



# Liberty

## User manual



28/11/2018  
Revision 3  
Original manual



The undersigned, representing the following manufacturer

Decon Wheel AB  
Org.No. 556618-9006  
Södra Ekeryd 119, 314 91 Hyltebruk  
Sweden

hereby declares that the product

## **Liberty**

with the basic UDI-DI 735001014LBM6

and the following references

LBC001	LBK001	LBS001
LBC002	LBK002	LBS002
LBC003	LBK003	

is in conformity with the Medical Device Regulation (MDR) 2017/745 as a class I medical device based on Annex VIII.

Intended purpose: The device is an electric drive unit for manual wheelchairs with the intention to provide mobility and flexibility to persons who are unable to walk or have restrictions on walking. The device is intended for outdoor use.

This EU declaration of conformity is issued according to Annex IV in MDR and under sole responsibility of the manufacturer.

Hyltebruk, 2021-05-25

A handwritten signature in blue ink, appearing to read 'Benny Andersson'.

Benny Andersson  
COO



# Contents

Safety .....	4
General instructions.....	4
Manuals for the visually impaired .....	4
Purpose and intended use .....	4
Improper use .....	4
Symbols .....	5
Warnings.....	6
Waste management .....	11
Labelling .....	11
Reuse.....	12
Warranty .....	12
Information on product safety and recalls .....	12
Product description.....	13
Technical data .....	13
Delivery scope .....	14
Overview .....	15
Wheelchair attachment system .....	15
Drive system.....	16
Control system .....	16
Brake system.....	16
Lights.....	16
Display .....	17
Menu structure .....	17
PIN code (optional).....	18
Home menu .....	19
Driving profile (A).....	20
Energy flow indicator (B).....	20
Speedometer (C).....	20
Settings (D).....	21
Personal driving profile .....	21
Device settings .....	22
Device info.....	23
Mechanical settings .....	25
Adjusting Liberty's handlebar and handlebar stem .....	25
Using Liberty .....	27
Driving Liberty .....	32
Parking brake.....	33
Moving Liberty while it is attached to a wheelchair.....	33
Transporting Liberty.....	34
Battery and charger.....	36
Care .....	38
Cleaning.....	38
Corrosion .....	38
User maintenance.....	39
Repairs.....	40
Troubleshooting .....	41
Fault descriptions.....	41
Fault codes .....	42

---

# Safety

## General instructions

The user manual applies to all versions of Liberty, i.e. City, Cross and Kids.

The user manual is written for users of Liberty City, Cross or Kids and for those who provide any kind of assistance so that the user can achieve the greatest possible benefit from Liberty.

Read the user manual and familiarise yourself with Liberty before using it.

## Manuals for the visually impaired

If you have difficulty reading this user manual, please contact your local retailer. Your local retailer can provide you with a digital copy of this manual. This makes it possible to enlarge the print or have your reading software read it aloud to you.

## Purpose and intended use

Liberty is an electric drive unit intended to provide disabled individuals aged 12 or over who are able to use a manual wheelchair with power assistance and increased mobility when using their manual wheelchair. The weight of the person should not exceed that stated in the technical specification in this manual.

The conditions for being able to use the product are that the person in question has at least one arm with sufficient strength to use the product's controls. Furthermore, sufficient cognition and motor skills are a necessity for the person to be able to use the product safely. The assessment of the person's abilities is performed by Decon or by a representative appointed by Decon such as assistive technology centres and retailers.

The product can be used both indoors and outdoors, but is primarily intended for outdoor use. Use in outdoor environments is mainly on paved surfaces such as roads and bike lanes, but also on gravel roads. Use in indoor environments is mainly in larger public spaces such as libraries, supermarkets, shopping centres, hospitals and other similar environments.

## Improper use

Any use that does not follow the description in this user manual. This also includes the technical specification, i.e. maximum weight of user, maximum gradient etc.

## Symbols



### **WARNING!**

Risk of serious injury or death.

An operation that, if not correctly performed, may lead to injury to the operator or others.



### **CAUTION!**

Risk of material damage.

An operation that, if not correctly performed, may lead to material damage.



### **INFO**

Particularly important or explanatory information.

## Warnings

### Before using Liberty for the first time



#### **WARNING!**

The user must have thoroughly read and understood the manual and understand the various controls and user interfaces that Liberty features.



#### **WARNING!**

Before using Liberty, you must assess your own capability and decide whether you need an assistant.

To decide whether you need an assistant, you should also request an expert opinion for reference.

If your assessment is based solely on your own perception, you or the people around you could be injured.



#### **WARNING!**

Practise by driving on a level surface in a safe environment together with an assistant until you feel confident with how Liberty works.

If you are driving on public paths without being confident about how to use Liberty, you or others around you could be injured.



#### **WARNING!**

Do not position your fingers or hands under the locking handle when this is being lowered. If you do, your finger(s) or entire hand might become caught.



#### **WARNING!**

Do not position your fingers or hands on the rotation lock when turning the handlebar. If you do, your finger(s) or entire hand might become caught between the rotation lock and the tubes.



#### **WARNING!**

Be careful not to catch your finger when inserting or removing the battery.



#### **WARNING!**

Be careful when you switch on Liberty for the wheelchair and lift the castors off the ground. Your feet may become caught between the wheelchair and Liberty. This could injure your feet and toes.



#### **WARNING!**

It is extremely important that all the screws are properly tightened after setting up.

## Driving



### **WARNING!**

Do not make sharp turns at high speeds. This risks overturning Liberty or the wheelchair.



### **WARNING!**

When driving on steep inclines, the speed and braking distance may exceed that specified in tables 1 and 2 of EN12184:2014 and in the technical specification.



### **WARNING!**

When driving down steep slopes, it may be necessary to use the brakes to limit your speed. The motor brake will only help to a certain extent.



### **WARNING!**

Do not drive Liberty with heavy bags or other packaging hanging above the backrest of the wheelchair. You should also avoid placing heavy objects in the storage compartment. It is easy for the wheelchair to tilt backwards while travelling uphill, which may lead to you or others around you being injured.



### **WARNING!**

Never drive Liberty if you are not sitting in the wheelchair.



### **WARNING!**

Never drive Liberty with more than one person in the wheelchair. Liberty could stop working, or those sitting in the wheelchair could be injured.



### **WARNING!**

Check the remaining battery charge before crossing a road or street. If the remaining charge is low, Liberty could stop.



### **WARNING!**

Be careful when using Liberty so that your hands do not become caught in the wheelchair's or Liberty's spokes, brake disc, etc.



### **INFO**

Use the parking brake when stopping at traffic lights or pedestrian crossings, for example.



#### INFO

Liberty is equipped with a regenerative brake that is activated when the throttle is released. To ensure maximum travel distance, plan your journey so that this is used as much as possible, e.g. release the throttle well in advance of a crossing.

### Road conditions



#### WARNING!

Do not drive Liberty outdoors in heavy rain or snowy conditions. It may be difficult for other drivers to see you. If it starts raining or snowing while you are outdoors, be sure to go indoors as quickly as possible.



#### WARNING!

Do not drive Liberty on icy surfaces. By doing so, you risk not being able to stop Liberty.



#### WARNING!

Do not drive in areas with deep snow or pools of water. By doing so, you risk losing control. If you cannot get around the area, make sure you have an assistant with you.

If you drive Liberty into deep water and water gets into the drive unit, Liberty may stop.

### Trains and buses



#### WARNING!

When taking trains, always have an assistant with you. Wait on the platform, facing the track, and activate the parking brake on Liberty and the brakes on the wheelchair. Some platforms have a slight incline towards the track.



#### WARNING!

When getting on or off a bus or train, always have an assistant with you.

### Driving on slopes



#### WARNING!

When attached to a wheelchair, Liberty will have a centre of gravity that is different from what you are used to. You must therefore take special care when driving on slopes.

Do not use Liberty on slopes with gradients steeper than 8 degrees (14%). Liberty or the wheelchair may tip over or not move forward, or the brakes may not be strong enough.

The first time you drive up or down a slope, you should have an assistant with you.



## Railway crossings



### **WARNING!**

Avoid railway crossings if possible.

If you have no option other than to cross the railway, make sure you have an assistant with you.

Always stop before the railway crossing and look right and left.

When crossing the railway, make sure you are driving as near perpendicular to the railway track as possible. If you drive diagonally, Liberty's or the wheelchair's wheels could get stuck in the railway track.

Do not drive near the edge of the railway crossing. The wheels could fall off the railway crossing.



### **WARNING!**

Check the remaining battery charge before crossing a railway. If the remaining charge is low, Liberty could stop.

## Storage and transport



### **WARNING!**

Do not store Liberty in places where it could get wet from rain or in places with high humidity.



### **WARNING!**

Avoid storing in direct sunlight or in places where the temperature may become high.



### **WARNING!**

Liberty must never be transported while attached to the wheelchair. In vehicles where the wheelchair is used as a seat, Liberty must be detached from the chair and placed in the boot or equivalent and firmly secured.



### **WARNING!**

Use straps to ensure that Liberty can be transported safely.



### **WARNING!**

Be careful not to catch your finger when inserting or removing the battery.



### **WARNING!**

Always keep the protective cover on the disconnected battery. Exposed contacts can cause short circuits, which may cause a fire or cause the battery to explode.

**! CAUTION!**

Place Liberty in a way that prevents any parts from being damaged during transport.

## Cleaning

**! CAUTION!**

Never spray Liberty with a hose or high-pressure washer. Never use a steam cleaner to wash Liberty. This may damage the electronic components, which could lead to serious malfunctions.

**! CAUTION!**

Do not clean with solvents such as benzene or thinner. This may damage the paint and plastic parts on Liberty.



**INFO**

Liberty can be disinfected using a cloth with alcohol.

## General use



**WARNING!**

Do not touch the power module at the bottom of the front section, the drive wheel, the brake disc or the brake calipers when Liberty is in use or after use. During and after use, it may be very hot. If Liberty is near a heat source, the drive motor may become very hot.

Never leave or store Liberty so that it is exposed to direct sunlight. If you do, all the product's metal surfaces may become very hot. Too high a temperature might also cause the battery to malfunction or cause the battery to run out quicker.



**WARNING!**

It is extremely important that all the screws are properly tightened after setting up.



**WARNING!**

Make sure the adapter bar is correctly fixed to the adapter plates.


**WARNING!**

Do not use Liberty near devices that emit strong radio waves. If Liberty is positioned near a radio wave source and begins to function abnormally, switch off the power immediately and move quickly away from the location with help from your assistant or by rolling Liberty using your hands while it is still attached to the wheelchair.

The weak electromagnetic waves that Liberty emits may affect other electronic devices such as automatic doors and anti-theft systems of the type used in shops. If this happens, switch off the power and manoeuvre Liberty while it is attached to the wheelchair with help from an assistant, or move it using your hands.


**INFO**

The adapter kit is sold separately.

## Waste management

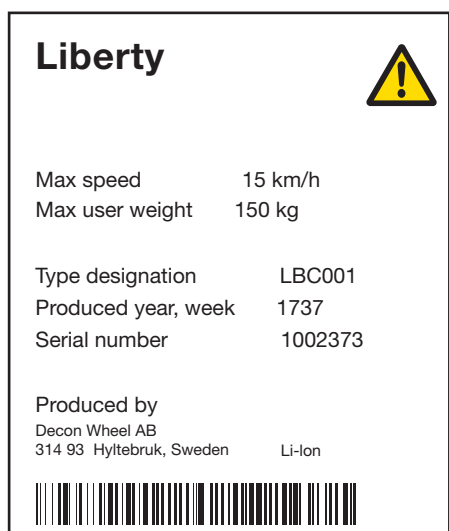
When Liberty has reached the end of its service life and needs to be scrapped, contact the local authority for information on recycling and follow their instructions.

Alternatively, you can contact your retailer to recycle your used Liberty and its battery.

## Labelling

### Name plate

The name plate is located on the underside of the middle section.



## **Reuse**

When Liberty is to be transferred to a new user, all technical documents must also be transferred. The product must be cleaned by a professional, disinfected and serviced.

## **Warranty**

The warranty period for Liberty is 2 (two) years from the date of purchase

If your Liberty exhibits a material or manufacturing fault during this warranty period, the defective parts will be replaced or repaired free of charge. The warranty covers the drive unit and charger. Consumable parts such as batteries, tyres and hoses are not covered by this warranty.

This warranty does not cover faults caused either by deliberate misuse on the part of the user or by negligent use, e.g. faults caused by use other than that specified in these user instructions. Nor does this warranty cover faults arising as a result of modifications to the device or continuous use under conditions other than those specified, e.g. exceeding the maximum weight etc.

Scratches, dulling and dirt on the surface of the product resulting from normal use are not covered by the warranty.

If warranty repairs are required, contact the retailer you purchased the device from.

The expected service life of the complete product (not wearing parts) is five years from the date of sale.

## **Information on product safety and recalls**

Contact the retailer where the device was purchased or the manufacturer of Liberty for information about product safety and any recalls.

## Product description

### Technical data

Motor	Brushless PM motor 500 W
Battery type	Li-Ion 48 V, 10 Ah (480 Wh)
Total weight Liberty City incl. battery	31.5 kg
Wheel size	16"
Tyre size	6 x 1.75
Air pressure in tyres	2 bar
Speed	0–15 km/h <sup>1)</sup>
Maximum travel distance with fully charged batteries	45 km <sup>2)</sup>
Maximum user weight	150 kg
Maximum gradient	6 degrees <sup>3)</sup>
CE marking	Pursuant to Council Directive 93/42/EEC
Battery charger	100–240 V AC, 50/60 Hz
Charging time	Normal charging approximately 3–4 hours
Operating conditions	environment temperature humidity
	Indoor and outdoor -15°C to 40°C No condensation
Wheelchair classification (EN 12184:2014)	Class B
Minimum corridor width in which Liberty can be used	Varies depending on the wheelchair to which Liberty is attached
Maximum height of pavements that can be navigated	50 mm
Static stability (ISO 7176-15, Annex A)	Class B in all positions (front, rear, side), i.e. gradient of at least 9 degrees or more.
Dynamic stability uphill (ISO 7176-15, Annex A)	Class B, gradient of at least 6 degrees
Navigating obstacles (ISO 7176-15, Annex A)	Class B, 50 mm
Maximum speed forwards (ISO 7176-15, Annex A)	5–15 km/h
Braking distance from maximum speed (ISO 7176-15, Annex A)	0.8–4.5 m
Minimum turning radius (ISO 7176-15, Annex A)	Varies depending on the wheelchair to which Liberty is attached. Approx. 2.4 m for a chair with a seat width of 42 cm.

1. Can be adapted so that it complies with applicable laws and regulations

2. Driving style, materials, and user weight affect the maximum travel distance

3. With a user weight of 120 kg and a solid surface.

## Delivery scope

The delivery of Liberty includes the following:

- A Liberty
- B Leg support (2 pcs)
- C Charger inc. cable
- D User manual
- E Adapter for charging

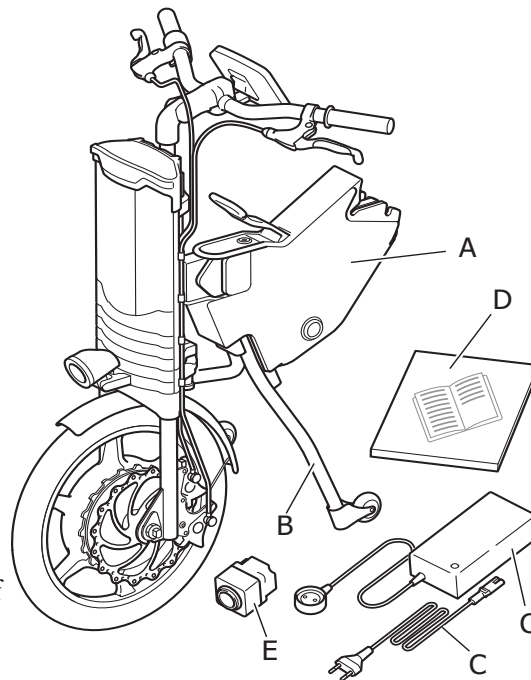
## Adapter kit



### INFO

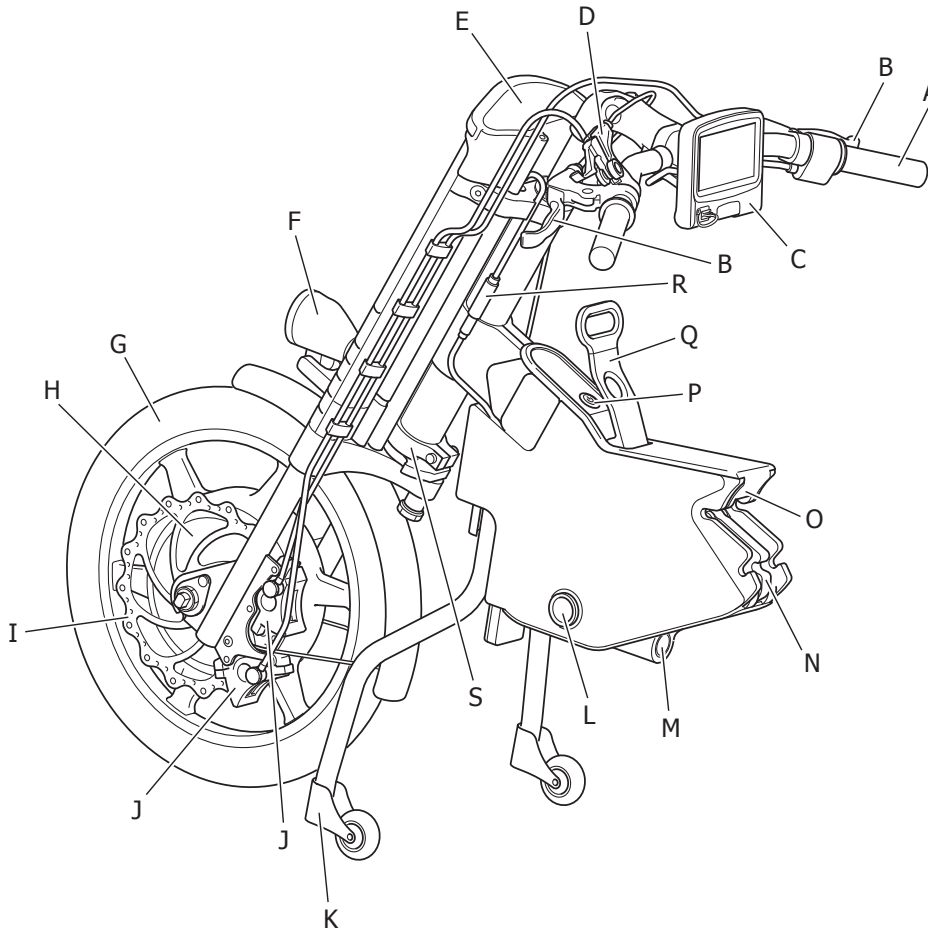
The adapter kit is sold separately.

Attaching Liberty to a wheelchair requires an adapter kit. This consists of two adapter plates and an adapter bar. The adapter kit must be installed by a qualified technician.



## Overview

Liberty consists primarily of two sections: a front section for control and propulsion, and a middle section for attaching to the wheelchair.



- |                               |   |
|-------------------------------|---|
| A Throttle                    | J Brake calipers (x2)                                 |
| B Brake handles (x2)          | K Support legs  |
| C Display                     | L Charging socket                                     |
| D Release handle              | M Rear lights   |
| E Battery holder with battery | N Lower docking mechanism                             |
| F Front lights                | O Upper docking mechanism                             |
| G Drive wheel                 | P Start button  |
| H Drive motor                 | Q Locking handle                                      |
| I Brake disc                  | R Electrical connection, front section–middle section |
|                               | S Rotation lock                                       |

## Wheelchair attachment system

Docking mechanisms (N) and (O) are positioned to the rear of the middle section and, together with the bar adjusted to the wheelchair, form the interface between Liberty and the wheelchair. Locking handle (Q) locks the docking mechanism and lifts up support legs (K). Release handle (D) is located on the handlebar.

## Drive system

The drive system consists of a drive motor (H) placed in the drive wheel (G), a battery with a battery holder (E) and a charging socket (L).

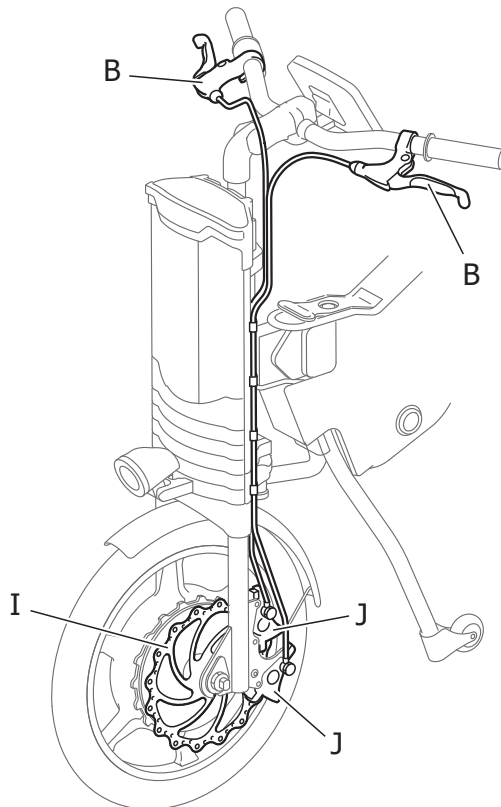
## Control system

The control system consists of a throttle (A), a start button (P), two brake handles (B), a display (C) and a handlebar.

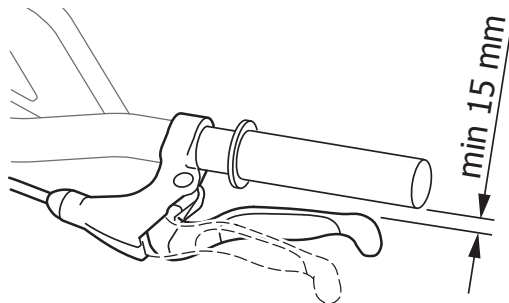
## Brake system

The brake system must be inspected regularly at intervals of 6 (six) months.

Liberty's brake system consists of two individual hydraulic brake calipers (J) with corresponding brake handles (B) and a brake disc (I). The brake fluid containers are integrated into the brake handles. The brake disc and brake calipers are fitted to the drive wheel



It is extremely important that the distance between the brake handles and the handlebar is no less than 15 mm when the brake handle is pulled in all the way. Otherwise the brake will not have sufficient capacity.



## Lights

The lights consist of a white headlight (F) facing forwards and a red rear light (M). The lights are turned on and off from the display (C).



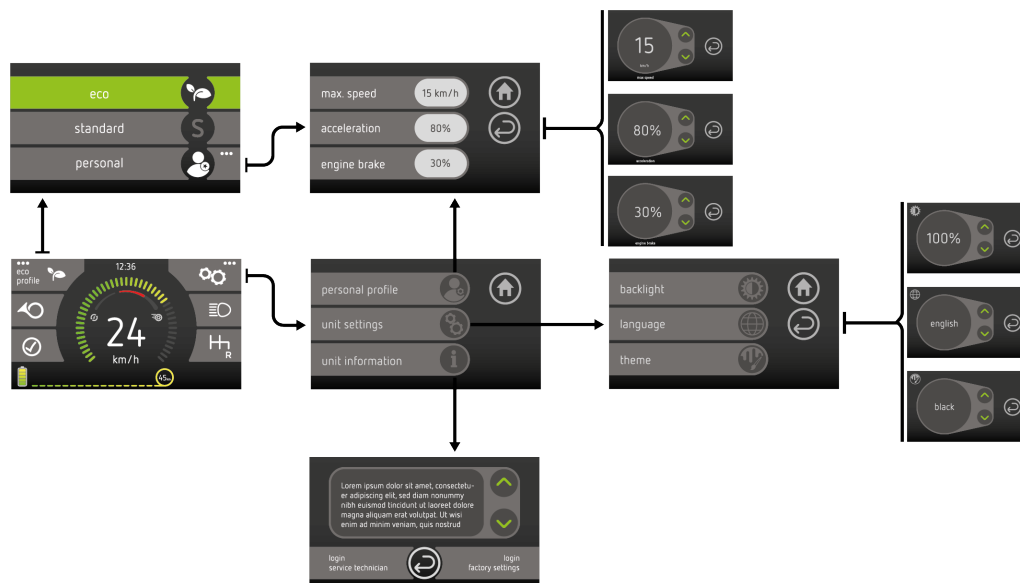
# Display

Liberty is equipped with a display that provides the user with information.

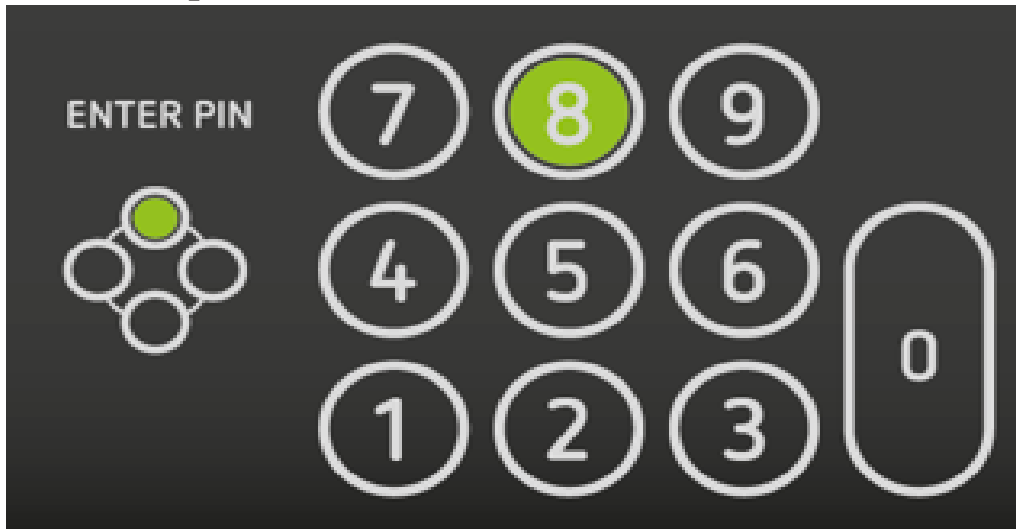
The electrical settings for Liberty are also adjusted on this display. The display has a touchscreen. The display is equipped with a USB socket that can be used to charge a mobile phone, for example. Maximum power: 10 W.

The display is available in two versions: City and Kids.

## Menu structure



## PIN code (optional)



In some markets, Liberty must be protected with a PIN code. This PIN code will be requested when starting Liberty. When Liberty is delivered from the factory, the PIN code is: 0000. For each digit of the PIN code entered, a green dot will appear in the field on the left-hand side of the display. Once all four digits have been entered, this field will turn green if you have entered the correct PIN code and you will then be able to access Liberty. If the wrong PIN code has been entered, this field will flash red, after which you can try entering the PIN code again.

The user of the product can change the PIN code by going into the settings device and selecting the PIN code menu. They can then follow instructions on the display detailing how to change the PIN code.

Activation and deactivation of PIN code can only be done by the authorised service technician or the manufacturer of the product.

## Home menu

### City




### Kids




- A Driving profile button and indicator
- B Energy flow indicator
- C Speedometer, analogue and digital
- D Settings button
- E Lights button

- F Direction of travel selection button
- G Remaining travel distance indicator
- H Battery indicator
- I Lock indicator to wheelchair

A few seconds after Liberty is activated, the home menu appears on the display. While driving, the home menu shows information on the current battery charge level and speed and an indicator showing that Liberty is locked to the wheelchair. There are also buttons to change the direction of travel, turn the lights on and off, change driving profile and change settings.

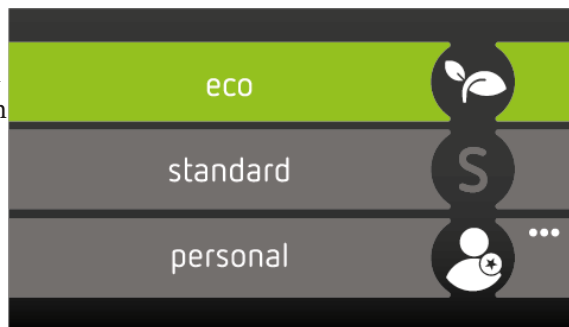
When you press any of the buttons on the display, submenus will appear. There you can change settings and adapt Liberty to your own needs. You can always return to the home menu by pressing  in any of the submenus.

Pressing  will take you back one level in the menu structure. The button can also be used to save a setting.

## Driving profile (A)

This symbol shows which driving profile is selected. Pressing this button takes you to the driver profile selection menu.

- The eco profile is designed to consume as little energy as possible. This is done by reducing acceleration and regenerating as much energy to the battery as possible.
- The standard profile is set for maximum acceleration, speed and motor braking. This means that the travel distance will be reduced.
- The personal profile can be changed in the settings menu.



## Energy flow indicator (B)

The scale shows whether energy is being drawn from the battery or fed into the battery. When using the motor brake, for example, the motor will work like a generator and feed a charge to the battery.

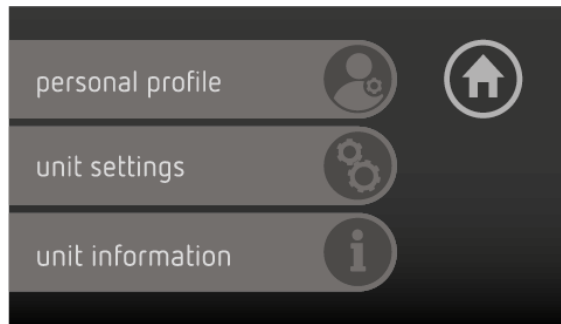
## Speedometer (C)

This symbol shows the current speed on an analogue scale and on a digital display.

## Settings (D)

Pressing this button takes you to the settings menu. From this menu, you can continue and change your personal driving profile and the device interface and see more information about Liberty.

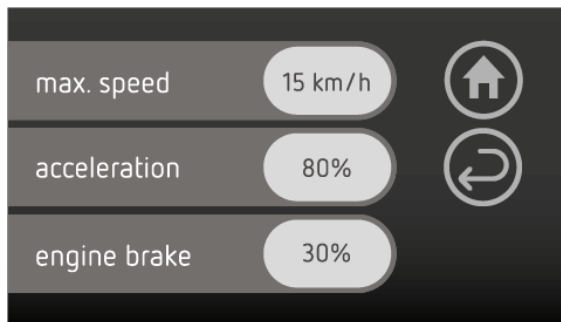
Pressing the appropriate button will take you to the menu where you can view and change other settings.



## Personal driving profile


In the personal driving profile menu, you will see the current selections for maximum speed, acceleration and motor brake.

Press the button for the parameter you want to change.



## Maximum speed


Press the up arrow to increase or the down arrow to decrease the maximum speed in your personal driving profile.

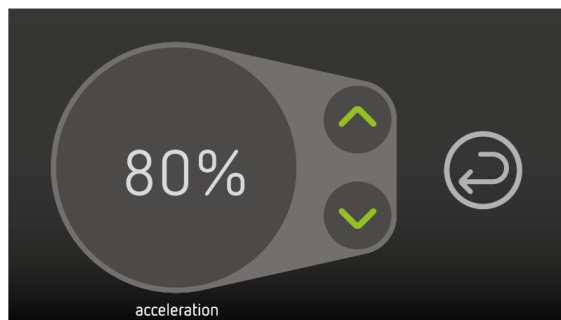
Press  to save the setting and return to the personal driving profile menu.



## Acceleration


Press the up arrow to increase or the down arrow to decrease the maximum acceleration in your personal driving profile.

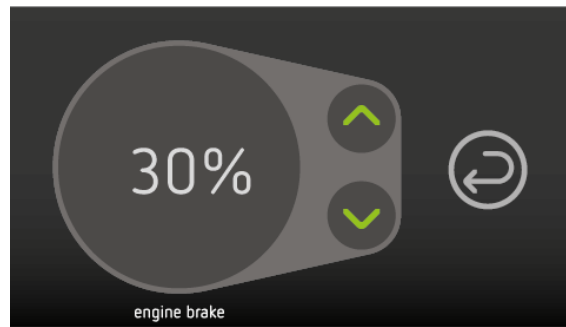
Press  to save the setting and return to the personal driving profile menu.



### Motor brake

Press the up arrow to increase or the down arrow to decrease the braking effect of the motor brake in your personal driving profile.

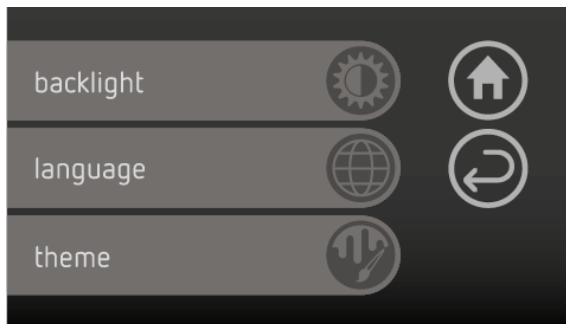
Press  to save the setting and return to the personal driving profile menu.



### Device settings


Here you can set the display brightness and select your language.

For Kids, it is also possible to select a theme.



### Setting the brightness


Press the up arrow to increase or the down arrow to decrease the brightness of the panel.

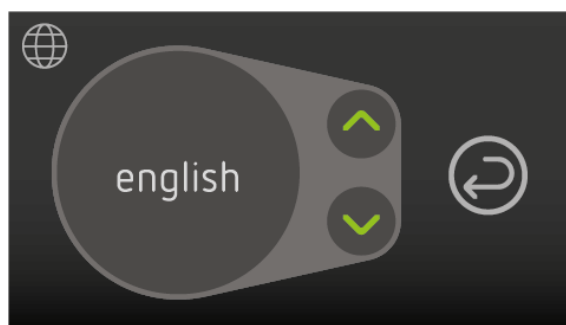
Press  to save the setting and return to the device settings menu.



### Language selection

Select your language by pressing the up or down arrow.

Press  to save the setting and return to the device settings menu.




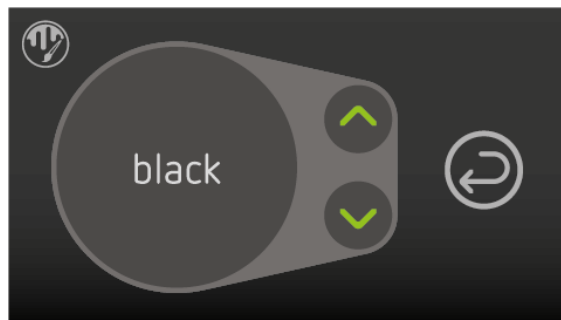
## Theme

The Kids model has the option to select different themes from the home menu.




Select your theme by pressing the up or down arrow.

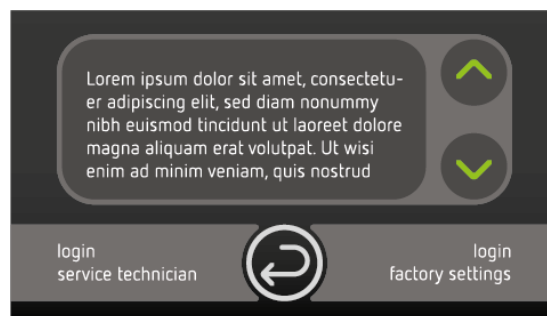
Press  to save the setting and return to the device settings menu.



## Device info

This displays an information and status box about Liberty. From this menu, service technicians and the factory can reach the settings to which only they have access.

Press  to return to the settings menu.



## Lights (E)

This button switches Liberty's lights on and off. Both the front and rear lights switch on and off simultaneously. The button is blue when the lights are on.

## Direction of travel selection (F)

This button selects the direction of travel. A grey symbol indicates forward travel. A green symbol indicates backward travel.

### Estimated travel distance remaining (G)

The measuring strip shows the theoretical travel distance remaining based on the current battery level and current driving style. The actual remaining distance may be longer or shorter depending on the driving style used after this time.

### Battery indicator (H)

This symbol shows the current battery level. When the battery indicator shows one bar remaining, 5 km of travel distance remains.



#### **WARNING!**


Check the remaining battery charge before crossing a road or street. If the remaining charge is low, Liberty could stop.


### Lock indicator (I)

This symbol indicates that Liberty is locked to the wheelchair adapter bar.

**Liberty City:** A green symbol shows that Liberty is correctly docked to the adapter bar on the wheelchair and locked with the locking handle.

A white symbol shows that Liberty is not correctly attached to the adapter bar.

**Liberty Kids:** Three connected links  indicate that Liberty is correctly docked to the adapter bar on the wheelchair and locked with the locking handle.

Two disconnected links  indicate that Liberty is not correctly attached to the adapter bar.

You cannot drive if Liberty is not correctly attached to your wheelchair.



## Mechanical settings

### Adjusting Liberty's handlebar and handlebar stem

Liberty has an adjustable handlebar and handlebar stem. By adjusting the handlebar stem, the height and angle of the handlebar can be changed.

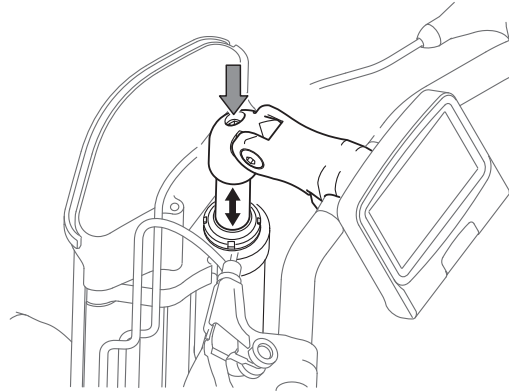
#### Height adjustment

1. Loosen the screw holding the handlebar stem in place with a 6 mm Allen key.
2. Move the handlebar stem to the desired height.
3. Tighten the screw to hold the handlebar stem in place.



#### **WARNING!**

It is extremely important that all the screws are properly tightened after setting up.



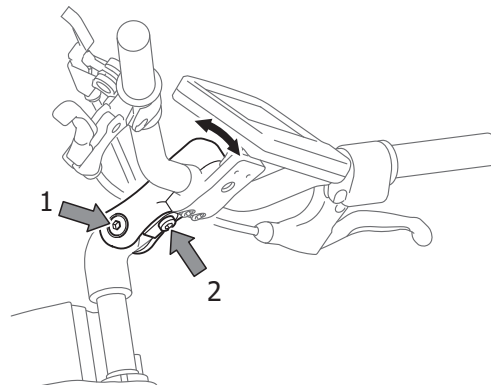
#### Adjusting the angle

1. Loosen the upper screw locking the angle adjustment with a 5 mm Allen key. If necessary, steady it with a 5 mm Allen key on the opposite side.
2. Then loosen the lower screw locking the angle setting with a 5 mm Allen key.
3. Adjust the angle of the handlebar stem.
4. Tighten all the screws so that the handlebar is held in place.



#### **WARNING!**

It is extremely important that all the screws are properly tightened after setting up.



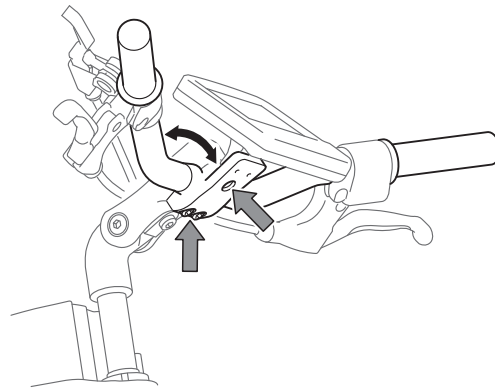
### Adjusting the handlebar

1. Loosen the three screws locking the handlebar inside the handlebar stem with a 5 mm Allen key.
2. Turn the handlebar to the desired position.
3. Tighten all the screws so that the handlebar is held in place.



#### **WARNING!**

It is extremely important that all the screws are properly tightened after setting up.



## Using Liberty

Your wheelchair must be fitted with a Decon Liberty adapter bar to connect Liberty to the wheelchair. The adapter bar must be fitted by a qualified technician.



### WARNING!

The user must have thoroughly read and understood the manual and understand the various controls and user interfaces that Liberty features.



### WARNING!

Be careful when you switch on Liberty for the wheelchair and lift the castors off the ground (step 4 i “Attaching Liberty to your wheelchair” on page 27). Your feet may become caught between the wheelchair and Liberty. This could injure your feet and toes.

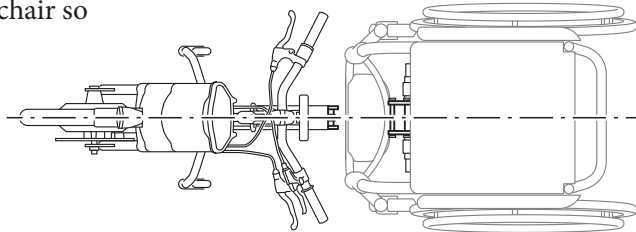


### WARNING!

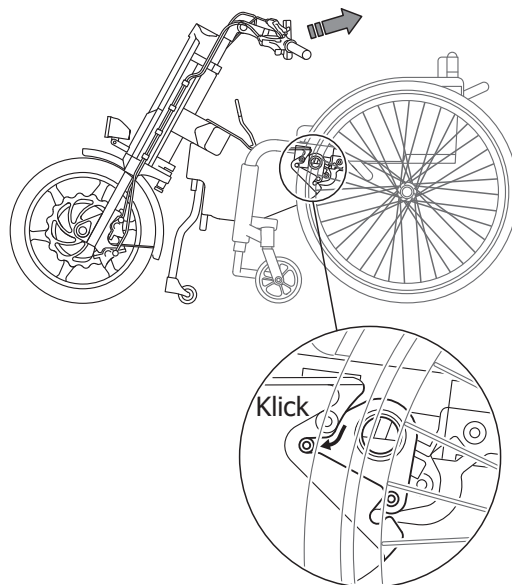
Do not position your fingers or hands under the locking handle when this is being lowered (step 5 i). “Attaching Liberty to your wheelchair” on page 27 If you do, your finger(s) or entire hand might become caught.

## Attaching Liberty to your wheelchair

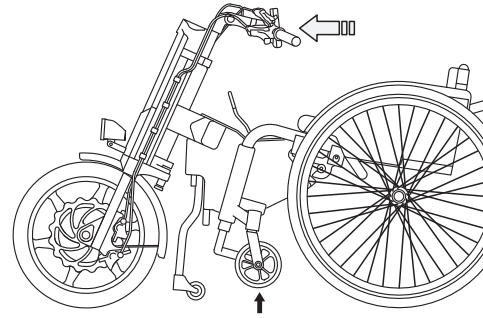
1. Align Liberty and the wheelchair so that the dock on Liberty (O, N) is centred with the dock on the wheelchair adapter bar.



2. Grip Liberty's handlebar and pull it gently towards the wheelchair adapter bar while lifting Liberty 5–10 mm off the ground to attach it to the upper dock (O). When Liberty is attached to the upper dock, you will hear a faint click.
3. Check that Liberty is attached to the wheelchair by using the handlebar to push Liberty gently away from the wheelchair.

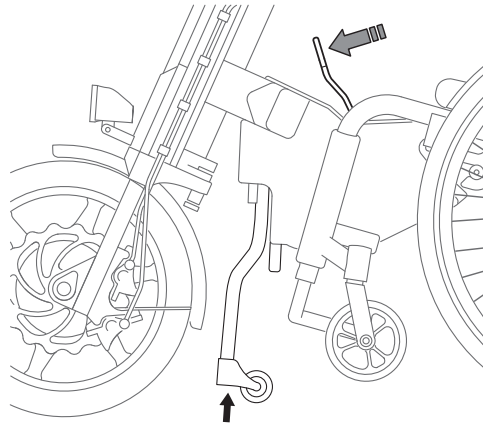


4. Press Liberty's handlebar forward while leaning back slightly so that the wheelchair castors lift up off the floor and Liberty locks into the lower dock (N). When Liberty is attached to the lower dock, you will hear a click.



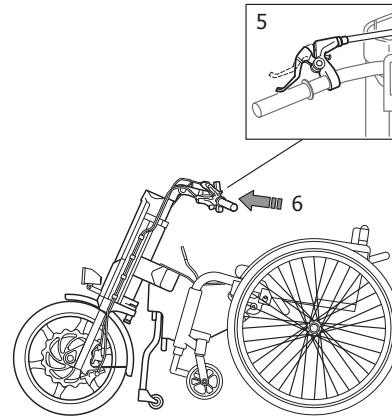
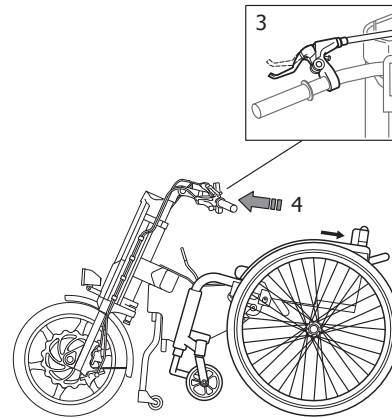
5. Press the locking handle (Q) down to lock Liberty to the adapter bar. The support legs (K) will now lift up.

Liberty is now ready for driving.



## Detaching Liberty

1. Turn Liberty off using the main power switch (P).
2. Lift the locking handle (Q) up to the open position. The support legs will now drop, but will not reach the floor.
3. Press and hold the release handle (D) halfway while leaning back and using the handlebar to push Liberty away from you. This will release Liberty's lower attachment (N) from the wheelchair adapter bar.
4. Release Liberty so that the wheelchair castors reach the floor.
5. To completely detach Liberty from the chair, pull Liberty towards you while pressing the release handle (D) all the way in.
6. Push Liberty away from the chair using the handlebar while the release handle (D) is still fully pushed in.



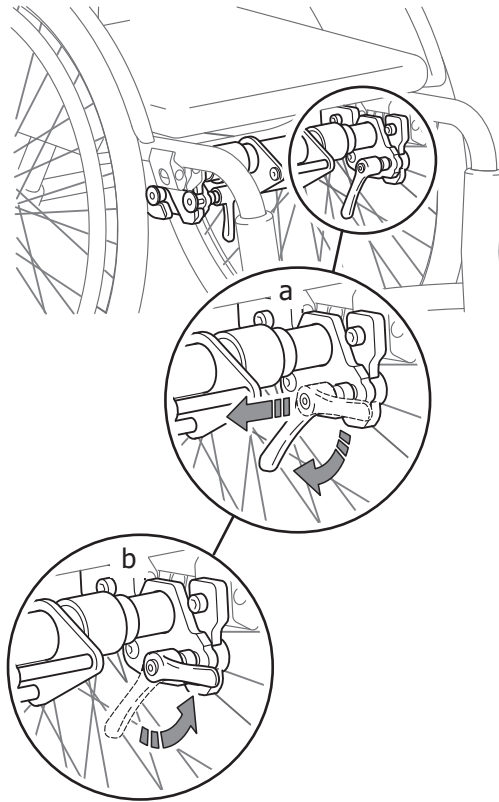
### INFO

Steps 3–6 can be performed in a single movement if you wish. If you want to do this, push the handle all the way in step 3.

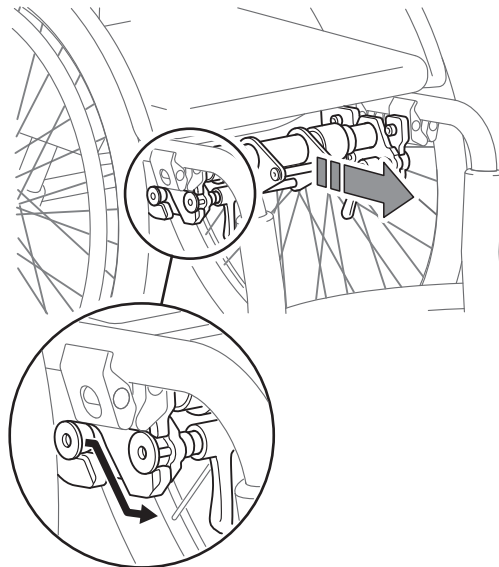
## Removing the adapter bar

To fold up a cross-brace chair, you will need to remove the adapter bar.

1. Loosen the front screws.
  - a. Pull the handle out and turn it clockwise as far as possible.
  - b. Push the handle in and turn it anticlockwise to loosen the screw.
  - c. Repeat steps a and b until the cone comes away from the adapter plate.

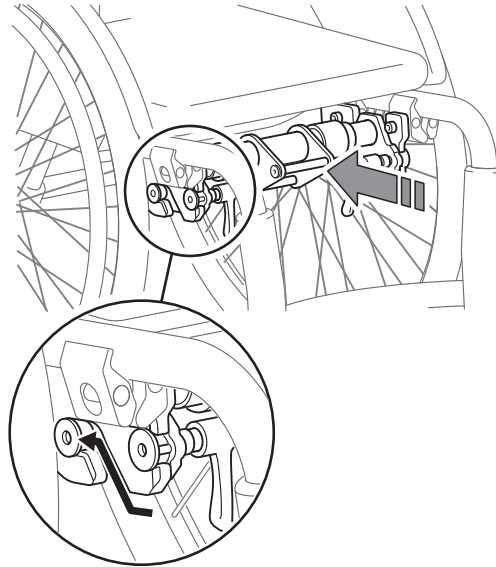


4. Push the handle outwards while pulling the adapter bar forwards and downwards to remove it from the wheelchair.

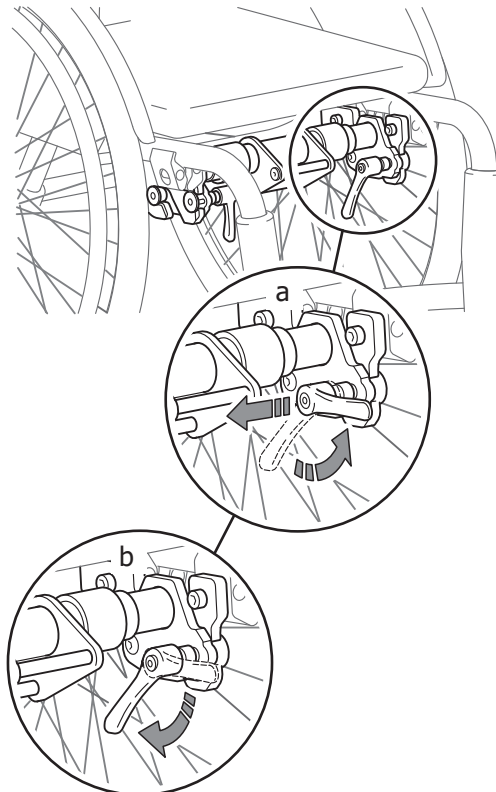


## Fitting the adapter bar

1. Place the bar in position in the adapter plates by moving the bar backwards and upwards.



2. Tighten both screws.
  - a. Pull the handle out and turn it anticlockwise as far as possible.
  - b. Push the handle in and turn it clockwise to tighten the screw.
  - c. Repeat steps a and b until the cone locks the adapter beam securely to the adapter plate.



### **WARNING!**

Make sure the adapter bar is correctly fixed to the adapter plates.

## Driving Liberty



### **WARNING!**

The user must have carefully read and understood the manual and understand the various controls and user interfaces that Liberty features.

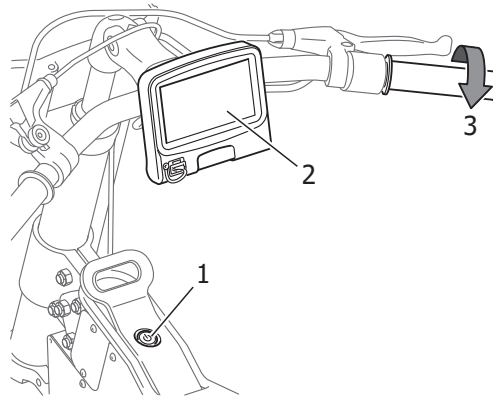


### **WARNING!**

Do not make sharp turns at high speeds. This may overturn Liberty or the wheelchair.

To drive Liberty, you must first have attached Liberty to the wheelchair in accordance with section “Attaching Liberty to your wheelchair”

1. Press the main power switch located in the locking handle recess. The bulb in the main power switch will flash on startup. When the bulb stays steadily on, Liberty is ready to drive.
2. Select forward or backward travel using the button on the display.
3. Turn the throttle to drive and adjust the speed.



The speed is primarily adjusted using the throttle.



### **WARNING!**

When driving down steep slopes, it may be necessary to use the brakes to limit your speed. The motor brake will only help to a certain extent.



## Techniques for navigating obstacles and climbing hills

### Navigating obstacles

When navigating obstacles, the wheel being in contact with the obstacle may make this difficult. For optimal obstacle navigation, we recommend starting approx. 0.5 m from the obstacle and picking up speed before reaching the obstacle to be navigated (e.g. kerb, road edges, etc.)

### Driving uphill

When driving up a steep slope (gradient of more than 4–5 degrees), we recommend moving your centre of gravity as far forward as possible by tilting your torso forward and, if possible, sitting further forward on the wheelchair seat. If you move your centre of gravity forward, Liberty will achieve a better grip with the tyre.

Another alternative driving technique, if the conditions and surroundings allow it, is to weave your way up the slope.

### Parking brake

Liberty is equipped with a parking brake on the left brake handle. The parking brake will keep Liberty still on a flat surface. When parking on a sloped surface, the parking brake must be used in combination with the wheelchair brakes to ensure that Liberty and the wheelchair do not start to roll.



#### INFO

Use the parking brake when stopping at traffic lights or pedestrian crossings, for example.

### Moving Liberty while it is attached to a wheelchair

To move Liberty while it is attached to a wheelchair, the main power switch must be switched off. The drive wheel is then released and can turn without propulsion.



#### WARNING!

Never drive Liberty if you are not sitting in the wheelchair.

## Transporting Liberty



### **WARNING!**

Use straps to ensure that Liberty can be transported safely.



### **WARNING!**

Liberty must never be transported while attached to the wheelchair. In vehicles where the wheelchair is used as a seat, Liberty must be detached from the wheelchair and placed in the boot or equivalent and firmly secured.



### **CAUTION!**

Position Liberty in a way that prevents any parts from being damaged during transport.

## Loading Liberty into a car

1. Switch off the power to Liberty.
2. Remove the battery from Liberty to prevent the power from suddenly switching on during storage or transport. Make sure that you put the protective cover on the removed battery



### **WARNING!**

Always keep the protective cover on the disconnected battery. Exposed contacts can cause short circuits, which may cause a fire or cause the battery to explode.

3. Loading Liberty into the car.  
Lift Liberty by the handlebar stem and the front wheel when loading it into a car. Be careful not to damage the display during loading.
4. Secure Liberty.  
Secure Liberty to prevent it from moving during transport and hitting objects around it.

**Tips for loading**

- The product contains sensitive electronic parts. Do not expose the product to jolts or high impacts.
- Load as upright as possible.
- If you are loading Liberty so that it is lying down, make sure that the display cannot be damaged before you secure it.

**Tips for securing load**

- Secure Liberty using straps and position cushioning material underneath and around Liberty.

**Boarding an aircraft**

When booking a flight, always inform the airline in advance that you are bringing an electric drive unit for a wheelchair and follow their instructions. Provide the airline with detailed information in connection with the booking. The standard battery cannot be used when flying; instead you must use a lower capacity travel-pack battery with the following specifications:

Designation:	Travel-pack battery Liberty
Item number:	LBM1002
Voltage:	48 V
Capacity:	6 Ah (288 Wh)
Type:	Dry cell with built-in microcomputer

It may not be possible to take the lithium ion battery on board or to check it in as hand luggage. Always consult the airline in advance.

**Storing Liberty**

1. Switch off the power and remove the battery
2. Store Liberty somewhere with a normal indoor temperature and low humidity.
3. To wipe away dirt before storing, use a towel that has been thoroughly wrung out.

If Liberty is not to be used for a long time, leave the battery in the machine, but with the power turned off. Check that Liberty works as it should every month.

After storing Liberty, check the following before you start using it:

- Battery status; charge if necessary
- Brake function; check that these are working and not against the brake disc.

## Battery and charger

Ambient temperature for the battery

When using Liberty	-15°C–40°C
When stored, removed from Liberty	-10°C–25°C
When charging	5°C–30°C

Liberty's battery can be charged with the battery either inside Liberty's battery holder or removed.

When charging with the battery inside the battery holder, the charger's magnetic contact is connected to the socket on the side of the middle section.

With the battery taken out, use the appropriate adapter together with the charger.



### **WARNING!**

Be careful not to catch your finger when inserting or removing the battery.

Liberty's charger is equipped with a light to show the charge status. When the charger is connected to the wall socket and the light is green, the charger can be connected to the charging socket. When the charger is connected to the charging socket and the battery is charging, the charger will display a red light.

When the battery is fully charged, the light will turn green. A completely discharged battery may take up to five hours to charge to full capacity.

## Charging the battery inside Liberty

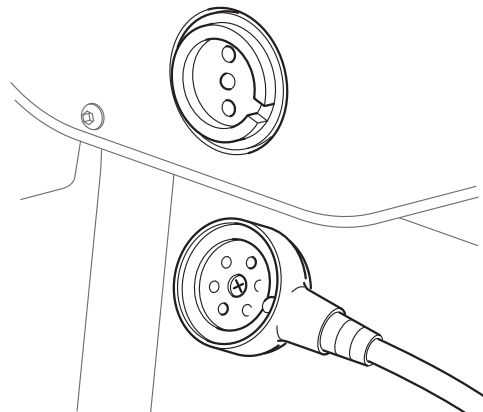
1. Connect the charger to a wall socket.
2. Check that the light on the charger is green
3. Connect the magnetic contact to the charging socket in the middle section. Make sure the lug on the cable contact fits into the groove in the socket.



### **INFO**

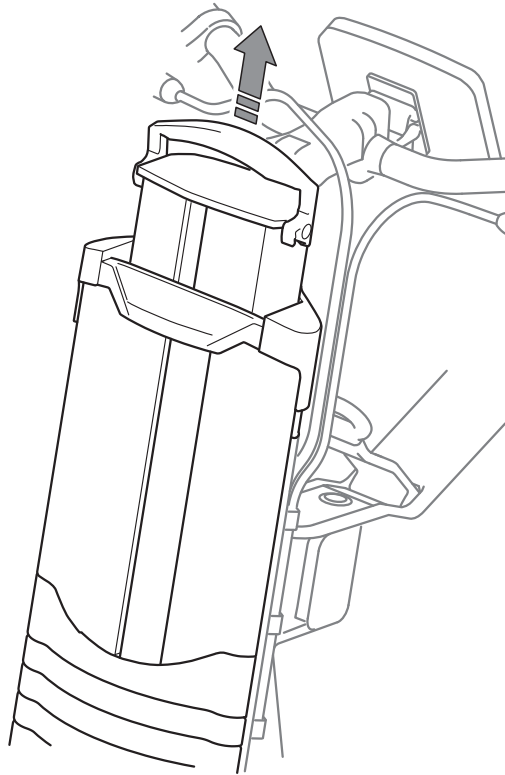
Check that the light on the charger is red. This indicates that charging is in progress.

4. Once charging is complete, disconnect the charger from Liberty and the wall socket.

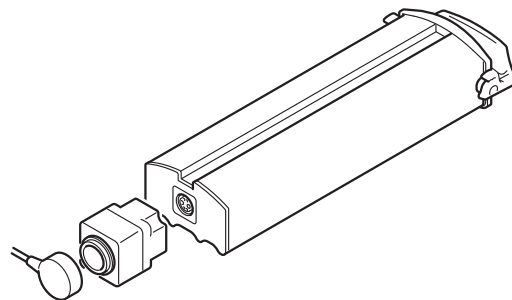


## Charging the battery outside Liberty

1. Lift up the handle and lift the battery out of the holder.



2. Connect the adapter to the battery contact.
3. Connect the charger to a wall socket.
4. Check that the light on the charger is green.
5. Connect the magnetic contact to the charging socket in the charging adapter. Make sure the lug on the cable contact fits into the groove in the socket.



### INFO

Check that the light on the charger is red. This indicates that charging is in progress.

6. Once charging is complete, disconnect the charger from the charging adapter and the wall socket.
7. Disconnect the charging adapter from the battery contact and put the battery back in Liberty's holder. Lower the handle so that the battery is properly locked in place.

## Battery storage

Store the batteries somewhere cool and dry (somewhere with a temperature between 10–25°C is optimal for storage). If you are not planning to use Liberty for a while (a month or longer), charge the battery until three of the bars indicating level of charge appear on the display before you store it. Check that three bars are displayed every month. If two or fewer bars are displayed, charge the battery until three bars are displayed.

## Care

### Cleaning

If Liberty gets dirty due to normal use, clean Liberty with a damp and firmly wrung cloth. If Liberty is heavily soiled, use a towel and a neutral cleaning agent. Make sure that there is no cleaning agent remaining on Liberty after cleaning.

#### ! CAUTION!

Never spray Liberty with a hose or high-pressure washer. Never use a steam cleaner to wash Liberty. This may damage the electronic components, which could lead to serious malfunctions

#### ! CAUTION!

Do not clean with solvents such as benzene or thinner. This may damage the paint and plastic parts on Liberty



#### INFO

Liberty can be disinfected using a cloth with alcohol.

## Corrosion

All Liberty parts that may be subject to corrosion are made of aluminium, stainless steel or steel. The materials and the transitions between the materials have been surface-treated, which is why there is no increased risk of corrosion. Regardless of this, you should always wipe wet or damp surfaces on Liberty with a cloth after use.

## User maintenance

Use a copy of this page to note down who carries out the inspections and when. Save the log.

The following inspections need to be carried out every six months after first use.

Device	Action	Date	Inspection carried out by
Overview	Noise, trapped parts		
	Inspection of locking against adapter bar on wheelchair		
	Air pressure and wear on tyres		
	Glitches in propulsion, damage, dangerous damage, sharp edges		
	Inspection, screw tightness		
	Dirty contacts on battery		
	Cables, visual inspection for damage		
	Cables, inspection of connections		
Battery and charger	Cables, visual inspection for damage		
	Cables, inspection of connections		
	Battery, visual inspection for damage		
Brakes	Brake hose, visual inspection for damage		
	Brake disc, visual inspection for damage		
	Brake caliper, visual inspection for damage and leaks		
	Brake caliper, screw tightness		
	Brake handle, visual inspection for damage and leaks		
	Brake handle, screw tightness		

## Repairs

Users may not conduct repairs or servicing on Liberty themselves.

Users may not remove parts from Liberty and send them to the retailer for repair themselves.

If a repair is required, contact your retailer, even if the fault is of a minor nature.

If parts are damaged or missing, contact the retailer immediately. Submit Liberty to the retailer for replacement or repair of parts.

For normal maintenance, repair or service, always contact the retailer. If Liberty is not repaired or not all parts are used during installation, this may lead to injury to the user, those around the user or the user's property.

To carry out repairs and service, the retailer uses the service manual, spare parts catalogue and other documentation. This documentation is not available to users and the general public.

## Punctures



### INFO

Liberty's tyres have the same structure as bicycle tyres. As a rule, therefore, bicycle repair workshops will be able to repair punctures and change Liberty's tyres. If you do not have access to a bicycle workshop, contact your retailer.



# Troubleshooting

## Fault descriptions

Use the table below for troubleshooting before contacting the retailer.

Status	Light in main power switch	Rear light	Audio signal	Control point	Action
Liberty's display does not start when the main power switch is switched on.	Off	–	No	Check that the battery is charged	Charge the battery
	Off	–	No	Is the battery properly installed?	Check that the battery is properly installed
	Off	–	No	Electrical connection/connector/cable between front section and middle section	Push the connection together with the arrows pointing towards each other
	Flashes once	Flashes once	No	Check that the cables are firmly seated on the back of the display	Install the cable correctly on the rear of the display
Does not respond to throttle	Steady light	–	No	Is the locking handle in its lowest position?	Lower the locking handle with a firm motion
	Steady light	–	No	No indication on the display that Liberty is locked to the chair?	Lower the locking handle with a firm motion
	Steady light	–	No	No indication on the display that Liberty is locked to the chair even though the locking handle is in its lowest position.	Lower the locking handle using a specific motion a number of times.
	Steady light	–	No	Check that the cable from the throttle is firmly connected to the rear of the display	Install the cable correctly on the rear of the display
	Steady light	–	No	Check that the connector between the motor and the power module is connected.	Connect the connector between the motor and the power module.
Liberty cannot be docked to the chair's adapter	–	–	–	Uneven surface	Move Liberty and the wheelchair to a more level surface
	–	–	–	Liberty's height adjustment has been changed	Set the height of and leg support for Liberty to suit the adapter being used to attach to the wheelchair.
	–	–	–	Liberty's bottom connector has been pushed to its locked position	Push the release handle to its innermost position to release the lower hook.
Locking handle cannot be lowered	–	–	–	Liberty is not raised and locked in the lower hook. The wheelchair castors are on the ground.	Lift Liberty so that it goes up and locks in the bottom connector
Liberty cannot be detached from the chair's adapter	–	–	–	The release handle cannot be pushed in	Move the locking handle to its upper position
	–	–	–	Liberty does not detach from the adapter even though the release handle is pressed in	Adjust/tighten the wire in the release handle

## Fault codes

Fault code	Fault description	Action
C6CB N:01	Communication fault Power module	Check the cable between the power module and the display. Restart Liberty using the main switch. If the fault persists, contact the retailer.
C6CB N:02	Communication fault BMS/battery	Check that the battery is properly inserted into the machine. Restart Liberty using the main switch. If the fault persists, contact the retailer.
C6CB N:03	Communication fault Middle section/ Junction box	Check the cable between the front section and the middle section. Restart Liberty using the main switch. If the fault persists, contact the retailer.
ABBE N:01	Overcurrent protection 1 Power module	Restart Liberty using the main switch. If the fault persists, contact the retailer.
ABBE N:02	Overcurrent protection 2 Power module	Restart Liberty using the main switch. If the fault persists, contact the retailer.
ABBE N:03	Overcurrent protection Power module	Restart Liberty using the main switch. If the fault persists, contact the retailer.
ABBE N:04	General fault monitoring triggered	Restart Liberty using the main switch. If the fault persists, contact the retailer.
ABBE N:05	Communication fault	Restart Liberty using the main switch. If the fault persists, contact the retailer.
ABBE N:06	Power module overheated	Switch off Liberty and wait 5 mins Start Liberty using the main switch. If the fault persists, contact the retailer.
2090 N:01	Communication data bug	Restart Liberty using the main switch. If the fault persists, contact the retailer.
2090 N:02	Communication fault	Restart Liberty using the main switch. If the fault persists, contact the retailer.
864A N:01	Communication data bug	Restart Liberty using the main switch. If the fault persists, contact the retailer.
864A N:02	Communication data bug	Restart Liberty using the main switch. If the fault persists, contact the retailer.
7F42 N:01	Communication data bug	Restart Liberty using the main switch. If the fault persists, contact the retailer.
7F42 N:02	Communication data bug	Restart Liberty using the main switch. If the fault persists, contact the retailer.
7F42 N:03	Communication data bug	Restart Liberty using the main switch. If the fault persists, contact the retailer.
7F42 N:04	Communication data bug	Restart Liberty using the main switch. If the fault persists, contact the retailer.

Fault code	Fault description	Action
2DF1 N:01	The battery is not ready	Restart Liberty using the main switch. If the fault persists, contact the retailer.
2DF1 N:02	Communication with the battery lost	Restart Liberty using the main switch. If the fault persists, contact the retailer.
2DF1 N:03	Battery overheated	If possible, move the battery to a cooler location. Wait for 10 mins. Restart Liberty using the main switch. If the fault persists, contact the retailer.
2DF1 N:04	Battery too cold	Move the battery to a warmer place. Wait for 30 mins. Restart Liberty using the main switch. If the fault persists, contact the retailer.

Decon Wheel AB  
Södra Ekeryd 119, SE-314 93 Hyltebruk  
Tel: +46 (0)345 40880  
Fax: +46 (0)345 40895  
E-mail: [info@decon.se](mailto:info@decon.se)

