



StreetSmart[®]
Certified Segway Training

Important Information about Your Lithium-ion (Li-ion) Battery Packs

Safety Guidelines

Follow the instructions in this document carefully for your own safety, the safety of others, and to maximize battery life and performance.

Warning!

- Do not use the Battery Pack if the Battery Pack casing is broken or if a Battery Pack emits an unusual odor or excessive heat or leaks any substance. Avoid contact with any substance seeping from the Battery Pack.
- Keep out of reach of children and pets. Exposure to Battery Pack voltage could result in death or serious injury.
- Unplug or disconnect your Segway PT from AC power before removing or installing Battery Packs or performing any service. Never work on any part of your Segway PT when it is plugged into AC power. You risk serious bodily injury from electric shock as well as damage to your Segway PT.
- The cells within the Battery Packs contain toxic substances. Do not attempt to open Battery Packs. Do not insert any object into the Battery Packs or use any device to pry at the Battery Pack casing. If you insert an object into any of the Battery Packs' ports or openings you could suffer electric shock, injury, burns, or cause a fire. Attempting to open the Battery Pack casing will damage the casing and could release toxic and harmful substances, and will render the pack unusable.
- Observe and follow all safety information on the warning label found on the Battery Packs.
- Failure to charge the Battery Packs could result in permanent damage to them. Left unplugged, the Battery Packs could fully discharge over time, causing permanent damage.
- Use only charging devices approved by Segway and never attempt to bypass or override their charging protection circuits.
- Do not submerge the Battery Packs or powerbase in water. Do not use a power washer or high-pressure hose to clean a Segway PT. Avoid getting water into the charge port. Avoid exposing the Segway PT to heavy downpours or extended periods of heavy rain.
- As with all rechargeable batteries, do not charge near flammable materials.

Replace Battery Packs in Pairs

Whenever you replace a Battery Pack, consider replacing both Battery Packs. Replacing only one Battery Pack will not necessarily increase the performance or range of your Segway PT, because the Segway PT is designed to operate only at the level allowed by the lower-energy Battery Pack. Redundancy is a critical safety feature built into the Segway PT. Therefore, you should replace Battery Packs in pairs (except in the unusual situation where a Battery Pack is replaced because of damage or defect and the other Battery Pack is relatively new).

Lithium-ion Battery Pack Specifications

Charging Time	
before first use:	12 hours.
recharge from empty:	~8 hours
Temperature Ranges	
operating:	32°F to 122°F (0°C to 50°C)
charging:	50°F to 122°F (10°C to 50°C)
storage and transport:	-4°F to 122°F (-20°C to 50°C)
General	
capacity (Ah) and voltage:	5.2 Ah, 73.6 volts
dimensions:	14 x 7.5 x 3.2 in (35.7 x 19 x 8.2 cm)
battery pack weight (pair):	22.7 lbs (10.3 kg)

Pairing the Battery Packs

All Battery Packs perform best when they are paired and **remain in pairs** throughout the life of the battery. This is due to the redundancy built into the Battery Packs.

- Charge Battery Packs for at least 12 hours either on the Segway PT or by the off board charger.
- Label the Battery Packs such as 1a and 1b, 2a and 2b etc.
- When you switch out discharged batteries for fully charged ones, replace the depleted pair (1a and 1b) with a new pair (2a and 2b).
- Always charge the pair together on the same Segway PT or off board charger.

Installation and Removal Instructions

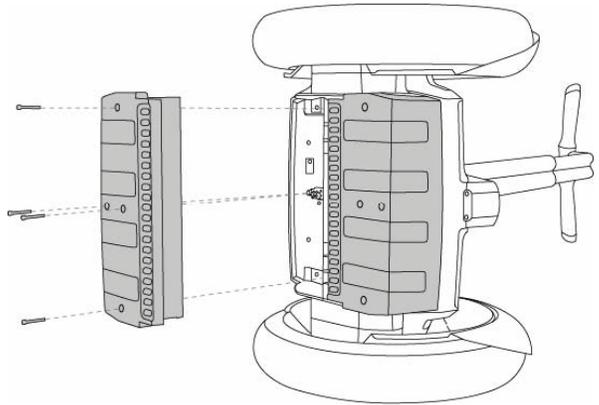
Unplug or disconnect your Segway PT from AC power before removing or installing Battery Packs or performing any service. It is hazardous to work on any part of your Segway PT when it is plugged into AC power. You risk bodily injury from electric shock as well as damage to your Segway PT.

Install and remove the Battery Packs in a dry location only.

Remove Battery Packs

Tool required: 3 mm hex wrench

1. Tip the Segway PT onto its side so that the outside of one of the wheels lays flat against a clean, smooth surface.
2. Use the 3 mm hex wrench to remove the fasteners (4 per Battery Pack).
3. Pull Battery Packs straight off chassis.



Install the Battery Packs

Tool required: 3 mm hex wrench

1. Seat Battery Packs on chassis with curved edge facing outside of chassis.
2. Thread in the fasteners and tighten with the 3 mm hex wrench (4 per Battery Pack).
3. Tighten the center most fastener first, followed by the outside center and then the two sides.
4. **To avoid risk of damage, do not use a power tool to thread in or tighten fasteners.**

Tightening Torque: 1.6 N-m (14 in-lb)

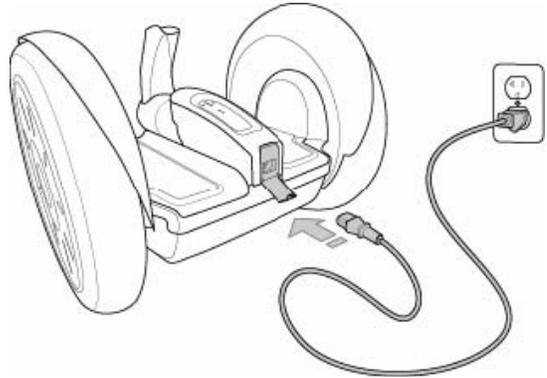
Charging Your Battery Packs

In order to maintain the best performance from your Segway Battery Packs, fully charge your Battery Packs for at least twelve hours, once a month, or once every twelve hours of operation – whichever comes first. Make sure that your Battery Packs are within the specified charging temperature range when charging. Even if you do not intend to immediately use your new Battery Packs, you should still charge them for at least twelve hours as soon as possible.

Warning!

Make sure the charge port is dry. Do not insert the plug if it is wet.

1. Plug one end of the power cord into the charge port.
2. Plug the other end of the power cord into a grounded AC outlet (100 V to 240 V; 50 Hz to 60 Hz). The power cord should be properly grounded.



Remember to charge the Battery Packs on your Segway PT whenever it is not in use. You do not need to worry about overcharging, so you should always plug your Segway PT into AC power when it is not in use. *Even if you will not be using your Segway PT for an extended period of time, you should leave it plugged into AC power.* Otherwise, the Battery Packs could fully discharge over time, causing them permanent damage. Do not store your Segway PT or Battery Packs for more than one month without fully charging the Battery Packs at least once every thirty days. This could cause permanent damage to the Battery Packs.

Charging times vary depending on the following:

- Amount of charge already stored in the batteries ~ the lower the battery charge level is, the longer it will take to complete the charging process.
- Temperature of the batteries ~ batteries that are too hot or too cold may not charge or may take much longer to charge. Batteries charge most efficiently when they are close to the center of the recommended charging temperature range.

Stage	Li-ion Battery Packs
Initial Test	Battery Pack immediately proceeds to "Fast Charge"
Fast Charge	Solid green LEDs. The majority of charging takes place during this stage. _____
Cell Balancing / Fully Charged	Green pulsing LEDs; the time between pulses gets longer as the cells come into balance · - - - - -

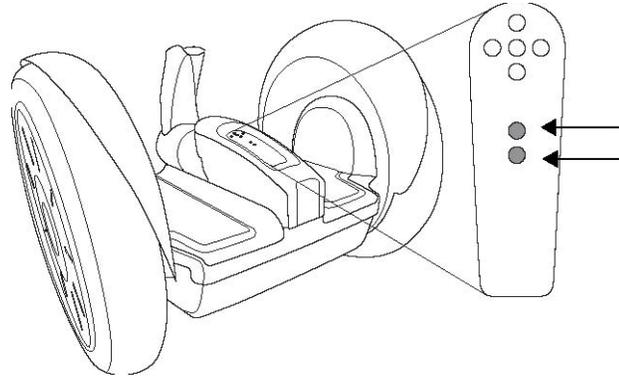
Charge Indicators

The Segway PT has two LED charging indicators that provide independent information regarding whether each Battery Pack is charging.

When a green LED is on, the respective battery pack is receiving a pulse of current. Slow pulse rates are slow charging rates, faster rates denote faster charging, and solid green is the maximum charge rate.

Verify that the two charge indicator lights on the console illuminate green to confirm the batteries are charging.

The top light represents the front battery, while the bottom light represents the rear battery.



Charging Failures

If a failure is detected during charging, all charging will stop to that battery pack. Depending on the nature of the failure, a solid red charging indicator light will be displayed. If one or both charge indicator lights is red or fails to illuminate, there is a charging problem with the corresponding battery. *Keep in mind, the charging indicators will be unlit for approximately 5 minutes after the Cell Balancing stage.*

- If the charge indicator lights are off, check to see if AC power is present and ensure the power cord is fully seated in the charge port.
- If the AC power is present and the indicator lights are red or off, unplug the power cord, then remove and reseat the battery packs.
- Make sure the Battery Packs are within the specified temperature range.

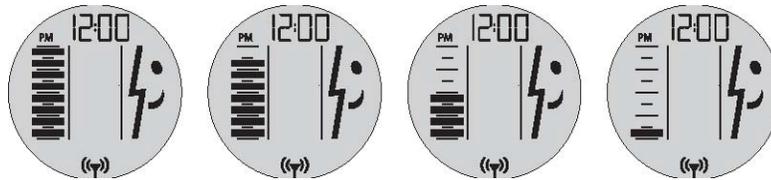
Regenerative Braking

The Segway PT has a regenerative braking system that charges the batteries when descending a hill or slowing down.

When you ride down a hill, you may notice an increase in the battery charge level. If your batteries are already completely full at the top of a hill, when you descend, you may feel the Speed Limiter engage to keep the Segway PT from overcharging its batteries.

Reading the Battery Charge Level Display

The horizontal bars on the left side of the InfoKey display indicate the levels of the charge in the Segway batteries.



Full Charge

Low Charge

Do not ride your Segway PT if there is inadequate charge in the batteries. Remember that protocol for all Public Safety organizations states that at 2 bars, batteries need to either be charged or swapped out for fully charged ones.

Recalibrating the Battery Charge Level Display

The display may be inaccurate after long periods of storage, or during initial use. To recalibrate the display:

1. Fully charge the batteries for 12 hours.
2. Power on the Segway PT, put in balance mode, and leave until the Segway battery charge is fully depleted and the Segway PT powers down. Make sure to do this in a safe location and secure the Segway PT by leaning it against a wall. Depleting your batteries from the bottom bar to empty could take several hours, depending on battery condition and the amount of charge remaining.
3. Fully charge the battery packs for a minimum of ten hours, after which the battery charge level display will be recalibrated.

How Temperature Affects Performance

The Batteries are usually significantly warmer than the air temperature due to heating that occurs as electricity is delivered from them (while riding) and to them (while charging.)

Riding in Hot or Cold Temperatures

The batteries will run at the highest efficiency when you operate them nearest the center of the recommended operating temperature range. If the batteries on your Segway PT become too hot or too cold while riding, then the Segway PT may activate a safety alert.

As with all batteries, less energy is available at low battery temperatures. You may not be able to travel the same distance when the batteries are cold, as when the batteries are nearer to room temperature.

Transporting and Shipping

Li-ion Battery Packs are regulated as "Hazardous Materials" by the U.S. Department of Transportation. In addition, if you are a certified shipper of hazardous materials and intend to ship by air the Segway PT with the Li-ion Battery Packs installed or Li-ion Battery Packs separately they must be shipped by Cargo Aircraft Only. For more information, contact the US Department of Transportation at: www.phmsa.dot.gov/hazmat/reg

Proper Disposal

Li-ion Battery Packs used in the Segway PT can be recycled. Recycle or dispose of in accordance with local environmental regulations. Do not place in fire or incinerate.