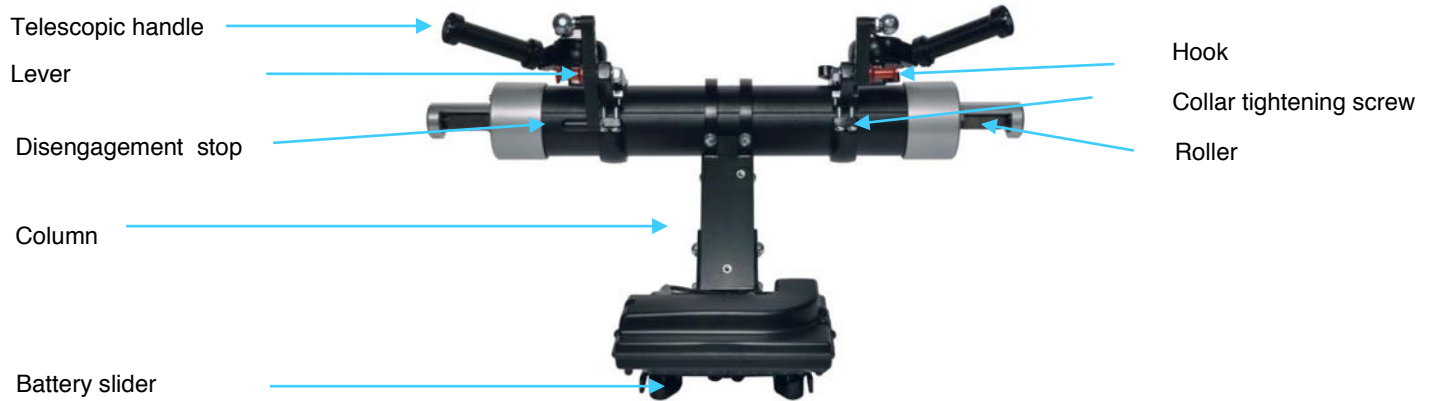


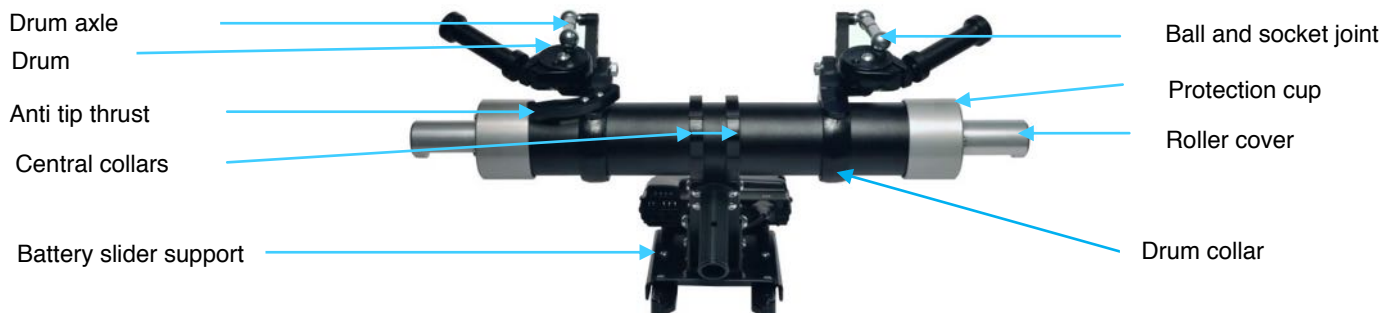
# LIGHT DRIVE

## USER'S MANUAL

### Front view



### Rear view



## IMPORTANT

### NEUTRAL POSITION

To attach and remove the power pack



### TO ENGAGE FROM NEUTRAL POSITION

To put the power pack into drive mode once installed

1. Engage the RIGHT handle first fully.
2. Follow with the left.
3. Push in the telescopic handles.



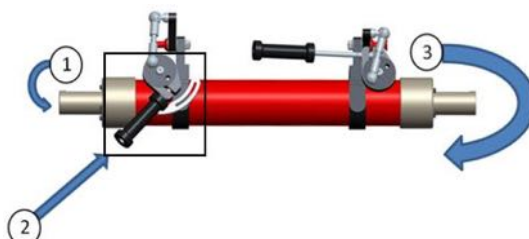
### TO DISENGAGE FROM ENGAGED POSITION

To free wheel without the power pack swinging or the battery touching the ground

1. Open the telescopic handles.
2. Bring LEFT hand handle in slightly.
3. Push the telescopic handle in so as to rest it against the stop.
4. Bring the right handle in against the backrest.



Anti tip thrust



## FROM DISENGAGED TO NEUTRAL POSITION

First remove the battery.

1. Engage the right hand handle.
2. Unhook the LEFT hand handle from the stop and place in neutral position.
3. Place the right hand handle in neutral.



## FROM ENGAGED TO DISENGAGED

To get into drive mode from free wheel mode

1. Engage the RIGHT hand handle.
2. Unhook the left hand handle from the stop and engage.
3. Push in the telescopic handles.



## FROM ENGAGED TO NEUTRAL POSITION

To remove the power pack after use

**First remove the battery.**

Open the telescopic handles.

1. First place the LEFT handle in neutral.
2. Follow with the right.



The **Light Drive** is an add on power pack that transforms your manual wheelchair into a lightweight electric wheelchair. It is designed as an aid to your daily movements indoors, and outdoors on pavements and paths. It is not designed to transform your wheelchair into an all terrain or sports chair.

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2. Removing the **Light Drive**
3. General use
4. The Battery
5. Maintenance and adjustments
6. Travelling
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8. After sales care



## **1. Attaching the Light Drive**

Your wheelchair is now equipped with hook plates to allowing you to attach your power pack instantly.



A bracket has been installed near your hand for the joystick



### **The motor**

In order to place the motor onto the hooks, the telescopic handles need to be pointing to the rear in neutral position. The plastic stop needs to be raised.

You can attach the power pack weather the wheelchair is occupied or not.



Hold the motor with both hands and place the red pins onto the red hooks. Check that the pins are placed correctly onto the hooks.





Make sure the red parts are properly aligned.



Engage the telescopic handles starting with the side that doesn't have the stop. Extend the telescopic handles fully to gain more force.



Slide them back down after.



### **The battery**

Take the battery rack and line it up with the battery rack slider. Gently push it and let it slide into position. You should hear a click as the connectors slot together.





### **The anti tip foot**

Slot the anti tip foot into the tube at the rear of the motor and lock it into place with the clip.



### **The joystick**

Slide the joystick into the bracket at the front of the chair. If you have a joystick that is not already attached to the motors, plug it into the connector at the rear. Always pass the cable along the inside of the chair. The black knob acts as a stop to adjust the height of the joystick. Do not tighten in the joystick bracket itself.





## Self installation

Depending on the nature of the disability, many users can attach the power pack from the chair.



## 2. Removing the Light Drive

- Remove the anti tip foot.
- Remove the battery rack by pulling on the handle. Never try to remove the Light Drive without first removing the battery.
- Unplug (if needed) and remove the joystick.
- Point the telescopic handles towards the rear in neutral position.
- Ensure the plastic stop is pointing up.
- Push the motor forwards to disengage the hooks and then lift it up.





### **3. Getting started**

#### **Speed**

Like with an electric wheelchair, direction and speed are controlled by a joystick. You can control the power by using the two buttons on the joystick. When the 5 orange lights are lit, the power is at maximum..

#### **Outdoors**

It can be useful to limit the power whilst getting used to the power pack or when in a crowded place. When you are outside, it is a good idea to keep the power at maximum as this makes the chair react more quickly.

To go down a steep hill gently, you don't have to reduce the power using the two buttons. You can simply control your speed with the joystick. The wheelchair stops when you let go of the joystick.



#### **A long hill**

Keep a steady speed when approaching a long hill. If you stop on the way up, start again slowly to avoid tipping backwards.



#### **A short hill**

Short hills are often steeper than they appear. You need to approach with a good speed.



### **An uneven surface**

When a surface is not even, the wheelchair is naturally drawn to the lowest side. You need to correct your trajectory with the joystick and to anticipate your path as much as possible especially on steep climbs.

For more difficult routes, the aid of a helper can always be useful.



### **Obstacles in forward gear**

Depending on the diameter and suppleness of the front wheels, you can get over a certain number of obstacles. In the best case, it is difficult to get up a step of more than 3 cm. Try not to try to get over the step or bump head on, try it from more of an oblique angle.

You can go down obstacles of about 5 cm forwards. The weight of the power pack and the battery stabilizes the chair so avoids any danger of tipping forwards.



### **Obstacles in reverse gear**

It is possible to get over bigger obstacles by reversing over them. You need to keep up a constant speed until the front wheels are over the obstacle.



### **Help from a third party**

A wheelchair equipped with a Light Drive retains its initial balance so a helper can assist in the same way as usual. When coming up to a pavement, the user continues to advance with the joystick and the helper tips the chair back and pushes it forwards.

### Poor terrain



A wheelchair with a power pack can pass over grass, sand and gravel more easily than a wheelchair without. The continuous drive in the rear wheels stops the front wheels from digging into the ground. Grass or fine sand that is wet can be impossible to pass over on a steep hill without help from a third party.

### The role of the anti-tip foot



A wheelchair equipped with a Light Drive keeps its initial balance. However, poorly controlled power of the motors on hills can make the chair tip over. The anti tip foot serves its purpose well to overcome obstacles.

## 4. The battery



Only use the charger that came with your battery. You can charge the battery using the socket on the joystick or by the red connector plugged straight into the red plug on the battery. This method is used when the battery is not on the wheelchair or when you have several batteries.

Lithium batteries have no memory effect and can be charged at any moment. It is by this means recommended to charge your battery after each use. This method preserves the life of your battery and permits a full charge on each use. Batteries should not be stocked uncharged as a risk of deterioration could exist. Batteries should at least be charged every two month.

### Particularities on lithium Iron phosphate (LiFePO4) batteries



LifePO4 batteries are electronically controlled for charge and discharge. A heavy discharge will not damage the battery. Autonomy of such a battery is around 16 km on varying terrain without steep hills. Battery life is expected for around 1500 charging cycles, which corresponds to at least 5 years use.

**Caution**, battery charge indication on the joystick do not correspond to reality. All leds are lightened for a long time and can make you think you have a full charge. But as the first green lights start to shut off, you will have an autonomy of less than 1 Km. This is due to the new technology of lithium and the fact that suppliers of wheel chair electronics have not calibrated the indicators yet.

## **5. Maintenance and adjustments**

### **The tyres**

Ensure that the tyres are always well inflated.

24 x 1 3/8 tyres = 72 psi

24 x 1 tyres = Between 72 and 116 psi

It is better to have inflated tyres without knowing the pressure than leaving the tyres deflated.

Continue to equip your chair with good quality tyres, not nylon tyres. Please contact your Light Drive supplier or us if you are unable to find the same tyres as the ones we have installed for you. **Never replace with solid tyres.**

### **The castors**

If your castors are very small (less than 12cm / 6" in diameter) or very hard, you may encounter certain manoeuvrability problems. If after a trial period you decide you would like them changed for bigger, softer castors please ensure that the fork can be adjusted to accommodate them and that they won't touch your heels when reversing.

With bigger castors you will find that you can get over poor terrain more easily and you can over larger obstacles.

### **Adjusting the anti-tip foot**

The anti-tip foot works very well even when adjusted high off the ground (approx 8 cm). The higher it is adjusted, the higher the obstacles you can pass both forwards and backwards.

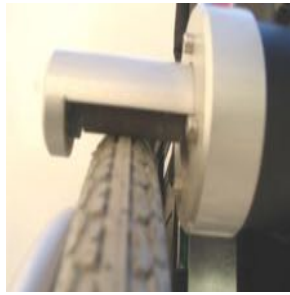
For people who do not feel safe tipping too far back, you can adjust the foot nearer the ground.

### **Adjustments to the pressure of the rollers on the tyres**

After having used the power pack for the first few weeks, it may become necessary to adjust the pressure of the rollers on the wheels.

This adjustment is very important, but before adjusting you must check that the pressure is correct and identical in both tyres.

Once these checks have been made the position of the rollers on the tyres can be verified. If the pressure is too low, the power of the power pack may be weakened and the tyres will wear out too quickly. If the rollers slip whilst climbing a hill or on a wet surface, you need to increase the pressure of the rollers by following the steps laid out below. If the roller slips on one side more than the other you need to check that the hooks are in the correct place.



How to check that the pressure is the same on both sides:

- Remove the battery.
- Put the telescopic handles in neutral position.
- Make a visual check of the position of the rollers in relation to each tyre
- If one of the rollers is more than 1 mm away from the tyre lower the hook by the corresponding amount by following the steps below.

Conversely, too high a pressure can reduce the autonomy.



### **Adjustments using the hooks**

If you change the size of the tyres or if the pressure of the rollers on the tyres is not the same on both sides, use the following method of adjustment:

- Firstly make a mark with a pen or pencil noting the original position of the hook.
- Lightly loosen the two screws on the hook and gently tap the hook to move it by the desired amount.
- Tighten the screws well.

### **Adjustments using the ball and socket joint**

When the adjustment is minimal, this method is best.  
To increase the pressure:

1. Remove the split pin from the ball and socket joint.



2. Lift up the upper part of the joint.





3. Turn anticlockwise once or twice

4. Replace the joint.

5. Replace the split pin.

Repeat the procedure on the other side if necessary.

Having the correct pressure avoids any slipping of the rollers whilst driving. Be aware that too much pressure can reduce autonomy.

## General care and maintenance

- Clean the rollers and the roller covers with a screwdriver.
- Clean the power pack with a damp cloth.
- Check the tyre pressure.
- Check the pressure of the rollers on the tyres.  
Do not clean with water.

## 6. Travelling

**Cases.** Several clients who travel by plane have modified suitcases to transport the Light Drive, the joystick, the anti tip foot, the battery and the charger. This can go in the main luggage hold.

We will soon be offering a custom made case.

**Battery certificate.** Most carriers require a certificate of conformity which we can supply upon request.

**Recharging the batteries in other countries.** There are two points to take into consideration:

1. The type of plug. You will need an adapter for the charger's plug.
2. The voltage may be different in which case a transformer will be needed. Most European countries work on or around 220V. However certain countries like the USA, Canada and Japan use 110V. In these cases you will need a transformer of 110V into 220V.

**Recharging the battery using an in-car battery charger.** For people travelling in mobile homes and for people who would like to recharge without having to use a traditional socket, we can offer a converter that is connected to the vehicle's battery. The normal battery charger is plugged into this converter which must be installed by a trained auto electrician.

**Advice concerning your wheelchair.** Whilst travelling, it is a wise precaution to take an inner tube for the rear tyres and possibly for the front castors as well as a bicycle pump.

## 7. Troubleshooting

### The lights are not lighting up on the joystick.

Possible causes	Solution
Fault with part of the power pack.	Count the number of lights flashing and contact your supplier.
Power pack was switched on when the joystick was not in neutral.	Switch off and switch on again.

### Joystick lights flashing.

Possible causes	Solution
The Light Drive is not engaged.	Engage(p.8).
The wheelchair breaks are on.	Take them off.
Power adjusted too low.	Increase power (p.10).

### Joystick lights coming on but the Light Drive is not working.

Possible causes	Solution
Battery not properly connected.	Pull out slightly and re connect.
Joystick cable not properly plugged in.	Check the connection .
Problem with the red connectors.	Check the condition of the connectors and the position of the contacts.
Battery problem.	See following section on batteries.

### Tyres wearing out quickly.

Possible causes	Solution
Bad quality tyres.	Replace with good quality tyres.
Tyres not well inflated.	Inflate to 5 bar (72 psi) pressure.
Insufficient pressure of the rollers on the tyres.	Adjust the pressure (p.18-20).

### Tyres wearing out on the inner side.

Possible causes	Solution
The roller cover is touching the tyre.	Contact your supplier.
Tyres incorrectly inserted.	Re insert the tyres.

### The chair is going in circles

Possible causes	Solution
One of the breaks is on.	Remove the break.
A motor is faulty.	Contact your supplier.



### **The Light Drive is making a noise.**

Possible causes	Solution
Part of the chair is touching a wheel.	Make a visual check that all is in its normal place.
One of the motors is faulty.	Contact your supplier.
One of the rollers is faulty.	Contact your supplier.
A roller protector is touching the wheel.	Contact your supplier and follow their instructions.

### **One of the telescopic handles won't stay in the engaged position.**

Possible causes	Solution
Ball and socket joint badly adjusted.	See the user's manual (p. 20).
The system is deformed due to bad handling or dropping.	Contact your supplier.

### **No power from the battery.**

Possible causes	Solution
Flat battery.	Recharge it.
Charger malfunction.	Contact your supplier.
Faulty connection.	Check all the connections.
Faulty fuse.	Change the fuse.
Battery is broken.	Contact your supplier. Battery replacement required.

## **After sales care**

The **Light Drive** was designed and built for reliability. If you have a problem, please see the section on troubleshooting. If none of the remedies offers a solution to your problem please get in touch with your distributor or alternatively call us on: **+33(0)3 80 96 51 25**

**WARNING:** All modifications are prohibited unless written authorisation is obtained from the manufacturer.

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