

1 Introduction

- 1.1 Intended and unintended use
- 1.2 Safety symbols used in this manual

2 Description of the Mellow Drive

- 2.1 Technical Data
- 2.2 Identification-plate
- 2.3 Device elements
- 2.4 Battery Pack visual signals
 - 2.4.1 Battery Pack battery level signals
 - 2.4.2 Battery Pack charging level signals
 - 2.4.3 Pairing signals
 - 2.4.4 Firmware update signals
- 2.4.5 Other visual signals
- 2.5 Remote Control signals
 - 2.5.1 Remote Control Riding Mode signals
 - 2.5.2 Mellow Drive battery level signals
 - 2.5.3 Remote Control battery level signals
 - 2.5.4 Remote Control charging level signals
 - 2.5.5 Remote Control pairing signals
 - 2.5.6 Remote Control other visual signals

3 Safety Information

- 3.1 Important safety warnings
 - 3.1.1 General safety advice
 - 3.1.2 Operation of the Mellow Drive
 - 3.1.3 Charging and use of the Battery Pack
 - 3.1.4 Operating the Mellow Drive
 - 3.1.5 Braking with the Mellow Drive
- 3.2 Safety warnings used on the Mellow Drive
- 3.3 Tools to be used

4 Mounting the Mellow Drive

- 4.1 Unpack and check the contents
- 4.2 How to install the Mellow Drive

5 How to get the Mellow Drive ready for use

- 5.1 How to charge the Battery Pack
- 5.2 How to charge the Remote Control
- 5.3 How to pair the Mellow Drive with the Remote Control

- 5.4 How to pair the Mellow Drive 4x4 with the Remote Control
- 5.5 How to install the Mellow App
- 5.6 How to pair the Mellow App with the Mellow Drive
- 5.7 How to delete the pairing on the Mellow Drive and the Remote Control

6 Using the Mellow Drive

- 6.1 How to start riding
- 6.2 How to change the Riding Mode
- 6.3 How to check the battery level of the Mellow Drive/ Battery Pack
- 6.4 How to turn off the Mellow Drive
- 6.5 How to charge an external device with the Battery Pack
- 6.5 How to change the Riding Mode
- 6.6 How to update the firmware of the Mellow Drive
- 6.7 How to calibrate the Remote Control

7 Smart Features of the Mellow Drive

- 7.1 Endless Ride Mode (ERM)
- 7.2 Top Speed Unlock (TSU)
- 7.3 Intelligent Emergency Brake (IEB)
- 7.4 Run-Off Blocker (ROB)
- 7.5 Dual Braking System (DBS)
- 7.6 Smart Power Management (SPM)

8 Maintenance and cleaning

- 8.1 Changing the Drive Wheels
- 8.2 Changing the Bushings
- 8.3 Essential maintenance

9 Troubleshooting

10 Disposal of the Mellow Drive

11 Warranty

12 Disclaimer

- Appendix I Declaration of conformity
- Appendix II Spare parts

1 Introduction

Congrats! You just unboxed your Mellow Drive. We know you are super excited. And we know that you want to skip this booklet and – hell yeah! – go for a ride! But you got yourself a serious piece of German engineering here. And we Germans are very reasonable. So we really recommend you to hold your horses just for a couple of minutes.

These instructions are part of the Mellow experience. They contain important information regarding usage and safety for every user of the Mellow Drive. Make yourself familiar with them before you get on board for the first time. This will reward you with endless riding pleasure.

Use the Mellow Drive only in the manner as described and for the areas of application as stated. When passing the Mellow Drive to a third party be sure to also supply all instructions and other relevant documents.

In this spirit: **Keep riding. Stay Mellow!**

For questions, information or ordering user instructions, please contact:

Mellow Boards GmbH
Budapesterstraße 49
20359 Hamburg
Germany
Telephone: +49 40 882 159 20
E-Mail: hello@mellowboards.com

1.1 Intended and unintended use

The Mellow Drive is intended to be used as a device to be mounted on a skateboard and to move people. Riding the Mellow Drive is an intuitive activity. This device is intended for private, non-commercial use. The Mellow Drive must be used on private property only or in public areas if legally allowed. It is not intended to be used as a device to move other objects than persons or to be mounted on other devices than skateboards. Only use the Mellow Drive within the specified operational limits.

The Battery Pack is intended to be used for supplying power to the Mellow Drive or to supply power to devices that can be charged using a USB connector. This device is intended for private, non-commercial use. It should not be used in locations with the presence of a corrosive or explosive atmosphere or for medical purposes. It may only be used according to the instructions as described in this manual. All use other than described in this manual is considered as unintended use.

The Mellow Drive must only be used with the following original accessories and components:

- Mellow Drive Firmware
- Mellow App
- Mellow Remote Control and charge cable
- Mellow Charger
- Mellow Fast Charger
- Mellow Battery Pack
- Mellow Drive Wheels

1.2 Safety symbols used in this manual



! DANGER!

Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



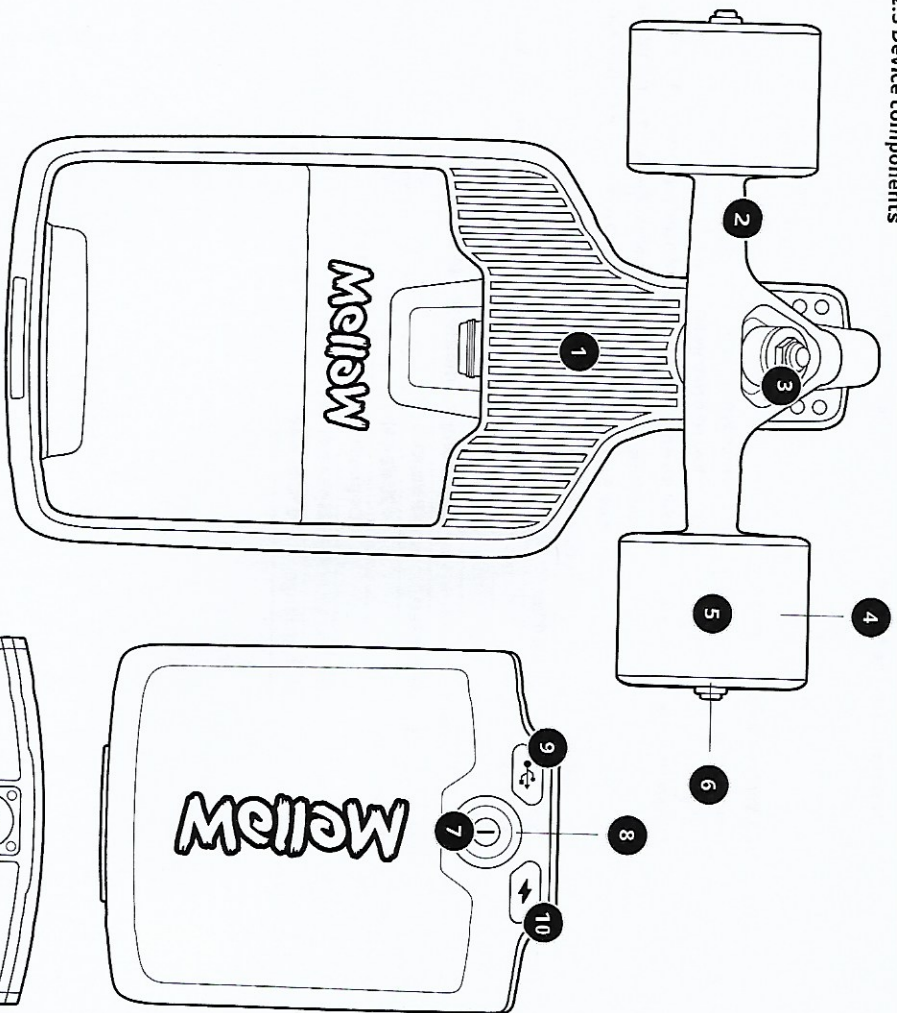
! WARNING!

Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

2. Description of the Mellow Drive

2.1 Technical Data

Device name	Mellow Drive
Designation	Skateboard drive gear
General description	The Mellow Drive is an electrically powered drive that can be mounted on skateboards. Power is supplied by the Battery Pack. The Mellow Drive can be controlled using the Remote Control.
Type, serial or batch number	Mellow Drive V1.0
Warranty	24 months (Mellow Drive), 12 months (Battery Pack)
Range	10-15 km
Maximum speed	Depending on model 20 - 40 km/h
Maximum operating speed	49 km/h
Noise emission	< 70 dB (A)
Power	Depending on model 250 - 1000W
Battery	Li-ion battery 25,2 V ; 3,9 Ah
Operating temperature range	0 °C to + 40 °C

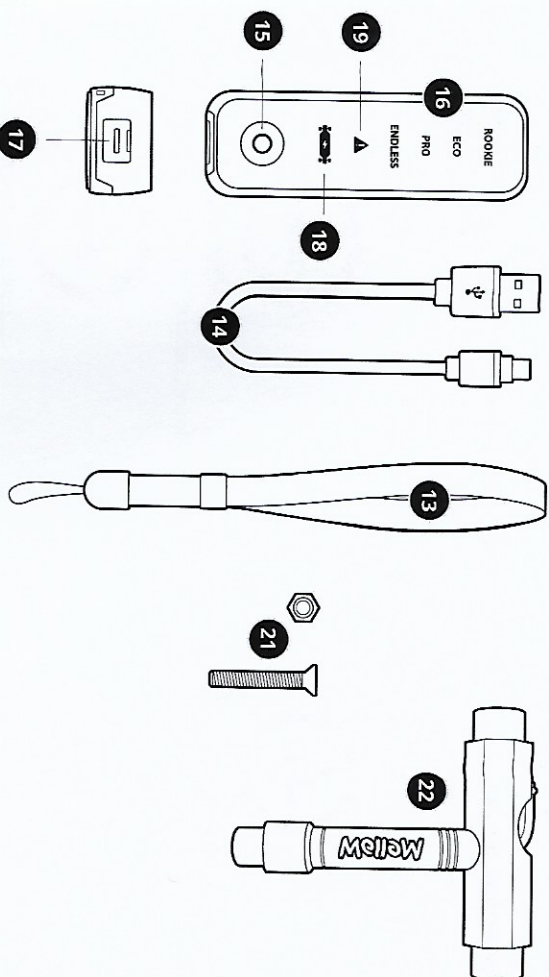


Mellow Drive

1. Magnesium frame
2. Drive truck
3. Bushings (Appendix II for Details)
4. In-wheel motors
5. Drive wheels
6. Bearings (Appendix II for Details)

Battery Pack

7. Battery Button
8. LED ring
9. USB port
10. Charge port
11. Power connector Battery Pack/Mellow Drive
12. Release Button



Remote Control

13. Lanyard
14. Micro-USB <-> USB cable
15. Remote Button
16. LED Riding Modes
17. Micro-USB port
18. LED board symbol
19. LED notification symbol

Accessories

20. Charger
21. Screws and bolts
22. Skate Tool (T-Tool)

2.4.1 Battery Pack battery level signals

PRECONDITION: The Mellow Drive must be activated.



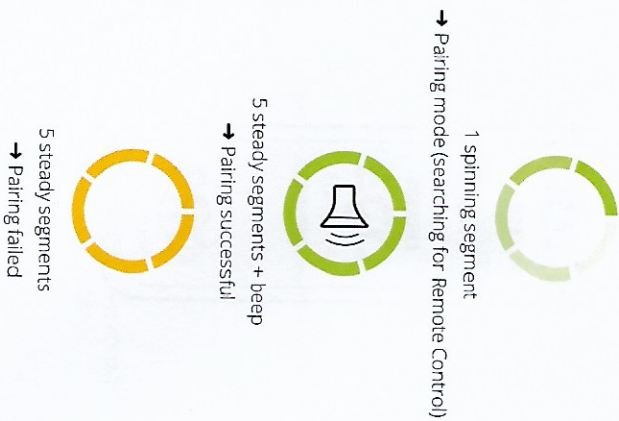
2.4.2 Battery Pack charging level signals

PRECONDITION: The charger is connected to the charge port on the Battery Pack and plugged into an earthed wall socket.



2.4.3 Pairing signals

PRECONDITION: The Mellow Drive is in pairing mode.



2.4.4 Firmware update signals

PRECONDITION: The Mellow App is connected to the Mellow Drive and the firmware update was started via the Mellow App.



IMPORTANT!

After the Mellow Drive's firmware is updated via the App, the Mellow Drive will proceed to update the firmware of the Battery Pack automatically, this will be indicated by a pulsing green LED ring. After completion, the Mellow Drive will start normally, beeping twice. Be advised that an updated Mellow Drive with new Battery Pack firmware will automatically update any additional Battery Pack inserted in the Mellow Drive in the future.

2.4.5 Other visual signals

Ursache liegt im System:



5 slowly pulsing segments (30 seconds) Mellow Drive entering standby mode (after 10 min. of inactivity)



5 steady segments
High system temperature (information only)



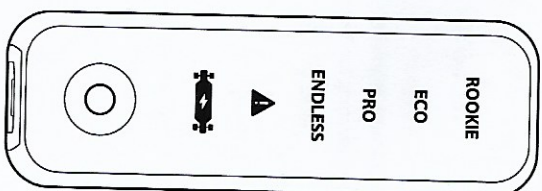
5 blinking segments
Reduced braking 60 - 80% (warning level 1)



5 blinking segments + beeping Severely reduced braking <60% (warning level 2) STOP RIDING IMMEDIATELY



5 steady segments + beeping Error (automatic system shutdown) STOP RIDING IMMEDIATELY AND RESTART SYSTEM



2.5 Remote Control visual signals

2.5.1 Remote Control Riding Mode signals

ROOKIE

Rookie Mode
For beginners, top speed 10 km/h

ECO

Eco Mode
For easy cruising, top speed 25 km/h

PRO

Pro Mode
For adrenaline junkies, top speed 40km/h
ONLY FOR ADVANCED RIDERS

ENDLESS

Endless Ride Mode
For skaters, push and the Mellow Drive keeps the pace for a certain time. Top speed is 25 km/h. You still need the Remote Control to brake.

2.5.2 Mellow Drive battery level signals

PRECONDITION: Mellow Drive and Remote Control are activated. Remote Control is paired with a Mellow Drive.



↑ 100-40%
Steady



↑ 40-20%
Steady



↑ 20-10%
Steady



↑ 10-0%
Blinking + vibration

2.5.3 Remote Control battery level signals

PRECONDITION: Remote Control is activated.



↕ **20-10%**
Blinking



↕ **10-0%**
Blinking + vibration

2.5.4 Remote Control charging level signals

PRECONDITION: The Micro-USB <-> USB cable is connected to the Micro-USB port on the Remote Control and in e.g. the USB port of the Battery Pack or a USB-travel adapter which is connected to an earthed wall socket.



↕ **40-20%**
Pulsing → Battery charging



↕ **20-40%**
Pulsing → Battery charging



↕ **40-100%**
Pulsing → Battery charging



↕ **100%**
Pulsing → Battery fully charged

2.5.5 Remote Control pairing signals

PRECONDITION: The Remote Control is not paired and the Mellow Drive is searching for a Remote Control.



Pulsing → Pairing mode active (remote is not paired)



Steady + vibration → Pairing successful



Steady → Warning: Pairing did not find a Mellow Drive to pair with



Steady → Error: The already paired Mellow Drive is not available

2.5.6 Remote Control other visual signals

Caused by the user or the system.



Steady → High system temperature (information only), dynamic power reduction



Blinking + vibration level 1 → Reduced braking 60 - 80% (warning level 1)



Blinking + vibration level 2 → Severely reduced braking <60% (warning level 2) STOP RIDING IMMEDIATELY






Steady → Error (Automated system shutdown) STOP RIDING IMMEDIATELY AND RESTART SYSTEM

void the warranty.

3.1 Important safety warnings

3.1.1 General safety advice

-  Read and understand all safety instructions.
-  Not for use in potentially explosive environments.
-  Never leave children unattended with the packaging material. The packaging material represents a danger of suffocation. Children frequently underestimate the dangers. Always keep children away from the packaging material.
- Follow all the instructions. This will avoid fire, explosions, electric shocks or other hazards that may result in damage to property and/or severe or fatal injuries. Please ensure that everyone who uses the Mellow Drive has read and followed these warnings and instructions.
- Keep all safety information and instructions for future reference and pass them on to subsequent users of the Mellow Drive.
- The manufacturer is not liable for cases of material damage or personal injury caused by incorrect handling or non compliance with the safety instructions. In such cases, the warranty will be voided.
- This Mellow Drive is not intended for use by persons (including children) with restricted physical, sensory or intellectual capability or lack of experience and/or knowledge, unless they are supervised by a person who is responsible for their safety or provides them with instructions on how to use the Mellow Drive.
- Do not attempt to open, modify or repair the Mellow Drive or other Mellow Products. This will void the warranty.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- Do not drop, puncture, break or expose the Mellow Drive or other Mellow Products to high pressure. This will

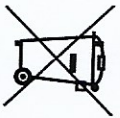
The Mellow Drive, Remote Control and Charger have been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference. The Mellow Drive and Remote Control generate, use and can radiate radio frequency energy and, if not installed and used in accordance with this manual, may cause harmful interference to radio communications or affect other electronic devices in residential areas. However, there is no guarantee that interference will not occur in any particular location. Therefore do not use the Mellow Drive close to radio equipment, and relocate the Mellow Drive in case of interference.

This device complies with part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). 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.

Maintenance of the electronic equipment and Battery Pack should be done on a frequent basis (see chapter 7 Maintenance and cleaning). If there is any visible damage, a strong odour or an excessive overheating of components, stop using the Mellow Drive. Place the Mellow Drive on a heatproof surface and let it cool down.

Unplug any connections before cleaning the Mellow Drive. Do not use wipes or chemicals as these could damage the surface. Wipe the housing with a damp cloth. Electrical / electronic parts must not be cleaned.




This symbol on the device, the accessories or packaging indicates that this device must not be treated as unsorted municipal waste, but must be collected separately. Dispose of the device via a collection point for the recycling of waste electrical and electronic equipment if you live within the EU and in other European countries that operate separate collection systems for waste electrical and electronic equipment.

3.1.2 Operation of the Mellow Drive

- In case of damage of the Mellow Drive, the device must not be used anymore.
- Assuming that the Mellow Drive cannot be operated without danger, the device has to be switched off and protected against unintentional usage.
- Do not drop or hit the Mellow Drive.
- Never leave the Mellow Drive unattended when switched on.
- Keep the Mellow Drive away from moisture.
- To avoid overheating, do not cover the Mellow Drive, do not use near heat sources or in direct sunlight and only at ambient temperatures of between 0 °C and 40 °C.
- To avoid overheating, never leave the Mellow Drive in a car that is parked in full sunshine.
- Keep the Mellow Drive away from flammable materials such as curtains and drapes.
- Keep the Mellow Drive away from children to prevent injury.
- Children should be supervised in order to ensure that they do not play with the Mellow Drive. It is not a toy.
- Children must not do cleaning and maintenance of the Mellow Drive.

3.1.3. Charging and use of the Battery Pack

-  Never touch a mains plug or the Mellow Drive with wet hands.
- Use only the supplied AC adapter with the Mellow Drive. Other AC adapters may damage it. Do not use the supplied AC adapter with other devices.
- Prior to connecting the Mellow Drive to the mains, make sure your local mains voltage matches the rating indicated on the Mellow Drive.

The Mellow Drive must be connected to a permanent and earthed AC wall socket.

Particularly ensure that damage is avoided at the plug.

Connect the charger to a suitable, properly installed and easily accessible mains power socket.

Make sure the charger can be disconnected from the mains at all times.


Unplug the charger during electrical storms or when not in use.


The integrated Li-ion battery is flammable. Keep away from open flame!


Protect the charger from use by third parties (particularly children). Keep the unused charger in a dry, elevated or locked location away from children.

When transporting the Battery Pack, verify that the Rosenberger battery connector is covered. Its strong magnetic surface can attract metal objects that can lead to short circuits.

3.1.4 Operating the Mellow Drive

 Be vigilant at all times, and always be careful what you are doing. Do not use the Mellow Drive if you are lacking in concentration or awareness, or are under the influence of drugs, alcohol or medication. Even a moment of inattentiveness can lead to serious accidents and injuries when using electrical equipment.

 The surfaces of the Mellow Drives, especially near or on the cooling fins, can become extremely hot during use. Avoid contact with these areas, using the non-powered truck to carry the board.

 The Mellow Drive contains rotating parts! Keep away from clothing, fingers, hair etc. to prevent strangulation and jamming.

Always wear a helmet and protective equipment such as elbow and knee pads to protect the body from injury.

Failure to use the Mellow Drive only within the specified

or people.

- Never ride the Mellow Drive without an installed Battery Pack as this will damage the battery connectors and void your warranty.

- Check the Mellow Drive for any damage before use. If there is any visible damage, a strong odour or an excessive overheating of components unplug all the connections immediately (when charging) and stop using the Mellow Drive.

- Verify that the Remote Control is correctly oriented before use. The indications of the Riding Modes should be right side up and the Remote Burton towards the user.

- Hold the Remote Control firmly but relaxed, without undue force on the display.

- Adjust your speed to your riding capabilities. Never go faster than you would on an unpowered skateboard.

- Keep an eye on the weather and road conditions (rocks, ice, hills).

- Urethane wheels are slippery on wet surfaces.


- Be careful not to slide the Remote Control forward while the Drive is switched on and you are not on the board yourself.

- In the case of a fall, be careful not to further accelerate the Board with the Remote Control

- In case of an accident, stop riding and consult a doctor if necessary.

- In case of an error, stop riding and follow the instructions in the user instructions or contact the Mellow Support via the Mellow App.

3.1.5. Braking with the Mellow Drive

-  The electric braking of the Mellow Drive can fail at any time (e.g. due to radio interference). The user should maintain a riding speed within his/her ability to brake without motors or where it is possible to safely dismount from the board without endangering surrounding objects

- The brakes of the Mellow Drive is a feature for riding comfort and is not to be relied upon as the sole security or safety system in emergencies.

- Effective braking power is less effective at high speeds and severely reduced beyond the specified operating range. The user will receive alerts and warnings from the Remote Control and Mellow Drive but should not rely uniquely on this function.

- The brakes of the Mellow Drive require a minimum speed of 2.3 km/h to work. There is no braking at lower speeds.

- The brakes of the Mellow Drive only work when going forward.

- The brakes of the Mellow Drive is not to be used in sustained downhill rides that exceed the Mellow Drive's maximum operating specifications. Longer braking can harm the system.

- Mellow accepts no responsibility or liability for damages or injuries that are a result of system braking failure.

3.2 Safety warnings used on the Mellow Drive



The


Battery Pack is certified for air travel (UN38.3), which means you can take up to 3 Battery Packs as hand luggage on an airplane, or at the discretion of the airline

- The Battery Pack may not be disposed as household waste.

- The Battery Pack must be recycled.

- The Battery Pack is in full compliance with CE standards.



-  Hot surface. The magnesium frame can become hot.

3.3 Tools to be used

Mounting the Mellow Drive:

Skateboard tool (T-tool)

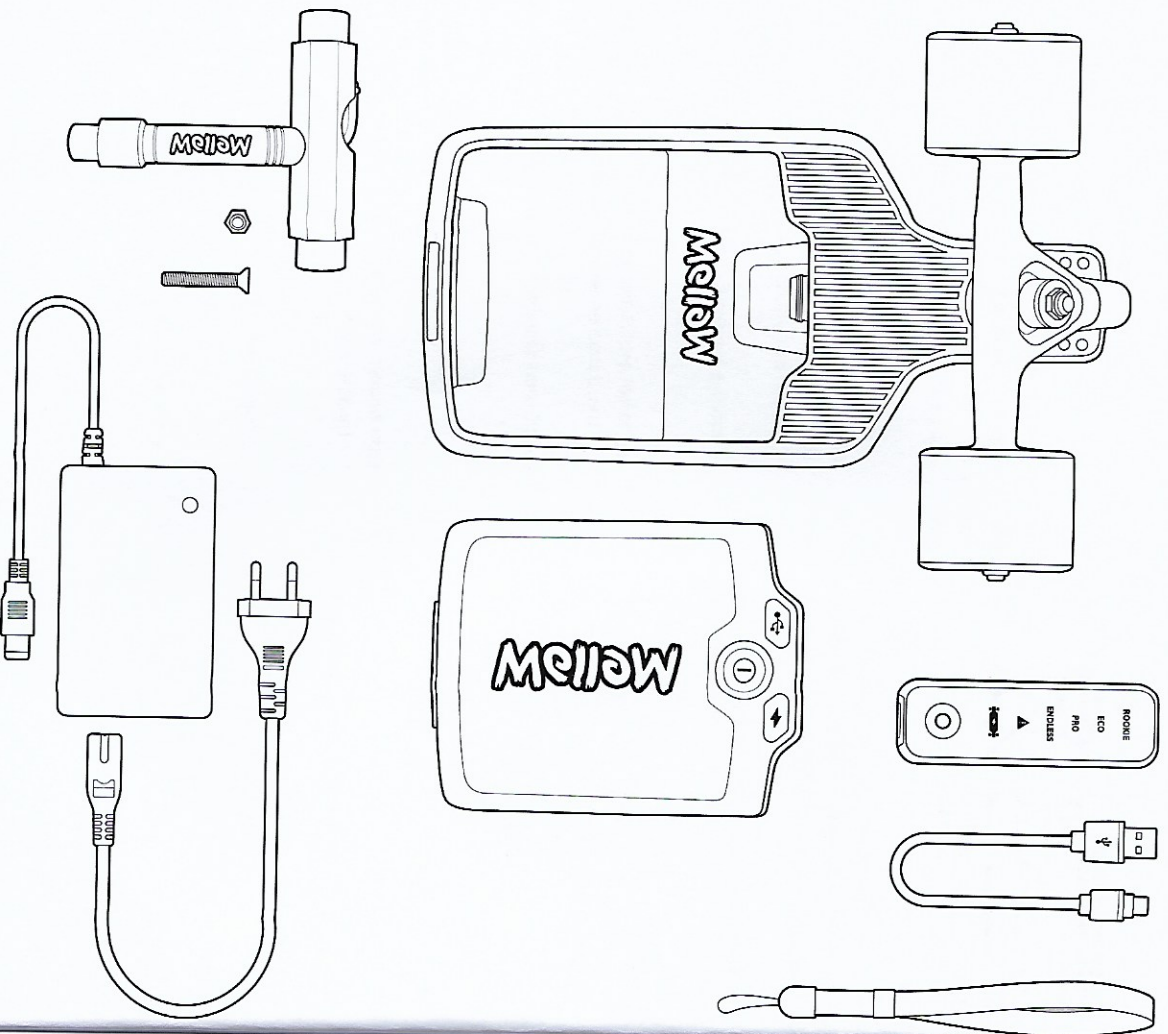
Phillips head screwdriver

Flat head screwdriver

Torx 10

Maintenance:

Cleaning accessories

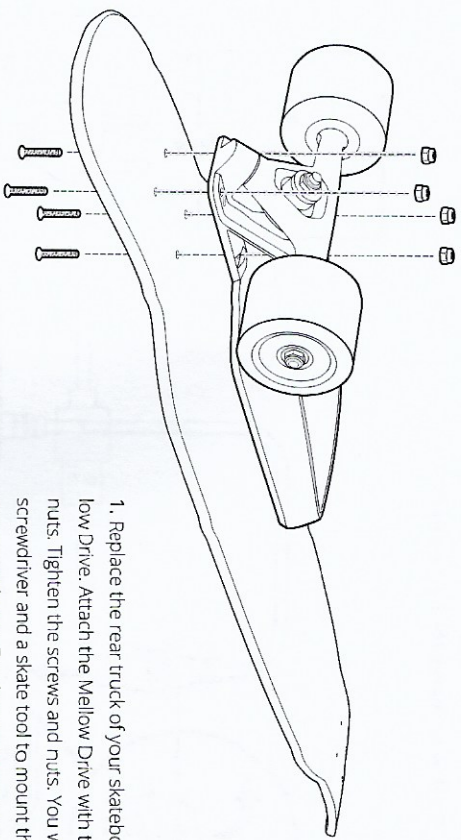


4.1 Unpack and check the contents

Make sure the packaging contains the following content:

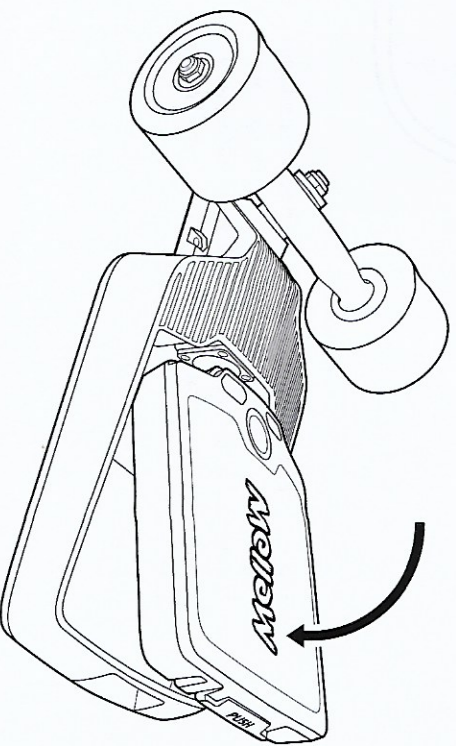
- 1x Mellow Drive
- 1 x Battery Pack
- 1 x Remote Control
- 1 x micro-USB/USB cable for Remote Control

- 1 x Charger
- 1 x Remote Control Lanyard
- 4 x screws and nuts
- 1 x Skate Tools
- User instructions



1. Replace the rear truck of your skateboard with the Mellow Drive. Attach the Mellow Drive with the 4 screws and nuts. Tighten the screws and nuts. You will need a Phillips screwdriver and a skate tool to mount the two rearmost screws and nuts. For the two inner screws, hold the nut into the specially formed well. This will prevent the nut from turning so that only a Phillips screwdriver is needed to tighten the screws.

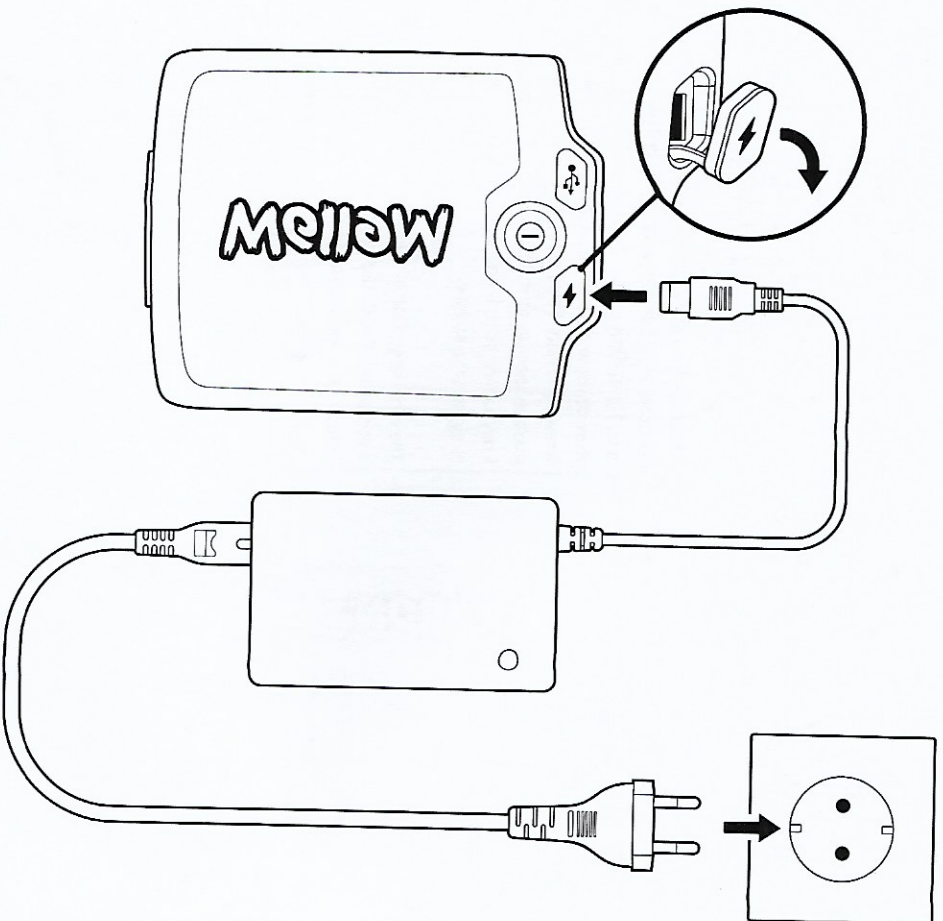
→ The mounting plate of the Drive must only be mounted to a completely flat surface. If the deck is curved at the truck holes, use a hard plastic angled riser to mount. Under no circumstances should rubber shock pads or risers be used.



2. Attach the Battery Pack to the Mellow Drive. When the Battery Pack makes a click it is attached.

5 How to get the Mellow Drive ready for use

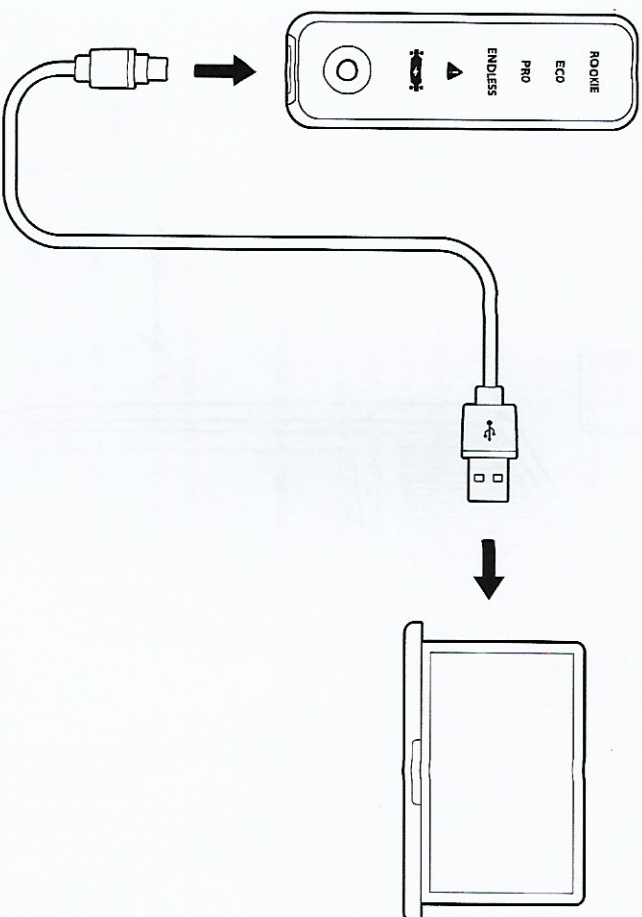
5.1 How to charge the Battery Pack



- You can charge the Battery Pack inside and outside the Mellow Drive.
- Before first use, the Battery Pack must be fully charged (approx. 3 hours with the Standard Charger; 45 minutes with the Fast Charger).
- Always charge the Battery Pack every 6 months even if you don't use it to prevent deep discharge.

1. Connect the charger to the charge port on the Battery Pack. Put the charger in an earthed wall socket.
→ The LED ring pulses green during the charging progress. When the charging process is completed, the LED ring lights a steady green.
2. Remove the charger when charging is complete.

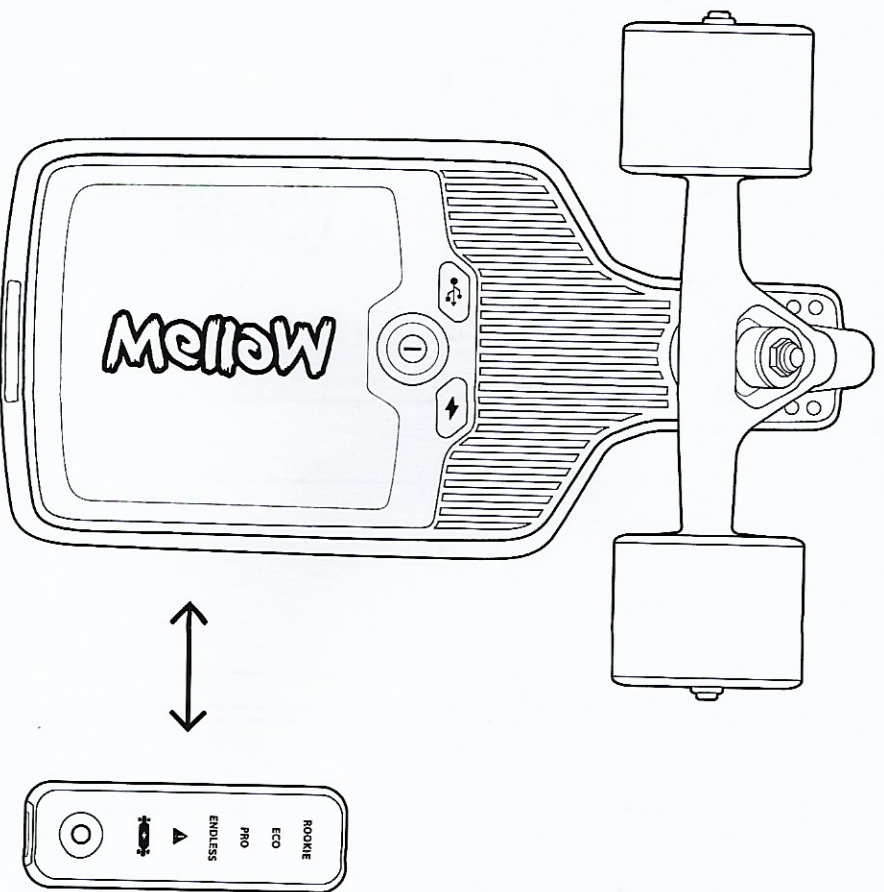
5.2 How to charge the Remote Control



- Before first use, the Remote Control must be fully charged (approx. 2 hours).
- Always charge the Remote Control every 6 months even if you don't use it to prevent deep discharge.

1. Connect the Micro-USB charging cable to the Micro-USB port on the Remote Control. Plug the other end of the Micro-USB ↔ USB cable in e.g. the USB port of the Battery Pack or a USB-travel adapter which is connected to an earthed wall socket.
→ The LED notification symbol lights green continuously when the charging is complete.
2. Remove the Remote Control and all cables when charging is complete.

5.3 How to pair the Mellow Drive with the Remote Control



1. Power on the Mellow Drive and Remote Control by pressing the single button on each once shortly.
2. Push and hold the Remote Button (10 seconds) until it vibrates. The Remote Control is now in pairing mode.
3. Push and hold the Drive Button until the LED ring starts spinning. The Mellow Drive is now in pairing mode. The LED ring will switch off before spinning, but you should keep holding.
4. Push the Remote Button once to confirm pairing. If the Remote Control has gone into sleep mode in the meantime (no lights showing), wake with a single press to the Remote Button.
→ When the pairing is successful, the Remote Control will vibrate once and display a Riding Mode and the Mellow Drive will beep.

5.4 How to pair the Mellow Drive 4x4 with the Remote Control

Information on how to pair two Mellow Drives in a 4x4 mode will be available on mellowboards.com and can later be found in the Mellow App.

5.5 How to install the Mellow App

1. Go to the Apple App Store (iOS) or the Google Play Store (Android).
2. Search for Mellow Boards and follow the instructions to install the Mellow App.

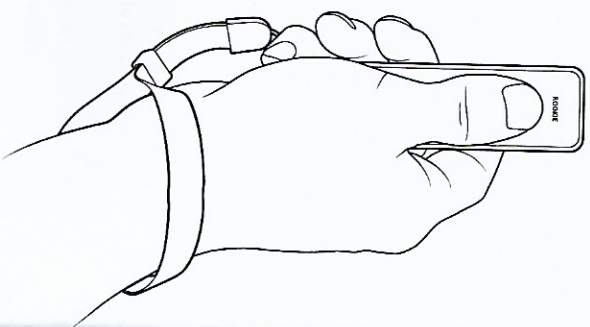
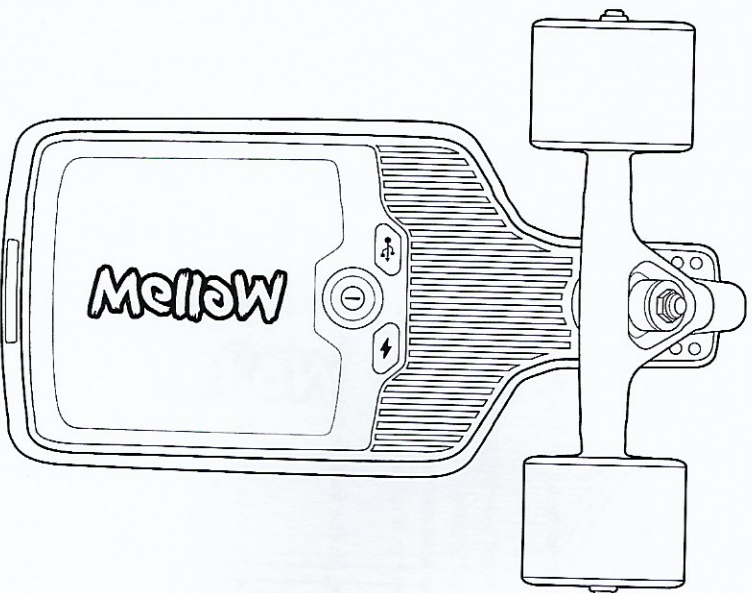
5.6 How to pair the Mellow App with the Mellow Drive

1. Activate the Mellow Drive by shortly pressing the Battery Button.
2. Activate bluetooth in your smartphone.
3. Open the Mellow App on your smartphone.
4. Follow the instructions on your smartphone.

5.7 How to delete the pairing on the Mellow Drive and the Remote Control

- Turn on the Remote Control with a short push. Push again and hold the Remote Button down for 10s until a vibration is felt.
- Turn the Mellow Drive on with a short push. Push again and hold the Drive Button until the LED ring starts to spin. The LED ring will turn off after a few seconds, but keep holding.

6.1 How to start riding



1. Attach the Lanyard to your wrist and slide the black plastic band to tighten.

2. Press the Remote Button.

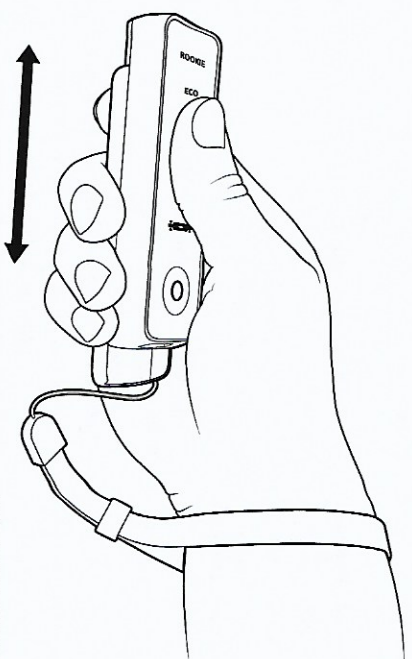
3. Short press the Battery Button to turn the Mellow Drive on

→ The LED ring lights green and will give you an audio signal.

→ The Remote Control vibrates once, the LED display lights up and shows selected Riding Mode and state of charge of the Mellow Drive.

4. Shortly press the Remote Button to change to the right Riding Mode. (see How to change the Riding Mode, Chapter 6.2)

5. Put your front foot on the front of the board over the truck, push with the second foot before you fully step onto the board. Bend your knees and lean onto your front foot before you accelerate. Lean onto your back foot when you brake.



6. Slide the upper part of the Remote Control forward to accelerate. Slide the upper part of the Remote Control backward to brake. Your board needs to be going at speeds exceeding 2.3 km/h in order for you to be able to accelerate or brake.

Remote Control LED display auto-shutoff

- After 30 seconds of not pushing the remote button, the Remote Control LED display automatically shuts off.
- Pushing the Remote Button will activate the Remote Control LED display.

Mellow Drive LED ring auto-shutoff (Skate Mode)

- After 5 seconds of riding, the Mellow Drive will switch off the LED ring display
- After a stop of more than 1 second, the LED ring will wake and show the state of charge.

Mellow Drive auto-shutdown

- After 10 minutes of no user interaction the Mellow Drive will switch off.
- After 30 seconds of no more connection, the Remote Control will switch off.

6.2 How to change the Riding Mode

The Riding Mode can be set by pushing the Remote Button or by sliding the Dashboard screen in the Mellow App. The Riding Mode can only be changed using the Remote Control when the slider is in the neutral position.

ROOKIE:

40% acceleration, 10 km/h top speed. The Rookie Mode is for beginning riders

ECO:

60% acceleration, 25 km/h top speed. The Eco Mode gives the best range.

PRO:

100% acceleration, 40 km/h top speed. The Pro Mode gives you pure adrenaline and is only for the most experienced riders.

ENDLESS:

No active acceleration. 25 km/h top speed. The Endless Mode gives you true skating feeling. You push normally and the Mellow Drive holds the pace for a certain time. The Remote Control is used only for braking.

6.3 How to check the battery level of the Mellow Drive / Battery Pack

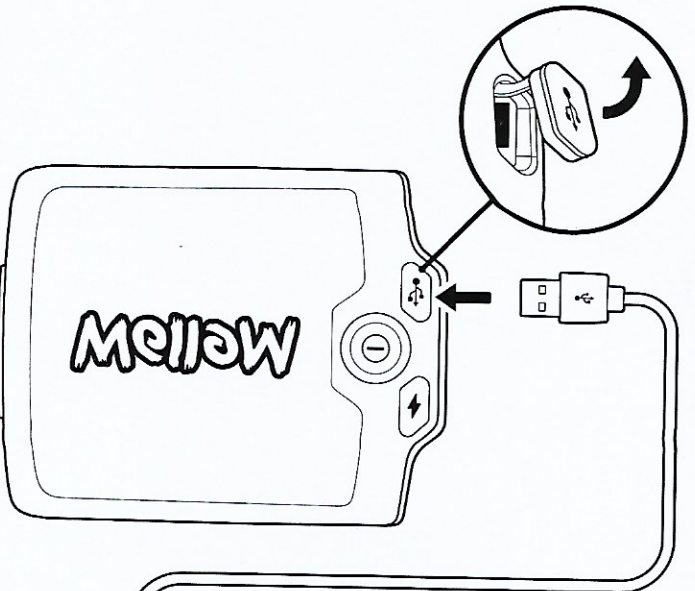
1. Check the battery level on the LED ring of the Mellow Drive, on the LED board symbol on your Remote Control or in the Mellow App.
2. If you use the Battery Pack as a powerbank, check the battery level on the LED ring.

6.4 How to turn off the Mellow Drive

1. Press the Battery Button until the LED ring turns off.
2. Press the Remote Button until the LED display turns off.

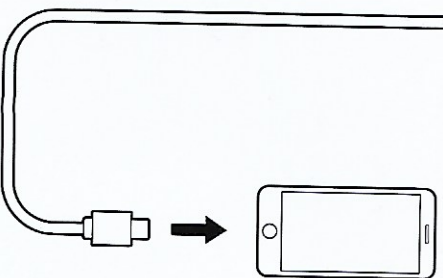
6.5 How to charge an external device with the Battery Pack

1. Make sure the Battery Pack is charged.
2. Connect the device you wish to charge to the USB port on the Battery Pack with the cable supplied with your device.



6.6 How to update the firmware of the Mellow Drive

1. Install the Mellow App on your smartphone (iOS or Android).
2. Activate the Mellow Drive.
3. Pair the Mellow App with the Mellow Drive via Bluetooth.
4. Verify that the Mellow Drive has at least 60% charge. If necessary, connect the charger to the charge port on the Battery Pack that is clicked into the Mellow Drive. Plug the charger into an earthed wall socket.
5. Open the Mellow App and select "Settings" from the app menu. If there is an update available it will be shown in the upper section of the settings screen.
6. Start the firmware update and follow the instructions in the Mellow App. Do not interrupt the update process nor remove the Battery Pack, leave or close the Mellow App or switch off Bluetooth during the Update.



7. If the firmware update completes, the Mellow Drive will reboot and the Mellow App will inform you that the update is successful. If a Battery Pack Update is contained in the update package, the LED ring will blink to show the Battery Pack is updating. Do not interrupt the update process by removing the Battery Pack. The Drive will beep twice when the process is finished.
8. If an error is encountered during the update process, check that the Mellow Drive's battery level is sufficient and the charger is plugged in. Restart the update from the beginning.

6.7 How to calibrate the Remote Control

Calibrating the Remote Control is advised in the following cases:

- In neutral position of the Remote Control, the riding mode cannot be changed

- Braking or acceleration torque seem to be reduced
- The Mellow Drive brakes or accelerates despite the Remote Control being in neutral position

1. Push and hold the Remote Button (20s) until board symbol as well as notification symbol are lighting up in red.

2. Bring the Remote Control in neutral position and press the Remote Button once to confirm zero-point position. Board symbol and notification symbol are starting to flash.

3. Push the Remote Control all the way forward (maximum acceleration) and hold until a short vibration is felt.

4. Push the Remote Control all the way backward (maximum braking) and hold until a short vibration is felt.

5. Bring the Remote Control back to neutral position and once more press the Remote Button to confirm zero-point position.

6. Calibration was successful, if the notification symbol starts pulsing in green. The Remote Control now needs rebounding to the Mellow Drive. (Chapter 5.3, starting from point 3.)

7 Smart features of the Mellow Drive

Your Mellow Drive is a high end product that comes with a bunch of smart features designed to increase both fun and safety of your ride.

7.1 Endless Ride Mode (ERM)

We wanted to find the perfect mix of our technology and the true skate-feeling we all love. The ERM is the result.

The ERM extends your coasting while you are pushing like on a normal skateboard.

The Mellow Drive will register the speed you have pushed to and it will hold that speed, reducing it very gradually by 30rpm/s. This means you can ride for longer after pushing up to speed without having to set your foot down again.

ERM comes with a bonus: Your range in ERM can increase up to 20km!

7.2 Top Speed Unlock (TSU)

TSU is designed to let you and others have a safe first experience with your Mellow Drive. On factory new Mellow Drives, it caps the speed at 25 km/h until at least 30 km are ridden.

After 30 km, you can unlock and re-lock full speed anytime on the "Your Mellow Drive" section of the "Settings" in the Mellow App.

7.3 Intelligent Emergency Brake (IEB)

The IEB is an automatic braking function that carefully slows the rider down to a full stop.

When the IEB gets triggered, the Mellow Drive will first signal "Warning Level 2" (Mellow Drive beeping, Remote Control flashing red and vibrating) for 2s.

It will then apply the brakes, increasing braking strength by 10% per second until the rider safely comes to a full halt.

Reasons for the IEB being triggered:

1. Loss of Bluetooth connection
- Your Mellow Drive is equipped with one of the strongest

BT antennas available to ensure a safe connection, but as it is a wireless connection there can always be a loss of connection.

Reasons for this range from complex radio interference to very simple reasons like not having charged your Remote Control.

After the IEB was triggered due to loss of BT connection your Mellow Drive will function normally again as soon as the BT connection can be reestablished.

2. Battery Pack shutdown (over temperature)

When your Battery reaches a critical temperature level it will trigger the IEB to safely slow the rider down before a system shutdown occurs.

After the IEB was triggered due to Battery over temperature and the board has come to a full stop, the Mellow Drive will enter the passive state in order to protect itself. A system restart is necessary to reenter the active state again and we suggest you let the board cool for at least 30 mins or change the battery.

7.4 Run-Off Blocker (ROB)

To avoid unwanted runoffs we require the board to be moving at about 2-3km/h before the Mellow Drive will engage the motors. As a second level of safety, we came up with ROB. It monitors the acceleration of both wheels and when the board is accelerating quicker than it could with a rider on it, ROB will automatically apply the brakes for 2s, bringing the board to a stop within about 1m. You know when ROB got active because your Mellow Drive will beep at you twice.

Please note that ROB will ONLY be active while the board is standing still and you are beginning your ride. When in Skate Mode (after 5s of riding), ROB is deactivated to avoid unwanted braking maneuvers i.e. while going off curbs. As soon as you stop, ROB will be active again.

7.5 Dual Braking System (DBS)

Your Mellow Drive is the world's first electric skateboard system offering a dual braking system. But what does this mean?

Resistor Braking

While braking, electric energy is generated by the motors and this energy must go somewhere. Usually the energy is fed back into the battery but there are some situations when this is not possible. A full battery cannot take in any energy and when braking very hard there can be more energy generated than the battery can safely take in.

To solve this, your Mellow Drive has an integrated braking resistor that is used as an energy overflow when needed. This way the lifetime of your battery is massively extended because the battery is not confronted with overloads of energy and the brakes are still available when your battery is fully charged.

And of course the Mellow Drive has regenerative braking too.

Regenerative Braking

When used wisely braking can even increase your range - who would have thought so? To maximize your energy harvest make sure to:

1. Brake lightly
- Only use 50% of your braking power.

2. Brake constantly

When going downhill make sure to always be braking just a little. This will give your battery a constant inflow and charge it perfectly.

As a rule of thumb you can expect about 1,5% of charge from 1 minute of light constant braking.

7.6 Smart Power Management (SPM)

"Use your power wisely" not only applies to superheroes. The Mellow Drive can automatically limit the power it provides in order to protect the rider and the system as well as extend your range.

Heat Management (HM)

Whilst the Mellow Drive has an elaborate system to lead away heat, there are certain situations where temperatures still can reach high levels, i.e. during long inclines. To avoid overheating and ensure that you can continue

riding, the Mellow Drive will reduce power output. If the temperature rises to a point where it affects braking power, you will be warned via the Remote Control.

Range Management (RM)

We would like you to always get home safely. So when your battery level drops below 10%, not only will you be notified by the Remote Control, but the Mellow Drive gradually reduces the amount of power that is available to maximize your range.

8 Maintenance and cleaning

Frequent maintenance is important for using the device safely. The better you treat your Mellow Drive the more enjoyment it will give you. If you allow the Mellow App to send you push notifications, we will also help you with that.

8.1 Changing the Drive Wheels

As with any skateboard wheel, Mellow Drive wheels are subject to wear and tear. In order to maintain your Mellow Drive, you will need to change Drive Wheels dependent on how intensely you use it. We generally recommend that you change your Drive Wheels at least once a year.

Please proceed as follows:

1. Open the nut (1) using the provided Skate-Tool (T-Tool)

2. Remove the Speedring (2) before removing the Drive Wheel

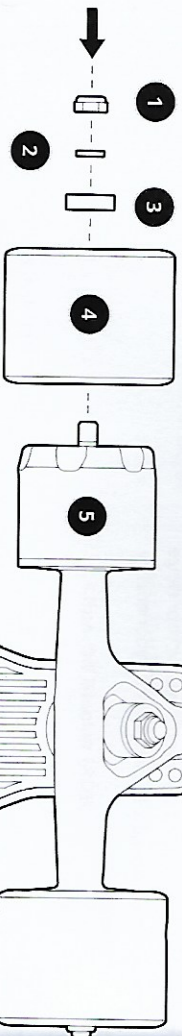
3. Grab the Mellow Drive by the truck and gently press on the inside edge of the Drive Wheel using both thumbs, moving the Drive Wheel in axial direction. If the Drive Wheel can't be removed:

a) Make sure the Speedring (2) did not remain on the axle or got jammed on the thread.

b) Never use a lever or any other object to remove the Drive Wheel - this might lead to damaging the motor and will void the warranty.

c) Never forcefully pull on the Drive Wheel - this might lead to damaging the motor and will void the warranty.

d) Get in touch with Mellow Customer Support - We are always happy to help!



4. Completely pull the Drive Wheel (4) off the motor (5).

5. Clean the motor (5) using a dry cloth. Prevent any liquids from entering the motor.

6. Place the new Drive Wheel on the motor. Slightly turn the Drive Wheel if necessary so that it sits correctly in the notches of the motor.

7. Place a new bearing (3) (Type 608-2RS) on the axle and gently push it into the bearing seat of the Drive Wheel. After mounting the bearing, the motor should be able to rotate freely.

8. Slide the Speedring (2) in place and tighten the nut (1). Tighten the nuts on both sides of the Mellow Drive slightly. All of the nylon part of the nut needs to sit on the thread of the axle. Once they are touching the wheels, further tighten them alternately. Never use force tightening the nuts.

8.2 How to change the bushings

As the bushings of the Mellow Drive are subject to wear and tear, they will need replacing eventually. Furthermore bushings can be changed to account for the weight of the rider or in order to change the characteristics of the ride.

To change the bushings you will need:

- Skate tool
- Torx 10
- Flat-head screwdriver
- Double barrel bushings Ø 25mm x 15mm

Please go to www.mellowboards.com for a video tutorial and depiction of how to change the bushings. If you have any questions, please contact support@mellowboards.com.

WARNING !!!

Changing the bushings requires some technical skills

WARNING!!!

Caution should be exercised when removing the hanger. Pulling too hard on the hanger can cause the motor cables to come loose from their glands on the Mellow Drive. This will void the warranty and cause loss of waterproofness of the Mellow Drive.

WARNING !!!

When removing the motor cables from their guide, the cables can be damaged by the screwdriver. This will void the warranty.

1. Demount the Mellow Drive from your board.

2. Untighten the screw of the cable holder on the hanger (Torx 10), but do not completely remove the screw. The screw can be reached from the top of the Mellow Drive through the Baseplate.

3. Remove the kingpin nut, washer and roadside bushing (skate tool).

4. Twist the cable holder by 90°.

5. Carefully move the motor cable out of the cable guide (flat-head screwdriver).

6. Now the hanger can be removed from the drive. When removing, we recommend alternately tilting the hanger left and right and pulling it lightly. It is important to ensure that you do not pull on the motor cables.

7. Change the boardside bushing.

8. Mount the hanger.

9. Mount the roadside bushing, kingpin washer and kingpin nut (skate tool).

10. Gently press the motor cables back into the cable guide.

11. Put the cable holder back in place and tighten the screw again (Torx 10).

WARNING !!!

Never use your Mellow Drive without mounted Drive Wheels. The Drive Wheels contribute to the Mellow Drive's structural integrity. Using the Mellow Drive without mounted Drive Wheels might lead to damaging the motors and will void the warranty.

WARNING !!!

Without mounted Drive Wheels including bearings (Type 608-2RS) the Mellow Drive is not waterproof. Using water or cleaning agents might lead to damaging the motors and will void the warranty.

WARNING !!!

Use bearing type 608-2RS exclusively. Using other bearings types might lead to water and / or dust entering and damaging the motors and will void the warranty.

Task	Frequency
Check the Mellow Drive for visible damage	Before each use of the product
Check motor cables for damages.	Before each use of the product
Check if motor cables are securely fastened in the cable routing in the hanger.	Before each use of the product
Check whether the wheels are spinning freely	Before each use of the product
Check the wheels for visible damages and remove any rocks and pieces of glass that might be stuck in the urethane.	Before each use of the product
Check if axle nuts are securely tightened.	Before each use of the product
Check if kingpin nut is securely fastened.	Before each use of the product
Check bushings for damage.	Before each use of the product
Remove any dirt that might be stuck between heat sink ribs to allow for optimal cooling of the braking resistor.	Before each use of the product
Verify that there is no foreign objects in the frame of the Mellow Drive where the Battery Pack is inserted	Before inserting the Battery Pack
Check both sides of the Battery Pack's Rosenberger connector. It must be dry, free of dirt and metal objects. Dirt and metal objects can permanently damage the connectors.	Before inserting the Battery Pack
Check if the Battery Pack is securely clicked into the frame.	Before each use of the product
Check that the Battery Pack's USB and charging port plugs are firmly closed.	Before each use of the product
Check if the Remote Control slides smoothly. If not, unscrew the bottom half and clean from dirt.	Before each use of the product
Check whether the battery of the Remote Control is sufficiently charged.	Before each use of the product
Always charge your Battery Pack after use. Never leave a Battery Pack discharged. This will cause permanent damage to your Battery Pack.	Before each use of the product
Replace outer bearing (Type 608 2RS) regularly using appropriate spare part. Only use sealed bearings since your Mellow Drive will not be waterproof if unsealed bearings are used.	Once every 6 month or as needed

9 Troubleshooting

Error	What to do?
My Mellow Drive seems to not have the full power	In some situations the Mellow Drive can limit the power available in order to protect itself. This could mean: <ol style="list-style-type: none"> 1) The Mellow Drive is overheating. Allow it to cool. 2) The Battery Pack is almost empty - charge it. 3) A safety limitation is set by an advanced function of the Mellow App. 4) Rookie Mode or Eco Mode might be active. These Riding Modes limit the power output.
My Remote Control does not connect to the Mellow Drive	Please at first make sure the batteries of Remote Control and Mellow Drive are charged. Unpair the remote by first activating it and then pressing the Remote Button extra long until there is a vibration. Please perform unpairing routine of the Mellow Drive by first activating it and then pressing the Drive Button extra long until the LED ring starts spinning. Now turn on the Remote Control by pressing the Remote Button once. The triangle should be pulsing green. Now short press the Remote Button once again to pair. If pairing was successful a Riding Mode will be lit white and the Mellow Drive beeps. If pairing is still not successful please contact our customer support.
My Mellow Drive is not working	Take the Battery Pack out of the Mellow Drive and switch it off by long pressing the Battery Button. Switch off the Remote Control by long pressing the Remote Button. Make sure the battery of the Remote Control and Mellow Drive are charged. Reinsert the Battery Pack into the Mellow Drive, make sure it is well connected and inserted correctly. Then activate the Mellow Drive by short pressing the Battery Button. The Mellow Drive should wake up and indicate its state of charge via the LED ring. Activate the Remote Control by short pressing the Remote Button. The Remote Control should wake up and connect to

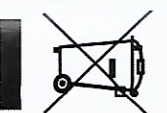
the Mellow Drive automatically.
Remote Control and Mellow Drive are connected when a Riding Mode on the Remote Control is illuminated. If the triangle symbol on the Remote Control is pulsing green the Remote Control is searching for a Mellow Drive to pair with. Please perform the pairing routine. If the pairing does not resolve the problem, please contact our customer support.

My Battery Pack is not charging
Please check if your wall outlet is working.
Please check if the AC-cord is plugged properly into the charger.
Please check if the charger is properly connected to the Battery Pack.
Please activate the Battery Pack via pressing the Battery Button.
If the indicator on the charger is glowing orange the Battery Pack is being charged.
If the indicator on the charger is glowing yellow the Battery Pack is almost full.
If the indicator on the charger is glowing green the Battery Pack is either full or not connected.
If the Battery Pack is charged but does not react when pressing the Battery Button or it does not start charging even though the charger is properly connected, please contact our customer service.

My Remote Control is not charging
Please check if the Remote Control is properly connected to a USB source or the USB connector of the battery.
Please check if the USB power source or Battery Pack are activated.
Please check if USB cable is undamaged.
If you are sure that the all connections are well plugged and the USB source is providing power but the Remote Control is still not charging, please contact our customer support.

One or both motors are not turning freely
A little bit of resistance is normal. If the resistance is preventing you from skating freely:
1) Your axle nut could be tightened too hard. Please loosen the axle nut a bit and try again.
2) Your bearings could be worn out. Please change the replace them with sealed, greased bearings, size 608-2RS.
3) Your motor could be damaged. Please contact our customer support.

10 Disposal of the Mellow Drive



The symbol on the device, the accessories or packaging indicates that this device must not be treated as unsorted municipal waste, but must be collected separately for the recycling of waste electrical and electronic equipment if you live within the EU and in other European countries that operate separate collection systems for waste electrical and electronic equipment. By disposing of the device in the proper manner, you help to avoid possible hazards for the environment and public health that could otherwise be caused by improper treatment of waste equipment. The recycling of materials contributes to the conservation of natural resources. Therefore do not dispose of your old electrical and electronic equipment with the unsorted municipal waste.

The packaging is made of environmentally friendly materials, which may be disposed through your local recycling facilities. By disposing of the packaging and packaging waste in the proper manner, you help to avoid possible hazards for the environment and public health. The symbol on the packaging indicates that the packaging is made of PAP.

Batteries may not be disposed of with the usual domestic waste. They may contain toxic heavy metals and are subject to hazardous waste regulations. For this reason, dispose of used rechargeable batteries at a local collection point.

11 Warranty

Warranty lasts 24 months for the Mellow Drive and 12 months for the Battery Pack from the date of purchase or a max. mileage of 1500 km. A defective device has to be returned back to the manufacturer within 2 weeks. The following will void your warranty:

- External forceful impact
- Inappropriate maintenance
- Violating the operating instructions
- Damage by lightning
- Damage to sealing of the housing

Please note:
Wear parts like the wheels, bearings and bushings are not covered by the warranty.

Please contact us first before sending back the device!

Mellow Boards GmbH
Budapesterstraße 49
20359 Hamburg
Germany

Telephone: +49 40 882 159 20
E-Mail: hello@mellowboards.com

12 Disclaimer

The Mellow Drive is sports equipment. Mellow Boards does not take responsibility for any legal consequences for riding the Mellow Drive anywhere where operation of such is not legal. Before you ride it, make sure you check the legal situation in the country where you intend to ride. It might not be legal to ride the Mellow Drive in public in your country.

Appendix I

EC Declaration of Conformity pursuant to Machinery Directive 2006/42/
EC

The manufacturer/distributor
Mellow Boards GmbH
Budapester Straße 49
20359 Hamburg

hereby declares that the following product

Product name: Mellow Drive
Serial number: MEL XXXX

conforms to all relevant provisions of the abovementioned Directive and other applicable Directives (see below), including all applicable amendments as current at the time this Declaration was made.

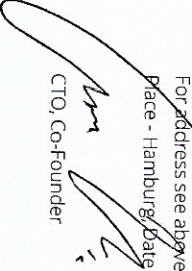
The following EU Directives have been applied:
RED Directive 2014/53/EU
RoHS Directive 2011/65/EU

The following harmonised standards have been applied:

EN ISO EN ISO 12100:2010 Safety of machinery. General principles for design. Risk assessment and risk reduction (ISO 12100:2010)
EN ISO 1 EN ISO 13857:2008 Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)
EN 55014- EN 55014-1:2006/A2:2011 Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. Part 1: Emission
EN 55014- EN 55014-2:2009 Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. Part 2: Immunity
EN 6231 EN 62311:2008 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields
EN 60950 (2014) Information technology equipment. Safety. General requirements (where applicable)
EN 300328V1.9.1 Electromagnetic compatibility and radio spectrum matters (ERM). Wideband transmission systems.

Name and address of the person authorised to compile the technical file:
Kilian Green

For address see above
Place - Hamburg/Date 11 February 2017


CTO, Co-Founder