



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

3.7 Actuator Port Configurations (Factory Setup)

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 9.8 Modifying Seating Parameters, page 143

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.

Channel	Seating motion (Icor	ı)	Seating function (Operation)
À	Tilt),00	Proportional FWD/REV
®	Recline		Proportional FWD/REV
©	Right leg	Both legs	Proportional FWD/REV
D	Left leg/ Center-mounted legrest		Proportional FWD/REV
Ē	Lifter),00	Proportional FWD/REV

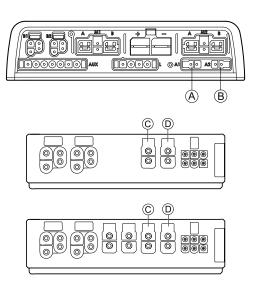
3.7.1 Port configurations for systems with DLX-REM2xx (EU-Version with Modulite seat)

Port configuration without lifter

Power module

DLX-ACT200

DLX-ACT400

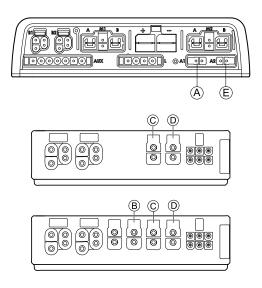


Port configuration with lifer

Power module

DLX-ACT200

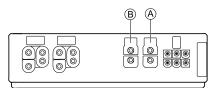
DLX-ACT400



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 23.

Single actuator systems

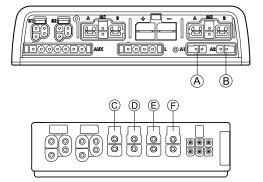


Channel	Seating motion (Icon)	Seating function (Operation)
۲	Recline only	Proportional FWD/REV
®	Tilt only	Proportional FWD/REV
®	LNX only	Proportional FWD/REV

Two actuator systems

Channel	Seating motion (Icon)	Seating function (Operation)				
۲	Tilt	Tilt	Recline	Left leg	Recline	Proportional FWD/REV
®	Lifter			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)
8	Tilt	Proportional FWD/REV
®	Lifter	Proportional FWD/REV
©	Legrest right	Proportional FWD/REV
D	Legrest left	Proportional FWD/REV

Channel	Seating motion (Icon)	Seating function (Operation)
Ē	LNX	Proportional FWD/REV
Ē	Recline	Proportional FWD/REV

3.7.4 Port Configurations for Functionkeys

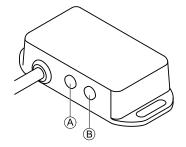
If the system is installed with an external switch to control the powered seating functions (except a 10–way switch), a functionkey is an option to interface switches. There are two different configurations of functionkeys. The type of functionkey determines the behaviour of the system in regards to the control of actuators. Properties and behaviour per switch are defined by Invacare and can be reassigned via the port to which the control input is connected. Reassigning is done in the **CONTROL INPUTS/OUTPUTS** section of the respective module. See *9.15.6 Configuring External Switches, page 175*

Type 1: Single Actuator System (SAS)

This functionkey is for systems with one physical actuator. It is available in one configuration:

• FKEY01TDC: actuator control through switches and joystick

External switches to control the powered seating functions, must be plugged into the Jack sockets, see table below.

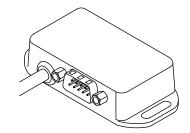


- (A) Mono jack to connect egg switch
- (B) Stereo jack to connect stereo button switch or stereo toggle switch

Type 2: Multi-Actuator System (MAC)

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

• FKEY02TDC: actuator control through switches and joystick



The 4-way button switch or the 4-way toggle switch must be plugged into the DB9 socket.

3.8 Wiring Diagrams

- \mathring{l} The following diagrams show the wiring for a wheelchair in a complex configuration including multiple actuators, lights and attendant control unit.
- ${1}$ To identify the required cable length, see tables below or measure the cable after removing it.

3.8.1 Wiring for Modulite Seating System

Wiring for Modulite: Lifter, Tilt, Recline, Powered Elevating Legrests, Lights, Dual Control, Secondary Input, DLX-ACT400, GLM-CONX4 (2x), DLX-IN200 and USB Charger

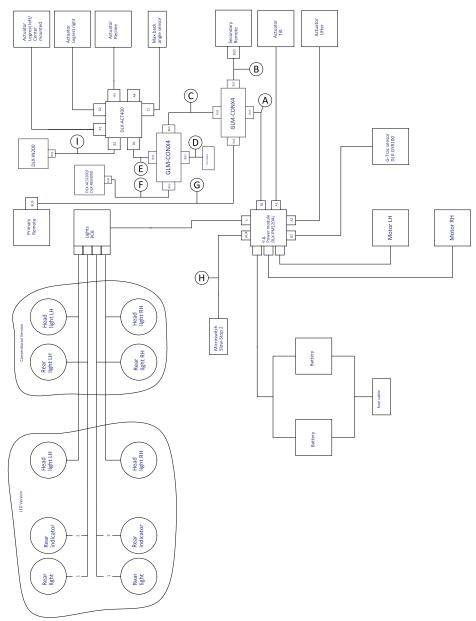


Fig. 3-1

 \mathring{l} Cable length may vary depending on mounting positions of primary and secondary remotes and of 4–way connector GLM-CONX4.

Model	۲	®	©	D	Ē
AVIVA FX	1500 mm + 640 mm extension loom	1500 mm	300 mm	300 mm	700 mm
AVIVA RX	1500 mm	1500 mm	300 mm	300 mm	700 mm
Kite	2500 mm	1500 mm	300 mm	700 mm	700 mm
Spectra XTR ² HD, Bora/Spectra XTR Standard	1700 mm	1700 mm	300 mm	700 mm	700 mm

Model	۲	₿		©		0		Ē
Storm ⁴ , Storm ⁴ X-plore	1500 mm	120	00 mm	300 mm		500 mm		300 mm
TDX SP2	1500 mm	120	00 mm	300 mm		300 mm		700 mm
Model	Ē		G		θ		0)
AVIVA FX	1200 mm		2000 mm		1000 r	nm	Ν	/A
AVIVA RX	1200 mm		2000 mm		640 m	m	50	00 mm
Kite	1500 mm		2500 mm		700 m	m	Ν	/A
Spectra XTR ² HD, Bora/Spectra XTR Standard	1200 mm		2000 mm		700 m	m	N	/A
Storm ⁴ , Storm ⁴ X-plore	1200 mm		2000 mm		300 m	m	N	/A
TDX SP2	1000 mm		1700 mm		300 m	m	Ν	/A

Wiring for Modulite: Lifter, Tilt, Recline, Powered Elevating Legrests, Lights, Dual Control, DLX-ACT400, GLM-CONX4 and USB Charger

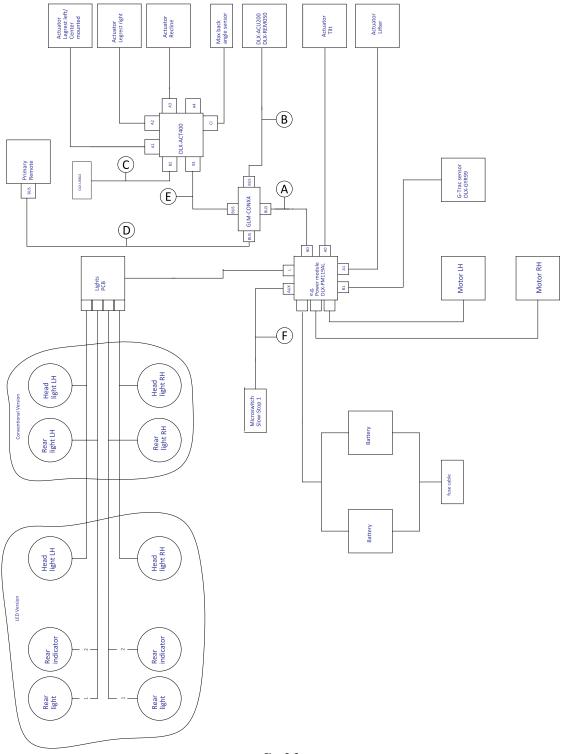


Fig. 3-2

Cable length may vary depending on mounting positions of primary remote, dual control and of 4–way connector GLM-CONX4.

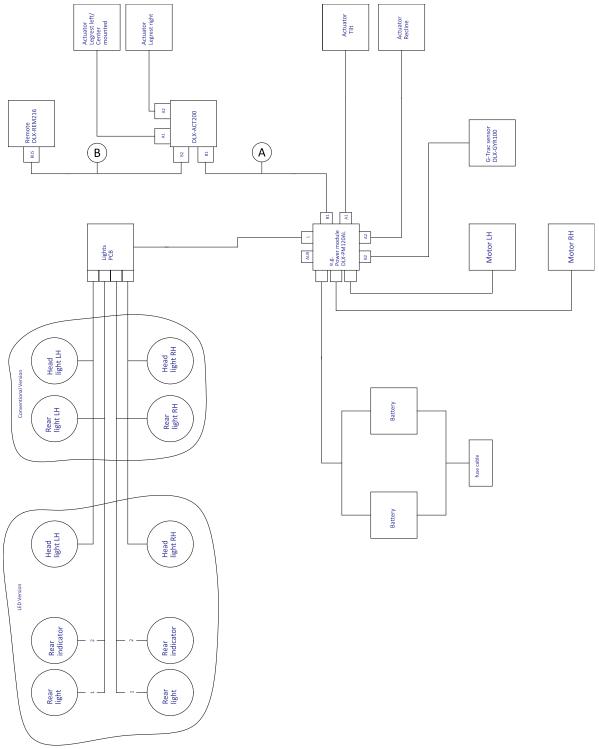
Model	۲	₿	©	D	Ē	ſ
AVIVA FX	1500 mm + 640 mm extension loom	2000 mm	700 mm	2000 mm	700 mm	1000 mm
AVIVA RX	1500 mm	2000 mm	700 mm	2000 mm	700 mm	640 mm
Kite	2500 mm	1500 mm	700 mm	1700 mm	700 mm	700 mm

Model	۲	₿	©	D	Ē	Ē
Pronto M41 ¹	1700 mm	1500 mm	700 mm	1500 mm	700 mm	-
Spectra XTR ² HD, Bora/Spectra XTR Stan- dard	1700 mm	1200 mm	700 mm	1500 mm	700 mm	700 mm
Storm ⁴ , Storm ⁴ X-plore	1500 mm	1200 mm	500 mm	1500 mm	300 mm	300 mm
TDX SP2	1500 mm	1000 mm	300 mm	1500 mm	700 mm	300 mm

1

Pronto M41 without G-Trac Sensor, Microswitch and Back Angle Sensor

Wiring for Modulite: Tilt, Recline, Powered Elevating Legrests, Lights and DLX-ACT200

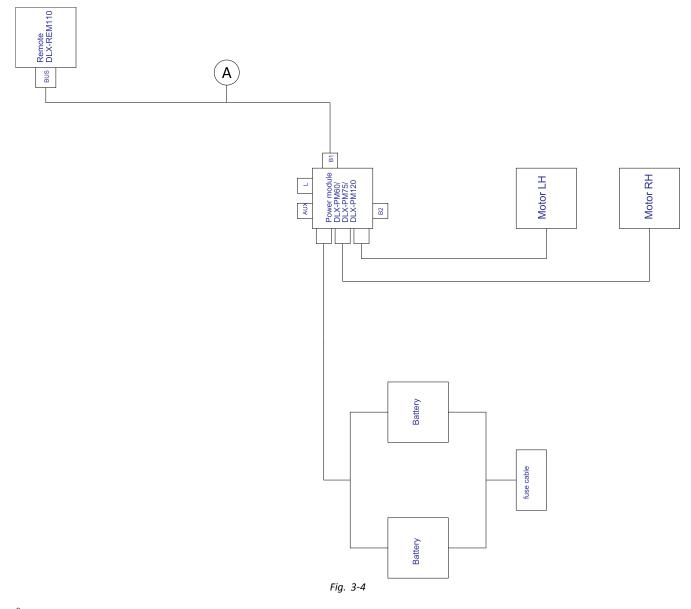


- Fig. 3-3
- $\mathring{\underline{\mathbb{j}}}$ Cable length may vary depending on mounting positions of primary remote.

Model	8	8
AVIVA FX	1500 mm + 640 mm extension loom	1700 mm
		2500 mm (when mounted as attendant remote)
AVIVA RX	1500 mm	1700 mm
		2500 mm (when mounted as attendant remote)

Model	۲	(B)
Kite	1500 mm	1500 mm
Spectra XTR ² HD, Bora/Spectra XTR Standard	1500 mm	1500 mm
Storm ⁴ , Storm ⁴ X-plore	1200 mm	1500 mm
TDX SP2	1700 mm	1000 mm

Wiring for Modulite: Simple Tilt/Drive only

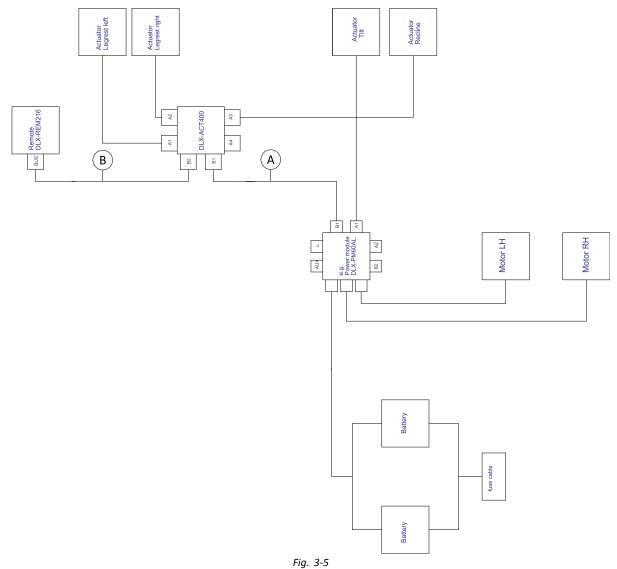


 \mathring{l} Cable length may vary depending on mounting positions of primary remote.

Model	8
AVIVA FX	1700 mm + 640 mm extension loom
AVIVA RX	1700 mm
Fox	1000 mm + 640 mm extension loom
Kite	2000 mm
Pronto M41	2000 mm
Spectra XTR ² HD, Bora/Spectra XTR Standard	2000 mm
Storm ⁴ , Storm ⁴ X-plore	2000 mm
Stream	1500 mm
TDX SP2	1500 mm

3.8.2 Wiring for Modulite Seating System (Pronto M41 Only)

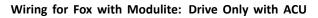
Wiring for Pronto M41 with Modulite: Tilt, Recline, Powered Elevating Legrests and DLX-ACT400

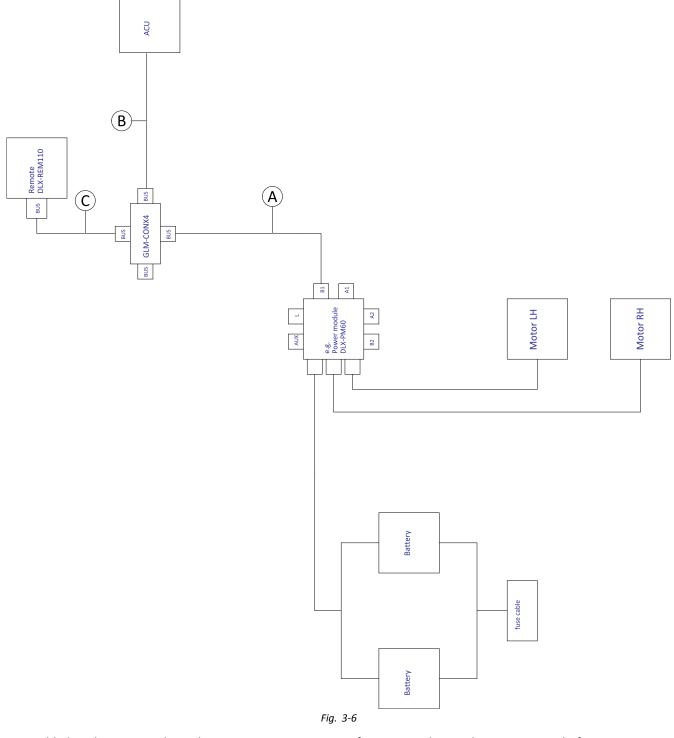


 \mathring{l} Cable length may vary depending on mounting positions of primary remote.

۸	1000 mm
®	1200 mm

3.8.3 Wiring for Modulite Seating System (Fox Only)

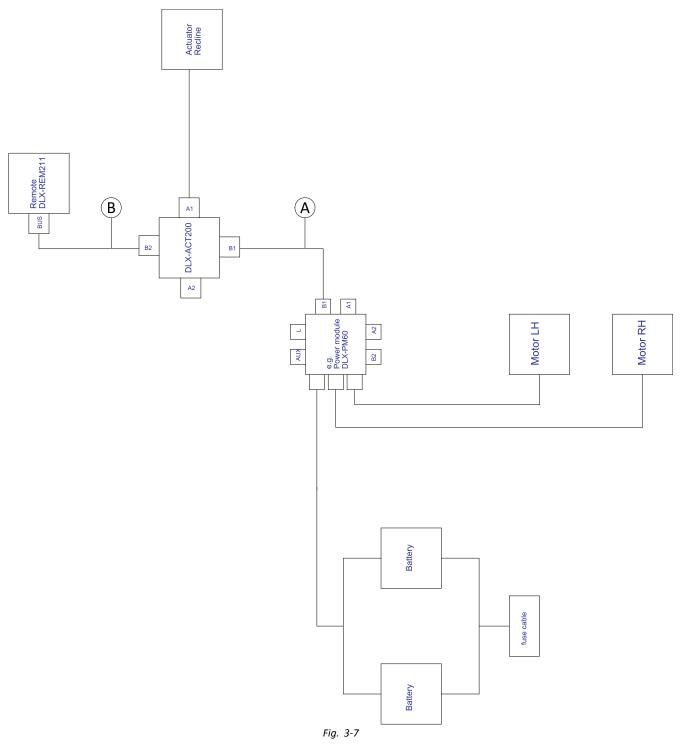




Cable length may vary depending on mounting positions of primary and secondary remotes and of 4-way connector GLM-CONX4.

A	300 mm + 640 mm extension loom				
B	1000 mm				
©	1000 mm				

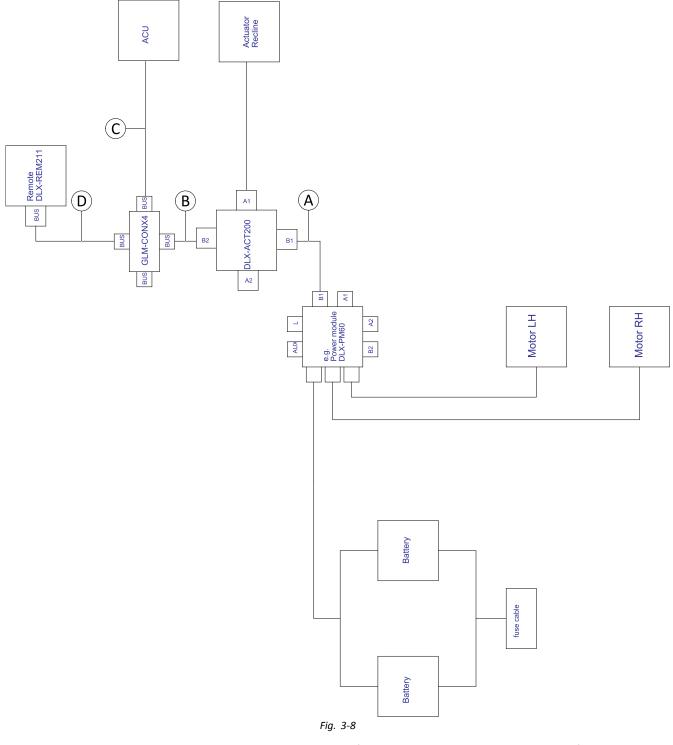
Wiring for Fox with Modulite: Recline Only



 $\underline{\mathring{l}}$ Cable length may vary depending on mounting positions of primary remote.

A	300 mm + 640 mm extension loom
₿	1000 mm

Wiring for Fox with Modulite: Recline Only and ACU

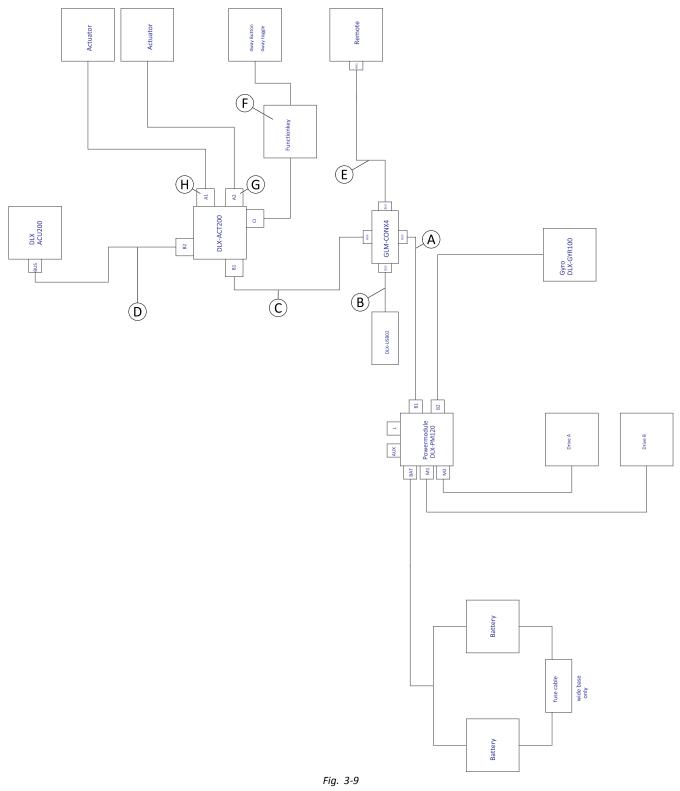


 $\mathring{\mathbb{I}}$ Cable length may vary depending on mounting positions of primary and secondary remotes and of 4–way connector GLM-CONX4.

A	300 mm + 640 mm extension loom				
₿	500 mm				
©	1000 mm				
D	1000 mm				

3.8.4 Wiring for Ultra Low Maxx Seating System

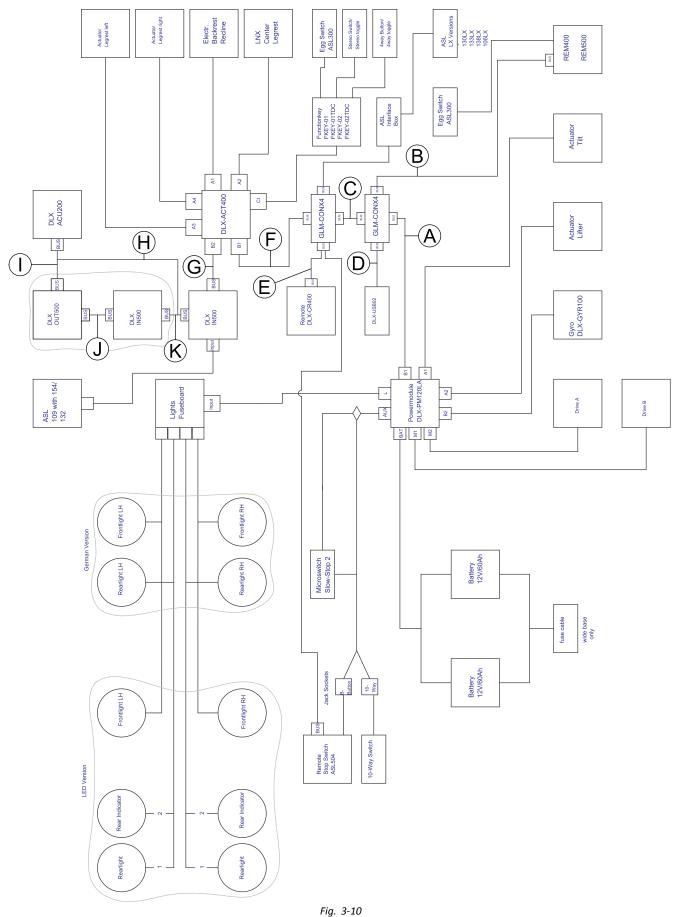
Wiring for Non expandable systems with Ultra Low Maxx seat (US only)



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

Configuration	۲	₿	©	D	E	Ē	G	θ
Recline only	1200 mm	300 mm	700 mm	300 mm	1500 mm	Functionkey FKEY01/ FKEY01TDC	not used	Recline connected
Tilt /Recline	1200 mm	300 mm	700 mm	300 mm	1500 mm	Functionkey FKEY02/ FKEY02TDC	Tilt connected	Recline connected
LNX only	1200 mm	300 mm	1200 mm	300 mm	1500 mm	Functionkey FKEY01/ FKEY01TDC	LNX connected	not used
Tilt only	1200 mm	300 mm	1200 mm	300 mm	1500 mm	Functionkey FKEY01/ FKEY01TDC	Tilt connected	not used
Dual legs	1200 mm	300 mm	1200 mm	300 mm	1500 mm	Functionkey FKEY02/ FKEY02TDC	Legrest right connected	Legrest left connected
Recline/LNX	1200 mm	300 mm	1200 mm	300 mm	1500 mm	Functionkey FKEY02/ FKEY02TDC	LNX connected	Recline connected
Tilt/LNX	1200 mm	300 mm	1200 mm	300 mm	1500 mm	Functionkey FKEY02/ FKEY02TDC	LNX connected	Tilt connected
Tilt/Lifter	1200 mm	300 mm	1200 mm	300 mm	1500 mm	Functionkey FKEY02/ FKEY02TDC	Lifter connected	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.

 $\underline{\mathring{n}}$ 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
۸	1200 mm	1200 mm	1500 mm	1500 mm
<u>B</u> 1	REM400: 1500 mm	REM400: 1500 mm	REM400: 1500 mm	REM400: 1500 mm
	REM500: 1700 mm	REM500: 1700 mm	REM500: 1700 mm	REM500: 1700 mm
©	700 mm	1200 mm	700 mm	1200 mm
D	300 mm	300 mm	300 mm	300 mm
Ē ²	1700 mm	1200 mm	1200 mm	1200 mm
Ē	300 mm	300 mm	300 mm	300 mm
G	300 mm	300 mm	300 mm	300 mm
θ	300 mm	300 mm	300 mm	300 mm
0	300 mm	300 mm	300 mm	300 mm
	300 mm	300 mm	300 mm	300 mm
ĸ	300 mm	300 mm	300 mm	300 mm

¹ Depending on primary remote

 2 $\;$ Bus port either for DLX-CR400 or for Remote Stop Switch. Cannot be combined.

3.9 Mounting the primary remotes

 $\mathring{\mathbb{I}}$ 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 Remotes to Standard Remote Holder

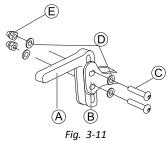
The following remotes can be mounted to the remote holder:

- DLX-REM1XX
- DLX-REM2XX
- DLX-REM400

Mounting DLX-REM1XX or DLX-REM2XX for Modulite

- 3 mm Allen key
- 8 mm wrench

1.



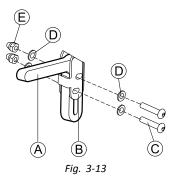
- Mount joystick holder (A) to remote adapter (B) with screws (C), washers (D) and nuts (E).
- 2.



Fig. 3-12 The remote in the graphic serves as an example. Every possible remote is mounted in the same way as shown. Mount remote \oplus to remote adapter B with screws F and washers G.

Mounting DLX-REM400 or DLX-REM2XX for Ultra Low Maxx

- 3 mm Allen key
- 8 mm wrench



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

2.

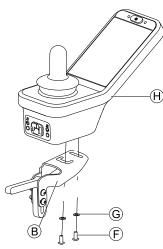


Fig. 3-14 The remote in the graphic serves as an example. Every possible remote is mounted in the same way as shown. Mount remote \oplus to remote adapter B with screws F and washers G.

3.9.2 Mounting Remotes to Swing-Away Remote Holder

The following remotes can be mounted to the remote holder:

- DLX-REM1XX
- DLX-REM2XX
- DLX-REM400
- DLX-REM500

Mounting DLX-REM1XX, DLX-REM2XX or DLX-REM400

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

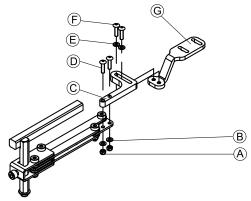


Fig. 3-15

- 1. Pull screws \mathbb{O} through bracket \mathbb{C} , remote holder and washers \mathbb{B} .
- 2. Tighten screws with nuts \triangle .

Pull screws (E) through washers (E), bracket (C) and bracket (G) and tighten screws. 3. 4.

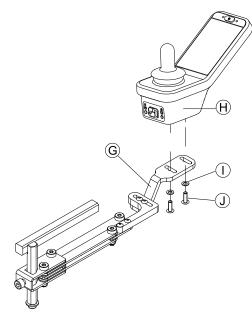
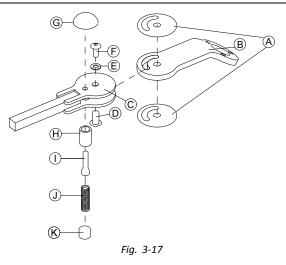


Fig. 3-16 The remote in the graphic serves as an example. Every possible remote is mounted in the same way as shown. Tighten remote with screws $\ensuremath{\mathbb{A}}$ to bracket $\ensuremath{\mathbb{G}}.$

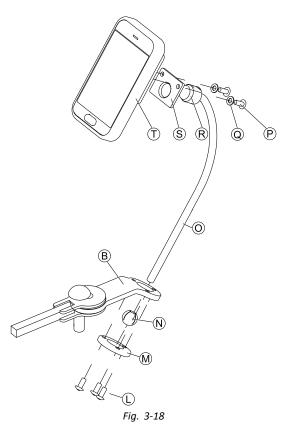
Mounting DLX-REM500

- 3 mm Allen key ľ
- 4 mm Allen key
 - Medium-strength thread locking adhesive (Loctite 243 or similar) •



- Connect slip sticker (A) with joint arm (B) and insert into support (C). 1.
- Fix with sleeve nut D, washer E and screw F. 2.
 - ĵ Apply thread locking adhesive to screw (F).
- Insert locking bolt ${\mathbb H}$ and compression spring ${\mathbb J}$ through support ${\mathbb C}$ and joint arm ${\mathbb B}.$ 3.
- Fix with locking knob $\ensuremath{\mathbb{G}}$ and grub screw $\ensuremath{\mathbb{D}}$. 4.
 - ື່ງໃ Apply thread locking adhesive to grub screw ${\rm (}{\rm)}{\rm .}$

5.



Insert bracket O into joint arm B, clamp ball N and clamp ring M. Fix with screws C.

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

3.9.3 Mounting Remotes to Quad Link Remote Holder

Only available for Ultra Low Maxx

The following remotes can be mounted to the remote holder:

- DLX-REM1XX
- DLX-REM2XX
- DLX-REM400

• 3 mm Allen key • 5 mm Allen key

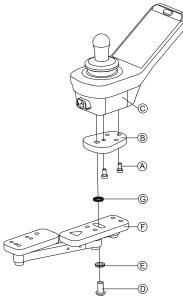


Fig. 3-19 The remote in the graphic serves as an example. Every possible remote is mounted in the same way as shown.

- 1. Mount LiNX remote adapter \mathbb{B} with screws \mathbb{A} to remote \mathbb{C} .
 - \check{I} 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).
 - $\tilde{1}$ Tighten screw \mathbb{D} with a maximum torque of 25 Nm.

3.9.4 Mounting Remotes to Attendant Remote Holders

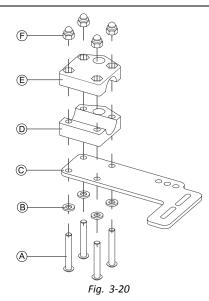
The following remotes can be mounted to the remote holder:

- DLX-REM1XX
- DLX-REM2XX
- DLX-REM400

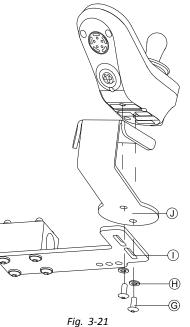
Mounting DLX-REM1XX or DLX-REM2XX on Modulite

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 (A) through washers (B), mounting plate (C) and bottom side of bracket (D).
- 2. Tighten bottom side of the bracket to push bar with the top side of the bracket \mathbb{E} and nuts \mathbb{P} .
- 3.



Fix remote and support ① to bracket ① with screws G and washers Θ . For mounting positions, refer to 3.11.4 Mounting the DLX-REM050, page 53.

Mounting DLX-REM1XX, DLX-REM2XX or DLX-REM400 on Ultra Low Maxx Powered Backrest

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

ĬĬ	٠	4 mm Allen key
	•	8 mm wrench

1.

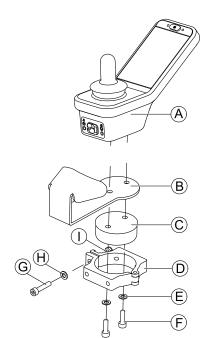


Fig. 3-22 The remote in the graphic serves as an example. Every possible remote is mounted in the same way as shown. Mount remote B with support B and support drum C to clamp D with screws F and washers E.

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 \bigcirc in clamp \bigcirc with screw \bigcirc , washer H and nut \bigcirc .

3.

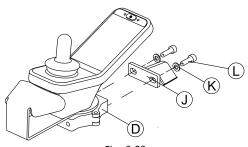
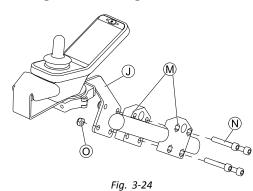


Fig. 3-23

Attach clamp \mathbb{D} to bracket \mathbb{O} with screws \mathbb{C} and washers \mathbb{K} .

4.



Attach bracket ${\rm (I)}$ to gripper clamp ${\rm (M)}$ with screws ${\rm (N)}$ and nuts ${\rm (O)}.$

Manual Backrest

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

- 4 mm Allen key łĭ
 - 5 mm Allen key
 - 8 mm wrench
 - Thread locking adhesive (Loctite 225 or similar)

1.

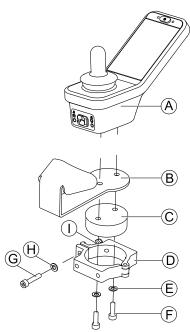


Fig. 3-25 The remote in the graphic serves as an example. Every possible remote is mounted in the same way as shown.

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 \mathbb{C} in clamp \mathbb{D} with screw \mathbb{G} , washer \mathbb{H} and nut \mathbb{O} .

3.

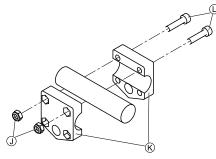


Fig. 3-26

Install gripper clamp \otimes to push bar using screws \bigcirc and nuts \bigcirc . Tighten screws with 10 Nm.

4.

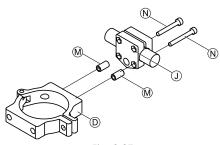


Fig. 3-27

Insert screws \mathbb{N} through gripper clamp \mathbb{O} and spacers \mathbb{M} in clamp \mathbb{O} . Use thread locking adhesive and tighten screws with 10 Nm.

3.9.5 Mounting Toggle Switches on the DLX-REM400

 $\mathring{\parallel}$ The toggle switches are suitable for the DLX-REM400–B remote module only — they must not be installed to the DLX-REM400–A version.

• TX8 Torx key

- Opening pick (or similar)
- Two additional screws (included in mounting kit)
- Label kit (included in mounting kit)

1.

2.

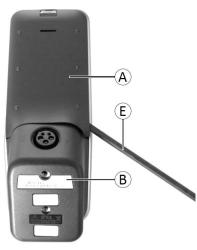
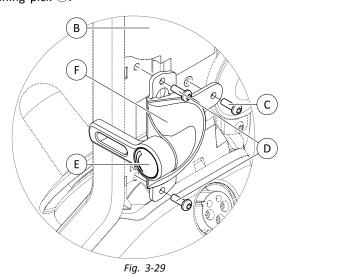


Fig. 3-28

Remove rear shroud A using opening pick E.



Loosen and remove four silver screws D.

- 3. Mount toggle switch \mathbb{C} to remote \mathbb{B} with screws \mathbb{C} and \mathbb{D} .
- 4. Repeat step 2 and 3 to install second switch / blanking plate.
- 5. Install new rear shroud included in mounting kit.
- 6. Install labels E on both toggles.

3.10 Mounting Primary Remotes to Nucleus Midline Holder

CAUTION!

Risk of Injury and Damage

Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.

- Deburr cut after cutting excessive length.
- Re-install end cap after deburring.
- Check end cap for tight fitting.

Mounting DLX-REM1XX, DLX-REM2XX or DLX-REM400

- 4 mm Allen key
- 8 mm wrench
- 1.

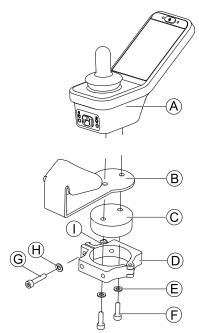


Fig. 3-30 The remote in the graphic serves as an example. Every possible remote is mounted in the same way as shown. Mount remote (A) with support (B) and support drum (C) to clamp (D) with screws (F) and washers (E).

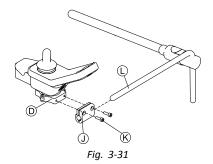
2.

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 \mathbb{C} in clamp \mathbb{D} with screw \mathbb{G} , washer \mathbb{H} and nut \mathbb{O} .

3.

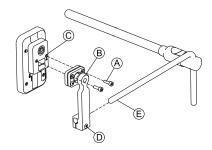


Pull clamp bracket ① over nucleus ①.

4. Attach clamp ${\Bbb O}$ to clamp bracket ${\Bbb O}$ and fix everything with screws ${\Bbb K}.$

Mounting DLX-REM500

- 4 mm Allen key
- 3/16 inch 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.

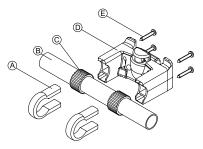
3.11 Mounting the secondary remotes

 \mathring{l} 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 KLICKfix Adapter for IDC

Standard mounting

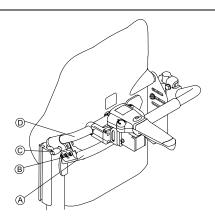
Phillips screwdriver



- 1. Position the tightening clamps (A) on the wheelchair push handle (B).
- 2. Make sure, the rubber band © is between the tightening clamps and the push handle.
- 3. Fit the KLICKfix adapter D onto the tightening clamps.
- 4. Tighten the screws (E).

Mounting on the Ultra Low Maxx seating system

- 4 mm (3/16") Allen key
- Phillips screwdriver



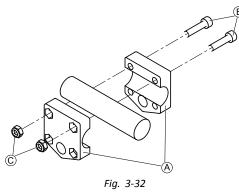
- 1. Fix the retaining clamp (B) on the wheelchair push handle (A).
- 2. Slide the adapter tube D through the retaining clamp.
- 3. Tighten the wing bolt \mathbb{C} .
- 4. Mount the KLICKfix adapter on the adapter tube, refer to chapter Standard mounting.

3.11.2 Mounting the DLX-ACU200

Mounting for Modulite Seating System

1 1 •	3	mm	Allen	key	
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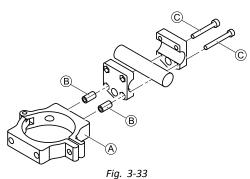
- 5 mm Allen key
 - 8 mm wrench
 - 10 mm wrench



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

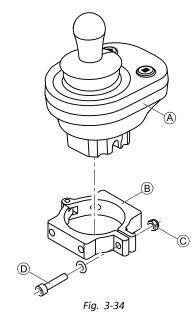
2.

1.



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

3.



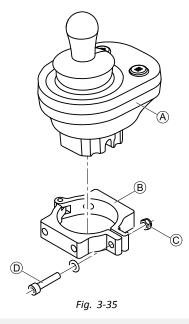


- The maximum torque to tighten the screw is 1 Nm.
- Do not exceed this rating as it may damage the remote.

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

Mounting for Ultra Low Maxx Seating System (Powered Backrest)

4 mm Allen key
8 mm wrench

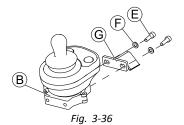




Risk of damage to the remote

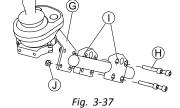
- The maximum torque to tighten the screw is 1 Nm. - Do not exceed this rating as it may damage the remote.
- Set remote (A) in clamp (B) and tighten screw (D) and nut (C).





Attach clamp ${\ensuremath{\mathbb B}}$ to bracket ${\ensuremath{\mathbb G}}$ with screws ${\ensuremath{\mathbb E}}$ and washers ${\ensuremath{\mathbb F}}.$

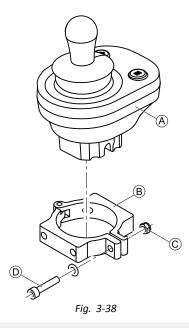
3.



Attach bracket $\ensuremath{\mathbb{G}}$ to gripper clamp $\ensuremath{\mathbb{O}}$ with screws $\ensuremath{\mathbb{H}}$ and nuts $\ensuremath{\mathbb{O}}.$

Mounting for Ultra Low Maxx Seating System (Manual Backrest)

- 4 mm Allen key •
 - 5 mm Allen key •
 - 8 mm wrench •
 - Thread locking adhesive (Loctite 225 or similar) •

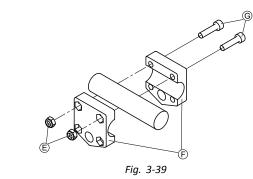




Risk of damage to the remote

- 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.





Install gripper clamp $\ensuremath{\mathbb{F}}$ to pushbar using screws $\ensuremath{\mathbb{G}}$ and nuts $\ensuremath{\mathbb{E}}.$ Tighten screws with 10 Nm.

3.

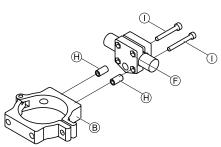


Fig. 3-40

Insert screws \oplus through gripper clamp E and spacers H in clamp B. Use thread locking adhesive and tighten screws with 10 Nm.

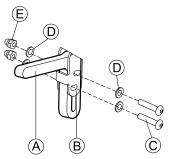
3.11.3 Mounting the DLX-CR400

also valid for DLX-CR400LF

Standard Remote Holder

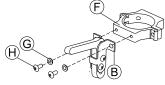
, נ ו	•	3	mm	Allen	key
		Λ	mm	Allon	kov

- 4 mm Allen key
 - 8 mm wrench



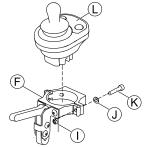
Mount joystick holder (A) to DLX-CR400 adapter (B) with screws (C), washers (D) and nuts (E).

2.



Attach clamp E 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 \bigcirc in clamp E and tighten screw K and washer \bigcirc with nut \bigcirc .

Nucleus Midline Holder

CAUTION!

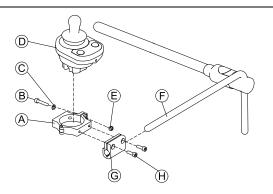
Risk of Injury and Damage

Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.

- Deburr cut after cutting excessive length.
- Re-install end cap after deburring.
- Check end cap for tight fitting.

• 4 mm Allen key

8 mm wrench



1.

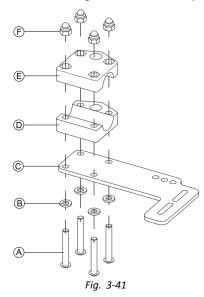
Risk of damage to the remote

- The maximum torque to tighten the screw is 1 Nm.
- Do not exceed this rating as it may damage the remote.
- Set remote \mathbb{D} in clamp \mathbb{A} and tighten screw \mathbb{B} and washer \mathbb{C} with nut \mathbb{E} .
- 2. Pull clamp bracket G over nucleus F.
- 3. Attach clamp (A) to clamp bracket (G) and fix everything with screws (H).

3.11.4 Mounting the DLX-REM050

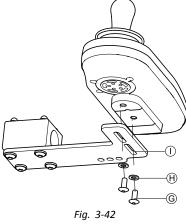
4 mm Allen key
3 mm Allen key

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



- 1. Pull screws (A) through washers (B), mounting plate (C) and bottom side of bracket (D).
- 2. Tighten bottom side of the bracket to push bar with the top side of the bracket E and nuts F.

3.

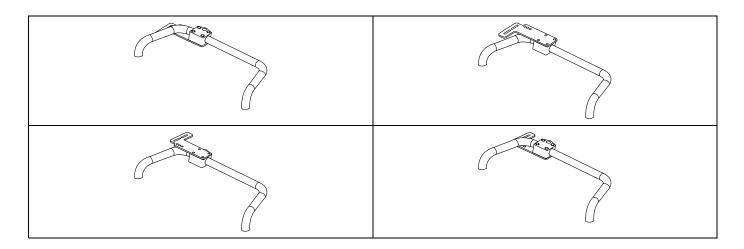


Pull screws ${\mathbb G}$ through washers ${\mathbb H}$ bracket ${\mathbb O}$ and attendant control unit.

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

Mounting positions





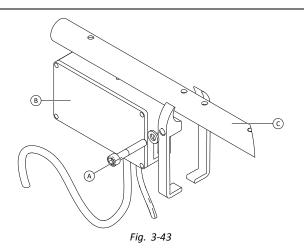
3.12 Mounting the ASL components

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

3.12.1 Mounting Interface Boxes

Mounting ASL Joystick Interface Box for Ultra Low Maxx

• 5 mm Allen key

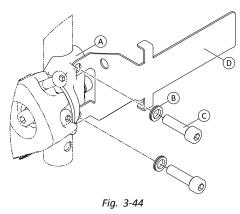


- 1. Loosen screw (A).
- 2. Install Interface Box B.
- 3. Place both parts onto armrest tube $\mathbb C$ and re-tighten screw $\mathbb A.$

Mounting ASL Joystick Interface Box for Modulite

٠	3 mm Allen key
٠	6 mm Allen key

 $\frac{1}{2}$ Illustration below shows left-hand mounted holder on seat with mounted flip-up armrest. Armrest holder (A) can be replaced by saddle washer and also mounting position can varify. Installation order is the same.



Loosen and remove upper screw \mathbb{C} and washer \mathbb{B} .

- Install base holder D. Ensure that armrest holder (saddle washer) A is installed in correct way and both holes are in line. 2.
- Re-insert screw and washer. 3.

1.

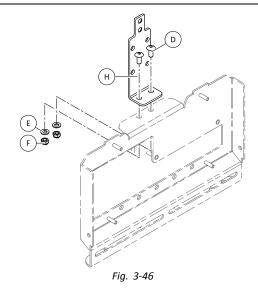
- 4. Repeat steps one to three for second screw.
- Tighten both screws $\ensuremath{\mathbb{C}}$ to 6 Nm. 5. 6.
- -F) G ெ Fig. 3-45

Install well nut Θ , interface box \mathbb{E} and holder \mathbb{G} .

7. Tighten bolt 🕑 to 0.3 Nm.

Mounting ASL106 Interface Box for Ultra Low Maxx (Manual Recline)

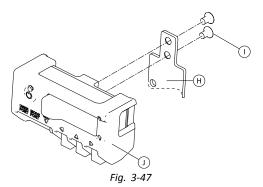
- 1/8 inch Allen key lĭ
 - 3 mm Allen key
 - 8 mm wrench



- Insert bolts D. 1.
- 2.

3. Tighten nuts (F).

4.



Tighten interface box ${\rm (}{\rm)}$ to holder ${\rm (}{\rm H}$ with screws ${\rm (}{\rm)}.$

Mounting ASL106 Interface Box for Ultra Low Maxx (Powered Recline)

٠	1/8 inch Allen key
٠	5 mm Allen key
٠	6 mm Allen key

• 13 mm wrench

1.

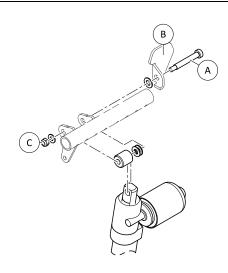


Fig. 3-48

Loosen and remove nut $\mathbb C$, washers, spacers and bolt $\mathbb A.$

- 2. Re-insert bolt (A) and flange (B), washers, spacers and nut (C).
- 3. Tighten nut.
- 4.

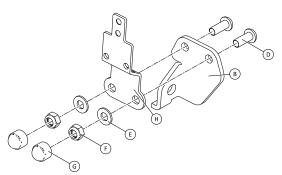
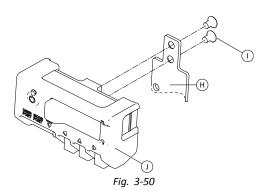


Fig. 3-49

Insert bolts D.

- 5. Install holder Θ , washers ε and nuts ε .
- 6. Tighten nuts (F).

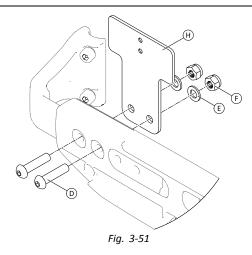
7. Install end caps G. 8.



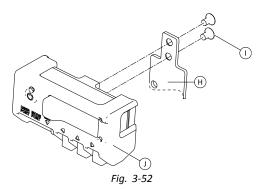
Tighten interface box ${\rm (}{\rm)}$ to holder ${\rm (}{\rm H}$ with screws ${\rm (}{\rm)}.$

Mounting ASL106	Interface	Box for	Modulite
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- 1/8 inch Allen key łĭ
- 5 mm Allen key •
- 13 mm wrench •



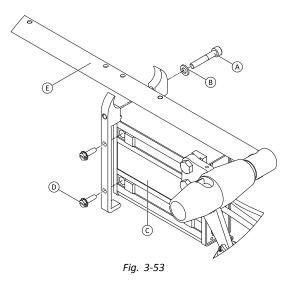
- Insert bolts D. 1.
- 2. Install holder $\boldsymbol{\varTheta}$, washers $\boldsymbol{\textcircled{E}}$ and nuts $\boldsymbol{\textcircled{F}}.$
- 3. Tighten nuts 🖲.
- 4.



Tighten interface box ${\rm (}{\rm)}$ to holder ${\rm (}{\rm H}$ with screws ${\rm (}{\rm)}.$

Mounting ASL154 Sip And Puff Interface Box for Ultra Low Maxx

- 5 mm Allen key lĭ
- Flat screwdriver •

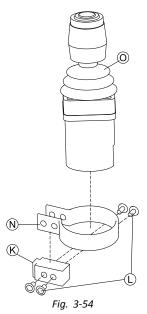


- 1. Loosen screw (A).
- 2. Place holder on armrest tube E and re-tighten screw A.
- 3. Install Interface Box © and tighten screws D.

Mounting the Compact Single Switch Joystick 3.12.2

Lateral Tray Mount

- lĭ 1/8 inch Allen key ٠
 - 5/32 inch Allen key •
 - 3/16 inch Allen key



Insert joystick O in clamp N, pull clamp over adapter block K and fix with screws U. 2.

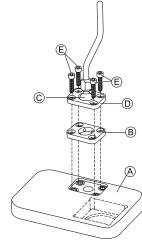


Fig. 3-55

Insert clamp plate ${\mathbb B}$ into cutout on tray ${\mathbb A}$.

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

4.

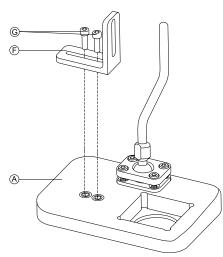
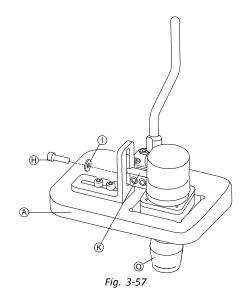


Fig. 3-56

Mount angle bracket $\ensuremath{\mathbb{E}}$ with screws $\ensuremath{\mathbb{G}}$ to tray $\ensuremath{\mathbb{A}}.$



Insert remote \bigcirc into tray A.

6. Fix adapter block ${\mathfrak K}$ to angle bracket ${\mathfrak F}$ with screw ${\mathfrak H}$ and washer ${\mathbb O}.$

Nucleus Tray Mount

î\	
<u> </u> \	

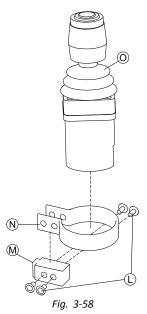
Risk of Injury and Damage

Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.

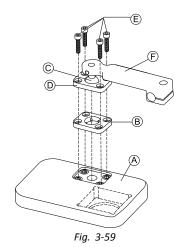
- Deburr cut after cutting excessive length.
- Re-install end cap after deburring.
- Check end cap for tight fitting.
- lĭ 1/8 inch Allen key ٠

CAUTION!

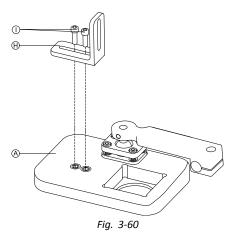
- 5/32 inch Allen key •
- 3/16 inch Allen key ٠



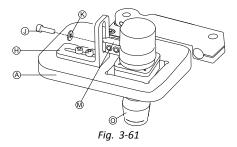
Insert joystick @ in clamp \circledast , pull clamp over adapter block \circledast and fix with screws $\mathbb{C}.$ 2.



- Insert clamp plate (B) into cutout on tray (A). Fix clamp plate (B), clamp ball (C) and upper clamp plate (D) with screws (E). 3.
- 4.



Mount angle bracket $\ensuremath{\mathbbmm{B}}$ with screws $\ensuremath{\mathbbmm{D}}$ to tray $\ensuremath{\mathbbmm{A}}.$



Insert remote O into tray A.

- Fix adapter block ${}^{\textcircled{}}$ to angle bracket ${}^{\textcircled{}}$ with screw ${}^{\textcircled{}}$ and washer ${}^{\textcircled{}}$. 6.
- 7.

- - P Fig. 3-62

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

Nucleus Only Mount

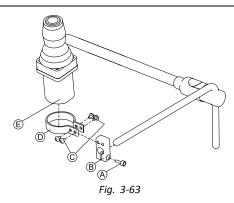
CAUTION!



Risk of Injury and Damage

Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.

- Deburr cut after cutting excessive length.
- Re-install end cap after deburring.
- Check end cap for tight fitting.
- 1/8 inch Allen key łĭ ٠
 - 5/32 inch Allen key

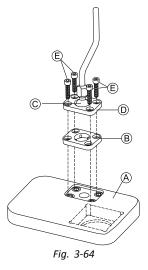


- Pull adapter block [®] over nucleus and tighten with screw [®]. 1.
- Insert remote (E) into clamp (D). 2.
- Mount clamp D to adapter block B with screws C. 3.

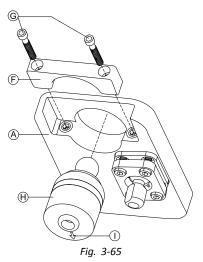
Mounting the Micro Extremity Control Joystick 3.12.3

Lateral Tray Mount

- 1/8 inch Allen key ١ï
- 5/32 inch Allen key •
- 3/16 inch Allen key



- 1. Insert clamp plate [®] into cutout on tray [®].
- 2. Fix clamp plate (B), clamp ball (C) and upper clamp plate (D) with screws (E).
- 3.



Insert remote ${\ensuremath{\oplus}}$ from below into tray (). Make sure, arrow () shows into reverse driving direction.

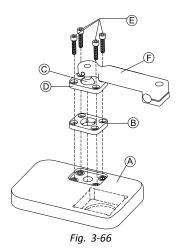
Nucleus Tray Mount



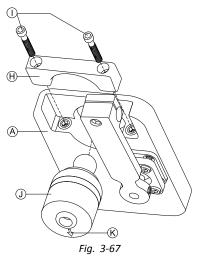
CAUTION! Risk of Injury and Damage

Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.

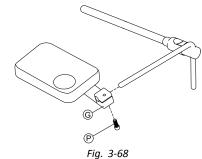
- Deburr cut after cutting excessive length.
- Re-install end cap after deburring.
- Check end cap for tight fitting.
- 1/8 inch Allen key
- 5/32 inch Allen key
- 3/16 inch Allen key



- 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 \oplus from below into tray A. Make sure, arrow K shows into reverse driving direction. 4.



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

Nucleus Only Mount



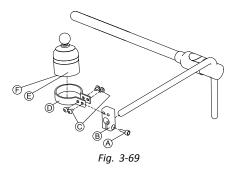
CAUTION! Risk of Injury and Damage

Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.

- Deburr cut after cutting excessive length.
- Re-install end cap after deburring.
- Check end cap for tight fitting.

• 1/8 inch Allen key

5/32 inch Allen key



- 1. Pull adapter block [®] over nucleus and tighten with screw [®].
- 2. Insert remote (E) into clamp (D). Make sure, arrow (E) (not visible in picture) shows into reverse driving direction.
- 3. Mount clamp \mathbb{D} to adapter block \mathbb{B} with screws \mathbb{C} .

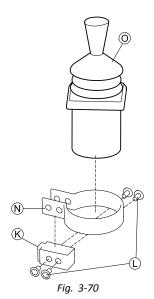
3.12.4 Mounting the Pediatric Compact Joystick

Lateral Tray Mount

۱۲ •	1/8	inch	Allen	key	
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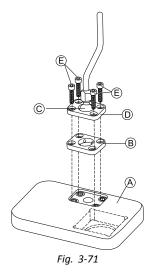
- 5/32 inch Allen key
- 3/16 inch Allen key

1.



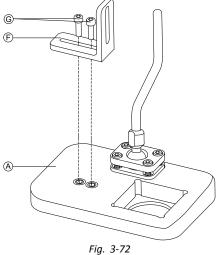
Insert remote O into clamp N. Pull clamp over adapter block K and tighten with screws L.

2.



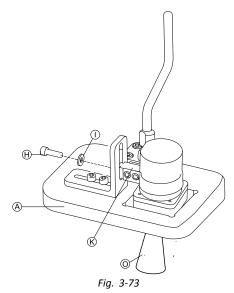
Insert clamp plate $\ensuremath{\mathbb{B}}$ into cutout on tray $\ensuremath{\mathbb{A}}.$

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



Mount angle bracket $\ensuremath{\mathbb{F}}$ with screws $\ensuremath{\mathbb{G}}$ to tray $\ensuremath{\mathbb{A}}.$





Fix adapter block ${\mathfrak K}$ to angle bracket ${\mathfrak F}$ with screw ${\mathfrak H}$ and washer ${\mathbb O}.$

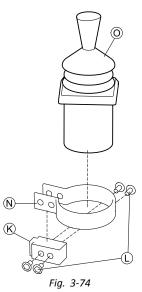
Nucleus Tray Mount



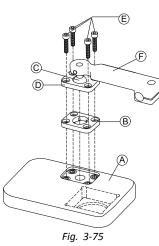
CAUTION! Risk of Injury and Damage

Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.

- Deburr cut after cutting excessive length.
- Re-install end cap after deburring.
- Check end cap for tight fitting.
- łĭ 1/8 inch Allen key ٠
 - 5/32 inch Allen key
 - 3/16 inch Allen key •



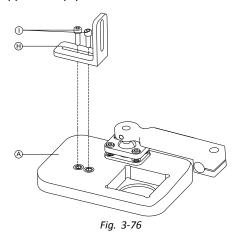
Insert remote O into clamp N. Pull clamp over adapter block K and fix with screws L. 2.



Insert clamp plate (B) into cutout on tray (A). Fix clamp plate (B), clamp ball (C) and upper clamp plate (D) with screws (E). 3.

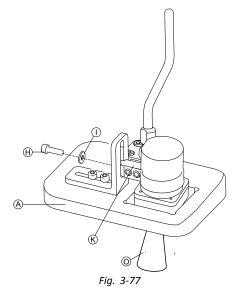
4.

1.

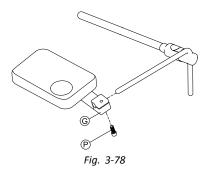


Mount angle bracket Θ with screws \bigcirc to tray \triangle .

6.



Fix adapter block ${f M}$ to angle bracket ${f H}$ with screw ${f J}$ and washer ${f \&}.$



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

Nucleus Only Mount

Λ

Risk of Injury and Damage

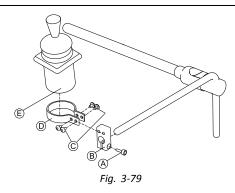
Remaining burrs and missing end caps after modifications on rods, such as shortened rod, can lead to injury or damage.

- Deburr cut after cutting excessive length.
- Re-install end cap after deburring.
- Check end cap for tight fitting.

• 1/8 inch Allen key

CAUTION!

5/32 inch Allen key

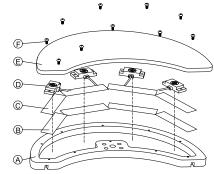


- 1. Pull adapter block [®] over nucleus and tighten with screw [®].
- 2. Insert remote \mathbb{E} into clamp \mathbb{D} .
- 3. Mount clamp \mathbb{D} to adapter block \mathbb{B} with screws \mathbb{C} .

3.12.5 Mounting the eclipse tray with proximity sensors

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

1.



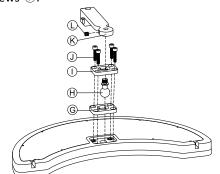
Fix hook straps (B) inside eclipse tray (A).

- 2. Cut loop straps \bigcirc accordingly shape of proximity sensors \bigcirc .
- 3. Fix loop straps to proximity sensors.
- 4. Fix loop straps to hook straps.
- 5.

 \mathring{l} Pay attention that wiring of proximity sensors fit into intended gaps.

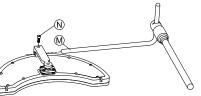
Fix coverage E to eclipse tray with screws E.





Insert clamp plate G into cutout on eclipse tray.

- 7. Fix clamp plate, clamp ball Θ and upper clamp plate \mathbb{O} with screws \mathbb{O} .
- 8. Screw hitch mount \mathcal{K} to clamp ball with grub screw \mathbb{C} .
- 9.



3.13 Mounting the 10 way switch

 $\hat{\underline{l}}$ 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.

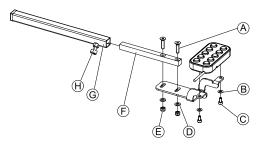
Orientation right	Orientation wrong

3.13.1 Mounting the 10 way switch for Modulite

Mounting at the front

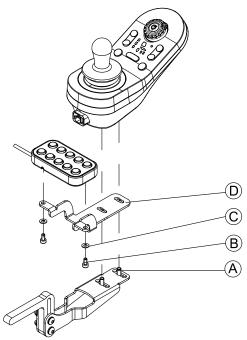
1 1 •	3	mm	Allen	key
--------------	---	----	-------	-----

- 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 \mathbb{E} with screws \mathbb{A} , washers \mathbb{D} and nuts \mathbb{E} .
- 3. Insert remote mounting tube inside mounting bracket G.
- 4. Adjust 10 way switch to desired position.
- 5. Tighten wing screw Θ .

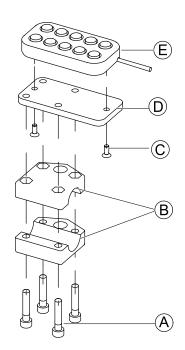
In combination with DLX-REM211/DLX-REM216



- 1. Tighten 10 way switch to bracket ${\ensuremath{\mathbb D}}$ with screws ${\ensuremath{\mathbb B}}$ and washers ${\ensuremath{\mathbb C}}.$
- 2. Tighten bracket to remote mounting bracket with screws (A).

Mounting at the rear (for attendants)

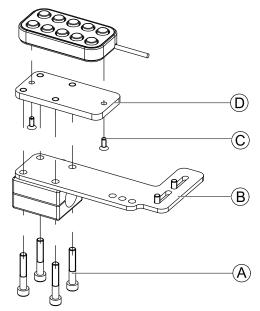
ĬĬ	•	3 mm Allen key 4 mm Allen key
	•	4 min Alen key



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)



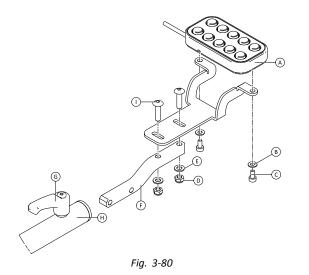
- 1. Tighten 10 way switch to mounting plate \mathbb{O} with screws \mathbb{C} .
- 2. Tighten mounting plate ${\rm I}\!{\rm D}$ to mounting plate ${\rm I}\!{\rm B}$ with screws A.

 \hat{j} For the possible positions of the attendant control unit, refer to *Mounting the DLX-REM400*.

3.13.2 Mounting the 10 way switch for Ultra Low Maxx

Mounting at the front

Ĭ	٠	3 mm Allen key
	•	8 mm wrench



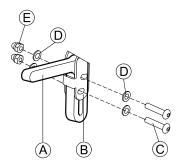
- 1. Tighten 10 way switch A to bracket with screws C and washers B.
- 2. Tighten bracket to remote mounting tube E with bolts O, washers E and nuts D.
- 3. Insert remote mounting tube inside mounting bracket Θ .
- 4. Adjust 10 way switch to desired position.
- 5. Tighten lever G.

In combination with DLX-REM2XX or DLX-REM400

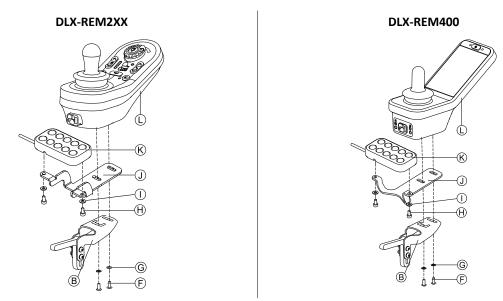
1 ' ·	3	mm	Allen	key
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8 mm wrench

1.



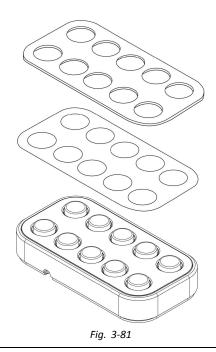
2.



Mount remote \mathbb{O} to remote adapter \mathbb{B} and support sheet \mathbb{O} with screws \mathbb{E} and washers \mathbb{G} . 3. Mount 10 way switch \mathbb{K} to support sheet \mathbb{O} with screws \mathbb{H} and washers \mathbb{O} .

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

3.13.3 Changing Labeling



- lĭ Small pointed tool (Nylon screw or similar) ٠
- Label

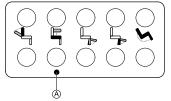


Fig. 3-82 Correct orientation of labeling

1. Remove switch from bracket.

2.



Fig. 3-83

Insert tool in upper two holes (B) on rear side and push out covering plate and labeling on other side.

3.

While installing new labeling, ensure that orientation spot (A) faces downwards and correct function icons Ĩ are shown.

Replace labeling.

- Install covering plate. 4.
- Install switch to bracket. 5.

4 Replacing Wheelchair Components

4.1 General information on setup

The tasks described in this chapter are intended to be performed by trained and authorized service technicians for initial setup. They are not intended to be performed by the user.

4.2 Battery Synchronisation on New Batteries

The LiNX enhanced battery gauge integrates new technology that determines the State of Charge (SOC) of lead-acid batteries more accurately than conventional battery gauges which are based on battery-terminal voltage.

- The new enhanced gauge estimates the real SOC by looking at a number of factors, not just instantaneous terminal voltage, which on its own, is a poor indicator of SOC.
- The gauge does not measure current, which is difficult to do in a power wheelchair system.
- The gauge determines if the battery is charging or discharging, and depending on this state, applies logic and calculations to find the real SOC. Part of this is knowing the recent history of the battery use.
- The gauge models the discharge based on the terminal voltage, the rate of change of terminal voltage and how long the battery has been in this state, to get an actual SOC.
- The new gauge differentiates between real charging and regenerated voltage or recovery, which causes a distortion of the charge estimate in conventional gauges.
- If the battery is actually charging, the change in SOC is calculated based on where it is in the charge cycle, the rate of change in the terminal and how long it has been charging.

New Batteries

The enhanced battery gauge uses the recent charge / discharge history of the battery to calculate the SOC. When new batteries are connected, this history is no longer applicable , but the gauge will continue to calculate the SOC based on the information from previous battery. To rectify this, the enhanced battery gauge needs to be synchronised to the new batteries.

Battery manufacturers recommend that batteries are formatted when new. This involves cycling the battery a number of times without deep discharging them. This procedure does note impact on the gauge synchronisation for new batteries.

Synchronizing new Batteries

- 1. Connect new batteries to power wheelchair.
- 2. Reset battery statistics using LiNX Access tools, see Resetting Battery Usage, page 206
- 3. Connect power wheelchair to battery charger. This must be done with system switched ON or within 24 hours of system being switched on.
- 4. Leave power wheelchair connected to battery charger for longer than ten minutes.
- 5. Wait until battery gauge displays more than 80 % (5 LEDs).
- 6. Leave power wheelchair connected to battery charger for at least two hours. For a new battery, the time should be an extended period as per battery manufacturer's recommendations.

4.3 Replacing Power Module as Spare Part

With replacing the power module the currently used chair configuration is lost. Up to eight pre-configured configurations for different wheelchairs were stored on power module until June 2018. For rules for file naming, see 11 Structure of *Program Names, page 209*

- $\mathring{1}$ We recommend to take backups of current configuration, if possible. For more information on creating backups see 7.3.7 Saving programs, page 106 for iOS or 8.5.4 Save a program as a file, page 120 for PC.
- 1. If possible, take backup of current configuration.
- 2. Replace power module. For more information see corresponding service manual of wheelchair.
- 3. Connect wheelchair and LiNX Access tool.
- 4. Perform setup procedure. See 4.4 Setup Procedure After Power Module Replacement, page 74.

4.4 Setup Procedure After Power Module Replacement

After replacing a power module we recommend that you perform following procedures to ensure that customized settings of your user wont be lost and the user gets access to the latest features of LiNX.

Upgrading Firmware / Write Bundle File

Upgrading the firmware of the LiNX components to the latest versions allow your user to use the newest features and other improvements Invacare introduced for the wheelchair. Currently there are two different ways to ensure that your system is up-to-date:

• Using Firmware Upgrade Mode (needs internet connection)

Write Bundle File

Bundle files contain at least one wheelchair configuration and/or the latest firmware upgrades for the installed LiNX components.

- Upgrade firmware to latest release. 1.
 - a. Firmware Upgrade Mode: For iOS tool, see 7.3.8 Upgrading Firmware, page 107. For PC tool, see 8.5.6 Upgrading Firmware, page 121
 - b. Bundle File: For iOS tool, see 7.4.2 Writing Bundle Files, page 109 For PC tool, see 8.6.3 Writing bundle files to a chair, page 126

Restoring Backup File

- ĭ We recommend to write a previously saved backup file to wheelchair after installing a new power module.
- 1. Restore backup file to wheelchair. For iOS tool, see 7.3.6 Writing a program to the wheelchair, page 105 For PC tool, see 8.5.2 Write a program to a wheelchair, page 120
- If needed, modify parameters to match user needs. 2.

Calibrating Adaptive Load Compensation (ALC)

During the ALC calibration process an utility calculates motor resistance values to help providing a more consistent motor speed. In case of installing a new power module the module must re-learn this values.

1. Perform suggested programming procedure. See 6.3 Step 3 – Set Load Compensation, page 92.

Converting Old Configurations (Optional)

Convert configuration to enable latest feature, such as Switch Control. 1. For iOS tool, see 7.3.4 Converting Configuration Files, page 104 For PC tool, see 8.5.9 Converting Configuration Files, page 125

Setting up Alternative Inputs (Optional)

For more information, see 9.17 Installing/Setting up Alternative Switches, page 197.

- Set parameter Profile User Input or User Function Input on desired function or profile to Input Module or to Third 1 Party, depending on component input. 2
 - Set parameter User Input Configuration (Modules \rightarrow IN 500 / TPI) to desired input type.
 - ĩ Check if default value of parameter meets installed input type.
- 3. Modify other parameters, depending on used component.

Setting up Alternative Outputs (Optional)

Set parameters for short and long press in utitlity card to desired values. For more information, see 9.10 Modifying Utility Functions, page 148

Modifying Lighting Parameters (Optional)

Edit lighting parameters to desired values. For more information, see 9.7 Modifying Lighting Parameters, page 143

Modifying Gyro Support in Drive Functions (Optional)

Set parameter Gyro Enabled Drive Function to desired value. 1 For more information, see 9.6 Modifying Gyro Support in Drive Functions, page 142

5 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.

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 7.3.5 Modifying a Program, page105

5.1 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.

5.1.1 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.

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3.

	.≓ Op	pen a Connection		Dpen a
	G	Find more		Dpe Ope
	•	Q. Search	×	Q s
		PAST CONNECTIONS		C:/
		LAK-C14134853 C14134853, Last connected: Mon May 9 09:15:24 2016 GM	OFM	Moi
		C14134655, Last Connected. Mion May 9 09.15.24 2010 GMI	Connect Set Friendly Name	i i i i i i i i i i i i i i i i i i i
			Forget Device Re-establish device pai	ľ.
Select Set Friendly Name option fro	om	context menu.		
	Bl	uetooth friendly name		
	E	nter a new friendly name:		
	[Design Dept.		
	_			

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.

Cancel

Ok

5.2 Overview LiNX Access Tools

Top Level Parameter Categories	Parameter Subcategories
Chair Configs	
Restore to Default Config	
Diagnostics/Chair Log	For details see following table
	Speed Demand
	Turn Demand
	Motor Voltage
Live Diagnostics ¹	Motor Current
	Motor Resistance
	Battery Voltage
	Speed Dial
System Summary	System modules with hardware number, firmware number and serial number
Functions	Different kind of profiles and functions
	Drive Settings
	Switched Driving
	Sleep Settings
	Lock Settings
User Preferences (for details see <i>5.2.2 Overview User Preferences, page 80</i>)	User Function Navigation
	Control Input/Output Settings
	Display Settings
	Energy Use Settings
	Speedometer and Odometer
Modules	For details see following table

^{1.} Live Diagnostics only available in Connection context mode

Top Level Parameter Categories	Parameter Subcategories
Actuator Motions	For details see following table
Trigger Angles	For details see following table
Lighting	Turn indicators
Lighting	Position

Top Level Parameter	Parameter Subcategories	
	Active Errors	Active error list
Diagnostics/Chair Log	Chair Log/Event Log	Log
	Chair Statistics	Battery usage
	Chair Statistics	Drive statistics

Parameter Subcategories		
		Power Module
	Power Module	MotorsLoad Compensation
		Control Inputs/Outputs 1–4 (for details see 5.2.5 Control Input Types and Options, page 88)
		Display Settings (for details see 5.2.3 Overview Display Settings, page 84, only for remotes with display)
		User Input - Configuration
	Primary Remotes	User Input - Joystick Shaping
		Speaker - Audible Cues
		Control Inputs/Outputs (for details see 5.2.5 Control Input Types and Options, page 88, only for remotes with inputs/outputs)
Modules	Secondary Domotos	User Input - Configuration
	Secondary Remotes	User Input - Joystick Shaping
		User Input
	ТРІ	Control Inputs/Outputs 4–32 (for details see 5.2.5 Control Input Types and Options, page 88)
		User Input
	Input Module	Control Inputs/Outputs Jack Socket (for details see 5.2.5 Control Input Types and Options, page 88)
	ACT200 ²	Control Inputs/Outputs 1–4 (for details see 5.2.5 Control Input Types and Options, page 88)
	ACT400 ²	Control Inputs/Outputs 1–4 (for details see 5.2.5 Control Input Types and Options, page 88)
		Identification
Actuator Motions ²	Configured Seating Motion ²	Behaviour
		Actuator Channels

^{2.} Optional

Parameter Subcategories		
	Angle Sensor Source	
Trigger Angles ²	Configured Trigger Angles ²	Debounce Timer
		Trigger Angle

5.2.1 Overview Profiles

Profile Name	Name for the current profile.
Enable Profile	When enabled, this profile becomes visible to the user.
Profile User Input	Selects the user input for this profile.
Enable Function Wrap	When enabled, this allows the user to continually scroll and loop through available functions without changing the scrolling direction.
Enable Menu Scan	Enables scanning the menu for this profile.
Enter Navigation Instead of Function Wrap	When enabled, the navigation menu is displayed instead of wrapping around to the next function when at either end of the current profile. This occurs regardless to the Enable Function Wrap setting.
Rest Timeout Enabled	If set, the system enters rest state after a specified time of user inactivity. The rest state is entered from this profil's drive or seating functions only.

5.2.2 Overview User Preferences

	::16 PM	es	
Drive Settings			
Drive Delay At Startup	0.0s	A	+
Switched Driving			
Constant Speed Trigger	10%	<u> </u>	+
Veer at low speed	15.00°	_	+
Veer at High Speed	2.50°	-	+
High Speed Reference	50%	(-	+
Sleep Settings			

iPod	08:06		* 🖦
🗸 Back	User Prefer	ences	
Display S	ettings	_]
User Clo Display		24 H	our 🗸
User Clo Offset H	0	!h	+
User Clo set Minu		in	-H) +)
Langua	ge	Eng	lish 🗸
Digital S Interact	Speed Slider ivity	Autom	atic 🗸
Energy U	se Settings	_	
Automa	tic Power Off		On ∨
Low Pov tion	wer Mode Dura	^{a-} 6 ho	0

iPod 08:06 *
◆ <u> </u>
Sleep Settings
Enable Sleep Timeout No
Sleep Timeout Duration 🔶 5min
Enable User Input Wakeup Yes
Lock Settings
Enable Lock OS Yes
User Function Navigation
Cycle Profiles Yes
Profile Change uses last used Yes
Restricted user priority No Restriction
Startup Function Last used Function
iPod 08:06 * 🗩
✓ Back User Preferences ▲
Speedometer and Odometer
Enable Speedometer and Odo- meter V
meter ~
meter User Set per Display Speedometer and Odometer Scaling
user Set per Display Speedometer and Odometer Scaling Factor

iPod 08:06	* 🖦
K Back User Preferences	
User Function Navigation	
Timeout for navigation entry	5s
Menu Scan Rate	4,0s
Number of Menu Scan Cycles b fore Idle	e- 3 -®
Scan Selection	Disabled
Navigation type Mer	u Select
Navigation Entry Active User	Function
Navigation preference U	er Input
Control Input/Output Settings	
Activation Time	0,7s

80

\supset	Read 🖓 Write	C12H10A9B01X-03 😣 Reset to Default	😂 Manage	e	1
-]	LAK-H16166775 C12H10A9B01X-03 Flexible Navigation (1) v5.1	User Preferences			
л Но	ome	DRIVE SETTINGS	\ ~		
No Fu	nctions	Drive Delay At Startup	FA)	+ 0.0) s
Us	er Preferences	SWITCHED DRIVING			
) Ch	air Log	Constant Speed Trigger	-(B)	- (+ 5	6 %
		Veer at Low Speed		- + 35.00) °
io Mo	odules	Veer at High Speed		- + 10.02	0
Ac	tuator Motions	High Speed Reference	J	- + 35	%
👔 Tri	gger Angles	SLEEP SETTINGS			
Lig	ting	Enable Sleep Timeout	-(<u>c</u>)	Off	×
		Sleep Timeout Duration		- + 5	min
		Enable User Input Wakeup	J	On	1
		LOCK SETTINGS			
		Enable Lock		Off	×
		USER FUNCTION NAVIGATION			
		Cycle Profiles	-(E)	On	1
		Profile Change Uses Last Used Function		On	1
		Attendant/Occupant priority		No Priority	~ ~
		Startup Function	J	Last used Function	i v
		Timeout for Navigation Entry	-(F)	- (+ 5	s
		Menu Scan Rate	\cup	- + 4.0) s
		Number of Menu Scan Cycles Before Idle		- (+3	;
		Scan Selection		Disabled	÷
		Navigation Type		Menu Select	
		Navigation Entry		Active User Function	n V
		Navigation Preference		User Inpu	t v
		Enable Timeout for Navigation Entry	J	Off	×
		CONTROL INPUT/OUTPUT SETTINGS			
		Activation Time	⊢G)—	- + 0.7	s
		DISPLAY SETTINGS			
		User Clock Display Mode	<u>-(н)</u>	24 Hou	r v
		User Clock Offset Hours		+ 0	h
		User Clock Offset Minutes		÷) min
		Language		Englist	i v
		Digital Speed Slider Interactivity	J	Automatio	· ·
		ENERGY USE SETTINGS			
		Automatic Power Off		Or	i v
		Low Power Mode Duration	J	1 hou	r ~
		SPEEDOMETER AND ODOMETER		()	
		Speedometer and Odometer Scaling Factor		U - + 0	.000 m/s/
		Fine Tune Speedometer and Odometer Scaling	Factor		100 %
		Unit Preference		м	etric
		AUDIBLE CUES			
		Audible Cue Mode	<u>–(k)</u> –		

۸	Drive Settings	Drive Delay At Startup : Allows time delay to be set up between power-up and driving.
	Switched Driving	These parameters set veer behaviour 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.
		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.
B		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 .
		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.
		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.

		Enable Sleep Timeout : Determines whether system goes to sleep after a period without user activity.
©	Sleep Settings	Sleep Timeout Duration : Sets amount of time without user activity before system goes to sleep, if sleep is enabled.
		Enable User Input Wakeup : Determines whether deflecting joystick can wake system from sleep.
		Rest Timeout Duration : Sets the amount of time without user activity before the system enters the rest state, if rest timeout is enabled for the active profile.
D	Lock Settings	Enable Lock : Determines whether system can be locked by pressing power button for four seconds.
		Cycle Profiles : User profile menu either cycles or stops at each end. Parameter determines, if profile menu can cycle around when stepping through it.
Ē	User Function Navigation	Profile Change uses last used function : Sets behaviour of system to enter last used function of profile when particular profile is changed into.
		Attendant/Occupant priority: Selection for setting system user change restrictions. ¹
		Startup Function : Sets default user function on startup as either first user function of first profile or last used user function.
Ð	User Function Navigation	See 9.14 Enable Indirect Navigation, page 160 for more information.
G	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
	Display Settings	User Clock Display Mode : Sets the display mode to the user clock to either 12 hour or 24 hour format.
		User Clock Offset Hours: Adjusts the display clock hour value to the time zone.
(H)		User Clock Offset Minutes : Adjusts the display clock minutes value to the time zone.
		Language: Sets the language for text information on the display.
		Digital Speed Slider Interactivity : Sets whether the touch screen speed slider is able to be used in a system where it has the priority.
		Automatic Power Off: Enables the LiNX system to power down itself after 12 hours of user inactivity. Parameter is equivalent to pressing a power button.
1	Energy Use Settings	Low Power Mode Duration : Sets the time which the LiNX system will remain in low power mode after power off. Low power mode is used to monitor battery charging, allow for joystick wakeup from sleep, and to apply electronic braking to actuators.
1	Speedometer and Odometer	Speedometer and Odometer Scaling Factor: Scaling factor for speedometer and odometer.
		Fine Tune Speedometer and Odometer Scaling Factor: Fine tune the speedometer and odometer value.
		Unit Preference: Sets the measurement units for the display.
		Audible Cue Mode: Determines the mode of audible cues.
K	Audible Cues	Audible Cue Tempo: Sets the speed at which audible cues are played, where 1 is slowest and 10 is fastest.

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.



1

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 Priority: 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.



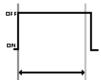
If duration time is less than Activation Time, input is detected as single press.



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.

5.2.3 Overview Display Settings

🔵 🖼 Read 🛛 🎇 Write	TDX SP2 ULM	😵 Reset to Default 🛛 😂 Manage			2	•
LAK-H16166775 TDX SP2 ULM		REM 4xx				
Home	Power Module	DISPLAY SETTINGS - CONFIGURATION				
Functions	REM 4xx	Display Brightness ((A)		100 %	ŝ.
O User Preferences		Enable Tap-Only Mode (B		Off ×	
	REM 5xx	Enable Glove Mode (©		Off ×	
E Chair Log	IN 200		D	Righ	it Handed	
B Modules	101 500	Tap Zone (E		20	
Actuator Motions	IN 500	Screen Lock	F		User Set	
Trigger Angles		Speedometer and Odometer on Drive Screen	6 I	Show Speedometer and C	Odometer	v
		USER INPUT - CONFIGURATION		how Speedometer and O		
Lighting		User Input Configuration	F	lide Speedometer and Od	ometer	
		Neutral Window			15 %	
		Joystick Throw			90 %	č.
		Joystick Switch Threshold			40 %	
		Tremor Dampening			0 %	i.
		Joystick Rotation Angle			0 °	
		Swap Joystick Axis			No swap	
		LEFT JACK SOCKET (J1) TIP - PORT SETTINGS				
		Input Type		Not C	onnected	
		Advanced				



Fig. 5-2 iOS tool

A	Display Brightness	Sets the brightness of the display.
₿	Enable Tap-Only Mode	Enables Tap-Only Mode where swipe interactions are replaced by taps.
©	Enable Glove Mode	Enables Glove Mode on a remote with touch screen.
D	Display Handedness	Sets whether the display is used by a left or right handed user.
Ē	Tap Zone	Defines the area used for detecting a tap action on the touch interface.
Ē	Screen Lock	Sets the touch screen lock. This persists over power cycles.
G	Speedometer and Odometer on Drive Screen	Sets whether the speedometer and odometer are shown on the drive screen.

5.2.4 Overview Control Input / Output (Control IO)

Control IO provides a number of options for the wheelchair user, therapist and manufacturer to extend the input and output capabilities on their LiNX system. These include, for example:

- configuring an input with an external power switch for users who cannot reach the power button on the remote module;
- configuring inputs to increment or decrement the speed slider for users who have difficulties using the speed slider on a REM400 or REM500;
- configuring an input to open a specific function card for users who need quick access to this function card;
- configuring a number of external buttons to perform mouse actions (clicks and movement) and common keyboard actions for users who cannot use the joystick.

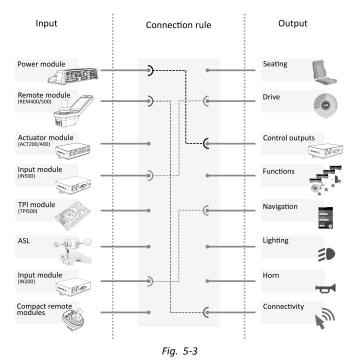
In this manual there are mentioned different types of input and output.

- System control input:
- Given via remote or external inputs like buddy buttons or head array.
- Control input (CI):
- Configurable module inputs like CI pins or jack sockets.
- Output:

Includes driving, seating, lighting, horns, function selection, navigation, connectivity and control output. The outputs are configurable via the LiNX Access tools.

 Control output (CO): Configurable module outputs like DB9 connector and jack sockets.

On selected LiNX modules, you can configure a control input (CI) to select and use outputs or to configure further control output (CO) on the Output module. The following graphic shows a simplified view of the LiNX Control IO.



Connection rules link the inputs to the outputs. These describe which inputs activate which outputs, including how and when. Connection rules are created using the LiNX Access tools.

Creating connection rules for control IO:

- 1. Select and configure a control input, for example power module, Control Input 1, 10-way switch or Switch 5.
- 2. Assign an output and actions, for example seating, tilt or toggle.
- 3. Configure advanced settings (optional), for example Input Port Debounce or monitored.

For more detailed information about using the LiNX Access iOS tool, refer to 9.15.1 Configuring Control IO (iOS Tool), page 163 and for the LiNX Access PC tool, refer to 9.15.2 Configuring Control IO (PC Tool), page 165

Control Inputs

Supported modules and their control inputs are:

- Power module: CI pins on Aux port via Accessory loom
- Remote module: multipurpose buttons, toggles, jack sockets
- Actuator modules: CI pins
- Input module: CI pins on DB9, jack socket
- TPI/ASL module: CI pins
- Compact remote module: mode button

Power modules offer control inputs through the utility port CI pins. The LiNX 100 series power modules provide three inputs, the LiNX 200 series power modules provide four inputs.

The REM400 and REM500 remote modules provide control inputs through the multipurpose buttons, toggles (REM400 only) and jack sockets. The left jack socket in both modules can be used for a power switch.

Actuator modules, ACT200 and ACT400, provide four control inputs each through the CI port.

The IN500 input module provides two control inputs through the DB9 connector and two through the jack socket. The IN200 input module provides six control inputs through the DB9 connector and two through the jack socket.

To see the control inputs for each module in more detail refer to 5.2.5 Control Input Types and Options, page 88.

 \hat{l} Complex configurations, which have been pre-configured for the manufacturer, are not accessible and are marked with the following icons:

Configurable: If configured, the slot can display the configuration summary.	Momentary None Fig. 5-4
Not configurable: The slot can display the configuration summary.	Momentary Drive Lockout Fig. 5-5
Restricted: The slot cannot show the configuration summary because of its complexity.	Momentary Restricted Fig. 5-6

Outputs

Supported outputs are:

- Seating
- Drive
- Control Outputs (Output module)
- Functions
- Navigation
- Lighting
- Horn
- Connectivity

Seating: Select **Seating** to set the output to control the position of the seat, backrest and legs. This output can be toggled, switched and latched.

Output	Choice 1	Choice 2
Seating	Tilt	Toggle
	Recline	Toggle Latch
	Elevate	Switched Extend
	Left Leg	Switched Retract
	Right Leg	Latched Extend
	Both Legs	Latched Retract
	Recline and Legs	
	LNX	

Drive: Select Drive to set the output to control the wheelchair speed and toggle between forward and reverse direction.

Output	Choice 1
Drive	Increment Speed
	Decrement Speed
	Toggle Reverse

Control Outputs: Select **Control Outputs** to activate one of eight control output pins on the Output module's DB9 connector or one of two outputs on the Output module's jack socket. Outputs can be set to momentary or their state can be latched with Set, Clear or Toggle actions.

Output	Choice 1	Choice 2
Control Outputs	Output 1	Momentary
	Output 2	Set
	Output 3	Clear
	Output 4	Toggle
	Output 5	
	Output 6	
	Output 7	
	Output 8	

Functions: Select **Functions** to give the user instant access to specific functions (drive, seating, utility etc.) and profiles. Options include:

- Next Function: selects the next function in the profile.
- Previous Function: selects the previous function in the profile.
- Next Profile: selects the next profile.
- Previous Profile: selects the previous profile.
- Next Function of Purpose: selects the next function of the same specified type in the active profile.
- Previous Function of Purpose: selects the previous function of the same specified type in the active profile.
- Force to Function: selects a specific function. This is configured by specifying the function.

Output	Choice 1	Choice 2
Functions	Next Function	
	Previous Function	
	Next Profile	
	Previous Profile	
	Next Function of Purpose	Choose purpose
	Previous Function of Purpose	Choose purpose
	Forte to Function	Choose function

Navigation: **Navigation** outputs can be set to perform a select action when in menu scan mode, toggle between indirect and direct navigation, display settings and toggle the lock screen.

Output	Choice 1
Navigation	Menu Scan Select
	Toggle Indirect Navigation
	Toggle REM 4xx Settings Menu
	Toggle REM 4xx Screen Lock
	Toggle REM 5xx Setting Menu
	Toggle REM 5xx Screen Lock

Lighting: Lighting outputs can be set to change the state of position, indicator and hazard lights. The output can be toggled, switched on and switched off.

Output	Choice 1	Choice 2
Lighting	Position	Toggle
	Left	On
	Right	Off
	Hazard	

Horn: Use this output to sound the horn on the remote module.

Choice 1	
All	
REM LE	
REM 1xx	
REM 2xx	
REM 4xx	
REM 5xx	
	All REM LE REM 1xx REM 2xx REM 4xx

Connectivity: Select Connectivity to access connectivity functions:

- Mouse Direction: move mouse.
- Mouse Left Click: perform a left-click.
- Mouse Middle Click: perform a middle-click.
- Mouse Right Click: perform a right-click.
- Mouse Scroll: perform an up/down scroll or toggle scroll mode.
- Switch Control: perform a keyboard action.

Output	Choice 1	Choice 2	
Connectivity	Mouse Direction	Mouse Direction Up/Down/Left/Right	
	Mouse Left Click	Single/Double/Toggle	
	Mouse Middle Click	Single/Double/Toggle	
	Mouse Right Click	Single/Double/Toggle	

Output	Choice 1	Choice 2
	Mouse Scroll	Up/Down/Scroll Mode
	Switch Control	Space, Enter, Esc, Tab, Up, Down, Left, Right

Advanced Settings

The advanced setting allow you to (optionally) configure the control inputs further. Select **Advanced** to reveal the following options:

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

Stop Driving and Seating: If this is set to **On**, then any activation on any slot related to this input results in driving and seating operations (if any) to stop before the system responds to the input.

For all inputs that use this feature, the user needs to activate the input twice to select the intended output if a driving or seating operation is in progress: the first activation stops the driving or seating operation, the second activation selects the intended output.

If no driving or seating operation is in progress, the intended output is selected by a single activation of the input.

Input Port Debounce: This setting is used to prevent false triggers, by determining when the controller responds to an input. This is useful when the controller needs to ignore spurious signals such as those, for example, generated by contact bounce (switch chatter) from a mechanical switch, or a ball switch when the wheelchair drives over rough terrain.

Set the Input Port Debounce time to an appropriate value.

- If it is set to zero seconds, no debounce is applied and the controller responds to a signal change on the input immediately.
- If it is set to a time greater than zero seconds, debounce is applied and the controller only responds to the signal present at the input after the time set by **Input Port Debounce**.
 - ${\parallel}$ The input signal must be stable for the duration of the debounce time, before the system responds to the input.

Monitored: If set to **Yes**, the input is able to detect open and closed circuits, as well as fault conditions: short circuit and no-circuit (disconnected) for all resistor-based circuits.

If set to No, the input is able to detect open and closed circuits but does not detect fault conditions.

Stability Checking: Sets whether this input is monitored for signal stability.

Instability on an input can trigger unwarranted errors that can be annoying for the user. Signals from mechanically-based switches, such as ball switches, especially, for example, when driving over rough terrain, can produce this type of instability. For systems that show this behaviour, stability monitoring on the input can be switched off.

Normally Closed: By default, switch inputs are considered Normally Open (NO). If a NO switch is used in the input circuit, leave this parameter set to **No**. If a Normally Closed (NC) switch is used in the input circuit, set this parameter to **Yes**.

Enable Input: This setting allows you to enable or disable the selected Input Type whilst retaining its control IO configuration.

When it is set to **Yes**, the system responds to the input according to the control IO configuration assigned to it. When it is set to **No**, the system does not respond to the input.

Note that the control IO configuration assigned to this input is retained when **Enable Input** is set to **No**. This is useful, for example, when you want to disable this input temporarily. However, if the Input Type setting is reset (by selecting **Not Connected**), then any configuration associated with this input type is deleted.

5.2.5 Control Input Types and Options

The following table shows the control inputs for each module in more detail, including the corresponding input types and available options.

Module	Module's Control Inputs	10-way Switch	Resistor Bands	Button	Power Button
Power module	Cl pins 1 - 3	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
	Control Input/Output (set as input)	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
REM4xx	Left jack tip	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	Yes
	Left jack ring	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
	Right jack tip	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
	Right jack ring	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
	Left toggle forward	No	No	Momentary, Short Press. Long Press, On Press	Yes
	Left toggle back	No	No	Momentary, Short Press. Long Press, On Press	Yes
	Right toggle forward	No	No	Momentary, Short Press. Long Press, On Press	Yes
	Right toggle back	No	No	Momentary, Short Press. Long Press, On Press	Yes
	Multipurpose button 1	No	No	Momentary, Short Press. Long Press, On Press	No
	Multipurpose button 2	No	No	Momentary, Short Press. Long Press, On Press	No
REM 5xx	Left jack tip	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	Yes
	Left jack ring	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
	Right jack tip	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
	Right jack ring	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
	Multipurpose button 1	No	No	Momentary, Short Press. Long Press, On Press	No
	Multipurpose button 2	No	No	Momentary, Short Press. Long Press, On Press	No

Module	Module's Control Inputs	10-way Switch	Resistor Bands	Button	Power Button
ТРІ	Cl pins 6, 8, 10, 25	No	No	Momentary, Short Press. Long Press, On Press	No
IN200	Cl pins 1 - 6	No	No	Momentary, Short Press. Long Press, On Press	No
	Jack tip	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	Yes
	Jack ring	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
IN500	CI pins 5 - 6	No	No	Momentary, Short Press. Long Press, On Press	No
	Jack tip	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	Yes
	Jack ring	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
ACT200	CI pins 1 - 4	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
ACT400	CI pins 1 - 4	Switch 1 - 10	Band 1 - 10	Momentary, Short Press. Long Press, On Press	No
ASL Switched	CI pin 8	No	No	Momentary, Short Press. Long Press, On Press	No
ASL Proportional	CI pin 8	No	No	Momentary, Short Press. Long Press, On Press	No
Compact Remote	Mode button	No	No	Momentary, Short Press. Long Press, On Press	No

6 Suggested programming procedure

\triangle

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.

6.1 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.

6.2 Step 2 – Check Motor Orientation

Step 2 ensures that the motors are configured correctly.

1.

iPod ᅙ	10:33		*	D
🗙 Back	Power Mo	dule		
Power Modul	e - Motors			
Veer Compe	ensation		0	%
Right Invert	>		Ye	es
Left Invert	>		Ye	es
Swap			Ye	es
Power Modu	ile - Load Cor	npensa	tion	
Motor Resistand	e	80mΩ	- +	•
Load Compensa age	ation Percent-	70%	- +	•
Control Input 1 - F	Port Settings			
Input Port Debo	unce	0.0s	- +	•
Control Input 2 - I	Port Settings			

Fig. 6-1

🕽 🔧 Read 🔧 Write	TDX SP2 ULM	😨 Reset to Default 🛛 😂 Manage	1
LAK-H16166775 TDX SP2 ULM		Power Module	
j Home	Power Module	POWER MODULE - MOTORS	
Functions	REM 2xx	Compensation	- + 0 %
User Preferences	REM 4xx	Right Invert	On 🗸
Chair Log		Left Invert	On 🗸
Modules	REM 5xx	Swap	On 🔽
Actuator Motions	CR 4xx	POWER MODULE - LOAD COMPENSATION	
Trigger Angles	ACU 2xx	Motor Resistance	- 80 mΩ
Lighting	TPI	Load Compensation Percentage	- + 70 %
Lighting	TPLACU	CONTROL INPUTS/OUTPUTS Control Input 1	
		Input Type	Not Connected
	IN 5xx	Input Port Debounce	+ 0.0 s
	ACT400-1	Control Input 2	
		Input Type	10-way switch
		Enable Input Type	On 📝
		Control Input 3	
		Input Type	Not Connected
	×	Input Port Debounce	- + 0.0 s



Open Modules → Power Module.

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.

6.3 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).

 $\underbrace{\begin{subarray}{l}{0}\\ \hline \begin{subarray}{ll}{0}\\ \hline \begin{subarray}{$

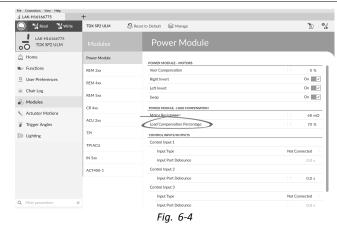
Adaptive Load Compensation is enabled by default, so the Motor Resistance parameter value is not used.

For more information about ALC Calibration application with iOS tool, refer to 6.3.1 Calibrating Adaptive Load Compensation (iOS Tool), page 93.

For more information about ALC Calibration application with PC tool, refer to 6.3.2 Calibrating Adaptive Load Compensation (PC tool), page 94.

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

iPod 🗟 10:33	dule		* 🖚
Power Module - Motors			
Swap		Yes	
Power Module - Load Compensatio	n		
Motor Resistance	80mΩ	-	+
Load Compensation Percent- age	70%	-	+
Control Input 1 - Port Settings			
Input Port Debounce	0.0s	_	+
Control Input 2 - Port Settings			
Input Port Debounce	0.0s	-	+
Control Input 3 - Port Settings			
Input Port Debounce	0.0s	-	+
Control Input/Output - Port Setting	s		
Fia. 6-	.3		<u> </u>



Open 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.
- increase value of this parameter if wheelchair drives more sluggish than anticipated.
- ${1}$ Load Compensation Percentage is only applied when Adaptive Load Comp Enabled is set to on.

6.3.1 Calibrating Adaptive Load Compensation (iOS Tool)

- ${
 m j}$ If the electronics or the motors have been changed, you need to calibrate the Adaptive Load Compensation (ALC).
- 1. From Home screen click on Modules.
- 2. Click on Power Module.

Scroll down to Power Module - Load Compensation section. 3.

4.

5.

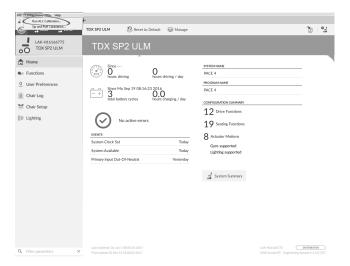
	iPod ♀ 12:59 ¥
	►
	Power Module - Motors
	• Veer Compensa- tion 0% - +
	Right Invert No
	Left Invert No
	Swap Yes
	Power Module - Load Compensation
	Motor Resis- tance 135m Ω - +
	Go to ALC Calibration
	Control Inputs/Outputs 1 - Port Settings
	Output Port Mode Disabled
Click on Go To ALC Calibration.	Fig. 6-5
	iPod 중 12:13 ¥
	Power Module Adaptive Load Comp
	Motor 1
	Finished
	153mΩ
	Motor 2
	Finished
	156mΩ
	Start Tuning
	Drive the chair until both the left and right motor compensation processes have been completed.
Tap on Start Tuning .	Fig. 6-6

Tap on Start Tuning.

Follow instructions on the screen. 6.

6.3.2 Calibrating Adaptive Load Compensation (PC tool)

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



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



Click on Recalibrate.

<section-header>

Click on Start.

3.

2.



Drive chair until both left and right motor compensation processes have been completed. 5.



Click on Done.

6.4 Step 4 – Adjust Speed Settings

The following parameters must be set for each drive function.

iPod	08:09	* 🖿
K Back	D1	
General		
Drive Function Name		D1
Enable Drive Fur	nction	Yes
Function User In	iput Profile (Jser Input
Navigation Time	out Enabled	No
Forward		
Max Forward Sp	eed	30%
Min Forward Spe	eed	20%
Forward Acceler	ration	70%
Forward Deceler	ration	60%

Fig. 6-7

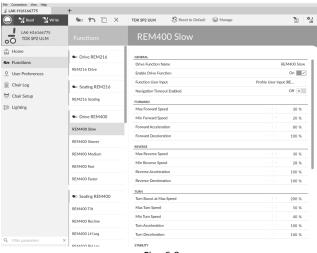


Fig. 6-8

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.

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

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.

1.

iPod ≎	10:33	* 🖚
K Back Po	wer Module	
Power Module - Motor	5	
Veer Compensation	0%	- +
Right Invert		Yes 💽
Left Invert		Yes 💽
Swap		Yes 💽
Power Module - Load C	compensation	
Motor Resistance	80mΩ	- +
Load Compensation age	Percent- 70%	- +
Control Input 1 - Port S	ettings	
Input Port Debounce	e 0.0s	- +
Control Input 2 - Port S	Settings	
Input Port Debounce	e 0.0s	- +



" LAK-H16166775	+			
🔵 🔧 Read 🛛 🎇 Write	TDX SP2 ULM	🕺 Reset to Default 🛛 😂 Manage		<u>ب</u> ہ ا
LAK-H16166775 TDX SP2 ULM		Power Module		
LnJ Home	Power Module	POWER MODULE - DRIVING		
Supervisions	REM 2xx	Veer Compensation	- +	0 %
0 User Preferences	REM 4xx	Right Invert		On 🗸
Chair Log		Left Invert		On 🗸
A Modules	REM 5xx	Swap		On 🗸
	CR 4xx	POWER MODULE - SWITCHED DRIVING		
Actuator Motions		Constant Speed Trigger		10 %
👔 Trigger Angles	ACU 2xx	Veer at low speed		15.00 °
Lighting	TPI	Veer at High Speed		2.50 °
	TPI ACU	High Speed Reference		50 %
		POWER MODULE - LOAD COMPENSATION		

Fig. 6-10

Open Modules \rightarrow Power Module.

6.5 Step 5 – Adjust acceleration settings

The following parameters must be set for each drive function.

iPod	08:09	* 🖚
🗙 Back	D1	
General		
Drive Function Name		D1
Enable Drive Fur	nction	Yes
Function User In	put Profile	User Input
Navigation Time	out Enabled	No
Forward		
Max Forward Sp	eed	30%
Min Forward Speed		20%
Forward Acceler	ation	70%
Forward Deceler	ration	60%

File Connection View Help	+		
C 😪 Read 🕻 Write	🐝 🐴 🗋 🗙	TDX SP2 ULM SReset to Default SAnage	3 <u>0</u>
LAK-H16166775 TDX SP2 ULM	Functions	REM400 Slow	
Home	Drive REM216	GENERAL	
So Functions	CONVERCENTZ10	Drive Function Name	REM400 Slow
User Preferences	REM216 Drive	Enable Drive Function	On 🗸
Chair Log		Function User Input	Profile User Input (RE
	Seating REM216	Navigation Timeout Enabled	Off ×
Chair Setup	REM216 Seating	FORWARD	
Lighting		Max Forward Speed	- + 30 %
	C Drive REM400	Min Forward Speed	- + 20 %
	REM400 Slow	Forward Acceleration	- + 80 %
		Forward Deceleration	100 %
	REM400 Slower	REVERSE	
	REM400 Medium	Max Reverse Speed	- + 30 %
	REM400 Fast	Min Reverse Speed	- + 28 %
		Reverse Acceleration	100 %
	REM400 Faster	Reverse Deceleration	100 %
		TURN	
	Seating REM400	Turn Boost at Max Speed	- + 200 %
	REM400 Tilt	Max Turn Speed	- + 50 %
	REM400 Recline	Min Turn Speed	- + 40 %
		Turn Acceleration	- 100 %
Q Filter parameters ×	REM400 LH Leg	Turn Deceleration	100 %
 ritter parameters X 	DEM/IOD DU I an	STABILITY	

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 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.

7 Using the LiNX Access iOS tool

7.1 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.

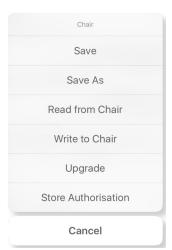


- (A) Context switch (switch between connection and file context mode)
- (B) Application menu button (edit button)
- © Program name / screen name
- D Close / navigate to previous screen

7.1.1 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

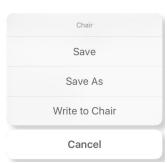


To work on a connected wheelchair, select **Connection context**. If you are not connected to a LiNX system the **Connect to device** screen is displayed. Otherwise, the last screen that you were working with, is displayed.

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.

7.1.2 Changing Program Name

By default, the program name and system name are composed of the wheelchair configuration. See 11 Structure of Program Names, page 209

The program name can be changed to a more familiar name.

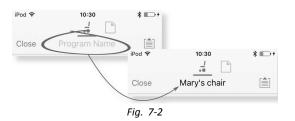


Fig. 7-1 Example of a standard program name. Marked areas and callouts correspond to the rules for program naming.

The program name in the picture was generated using the rules for program naming valid up to July 2018. It is for a Center Wheel drive TDX SP2 with a DLX-PM120AL, 8 km/h, seat lifter with powered tilt and CoG shift, REM1XX or REM2XX remote and LED light. The revision of the file 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.

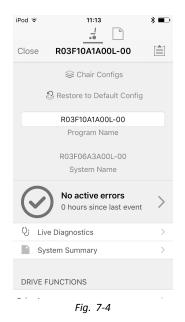
PC Tool

CONFIGURATION SUMMARY		SYSTEM NAME
3 Drive Functions		Demo
3 Seating Functions		PROGRAM NAME Default
3 Actuator Motions		Since
Gyro supported Lighting supported		hours driving
		0 hours driving / day
EVENTS		Since
System Clock Set	Last week	- + O
		total battery cycles
eft Park Brake Error	Last week	
	Last week	hours charging / da
Left Park Brake Error Right Park Brake Error Gyro orientation error		hours charging / day
light Park Brake Error	Last week	hours charging / day

Fig. 7-3

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

7.2 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
- Modules
- Actuator Motions
- Trigger Angles
- User Preferences
- Lighting

7.3 Connection context actions



The following tasks are only relevant for the **Connection context** mode. For tasks related to the **File context** mode, refer to 7.4 File context actions, page 108

7.3.1 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.

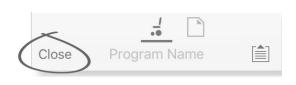


iPod 🗢 10:3	
	iPod ╤ 10:30 🖇 🗔 +
Search for LAKs	
	Connect to Device
	S Select An Accessory
	LAK-C13122584
	LAK-C14134853
	Martin_DCL
	Cancel
	LINX

- 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.

7.3.2 Reading a program from the wheelchair



2.

	Close	Program Name	
Click on Application menu button.			
		Chair	
		Save	
		Save As	
	<	Read from Chair	>
		Write to Chair	
		Upgrade	
		Store Authorisation	
		Cancel	

Select Read from Chair.

7.3.3 Restoring Default Wheelchair Configurations

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 up to eight 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 to return toHome screen.
 - $\frac{1}{2}$ When a new wheelchair configuration is selected, the system automatically power cycles before the wheelchair configuration becomes active.

7.3.4 Converting Configuration Files

Using older configuration files on wheelchairs can result in missing features which were introduced in later revisions of firmware, such as Switch Control. In most cases, converting these configuration files allows you to update user's configuration to latest release to enable all features.

 ${\parallel}$ In case configuration file is on current revision or incompatible, menu entry is shown greyed out.

- 1. Connect with wheelchair.
- 2. Open Application menu.
- 3.

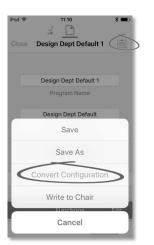


Fig. 7-5

Tap on entry Convert Configuration and follow screen prompts.

7.3.5 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
- Modules
- Actuator Motions
- Trigger Angles

Parameters can be modified numerically or graphically, refer to 9 Modifying Wheelchair Configurations, page 128

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

Live Edit Mode

- \mathring{l} 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.



Certain 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.		
	<i>c</i> : - -	_

Fig. 7-7

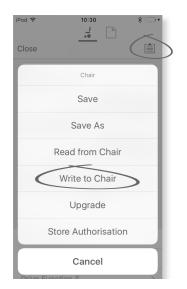
Certain parameters can only be edited in bulk edit mode. These are identified by a colored background. To edit these parameters, bulk edit mode must be unlocked before proceeding.

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 7.3.6 Writing a program to the wheelchair, page 105

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.

7.3.6 Writing a program to the wheelchair

 \mathring{l} This feature is only available when a wheelchair is connected.



1. Click on Application menu button.

2. Select Write to Chair.

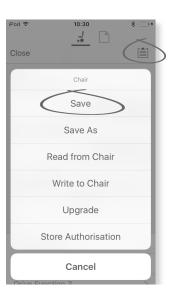
After writing to the wheelchair, the LiNX Access tool cycles the system's power and automatically reconnects to the system.

 \parallel 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.

7.3.7 Saving programs

 \mathring{l} Wheelchairs with Serial Numbers before 18JE000303: If you are adding OUT500 or replacing a REM400A with a REM400B, contact Invacare Technical Service to have the existing files saved and the bundle files updated.

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.

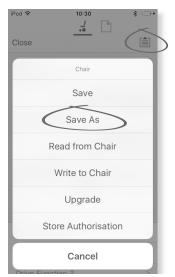
 $\frac{1}{2}$ All files are saved with a .lci extension. If the Program name has been set, then the file is saved with the Program Name. If not, the file is saved with a date /time stamp as follows:

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 .

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.
- 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).
- 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.

7.3.8 Upgrading Firmware

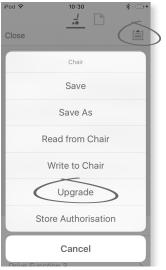


Fig. 7-8

- 1. Tap on Application menu button.
- 2. Tap 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**.
- 3.

4.



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



If one or more modules require upgrading, tap on single module to upgrade it or tap 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. Tap **Done** button to finish.

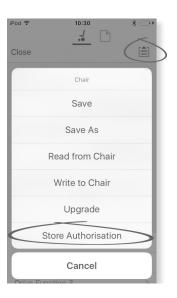
7.3.9 Storing the LAK certificate

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.
 - \tilde{I} If the LiNX Access iOS tool application is removed from your iOS device, the Access Level Certificate is lost.

7.4 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 7.3 Connection context actions, page 102

7.4.1 Load from file screen

iPod 🗢	10:	30	* • +	
	Load Fr	om File	Edit	
		iPod 🗢	10:30	* 💽 +
			Load From File	Edit
		Indoor 15/03/201	- home-1.lci 6, 10:10	>
		Indoor 15/03/201	- home-2.lci 6, 10:10	>
		Indoor 15/03/201	- home.lci 6, 10:09	>
		Indoor. 15/03/201		>
		ads.lci 15/03/201	6, 10:07	>

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

7.4.2 Writing Bundle Files

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

iPod 🗢	10:58	*			
Done C12H1	0A9B01X-07.ld	A tr			
Programs		B			
С12H10A9B01 С12H10A9B01X-04		0			
Power Module	Firmware	C			
DLX-PM120-B	App ID 23	3:4.3.4 🕓			
DLX-PM120AL	-A				
DLX-PM120AL	Writing Bundle				
DLX-PM60-B DLX-PM60AL-	DLX-PM60-B				
DLX-PM60AL-					
DLX-PM75-B					
DLX-PM75AL-	A				
DLX-PM75AL-I	В				
Remote Modu	le Firmware				
DLX-ACU200-	A App ID 46	S: 4.3.2 🕓			
DLX-CR400-A	App ID 52 Fig. 7-11	2 : 4.3.2 ()			

- 1. Connect wheelchair.
- 2. Select File connection screen.
- 3. Choose bundle file from list displayed in Load From File screen.
- 4.
- Ensure to select the correct configuration. A wrong configuration can lead to unexpected behaviour and failures. For more information about the rules for program naming, see *11 Structure of Program Names, page209*

Select preferred configuration from section ^(B).

- 5. Check included firmware versions of components in section $\ensuremath{\mathbb{C}}$ and below.
- 6. Write bundle file to wheelchair. Click button (A) and wait until overlay Writing Bundle disappears.
- 7. Click button Done to return to File connection screen.

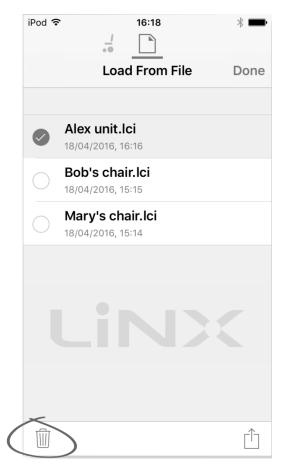
7.4.3 Opening files

iPod 🗢 10:30 Load From File	∦ ⊞→ + Edit
Indoor - home-1.lci 15/03/2016, 10:10	>
Indoor - home-2.lci 15/03/2016, 10:10	>
Indoor - home.lci 15/03/2016, 10:09	>
Indoor.lci 15/03/2016, 10:22	>
ads.lci 15/03/2016, 10:07	>

- 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 120 and 7.3.6 Writing a program to the wheelchair, page 105

7.4.4 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.

7.4.5 E-mailing files

1.		iPod 훅	10:30	* 💼 +
			Load From File	Edit
2.	Select Edit from Load From File scre Select one or more files from file lis			
3.		iPod 🗢	16:18	* •••
			Load From File	Done
			Alex unit.lci 18/04/2016, 16:16	
		\bigcirc	Bob's chair.lci 18/04/2016, 15:15	Π.
			Mary's chair.lci 18/04/2016, 15:14	

Click on E-mail button.

1	1		
	T	٠	

iPod ᅙ	12:11	—)•		
	Load From File	Done		
	AirDrop . Tap to turn on Wi-Fi Bluetooth to share with AirDr			
	dynamic 3			
Mail	Add to Notes Import with LiNX Access	More		
•	•••			
Add To iCloud Drive	More			
	2008737001 -03 +4v			
Cancel				

The iOS Share Sheet opens up. Select desired option.

```
5.
```

desired opt	ion.	
iPod ᅙ	16:19	*
Cancel	New Message	Send
To:		
Cc/Bcc:		
Subject:		
Alex unit.lci		
Sent from	my iPod	

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.

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 Se	tup Language 🛛 🛛 🗙
×	Select the language to use during the installation:
	English 🔻
	OK Cancel

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.

onditions of Use Please read the following important information before continuing.	
	Q
Please read the following Conditions of Use. You must accept these Conditions continuing with the installation.	s before
CONDITIONS OF USE AND WARNINGS	*
INTENDED USE	=
LINX Access PC is a configuration tool intended to provide access to settings of the control system, enabling customisation of parameters and performance t suit the needs and preferences of individual users.	
WARNINGS	
Read the LiNX Access User Manual as well as Installation Manual(s) of the Sys	stem 👻
I accept	
I do not accept	

Select I accept option.

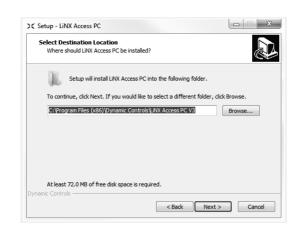
2. Click Next button.

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.

Setup will create the			
0	e program's shortcu	uts in the following S	Start Menu folder.
To continue, click Next. If yo	u would like to sele	ct a different folder	, dick Browse.
Dynamic Controls			Browse
namic Controls			
iamic controis		< Back Ne	xt > Cancel

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.

Select Addition	onal Tasks onal tasks should be performed?	
Which addre	ona taxa andia be performea:	C
Select the a PC, then did	dditional tasks you would like Setup to perform while installin k Next.	g LiNX Access
Additional ic	ons:	
Create	a desktop icon for LiNX Access PC	
Other tasks		
Associa	te wheelchair program files ('.lci') with LiNX Access PC	

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).

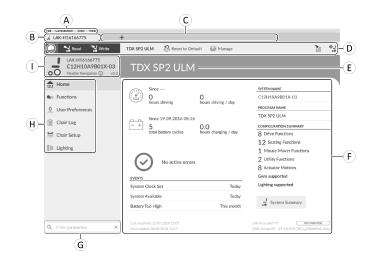
Using an USB Bluetooth adaptor

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

 $\mathring{j}\mathring{}$ Layout may change whether connected or not.

Home screen



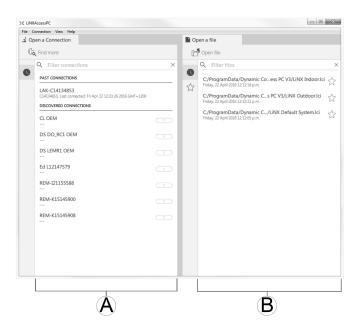
- A Menu bar
- B Connection tab
- © File tabs
- D Tool bar
- (E) Main content header
- (F) Main content
- G Filter parameters box
- (H) Primary navigation side bar
- ① Tab context

Secondary navigation side bar

File Connection View Help	÷		
🔘 😽 Read 😤 Write	TDX SP2 ULM 🕺 Reset to	o Default 🛛 😂 Manage	۵.
LAK-H16166775 C12H10A9B01X-03 Flexible Navigation ① v5.0		Power Module	
Home	Power Module	POWER MODULE - MOTORS	
Supervisions	REM 2xx		+ 0%
0 User Preferences	REM 4xx	Right Invert	Off ×
Chair Log		Left Invert	Off ×
😸 Chair Setup	REM 5xx	Swap	On 🗸
	CR 4xx	POWER MODULE - LOAD COMPENSATION	
Madules		Motor Resistance	+ 68 mΩ
Actuator Motions	ACU 2xx	Load Compensation Percentage	+ 70 %
E Lighting	TPI	CONTROL INPUTS/OUTPUTS	
	IN 5xx	Control Input 1	
		J	
A	B		

The secondary navigation bar \mathbb{B} is only displayed for certain primary navigation bar selections \mathbb{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

Default Systen	n	
Since O hours driving Since	A O hours driving / day	SYSTEM NAME Demonstration PROGRAM NAME Default System
total battery cycles	hours charging / day	CONFIGURATION SUMMARY 6 Drive Functions 2 Seating Functions 2 Mouse Mover Functions
EVENTS System Clock Set	This month	2 Utility Functions 2 Actuator Motions
Primary Input Out-Of-Neutral	This month	Gyro supported
System Available	This month	Lighting supported
Joystick Error	This month	
		System Summary
Last modified: Tue May 3 11:35:55 2016 First created: Wed Mar 16 15:34:42 2016		LAK-C14134853 LINX Access PC

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

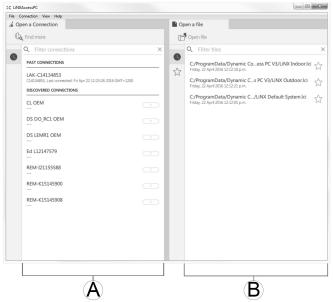
8.3 Concepts

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** (a). 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 (B). 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.
- \mathring{l} 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 7.3.5 Modifying a Program, page 105

8.4 Checking and Getting 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.

 \mathring{l} 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.

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

Configuring Internet Settings

1. Click on Help and select Internet Settings.

2.

Internet Settings	5	
Proxy Enabled	✓	
Proxy Address		
User Name		
Password		
		Class
		Close

Fig. 8-1

- 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 7.4 File context actions, page 108

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.

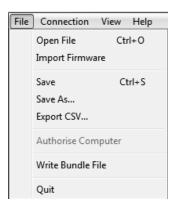
To read a configuration from file context

- 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

- Wheelchairs with Serial Numbers before 18JE000303: If you are adding OUT500 or replacing a REM400A with a REM400B, contact Invacare Technical Service to have the existing files saved and the bundle files updated.
- 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		
т	•	

	Q Filter files			×
0				
•	C:/ProgramDa	ta/Dynamic Co	.ess PC V3/LiNX Indoor.lci	~>
52	Wednesday, 1	Open file		\sim
0.0	C:/Users/as	Remove from list		~~
	Wednesday, 18 Ma	ay 2016 10:12:47 a.m.		W

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:

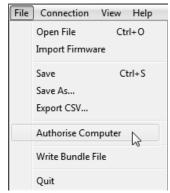
- Distributor and
- Read-only.

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 you 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 Upgrading Firmware

IMPORTANT!

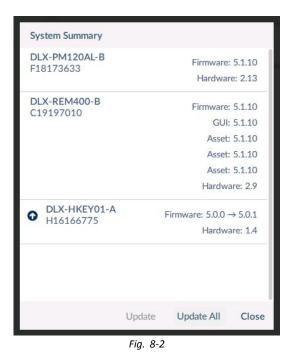
Before upgrading firmware, make sure the battery level is not low. Make sure the wheelchair is in a safe and stable state.

- Place the wheelchair on blocks to elevate it from the ground.
- Do not upgrade firmware when the wheelchair is on a slope.
- Do not upgrade firmware when the park brakes are disengaged.

• Oblong wooden blocks (at least 14 x 14 x 30 cm)

To access module firmware upgrade screen:

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



The system summary displays each module with its firmware status:

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

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

To upgrade individually:

- 1. Select single module and click Update button.
- To upgrade all at once:
- 1. Click Update All.

8.5.7 Restoring Default Wheelchair Configurations

File Connection View Help			
Kead % Write LAK-H16166775 TDX SP2 ULM	TDX SP2 ULM	> <u>ì</u>	0.1
Home Functions User Preferences Chair Log Chair Setup Lighting	Since ··· Discus driving Discus driving / day □···· Since Med Sep 19 081:622 2016 Discus driving / day □···· Since Med Sep 19 081:622 2016 Discus driving / day □···· Since Med Sep 19 081:622 2016 Discus driving / day □···· Mail lasticey cycles Discus driving / day	INSTITE NAME TIXX SP2 ULM INCOMPANY NAME TOX SP2 ULM CONFLICTION SAMANY 12 Drive Functions 19 Sealing Functions 19 Actuator Motions	
	Synten Clock Set Today Synten Available Today Primary legat Out-Of Neutral Yestenday	Gyn sugorid Lighting supported	
Q Filter parameters X	Last modified: Do Jun 1 08:54:35 2017 First created: DI Mrz 14 22:02:03 2017	LAK-H16166775 DIstribution LINX Access PC - Engineering Sample 4.1.4	
	Fig. 8-3	3	

Loading stored Wheelchair Configurations

😂 Manage

1. 2. Click Manage to open wheelchair configuration list.



Fig. 8-4

Click on icon $\textcircled{\sc behind}$ behind desired wheelchair configuration.

3.

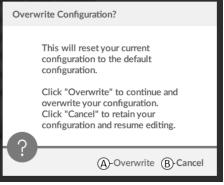


Fig. 8-5

A message is displayed warning you, that current configuration will be overwritten. Click **Overwrite** ((A)) to finish operation. Otherwise, click **Cancel** ((B)) to abort operation.

Loading Default Wheelchair Configuration

😣 Reset to Default

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

- 1. Click on Reset to Default button on the tool bar.
- 2.

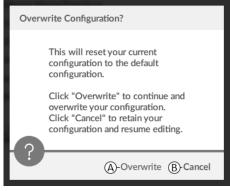


Fig. 8-6

A message is displayed warning you, that current configuration will be overwritten. Click **Overwrite** ((A) to finish operation. Otherwise, click **Cancel** ((B) to abort operation.

 ${\mathop{}_{\textstyle \parallel}}$ Default chair configuration means last connected configuration.

If chair configurations are not supported by wheelchair, such as in LiNX LE systems, **Reset to Default** and **Manage** are not displayed.

8.5.8 Loading Default Configurations

- 1. Open LiNX Access tool.
- 2.



Fig. 8-7

Click either on button Reset To Default (A) or Manage (B) in tool bar.

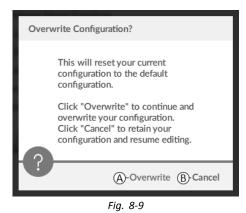


Fig. 8-8

If chosen **Manage**, you will see a list with default configurations stored on power module. Click on icon (A) behind the preferred configuration. Otherwise, click button (B) to abort.

4.

3.



A message box appears. Confirm the reset by clicking on button **Overwrite** (B). Otherwise, click on button **Cancel** (B) to abort.

5. Modify parameters, especially lighting functions (see 9.7 Modifying Lighting Parameters, page 14.3) and gyro status (see 9.6 Modifying Gyro Support in Drive Functions, page 14.2).

8.5.9 Converting Configuration Files

Using older configuration files on wheelchairs can result in missing features which were introduced in later revisions of firmware, such as Switch Control. In most cases, converting these configuration files allows you to update user's configuration to latest release to enable all features.

 \tilde{j} In case configuration file is on current revision or incompatible, menu entry is shown greyed out.

- 1. Connect with wheelchair.
- 2. Click on File in menu bar.

3.



Fig. 8-10

Select entry Convert Configuration and follow screen prompts.

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 119

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 Configurations, page 128 For information about saving files, refer to 8.5.4 Save a program as a file, page 120 For information about reading a program, refer to 8.5.3 Read a program from a wheelchair, page 120 and for information about writing a program to a wheelchair, refer to 8.5.2 Write a program to a wheelchair, page 120

8.6.2 Remove a file from list

•	Q Filter files			\times
• ~>	C:/ProgramDa Wednesday, 1	ata/Dynamic Co Open file	ess PC V3/LiNX Indoor.lci	\overleftrightarrow
\sim	C:/Users/as Wednesday, 18 M	Remove from list ay 2016 10:12:47 a.m.	₿ i	\overleftrightarrow

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

8.6.3 Writing bundle files to a chair

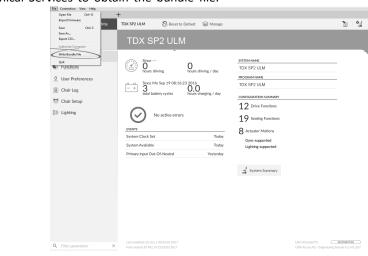
Bundle files can be written to a connected chair. Bundle files can include wheelchair configurations and/or firmware files.

Updating the bundle files sets configuration and included parameters back to default settings.

Invacare recommends making a backup of configuration files prior to updating a bundle file. See 8.5.4 Save a program as a file, page 120

- Wheelchairs with Serial Numbers before 18JE000303: If you are adding OUT500 or replacing a REM400A with a
- ¹¹ REM400B, contact Invacare Technical Service to have the existing files saved and the bundle files updated.

Contact Invacare Technical Services to obtain the bundle file.
 Implementation of the service of the



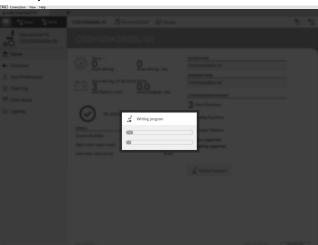
Click on **File** menu. Select **Write Bundle File**.

3.

>€ Open File					×
← → ~ ↑ 🔚 « LiN	X_Access_0.03 > 03 Production Bundle	es > Kite > 10	・ ひ Search 10)	P
Organize 👻 New folder	r				0
A Quick access	Name	Date modified	Туре	Size	^
	OneDrive - Invaca	1.845 KB			
M OneDrive - Invacai		1.845 KB			
SharePoint	R01F10A1A00T-02	13.10.2016 21:43	LCB File	1.845 KB	
Product Lifecycle	R01F10A2A00L-02	13.10.2016 21:43	LCB File	1.845 KB	- 1
	R01F10A2A00T-02	13.10.2016 21:43	LCB File	1.845 KB	
This PC	R01F10A3A00L-02	13.10.2016 21:43	LCB File	1.844 KB	
Desktop	R01F10A3A00T-02	13.10.2016 21:43	LCB File	1.844 KB	
Documents	R01F10A4A00L-01	13.10.2016 21:43	LCB File	1.845 KB	
🖶 Downloads 🗸	R01F10A4A00T-01	13.10.2016 21:43	LCB File	1.845 KB	~
File <u>n</u> a			× lch		~
-				Cancel	

Select desired bundle file and click Open.

4.



Bundle file is written to chair.

9 Modifying Wheelchair Configurations

9.1 Profile and Function Actions

9.1.1 Change Profile And Function Actions with iOS Tool

In bulk edit mode:

- profiles can be added and deleted,
- functions can be added, deleted, duplicated and moved.
- $\overset{\circ}{\underline{l}} \quad \mbox{A system always includes a REM2xx Drive Function profile and a REM2xx Seating Function profile. These cannot be moved or deleted. }$

Screen Overview

1. Tap Edit in functions title bar.

- 2. Select desired profile or function action.
- A Delete function or profile
- (B) Add Function
- © Add Profile



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

Add Profile

- 1. Tap on icon © Add Profile. Enter profile name. Select User Input.
- 2. Add function to profile, see description below.
- 3. Tap **Done** to return to **Home** screen.

iPod	13:26	* 🔳
Cancel	Title	
Name		Name
Please select U	ser Input	
REM 2xx		
REM 4xx		
CR 4xx		
TPI		
IN 5xx		
	Fig. 9-3	

 $\mathring{\parallel}$ User Navigation Error is displayed as long as no function is added to the new profile.

Add New Function

- 1. Tap on icon [®] Add Function.
- 2. Enter function name.
- 3. Select function type.
 - Tap on icon D to add drive function.
 Tap on icon E to add seating function.
 Tap on icon E to add mouse mover function.
 Tap on icon G to add utility function.
 Tap on icon H to add switch control function.

- 4. Select User Input. Tap Done.
- 5. Tap Done to return to Home screen.

iPod 🗟	11:21	* 🖦
Cancel Ne	ew Function	
Parent profile		Drive REM4xx
Name		Name
New function	n From	template
Please select func	tion type	
Drive	D	
🂺 Seating	E	
Mouse M	over (F)	
🔥 Utility	G	
Switch C	ontrol (H)	
Please select User		
I	Fig. 9-4	
iPod 훅	11:21	* 🖦
Cancel Ne	w Function	
Seating		
Mouse M	lover	~
🔥 Utility		
Switch C	ontrol	
Please select User	Input	
Follow Profile		
REM 4xx		
CR 4xx		
TPI		
IN 5xx		
	Fig. 9-5	

For more information about modifying the drive parameters, see 9.3 Modifying Drive Parameters, page 137. For more information about modifying the seating parameters, see 9.8 Modifying Seating Parameters, page 143 For more information about setting up a mouse mover or switch control, see user manual of remote.

Add New Function From Template

- 1. Tap on icon [®] Add Function.
- 2. Enter function name.
- Tap From template. Select desired template. Tap Done.



Duplicate Function

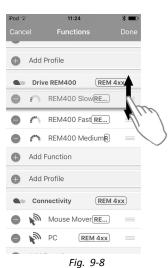
- 1. Tap on function you want to duplicate.
- Tap on **Duplicate**. Duplicated function appears directly under original function.



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.



Delete Function or Profile

 \mathring{l} A profile cannot be deleted until its functions are deleted.

- 1. Select function or profile you want to delete.
- 2. Tap on icon (A).
- 3. Confirm action with tapping **Delete** button that appears next to function or profile.



Delete or Duplicate Function (Quick Access)

- 1. Select function you want to delete or duplicate from **Home** screen.
- 2. Tap and pull function to left.

3. Tap Duplicate or Delete.

4. Confirm, if you want to delete function. Otherwise, click **Cancel**

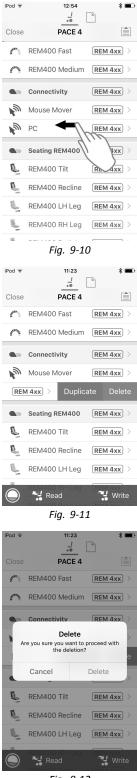


Fig. 9-12

9.1.2 Change Profile and Function Actions with PC Tool

In bulk edit mode:

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

- (A) New Profile
- (B) New Function
- © Duplicate Function
- D Delete Profile or Function

🔵 🐕 Read 🛛 🎇 Write	🗣 📪 📮 🏹	TDX SP2 ULM 👘 🖉 Reset to Default 🛛 😂 Manage	2
LAK-H16166775 TDX SP2 ULM	A B C D Functions	REM400 Slow	
Home		1	
Functions	Crive REM216	GENERAL Drive Function Name	REM400 Slow
User Preferences	REM216 Drive	Enable Drive Function	On V
		Function User Input	Profile User Input (RE
Chair Log	Seating REM216	Navigation Timeout Enabled	Off ×
Chair Setup	REM216 Seating	FORWARD	
Lighting		Max Forward Speed	- + 30 %
	Crive REM400	Min Forward Speed	- + 20 %
	REM400 Slow	Forward Acceleration	- + 80 %
	REMHOUSION	Forward Deceleration	- 100 %
	REM400 Slower	REVERSE	
	REM400 Medium	Max Reverse Speed	- + 30 %
	REM400 Fast	Min Reverse Speed	- + 28 %
	NLIPPOU Past	Reverse Acceleration	100 %
	REM400 Faster	Reverse Deceleration	100 %
		TURN	
	 Seating REM400 	Turn Boost at Max Speed	200 %
	REM400 Tilt	Max Turn Speed	- + 50 %
	REM400 Recline	Min Turn Speed	- + 40 %
	REPORT NATING	Turn Acceleration	100 %
	REM400 LH Leg	Tum Deceleration	100 %
Filter parameters	× PEM400 PH Les	STABILITY	

- A system always includes a REM2xx Drive Function profile and a REM2xx Seating Function profile. These cannot be moved or deleted.
- 1. Open Functions.
- 2. Select desired profile or function action in the toolbar.

Add New Profile

 Click on icon (A). New profile is displayed in Functions.

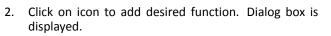


- 2. Change name of profile. See 9.2 Modifying Function and Profile Names, page 135
- 3. Add at least one function. See Add User Function, page 133
 - $\mathring{\parallel}$ New profile is displayed as invalid as long as no function is added to the profile.

Add User Function

 \mathring{l} When creating a new function all parameters will be set to their default values and will require modification. It might be easier to duplicate an already existing function and move it to current profile.

1. Click on icon ^B.



Icon Action

- (E) Add new drive function
- (F) Add new seating function
- G Add new mouse mover function
- \oplus Add new utility function
- ① Add new switch control function
- 3. Enter a function name.
- 4. Select **User Input** from list.
- 5. Click Create to proceed. Otherwise, click Cancel.

Open a Connection	+ ~		
🔵 😽 Read 🛛 🕻 Write	• • • • • • • • • • • • • • • • • • •	TDX SP2 ULM 🕺 Reset to Default 😂 Manage	2
LAK-H16166775 TDX SP2 ULM	Func	D1	
Home	REN SM D G	GENERAL	
 Functions 		Drive Function Name	D1
User Preferences	D1 V O	Enable Drive Function	On 🖌
Chair Log		Function User Input	REM 2xx series
f Chair Setup	· RENLINS	Navigation Timeout Enabled	Off ×
Chair Setup	S1	FORWARD	
Lighting		Max Forward Speed	- + 30.%
	REM400 D	Min Forward Speed	

Fig. 9-16

P'' New Drive Function		
Profile		Profile
Name		Drive
Please select a 'User Input'		
Profile User Input		
REM 2xx series		
REM 4xx series		
Compact Remote		
Input Module		
	Create	Cancel
Fig. 9-1	7	

For more information about modifying drive parameters, see 9.3.1 Modifying Drive Parameters Numerically, page 137.

For more information about modifying seating parameters, see 9.8 Modifying Seating Parameters, page 143

For more information about setting up mouse mover, see user manual of remote.

Duplicate Function

- 1. Select function you want to duplicate.
- Click on icon ©. Duplicated 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.

- 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.

🔵 🔧 Read 🛛 🎇 Write	🐝 👘 🗌 🗙	TDX SP2 ULM 😵 Reset to Default 😂 Manage		2
LAK-H16166775 TDX SP2 ULM		REM400 Slow		
Home	Drive REM216	GENERAL		
 Functions 	- Dire REPIETO	Drive Function Name	R	EM400 Slow
User Preferences	REM216 Drive	Enable Drive Function		On 🗸
Chair Log		Function User Input	Profile User Inpu	t (RE
-	Seating REM216	Navigation Timeout Enabled		Off ×
🖇 Chair Setup	REM216 Seating	FORWARD		
Lighting		Max Forward Speed	- +	30 %
	C Drive REM400	Min Forward Speed		20 %
	REM400 Slow	Forward Acceleration		80 %
		Forward Deceleration		100 %
	REM400 Slower	REVERSE		
	REM400 Medium	Max Reverse Speed		30 %
	REM400 Fast	Min Reverse Speed		28 %
		Reverse Acceleration		100 %
	REM400 Faster	Reverse Deceleration		100 %
		TURN		
	Profile	Turn Boost at Max Speed		200 %
	Drive	Max Turn Speed		50 %
	Seating	Min Turn Speed		40 %
	Sand	Turn Acceleration		100 %
	y Seating REM400	Turn Deceleration		100 %

Fig. 9-19





Delete Function of Profile

- \mathring{j} A function is deleted immediately when the delete button is clicked.
- \hat{j} A profile cannot be deleted until its functions are deleted.
- 1. Select function or profile you want to delete.
- 2. Click on icon \mathbb{D} .



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.

PC Tool

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

🕽 😽 Read 🔧 Write	🎭 🐏 🗋 X	TDX SP2 ULM SP2 Wanage	20 C
LAK-H16166775 TDX SP2 ULM		REM400 Slow	
Home	Drive REM216	GENERAL	
Functions		Drive Function Name	REM400 Slow
User Preferences	REM216 Drive	Enable Drive Function	On 🗸
Chair Log		Function User Input	Profile User Input (RE
-	Seating REM216	Navigation Timeout Enabled	Off ×
Chair Setup	REM216 Seating	FORWARD	
Lighting		Max Forward Speed	- + 30 %
	C Drive REM400	Min Forward Speed	- + 20 %
	REM400 Slow	Forward Acceleration	- + 80 %
		Forward Deceleration	100 %
	REM400 Slower	REVERSE	
	REM400 Medium	Max Reverse Speed	- + 30 %
	REM400 Fast	Min Reverse Speed	28 %
	REMHOU Past	Reverse Acceleration	100 %
	REM400 Faster	Reverse Deceleration	100 %
		TURN	
	Profile	Turn Boost at Max Speed	200 %
	Drive	Max Turn Speed	50 %
		Min Turn Speed	40 %
	Seating	Turn Acceleration	100 %
	A. C. K. 0514400	Tum Deceleration	100 %
Filter parameters	× Seating REM400	STABUTY	

iOS Tool Function Names

1. Open function. Tap on field with function name.

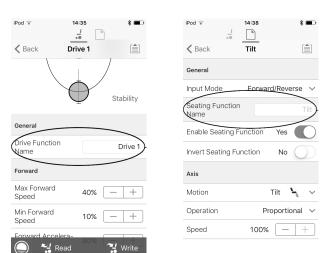


Fig. 9-22

Fig. 9-23

- iPod 🗟 12:31 * 🗈 **K** Back Drive 1 Stability General Drive Function Name Drive 1 Unlock Name for the current Drive User Function. e.g. Indoor Slow Forward Max Forward
 Speed 40% +Min Forward Sneed • 10% +Fig. 9-24 iPod ᅙ 12:31 * & Back Drive 1 Stability Fig. 9-25
 - Pod ₹ 08:26 Pod ₹ 08:26 Pod ₹ 08:26 Pod ₹ 08:26 Pofile Pofile Profile Name Enable Profile Yes Profile Yes Profile Profile

No

No



Enable Function Wrap

Enable Menu Scan

- 2. Unlock Bulk Mode before modifying the name.
- 3. Enter new name.

4. Tap on Back.

Profile Names

- 1. Open profile. Tap on field with function name.
- 2. Enter new name.
- 3. Tap on Back.

9.3 Modifying Drive Parameters

9.3.1 Modifying Drive Parameters 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.

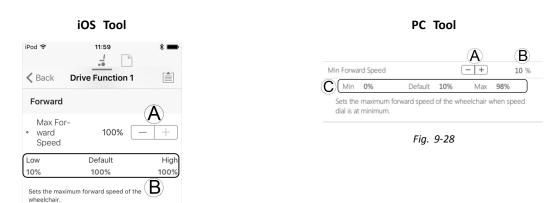


Fig. 9-27

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. Double-click on the value \mathbb{B} and change it directly via the keyboard press **Enter** to set the value.
- c. Set the parameter value by clicking on the Low/Min, Default or High/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 (PC Tool Only)



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

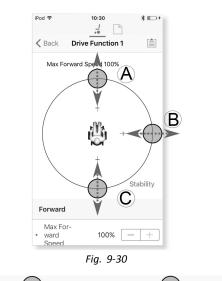
9.3.2 Modifying Drive Parameters Graphically (iOS Tool Only)

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.

Modifying Speed Settings

The Speed graph allows you to adjust the speed.

- A Maximum Forward Speed
- **B** Maximum Turn Speed
- © Maximum Reverse Speed



- 1. Tap and drag the colored circles inwards or outwards to decrease or increase parameter values.
 - $\underbrace{\overset{\circ}{\amalg}}_{\text{top of the screen when adjusting the parameter}} \text{ The exact value for each parameter is shown at the top of the screen when adjusting the parameter and it is also displayed in the parameter list.}$
 - 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.

Modifying Acceleration / Deceleration Settings

The acceleration / deceleration parameters are only accessible through the Speed graph screen.

- 1. To modify one of the acceleration or deceleration settings, press and drag one of the colored circles in the Speed graph screen.
 - a. Press and hold the Maximum Forward Speed circle to be taken to the Forward acceleration $\textcircled{\begin{subarray}{c} \end{subarray}}$, deceleration $\textcircled{\begin{subarray}{c} \end{subarray}}$ screen.
 - b. Press and hold the **Maximum Turn Speed** circle to be taken to the Turn acceleration \bigcirc / deceleration \bigcirc screen.
 - c. Press and hold the **Maximum Reverse Speed** circle to be taken to the Reverse acceleration E / deceleration F screen.

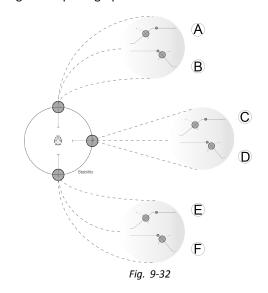


Fig. 9-31

9.4 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.

iOS Tool 10:23 iPod 🗟 -PACE 4 REM400 Slow [1] Performance Operation Quadrant Operation 4Q Operation 4Q Operation 3Q - Forward Only 3Q - Reverse Only 3Q - Manual Toggle 3Q - Automatic Toggle Default 4Q Operation Sets 3-quadrant operation for this Drive Function Read Ope 🔧 Write Fig. 9-33

e Connection View Help LAK-H16166775	+			
🔵 😽 Read 🛛 💥 Write	🐿 🕾 🗋 X	TDX SP2 ULM Seset to Default	😂 Manage	° 1
LAK-H16166775 TDX SP2 ULM	Functions	Drive REM400		
Home	Drive REM216	Reverse Deceleration		100 %
 Functions 	C DIVE REM210	TURN		
User Preferences	REM216 Drive	Turn Boost at Max Speed	- +	200 %
Chair Log		Max Turn Speed		50 %
	Seating REM216	Min Turn Speed		40 %
Chair Setup	REM216 Seating	Turn Acceleration		100 %
Lighting		Turn Deceleration		100 %
	 Drive REM400 	STABLITY		
	REM400 Slow	Tum Transition		65 %
	REM400 Slower	LATCHED DRIVING		
	REININGO SIGWEI	Latch Driving		Off
	REM400 Medium	Latch Driving in Reverse		Off ×
	REM400 Fast	Latch Drive Timeout		60.0 s
	REM400 Faster	PERFORMANCE		
	REM400 Paster	Power Gyro Enabled Drive Function		100 %
	Seating REM400			Un V
		Quadrant Operation	40.0	Operation ~
	REM400 Tilt	Forward Quadrant Operation	4Q Operation	
	REM400 Recline	Reverse Quadrant Operation	3Q - Forward Only	
	REM400 LH Leg	Left Quadrant Operation	3Q - Reverse Only	
Filter parameters	× PEM400 PH lag	Right Quadrant Operation	3Q - Manual Toggle 3Q - Automatic Tog	

PC Tool

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 *9.4.1 Adjust Drive Directions, page140*

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.

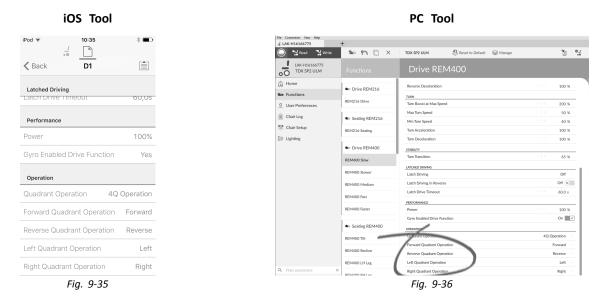
If required, each quadrant can be reassigned with a different direction. Note that the **Reverse Quadrant Operation** parameter is not applicable in **3Q** - **Manual Toggle** mode.

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.

9.4.1 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
- RightIgnored
- Ignored

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

9.5 Setting up System for Latched Driving

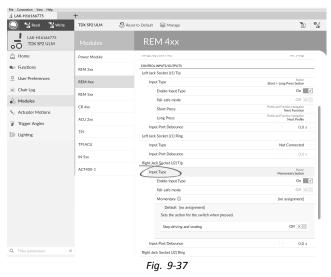
To set up a wheelchair for latched driving, an external stop switch must be fitted to the wheelchair. Ideally, the external stop switch should be highly visible and easily accessible to provide an extra level of safety and security for the user.

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.

- 1. Open **Modules** -> desired input to which external stop switch is connected.
- 2. Set **Input Type** to desired input, for example, **Momentary**.



- 3. Click on information icon next to **Momentary**. Enable **Stop driving and seating**.
 - $\underbrace{\overset{\circ}{\mathbb{I}}}_{} \qquad \mbox{You do not need to assign a function to the switch.}$

) 😪 Read 🛸 Write	TDX SP2 ULM	🞗 Reset to Default 🛛 😂 Manage	1 0 (
LAK-H16166775 TDX SP2 ULM		REM 4xx	
Home	Power Module	annap any anno a ma	in sing
Functions	REM 2xx	CONTROL INPUTS/OUTPUTS	
User Preferences	REM 4xx	Left Jack Socket (/1) Tip	Button Short + Long Press button
Chair Log	REM 5xx	Enable Input Type	On 🗾 🗸
Modules	REM SIX	Fail-safe mode	Off X
Actuator Motions	CR 4xx	Short Press	Profile and Function Navigation Next Function
Trigger Angles	ACU 2xx	Long Press	Profile and Function Navigation Next Profile
	трі	Input Port Debounce	0.0 s
Lighting		Left Jack Socket (J1) Ring	
	TPLACU	Input Type	Not Connected
	IN 5xx	Input Port Debounce Right Jack Socket (J2) Tip	- + 0.0 s
	ACT400-1	Input Type	Button Momentary button
		Enable Input Type	On 📝
		Fail, safe mode	Off X
		(Momentary ())	[no assignment]
		Default [no assignment]	
		Sets the action for the switch when pressed.	
		Stop driving and seating	On 🗾 🗸
		Input Port Debounce	- + 0.0 s
Filter parameters 🛛 🗙		Right Jack Socket (J2) Ring	

Configure Latch Drive Parameters

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

- 1. Open **Functions** -> desired drive function.
- 2. Set type of latched driving with **Latch Driving**. For more information about types of latched driving, refer to user manual of remote.

🔵 🖼 Read 🛛 🕌 Write	🐿 🗠 🗋 🗡	TDX SP2 ULM 🕴 Reset to Default 😂 Manage		1	•
LAK-H16166775 TDX SP2 ULM		REM216 Drive			
Home	Drive REM216	Reverse Deceleration		100 %	
Functions	- Diverterizio	TURN			
0 User Preferences	REM216 Drive	Tum Boost at Max Speed	- +	200 %	_
		Max Turn Speed		100 %	
-	Seating REM216	Min Turn Speed		10 %	
Chair Setup	REM216 Seating	Turn Acceleration		100 %	
E Lighting		Tum Deceleration		100 %	
	Drive REM400	STABILITY			
	REM400 Slow	Tum Transition		100 %	
	REM400 Slower	Latch Into Distang		Off	~
	REM400 Medium	Default Off	Off Cruise Control		
	REM400 Fast	Sets if demand is momentary (latched drive off), stepped or cruise	1 Step Up		
	REM400 Faster	Latch Drive Timeout	3 Step Up 5 Step Up		
		PERFORMANCE	3 Step Up/Down		
	 Seating REM400 	Power	5 Step Up/Down		
	REM400 Tilt	Gyro Enabled Drive Function		Off ×	i
		OPERATION			
	REM400 Recline	Quadrant Operation	4Q	Operation	
	REM400 LH Leg	Forward Quadrant Operation		Forward	
C Filter parameters	×	Reverse Quadrant Operation		Reverse	

- 3. Set Latch 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 **Latch Drive Timeout** parameter.
- 5. Set gentler deceleration rate with Latch Driving Demand Ramp-Down Rate.
 - If set to 100%, the deceleration is not extended and determined from the function's drive settings Forward Deceleration and Reverse Deceleration.

🔵 🐄 Read 🛛 💥 Write	🐿 🖓 🗋 🗙	TDX SP2 ULM 🕺 Reset to Default 😂 Manage		6
LAK-H16166775 TDX SP2 ULM		REM216 Drive		
Home		Reverse Deceleration		100 %
Functions	Drive REM216	TURN		
O User Preferences	REM216 Drive	Turn Boost at Max Speed	- +	200 %
	_	Max Turn Speed		100 %
Chair Log	Seating REM216	Min Turn Speed		10 %
Chair Setup	REM216 Seating	Turn Acceleration		100 %
Lighting		Tum Deceleration		100 %
	Drive REM400	STABLITY		
	REM400 Slow	Tum Transition	- +	100 %
		LATCHED DRIVING		
	REM400 Slower	Latch Driving		Off
	REM400 Medium	Latch Driving in Reverse		Off ×
		Latch Drive Timeout		300.0 s
	REM400 Fast	PERFORMANCE		
	REM400 Faster	Power		100 %
		Gyro Enabled Drive Function		Off ×
	 Seating REM400 	OPERATION		
	REM400 Tilt	Quadrant Operation	4Q 0	peration
		Forward Quadrant Operation		Forward
	REM400 Recline	Reverse Quadrant Operation		Reverse
	REM400 LH Leg	Left Quadrant Operation		Left
Q. Filter parameters	×	Reverse Quadrant Operation		Reverse

Fig. 9-40

9.6 Modifying Gyro Support in Drive Functions

By default, Gyro support is enabled in drive functions. The following instructions show you how to disable the Gyro support for drive functions or to hide Gyro symbol on screen if no Gyro is installed on wheelchair.

iOS Tool		PC 1	īool	
iPod 🗢 11:26 🗱 🗔	J Open a Connection	+ ••• •••	TDX SP2 ULM	0 8
Cefault	LAK-H16166775 TDX SP2 ULM	Functions	D1	
Latched Driving	Home	REM2XX D	Max Turn Speed	
Performance	0 User Preferences	D1	Min Turn Speed Turn Acceleration Turn Deceleration	70 %
Power 100% – +	Chair Setup	© REM2XX S	STABILITY Turn Transition	100 %
Drive Function Yes	≣∭ Lighting	€ REM400 D	LATCHED DRIVING Latch Driving	Off
Operation		D1	Latch Driving in Reverse	Off ×
Quadrant Operation		D2	Latch Drive Timeout	60.0 s
4Q Configuration		D3	PERFORMANCE	100 %
Forward Quadrant Op- Forward 🗸 eration		CONNECTIVITY	Gyro Enabled Drive Function	On 🔽
Reverse Quadrant Op-		Utility Card	Quadrant Operation	4Q Operation
🔘 😼 Read 🛛 🎇 Write		Mouse Mover	Forward Quadrant Operation	Forward
Fig. 9-41		Fig. 9	Reverse Quadrant Operation 9-42	Reverse

- 1. Open desired drive function.
- 2. Set **Gyro Enabled Drive Function** to **Yes/On**, to provide enhanced stability control for this drive function. Otherwise, set to **No/Off** to disable gyro support for this function.

9.7 Modifying Lighting Parameters

iOS Tool

When installing lighting system, replacing power module or resetting default configuration from power module it can be necessary to adjust lighting settings. In some configurations lighting functions are disabled by default and need manual activation.

1. If necessary, reset wheelchair configuration. See *8.5.8 Loading Default Configurations, page124* 2.



Open Lighting.

3. Edit parameters according following table.

	Parameter	Description	Values
۸	Enable Turn Indicators	Allows system to use turn indicators	No/Yes Off /On
B	Turn Indicator Auto-Cancel Time	Sets length of time a turn indicator will be on before being automatically turned off	0 s 30 s
©	Enable Position Lights	Allows system to use position lights	No/Yes Off/On

C LINXAccessPC File Connection View Help

LAK-C16170114

LAK-H16166775 TDX SP2 ULM

Sunctions

E Chair Log

A Modules

E Lighting

🝾 Actuator Moti

👔 Trigger Angles

0 User Preferences

 21

Se Left Leg

LNX

Recline and Leg

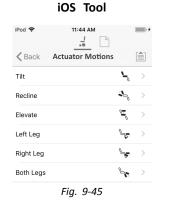
😽 Right Lei

Both Leg

٤.

9.8 Modifying Seating Parameters

Seating Motion



DemoSystem.lci	Ł		
TDX SP2 ULM	3	Reset to Default	😂 Manage
		Tilt	
℃ Tilt		IDENTIFICATION	
Concerne Recline		Motion Name	
Elevate		Motion Icon	

um Pause Between Togglin

um Down Sj

Motion Maximum Up Speed

Soft Start/Stop Tim

Direct Access Up Speed

Direct Access Down Speed

ACTUATOR CHANNELS Power Module Channel 1

Power Module Channel 2

ACT400-1 Channel 1

ACT400-1 Channel 2

Latched Operation Motion Tim

PC Tool

PC Tool

1. Open Actuator Motions -> desired seating motion.

0 °

🔓 Tilt

2.0 s

100 %

100 %

0.0 s

100 %

100 %

0.0 s

100 %

0 %

0 %

0 %

Changing Motion Name



🔵 😪 Read 😤 Write	TDX SP2 ULM 🐰 Res	et to Default 😂 Manage		1
LAK-H16166775 TDX SP2 ULM		Tilt		
Home	S, Tit	IDENTIFICATION		
So Functions	As Recline	Motion Name	\sim	TIH
0 User Preferences	S Elevate	Motion Icon	١	Tile
Chair Log	- Elevate	BEHAVIOUR		
	Ser Left Leg	Minimum Pause Between Toggling	- +	2.0 s
Modules	Right Leg	Motion Maximum Up Speed		100 %
Actuator Motions		Motion Maximum Down Speed		100 %
Trigger Angles	Soth Legs	Soft Start/Stop Time		0.0 s
Lighting	Se LNX	Direct Access Up Speed		100 %
The m014140	Recline and Legs	Direct Access Down Speed		100 %
	- C recure and regs	Latched Operation Motion Time		0.0 s
		ACTUATOR CHANNELS		
		Power Module Channel 1		100 %
		Power Module Channel 2		0 %
		ACT400-1 Channel 1		0 %
		ACT400-1 Channel 2		0 %
		ACT400-1 Channel 3		0 %
		ACT400-1 Channel 4		0 %

PC Tool

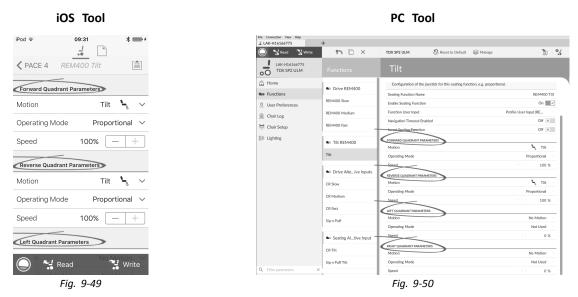
Fig. 9-48

- 1. Select Motion Name.
- 2. Unlock Bulk Mode before modifying name.
- 3. 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.

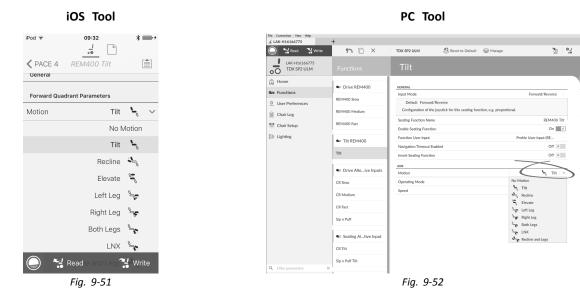
- 1. Open desired seating function.
- 2.



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

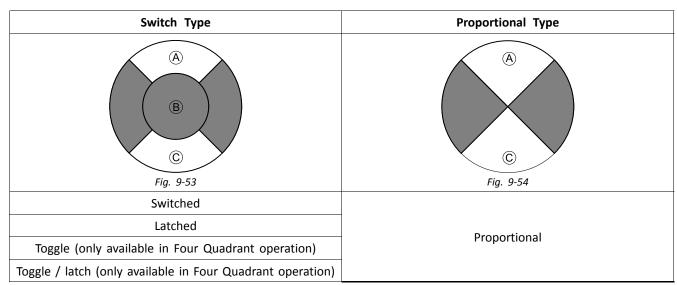
- Forward/Reverse: Moving joystick forward or reverse to control motion.
- Left/Right: Moving joystick left or right to control motion.
- Four Quadrant: Using all four joystick quadrants to control motions.

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.

4.



Operating Mode:

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. See *9.11 Joystick Switch Threshold, page153* 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.
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.

5. 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.

9.8.1 Trigger Angles (iOS Tool)

Angle sensor-triggers allow you to modify factory default angle triggers of wheelchair to accommodate specific user needs.

iPod	Ş	11:23	-	* 🕞
< 1	Back AC			
Ar	ngle Sensor - Trigg	gers		
0	Slowdown Trigger	130°	-	+
0	Debounce Timer Slow- down	2,0s	_	+
0	Lockout Trig- ger	150°	-	+
0	Debounce Timer Lock-	2,0s	-	+
(Maximum Back Angle	170°	-	+
0	Debounce Timer Max Back Angle	2,0s	_	+
Co	ontrol Input 1 - Por	t Settings	6	
	Fig	. 9-55	5	

Parameter	Description
Slowdown Trigger	Sets the angle sensor's trigger angle to slow down the driving speed
Lockout Trigger	Sets the angle sensor's trigger angle to lock out drive
Maximum Back Angle	Sets the angle sensor's trigger angle to stop further movement of the backrest.

1. From Home screen tap on Trigger Angles.

2. Set parameters to user's needs.

9.8.2 Trigger Angles (PC Tool)

Angle sensor-triggers allow you to modify factory default angle triggers of wheelchair to accommodate specific user needs.

🖈 Open a Connection	+		
🔘 🐕 Read 😤 Write	TDX SP2 ULM 🛛 🕄 Reset to	Default 😂 Manage	
LAK-H16166775 TDX SP2 ULM		Drive Slowdown	
Lud Home	Drive Slowdown	CONFIGURATION	
Sev Functions	Drive Lockout (DLO)	Angle Sensor Source	ACT400-1 Module V
O User Preferences		Debounce Timer	2.0 \$
	Max DLO	Trigger Angle	- 130 °
🖹 Chair Log	Max Back Angle (MBA)		
💰 Modules			
Sy Actuator Motions	Maximum MBA		
🗑 Trigger Angles			
ED Lighting			

Fig. 9-56

Trigger Angles	Configuration	Description
Drive Slowdown		Specifies the connection location or
Drive Lockout (DLO)	Angle Sensor Source	source of the angle sensor.
Max DLO	Debounce Timer	Applies a debounce time to the trigger angle.
Maximum Back Angle (MBA)	Trigger Angle	The debounce time is applied only
Maximum MBA		whilst driving. Sets the trigger angle value.

1. Open Trigger Angles. Select your type of trigger angle, for example Drive Slowdown.

2. Set parameters to user's needs.

9.9 Modifying Attendant Parameters

Attendant profiles allow an attendant to control drive functions and seating functions of wheelchair. Currently two User Inputs are available, Attendant Control Unit (DLX-ACU200) and Intuitive Dual Control (Invacare IDC).

Attendant Control Unit (DLX-ACU200)

Input allows programming drive functions and seating functions. Parameters of functions are identical to primary remotes. See 9.3 Modifying Drive Parameters, page 137 and 9.8 Modifying Seating Parameters, page 143

Intuitive Dual Control (Invacare IDC)

Input allows programming maximum one drive function.

Add New Attendant Function

- Tool allows you to add all function types to Attendant profile. In case of an invalid function, like Switch Control, you will get error prompt with further instructions to solve error.
- $\frac{1}{2}$ When creating a new function all parameters will be set to their default values and will require modification. It might be easier to duplicate an already existing function and move it to current profile.
- 1. Open Functions.
- 2. Select profile Attendant from list. Otherwise, both user inputs are not available.
- 3. Add new function or duplicate existing function. See 9.1 Profile and Function Actions, page 128
- 4. Modify other parameters.

9.10 Modifying Utility Functions



The utility function allows the user to operate outputs (lights, horn, etc.) as well as accessories connected to control outputs, such as those available on the LINX Output module.

The utility function is suitable for both 3Q and 4Q navigation and can be operated from a range of system control inputs such as remote modules, switches and head arrays.

Utility functions can be added to any profile, except the attendant profile and can be configured to operate:

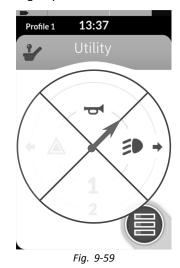
- the horn
- the hazard lights
- the position lights
- the indicators
- control outputs (on LiNX Output module)

Allowing Multiple Outputs

The number of outputs that can be switched by a single system control input demand is controlled by Allow Multiple Quadrants.



By default, a single output is switched from a single quadrant.



However, if **Allow Multiple Quadrants** is set to **On/Yes**, then two outputs can be switched simultaneously by selecting two adjacent quadrants.

Adjacent quadrants are selected by deflecting a joystick-based system control input diagonally (between quadrant) or selecting the following switch combinations with a switch-based system control input: forward/left, forward/right, reverse/left, reverse/right.

Adding Outputs

The procedure to add an output to a utility function is as follows:

- assign an output to a switch,
- set the output behaviour and
- select a display icon for the switch.

Assign Output to Switch

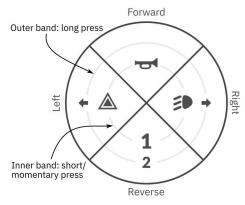


Fig. 9-60 Activation quadrants and bands

Switches are represented on a utility card with icons located on two circular activation bands within four quadrants. The quadrant and the position of the icons in the bands indicates to the user how to select and operate the switches with the system control input.

The inner and outer activation bands correspond to one oh the three switch types: short press, lang press and momentary press. Short and momentary presses are placed on the inner band and long presses are placed on the outer band.

The terms *short press* and *long press* refer to the duration that the system control input is activated, not how far it is deflected. The activation time to distinguish between short press and long press can be changed in user preferences, see *5.2.2 Overview User Preferences, page 80*.

Because it is difficult to discern the difference between a long press and a momentary press, a quadrant configured for a momentary press (inner band) cannot be configured also with a long press (outer band) switch. This means, for any quadrant configuration with a momentary switch, the outer band will be empty. The configuration options are shown below.



Set Output Behaviour

Set how the output behaves when switched, based on the switch's quadrant and activation ring position. Each output can be configured as a latching or non-latching output type. There are three latching types and one non-latching type.

Non-latching

Momentary

Latching

Latch ON, Latch OFF, Toggle

Choose:

- Momentary to activate an output for the duration that the switch is selected.
- Latch ON to activate an output and remain activated when the switch is deselected.
- Latch OFF to deactivate an output and remain deactivated when the switch is deselected.
- **Toggle** to change the current output state (activated -> deactivated or deactivated -> activated) and remain in the new state when the switch is deselected.

Select Display Icon for Switch

None	+	+	A
	Left Arrow	Left Turn Signal	Latched Up
1	†	⇒	
One	Forward Arrow	Right Turn Signal	Latched Right
2	\rightarrow		T
Two	Right Arrow	Hazard Lights	Latched Down
3	Ļ	Ч	\Leftrightarrow
Three	Reverse Arrow	Horn	Left-Right Arrow
4	\checkmark	•	\$
Four	Select	Momentary Left	Up-Down Arrow
5	~		·
Five	Next	Momentary Up	Mouse Click Left
6	~		Ò.
Six	Previous/Back	Momentary Right	Mouse Click Right

7	Â	▼
Seven	Home	Momentary Down
8	ED	
Eight	Position Light	Latched Left

To represent the output, select a display icon for the switch in either the inner or outer activation band in one of the system control input's four quadrants (forward, reverse, left or right)

Example of Adding Output

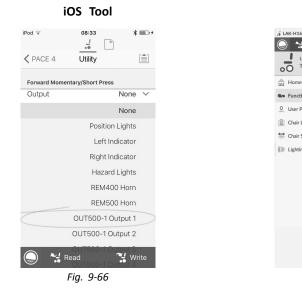
The following instruction shows you how to program the first control output of DLX-OUT500 using a short/momentary press forwards as an example.

- 1. Open Functions.
- 2. Add new utility function or open existing utility function. See 9.1.2 Change Profile and Function Actions with PC Tool, page 132
- 3.



Scroll to section about your desired input command, like Forward Momentary/Short Press.

4.



🚽 LAK-H16166775 🛀 Read 😵 Reset to Default 😂 Mar 900 973 🗋 🗙 TDX SP2 ULM ~!· LAK-H16166775 TDX SP2 ULM REM2XX D Allow Multiple Quadrants Off × So Functions D1 FORWARD MOMENTARY/SHORT PRESS 0 User Preferences OUT500-1 Output 1 Output □ Chair Log None Position Lights REM2XX S Activation Mod Display 😸 Chair Setup S1 Left Indicator E Lighting Right Indicato FORWARD LON C Utility Hazard Lights Default Non REM400 Horr Sets the o REM500 Horr OUT500-1 Output 1 Utility Display Icor OUT500-1 Output 2 REVERSE MOM OUT500-1 Output 3 REM400 D OUT500-1 Output 4 Display Icc OUT500-1 Output 5 D1 OUT500-1 Output 6 REVERSE LONG PRESS OUT500-1 Output 7 D2 Output OUT500-1 Output 8 Display Icon D3 LEET MO Fig. 9-67

PC Tool

Assign output OUT500-1 Output 1 to parameter Output.

5.

6.

iOS Tool		PC	Tool	
l ♀ 08:33 ¥ ■>+ _	. ↓ LAK-H16166775	+ @vo ?"% [] ×	TDX SP2 ULM 🐉 Reset to Defau	ılt 😂 Manage
PACE 4 Utility	LAK-H16166775 TDX SP2 ULM	Functions	Utility	
orward Momentary/Short Press	Home		Havigaton milicout Liaoreu	
ctivation Mode None 🗸	Several Sections	REM2XX D	Allow Multiple Quadrants	Off X
None	0 User Preferences	D1	FORWARD MOMENTARY/SHORT PRESS Output OUT5	00-1 Output 1
Momentary	🗎 Chair Log	REM2XX S	Activation Mode	Momentary
Latch ON	Chair Setup	S1	Display Icon FORWARD LONG PRESS	None Momentary
PACE 4 Utility	El Lighung	🔹 Utility	Output	Latch ON Latch OFF
Toggle		Mouse Mover	Sets the output for Forward Quadra	Toggle int Long Press.
		Utility	Display Icon	None
NOILE			REVERSE MOMENTARY/SHORT PRESS	None
		■ REM400 D	Display Icon	None
zı.		D1	REVERSE LONG PRESS	Home
splay Icon None 🗸		D2	Output	None
Road A Write		D3	Display Icon	None
and Long Press		1	LEFT MOMENTARY/SHORT PRESS	

Set parameter Activation Mode to desired value.



Set parameter **Display Icon** to desired value. Select a display icon from list of available icons.

7. Modify parameters for the other commands.

8. Scroll to section General.

9.

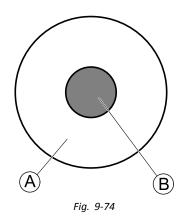
iOS Tool	PC Tool
Pod ♀ 08:33 ¥	.# LAK-H16166775 +
	🔘 🚼 Read 📲 Write 🛛 🕸 🐏 📋 🗙 🛛 TDX SP2 ULM 🕺 Reset to Default 😂 Manage
Ceneral	LAK-H16166775 TDX SP2 ULM Functions Utility
Utility Function	home
Name Utility	S1 GENERAL Utility Function Name Utility
Enable Utility Function Yes	0 User Preferences to Utility Enable Utility Function On
Function User Input	Chair Log Mouse Mover Profile User Input (REM 4xx series)
Profile User Input	Chair Setun
Navigation Timeout En-	Utility Allow Multiple Quadrants Off X
abled	Elighting Default Off Allows quadrants to be activated simultaneously.
Allow Multiple Quad- Yes	D1 FORWARD MOMENTARY/SHORT PRESS
Forward Momentary/Short Press	Output OUT500-1 Output 1
	D2 Activation Mode Momentary
Output None V	D3 Display Icon Mouse Click Left
🔵 🛃 Read 🛛 😤 Write	
9	en province i Output Nove
Fig. 9-72	Fig. 9-73

Set parameter Allow Multiple Quadrants to Yes/On to allow switching two outputs simultaneously.

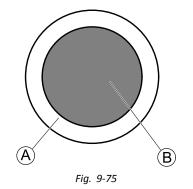
9.11 Joystick Switch Threshold

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.

iOS Tool

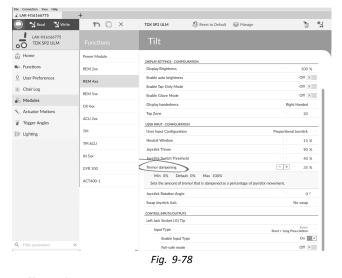
iPod ♀ 10	:37	* 🖚
K Back Ren	note	
Joystick		
Neutral Window	10%	- +
Joystick Throw	90%	- +
Joystick Switch Threshold	40%	- +
Tremor dampening	35%	- +
Fig.	9-76	

🗋 😼 Read 😤 Write	10 ×	TDX SP2 ULM	🕄 Reset to Default	S Manage	1 0 .
LAK-H16166775 TDX SP2 ULM	Functions	Tilt			
nj Home	Power Module	DISPLAY SETTINGS - CO			
E Functions	REM 2xx	Display Brightness	AND CALOR	- +	100 %
User Preferences	REM 4xx	Enable auto brightne	255		Off ×
E Chair Log		Enable Tap-Only Mo	de		Off ×
6 Modules	REM 5xx	Enable Glove Mode			Off ×
	CR 4xx	Display handedness		R	light Handed
 Actuator Motions 	ACU 2xx	Tap Zone			20
Trigger Angles	AC0 200	USER INPUT - CONFIGU	RATION		
Lighting	TPI	User Input Configura	ation	Proporti	onal Joystick
	TPLACU	Neutral Window			15 %
		loystick Throw			90 %
	IN 5xx	Joystick Switch Thre	eshold		40 %
	GYR 100		Default 40% Max 100%		
	ACT400-1	Sets the percenta	ge of joystick movement requir	ed to activate an output or activate :	
		Tremor dampening			
		Joystick Rotation Ar	ngle		0 °
		Swap Joystick Axis			No swap
		CONTROL INPUTS/OUT	PUTS		
		Left Jack Socket (J1)	Tip		
		Input Type		Short + Lon	g Press button
		Enable Inpu	ut Type		On 🗸
A Filter parameters	×	Fail-safe m	ode		Off ×

PC Tool

- 1. Open **Modules** -> desired remote.
- 2. 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.

😂 Mar

<u>%</u> | %

100 % 100 % 100 % 100 %

9.12 Joystick Shaping

Using Parameters

- 1. Open **Modules** -> desired module.
- 2.

	iOS Tool	
Input - Joysti	ck Shaping	
	100%	- +
	Default	High
	100%	100%
	ick needs to be deflected fo ull speed.	r the forward
tull sp	eed.	
	100%	- +
100	/0	-
	40.00/	
	100%	- +
	40.00/	
	100%	- +
oysi	tick Shaping Calib	ration
- :-	0.70	
Fig	. 9-79	

Fig. 9-80

 \rightarrow

Go to User Input - Joystick Shaping.

3. Set each quadrant's parameter according to user's ability and comfort.

Using Calibration Screen

- 1. Open **Modules** -> desired module.
- 2. Go to User Input Joystick Shaping.
- 3.





Fig. 9-81

Select Go to Joystick Shaping Calibration (iOS Tool). Open Connection and select Joystick Shaping (PC Tool).

4.



Fig. 9-83

Instruction pop-up opens, explaining how to perform calibration. Choose **OK** or deflect joystick to start calibration.

Using Graphical Interface

The calibration screen comprises the graphical interface in the upper part of the screen and the parameter interface in the lower part. Around the screen, there are three user buttons.

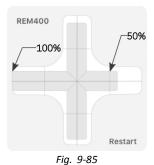
- Select **Cancel** at any time to exit calibration screen without saving any changes.
- Select **Restart** at any time to reset calibration screen and display the configuration's existing values.
- Select **Done** to exit calibration screen and save any changes.

The graphical interface displays the four-quadrant graph. Each quadrant's existing joystick shaping parameter values are displayed as grey bars.

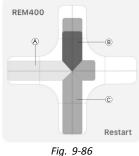
As a guide, the 50% and 100% points are shown. The exact value of each bar is displayed in the parameter interface below the graph.



Fig. 9-84



5



 Ask user to deflect joystick in all four directions. User can deflect joystick in any direction and in any order but only to the point that is comfortable and repeatable.

Grey bar $\ensuremath{\textcircled{}}$ indicates value used in current configuration.

Dark blue bar ^(B) displays deflection in real time. Light blue bar ^(C) indicates maximum value reached in quadrant.

- 2. If user is ready, joystick needs to be in neutral position.
- Select Done button to save values and exit configuration screen.
 Done button cannot be selected until at least one value is changed.

Using Parameter Interface

In the lower part of the calibration screen, the parameter interface displays the exact numerical value of the four quadrant parameters. Whenever the joystick is deflected, its value is updated in the parameter interface.

When calibration starts, all parameters are grey.

During calibration, both dots and parameters are automatically updated to display current value and status of deflection.

- grey: no change in value
- light blue: maximum value
- dark blue: active deflection in real time



Forward	58%	- +
Backward	100%	- +
Left	100%	- +
Right	35%	- +

Fig. 9-88

Whenever joystick returns to neutral position, dots become light blue, if value is changed during calibration.

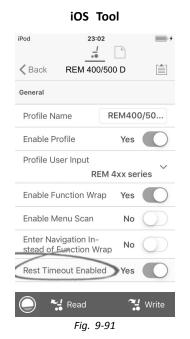
Parameters can be updated manually and independently of the graphical interface, at any time when in the calibration screen. This is useful for recording or fine tuning specific values.

1. Use parameter stepper control, located next to each parameter, to adjust value.

9.13 Configuring Rest

Setting Up Timeout to Enter Rest

Open Functions -> desired profile.
 2.



Set Rest Timeout Enabled/Enable Rest to Yes.

100%	- +
100%	- +
58%	- +

Forward	85%	- +
Backward	100%	- +
Left	100%	- +
Right	60%	- +

Fig. 9-90

PC Tool

General	
Profile Name	DRIVE REM400
Enable Profile	Yes 🌑
Profile User Input	REM 4xx series $$
Enable Function Wrap	Yes 🔘
Enable Menu Scan	Yes 🔘
Enter Navigation Instead of Function Wrap	No
Enable Rest	Yes 🔘

Fig. 9-92

3. Open User Preferences.

4.

iOS Tool			PC To
od 23:02	• +	Sleep and Rest Settings	
Back User Preferences		Enable Sleep Timeout	
		Sleep Timeout Duration	
eep and Rest Settings		Enable User Input Wakeup	
		Rest Timeout Duration	
Sleep Timeout 5min — – Duration	+		Fig. 9-94
Enable User Input Wake-up From Sleep Yes			
Rest Timeout 5,0s — –	+		
Quadrant Actions in Rest			
Forward No	ne		
Reverse No	one		

Set Rest Timeout Duration to desired value.

- Read

Fig. 9-93

🛂 Write

If a system is configured for both timeout into menu navigation and timeout into rest, consider setting the duration of the timeout into rest longer than that of the timeout into menu navigation, otherwise menu navigation cannot be entered.For example if timeout into menu navigation is set to five seconds and timeout into rest is set to four seconds, the timeout into rest expires first and the system never enters menu navigation. If timeout into menu navigation is set to five seconds and timeout into rest is set to six seconds, timeout into menu navigation expires first and the system enters menu navigation after five seconds. If there is no subsequent activity for the duration set for timeout into rest, that is a further six seconds in this example, rest is entered.

Setting Up Control Input to Enter Rest

Input Type		Power Button ~
Left Jack Socket (J1) Ring - Port Settings		
Input Type		Button 🗸
		Advanced >
Momentary	$\mathbf{\Sigma}$	Nerro
Short Press	>	Enter Rest
Long Press	>	Exit Rest
On Press	>	None

Fig. 9-95

Set up a short-press button, connected to the ring connection of the left jack socket on the REM400, as an example.

- 1. Open Modules -> REM 4xx.
- 2. Go to Left Jack Socket (J1) Ring Port Settings.
- 3. Go to Input Type and select Button.

Right Jack Socket (J2) Tip - Port Settings				
Input Type		Button 🗸		
		Advanced >		
Momentary	>	None		
Short Press	>	None		
Long Press	>	None		
On Press	>	None		
Right Jack Socket (J	l2) Ring	- Port Settings		
🔘 t T 💏 Read	Not	Conn ie Write		
	~ ~ ~			

Fig. 9-96

Go toShort Press slot.

5.

Always Select Menu Item
Display Actions Select Menu Item
Seating >
Drive
Control Outputs
Functions >
Display Actions
Lighting >
Connectivity >
Safety Outputs
Display Reason for
Fig. 9-97

Always Enter Rest
Display Actions Enter Rest
Select Menu Item
Toggle Navigation Menu
Enter Navigation Menu
Exit Navigation Menu
Toggle Rest
Enter Rest 🗸
Exit Rest
Toggle REM 4xx Settings Menu
Toggle REM 4xx Screen Lock
Fig. 9-98

- Select Display Actions -> Enter Rest.
- 6. Select Done.

Setting up Control Input to Exit Rest

Set up a long-press button, connected to the ring connection of the left jack socket on the REM400, as an example.

Input Type		Power Button ~
eft Jack Socket (J1) Ring - Port Settings		
Input Type		Button ~
		Advanced >
Momentary	>	None
Short Press	>	Enter Prist
Long Press	>	Exit Rest
On Press	$\mathbf{\hat{s}}$	None

Fig. 9-99

- 1. Open Modules -> REM 4xx.
- 2. Go to Left Jack Socket (J1) Ring Port Settings.
- 3. Go to Input Type and select Button.

4.

Right Jack Socket (J2) Tip - Port Settings				
Input Type		Button \checkmark		
Advanced >				
Momentary	>	None		
Short Press	>	None		
Long Press	>	None		
On Press	>	None		
Right Jack Socket (J2) Ring - Port Settings				
🔘 t T 🚼 Read Not Com 🚼 Write				
	0 4 0	<u>^</u>		

Fig. 9-100

Go to Long Press slot.

5.

	Always Select Menu Item	Always
	Display Actions Select Menu Item	Display Actions
	Seating >	Select Menu Item
	Drive	Toggle Navigation Menu
	Control Outputs	Enter Navigation Menu
	Functions >	Exit Navigation Menu
	Display Actions	Toggle Rest
	Lighting	Enter Rest
	Connectivity	Exit Rest
	Safety Outputs	Toggle REM 4xx Settings
	Display Reason for	Toggle REM 4xx Screen L
	Fig. 9-101	Fig. 9-102
Select Display	Actions -> Exit Rest.	

6. Select Done.

Enable Indirect Navigation 9.14

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

Types of indirect navigation are:

- Menu Select •
- Menu Scan •

Parameter	Menu Scan	Menu Select
Navigation Type	Menu Scan	Menu Select
Enable Menu Scan	On	Off
Navigation Timeout Enabled	On / Off	On / Off

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

Enabling Menu Scan / Menu Select

ĵ Steps 3 to 5 must be made for each desired profile and function. Menu ck

Exit Rest

iOS-Tool			PC-Tool	
Pod ♀ 08:33	File Connection View Help J LAK-H16166775	+ 1911 - X	TDX SP2 ULM 😵 Reset to Default 😂 Manage	B %
A PACE 4 Drive REM400	LAK-H16166775 TDX SP2 ULM	Functions	Drive REM400	
eral	Ind Home	to Drive PEM216	Profile Name	Drive REM400
	to Functions	were indeg were indeg	On 🖌	
Jame Drive REM400	0 User Preferences		Profile User Input	REM 4xx series
	🗎 Chair Log	Seating REM216		On 🔽
Profile Yes	😁 Chair Setup			Off ×
	E Lighting	REM216 Seating		
out REM 4xx series 🗸		C Drive REM400		
Wrap Yes		REM400 Slow		
		REM400 Slower		
can Yes		REM400 Medium		
		REM400 Fast		
	Image: Construction: Image: Construction: Image: Const			
		Seating REM400	TOX \$72 LIAN Rest to Defail Manage	
		REM400 Tilt		XLM Reset to Default Manage Prive REM400 Name Drive EEM400 Reface On C Reface Control EEM400 Reface Control EEM400 Control EEM4000 Control EEM4000 Control EEM4000 Control EEM4000 Control EEM4000 Control EEM4000 Control EEM40000 Control EEM40000 Control EEM40000 Control EEM400000 Control EEM400000000 Control EEM400000000000000000000000000000000000
		REM400 Recline		
ead 🔧 Write		REM400 LH Leg		
••	Q Filter parameters			
Fig. 9-103			Fig. 9-104	

Open Functions \rightarrow desired profile. Set parameter Enable Menu Scan according to above table.

- 2. Open User Preferences.
- 3.

iOS-Tool	PC-Tool
iPod 중 08:35 %	Re Connection Yee Help
• •	🔘 🔧 Read 🔧 Write 🛛 🚏 📋 🗙 TDX SP2 ULM 🛛 😓 Reset to Default 😂 Manage 🦷
✓ PACE 4 User Preferences (≜)	LAK-HISI LAK-HISI LAK-HISI LAK-775 TOX 592 ULM User Preferences
	La Home Sleep Timout Duration
User Function Navigation	Functions Enable Joystick Walesup On
	Q User Preferences
Number of Menu	Chair Log Enable Lock On
Scan Cycles before 3 – +	Chair Setup USER FUNCTION NAVIGATION
ldle	Cycle Profiles On
Scan Selection Disabled V	E Lighting Profile Change uses last used function On
~	Restricted user priority No Restriction
Navigation type Menu Scan V	Startup Function 1st Function 1st Profil
	Timeout for navigation entry - 3
Menu Scan	Menu Scan Rate 4,
	Number of Menu Scan Cycles before Idle
Menu Select	Scan Selection Any Quadra Navication true Menu Sele
Default	Default Menu Select Menu Scan
Menu Select	Selects the type of navigation (menu scan or menu select). Menu Select
	Navigation Entry First Profil
Selects the type of navigation (menu scan or menu	Navigation preference User Inpr
select).	CONTROL INFUTIOUTFUT SETTINGS
	Activation Time = + 0.
🔘 🤐 🖓 Read 🛛 😤 Write	Q. Filter corameters X
Active User Function	User clock display mode 12 Hot
Fig. 9-105	Fig. 9-106

Set parameter Navigation Type according to above table.

4. Set other parameters for indirect navigation to user's needs.

5. If parameter Enable Timeout for Navigation Entry is set to Yes/On, also parameter Navigation Timeout Enabled must be set to Yes/On (see step 6).

6.

iOS-Tool	PC-Tool	
General	the connection takes help 	Manage 👸 💁
Function User Input	LUKCHLISISST75 TDX SP2 ULM Functions REM400 Slow	
Profile User Input	Home Drive REM216 GENERAL	
	Functions Drive REM216 Drive Function Name	REM400 Slow
Navigation Yes	User Preferences REM216 Drive Enable Drive Function	On 📝
Timeout Enabled	Chair Log Provide DEM216	Profile User Input (RE
	Chair Log Chair Setup Chair Setup	× IIO
dible Cue Function Identifi-	REM216 Seating FORWARD	
	E Lighting Max Forward Speed	- + 30 %
	C Drive REM400 Min Forward Speed	20 %
	REM400 Slow Forward Acceleration	80 %
	Forward Deceleration REM400 Slower	- 100 %
orward	REVERSE Max Reverse Speed	- + 30 %
ed 48% _ +	Min Reverse Speed	- + 28 %
u <u> </u>	REM400 Fast Reverse Acceleration	- 100 %
prward	REM400 Faster Reverse Deceleration	- 100 %
15% - +	TURN	
	C Seating REM400 Turn Boost at Max Speed	- + 200 %
rd Accel-	REM400 Tilt Max Turn Speed	- + 50 %
30% - +	REM400 Recline.	- + 40 %
	Turn Acceleration	100 %
Read 🔧 Write	REM400 LH Leg Tum Deceleration	100 %
	DEMANY DULLAR STABILITY	
Fig. 9-107	Fig. 9-108	

Open desired function within current profile.

- 7. Set parameter Navigation Timeout Enabled to Yes/On.
 - a. If Enable Timeout for Navigation Entry and Navigation Timeout Enabled are set to No/Off, program an external switch to enter navigation mode. See 9.15.6 Configuring External Switches, page 175

Other Parameters in User Preferences

	+	
🔘 🔧 Read 🔧 Write		e 1
LAK-H16166775 TDX SP2 ULM	User Preferences	
Home Home	Sleep Timeout Duration	- + 5 min
Functions	Enable Joystick Wakeup	On 🖌
User Preferences	LOCK SETTINGS	
Ukr Hidstor75 User Preferences User Pr	On 📝	
Chair Setup	USER FUNCTION NAVIGATION	
	Startup Function	Last used Function
) Lighting	Attendant/Occupant priority	No Priority
	Navigation Entry	Active User Function
	Cycle Profiles	On 📝
	Profile Change Uses Last Used Function	On 🗸
	Navigation Type (B)	Menu Select
	Navigation Menu View	List View
	Enable Timeout for Navigation Entry	Off ×
Sterp Timesch Duration Function Guet Preferences Coalsr Setup Coalsr S	5.0 s	
	Scan Selection	Disabled
	Scan Selection Interval	4.0 s
		3
	USER FUNCTION CHANGE	
		On 🗸
	CONTROL INPUT/OUTPUT SETTINGS	
	Activation Time	0.7 s
२, Filter parameters	×	

Fig. 9-109

A	Navigation Entry: Sets entry point to menu.
₿	Navigation Type: Selects type of navigation.
	Navigation Menu View: Selects the navigation view (list or grid).
©	Enable Timeout for Navigation Entry : Determines whether the LiNX system, in conjunction with a function's Navigation Timeout Enabled parameter, will time out into navigation mode. Both parameters must be set to On for the given function to time out.
D	Timeout for Navigation Entry: Sets inactivity time required before system enters navigation mode.Navigation Timeout is indicated by ring symbol on remote's display. When Timeout for Navigation Entry is set to very low values, timeout indicator is not displayed.
E	Navigation Preference : Selects whether navigation using touch interface has preference over navigation using user input. If user input is selected, display highlights current selection.
Ð	Scan Selection: Configures which quadrants of Primary input can be used to make selections in Menu Scan.
G	Scan Selection Interval: Sets the time available to make a selection after each menu option is presented during Menu Scan.
\oplus	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.

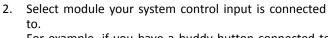
9.15 Configuring Control Input/Output (Control IO)

9.15.1 Configuring Control IO (iOS Tool)

For detailed information about Control IO, refer to 5.2.4 Overview Control Input / Output (Control IO), page 84.

Select and Configure Control Input

1. From Home screen scroll down and tap on Modules.



For example, if you have a buddy button connected to one of CI pins on power module, select **Power Module**. If you want to use one of multipurpose buttons on REM400, select **REM 4xx**.

 Scroll down to Port Settings for control input. For example, if you want to add a power button to the left jack socket on a REM400, scroll down to Left Jack Socket (J1) Tip — Port Settings.





Fig. 9-112

- Under Port Settings tap on Input Type to reveal which input types are available. Input types differ depending on module and your LiNX Access Key level. Input types available are one or more of following:
 - Not Connected
 - 10–Way Switch
 - Resistor Bands
 - Button
 - Power Button
 - Function Key
- 5. Tap on one of displayed input types to reveal its control IO slot.
 - If **10–Way Switch** is selected, ten slots named **Switch 1** to **Switch 10** are displayed.
 - If **Resistor Bands** is selected, ten slots named **Band 1** to **Band 10** are displayed.
 - If Button is selected, four slots (button types) are displayed: Momentary, Short Press, Long Press and On Press.
 - If Power Button or Function Key is selected, no slots are displayed and no further action is required.
- Select and tap on desired slot to begin assigning system control output and action to selected control input.
 For more information about slot icons, refer to 5.2.4 Overview Control Input / Output (Control IO), page 84.



Assign System Control Output and Action

- 7. Tap on one of displayed available system control outputs.
 - Seating ٠
 - Drive
 - **Control Outputs** •
 - **Functions**
 - Navigation .
 - Lighting .
 - . Horn
 - . Connectivity
- Drill down through choices that follow to describe 8. action for system control output. Note that system control output may have one or two choices to drill down through.

When completed tap on **Done** (top right-hand corner). 9. Summary of choices is displayed in output's slot.





9:50 AM

Control Out... Output 1 Momentary

Fig. 9-117

10:07 AM

Fig. 9-119

Control Out... Output 1 Moment

iPod 穼

Output 1

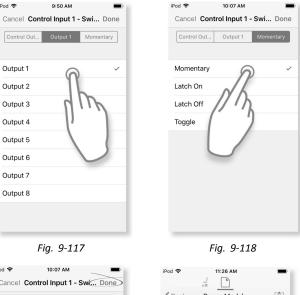
Output 2

Output 3

Output 4

Output 5 Output 6 Output 7 Output 8

iPod 🗢



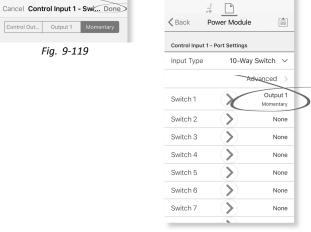


Fig. 9-120

9.15.2 Configuring Control IO (PC Tool)

For detailed information about Control IO, refer to 5.2.4 Overview Control Input / Output (Control IO), page 84.

Select and Configure Control Input

LAK-H16166775	+ TDX-SP2_EXPAND_T						<u></u>
· · · · · · · · · · · · · · · · · · ·	TDX-SP2_EXPAND_1	_	_		_		ß
LAK-H16166775 TDX SP2 ULM	Modules B	Power N	Jodu				
Home	Power Module	Control Input 2	9				D
Functions	REM 1xx	Input Type					10-Way Switch
User Preferences		Advanced					Not Connected
Chair Log	REM 2xx	Switch 1	>	None			Button 10-Way Switch
	REM 4xx	Switch 2	>	None			Resistor Bands
$Modules(\mathbf{A})$	REM 5xx	(F) Switch 3	>	None			Function Key
Actuator Motions	NLIT SA	Switch 4	>	None			
Trigger Angles	CR 4xx	Switch 5	>	None			
	ACU 2xx	Switch 6	>	None			
Lighting		Switch 7	>	None			
	TPI	Switch 8	>	None			
	IN 500	Switch 9	>	None			
	GYR 100	Switch 10	>	None			
	011100	Control Input 3					
	ACT 400	Input Type					Button
	ASL Switched	Advanced					
		Momentary	>	None			
	ASL Proportional	Short Press	>	Functions	>	Next Function	
		Long Press	>	Functions	· >	Next Profile	
Filter parameters	×	On Press	>	None			

- 1. Open **Modules** in first navigation sidebar A.
- From Modules sidebar
 select module your system control input is connected to.

 For example, if you have a buddy button connected to one of CI pins on power module, select Power Module. If you want to use one of multipurpose buttons on REM400, select REM 4xx.
- Scroll down to Port Settings © for control input you want to configure. For example, if you want to add a power button to the left jack socket on a REM400, scroll down to Left Jack Socket (J1) Tip — Port Settings.
- 4. Under **Port Settings** click on **Input Type** D to reveal which input types are available. Input types differ depending on module and your LiNX Access Key level. Input types available are one or more of following:
 - Not Connected
 - 10–Way Switch
 - Resistor Bands
 - Button
 - Power Button
 - Function Key
- 5. Click on one of displayed input types (E) to reveal its control IO slot.
 - If 10-Way Switch is selected, ten slots named Switch 1 to Switch 10 are displayed.
 - If **Resistor Bands** is selected, ten slots named **Band 1** to **Band 10** are displayed.
 - If Button is selected, four slots (button types) are displayed: Momentary, Short Press, Long Press and On Press.
 - If Power Button or Function Key is selected, no slots are displayed and no further action is required.
- Select and click on desired slot

 for more information about slot icons, refer to 5.2.4 Overview Control Input / Output (Control IO), page 84.

Assign Output and Action

		G	(H)	
Switch 1	>	Seating	V > Tilt	> Extend
		Seating		
		Drive		
		Control Outputs Functions		
		Navigation		
		Lighting		
		Horn		
		Connectivity		
		None	VI.	

Fig. 9-122

- 7. Output and action are configured from one or more drop-down menus displayed in control IO slot. Click on first (left-most) drop-down menu © to reveal available outputs.
 - Seating
 - Drive
 - Control Outputs
 - Functions
 - Navigation
 - Lighting
 - Horn
 - Connectivity

9.15.3 Configuring External Power Button

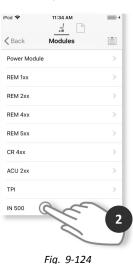
In this example, an external button is configured to be used as a power button. The external button is connected to the jack socket on the input module (IN500).

iOS Tool

1. From Home screen scroll down and tap on Modules.



Fig. 9-123

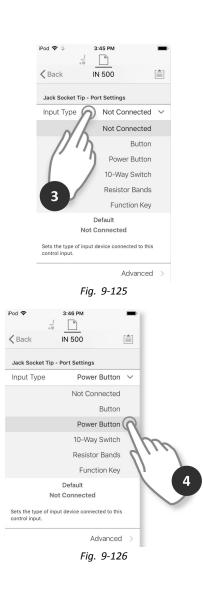


2. Select IN 500 module.



3. Scroll down to Jack Socket Tip — Port Settings and tap on Input Type.

4. Tap on Power Button.



The setup is complete. No more configuration is required.

PC Tool

- 1. Open Modules \rightarrow IN 500.
- 2. Scroll down to Jack Socket Tip.



3. Set Input Type to Power Button.

For more information about the other parameters such as **Input Port Debounce**, refer to *9.15.2 Configuring Control IO (PC Tool), page 165*

9.15.4 Configuring Mouse Clicks

In this example a buddy button is configured to perform a double left-click mouse operation. The buddy button is connected to the left jack socket on the REM400.

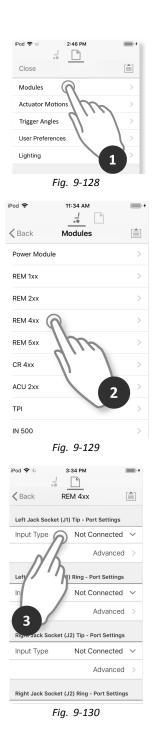
iOS Tool

Select and Configure Input

1. From Home screen scroll down and tap on Modules.

2. Select REM 4xx module.

3. Scroll down to Left Jack Socket (J1) Tip — Port Settings and tap on Input Type.



- 4. Tap on Button.
- 5. Tap on **Momentary**.

Assign Output

6. Tap on **Connectivity**.

7. Tap on Mouse Left Click.

iPod 🗢 🔅	3:34 PM			
K Back	REM 4xx			
Left Jack Socket	(J1) Tip - Port S	Settings		
Input Type		Button	E	
	Ac	Ivanced >	2	(4
Momentary	$\mathbf{\Sigma}$	None None	1	_
Short Press	$\mathbf{>}$	None		
Long Press	>	HIN		
On Press	$\mathbf{>}$	y y		
Left Jack Socket	(J1) Ring - Port	Settin	5	
Input Type	Not Con	nectel 5		
	Ac	lvanced >		
	ŀ	- Fiq. 9-131		

iPod 🗢	4:06 PM	Ð
Cancel Lef	Jack Socket (J1 Done	
Connectivity	Mouse Direc Up	
None		
Seating		
Drive		
Control Out	outs	
Functi 6		
Navig		
Lighting		
Horn	1/10	
Connectivit	~ V ~	
	Fia. 9-132	

	FIG. 9-132	
iPod 🗢	4:07 PM	





Fig. 9-133

8. Tap on Double.

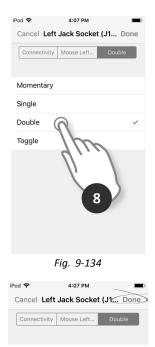


Fig. 9-135

9. Tap on Done.

The setup is complete. No more configuration is required.

PC Tool

- 1. Open Modules \rightarrow REM 4xx.
- 2. Scroll down to Input Type of Left Jack Socket (J1) Tip.

🔵 👷 Read 📲 Weise	PGB p5 ékmh + ULM						9	
TDX SP2 ULM								
Home	Power Module	Trenor Dampening					0 %	
e Functions	REM 2xx	Jaystick Rotation Angle					۰ ۵	
User Preferences	REM 4box	Swap Joystid: Avis				,	No swap	
E Chair Log	REM Sax	Left Jack Socket (J1) To						-
8 Modules	C1.4m	Input Type					Button	
Actuator Motions		Enable Input					On V	
Tigger Argles	ACU 2xx	Monitored					Off ×	
Lighting	TPI	Stability Checking					On V	
or Lighting	IN 500	Normally Closed					OIT X	
		Step Daiwing and Seating					011	
	ACT 400	Monordary	>	Connectivity	> Neuse Left Click	> Double		
	ASL Switched	Short Press	>	Nore				
	AS, Proportional	Long Press On Press	>	Nore				
		Insut Pert Debource	/	NERE			0.0 s	
	100	Left Jack Socket (71) Ning					0.0 8	
		Input Type				Not Co	rected	
		Input Port Debource					0.0 s	
		Right Jack Socket (2) Tip						
		Input Type					Suton -	
	×	Enable Input					On V	

- 3. Choose Input Type. Options are:
 - Not Connected
 - Button
 - Power Button
- 4. Click on Button to reveal control IO slots.
- 5. Choose Momentary slot.
- 6. Set displayed drop-down menus to Connectivity \rightarrow Mouse Left Click \rightarrow Double.
- For more information about the other parameters such as **Input Port Debounce**, refer to *9.15.2 Configuring Control IO (PC Tool), page 165*

9.15.5 Configuring Toggle Switches

 $\hat{\mathbb{I}}$ Left Toggle Forward and Right Toggle are set with a default configuration, that can be changed.

In this example, the left toggle button on the REM400 is configured to control output pin 3 on the output module (OUT500). For the duration that the left toggle button is pushed forward, pin 3 on the output module will be active.

iOS Tool

Select and Configure Input

1. From Home screen scroll down and tap on Modules.

2. Select REM 4xx module.

3. Scroll down to Left Toggle Forward — Port Settings and tap on Input Type.



- 4. Tap on Button.
- 5. Tap on Momentary.

3:52 PM iPod 🗢 ... **<** Back REM 4xx Left Toggle Forward - Port Settings Input Type Button Advanced 4 Momentary > G None > Short Press > Long Press > On Press Left Toggle Back - Port Settings 5 Input Type Not Connecte Advanced Fig. 9-140

iPod 🗢 3:40 PM • Cancel Left Toggle Forward... Done Control Out... Output 1 Momentary None Seating Drive Control Outputs Functions Navigation Lighting 6 Horn Connectivity

Fig. 9-141

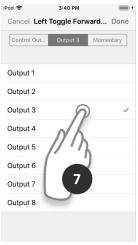


Fig. 9-142

Assign Output

6. Tap on Control Outputs.

7. Tap on **OUT 3**.

8. Tap on Momentary.



Control Out... Output 3 Momentary

Fig. 9-144

9. Tap on Done.

PC Tool

- 1. Open Modules \rightarrow REM 4xx.
- 2. Scroll down to Input Type of Left Toggle Back.



3. Choose Input Type. Options are:

- Not Connected •
- Button
- **Power Button** ٠
- Click on Button to reveal control IO slots. 4.



5. Choose Momentary slot.



Set displayed drop-down menus to Control Outputs → Output 3 → Momentary.

For more information about the other parameters such as **Input Port Debounce**, refer to or *9.15.2 Configuring Control IO (PC Tool), page 165*

9.15.6 Configuring External Switches

 \hat{j} Left Jack Socket (J1) Tip is set with a default configuration that can be changed.

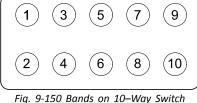
In this example, a 10-way switch connected to the jack socket of the DLX-REM400 is configured.

- 1. Open Modules -> REM 4xx.
- 2. Scroll down to Input Type of Left Jack Socket (J1) Ring.
- 3. Choose **Input Type**. Options are:
 - Not Connected
 - Button
 - 10–Way Switch



 Click on 10–Way Switch to reveal control IO slots Switch 1 to Switch 10. Choose desired slot.

Ę			PGB p5 ékmit + ULM	🔵 Yakada Yawana 🗎
		REM 4xx	Modules	TDX SP2 ULM
			Power Module	🛱 Home
		Left Jack Societ (2) To	REM 2xx	In Functions
Power Button		Inst Type		User Preferences
- 0.0 4		Insut Port Debource	REM 4box	
0.03		Left Jack Societ (71) Rine	REM Sax	Chairlog
Not Connected		Inst Type	CR4m	Modules
Not Connected		Insut Port Debource		Actuator Motions
Button		Right Jack Socket (22) Tip	ACU 2xx	j Trigger Angles
10-Way Switch		Inst Type	TPI	D Lighting
On		Erable Input	IN 500	(Lipting
OF R		Monitpend	IN 500	
On I		Stability Checking	ACT 400	
Off K		Normally Closed	ASL Switched	
07		Step Driving and Seating		
	Noo	Momentary	ASL Proportional	
		Short Press	100	
		Long Press		
	Non	On Press		
0.0 s		Input Port Debounce		
		Right Jack Socket (J2) Ring		
Not Connected		input Type		
- + 0.0 s		Input Port Debounce	×	Filter parameters



 Click on first (left-most) drop-down menu to reveal available outputs. The options are:

. ..

- SeatingDrive
- Control Outputs
- Functions
- Navigation
- Lighting
- Horn
- Connectivity

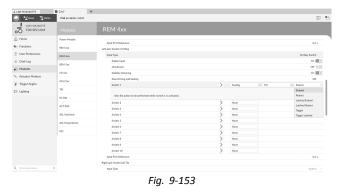
For more information about available outputs, refer to 5.2.4 Overview Control Input / Output (Control IO), page 84.

6. After selecting output, further one or two drop-down menus are revealed. Moving left to right open each menu and select appropriate action for output.





Fig. 9-152



Other Parameters

For more information about the other parameters such as **Input Port Debounce**, refer to 9.15.2 Configuring Control IO (PC Tool), page 165

9.15.7 Programming Multipurpose Buttons

In this example, the Multipurpose Button 1 is configured to turn on the position lights.

- 1. Open Modules \rightarrow REM 4xx.
- 2. Scroll down to Input Type of Multipurpose Button 1.



3. Choose Momentary slot.



- 4. Set displayed drop-down menus to Lighting \rightarrow Position Lights \rightarrow On.
- For more information about the other parameters such as **Stop Driving and Seating**, refer to *9.15.2 Configuring Control IO (PC Tool), page 165*

9.16 Conditional Control IO

The LiNX system now supports conditional control IO, extending the current <u>always</u> rule-based model, where a single output action is <u>always</u> activated in response to a single input action. With the introduction of conditional control IO, now the following rules can be created:

- multiple always rules one or more outputs are always activated from a single input,
- conditional rules one or more outputs are activated from a single input if the specified conditions are true,
- <u>conditional/else</u> rules an output is activated from a single input if a specified <u>condition</u> is true, <u>else</u> (otherwise) an alternative output is activated if the same specified condition is false.

The benefit of conditional IO is two-fold. Firstly, a single input can now activate multiple outputs. Secondly, control inputs can be overloaded. Overloading is where a single input can have multiple uses, each of which depends on specified <u>conditions</u>. This means that an input can be used to activate one output if the system is in one state or function, and then activate a different output when the system is in another state or function. For example, a buddy button that is used to stop a wheelchair when driving can also be used to extend a seating motion when in a seating function.

Creating Rules





All rules are defined from a control input's control IO slot, such as the Momentary control IO slot for when the input type is set to button, or Switch 1 control IO slot for when the input type is set to 10–way switch.

First of all a control input must be set up, see 9.15 Configuring Control Input/Output (Control IO), page 163

To create any rule for an input, assign conditions and outputs or just outputs.

Assigning Condition and Output with iOS Tool

1. Select desired control IO slot to reveal **Add Rule** button.

2. To assign condition to rule, select **Add Rule** button. Condition list is displayed.

- 3. Select desired condition. Condition button (A) displays choice.
- 4. To assign output to rule, select output button [®]. Output list is displayed.

iPod 🗢	10:14 AM	-				
✓ Modules Power Module						
Control Input 1 - Port Settings						
Input Type		Button \checkmark				
		Advanced >				
Momentary	>	None				
Shor	γ >	None				
Long Pre	None					
On Press	\checkmark	None				
Control Input	2 - Port Setting	s				
Input Type		Button 🗸				
	Fig. 9-15	7				
iPod 🗢	10:14 AM	-				
Modules	Power Modu	le 📋				
Control Input 1	- Port Settings					
Input Type		Button 🗸				
		Advanced >				
Momentary		Add Rule				
Sets the action t activated.	o be pert	e the switch is				
Short Press	\bigcirc	None				
Long Press	>	None				
On Press	>	None				
	Fig. 9-15	8				
iPod 🗢	10:15 AM	-				
	ntrol Input 1					
System is in Rest		Action				
Always	4)/				
Chair is Driv						
Seating is in		4				
System is in System is in	Navigation I	vienu				
Activ	on is	~				
3	Delete					

Fig. 9-159

5. Select desired output.

6. If more output lists are displayed, drill down through options as presented.

- 7. Select desired outputs.
- 8. Select Done.
 - Summary of rule is displayed in control IO slot



Fig. 9-160 iPod 穼 10:15 AM Cancel Control Input 1 - Mo... Done System is in Rest Tilt Extend > Seating Tilt Recline Elevate Left Leg Right Leg Both Legs Recline and Legs Anterior Tilt

Fig. 9-161



Fig. 9-162

	iPod 🗢	11:26 АМ rol Input 1 - Mo		iPod 🗢	11:26 АМ rol Input 1 - Mo	Done	
(System	Select Ou		System is in Rest		Select Output	
	Privin	g		Drive	,	1	
	ung is in N	Notion		Functions			\bigcirc
	System is in N	avigation Menu		Display Actio	ns	>	
	System is in R	Rest	~	Lighting		>	
	Active Function	on is	>	Horn		>	
		Delete		Connectivity		>	
				Safety Outpu	ts	>	
				Display Rease	on for	>	

Fig. 9-163

It can be switched between viewing conditions list and output list easily, by using condition button (a) and output button (b). Directly Assigning Output Only with iOS Tool

Outputs are selected from the output list. If no rules have yet been defined, the output list can be opened immediately by selecting the box on the right-hand side of the control IO slot.

iPod 🗢 11:07 AM	iPod 🗢 11:07 AM	•	iPod 🗢 11:07 AM		iPod 🗢	11:07 AM
	Cancel Control Input 1 - Mo	Done	Cancel Control Input 1	- Mo Done	Cancel Contr	ol Input 1 - Mo pone
Modules Power Module	Always	Select Action	Always	Tilt Extend	Always	>
Control Input 1 - Port Settings			Seating Tilt	Extend	Seating	Tilt 5
Input Type Button \checkmark	Seating	>	Tilt P		Extend	R
Advanced >	Drive	>	Recline	>	Retract	h
Momentary None	Control (2)	>	Elevate 3	>	Latche	3
Short Press None	Functio	>	Left L	>	Latch	ct
	Display Actions	>	Right Leg	>	Toggle	
Long Press None	Lighting	>	Both Legs	>	Toggle Latche	d
On Press None	Horn	>	Recline and Legs	>		Delete
Control Input 2 - Port Settings	Connectivity	>	Anterior Tilt	>		
Input Type Button V	Safety Outputs	>	Delete			

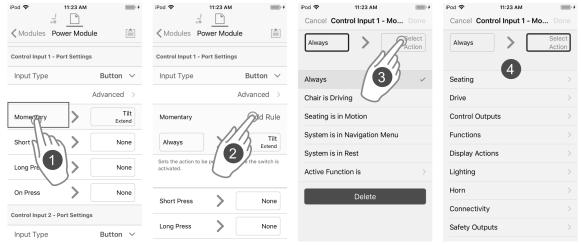
Fig. 9-164

- 1. Select box on right-hand side of desired control IO slot.
- 2. Make sure Select Output button is highlighted and select desired output.
- 3. If more output lists are displayed, drill down through options as presented.
- 4. Select desired outputs.
- 5. Select Done.

Summary of rule is displayed in control IO slot

Indirectly Assigning Output Only with iOS Tool

If a rule already exists, further outputs can be added.





- 1. Select desired control IO slot to reveal Add Rule button.
- 2. Select Add Rule button.
- 3. Select output button.
- 4. Select desired output.
- 5. If more output lists are displayed, drill down through options as presented.
- 6. Select desired outputs.
- 7. Select Done.

Summary of rule is displayed in control IO slot

Assigning Condition and Output with PC Tool



- (A) Condition slot: to assign desired condition to rule
- (B) Output slot: to assign desired output to rule

1.

🔵 😪 Read 🛛 🕻 Write	971 🗋 🗡	TDX SP2 ULM 🔱 Reset to Default 😂 Manag	je	<u>e</u> .
LAK-H16166775 TDX SP2 ULM		REM 4xx		
Home	Power Module	Joystick Rotation Angle		0 °
Functions	REM 2xx	Swap Joystick Axis		No swap 👘 🗠
User Preferences	REM 4xx	USER INPUT - JOISTICK SHAPING Forward		100 %
Chair Log	REM 5xx	Reverse		100 %
S Modules	CR 4xx	Left		100 %
Actuator Motions	CR 4XX	Right		100 %
Lighting	ACU 2xx	LEFT JACK SOCKET (J1) TIP - PORT SETTINGS		
	TPI	Input Type		Button
	IN 200	Advanced		
		Momentary		add_rule
	IN 500	Short Press		
	ACT 200-1	Long Press		
	ASL Switched	On Press		
	ASL Proportional	LEFT JACK SOCKET (J1) RING - PORT SETTINGS Input Type		Button
		Advanced		
	IDC	Momentary		
		Short Press		
		Long Press		
		On Press		
		RIGHT JACK SOCKET (J2) TIP - PORT SETTINGS		
		Input Type		Button
		Advanced		

Fig. 9-167

Select desired Control IO slot to reveal Add Rule button.

2.

🚽 LAK-H16166775	+		
🔵 🖼 Read 😤 Write	971 🗀 🗡	TDX SP2 ULM 🔱 Reset to Default 😂 Manage	10 I O I
LAK-H16166775 TDX SP2 ULM		REM 4xx	
Lud Home	Power Module	Right	100 %
Sea Functions	REM 2xx	LEFT JACK SOCIET (J1) TIP - PORT SETTINGS	Button
User Preferences	REM 4xx	Advanced	
🖹 Chair Log	REM 5xx	Momentary	
🔂 Modules	CR 4xx	Select Action	00
Actuator Motions Lighting	ACU 2xx	Short Pi Seating Drive	
	TPI	On Pres Functions	
	IN 200	LEFT MCs Display Actions RT SETTINGS	
	IN 500	Input Ty Lighting	Button
	ACT 200-1	Advance Horn Connectivity Momentary	
	ASL Switched	Short Press	
	ASL Proportional	Long Press	
	IDC	On Press	add rule
	ibc.	RIGHT JACK SOCKET (J2) TIP - PORT SETTINGS	
		Input Type	Button
		Advanced	
		Momentary	
		Short Press	
		Always	
		> Functions > Next Func	
		Loon Desce	



To assign condition to rule, select desired condition from drop-down menu in condition slot.

🚽 LAK-H16166775	+	
🔵 🖼 Read 📲 Write	971 🗀 🗡	TDX SP2 ULM 🕺 Reset to Default 😂 Manage 👔 🔮
LAK-H16166775 TDX SP2 ULM		REM 4xx
Lu Home	Power Module	Right 100 %
Sea Functions	REM 2xx	LEFT JACK SOCKET (J1) TIP - PORT SETTINGS Input Type Button
0 User Preferences	REM 4xx	Advanced
Chair Log	REM 5xx	Manne sutting
🖗 Modules	CR 4xx	Nurars O
Actuator Motions Lighting	ACU 2xx	Cheir is Driving S Seating is in Motion
() Lighting	ТРІ	U System is in Navigation Menu C System is in Rest
	IN 200	Active relation is LEF - mer average room accords
	IN 500	Input Type Button
	ACT 200-1	Advanced
	ASL Switched	Short Press
	ASL Proportional	Long Press
	IDC .	On Press
		RIGHT JACK SOCKET (J2) TIP - PORT SETTINGS Input Type Button
		Advanced
		Momentary
		Short Press
		Always > Next Functions > Next Functions
		Long Proce

Fig. 9-169

To assign output to rule, select desired output from drop-down menu in output slot. 4.

LAK-H16166775	+	
🔵 😪 Read 😤 Write	9~ 🗋 🗡	TDX SP2 ULM 🕺 Reset to Default 😂 Manage 👔 🔮
LAK-H16166775 TDX SP2 ULM		REM 4xx
Home	Power Module	Right 100 %
ke Functions	REM 2xx	LEFT JACK SOCKET (J1) TIP - PORT SETTINGS Input Type Button
User Preferences	REM 4xx	Advanced
Chair Log	REM 5xx	Momentary
Nodules		Always
Actuator Motions	CR 4xx	- Seating > Tilt > Extend
Lighting	ACU 2xx	Short Press
	TPI	Long Press On Press
	IN 200	
	IN 500	LEFT MCK SOCKET US RING - PORT SETTINGS Input Type Button
		Advanced
	ACT 200-1	Momentary
	ASL Switched	Short Press
	ASL Proportional	Long Press
	IDC	On Press add rul
		RIGHT JACK SOCKET (J2) TIP - PORT SETTINGS
		Input Type Button
		Advanced
		Momentary
		Short Press
		Always
		Functions > Next Func

Fig. 9-170

To save rule, choose green check mark. To delete rule, choose red cross.

9.16.1 Always Rule

An <u>always</u> rule can be used to assign one or more outputs to an input with no conditions. To create an <u>always</u> rule, simply specify an input and assign one or more outputs to it. Since there are no conditions, an <u>always</u> rule can be written as:

on	[input]	
	activate [output]	

This states whenever the [input] is triggered, the [output] assigned to the [input] is always activated. It does not depend on any condition such as the state of the system or which function the user is currently operating in — if the input is triggered, the output is activated.

An always rule can have multiple outputs, which can be written as:

```
on [input]
activate [output-1]
activate [output-2]
...
...
activate [output-n]
```

This states whenever the [input] is triggered, activate all [outputs] assigned to the [input] simultaneously.

1605129-J

Adding Multiple Always Rule



Fig. 9-171

In this example a multiple always rule is added to determine the output from a single momentary action on a button, connected to the CI-1 pin on a power module:

Whenever the button is pressed [input] the wheelchair always stops driving [output-1], and the navigation menu is always entered [output-2].

The rule looks like this:

on [momentary action to button] activate [Drive Stop] activate [Enter Navigation Menu]

- Rule output 1: wheelchair stops driving
- Rule output 2: Navigation menu is entered

Adding Rule with iOS Tool

Pod 🗢 11:26 AM	-	iPod 중 11:26 AM	-	iPod 🗢	11:26 AM	-
< Modules		< Close		✓ Modules Po	wer Module	
_				Control Input 1 - P	ort Settings	
Modules 1	>	Power Module 2	>	Input Type	Butto	n v
Actuator Motions	>	REM 1xx	>		Advance	ed >
Trigger Angles	>	REM 2xx	>			
Rules	>	REM 4xx	>	Momentary		None
User Preferences	>	REM 5xx	>	Short Press	>	None
Core Features	>	CR 4xx	>	Long Press	>	None
Drive Limits	>	ACU 2xx	>			
Gyro Limits	>	TPI	>	On Press	>	None
Lighting	>	IN 500	>	Control Input 2 - P	ort Settings	
		GYR	>	Input Type	10-Way Swite	h v

Fig. 9-172

Drive Stop

- Open Modules -> Power Module. 1.
- Go to Control Input 1 Port Settings. 2.
- Set Input Type to Button. 3.

Assign Rule Output 1

iPod 🗢	11:26 AM	-	iPod 🗢	1:20 PM
			Cancel Cont	rol Input 1 - Mo
Modules Po	wer Module		Always	Drive
Control Input 1 - P	ort Settings		Drive	Drive Sto
Input Type		Button \lor	Seating	
	A	dvanced >	Drive	2
Momentary	>	1 None	Control Output	ıts
Short Press	>	None	Functions	
			Display Action	IS
Long Press	/	None	Lighting	
On Press	>	None	Horn	
Control Input 2 - P	-		Connectivity	
Angle Name		Idei viidim	Safety Output	s
Distributor Acc	cess			

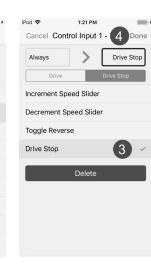


Fig. 9-173

- 1. Select box on right-hand side of **Momentary** slot.
- 2. Make sure output button is highlighted and select Drive.
- 3. Select Drive Stop.
- 4. Select Done.

Assign Rule Output 2

^р оd	iPod 중 Io Done Cand	1:20 PM el Control Input 1 -	Done iPod ≎	11:26 AM	-
Always	Select		Enter avigation	s Power Module	
		splay Actions Enter Naviga	Menu Control Inpu	ut 1 - Port Settings	
Display Actions Select In			Input Typ	be But	ton 🗸
Seating	> Sele	et Menu Item		5 Advan	nced >
Drive	> Togg	le Navigation Menu			
Control Outputs	> Ente	Navigation Menu	Momentar	ry Ac	dd Rule
Functions	> Exit I	Navigation Menu	Always	Driv	ve Stop
Display Actions	> Togg	le Rest	Always	Nav	Enter vigation
Lighting	Ente	Rest			Menu
Lighting			Sets the acti activated.	ion to be performed while the	switch is
Horn	> Exit I	Rest			
Connectivity	> Togg	le REM 4xx Settings Mer	nu Short Pres	ss 📏	None

Fig. 9-174

- 1. Select Add Rule button.
- 2. Select Display Actions.
- 3. Select Enter Navigation Menu.
- 4. Select Done.
- 5. Multiple <u>always</u> rule summary is displayed.

Adding Rule with PC Tool

1.

🔵 🐕 Read 🛛 🎇 Write	971 🗋 🗙	TDX SP2 ULM 🔱 Reset to Default 😂 Manag	e	1
LAK-H16166775 TDX SP2 ULM	Modules	REM 4xx		
Home Home	Power Module	POWER MODULE - MOTORS		
Sev Functions	REM 2xx	Veer Compensation		0%
O User Preferences	REM 4xx	Right Invert		On 🗸
Chair Log	REM 5xx	Swap		On 🗸
🔒 Modules		POWER MODULE - LOAD COMPENSATION		
S Actuator Motions	CR 4xx	Motor Resistance		68 mΩ
ED Lighting	ACU 2xx	Load Compensation Percentage		70 %
	трі	CONTROL INPUT 1 - PORT SETTINGS		
	IN 200	Input Type Advanced		Button
	IN 500	Momentary		add.rul
	ACT 200-1	Short Press		
	ACT 200-1	Long Press		
	ASL Switched	On Press		
	ASL Proportional	CONTROL INPUT 2 - PORT SETTINGS		
		Input Type	10-Wa	y Switch
	IDC	Advanced		
		Switch 1		
		Switch 2		
		Switch 3		
		Switch 4		
		Switch 5		
		Switch 6		
		Cardinale 7		

Select desired Control IO slot to reveal Add Rule button.

Assign Rule Output 1

2.

LAK-H16166775	+	2	2.0
🔵 🔧 Read 🛛 🎇 Write	97 🗋 🗡	TDX SP2 ULM 🕺 Reset to Default 😂 Manage	<u>ا</u> ا
LAK-H16166775 TDX SP2 ULM		REM 4xx	
Lud Home	Power Module	POWER MODULE - MOTORS	
Functions	REM 2xx	Veer Compensation	0%
0 User Preferences	REM 4xx	Right Invert	On 🗸
E Chair Log	REM 5xx	Swap	On 🗸
🚯 Modules	CR 4xx	POWER MODULE - LOAD COMPENSATION	
No. Actuator Motions	CR 4M	Motor Resistance	68 mΩ
E Lighting	ACU 2xx	Load Compensation Percentage	70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS	Button
	IN 200	Advanced	Button
	IN 500	Momentary	
	ACT 200-1	Always Drive > Drive Stop	00
	ASL Switched	Short Press	
	ASL Proportional	Long Press	
	IDC	On Press	
	100	CONTROL INPUT 2 - PORT SETTINGS	
		Input Type	10-Way Switch
		Advanced	
		Switch 1	
		Switch 2	
		Switch 3	
		Switch 4	
		2.15.1 P	

Fig. 9-176

Assign condition **Always** to condition slot. Assign output **Drive -> Drive Stop** to output slot.

3.

LAK-H16166775	+ n 🗆 ×	TDX SP2 ULM 🖉 Reset to Default 😂 Manage	ب ه ا
LAK-H16166775 TDX SP2 ULM	Modules	REM 4xx	5
Home	Power Module	POWER MODULE - MOTORS	
Functions	REM 2xx	Veer Compensation	0%
0 User Preferences	REM 4xx	Right Invert	On 🗸
Chair Log		Lett Invert Swap	On V
A Modules	REM 5xx		OII V
•••	CR 4xx	POWER MODULE - LOAD COMPENSATION Motor Resistance	- 68 mQ
Actuator Motions	ACU 2xx	Load Compensation Percentage	70 %
Lighting	трі	CONTROL INPUT 1 - PORT SETTINGS	
	IN 200	Input Type Advanced	Button
	IN 500	Momentary	
	ACT 200-1	Always	00
	ASL Switched	Short Press	
	ASL Proportional	Long Press	
	IDC	On Press	
	100	CONTROL INPUT 2 - PORT SETTINGS	
		Input Type	10-Way Switch
		Advanced	
		Switch 1	
		Switch 2	
		Switch 3	
		Switch 4	
		2.14.14 P	

Save rule.

Assign Output Rule 2

- 4. Select Add Rule button.
- 5.

🔵 🖼 Read 🛛 🍕 Write	971 🗀 🗡	TDX SP2 ULM 🔱 Reset to Default 😂 Manage	<u>ب</u> ه و
LAK-H16166775 TDX SP2 ULM			
Home	Power Module	POWER MODULE - MOTORS	
Functions	REM 2xx	Veer Compensation	0%
User Preferences		Right Invert	On 🗸
Chair Log	REM 4xx	Left invert	On 🗸
	REM 5xx	Swap	On 🗸
Modules	CR 4xx	POWER MODULE - LOAD COMPENSATION	
Actuator Motions	CK TA	Motor Resistance	68 mΩ
Lighting	ACU 2xx	Load Compensation Percentage	70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS	
		Input Type	Button
	IN 200	Advanced	
	IN 500	Momentary	
	ACT 200-1	Always	0 0
	ACT 200-1	Display Ac > Enter Navi	00
	ASL Switched	Always	
	ASL Proportional	Drive Prive Stop	
	IDC .	Short Press	
	D.	Long Press	
		On Press	
		CONTROL INPUT 2 - PORT SETTINGS	
		Input Type	10-Way Switch
		Advanced	
		Switch 1	
		Switch 2	

Fig. 9-178

Assign condition **Always** to condition slot. Assign output **Display Action** -> **Enter Navigation Menu** to output slot.

6.

LAK-H16166775	+		
🔵 🖼 Read 🛛 🎇 Write	9"1 🗋 🗡	TDX SP2 ULM 🔱 Reset to Default 😂 Manage	<u>ا</u> ب• ا
LAK-H16166775 TDX SP2 ULM			
UU Home	Power Module	POWER MODULE - MOTORS	
In Functions	REM 2xx	Veer Compensation	
User Preferences	REM 4xx	Right Invert	On 🗸
Chair Log	REM 4XX	Left Invert	On 🗸
	REM 5xx	Swap	On 🗸
6 Modules	CR 4xx	FOWER MODULE - LOAD COMPENSATION	
Actuator Motions		Motor Resistance	00
D Lighting	ACU 2xx	Load Compensation Percentage	70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS	
	IN 200	Input Type	Button
	IN 200	Advanced	
	IN 500	Momentary	
	ACT 200-1	Always Display Ac > Enter Navi	00
	ASL Switched	Always	
	ASL Proportional	> Drive > Drive Stop	
		Short Press	
	IDC	Long Press	
		On Press	
		CONTROL INPUT 2 - PORT SETTINGS	
		Input Type 18	D-Way Switch
		Advanced	
		Switch 1	
		Switch 2	

Save rule.

9.16.2 Conditional Rule

A <u>conditional</u> rule can be used to activate an output from an input, subject to a <u>condition</u>. That is, whenever the input is triggered, only an output whose <u>condition</u> is true is activated. To create a <u>conditional</u> rule, you need to select an [input] and specify one [condition] and one [output]. The conditional rule can be written as:

on [input] if [condition] is true, activate [output]

This rule states whenever the [input] is triggered, activate the [output] if the [condition] is true. If the [condition] is false, the [output] is not activated.

An input can be assigned multiple conditional rules which can be written as:

on [input] if [condition-1] is true, activate [output-1] if [condition-2] is true, activate [output-2] ... if [condition-n] is true, activate [output-n] This rule states whenever the [input] is triggered:

- activate [output-1] if [condition-1] is true,
- activate [output-2] if [condition-2] is true,
- and so on, up to number (n) of conditional rules defined.
- If any of the conditions are false, the respective output is not activated.
- \mathring{l} When assigned multiple rules, each condition is evaluated individually and so it's possible that multiple outputs are activated at the same time if more than one of those conditions is true. This may or may not be the intention.

A conditional rule can also be assigned multiple outputs, which can be written as:

on	[input]
	if [condition] is true,
	activate [output-1]
	activate [output-2]
	activate [output-3]

This rule states whenever the [input] is triggered, activate [output-1], [output-2] and [output-3] simultaneously if the [condition] is true.

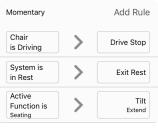


Fig. 9-180

Three <u>conditional</u> rules assigned to the momentary input of the button connected to the power module. When the button is pressed:

- if the wheelchair is driving [condition-1], the wheelchair stops driving [output-1],
- if the wheelchair is in rest state [condition-2], the system exits rest state [output-2],
- if the active function is a seating function [condition-3], the wheelchair activates a tilt [output-3].

Adding Conditional Rule

In this example, two <u>conditional</u> rules are added to determine the output from a single momentary action on a button, connected to the Cl-1 pin on the power module:

If the wheelchair is driving [condition-1] when the button is pressed [input], the wheelchair starts to toggle reverse [output-1]. If the Mouse Mover function is activated [condition-2] when the button is pressed [input], a single left click [output-2] is performed.

The rule looks like this:

on	[momentary action to button]
	if [in Drive function] is true,
	activate [toggle reverse]
	if [in Mouse Mover function] is true,
	activate [single left click]

- Rule output 1: if the wheelchair is driving, toggle reverse.
- Rule output 2: if in Mouse Mover function, activate a single left click.

Adding Rule With iOS Tool

Select Input Type

1. Open Modules -> Power Module -> Control Input 1 - Port Settings. Set Input Type to Button.

Assign Rule Output 1

iPod 🗢	2:47 PM	
. 0		
K Modules P		e 📋
notaator onanni		
Control Input 1 -	Port Settings	
Input Type	1	Button \checkmark
	/	Advanced >
Momentary		None
Short Press	>	None
Long Press	>	None
On Press	>	None
Control Input 2 -	Port Settings	

iPod 奈 ≮ Modules F	2:48 PM	•
Control Input 1 -	Port Settings	
Input Type		Button 🗸
	Ad	dvanced >
Momentary	3	Add Rule
Sets the action to activated.	be performed whi	le the switch is
Short Press	>	None
Long Press	>	None
 	Fig. 9-181)

iPod 🗢	2:48 PM	• +
Cancel Contr	ol Input 1 -	Mo Done
Active Function is Drive	>	Select Action
Active Function	n is	Drive
Always		
Chair is Driving	g	
Seating is in M	lotion	
System is in N	lavigation M	enu
System is in R	est	
Active Functio	on is 4	
	Delete	

- 2. Select Momentary input item.
- Select Add Rule button. 3.
- 4. Select Active Function is.
- 5.



iPod 🗢	2:48 PM	. +
Cancel Contr	rol Input 1 - N	lo Done
Active Function is Drive	> [Select Action
Seating		>
Drive	7	>
Control Outpu	its	>
Functions		>
Display Action	IS	>
Lighting		>
Horn		>
Connectivity		>

Fig. 9-182



Select Drive.

- 6. Select output button.
- 7. Select Drive.
- 8. Select Toggle Reverse.

9. Select Done.

Assign Rule Output 2

iPod ♥ 2:49 PM → +	iPod 2:49 PM # + Cancel Control Input 1 - Mo Done
Modules Power Module	Active Function is Mouse Mover Action
Input Type Button V	Drive
Advanced >	Seating
Momentary	Mouse Mover 2 ~
Active Toggle	Switch Control
Function is Drive Reverse	Utility
Sets the action to be performed while the switch is activated.	Any Active Function
Short Press None	Delete

Fig. 9-183

iPod 🗢	2:49 PM	1 - +
	trol Input 1 -	
Active Function is Mouse Mover	> [Mouse Direction Up
Connectivity	Mouse Direct	Up
Seating		>
Drive		>
Control Outp	outs	>
Functions		>
Display Actic	ons	>
Lighting		>
Horn		>
Connectivity	4	

- 1. Select Add Rule button.
- 2. Select Mouse Mover.
- 3. Select output button.
- 4. Select **Connectivity**.
- 5.

	Mouse Left Click Momentary	Active Function is Mouse Mover	Mouse Left Click Single	K Modules Powe	er Module
	omentary	Connectivity Mouse Left C	Single	Control Input 1 - Port	Settings
Mouse Direction	>	Momentary		Input Type	Buttor
Mouse Left Click 5		Single 6	~		Advance
Mouse Middle Click	>	Double		Momentary	Add
Mouse Right Click Mouse Scroll	>	Toggle		Active Function is Drive	> Toy Rev
Switch Control	>	Delete		Active Function is Mouse Mover	Left C

Fig. 9-184

Select Mouse Left Click.

- 6. Select Single.
- 7. Select Done.
- 8. <u>Conditional</u> rule summary is displayed.

Adding Rule with PC Tool

1.

🔵 🔧 Read 🛛 🔧 Write	971 🗀 🗙	TDX SP2 ULM 🔱 Reset to Default 😂 Manag	,e	<u>ن</u> ہ ا
LAK-H16166775 TDX SP2 ULM		REM 4xx		
Ind Home	Power Module	POWER MODULE - MOTORS		
So Functions	REM 2xx	Veer Compensation		0 %
O User Preferences	REM 4xx	Right Invert		On 🗸
E Chair Log	REM 5xx	Swap		On 🗸
🔒 Modules	CR 4xx	POWER MODULE - LOAD COMPENSATION		
Sy Actuator Motions	CR 4M	Motor Resistance		68 mΩ
E Lighting	ACU 2xx	Load Compensation Percentage		70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS		
	IN 200	Input Type Advanced		Button
	IN 500	Momentary		add rule
	ACT 200-1	Short Press		
	ACT 200-1	Long Press		
	ASL Switched	On Press		
	ASL Proportional	CONTROL INPUT 2 - PORT SETTINGS		
		Input Type	10-W	by Switch
	IDC	Advanced		
		Switch 1		
		Switch 2		
		Switch 3		
		Switch 4		
		Switch 5		
		Switch 6		
		Condition 7		

Select desired Control IO slot to reveal Add Rule button.

Assign Rule Output 1

Read 强 Write	9"1 🗆 🗙	TDX SP2 ULM 🔱 Reset to Default 😂 Manag	te	20
LAK-H16166775 TDX SP2 ULM	Modules	REM 4xx		
Home	Power Module	POWER MODULE - MOTORS		
Functions	REM 2xx	Veer Compensation		0%
User Preferences	REM 4xx	Right Invert		On 🗸
Chair Log	REM 5xx	Swap		On 🗸
Modules		POWER MODULE - LOAD COMPENSATION		
Actuator Motions	CR 4xx	Motor Resistance	- +	68 mΩ
Lighting	ACU 2xx	Load Compensation Percentage		70 %
	трі	CONTROL INPUT 1 - PORT SETTINGS		
	IN 200	Input Type Advanced		Button
	IN 500	Momentary		
	ACT 200-1	Active Fun > Drive		0.0
	ASL Switched	Short Press		
	ASL Proportional	Long Press		
	IDC .	On Press		
		CONTROL INPUT 2 - PORT SETTINGS		
		Input Type	10-Wa	y Switch
		Advanced		
		Switch 1		
		Switch 2		
		Switch 3		add rule
		Switch 4		

Fig. 9-186

Assign condition Active Function is -> Drive to condition slot.

3.

💰 LAK-H16166775	+		
🔘 😪 Read 🛛 🕻 Write	9"\ 🗆 ×	TDX SP2 ULM 🕺 Reset to Default 😂 Manage	10 e j
LAK-H16166775 TDX SP2 ULM			
Lu Home	Power Module	POWER MODULE - MOTORS	
So Functions	REM 2xx	Veer Compensation	- + 0%
0 User Preferences	REM 4xx	Right Invert	On 🗸
E Chair Log	REM 5xx	Swap	On 🗹
💰 Modules		POWER MODULE - LOAD COMPENSATION	
S Actuator Motions	CR 4xx	Motor Resistance	- 68 mΩ
ED Lighting	ACU 2xx	Load Compensation Percentage	- + 70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS	
	IN 200	Input Type	Button
		Advanced	
	IN 500	Active Fun	
	ACT 200-1	Drive > Toggle Rev.	00
	ASL Switched	Short Press	
	ASL Proportional	Long Press	
	IDC	On Press	
	100	CONTROL INPUT 2 - PORT SETTINGS	
		Input Type	10-Way Switch
		Advanced	
		Switch 1	
		Switch 2	
		Switch 3	
		Switch 4	

Fig. 9-187

Assign output Drive -> Toggle Reverse to output slot.

4.

🔵 🖼 Read 🛛 🎇 Write	9"1 🗆 ×	TDX SP2 ULM 🔱 Reset to Default 😂 Manage 👔	•
LAK-H16166775 TDX SP2 ULM	Modules	REM 4xx	
nj Home	Power Module	POWER MODULE - MOTORS	
No Functions	REM 2xx	Veer Compensation 0 5 Right Invert On	
0 User Preferences	REM 4xx	Right Invert On	
Chair Log	REM 5xx	Swap On	1
B Modules	CR 4xx	POWER MODULE - LOAD COMPENSATION	
Actuator Motions	0.944	Motor Resistance 68	mΩ
Lighting	ACU 2xx	Load Compensation Percentage - 70 5	%
	TPI	CONTROL INPUT 1 - PORT SETTINGS	
	IN 200	Input Type Button	
	IN 200	Advanced	
	IN 500	Momentary	
	ACT 200-1	Active Fun > Drive → Drive > Toggle Rev	0
	ASL Switched	Short Press	
	ASL Proportional	Long Press	
	IDC	On Press	
		CONTROL INPUT 2 - PORT SETTINGS	
		Input Type 10-Way Switch	
		Advanced	
		Switch 1	
		Switch 2	
		Switch 3	
		Switch 4	

Fig. 9-188

Save rule.

Assign Output Rule 2

- 5. Select Add Rule button.
- 6.

🔵 🐕 Read 🛛 🎇 Write	17 🗋 🗡	TDX SP2 ULM 🔱 Reset to Default 😂 Manage		°.
LAK-H16166775 TDX SP2 ULM		REM 4xx		
UU Home	Power Module	POWER MODULE - NOTORS		
Sea Functions	REM 2xx	Veer Compensation		0%
0 User Preferences	REM 4xx	Right Invert Left Invert		On 🗸
🖹 Chair Log	REM 5xx	Swap		On 🗸
B Modules		POWER MODULE - LOAD COMPENSATION		
N Actuator Motions ≣ Ughting Ughting Use the second sec	CR 4xx	Motor Resistance	- +	68 mΩ
	ACU 2xx	Load Compensation Percentage		70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS		
	IN 200	Input Type Advanced		Button
	IN 500	Momentary		
	ACT 200-1	Active Fun > Mouse Mo		0.0
	ASL Switched	Active Fun > Drive		
	ASL Proportional	> Drive > Toggle Rev		
	IDC	Short Press		
	loc	Long Press		
		On Press		
		CONTROL INPUT 2 - PORT SETTINGS		
		Input Type	10-W	lay Switch
		Advanced		
		Switch 1		



Assign condition Active Function is -> Mouse Mover to condition slot.

7.

	+		
🔵 😪 Read 🛛 🕻 Write	971 🗆 🗡	TDX SP2 ULM 🕴 Reset to Default 😂 Manage	<u>ب</u> ه ا
LAK-H16166775 TDX SP2 ULM		REM 4xx	
Home Home	Power Module	POWER MODULE - MOTORS	
• Functions	REM 2xx	Veer Compensation - +	0 %
O User Preferences		Right Invert	On 🗸
8 6	REM 4xx	Left Invert	On 🗸
Chair Log	REM 5xx	Swap	On 🗸
🔒 Modules	CR 4xx	POWER MODULE - LOAD COMPENSATION	
 Actuator Motions 		Motor Resistance	68 mΩ
Lighting	ACU 2xx	Load Compensation Percentage	70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS	
	IN 200	Input Type	Button
	111 200	Advanced	
	IN 500	Momentary	
	ACT 200-1	Active Fun > Mouse Mo	00
	ASI, Switched	Connectivity > Mouse Le > Single	>
	ASC SWITTING	Active Fun > Drive	
	ASL Proportional	Drive > Toggle Rev >	
	IDC	Short Press	
		Long Press	
		On Press	
		CONTROL INPUT 2 - PORT SETTINGS	
			ay Switch
		Advanced	
		Switch 1	
		Switch 2	

Fig. 9-190

Assign output Connectivity -> Mouse Left Click -> Single to output slot.

8.

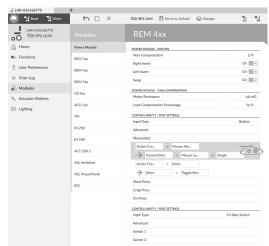


Fig. 9-191

Save rule.

9.16.3 Conditional/Else Rule

A <u>conditional/else</u> rule allows you to activate an output from a single input if a specified <u>condition</u> is true. <u>Else</u> an alternative output is activated if the <u>condition</u> is false. To create a <u>conditional/else</u> rule, you need to select an [input], a

[condition] and two outputs [output-1] and [output-2]. The first output you specify activates if the [condition] is true. Else the second output activates if the [condition] is false. The conditional/else rule can be written as:

if [condition] is true, activate [output-1]

else activate [output-2]

Adding Conditional/Else Rule



In this example a <u>conditional/else</u> rule is added to determine the output from a single momentary action on a button, connected to the Cl-1 pin of the power module:

If the system is in rest [condition] when the button is pressed [input], the system exits rest [output-1]. <u>Else</u> the system enters rest [output-2], if the system is not in rest, when the button is pressed.

The rule looks like this:

on	[momentary	action	to	button]

if [system is in Rest] is true, activate [Exit Rest]

else activate [Enter Rest]

- Rule output 1: Exit Rest (if in Rest state).
- Rule output 2: Enter Rest (else).

Adding Rule With iOS Tool

Select Input Type

1. Open Modules -> Power Module -> Control Input 1 - Port Settings. Set Input Type to Button.

Assign Rule Output 1

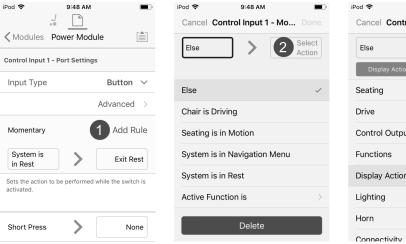
iPod 🗢 9:46 AN			er Module	iPod 🗢 9:47 AM Cancel Control Input 1 - Mo System is	D Done
Control Input 1 - Port Settin	igs	Control Input 1 - Por	Settings	in Rest	Action
Input Type	Button \checkmark	Input Type	Button 🗸	Always	
	Advanced >		Advanced >	Chair is Driving	
Momentary 2	None	Momentary	3 Add Rule	Seating is in Motion	
Short Press	None	Sets the action to be p activated.	erformed while the switch is	System is in Navigation Men	u
				System is in Rest	~
Long Press	None	Short Press	None	Active Function is	>
On Press	None	Long Press	None	Delete	
		Fig	. 9-193		

- 2. Select Momentary input item.
- 3. Select Add Rule button.
- 4. Select System is in Rest.
- 5. Select output button.
- 6.

iPod 🗢 9:48 AM	iPod 🗢 9:48 AM
Cancel Control Input 1 - Mo Done	Cancel Control Input 1 - 18 Done
System is in Rest Select Menu Item Display Actions Select Menu Item	System is in Rest Exit Rest Display Actions Exit Rest
Seating	Select Menu Item
Drive	Toggle Navigation Menu
Control Outputs	Enter Navigation Menu
Functions	Exit Navigation Menu
Display Actions 6	Toggle Rest
Lighting	Enter Rest
Horn	Exit Rest 7
Connectivity	Togale RFM 4xx Settings Menu

- Select Display Actions.
- 7. Select Exit Rest.
- 8. Select Done.

Assign Rule Output 2





9:49 AM

Fig. 9-195

- 1. Select Add Rule button.
- 2. Select output button.

3. Select Display Actions.

4.

Pod 🗢	9:49 AM	—)	iPod 🗢 9	:49 AM
Cancel Cont	rol Input 1 - N	5 Done		
Else		inter Rest	K Modules Powe	r Module
Display Actio	ons Enter	· Rest	Control Input 1 - Port	Settings
Select Menu	Item		Input Type	Button 🗸
Toggle Naviga	ation Menu			Advanced >
Enter Navigat	tion Menu		Momentary	Add Rule
Exit Navigatio	on Menu		System is in Rest	Exit Rest
Toggle Rest				•
Enter Rest	4	~	Else	Enter Rest
Exit Rest	-		Sets the action to be pe activated.	erformed while the switch is
Togale RFM 4	1xx Settinas Me	าาม		

Fig. 9-196

- Select Enter Rest.
- 5. Select Done.
- 6. <u>Conditional/else</u> rule summary is displayed.

Adding Rule with PC Tool

1.

🔵 🐄 Read 🛛 🕻 Write	971 🗋 🗙	TDX SP2 ULM 🕺 Reset to Default 😂 Manage	· 👔 💡
LAK-H16166775 TDX SP2 ULM			
Home	Power Module	POWER MODULE - MOTORS	
Sev Functions	REM 2xx	Veer Compensation	- + 0%
0 User Preferences	REM 4xx	Right Invert	On 🗸
Chair Log	REM 5xx	Swap	On 🗸
🔒 Modules	CR 4xx	POWER MODULE - LOAD COMPENSATION	
Sy Actuator Motions		Motor Resistance	68 mΩ
Lighting	ACU 2xx	Load Compensation Percentage	70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS	
	IN 200	Input Type Advanced	Button
	IN 500	Momentary	add.rule
	11000	Short Press	
	ACT 200-1	Long Press	
	ASL Switched	On Press	
	ASL Proportional	CONTROL INPUT 2 - PORT SETTINGS	
		Input Type	10-Way Switch
	IDC	Advanced	
		Switch 1	
		Switch 2	
		Switch 3	
		Switch 4	
		Switch 5	
		Switch 6	
		Cardinete 7	

Select desired Control IO slot to reveal Add Rule button.

Assign Rule Output 1

2.

🔵 🔧 Read 🛛 🔧 Write	971 🗀 🗙	TDX SP2 ULM 🖉 Reset to Default 😂 Mar	nate 👔 💕
LAK-H16166775 TDX SP2 ULM		REM 4xx	
Home Home	Power Module	POWER MODULE - MOTORS	
Several Functions	REM 2xx	Veer Compensation	- + 0%
O User Preferences		Right Invert	On 🧹
	REM 4xx	Left Invert	On 🖉
Chair Log	REM 5xx	Swap	On 🧳
🔒 Modules	CR 4xx	POWER NODULE - LOAD COMPENSATION	
Sy Actuator Motions	det file	Motor Resistance	- 68 mΩ
Lighting	ACU 2xx	Load Compensation Percentage	70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS	
	IN 200	Input Type	Button
	14 200	Advanced	
	IN 500	Momentary	
	ACT 200-1	System is i Abways	0 0
	ASL Switched	Chair is Driving	
		Seating is in Motion	
	ASL Proportional	C System is in Rest	
	IDC	Active Function is	
		Input Type	10-Way Switch
		Advanced	
		Switch 1	
		Switch 2	
		Switch 3	
		Switch 4	
		P. (24) P	

Fig. 9-198

Assign condition System is in Rest to condition slot.

3.

LAK-H16166775	+		
🔵 🔧 Read 🛛 🍕 Write	971 🗆 🗡	TDX SP2 ULM 🔱 Reset to Default 😂 Manage	۵ ا
LAK-H16166775 TDX SP2 ULM		REM 4xx	
Home	Power Module	POWER MODULE - MOTORS	
In Functions	REM 2xx	Veer Compensation	0%
0 User Preferences		Right Invert	On 🧳
	REM 4xx	Left Invert	On 🗸
E Chair Log	REM 5xx	Swap	On 🖌
B Modules	CR 4xx	POWER MODULE - LOAD COMPENSATION	
Actuator Motions	CRAM	Motor Resistance	- 68 mΩ
Lighting	ACU 2xx	Load Compensation Percentage	70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS	
	IN 200	Input Type	Button
		Advanced	
	IN 500	Momentary.	
	ACT 200-1	System is i > Exit Rest	00
	ASL Switched	Short Press	
	ASL Proportional	Long Press	
	DC .	On Press	
		CONTROL INPUT 2 - PORT SETTINGS	
		Input Type	10-Way Switch
		Advanced	
		Switch 1	
		Switch 2	
		Switch 3	
		Switch 4	

Assign output **Display Actions** -> **Exit Rest** to output slot.

4.

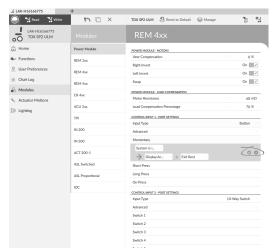


Fig. 9-200

Save rule.

Assign Output Rule 2

5.

🔵 🤧 Read 🛛 🍕 Write	97 🗋 🗡	TDX SP2 ULM 🔱 Reset to Default 😂 Manage		°.
LAK-H16166775 TDX SP2 ULM		REM 4xx		
Home	Power Module	POWER MODULE - MOTORS		
Functions	REM 2xx	Veer Compensation		0%
User Preferences	REM 4xx	Right Invert Left Invert		On 🗸
i Chair Log	REM 5xx	Swap		On 🗸
Modules	CR 4xx	POWER MODULE - LOAD COMPENSATION		
 Actuator Motions 	CR 40X	Motor Resistance		68 mΩ
Lighting	ACU 2xx	Load Compensation Percentage		70 %
	TPI	CONTROL INPUT 1 - PORT SETTINGS		
	IN 200	Input Type Advanced		Button
	IN 500	Momentary		
	ACT 200-1	Else Display Ac., > Enter Rest		00
	ASL Switched	System is i		
	ASL Proportional	→ Display Ac > Exit Rest		
	IDC	Short Press		
		Long Press		
		On Press		
		CONTROL INPUT 2 - PORT SETTINGS		
		Input Type	10-Wa	y Switch
		Advanced		
		Switch 1		
		Switch 2		

Fig. 9-201

Assign condition **Else** to condition slot.

Assign output **Display Actions** -> Enter Rest to output slot.

6.

.≰ LAK-H16166775	+			
🔘 🖼 Read 😤 Write	9"1 🗆 ×	TDX SP2 ULM 🛛 🕄 Reset to Default 🛛 😂 Manage		°:
LAK-H16166775 TDX SP2 ULM	Modules	REM 4xx		
Lul Home	Power Module	POWER MODULE - MOTORS		
See Functions	REM 2xx	Veer Compensation		0 %
0 User Preferences	REM 4xx	Right Invert		On 🗸
Chair Log	REM 5xx	Swap		On 🗸
🖧 Modules	REM 50X	POWER MODULE - LOAD COMPENSATION		
Actuator Motions	CR 4xx	Motor Resistance	- +	68 mΩ
ED Lighting	ACU 2xx	Load Compensation Percentage		70 %
The righting	TPI	CONTROL INPUT 1 - PORT SETTINGS		
	IN 200	Input Type		Button
	IN 200	Advanced		
	IN 500	Momentary		
	ACT 200-1	Else Display Ac > Enter Rest		00
	ASL Switched	System is I		
	ASL Proportional	→ Display Ac > Exit Rest		
	IDC	Short Press		
	ibc	Long Press		
		On Press		
		CONTROL INPUT 2 - PORT SETTINGS		
		Input Type	10-Wa	y Switch
		Advanced		
		Switch 1		
		Switch 2		
	C !	0.202		
	Fig	. 9-202		

Save rule.

9.17 Installing/Setting up Alternative Switches

There are different types of alternative switches, that interface differently to the system. For components and their particular connections, see table below.

Component	Connection
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	Bus port (TPI)
Chin control	Bus port (TPI)
Compact Single Switch Joystick	Bus port (TPI)
Four Switch Proximity Array	Bus port (TPI)
Remote Stop Switch	Auxiliary port (Power Module)

 ${\parallel}$ For more information about installing a Sip and Puff, refer to 9.18 Sip and Puff installation, page 199

 \mathring{l} 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 23. Programming is not necessary.

Programming with iOS Tool

- 1. 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 128*
- 2. Set **User Input** to **TPI** or to **IN 5xx**, depending on component input.
 - $\overset{\circ}{\underline{l}} \qquad \text{Same procedure for drive, seating and connectivity functions.}$
- 3. From Home screen open Modules -> IN 5xx or TPI, depending on component input.

- 4. 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 *5.2.2 Overview User Preferences, page 80*.

iPod 🤤		11:21		* 🖦
Canc		Funct		
	vew function		From templa	te
Please	select function	n type		
5.00 A	Drive			
Ŀ	Seating			
1	Mouse Mov	er		
Please	select User Inp	out		
Follo	ow Profile			
REM	4xx			
CR 4	1xx			
TPI	>			
(IN 5	XX			
		~ ~	~~	
	Fig.	9-2	03	
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🗸 Ba	ck //	. N 5xx		*
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∢ Ba User User	<mark>Input - Configu</mark> Input Configi 1	N 5xx	Sip and Pu	ff v
∢ Ba User User	Input - Configu Input Configu 1 Pro	N 5xx	Sip and Pu	ff v k k
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∢ Ba User User	Input - Configu Input Configu Pro Discrete Pro	V 5xx ration J- opportic opportic vitchec Switcl	Sip and Put onal Joystic onal Joystic Switche Head Arra	ff ~ kk kes ay kk
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Programming with PC Tool

- 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 128*
- 3. Set Function User Input to Input Module or to Third Party, depending on component input.
 - $\overset{\circ}{\underline{\mathbb{I}}} \qquad \mbox{Same procedure for drive, seating and connectivity functions.}$
- 4. Open **Modules** -> **IN 5xx** or **TPI**, depending on component input.

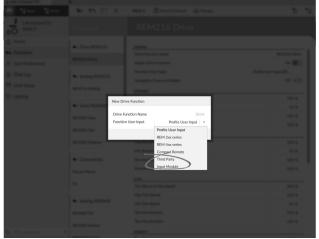


Fig. 9-205

- 5. 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 *5.2.2 Overview User Preferences, page 80*.

🔵 🖼 Read 📲 Write	TDX SP2 ULM	🕺 Reset to Default 🛛 😂 Manage	<u>ĩ</u> -
LAK-H16166775 TDX SP2 ULM		ТРІ	
Home	Power Module	USER INPUT - CONFIGURATION	
Functions	REM 2xx	User Input Configuration	Proportional Joystick ~
User Preferences	REM 4xx	Neutral Window	Proportional Joystick
Chair Log		Joystick Throw	Discrete Proportional Joystick Switches
	REM 5xx	Joystick Switch Threshold	Switched Head Array
6 Modules	CR 4xx	Tremor dampening	Switched Joystick
Actuator Motions		Joystick Rotation Angle	Sip and Puff
Trigger Angles	ACU 2xx	Swap Joystick Axis	No swap
Lighting	TPI	CONTROL INPUTS/OUTPUTS	
	TPLACU	Control Input 4	
	TFIACO	Input Type	Not Connected
	IN 5xx	Input Port Debounce	- + 0.0 s
	GYR 100	Control Input/Output 6	
		Input Type	Not Connected
	ACT400-1	Input Port Debounce	- + 0.0 s
		Control Input/Output 8	
		Input Port Debounce	- + 0.0 s
		Control Input/Output 10	
		Input Type	Not Connected
		Input Port Debounce	- + 0.0 s
		Control Input/Output 12	
Filter parameters	×	Input Type	Not Connected

Fig. 9-206

9.18 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.

iOS Tool	
el New Function	* 📼
ancel New Function	
Seating Mouse Mover	\checkmark
Utility Switch Control	
lease select User Input Follow Profile REM 4xx	
R 4xx	
IN 5xx	
Fig. 9-207	

- 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 128
- 3. Set Function User Input to Input Module.
 - \tilde{I} Same procedure for drive, seating and connectivity functions.
- 4. Open Modules -> IN 5xx.
- 5.

iOS Tool			PC Tool	
13:29 * ■⊃	File Connection View Hep J LAK-H16166775	+ ‰ ?ĩ 🗋 ×	TDX SP2 ULM 🛛 🕺 Reset to Default 😂 Manage	1
Back IN 5xx	LAK-H16166775 TDX SP2 ULM	Modules	IN 5xx	
er Input - Configuration	LnJ Home	Power Module	USER INPUT - CONFIGURATION	
er input - Configuration	So Functions	REM 2xx	User Input Configuration	Sip and Puff ~
er Input Configu- Sip and Puff ✓	0 User Preferences	REM 4xx	USER INPUT - SIP AND PUFF SETUP	Proportional Joystick
ion Sipana and	Chair Log		Sip and Puff Ramp Time	Discrete Proportional Joystick Switches
Proportional Joystick	S Modules	REM 5xx	CONTROL INPUTS/OUTPUTS	Switched Head Array
Troportional obystick	Actuator Motions	CR 4xx	Jack Socket Tip	Switched Joystick
Discrete Proportional Joystick	Trigger Angles	ACU 2xx	Input Type Input Port Debounce	Sip and Puff
Switches	Ingger Angles Lighting	TPI	Jack Socket Ring	
	EP Danna	TPLACU	Input Type	Not Connected
Switched Head Array			Input Port Debounce	- + 0.0 s
Switched Joystick		IN 5xx ACT400-1		
Sip and Puff				
Default Proportional Joystick				
elects the operation of the user input for this				
Read 💥 Write	Q Filter parameters X			
Fig. 9-209			Fig. 9-210	

Set User Input Configuration to Sip and Puff.

- 6. Calibrate Sip and Puff module, refer to 9.18.1 Sip and Puff Calibration, page 200
- 7. Open **User Preferences** to adjust veer behaviour for switched inputs. For more information refer to 5.2.2 Overview User Preferences, page 80.

9.18.1 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.

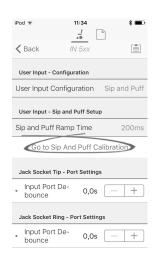
Since all users have different capabilities, the Sip and Puff module can be calibrated to change the size and position of these zones. The zones need to be set so that a user can control the wheelchair comfortably and consistently. A Sip and Puff calibration tool is used to determine the pressure thresholds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

- Minimum limit for soft puff, .
- minimum limit for hard puff, ٠
- 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.

Calibration with iOS Tool

- 1. From Home screen open Modules -> IN 5xx.
- Tap on Go to Sip And Puff Calibration. 2.





- A Neutral zone for sip input
- **B** Pressure level
- Ô 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
- (\mathbf{H}) Threshold slider to adjust minimum limit for hard puff
- (\mathbf{I}) Soft zone for puff input
- (\mathbf{J}) Threshold slider to adjust minimum limit for soft puff
- ĸ Neutral zone for puff input
- If Sip tab is open, user performs hard sip and soft sip in no specific order. 3. 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. 4.
 - For soft sip, drag threshold slider C to position just above user's soft sip. Any subsequent pressure above threshold slider $\mathbb C$ is in neutral zone $\mathbb A$ and is ignored. Pressure below threshold slider $\mathbb C$ 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.

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- For soft puff, drag threshold slider ${\mathbb T}$ to position just below user's soft puff. Any subsequent pressure below threshold slider \oplus is in neutral zone \circledast and is ignored. Pressure above threshold slider \oplus and below threshold slider \oplus is in soft zone \bigcirc and determined a soft puff.
- For hard puff, drag threshold slider \oplus to position just below user's hard puff. Pressure below threshold slider \oplus is not considered as hard puff. Pressure above threshold slider \oplus is in hard zone G and determined as hard puff.

(÷	11:19	* 🚥)	iPod 훅	11:19	* 🖦
Sip & P	uff Calibration	Done	Sip &	Puff Calibration	Done
Sip	Puff	Test	Sip	Puff	est
Neutral	A Peak		No Input	Peak 0	
	D		50	6	θ
50	Ē	Ē		0	
No Input	A O Peak		5 Soft Puff	© © Peak	

Fig. 9-213

Fig. 9-212

Calibration with PC Tool

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

File Connection View Help	1		
Sip and Puff Calibration	C12H10A9B01X-03	😵 Reset to Default	😂 Manage
LAK-H16166775 C12H10A9B01X-03 Flexible Navigation () v5.1	Modules	Powe	er Module
	Fig. 9-214		

- A Hard zone for puff input
- (B) Threshold slider to adjust minimum limit for hard puff
- © Soft zone for puff input
- D Threshold slider to adjust minimum limit for soft puff
- (E) Neutral zone for puff input
- (F) Neutral zone for sip input
- G Threshold slider to adjust minimum limit for soft sip
- (H) Soft zone for sip input
- ① Threshold slider to adjust minimum limit for hard sip
- ① Hard zone for sip input

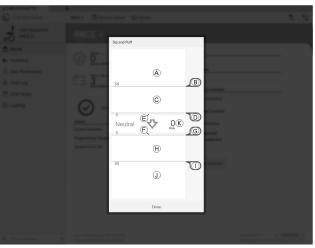


Fig. 9-215

- 3. 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.
- 4. Drag corresponding Threshold sliders.
 - For soft puff, drag threshold slider D to position just below user's soft puff. Any subsequent pressure below threshold slider D is in neutral zone E and is ignored. Pressure above threshold slider D and below threshold slider B is in soft zone C and determined a soft puff.
 - For hard puff, drag threshold slider (B) to position just below user's hard puff. Pressure below threshold slider (B) is not considered as hard puff. Pressure above threshold slider (B) is in hard zone (A) and determined as hard puff.
 - For soft sip, drag threshold slider G to position just above user's soft sip. Any subsequent pressure above threshold slider G is in neutral zone F and is ignored. Pressure below threshold slider G and threshold slider I is in soft zone H and determined as soft sip.
 - For hard sip, drag threshold slider ① to position just above user's hard sip. Pressure above threshold slider ① is not considered as hard sip. Pressure below threshold slider ① is in hard zone ① 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.

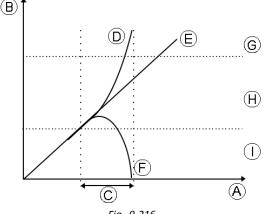
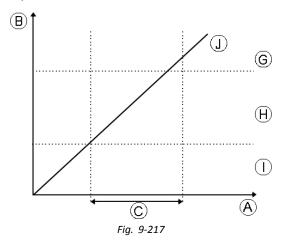


Fig. 9-216

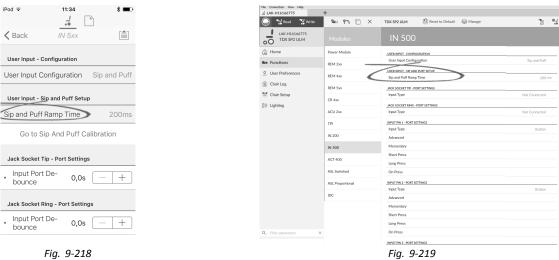
The ramp time \mathbb{C} begins at the point where the pressure input \mathbb{D} , \mathbb{E} or \mathbb{F} crosses into soft zone \mathbb{H} — either from neutral zone \mathbb{I} , when pressure is increasing, or from hard zone \mathbb{G} , when pressure decreases. A pressure input \mathbb{D} that reaches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

end of ramp time is registered as a soft sip or puff. Pressure inputs (F) 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 G 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 $\mathbb C$ needs to be extended, so the pressure input $\mathbb O$ is registered as a hard sip or puff.

iOS Tool



PC Tool



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

10 Diagnostics Diagnostic options:

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

10.1 Viewing System Summary

iO	S tool	
Carrier 🗢	9:30 AM	-
K Back System	m Summary	
Chair		
Power Module DLX-PM60AL-A	Firmware: 4.7 App: 4.1	1.12
S	Hardware: Serial No.: I151906	
Remote DLX-REM400-A	Firmware: 4. App: 4.1 GUI: 4.1 Asset 1: 4.1 Asset 2: 4.1 Hardware: erial No.: G161386	I.12 I.12 I.12 I.12 I.12 I.2
Tools		
Access Key DLX-HKEY02-A	Firmware: 4.	.0.5 🗸
Access Level:	Manufactu	irer



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

Pod ≎ 13:28	* 🗈
K Back Chair L	og 📋
Chair Log	Statistics
ACTIVE ERRORS	
Left Park Brake Error	FC:5
DLX-PM75AL-A	
EVENT LOG	
Left Park Brake Error	FC:5
Left Park Brake Error DLX-PM75AL-A	FC:5
	FC:5
DLX-PM75AL-A 11 Nov 2016, 13:30:06	FC:5
DLX-PM75AL-A	FC:5
DLX-PM75AL-A 11 Nov 2016, 13:30:06 Programming Changed	FC:5
DLX-PM75AL-A 11 Nov 2016, 13:30:06 Programming Changed DLX-PM75AL-A	FC:5
DLX-PM75AL-A 11 Nov 2016, 13:30:06 Programming Changed DLX-PM75AL-A 11 Nov 2016, 11:43:29	FC:5

Events 88 events recorded	🗙 Reset Log
ACTIVE EVENTS	
Right Park Brake Error	FC: 6
DLX-PM75AL-A	
Check right park brake is released. If not, check	ck the loom.
Left Park Brake Error	FC: 5
DLX-PM75AL-A	
Gyro orientation error	FC: 7
DLX-GYR100-A	
TODAY	
Left Park Brake Error	FC: 5
DLX-PM75AL-A Thu May 5 10:01:14 2016	

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



Fig. 10-1

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



2.

		1				
iOS tool				PC	too	
≈ 13:22 J	*		SELUNDOUGHE Ne Conston Ver Hile LAK-LI2147583*	+		
Chair Log	[_]		NOT CONNECTED	Chair Log	ut 🚭 Manage	
			🛱 Home	Events	© Reset Log	Statistics
Y USAGE harge Timestamp			Functions User Preferences	Q. Thereverts	×	MPTOPYVSAGE Tracking buffery stage since MI Aug 3 14-85
arge Timestamp 116, 14:11:04			🗎 Chair Log	No active errors		Battery Charging Time Number of Charge Cucles
			警 Chair Setup 第 All Parameters	10049		Band Tindicator Time
er of High Battery Events			ajs. Ai Paraneters	System Available DXX-PostIDAL-A Pr New 11 15 33 11 2016	Pawared Up	Rand 2 Indicator Time Band 3 Indicator Time
				System Event		Band 4 Indicator Time
Number of Low Battery Events				03X-PM23AL-A Pr Nex T 15.15.05 2016		Rand 5 Indicator Time Average Battery Votage
1				System Clock Set DLX-PM2204_A IV Nov T 11354279 2296		Last Charge Timestamp
Number of Deep Discharge Warning	as			System Available		Number of High Eatlery Events Number of Low Battery Events
under of deep discharge warning				0(X7M25ALA 97 Nov 11 12 54 24 2216	Pewered Up	Number of Deep Discharge Warnin
				VISTINGAY Sostern Available		Today dive statistics and Minus 2 Minus
ry Usage Last Reset Reset				Do Nex 10 13:0079 20%		Average Motor Current Maimum Left Motor Current
Reset				Actuator Added DX:ACT405-A DO Nor 10 10:1979 2016	FC: 2 Pervened Up	Maemum Left Motor Current Time
Reset Battery Usage			Q. Resparameters	X Programming Charged		Matmum Right Nator Carrent
Average Motor Current						
Fig. 10-3	e button.					
6,774 A	e button.			PC	too	4
ig. 10-3 ry Usage	e button.			PC	too	

Fig. 10-6

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

Motor Current

Left Motor Current

Reading Drive Statistics

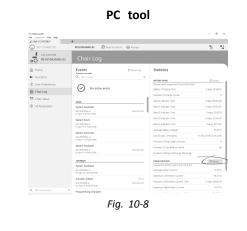
To view more information about a drive statistic, click on the statistic and a description is displayed in the local help panel. The available statistics are detailed in the following table.

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.					
Time Near Maximum Current	The duration the current was within 20% of maximum threshold.					
Trip Distance	The total distance travelled by this wheelchair in meters since being reset by the user.					

Drive statistic	Details
Total Distance Travelled	The total distance travelled by this wheelchair since being reset by a provider.
Drive Statistics Last Reset	Date when these statistics were last reset.

Resetting Drive Statistics

- 1.
- iOS tool 13:34 * iPod 🗟 **<** Back Chair Log DRIVE STATISTICS Maximum Right Motor Current Time 2,1 s Powered Up Time 1 day, 12 hrs, 41 min Drive Time 1 hr, 51 min, 7 secs Average Drive time 3 min, 49 secs Time Near Maximum Current Drive Statistics Last Reset 16 Jun 2016, 14:55:01 Reset Drive Statistics Fig. 10-7



Click on Reset Drive Statistics button.





Fig. 10-9

Click on OK or Yes to continue.

Click on Back or Close button to exit the Chair Statistics





Fig. 10-10

10.4 Viewing Live Diagnostics

iPod 중 ✔ Back L	11:33 ive Diagnos	tics	* —),
Drive			>
ACTUATOR			
Angle S	ensor	ACT400	0-1 >

Fig. 10-11

The Live Diagnostics are only available when the LiNX Access iOS tool is connected to a wheelchair. The parameters (see *Parameter list, page 208*) on the Live Diagnostics screen are split into two categories:

- Drive, and
- Actuators.

Parameter list

Drive

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 (%)

Actuators

Sensor Angle (°)

- 1. Click Live Diagnostics button.
- 2. Click desired category to view real-time graphs and data.
- 3. Click Back button twice to exit Live 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.

11 Structure of Program Names

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

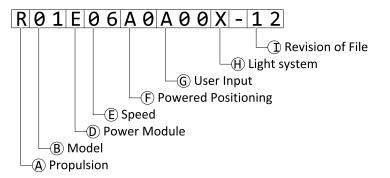


Fig. 11-1 Example of a Kite program name (2 pole motor, drive only) using naming format up to July 2018

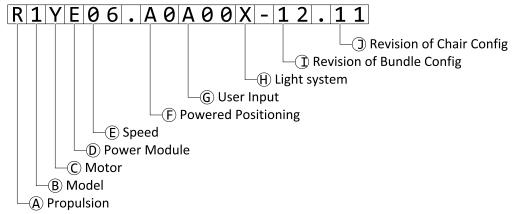


Fig. 11-2 Example of a Kite program name (2 pole motor, drive only) using naming format as of August 2018

A	Propulsion
B	Model
©	Motor
D	Power Module
E	Speed
F	Powered Positioning
G	User Input
θ	Light System
0	Revision of Bundle Configuration or File
0	Revision of Chair Configuration

11.1 Naming Format

	Up to July 2018	As of August 2018
A	R = Rear wheel drive C = Centre wheel drive F = Front wheel drive	
B	01 = Kite 02 = TDX SP2 - legacy motors 12 = TDX SP2 - DuraWatt motors 03 = Bora/Spectra XTR 04 = Fox 05 = Storm ⁴ , Storm ⁴ X-plore 06 = Storm ⁴ Max	1 = Kite 2 = TDX SP2 3 = Bora/Spectra XTR 4 = Fox 5 = Storm ⁴ , Storm ⁴ X-plore, Storm ⁴ Max 6 = not used 7 = Stream 8 = Pronto M41 9 = AVIVA
C	Not used. Included in [®] .	 Z = Inline motor Y = 2 pole (low speed) X = 2 pole (high speed) W = 4 pole legacy (low speed) V = 4 pole legacy (high speed) U = 4 pole legacy (HD) T = DuraWatt (low speed) S = DuraWatt (low speed) S = DuraWatt (ultra high speed) Q = OPS Drive (low speed) P = OPS Drive (ultra high speed) O = OPS Drive (ultra high speed)
D	D = no E = DL F = DL G = DL	t used X-PM60
E	03 06 08 10 12	
Ē	A1 = Powered "fixed pivot" tilt (20°) A2 = Powered tilt (30°), CoG shift A3 = Seat lifter & powered tilt (300 mm, 30°), CoG shift A4 = Powered tilt (12°) A5 = Seat lifter & powered tilt (300 mm, 28°), CoG shift A6 = Column lifter & "fixed pivot" tilt (250 mm, 25°) A7 = Recaro with "fixed pivot" tilt (25°) A8 = Recaro with column lifter & "fixed pivot" tilt (250 mm, 25°) A9 = Ultra Low Maxx with tilt (50°), CoG shift B0 = Ultra Low Maxx with lifter & tilt (300 mm, 45°), CoG shift	Drive only A0 = w/o actuators ³ Standard seat / Modulite seat A1 = Powered "fixed pivot" tilt (20°) A2 = Powered tilt (30°), CoG shift A3 = Lifter & tilt (300 mm, 30°), CoG shift A4 = Column lifter & "fixed pivot" tilt (250 mm, 25°) Max seat B1 = Powered "fixed pivot" tilt 25° B2 = Lifter & tilt (300 mm, 28°), CoG shift Recaro seat C1 = Powered "fixed pivot" tilt (25°) C2 = Column lifter & "fixed pivot" tilt (25°) C2 = Column lifter & "fixed pivot" tilt (25°) Ultra Low Maxx seat D1 = Powered tilt (50°), CoG shift + LNX D2 = Lifter & tilt (300 mm, 45°), CoG shift + ADP D4 = Lifter & tilt (300 mm, 45°), CoG shift + Pivot Plus D6 = Lifter & tilt (300 mm, 45°), CoG shift + Pivot Plus

3. If light system is equipped: use profile A1, B1 or C1 (according to seat)

	Up to July 2018	As of August 2018
G	A00 = DLX-REM1XX/DLX-REM2XX + DLX-REM050 A01 = DLX-REM2XX + LNX A02 = DLX-REM2XX + ADP A02 = DLX-REM2XX + ADP	A00 = DLX-REM1XX/DLX-REM2XX + DLX-REM050 ⁴
	A03 = DLX-REM2XX + Pivot Plus A04 = DLX-REM2XX/400 + ACU200 B01 = DLX-REM400 + 4Q-P + LNX	A04 = DLX-REM2XX/400 + ACU200
	B02 = DLX-REM400 + 4Q-P + ADP B03 = DLX-REM400 + 4Q-P + Pivot Plus	B02 = DLX-REM400 + 4Q-P
	C01 = DLX-REM400 + 3Q-D + LNX $C02 = DLX-REM400 + 3Q-D + ADP$ $C03 = DLX-REM400 + 3Q-D + Pivot Plus$	C01 = DLX-REM400 + 3Q-D
	C03 = DLX-REM400 + 3Q-D + PNOT Plus $C04 = DLX-REM400 + 4Q-D + LNX$ $C05 = DLX-REM400 + 4Q-D + ADP$ $C06 = DLX-REM400 + 4Q-D + Pivot Plus$	C04 = DLX-REM400 + 4Q-D
(\mathbb{H})	-	= Traditional = LED
	Χ	(= w/o light ⁵ , ⁶
1	Revision of file	Revision of bundle configuration
	Not used. Included in $$.	Revision of chair configuration

^{4.} Use only if DLX-REM1XX or DLX-REM050 are equipped to the wheelchair. Otherwise use profile A04.

^{5.} If only programs with activated light system are available: use profile LED instead.

^{6.} By default, Ultra Low Maxx programs are with deactivated light system. See 9.7 Modifying Lighting Parameters, page 143 to activate light system.

11.2 Where-Used Matrices

						Mote	or					
Model	Inline	2 pole		4 pole		4 pole	DuraWatt			OPS Drive		
	(Z)	LS (Y)	HS (X)	LS (W)	HS (V)	HD (U)	LS (T)	HS (S)	UHS (R)	LS (Q)	HS (P)	UHS (O)
AVIVA FX	-	-	-	-	-	-	х	x	х	-	-	-
AVIVA RX	-	-	-	-	-	-	х	х	х	х	х	х
Bora/ Spectra XTR	-	х	x	х	х	-	-	-	-	-	-	-
Fox	х	-	-	-	-	-	-	-	-	-	-	-
Kite	-	х	x	х	х	-	-	-	х	-	-	-
Storm ⁴ , Storm ⁴ X-plore	-	-	-	х	х	-	-	-	х	-	-	-
Storm ⁴ Max	-	-	-	-	-	х	-	-	-	-	-	-
TDX SP2	-	-	-	х	х	-	х	х	х	х	х	х

	Motor	Type of LiNX	Speed						
	Wotor	power module	03	06	08	10	12		
Ζ	Inline motor	DLX-PM60	х	x	x	-	-		
Y	2 pole (low speed)	DLX–PM75 /	х	х	-	-	-		
Х	2 pole (high speed)	DLX-PM75AL	-	-	x	х	-		
W	4 pole legacy (low speed)		х	х	-	-	-		
٧	4 pole legacy (high speed)	-	-	-	х	х	-		
U	4 pole legacy (HD)	-	-	х	-	-	-		
Т	DuraWatt (low speed)	-	-	х	-	-	-		
S	DuraWatt (high speed)	DLX–PM120 / DLX-PM120AL	-	-	х	х	-		
R	DuraWatt (Ultra high speed)		-	-	-	X ⁷	х		
Q	OPS Drive (low speed)	-	х	х	-	-	-		
Ρ	OPS Drive (high speed)		-	-	-	х	-		
0	OPS Drive (Ultra high speed)		-	-	-	-	x		

	Powered Positioning							
Model	Standard / Modulite seat	Max seat	Recaro seat	Ultra Low Maxx seat				
AVIVA FX	x	-	-	x				
AVIVA RX	x	-	-	x				
Bora/Spectra XTR	x	х	-	-				
Fox	x	-	-	-				
Kite	x	х	-	-				
Storm ⁴ , Storm ⁴ X-plore	x	-	x	-				
Storm ⁴ Max	x	Х	-	-				
TDX SP2	x	х	-	x				

7. France only

Notes

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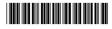
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Yes, you can.