

FreedomChair
Folding Powered Chair Model T3

User Manual



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Warnings and Precautions

Please read this content before use

Limitations of the user

The user must be of sound mind and judgment, must not be unresponsive in their upper limbs, or who are unable to use the wheelchair as prescribed by a physician.

Warnings and Precautions to Observe

- To ensure the safe operation of your powered wheelchair and to ensure its longevity, turn off the power when it is not in use, and read and observe the following precautions.
- Do not operate the powered wheelchair without first reading the manual.
- The total weight of persons and items carried must not exceed the maximum permissible load (see nameplate).
- The maximum permissible slope cannot be exceeded.
- Do not go uphill or downhill at maximum speed or you risk rolling over and losing control.
- Don't drive on very slippery or soft surfaces.
- Do not drive on slopes without guardrails
- Do not drive on the highway.
- Do not swerve or drive sideways on ramps or risk rolling over.
- Reverse with caution on a ramp, or you're in danger of rolling over.
- Do not climb over the maximum permissible height.
- Don't pull cargo.
- Please use the powered wheelchair with your seat belt fastened.
- Keep your feet and hands on the pedals and handrails at all times when using the powered wheelchair.
- When you are new to using a powered wheelchair, please practice in an open area before using in more confined areas.
- Concentrate and don't be distracted while the powered wheelchair is moving.
- Please use the crosswalk when crossing the street.
- Please pay attention to the battery indicator when driving a powered wheelchair.
- Do not cross the road when the battery is low, to avoid the danger of running out of power in the middle of the road.
- If the powered wheelchair is not used for a long time, it should be folded and stored in a dry and ventilated place.
- The powered wheelchair should not be stored in a high temperature and humidity environment.

Chapter 1. Foreword

1.1 Copyright

- This publication, including all photographs and illustrations, is protected by international copy laws and all copyrights are owned by the manufacturer of the product.

1.2 Statements

- We reserve the right to revise the content of this document without notice.
- Some of the pictures in this instruction manual are schematics, so please refer to the actual product if there are any differences.

1.3 Manufacturers' guarantees

- Our company guarantees free maintenance and replacement of non-manipulated damaged parts during the warranty period.
- This warranty applies only to the range of conditions specified in the operating instructions.
- This warranty does not cover damage caused by external causes such as lightning strikes, earthquakes, theft, improper use or abuse, or alterations.
- In the event of a problem with a product, please notify your retailer promptly of the product model, serial number, date of purchase, and the specific problem.
- See Chapter 9. Product Warranty for warranty duration periods

1.4 Cautions

To ensure the safety and long-term stability of the product, please read this manual carefully before use to fully understand its function, operation and maintenance.

Improper handling or failure of the user to follow the manufacturer's or its agent's instructions may result in product damage or even personal injury.

1.5 Basic product information

- Product Name: FreedomChair T3
- Model specifications: see section "Main technical specifications" of this instruction manual
- After-sales service information: see section 7 of this instruction manual

Chapter 2. Overview

2.1 Product Features and principles

- Using 2 powerful DC brushless motors, which have the advantage of low noise, high torque, energy saving and high efficiency, maintenance free and long life.
- Using lithium-ion battery energy, which has the advantages of high energy density and long life.
- Using a brushless special intelligent controller, which has the advantages of easy and free operation and accurate positioning.
- Adopting the foldable multi-link frame structure (patented), which has the advantages of fast folding, safety and reliability, easy operation, and compact portability.

2.2 Scope of application

Mobility for the disabled, the sick and the elderly with mobility problems

2.3 Main technical specifications

- Maximum weight capacity: 266lbs/120kg
- Maximum speed: Up to 4.06mph/6.5kmph
- Ground clearance: 2.36"/6cm
- Turning radius: 36.46"/85cm
- Overall length: 39.17"/99.5cm
- Overall width: 24.41"/62cm
- Overall height: 36.46"/92.6cm
- Folding length: 30.71"/78cm
- Folding width: 12.60"/32cm
- Folding height: 28.19"/71.6cm
- Drive wheels: 12" Rubber tire
- Front wheels: 8" PU tire
- Drive train: Two-motor, rear-wheel drive
- Braking system: electromagnetic brakes
- Standard electronics: 40 amp, brushless motor controller
- Battery charger: Off-board, 2 amp
- Per charge range: Up to 9.37 miles/15km
- Battery size: 24V 10Ah
- Battery weight: 3.55lbs/1.6kg
- Base weight: 52.8 lbs/24kg
- Seat dimensions: 18"X17"/45cmX43cm

2.4. Main structure

This product is mainly composed of frame, wheels, seat, armrest, battery, motor and controller, powered by lithium battery, the controller and 2 left and right brushless motors control the speed and direction of the wheelchair carriage, as shown below.



Chapter 3. Preparation of the chair

3.1 Wheelchair unfolding

Pull the two sides of the seat apart (Figure 1) and press the seat cushion down firmly until flat, as shown in Figure 2.



Figure. 1



Figure. 2

3.2 Wheelchair folding

Hold the front and rear of the seat cushion by hand, as shown in Figure 3, then lift the seat cushion upward until the frame moves closer to the middle, as shown in Figure 4.



Figure. 3



Figure. 4

3.3 Installation and Removal of Anti-tipper wheel

There are two anti-tipper wheels installed under the left and right motors respectively. As shown in Figure 5, insert the anti-tipper wheel into the pipe, adjust the appropriate length and angle to make the wheel perpendicular to the ground, and then tighten the black locking screw as shown in Figure 6. to secure it. If you need to disassemble it, loosen the locking screw and pull it out to wheel assembly from the tube.



Figure. 5



Figure. 6

3.4 Installation and Adjustment of the Joystick

Fix the joystick onto the armrest with the quick clamp screw, as shown in Figure. 7, then connect the plug with one end of the connecting wire and tighten it, as shown in Figure. 8. **Note: When connecting the plug, gently rotate the two parts until they easily push together. Do not force the two parts of the plug together otherwise the internal pins will bend and the connectors will be damaged!**



Figure. 7



Figure. 8

3.5 Battery Installation and Replacement

Note: access to the batteries is easier if the chair is in the folded position. Insert the power plug into the battery and tighten it, as shown in Figure 9. Use the connecting cable to connect the second battery on the opposite side. If the battery needs to be replaced, loosen and pull out the plug, then swing the retaining arm with the spring outward. Lift the battery by hand, as shown in Figure 11.



Figure 9



Figure 10



Figure 11

3.6 Up and Down Adjustment of the Backrest and Folding of the Upper Backrest

Pull out the left and right handles at the lower end of the backrest, as shown in Figure. 12,. Adjust the backrest back and forth to a suitable angle. Ensure that the spring-loaded handles are securely back into position.

For the folding of the upper backrest, press the folding levers on each side with one hand and pull the upper backrest tube downward with the other hand, as shown in Figure. 13.



Figure12



Figure13

3.7 Armrest Flip Function

Depress the spring loaded pin at the lower end of the armrest, as shown in Figure. 14, and then lift the armrest upward, as shown in Figure. 15. If the armrest is to be fixed, the spring loaded pin will automatically pop out after the armrest is pressed downward into place. There is also a lower hole in the armrest tube that can be selected for fixing the armrest in a downward tilting position. This can be used as an alternative position for the armrest or when lowering them to clear a tabletop for example.



Figure. 14



Figure. 15

3.8 Footrest Flip Function

The footrest can be pulled up or down, as shown in Figure. 16.



Figure. 16



Figure. 17

3.9 Electric and Manual Function

When the red handle of the motor is pulled back, it is in the electric operation mode, and when it is pressed forward, it is in the manual pushing mode, as shown in Figure. 17. **Note: The handle must be pulled up in the electric mode, otherwise the controller will give an alarm and cannot start. In manual mode, the power supply should be turned off, otherwise the push resistance will be high.**

3.10 Use of Seat Belt

Press the red button on the safety belt with your hand to open the safety belt, as shown in Figure. 18. Adjust the appropriate length of the safety belt after sitting in the wheelchair, and buckle the safety belt, as shown in Figure. 19.



Figure. 18



Figure. 19

Chapter 4. Operating the Wheelchair

4.1 First use

After the preparatory work is completed, the wheelchair will be operated for the first time. Note: Users must turn off the power, have the electromagnetic brakes in the locked position (see section 3.9 Electric and Manual Function) and be accompanied before sitting firmly in the wheelchair, as shown in Figure 20.



Figure. 20



Figure. 21

4.2 Description of the joystick

As shown in Figure 22

- Directional Control Knob: Push the joystick knob in the direction you wish to travel. More pressure will increase speed. Release the joystick knob to stop.
- Power switch: press the Power switch button to turn the power on/off
- Speed Increase button: Press to increase the maximum speed
- Speed Decrease button: Press to decrease the maximum speed
- Horn: Press to alert others of your presence
- Speed Level indicator: All lights on indicate that the maximum speed has been set.
- Battery Level indicator: displays current battery power.



Figure 22

After the user is seated in the chair, turn on the power switch and push the joystick knob forward. To stop, simply release the joystick. Push the joystick knob in the direction you wish to travel. **Note: This process requires users to practice repeatedly before they can master it skillfully, as shown in Figure 21.**

Chapter 5. Battery Charging

Note: If the mobility scooter is not used for a long period of time, it should be charged every 3 months to avoid permanent damage to the battery.

Take the charger out of the bag, as shown in Figure 23 and connect the mains power lead to the charger.

5.1 Charging Method

BEFORE connecting the charger to the mains power, insert the charger's plug into the charging port under the joystick as shown in Figure 24. Now plug the charger into a mains power socket and turn on the power to start charging. Note: the charger will get hot during charging. It should be placed in a ventilated and dry place for charging, otherwise it may damage the charger.



Figure. 23



Figure. 24

5.2 Charger Indicator Light

When the charger indicator is amber, battery charging is taking place as shown in Figure 25. When the light turns green, the battery is fully charged. If the power button on the joystick is turned on, the battery level indicator lights on the joystick will cycle back and forth to show that charging is taking place. The chair cannot be operated when charging is in progress.



Figure. 25



Figure. 26

5.3 Automatic Charger Switch Off

When the batteries are fully charged, the charger unit will automatically turned itself off. If battery power is almost exhausted, in order to protect the battery from excessive discharge, the controller and the battery itself will automatically turn off the power. **Note: when the battery indicator shows a low level, please do not drive in hazardous areas such as crossing the road.**

Chapter 6. Maintenance

6.1 Routine Checks and Maintenance

- Periodically (weekly or monthly depending on the frequency of use) check the frame connection fixings such as screws, nuts, etc., for loosening, corrosion, etc.
- Periodically check the folding mechanism for resistance, wear, etc.
- Check tyres regularly to see if there is aging, cracking, wear and tear
- In case of exposure to rain or wet weather, wipe clean as soon as possible to avoid corrosion
- Wheelchairs should try to avoid high temperature weather exposure

Chapter 7. Storage and Transportation

7.1 Storage

Keep the wheelchair folded and on its wheels in a ventilated and dry place, as shown in Figure. 27. Note: If you do not use wheelchairs for a long time, you should charge the batteries every 3 months to avoid permanent damage to the battery.

7.2 Manouvering the chair

Fold the wheelchair and lift it by hand for short distances, as shown in Figure 28. Note: Do not pull the wires or joystick during handling, which may cause the wires to break.



Figure. 27



Figure. 28

7.3 Transportation in a vehicle

The wheelchair can be folded and placed in the trunk of the car, as shown in Figure. 29. Note: The temperature in the trunk of the car may exceed 50 °C in high temperature weather in summer. At this time, the wheelchair should be taken out in time, otherwise there is a risk of combustion.



Figure. 29



Figure. 30

7.4 Storage on public transport







When taking the chair on public transportation, all the batteries on the chair should be removed, as shown in Figure. 30. The wheelchair should be folded and packed for shipment, while the batteries should be carried with you. **Note: Protective measures should be taken when packing wheelchairs to avoid damage during consignment, and the batteries carried should avoid falling, impact, extrusion, etc.**

Chapter 8. Troubleshooting

8.1 Fault and Troubleshooting Methods

Serial Number	Fault	Exclusion Method
1	Press Power Switch but cannot power on	1. Check whether the controller is connected to the battery 2. Check whether the joystick and controller are connected
2	The battery cannot be charged	The battery is not connected to the controller The battery is full and no need to be charged There is external damage to the battery. Please contact the manufacturer to replace the battery.
3	Wheelchair speed is too low	The battery is short of power, please charge. The speed limit is too low, adjust the speed limit button.
4	Endurance mileage of wheelchair is insufficient	The battery is short of power, please charge. The battery is aging, please contact the manufacturer to replace the battery .
5	A front wheel shakes during running.	The bearing wear or damage, please contact the manufacturer to replace the bearing Screw is loose, please tighten the screw
6	The motor is too noisy	The gear is worn and please contact the manufacturer to replace the gear box. The bearing wears, please contact the manufacturer to replace the bearing
7	The startup speed indicator flashes	See 8.2 Fault warning lights for details

8.2 Fault warning lights

Speed Indicator	Failure Type	Cause of failure	Exclusion Method
10010 	Left Motor Brake Solenoid	Left Motor Solenoid Switch is not closed	Pull back the the red handle
		Left motor solenoid valve wiring is disconnected	Contact Manufacturer
		Left Motor Brake Solenoid or Controller Damaged	Contact Manufacturer
10001 	Right Motor Brake Solenoid Valve	Right Motor Solenoid Switch is not Closed	Pull back the the red handle
		Right motor solenoid valve wiring is disconnected	Contact Manufacturer
		Right Motor Brake Solenoid or Controller Damaged	Contact Manufacturer
10100 	Left Motor Hall	Left motor Hall wiring is faulty	Contact Manufacturer
		Left Motor Hall or Controller is Damaged	Contact Manufacturer
10011 	Right Motor Hall	Hall connection of right motor is disconnected	Contact Manufacturer
		Right Motor Hall or Controller is Damaged	Contact Manufacturer
00011 	Left motor overcurrent	Overcurrent Caused by Excessive Running Resistance of Left Motor	The system will resume automatically after the joystick is released.
		Motor or Controller is Damage	Contact Manufacturer
00001 	Right motor overcurrent	Overcurrent Caused by Excessive Running Resistance of Left Motor	The system will resume automatically after the joystick is released.
		Motor or Controller is Damage	Contact Manufacturer
00101 	Joystick Zero Point Fault	The joystick is not at zero point during startup self-inspection.	Switch on and off again
		Joystick or controller box failure	Contact Manufacturer
00110 	Joystick self-failure	Joystick or controller box failure	Contact Manufacturer
00010 	Joystick and controller box communication failure	The connection line between joystick and controller box is disconnected.	Verify that the connection is correct and reliable

Chapter 9. Product Warranty

9.1 Warranty period

Repair within the warranty period will require proof of purchase. Out-of-warranty repairs will be charged for and the customer will be responsible for shipping costs.

Warranty coverage	Warranty period	Note
Frame	2 years	Non-deliberate damage
Electric motor	1 year	Non-deliberate damage
Batteries	1 year	Non-deliberate damage
Chargers	1 year	Non-deliberate damage
Controllers	1 year	Non-deliberate damage
Wearable part	3 months	Non-deliberate damage of: Front and rear tyres, seat back pad, armrest surface, footrest pad

9.2 Warranty and Service record

User information	User Name		Phone Number	
	contact address			
Product information	Model Number		Product serial number	
	Date of purchase		Purchase voucher number	
Retailer information	Retailer Name		Retailer's Stamp	
	Phone Number			
Service date	Maintenance personnel	Maintenance records		

Chapter 10. Guidance and Manufacturer's Declaration

Below cables information are provided for EMC reference.

Cable	Max. cable length, Shielded/unshielded	Number	Cable classification
AC Power Line	1.5m Unshielded	1 Set	AC Power
DC Power Line	1.5m Unshielded	1 Set	DC Power

Important information regarding Electro Magnetic Compatibility (EMC)

This electrical medical equipment needs special precautions regarding EMC and put into service according to the EMC information provided in the user manual; The equipment conforms to this IEC 60601-1-2:2014 standard for both immunity and emissions. Nevertheless, special precautions need to be observed:

The equipment without ESSENTIAL PERFORMANCE

WARNING: Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally".

The use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

WARNING: Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the A06L/A08L, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result."

WARNING: If the use location is near (e.g. less than 1.5 km from) AM, FM or TV broadcast antennas, before using this equipment, it should be observed to verify that it is operating normally to assure that the equipment remains safe with regard to electromagnetic disturbances throughout the expected service life.

STATEMENT: For the purpose of its operation, the equipment has wireless communication function, it includes RF transmitter and receiver, 2.4GHz, Pulse modulation.

STATEMENT: The equipment is a large, permanently-installed system. According to chapter 8.6 of IEC 60601-1-2:2014, the test was only performed at some discrete frequencies.

a) An exemption has been used and that the equipment has not been tested for radiated RF immunity over the entire frequency range 80 MHz to 6 000 MHz;

b) WARNING: This equipment has been tested for radiated RF immunity only at selected frequencies, and use nearby of emitters at other frequencies could result in improper operation"; and

c) Following frequencies and modulations are used to test the immunity of the equipment.

Selected Frequency (MHz)	Emitter	Frequency Range	Modulation
103.7	Radio	Business radio band	FM
433.92	Remote controller	ISM frequency	FM
446	Walkie-talkie	walkie-talkie	FM
915	Mobile phone	GSM900	Pulse
2400	Wireless router	WIFI	Pulse
5000	Wireless router	WIFI	Pulse

STATEMENT: The equipment is designed compatible with high frequency surgical equipment; the condition includes working or standby in close proximity to high frequency surgical equipment.

When the AC input voltage is interrupted, the equipment will stop battery charging and if the power supply restored, it could be recovered automatically, this degradation could be accepted because it will not lead to unacceptable risks and it will not result in the loss of basic safety or essential performance

Following degradation caused by Electrostatic Discharge or Electrical fast transients/burst could be accepted because it will not lead to unacceptable risks and it will not result in the loss of basic safety or essential performance:

During all immunity tests, a digital tachometer was used to monitor the rotating speed of wheel and a clamp meter was used to monitor the output current of battery charger to verify the performance of EUT.

EMI Compliance Table (Table 1)

Table 1 - Emission

Phenomenon	Compliance	Electromagnetic environment
RF emissions	CISPR 11 Group 1, Class B	Home healthcare environment
Harmonic distortion	IEC 61000-3-2 Class A	Home healthcare environment
Voltage fluctuations and flicker	IEC 61000-3-3 Compliance	Home healthcare environment

EMS Compliance Table (Table 2-5)

Table 2 - Enclosure Port

Phenomenon	Basic EMC standard	Immunity test levels
		Home healthcare environment
Electrostatic Discharge	IEC 61000-4-2	±8 kV contact ±2kV, ±4kV, ±8kV, ±15kV air
Radiated RF EM field	IEC 61000-4-3	20V/m 26MHz-2.5GHz 80% AM at 1kHz 10V/m 80MHz-2.7GHz 80% AM at 1kHz

Proximity fields from RF wireless communications equipment	IEC 61000-4-3	Refer to table 3
Rated power frequency magnetic fields	IEC 61000-4-8	30A/m 50Hz or 60Hz

Table 3 – Proximity fields from RF wireless communications equipment

Test frequency (MHz)	Band (MHz)	Immunity test levels
		Home healthcare environment
385	380-390	Pulse modulation 18Hz, 27V/m
450	430-470	FM, ±5kHz deviation, 1kHz sine, 28V/m
710	704-787	Pulse modulation 217Hz, 9V/m
745		
780		
810	800-960	Pulse modulation 18Hz, 28V/m
870		
930		
1720	1700-1990	Pulse modulation 217Hz, 28V/m
1845		
1970		
2450	2400-2570	Pulse modulation 217Hz, 28V/m
5240	5100-5800	Pulse modulation 217Hz, 9V/m
5500		
5785		












Table 4 – Input a.c. power Port

Phenomenon	Basic EMC standard	Immunity test levels
		Home healthcare environment
Electrical fast transients/burst	IEC 61000-4-4	±2 kV 100kHz repetition frequency
Surges Line-to-line	IEC 61000-4-5	±0.5 kV, ±1 kV
Conducted disturbances induced by RF fields	IEC 61000-4-6	3V, 0.15MHz-80MHz 6V in ISM bands and amateur radio bands between 0.15MHz and 80MHz 80%AM at 1kHz
Voltage dips	IEC 61000-4-11	0% U _r ; 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0% U _r ; 1 cycle and 70% U _r ; 25/30 cycles Single phase: at 0°
Voltage interruptions	IEC 61000-4-11	0% U _r ; 250/300 cycles

Table 5 – Signal input/output parts Port

Phenomenon	Basic EMC standard	Immunity test levels
		Home healthcare environment
Conducted disturbances induced by RF fields	IEC 61000-4-6	3V, 0.15MHz-80MHz 6V in ISM bands and amateur radio bands between 0.15MHz and 80MHz 80%AM at 1kHz

Chapter 11. Labels, Packing Logo Design

Symbol	Introductions	Symbol	Introductions
	Batch Code		Catalogue number
	Warnings and Precautions		non-sterile
	medical device		Manufacture Date
	Consult instructions for use		Keep dry
	Manufacturer Name Address		Name and Address of European Union Representative
	CE Symbol		

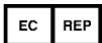
Chapter 12. Representatives

12.1 Manufacturer



Company: Kunshan Aoshida Electric Technology Co., Ltd.
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 Website: www.freedomchair.com

12.2 European Authorized Representative



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