

# METROBOARD

**Congratulations on purchasing the high quality Metroboard Electric Skateboard! Please pay careful attention to the Safety Warnings below. With proper maintenance, battery care, and adherence to the safety warnings, the Metroboard will give you many years of thrill riding!**

## Safety Warnings

- Always wear a helmet and open finger (bike type) gloves. Shoulder, knee, and elbow protection are also recommended.
- Never rely on the electrical braking in an emergency situation. Always give yourself plenty of stopping distance in case the brakes do not stop you as quickly as you expect. In an emergency, you may be better off jumping off the board or making a sharp 90° turn than trying to use the electrical brakes to stop you.
- For safety reasons, this product is intended for riders 16 years and older. Not recommended for younger riders!
- **Never ride in wet weather or on wet surfaces, as this can create safety issues due to poor traction and also cause permanent (and expensive) damage the battery, electronics and motor!**
- Only ride on smooth, clean, dry, hard surfaces (not on gravelly roads or roads with big cracks or dirt roads)
- Never ride alongside traffic, unless there is a well-marked bike lane
- Only ride when alert and sober and **always survey the terrain ahead of you to avoid running over pebbles, twigs, or cracks in the road which can lock your wheels up and knock you off the board, resulting in serious injury!**
- Never stick your fingers or any objects near the rotating powered wheel and its transmission components such as the timing belt and pulleys
- Always lay the skateboard down gently, otherwise damage to the internal and external components may result and warranty will be voided
- Never perform any tricks that result in impact to the Metroboard, such as riding off of curbs, ollieing, riding in/off a skate ramp, riding in skate parks/pools, popping wheelies, etc. Doing so will void the warranty and may result in injury to the rider
- Always practice in a safe enclosed area (such as a school yard) away from traffic, when learning to ride the Metroboard. Practice first with the slower speeds, and only when you feel comfortable move up to the higher speeds. Exercise extreme caution when riding at the highest speed and using the braking to avoid crashing into anything and/or getting knocked off the board.
- **Be very careful when going down hills. Don't let yourself accumulate too much speed (more than 10 mph), before you hit the brakes. Never accelerate when going down hills. For safety reasons, it's best to go down hills (especially steep ones) slowly with the brakes applied to limit your speed.**
- Be aware of the terrain you are riding on, and try to minimize impact to the motor bracket. This impact is most likely to happen when going up a sidewalk ramp, where there is a lip that can catch the motor bracket. Be sensitive to these kinds of transitions, and if necessary pick up the board to avoid hitting the motor bracket. If the motor bracket gets hit too many times, the weld that connects it to the truck may fail, creating an obvious safety issue!
- **ALWAYS USE THE REMOTE WRIST STRAP TO AVOID DROPPING THE REMOTE IN THE MIDDLE OF THE RIDE. THE REMOTE HAS A RANGE OF UP TO 300 FT, SO YOU DON'T WANT TO DROP THE REMOTE HAVE IT LAND WITH THE TRIGGER PUSHED IN AND CONTINUE TO DRIVE YOUR BOARD INTO TRAFFIC!**
- **BEFORE PUTTING THE REMOTE IN YOUR BAG OR POCKET FOR STORAGE, BE SURE TO TURN OFF THE REMOTE SO THAT IF THE TRIGGER ACCIDENTALLY GETS PUSHED IT WON'T SEND YOUR BOARD FLYING INTO TRAFFIC!**

## Liability Release

*Rider agrees to follow all safety warnings to minimize the risk of injury or death. Rider acknowledges that even when following all the safety warnings, riding an Electric Skateboard is inherently dangerous and can result in serious injury or death due to falling off the board and/or collisions. By choosing to ride an Electric Skateboard, rider accepts this inherent safety risk, and agrees to hold harmless, the Metroboard manufacturer, Kef Tech, LLC, and all of its members. Kef Tech, LLC and any of its members will not be liable for any injury, death, or property damage that results from use of the Metroboard Electric Skateboard. Customer agrees to minimize the risk of injury or death by reading and adhering to all safety warnings in the instruction manual and using extreme caution while riding. Rider agrees to practice in a safe enclosed area away from traffic until he/she feels comfortable using the product. Check the local laws to ensure legal use of the product where you intend to ride.*

## FUNCTIONALITY OF THE METROBOARD MINI RC RF REMOTE:

- 1) **Trigger IN:** *Accelerate (Trigger is very sensitive so always pull in gently and be careful not to get knocked off the board).*
- 2) **Trigger OUT:** *Brake (if moving), Reverse (if at rest)*  
**(Trigger is very sensitive so always push out gently and be careful not to get knocked off the board)**  
Reverse (limited to about 3 mph), after coming to almost a complete stop. If you want to go in reverse, push the trigger out (applies brakes) till you come to almost a complete stop, then bring trigger back to neutral, then push out again to go in reverse. **Note that when you let go of the trigger after going in reverse you will feel a bit of a braking force so prepare your body for this so you don't get knocked off the board.**  
  
**BE VERY CAREFUL WHEN GOING DOWN HILLS. DON'T LET YOURSELF ACCUMULATE TOO MUCH SPEED (MORE THAN 10 MPH), BEFORE YOU HIT THE BRAKES. NEVER ACCELERATE WHEN GOING DOWN HILLS. FOR SAFETY REASONS, IT'S BEST TO GO DOWN HILLS (ESPECIALLY STEEP ONES) SLOWLY WITH THE BRAKES APPLIED TO LIMIT YOUR SPEED.**
- 3) **Steering Wheel LEFT:** *Bell.* Alert pedestrians or bikers that you want to pass, etc.
- 4) **Steering Wheel RIGHT:** *Battery Gauge*
  - 4 beeps rising in pitch: 75-100% battery capacity remaining
  - 3 beeps rising in pitch: 50-75% battery capacity remaining
  - 2 beeps rising in pitch: 25-50% battery capacity remaining
  - 1 beep: 0-25% battery capacity remaining
  - a rapid series of monotone beeps: battery nearly empty
  - a series of beeps decreasing in pitch that happen automatically (without holding the steering wheel RIGHT): Battery Completely drained, do not continue to use the acceleration trigger until you have recharged the battery. You can still ride the skateboard manually however by kick pushing as you would with a regular skateboard. You can also still use the brakes, since they actually charge the battery!**DO NOT TURN THE SKATEBOARD OFF IF YOU ARE PLANNING ON KICK PUSHING OR COASTING, SINCE THIS CAN PERMANENTLY DAMAGE THE ELECTRONICS!**

Note that when you turn the skateboard on, the skateboard will announce the current battery capacity. Also at turn on, if the battery is freshly charged, it will beep 5 times rising in pitch. Note that for the battery gauge to work properly, the charger should remain plugged in until just prior to riding. To ensure the battery gauge is properly "zeroed," you should always hear 5 beeps when you turn the skateboard on after a full charge (charging light is GREEN). If you have fully charged it, but it has been several days since you disconnected it from the charger, you may hear less than 5 beeps indicating the battery gauge has not been properly zeroed, and hence will not produce accurate results until the next time you fully charge. If this is the case, then you can replug in the charger for 5-10 minutes (you don't need to wait till the charging light turns GREEN), and then try turning on the skateboard. If you hear 5 beeps then the battery gauge has been properly zeroed, and will work accurately. Also, if you only have time to partially charge the batteries, the battery gauge will not produce accurate results (it may underestimate the remaining battery capacity for that ride, and may overestimate capacity for future rides), until the next time you fully charge the batteries.

### Restoring Default Battery Gauge Calibration

If you suspect that the battery gauge is not accurate (e.g., you hear a series of monotone beeps when turning the steering wheel right), you can reset the battery gauge to its default calibration. Do this by *holding the steering wheel right continuously*. First you will hear the regular battery gauge beeps repeatedly, then 1 beep (calibrated for 10 mile battery), then more battery gauge beeps, then 2 downward pitch beeps (calibrated for 15 mile battery), then more battery gauge beeps, then 3 downward beeps (calibrated for 20 mile battery), then more battery gauge beeps, then 4 downward beeps (calibrated for 40 mile battery). You should let go of the steering wheel once you have gotten past the number of downward

beeps corresponding to the battery pack size you have on your Metroboard. Now the battery gauge will be restored to its default calibration.

**Note that while the skateboard is producing the battery gauge beeps, the other functions such as acceleration and braking WILL NOT WORK, until the beeping is complete (as long as 2 seconds). Consequently, only check the battery gauge when you can safely wait at least 2 seconds before needing to accelerate or brake.**

- 5) **Steering Wheel LEFT + Trigger IN:** Change ACCEL Skill Level (1 thru 9) *and* put board in/out of inconspicuous mode (LED lights off and no turn on beeps).
- Note level 9 is the most powerful skill level.
  - On skill level 2, the top speed is limited to 50% of the full speed, *recommended for new or younger riders*
  - On skill level 1, the top speed is limited to 30% of the full speed, *recommended for new or younger riders*

***Do not adjust skill levels while moving on the skateboard!***

There are 9 user-adjustable Skill (Power) Levels that you can adjust based on your riding comfort. Level 1 is the easiest level, and level 9 is the most advanced level. The higher the level the more quickly you will accelerate and climb hills, when you pull the trigger in. The default level is 5 (intermediate) and recommended for most riders, but if this feels too strong or not strong enough then you can adjust the skill level. In order to adjust the level, first make sure the skateboard is turned on. *Hold the steering wheel left* (you will hear the bell beeps) and *then pull the trigger in* until you hear a number of beeps rising in pitch. The number of beeps, between 1 and 9, indicates the skill level. While you hold this position, the skill level will go down one level. After skill level 1, it will flip back up to level 9. Be sure to let go of the trigger prior to the beeps ending for the level you want, otherwise you may end up at the next lower level. For example, if you want to be at level 7, when you hear the 8 beeps (indicating level 8) complete, and then the beeps start again, let go of the trigger any time during (not after) the up count of the 7 beeps and this will ensure you are at level 7. Note that the skill level will be remembered by the skateboard even if you turn the skateboard off, so you don't need to set it every time you turn it on. Note that due to higher current loads on the system at levels above level 6, it is more likely that the mechanical circuit breaker (On/Off switch) will trip (turn off) in the middle of riding (especially when climbing hills). If this happens you will hear the declining pitch end of battery beeps (see Warning Beeps below), and you may need to wait a minute for the circuit breaker to cool before you can turn it on again. Also, if the circuit breaker trips while riding, the battery gauge may lose its calibration. If this happens, the battery gauge will inaccurately report remaining battery capacity until the next time you completely drain the battery. See section above *Restoring Default Battery Gauge Calibration* to make the battery gauge accurate again.

The other feature that you can adjust by **Steering Wheel LEFT + Trigger IN** is to change from *Normal Mode* to *Inconspicuous Mode*. In *Normal Mode*, the battery gauge will beep every time you turn the skateboard on, and the LEDs will constantly pulse. In *Inconspicuous Mode*, the battery gauge will not beep at turn on, and the LEDs will remain off. In order to change from *Normal Mode* to *Inconspicuous Mode*, *hold the steering wheel left and then pull the trigger in* until you see the pulsing skateboard lights turn off, then immediately let go of the joystick. You only have about a half second to react, so be sure to let go of the trigger right away once you see the lights turn off. Now you are in *Inconspicuous Mode*. This setting will be remembered even if you turn off the skateboard. To switch back to *Normal Mode*, you will need to *hold the steering wheel left and then pull the trigger in* again, and scroll down through the skill levels (following the instruction in the previous paragraph), until you return to the skill level you were at previously. For example, if you are at level 5 and in *Normal Mode* (lights ON), and you *hold the steering wheel left and then pull the trigger in* for a split second, you will change to level 5-*Inconspicuous Mode* (lights OFF). If you continue, you will drop down to level 4-Normal Mode (lights flashing) and you will hear the skill level beeps. Repeating this, you would next change to level 4-Inconspicuous Mode (lights off), followed by level 3-Normal Mode, followed by level 3-Inconspicuous Mode, etc. So if you wanted to return to level 5-Normal Mode, you would have to cycle through till you hear the 5 level beeps, and let go during the up count of the 5 beeps.

***Be careful to remember to turn the skateboard OFF when in inconspicuous mode and done riding, since you will have no visual indication of the skateboard being on, and if left this way for long periods, could slowly over discharge the battery causing permanent damage.***

## 6) Steering Wheel LEFT + Trigger OUT: Change BRAKE Skill Level (1 thru 4).

Note level 4 is the most powerful BRAKE level. Default is Level 2. Hold the *steering wheel left*, then *push the trigger out*.

The skill level will *increment* by one. After you get to skill level 4, it will flip over again back to level 1. Be sure to let go of the trigger prior to the beeps ending for the level you want, otherwise you may end up at the next higher level. This setting will be remembered even if the skateboard is turned off.

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**-BEFORE PUTTING THE REMOTE IN YOUR BAG OR POCKET FOR STORAGE, BE SURE TO TURN OFF THE REMOTE SO THAT IF THE TRIGGER ACCIDENTALLY GETS PUSHED IT WON'T SEND YOUR BOARD FLYING INTO TRAFFIC!**

-Note that the remote uses 2 AA batteries. Alkaline batteries or NiMH rechargeables are recommended and should last at least 50 hours of use. When remote batteries are low, the wireless connection will become unreliable, and you should immediately replace to avoid any safety issues. If there is a wireless connection issue due to the remote batteries being low or due to interference or a wireless glitch, the board will just coast (no brakes and no power).

-Note that there is an ON/OFF switch on the side of the remote. Don't forget to turn it off, when done riding, or it will drain the remote batteries.

-In the event that the board doesn't behave normally, e.g., motor stays on when the trigger is in neutral, then turn off the remote which should put the board in neutral (no accel and no brakes), and contact Metroboard for service.

## White Calibration Knobs

There are two white calibration knobs on the remote. The one on the *left* labeled "ST Trim" is used for adjusting the steering wheel neutral point. The one on the *right* labeled "TH Trim" is used for adjusting the trigger neutral point. These are factory adjusted, so in general you should not need to adjust further, but be careful not to accidentally bump/adjust them. However, see below if you need to adjust them.

### Steering Wheel Calibration

If the motor is moving (with the trigger in neutral), skip this step and come back to it after adjusting the trigger as shown in steps below.

a) Verify that you **don't hear any beeps** with the Steering Wheeling in **Neutral**.

-If in **Neutral** you are hearing the bell beeps (same as if you turned the steering wheel **LEFT**), then adjust the ST Trim Knob **CW** till you don't hear them anymore.

-If in **Neutral** you are hearing the battery gauge beeps (same as if you turned the steering wheel **RIGHT**), then adjust the ST Trim Knob **CCW** till you don't hear them anymore.

b) Rotate the Steering Wheel **Left** and Verify that you hear the **bell beeps**.

c) Rotate the Steering Wheel **Right** and Verify that you hear the **battery gauge beeps**.

### Trigger Calibration

With the Remote Trigger in the **Neutral** Position, the **skateboard drive wheel should not be moving in either direction**. If in **NEUTRAL** the wheel is moving forward (spinning CCW), then rotate the TH Trim Knob **CW** till it just stops moving. If the wheel is moving in reverse (spinning CW), then rotate the TH Trim Knob **CCW** till it just stops moving. Note that this adjustment is very sensitive to TH Trim Knob position.

With the Remote Trigger in the **FULL IN** Position, the **wheel should be rotating full speed in the CCW direction**. If the speed is oscillating a bit, then you should rotate the TH Trim Knob **CCW** till it remains stable at full speed. Once you have gotten to this stable point, let go of the trigger (to Neutral) and verify the wheel is not moving in either direction (including any motor "twitching"). If it is, go back to previous step.

## Mechanical Circuit Breaker

The On/Off (RESET/OFF) Switch on the Skateboard is also a mechanical/thermal circuit breaker, which may trip due to high current drain situations. If this happens, it will turn itself off automatically (and you may hear the end of battery beeps). Wait at least one minute for the circuit breaker to cool down, and then try turning it back on.

## Charging & Battery Care

Note that you should never charge the batteries in an environment above 100°F (38°C). Make sure the skateboard is *turned off*. Remove the dust cover from the charging jack. Plug the AC cord into the outlet (100-240VAC). Then plug the charger into the Skateboard. Charge time could be as long as 2.5 hours for the 10 mile pack, 3.5 hours for the 15 mile pack, 2.5 hours for the 20 mile pack (with fast charger), and 5 hours for the 40 mile pack (with fast charger). While charging, the LED will be RED. If charging ever takes more than 6 hours, you should disconnect the charger from the skateboard, as this may indicate a malfunction with either the battery or charger. When charging is complete, the LED will turn GREEN. If possible, keep the charger connected to the skateboard until ready to ride again or 24 hours whichever comes first to allow for a balance charge. It is best not to leave the charger connected for more than 24 hours after charging is done, since the balance charge generates heat inside the pack, which for long periods could possibly damage the pack. In fact, there's no benefit to keep the charger connected for more than 24 hours, since lithium-ion batteries have such a low self-discharge rate, and will behave as if freshly charged even weeks after being removed from the charger! When ready to ride, replace the dust cover onto the charging jack. If it has been over 2 weeks since you last charged it (and disconnected it from the charger), even if you have not ridden the board, you should charge it again just prior to riding. When storing for an extended period (over a month), charge the skateboard at least once a month for at least 8 hours to keep the batteries fully charged and to prevent any permanent capacity loss. Never store in a hot (above 78°F / 25°C) or humid environment (above 60% RH), as this can permanently damage the batteries and electronics!

Lithium-ion batteries have amazing performance compared to other battery technologies, but they need a bit of special care to ensure their long life. The most important thing is not to *over drain* them. Once you hear the declining pitch *end of battery* beeps, you should stop riding (you shouldn't turn the skateboard off and you shouldn't accelerate with the trigger; however, using the brakes is fine, since this actually charges the batteries!). **DO NOT TURN THE SKATEBOARD OFF IF YOU ARE PLANNING ON KICK PUSHING OR COASTING, SINCE THIS CAN PERMANENTLY DAMAGE THE ELECTRONICS!** Do not attempt to "milk" more capacity out of the batteries, since doing so can potentially cause permanent damage (reduced capacity and cycle life). Also, never leave the batteries in a fully discharged state for more than a few days. As a general rule you should charge after every use (after a full charge, you can disconnect the charger, if necessary). Finally, your lithium pack has an internal switch inside which will prevent over discharge. This is in addition to the skateboard electronics which also has a switch to prevent over discharge. If the skateboard detects over discharge first, you will be able to still ride the board and use the brakes, however, if the lithium pack detects it first, then it will be as if the main power switch has been turned off, and none of the skateboard functionality including the brakes will work until the skateboard is charged. **IF THIS HAPPENS (I.E., NO POWER TO THE SKATEBOARD EVEN THOUGH THE MAIN POWER SWITCH IS ON) YOU SHOULD TURN THE SKATEBOARD POWER SWITCH OFF AND CARRY THE BOARD TO YOUR DESTINATION UNTIL YOU CAN RECHARGE AGAIN. UNTIL YOU RECHARGE, DO NOT CONTINUE TO RIDE THE BOARD MANUALLY (E.G., KICK PUSH OR COAST) WITH EITHER THE POWER SWITCH OFF OR ON, SINCE THERE'S A RISK OF THE ELECTRONICS GETTING FRIED.**

## **Service & Maintenance**

See <http://metro-board.com/maintain/> for the latest maintenance instructions.

If your Metroboard gets dirty you can clean it with a damp cloth or “wet wipe”, but do not use any harsh chemical cleaners, just plain water. Try to avoid riding over loose debris or soft surfaces or you may get debris inside the transmission area which can cause the belt to tear or wear prematurely. If this happens, remove the transmission cover and belt and clean any debris from the motor pulley, drive wheel pulley, and belt, using a toothbrush or toothpick (nothing too abrasive).

Normal maintenance items that will need replacement are batteries, wheels, and timing belts. Note that there is a 1” long black bolt, a steel pin, and a plastic piece inside the accessories box. These are tools for retensioning the timing belt. Do not throw away! After about a month (or if you hear the sound of belt teeth skipping especially when braking hard) you should check the tension in the timing belt following the instructions here:

<http://metro-board.com/maintain/>

## **Warranty**

Your Metroboard comes with a 6 month limited warranty. Warranty covers parts and labor for any defective components. Normal wear and tear maintenance components such as batteries, wheels, and timing belts are not covered by this warranty, unless shown to be defective. Furthermore, damage to components due to abuse of the product (as defined in the Safety Warnings above, such as subjecting the Metroboard to impact or water) will void the warranty. Contact [info@metro-board.com](mailto:info@metro-board.com) for warranty service.

**Most importantly, have fun and be safe!!!**