



MOVE MORE, LIVE MORE.

MoonwalkersTM/ Moonwalkers AeroTM

SAFETY, REGULATIONS, TECHNICAL SPECIFICATIONS MANUAL

Unlock the full potential of your Moonwalkers.
Download the Shift App.



1. General Safety

Shift Robotics views all aspects of safety as paramount. This Safety Manual and our other product literature and videos provide warnings, cautions, notes, and general tips to convey clear and consistent safety messaging to help you avoid physical injury or damage to your Moonwalkers. Please read, understand and follow all instructions and safety warnings provided in this manual before using your Moonwalkers. If you do not understand any of the instructions and safety warnings provided, before using your Moonwalkers, please contact Shift Robotics Support by going to www.shiftrobotics.io/support, or emailing us at support@shiftrobotics.io.

While building the future of mobility, we cannot predict or account for all user behaviors or hazards that may exist, and therefore cannot warn against all of them. This is where you come in. For your safety and to help build the future of this new form of mobility, it is important that you always use your intuition and common sense to avoid physical injury or damage to your Moonwalkers.



WARNING:

Read, understand, and follow all instructions and safety warnings in this manual and other product literature and videos.

Failure to follow all instructions and safety warnings could result in serious injury or death.

Shift Robotics uses the following safety symbols and signal words throughout this manual and in other product literature. Your safety is involved when these words and symbols are used. Make sure you understand their meaning before reading the manual.



WARNING Warns against actions that can cause serious injury or death.



CAUTION Warns against actions that can cause minor to moderate injury.



TIP These are important to know and should be followed.

2. Moonwalking Safely

Do not use without reading this manual

No matter how long you have been walking, you haven't been Moonwalking for as long. Like any new activity, Moonwalking has inherent risks that can be reduced if you follow the following instructions and warnings. Shift Robotics is not responsible for any injuries or damage caused by a user's inexperience or failure to follow the instructions provided.



WARNING - Whenever you utilize Moonwalkers, you risk death or serious injury from a loss of control, collisions, and falls. To ride safely, you must read and follow all instructions and warnings in the Safety Manual.



Do not attempt slopes greater than 10 degrees. Only go down slopes that you could come to a safe stop in the event of power loss.



WARNING- Risk of Fire - No User Serviceable Internal Parts - Do not tamper with or otherwise modify your Moonwalkers.



ADVERTISSEMENT - Risque d'incendie -Aucune des piece ne peut etre reparee par l'utilisateur



WARNING - Risk of Electric Shock - No user-serviceable internal parts. Tampering with the motor, battery, or removing the electronics enclosure(s) will void your warranty.

Moonwalking Safely - Continued

Learn the Basics First:

Just as you learned to walk a few years ago, you will need to practice Moonwalking as a new skill. We recommend:

1. **Do Not Operate in Traffic or Areas with Poor Visibility:** Using your Moonwalkers in high-traffic areas or in areas or times with poor visibility increases the risk of collisions with vehicles, people, and fixed objects. Avoid using your Moonwalkers in high traffic or poor visibility situations whenever possible.
2. **Avoid Steep Slopes and Other Similar Terrain:** Do not operate in areas or on slopes where you cannot safely control unpowered roller skates. While multiple layers of safety exist on Moonwalkers, situations may exist where you may need to rely on manual stopping or slowing down.
3. **Slow Down Around Pedestrians and Pass with Care:** Even when you become proficient using your Moonwalkers, pedestrian behavior can be unpredictable, especially as pedestrians encounter a new form of mobility like Moonwalkers. For your safety and the safety of others, always slow down around pedestrians and pass with care. In addition, like running or riding a bike, higher speeds require longer stopping distances. While our control algorithm is highly adaptive and safe, one must not follow or operate too close to obstacles, vehicles, or pedestrians. Also, when operating in new environments, slow down and be alert.
4. **Avoid Water, Ice, and Other Slippery Terrain:** While Moonwalkers are engineered to operate in the urban environment, do not Moonwalk on wet or icy pavement or other slippery terrains such as sand and gravel. Traction is reduced in these environments and can lead to serious injury or death. These conditions can also damage your Moonwalkers, which damage will not be covered by your warranty.

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5. Follow Local Laws and Regulations, and Be Respectful: Always comply with local laws and regulations in public spaces. We, as Moonwalkers, must be good stewards of the brand to ensure the adoption of the technology to better use our shared public spaces and reduce urban congestion. Always be respectful of those around you and the environment.
 6. Take Care of Your Moonwalkers: Your Moonwalkers were designed to be used and enjoyed for a long time. They are durable and have survived countless hours of testing; however, like any product, the life of your Moonwalkers will be prolonged through proper care and maintenance. Abusing your Moonwalkers by jumping off of curbs, steps, or other obstacles will reduce the operational life of the Moonwalkers. Similarly, throwing or tossing your Moonwalkers to the ground or leaving them loose in your car, where they can be damaged in hard acceleration or deceleration events, can shorten the life of your Moonwalkers. Such activities will not be covered by your warranty.
 7. Your Moonwalkers can be used by children aged from 15 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children should be supervised to ensure that they do not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
 8. The Moonwalkers must only be supplied at safety extra low voltage corresponding to the marking on the appliance.
 9. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

3. Get Moonwalking

Unlock the full potential of your
Moonwalkers.
Download the Shift App.



The time has arrived for you to begin Moonwalking.

When you first learn to Moonwalk, we recommend you find a large, flat paved area without traffic or other pedestrians. Take your time to get the feel of your new Moonwalkers. It often takes 30 minutes to an hour to get comfortable with your Moonwalkers.

With the Moonwalkers in Shift Mode (GREEN light illuminated) proceed to walk normally. One step after another. When walking, focus on stepping smoothly, heel to toe.

Try not to drag your heels. As you walk, you will feel the propulsion of the shoes.

To Moonwalk faster, walk faster and increase your stride. This increase stride length signals the controller to increase speed.

To maintain speed, keep Moonwalking as you are.

To slow down take shorter steps and reduce your pace.

To rapidly stop, put one foot in front of the other and stop moving. The shoes will come to a stop.

A few things to remember

Charge.

Before using your moonwalkers make sure they are charged.

Connect the charger to an AC power supply and then connect the USB-C cables to both Moonwalkers, hidden beneath the protective cover on the heel.

The Moonwalkers will illuminate blinking GREEN when charging, turning solid GREEN when fully charged

Power up.

Hold the buttons on the back of the shoes for 3 seconds. The shoe status lights will enter a WHITE running pattern. The Moonwalkers will begin to communicate with each other, and the WHITE light will turn solid when they are connected and laid flat on the ground. The wheels are now locked and will not roll anywhere. You can now place your feet on the shoes and adjust the straps.

Put them on.

Just as you put on your regular shoes, do one at a time.

1. For your first use, loosen the heel strap completely and unclip the magnetic buckles at the toe and forefoot locations.
 2. Place your foot on the Moonwalker and align the ball of your foot with the hinge line near the Shift logo on the grip surface.
 3. Adjust the heel strap to be snug around your heel.
 4. Connect the magnetic buckle of the forefoot strap and tighten the strap.
 5. Connect the magnetic buckle to the toe strap and tighten it.
 6. Repeat for the other shoe.
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Next page for more.

Activate

1. **With both shoes secured, and powered on, they will connect and communicate with each other via Bluetooth to synchronize the movement between the shoes.** Stand normally, and the shoes are currently in Lock Mode. You can use this mode to traverse steps, obstacles, or crowds. We recommend walking around in this mode to become familiar with the extra size and weight of the Moonwalkers before moving to the next step.
 2. **To activate, raise your right heel in the air with your toe remaining in contact with the ground, and then swing your heel clockwise towards your left leg.** The status indicator light will turn from WHITE to GREEN, indicating that the shoes are in Shift Mode.
 3. **Bluetooth connection may be extended to a mobile device for Moonwalkers configuration. Please download the Shift Robotics App from App Store or Google Play Store and follow in-app instructions.**
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Start Moonwalking.

With the Moonwalkers in Shift Mode (GREEN light illuminated) proceed to walk normally. One step after another. When walking, focus on stepping smoothly, heel to toe, heel to toe. Try not to drag your heels. As you walk, you will feel the propulsion of the shoes. To Moonwalk faster, walk faster and increase the force you push off with the toe/ball of your foot. This increase in force signals the controller to increase speed.

 **WARNING** - Always Wear A Helmet - Always wear an ASTM, CPSC, and/or CE certified Helmet until you master all skills necessary to safely use your Moonwalkers, including being able to stop quickly or in an emergency, comfortably go up and down hills and stairs, make sharp turns, and can operate comfortably at top speed. If you allow others to use your Moonwalkers, ensure such users always wear a certified Helmet and knee pads.

 **WARNING** - Not intended for use at elevations greater than 2000m/6561 ft due to modifications of the dielectric and cooling capacity properties of air.

4. Moonwalking tips:

- * Just as you need to break in a pair of high-quality shoes, you should do the same with Moonwalkers. We recommend wearing these around your neighborhood and gradually increasing the time you Moonwalk.
- * It may take a week or two to adjust to walking with additional height and weight from the shoes. It may feel like a bit of a workout at first as your muscles adapt to the extra weight.
- * Move your legs at your normal walking pace, and keep your knees flexing as needed as if you are not wearing the shoes.
- * Walk with a forward lean
- * To speed up, start pushing off harder with the balls of your feet and take longer strides
- * To slow down take shorter steps and reduce your pace
- * When going down slopes, the Moonwalkers will limit your speed for safety
- * Moonwalking for an extended period can increase the internal temperature of the Moonwalkers above 122°F/50°C. When this happens, your speed will be reduced, and after some time, the shoes will stop with the status indicator lights flashing their respective code (see section 5 understanding your Moonwalkers status indicators). Allow your Moonwalkers to cool by bringing them inside, and you will be ready to walk again.
- * Moonwalkers are capable of working in colder climates. They, however, should not be stored in the cold. If the internal temperature of your Moonwalkers is too cold, they should be brought indoors and warmed up to 50°F/10°C, and they will be ready to go.

5. Technical Specifications

	Item	Shift Moonwalkers/Moonwalkers Aero
Dimensions	Single Moonwalker Size (LxWxH)	328 x 157 x 128mm
Weight	Single Moonwalker Weight	5.3 lbs (2.40 kg)
	Single Moonwalker Aero Weight	4.3 lbs (1.95 kg)
Rider Requirements	Maximum Payload	220 lbs (100kg)
	Age	15 (adult supervision is required)
	Recommended User Shoe Size	US Mens 9 - 12 (EU 42-45), US Women's 10.5 -13.5 (Moonwalkers) US Mens 6 - 12 (EU 39-45), US Women's 7.5 - 13.5 (Moonwalkers Aero)
Moonwalker Parameters	Maximum Speed	7 mph (11.3 km/h)
	Typical Range *	6.3 miles (10 km)
	Maximum Grade	15% or <10 degrees
	Traversable Terrain	Standard urban sidewalks and paved surfaces. Hard surfaces (concrete, asphalt, etc) free of major cracks and bumps. Not for use on gravel, dirt, grass, etc.
	Rated Voltage	DC20V
	Rated Current	3A(Ref)
	Operating Temperature	32-86°F (0-30°C)
	Storage Temperature	50-60°F (10-15°C)
	IP Rating	IP54
	Compliance	FCC / UL2272 / POP / CP65 (Pb+phthalates+BPA) / TSCA
	Bluetooth frequency	2402-2480 MHz. Maximum RF output power: 1.34dBm (1.361mW)
Battery Pack	Chemistry	Lithium Ion
	Charging Temperature	41-113°F (5-45°C)
	Rated Voltage	21.6V 3Ah, 64.8Wh
	Nominal Capacity/ Nominal Capacity	3Ah, 64.8Wh
	Upper limit of charging voltage	DC 25.2V
	End-of-discharge voltage	DC 16.8V
	Batter Management System	Over voltage, under-voltage, short circuit, and overheating protetction
Motor	Max Instantaneous Power	300W
Charger (Recommend)	Model	DSA-1202PDA FUS
	Manufacturer	DEE VAN ENTERPRISE CO., LTD
	Output Power	60W + 60W
	Input Voltage	100-240 Vac ~ 50/60Hz
	Input Current	1.6A
	Output voltage (max)	DC 20V
	Output current (max)	3A
	Operating Humidity	<=75% RH
	Compliance	FCC/EN60335/EN62368/EN61558/UL62368

6. Understanding your Moonwalkers Status Indicator Lights

Operational LEDs	
Mode	Light Description
Without USB cable plugged in	
Startup	Running WHITE
Lock Mode	Solid WHITE
Shift Mode (Full Battery)	Solid GREEN
Shift Mode(< 50% Battery)	Blinking GREEN
Safe Mode (Reduced Performance)	Solid YELLOW
Training Mode	Solid MAGENTA
Calibration Mode (Progressing)	Blinking CYAN
Calibration Mode (Complete)	Solid CYAN
With USB cable plugged in	
Battery Charging	Blinking GREEN
Battery Fully Charged	Solid GREEN
OTA Mode (Software upgrade)	Blinking BLUE
Factory Mode	Blinking RED
Error LEDs	
Mode	# of fast blinks in RED
Bad wireless connection	1
Bad charger	2
Battery Low	3
Battery temperature out of range	4
Motor overcurrent	5
Motor overvoltage	6
Motor temperature out of range	7
Bad motor hall sensors	8
Bad brake resistor	9
Bad electronics	10
Bad motor controller	11
Bad calibration	12
Others	13

✱ For the latest information or updates and changes that may effect the status indicator states listed above please visit our website.

⚠ To avoid injury, do not operate Moonwalkers when error codes are flashing.

*Safe Mode: Moonwalkers' top speed and acceleration are significantly reduced in this mode as the device are reaching their internal limits. You should plan to switch off the Moonwalkers wherever safe.

Additional Warnings

- ⚠ Do not Moonwalk with high heels or open-toed shoes.
- ⚠ Do not traverse large gaps, cracks, potholes, or puddles in Moonwalkers.
- ⚠ Do not walk on public roadways. Obey all local traffic rules and regulations.
- ⚠ Do not use Moonwalkers when the ambient temperature is outside of the range of 32-104°F (0-40°C). Doing so could cause personal injury or property damage due to slips or falls.

7. Maintaining your Moonwalkers

Regular Care

Prolonged Exposure to UV Rays, Rain, and the Elements May Damage the Enclosure Materials. Store inside when not in use. Do not expose to temperatures outside the specified range in the Technical Specifications. Do not keep the charger connected for multiple days. To store for longer periods, ensure the battery is charged between 60-80% and stored in a cool, dry environment.

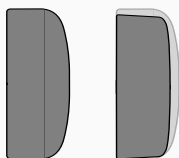
Cleaning your Moonwalkers

Make sure your Moonwalkers are powered off, the charging plug is disconnected, and the rubber cap on the charger port is secured before cleaning. To clean your Moonwalkers, refrain from spraying them with water. Instead, use a damp cloth to wipe away dirt. Check the magnetic buckles for debris buildup around the magnetic area, and wipe any debris away with a clean, damp cloth.

Only use water to dampen the cloth. A solvent can degrade the appearance of your Moonwalkers.

Inspect your Moonwalkers

Periodically check the appearance of the wheels and the tightness of the fasteners that attach the wheels to the driveshafts. Ensure that the fasteners are securely tightened before each use. You can expect the rearmost wheels to wear the fastest. When they lose their rounded edge and become more square, it is time for wheel replacement. Full instructions are on our website.



8. SHIFT ROBOTICS LIMITED WARRANTY

Shift Robotics gives a LIMITED WARRANTY for the period of time(s) stated herein, subject to certain limitations, on your new Moonwalkers against defects in material or workmanship when properly used, maintained, and stored in accordance with the recommendations set forth by Shift Robotics, including in the Shift Robotics owner's manual. Shift Robotics gives a ONE (1) YEAR limited warranty for use of your new Moonwalkers against defects in material or workmanship on all components of the Moonwalkers, except for the following identified parts: gearbox, wheels, battery pack, motor, straps, for which a SIX (6) MONTH limited warranty applies.

The warranty is transferable to the next purchaser of your Moonwalkers prior to expiration of the warranty period, but any such transfer will not extend the original warranty term. The transfer of the warranty shall be registered with Shift Robotics by following the instructions at: <https://shiftrobotics.io/pages/register>

Shift Robotics liability for any defects in material or workmanship with respect to your new Moonwalkers shall be limited, at Shift Robotics option to: (1) Repairing the product by means of Customer Support or by providing service at no charge for parts or labor; (2) Replacing the product with a comparable product which may be new or refurbished; or (3) Refunding the original amount paid for the product less a reasonable allowance for usage, upon its return.

The limited warranty periods begins upon delivery of the Moonwalkers to the original customer.

WARRANTY COVERAGE AND LIMITATIONS

Limitations of Warranties and Remedies

Moonwalkers are designed to provide years of reliable use when used, maintained and stored in accordance with Shift Robotics's instructions and recommendations. However, the potential for misuse or unapproved modifications or alterations to your Moonwalkers exists.

This limited warranty shall not apply to any Moonwalkers that have been repaired, altered, or modified in a way so as in Shift Robotics's judgment to adversely affect their operation, performance, or durability. The limited warranty shall not apply to any Moonwalkers which have been subject to misuse, abuse, nor to any Moonwalkers not used in accordance with Shift Robotics's instructions. In addition, the limited warranty does not provide coverage for.

- Normal wear or maintenance items, or normal deterioration;
- Routine maintenance and adjustments;
- Water damage;
- The warranty registration is inconsistent with the product itself.
- Damage caused by abuse, misuse, or use inconsistent with recommended use as set out in the Owner's Manual;
- Damage has been caused by jumping off of curbs, steps, or other obstacles with Moonwalkers.
- Damage has been caused by accidents or human errors, such as breakage caused by rusting in a very wet environment.
- Damage caused by theft, vandalism, fire, or any act of God;
- Damage caused by removal of parts, improper service, repair and/or maintenance, modification or use of parts or accessories not manufactured or approved by Shift Robotics;
- Damage caused by overloading the Moonwalkers;

- Normal wear and tear of the wheels and plastic components.
- Damage caused by accidents, or other similar circumstances: and/or
- The barcode or serial number of the Moonwalkers has been altered or removed.
- Products purchased from an unauthorized reseller, including any online purchase other than directly from Shift Robotics, Inc. to the extent permitted by law.

EXCLUSIONS OF LIABILITY

EXCEPT AS OTHERWISE EXPRESSLY STATED HEREIN, SHIFT ROBOTICS MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND, EXPRESSED OR IMPLIED. **THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED FROM THIS LIMITED WARRANTY.** TO THE EXTENT THEY CANNOT BE DISCLAIMED, THE IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE LIFE OF THE EXPRESS WARRANTY. **THIS LIMITED WARRANTY ALSO EXCLUDES INCIDENTAL CONSEQUENTIAL AND SPECIAL DAMAGES.** THIS EXCLUSION OF CONSEQUENTIAL, INCIDENTAL AND SPECIAL DAMAGES IS INDEPENDENT FROM AND SHALL SURVIVE ANY FINDING THAT THE EXCLUSIVE REMEDY FAILED OF ITS ESSENTIAL PURPOSE. THE REMEDIES SET FORTH IN THIS WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON UNDER THIS WARRANTY. SHIFT ROBOTICS FURTHER DISCLAIMS ALL EXPRESS WARRANTIES. SOME STATES/PROVINCES DO NOT ALLOW FOR THE DISCLAIMERS, LIMITATIONS, AND EXCLUSIONS IDENTIFIED ABOVE AND, AS A RESULT, THEY MAY NOT APPLY TO YOU.

Upon purchase of the Moonwalkers, purchaser assumes all liability for all personal injury and property damage resulting from the handling, possession or use of the Moonwalkers.

No agent, employee or representative of Shift Robotics is authorized to bind Shift Robotics to any affirmation, representation or warranty regarding the Moonwalkers except as specifically contained in this limited warranty.

9. Certifications

This product has been tested and passed ANSI/CAN/UL-2272.

The battery complies with UN/DOT 38.3.

Federal Communications Commission (FCC) Compliance Statement for USA

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or

television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Hereby, Shift Robotics, Inc., declares that this Electric Shoes (Moonwalkers/Moonwalkers Aero) is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. The full test of the EU declaration of conformity is available at the following internet address:

www.shiftrobotics.io

10. Trademark, Patents, and Legal Statement



See shiftrobotics.io/patents for more information

11. Product and Battery Disposal Information

Batteries contain toxic substances. Do not dispose of in municipal waste. Instead, check local regulations for proper disposal methods.

To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of materials resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

If the product shows any signs of swelling, bulging, disfigurement, or damage, or is not holding a charge, immediately discontinue use and contact Shift Robotics Support by emailing us at support@shiftrobotics.io.



Contact

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