

# Electric Wheelchair Conversion Kit

## User's Guide



Golden Motor Technology Co., Ltd.




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## 1. Safety Guide












Sign	Explanation
	Indicates in case of misuse, personal injury or property damage may occur.
	Indicates mandatory (something that must be observed). The specific mandatory content is expressed in words or pictures near the sign.
	Indicates prohibition (things not allowed). The specific prohibited content is expressed in words or pictures near the sign.

This product is a DIY product. There may be some risks in the DIY process. Please be familiar with the following risks:



-  Understand whether the local law allows DIY wheelchairs, otherwise you may violate local laws or regulations.
-  Choose a wheelchair with frame load greater than 120KG.
-  It's forbidden to choose wheelchairs without anti-tip wheels.
-  Driving without practice is prohibited in places with many people or cars.
-  Please do not stick out your body during driving, otherwise it will affect the stability of driving and cause the wheelchair to overturn.
-  Do not try to operate and drive without professional explanation OR understanding of this manual to avoid danger.



-  Practice the wheelchair with a companion before first use.
-  Do not tilt the wheelchair to one side or lift the wheelchair when driving.
-  Park the wheelchair on a flat place.
-  Avoid using in bad weather.
-  Please avoid serpentine or rapid turning.
-  Do not use the wheelchair while charging.
-  Do not use or charge the wheelchair in a high temperature environment.
-  Disconnect the power supply when moving the wheelchair.
-  If an accident occurs during the use, immediately call the emergency hotline and seek help from professional medical personnel.
-  Make sure the screws are tightened, and check the tightness regularly to prevent them from loose after use, which may cause danger.
-  Make sure the cable is fixed on the frame with cable ties, prevent it from being pinched during folding and causing malfunction.

## Disclaimer

We will not be liable for the risks caused by not complying with above conditions.



## 2. Product Usage & Composition

**Product Usage:** for the disabled, the sick, the elderly and infirm who need to convert manual wheelchairs to electric wheelchairs.

**Composition:** motor, controller, joystick, etc.

Optional items: battery, charger, etc.

## 3. Main Specifications

Item	Specification
Motor	Brushless, Gearless
Controller	Sine Wave Control
Battery (optional)	LiFePO4
Charger (optional)	2A
Voltage	24V
Tire Diameter	8"
Rated Power	180W*2
Max Load	120kg



## 4. Parts List

No.	Item Name	Qty
①	Left Motor Wheel	1
②	Right Motor Wheel	1
③	Controller	1
④	Joystick	1
⑤	Battery & Charger (optional)	1
⑥	Motor Bracket	2
⑦	Joystick Stand	1
⑧	Plastic Cover	2
⑨	Cable Tie	10
⑩	Allen Wrench (5mm)	1
⑪	Allen Wrench (4mm)	1
⑫	Allen Wrench (3mm)	1
⑬	Screw (M12*65)	2
⑭	Hoop	2
⑮	Spacer (M12*24*2)	6
⑯	Fixing Bracket	1
⑰	Round Head Hexagon Socket Screw (M5*16)	2
⑱	Flat Head Hexagon Socket Screw (M5*16)	10
⑲	Bag for Battery & Controller	1
⑳	Flat Head Hexagon Socket Screw (M6*30)	2



## 5. Installation & Commissioning

### 1) Connect brackets to motors

Connect brackets ⑥ to motors ① ② with screws ⑱ (Figure 1, 2, 3)

Note: direction of brackets and brake handles should be like Figure 3.



Figure 1



Figure 2



Figure 3



### How to distinguish between left and right wheels?

**About original wheels:** when you sit on wheelchair, left wheel is on your left side, right wheel is on your right side. (Figure 4)

**About motor wheels:** there are labels on motor cables indicating left wheel and right wheel. (Figure 5)



Figure 4

Left



Right



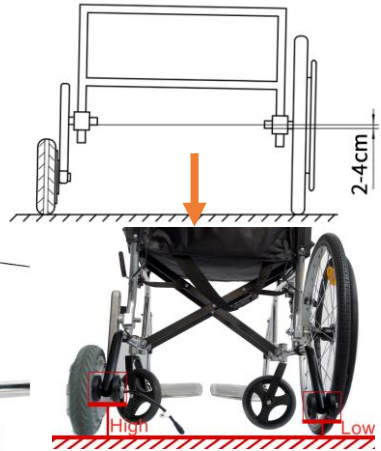
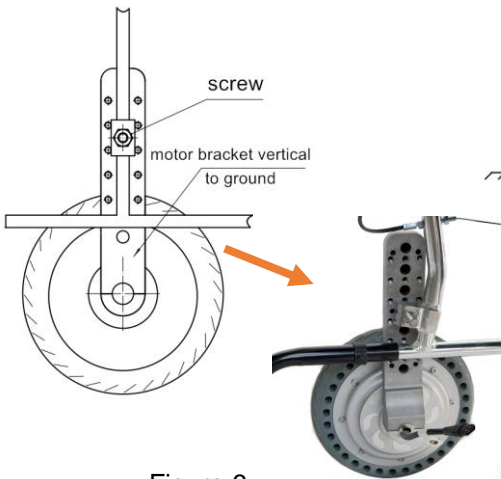
Figure 5



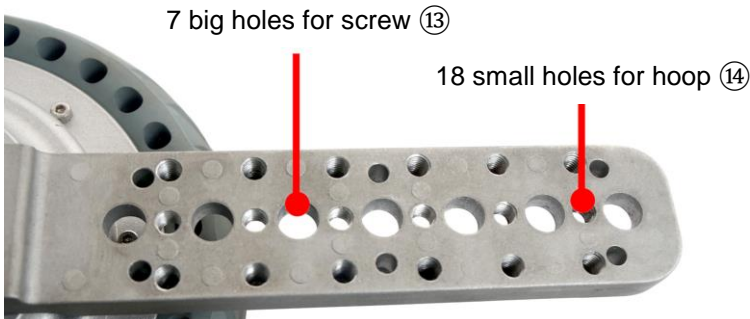
## 2) Install motors

>**Remove original wheel:** remove one of the rear wheels from manual wheelchair, either left or right. Take left wheel as an example below.

>**Select big hole:** put left motor bracket vertical to ground, compare it with rear wheel mounting hole of the wheelchair, select corresponding big hole on motor bracket (Figure 6), so after installation left side is 2~4cm higher than right side (Figure 7), insert screw ⑬ temporarily don't tighten the screw.



 **How to distinguish between big holes and small holes?**



>**Select small hole:** offset motor backwards about 3~5cm (Figure 8) to recover left and right sides of the wheelchair to level state, select the most suitable small hole on motor bracket and mark it.

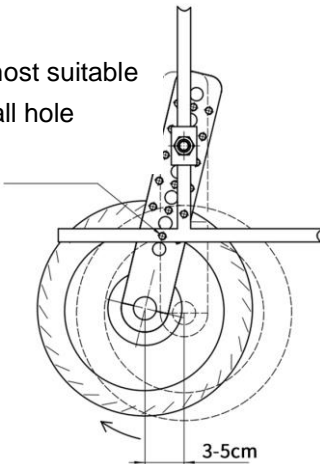


Figure 8



**How to choose the most suitable small hole?**

The most suitable small hole



The most suitable small hole should meet two conditions meantime:

1. The farthest away from the selected big hole (to maximize bearing capacity of motor bracket)
2. The closest to frame pipe (to ensure the hoop can be firmly tightened, both horizontal and vertical pipes can be used)

Figure 9

>**Mount motor bracket to wheelchair frame:** install screw ⑬ and hoop ⑭ on marked big and small holes, mount motor bracket to wheelchair frame, then tighten the screw and hoop, appropriate amount of spacers ⑮ can be added according to actual gap. (Figure 10)

>**Install plastic cover:** install plastic cover ⑧ on motor bracket.  
(Figure 11)

>**Install the other motor:** repeat above steps to install right motor wheel. (Figure 12)

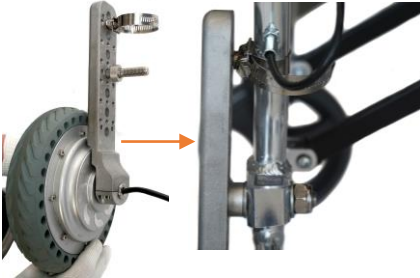


Figure 10



Figure 11



Figure 12

### 3) Install joystick

>Mount joystick ④ on joystick stand ⑦ with screws ⑰ (Figure 13)

>Mount fixing bracket ⑱ on frame pipe above front wheel or other suitable position with screws ⑳ (Figure 14)

>Mount joystick stand on fixing bracket, adjust the stand to a suitable height for hand operation then tighten it. (Figure 15)



Figure 13



Figure 14



Figure 15

## 4) Install bag for battery & controller

>Install bag ⑱ at a suitable position under seat, adjust the upper and lower straps to center and tighten the bag. (Figure 16)

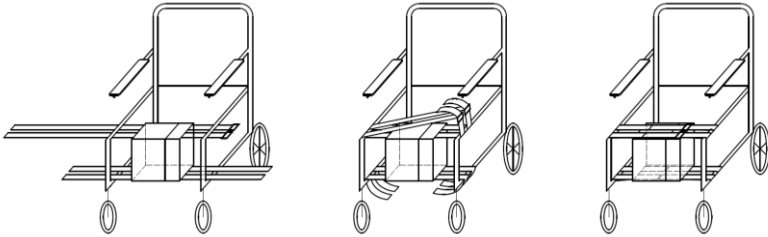


Figure 16

## 5) Install battery & controller

>Place battery ⑤ and controller ③ in the bag and connect. (Figure 17)

>Check labels on cables, connect motors to controller according to "L to L, R to R". (Figure 18)

>Connect joystick to controller. (Figure 19)

>Fix cable on frame with cable ties ⑲, no need to fix it tightly. (Figure 20)



Figure 17



Figure 18



Figure 19



Figure 20



### Why can't fix the cable too tight?



Most wheelchairs have folding function, if the fixing is too tight, the cable will be easily pulled when the wheelchair is folded, causing the cable to split or break.

## 6. Use Instructions

### Joystick Panel







	Acceleration	On/Off
	Speed Gear	Battery Indicator
	Deceleration	Horn



1. Avoid driving on steep slopes, sloping ground, high steps, ditches, etc.
2. Must drive forwards when going up and down slopes.
3. Max slope angle is 9°.
4. Max driving speed is 6km/h.



## Joystick Operation

1. **On/Off:** press  to turn on power, press it again to turn off power.
2. **Horn:** press  the horn to sound, release it to stop the sound.
3. **Acceleration:** press  the speed increases, the higher the gear, the faster the speed.
4. **Acceleration:** press  the speed decreases, the lower the gear, the slower the speed.
5. **Brake off by buttons:** when power is on and joystick is at origin position, press  and  meantime until hearing a beep, then the brakes are off, when the joystick is moved, the brakes will be on again.

## Driving Guide

1. Make sure brakes of both motors are on (brake handles are downwards) before driving. (Figure 21)
2. Sit on wheelchair, turn on power, then move joystick to the direction you'd like to go. (Figure 22)

When need to push wheelchair manually, please brake off firstly.

Method 1: refer to **Brake off by buttons** above.

Method 2: power off and lift up brake handles of both motors.

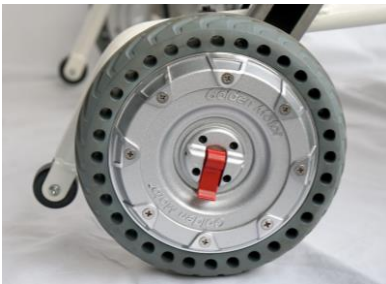


Figure 21



Figure 22



## 7. Transport & Storage

### >Transportation:

- 1) The product should be handled with care during transportation. Throwing, rolling and heavy pressure is not allowed.
- 2) Turn off the power during transportation.

### >Storage:

- 1) The product should be placed in dry and ventilated place.
- 2) The product should not be placed in the environment with high temperature or rapid temperature changes.
- 3) The product should be isolated from acid, alkali and other chemically corrosive items.

## 8. Maintenance & Troubleshooting





Tighten the screws again after first installation and use for a week, and check following parts once a month.

No.	Part	Checking Content
1	Motor	Whether the bracket is loose
		Whether the hoop is tight locked
		Whether the tires are worn
		Whether the brake is effective
2	Cable	Whether the connection part is loose or damaged
		Whether the cable skin is damaged
3	Controller & Joystick	Whether the connection part is loose or damaged
		Whether the button is effective
		Whether the LED light effective
		Whether the Joystick is sensitive

## Troubleshooting

### Comparison table of fault display

Joystick Panel			
Speed Gear LED (left)		Battery Indicator LED (right)	
L-LED5		R-LED5	
L-LED4		R-LED4	
L-LED3		R-LED3	
L-LED2		R-LED2	
L-LED1		R-LED1	

Part	Fault	Display	Solution
Brake	Left brake fault	L-LED4 flashes, a beep will occur when joystick is moved	Put left brake handle to engaged position (brake on)
	Right brake fault	R-LED4 flashes, a beep will occur when joystick is moved	Put right brake handle to engaged position (brake on)
Motor	Left motor fault	L-LED3 flashes, a beep will occur when joystick is moved	Reconnect left motor cable or replace left motor
	Right motor fault	R-LED3 flashes, a beep will occur when joystick is moved	Reconnect right motor cable or replace right motor





<b>Part</b>	<b>Fault</b>	<b>Display</b>	<b>Solution</b>
Joystick	Joystick fault	R-LED1 flashes, a beep will occur when joystick is moved	Reconnect joystick cable or replace the joystick
Controller	Controller fault	L-LED2 flashes, a beep will occur when joystick is moved	Reconnect all cables or replace the controller
	UART fault	L-LED1 flashes, a beep will occur when joystick is moved	
Battery	Battery under voltage	R-LED1 flashes	Recharge the battery or replace the battery



## 9. After-sales Service

Product No.	
Motor No.	
Controller No.	
Purchase Date	
Customer Name	
Phone No.	
Address	
Maintenance Records	

Please show this card when applying for after-sales service.



Following models are for reference

Before Conversion	After Conversion
 A standard manual wheelchair with a black seat and backrest, silver frame, and large rear wheels with handrims. It has a footrest and armrests.	 The same wheelchair converted into a three-wheeled model. It has a smaller front wheel and a larger rear wheel, with a handrim on the rear wheel. The seat and backrest are grey.
 A manual wheelchair with a red frame, black seat, and black backrest. It has a footrest and armrests.	 The red wheelchair converted into a three-wheeled model. It has a smaller front wheel and a larger rear wheel, with a handrim on the rear wheel. The seat and backrest are black.
 A manual wheelchair with a black seat and backrest, silver frame, and large rear wheels with handrims. It has a footrest and armrests.	 The same wheelchair converted into a three-wheeled model. It has a smaller front wheel and a larger rear wheel, with a handrim on the rear wheel. The seat and backrest are black.



Golden Motor Technology Co., Ltd.

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Golden Motor Technology Co., Ltd.  
Address: R&D Hub 5, Tian Xin Road,  
Changzhou, Jiangsu, China 213164  
Website: [www.goldenmotor.com](http://www.goldenmotor.com)  
Email: [sales@goldenmotor.com](mailto:sales@goldenmotor.com)  
Tel: +86 519 81004118