



# Freedrum



## Electronic Drumsticks Manual

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# Setup Guide

## Charge your sensors

Charge all your sensors using the charging cable provided before using the product. While charging, the LED will shine red. The LED will turn off when charging is complete.

## Download Freedrum Studio

While your sensors are charging, download the Freedrum Studio app.

## Attaching your pedal sensors to your legs

Once your sensors are fully charged, take the circular ones and attach them to your legs. The best position is just above your knee. Ensure the (L) icon is on your left leg and the (R) icon is on your right leg. The icons should be on the insides of your legs like shown in the image. It's also important that the pedals are facing upwards like in the picture shown.



## Turning on your sensors

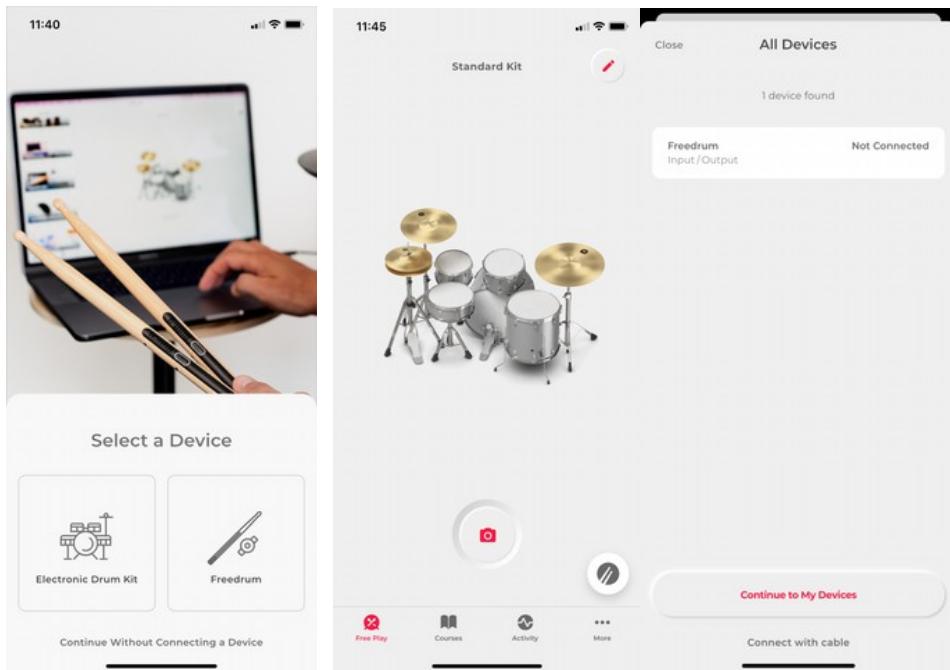
Once your sensors are attached to your knees, you can turn them on by pressing the large circular area once. You can turn on your drumsticks by pressing the button located within the oval ring once.



## Connecting to your device

You connect your Freedrum using the Freedrum Studio app. There are two ways to connect Freedrum to your device:

1. In the device connection menu on startup, select "Freedrum".
2. If you have already used the app before and you see a drum kit (this is the tab called "Free Play"), you can connect by tapping the circular button on the bottom-right.



You should see "Freedrum" appear in the list. Press "Freedrum" to connect and tap continue. With the Freedrum Electronic Drumsticks, you'll only need to connect to one Bluetooth device, which is different from the Original Freedrum that required connecting to four separate devices.

## Calibrating your drumsticks

When you begin playing Freedrum, you must calibrate your drumsticks. This is done to place the drum kit in the correct direction. Calibrate your drumsticks by pointing both of them directly in front of you and pressing each of the buttons once at the same time. If the calibration is successful, the right stick should shine blue and the left stick should shine red. Repeat the process if they do not shine blue and red.



## Positioning

Keep the area around you clear of any obstacles and position yourself at least one meter away from any walls or flat surfaces. Make sure you keep your back straight and your legs in a 90° angle when lifting up your heels



## Using your drumsticks

Play the drumsticks above your knees. Avoid playing drums below the height of your knees. The drumsticks should always be kept above the pedal sensors. Avoid hitting the drumsticks together. If you accidentally hit the drumsticks together, keep both sticks still for one second. Avoid playing with excessive movement. This means that you need to pay attention to your playing technique and develop a good sense of control.



## Using your pedal sensors

Ensure your pedal sensors are positioned correctly by following the previous steps on attaching your pedal sensors to your legs. Your right leg is set as a kick drum and the left leg is set as the hi-hat. To play the kick drum, lift your right heel above the ground and then tap it back on the floor again. If you tap harder the velocity of the drum sound will increase. To open the hi-hat, lift your left heel above the ground and play the hi hat cymbal with your stick. You can close the hi-hat by tapping your heel back on the ground.



# How to Play Freedrum Electronic Drumsticks

## Calibrating

When you start using Freedrum Electronic Drumsticks, it's important to calibrate your drumsticks so that the drum kit responds correctly to your movements. To calibrate, simply point both drumsticks directly in front of you and press both buttons at the same time. If the calibration is successful, the right stick will light up blue and the left stick will light up red. If this doesn't happen, try calibrating again until the sticks shine blue and red.

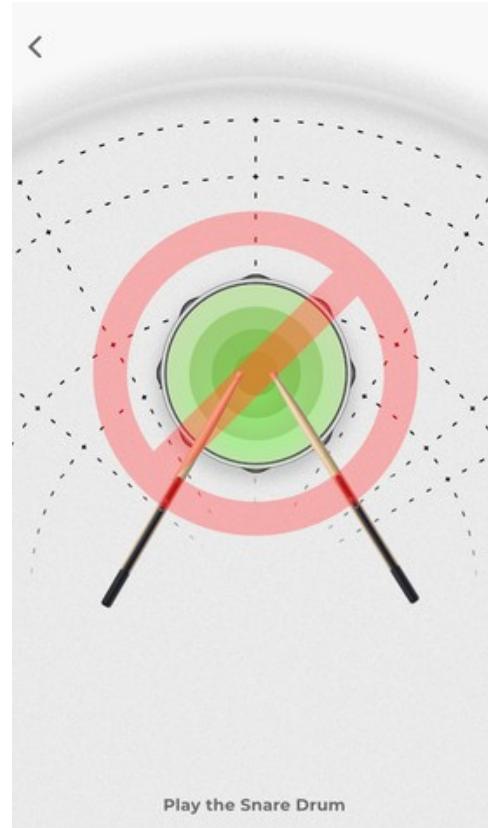


## Playing Style

When you start playing with Freedrum Electronic Drumsticks, it's important to learn the correct playing styles to make the most out of your kit. It might take some practice to get comfortable with this playing style, so don't rush it!

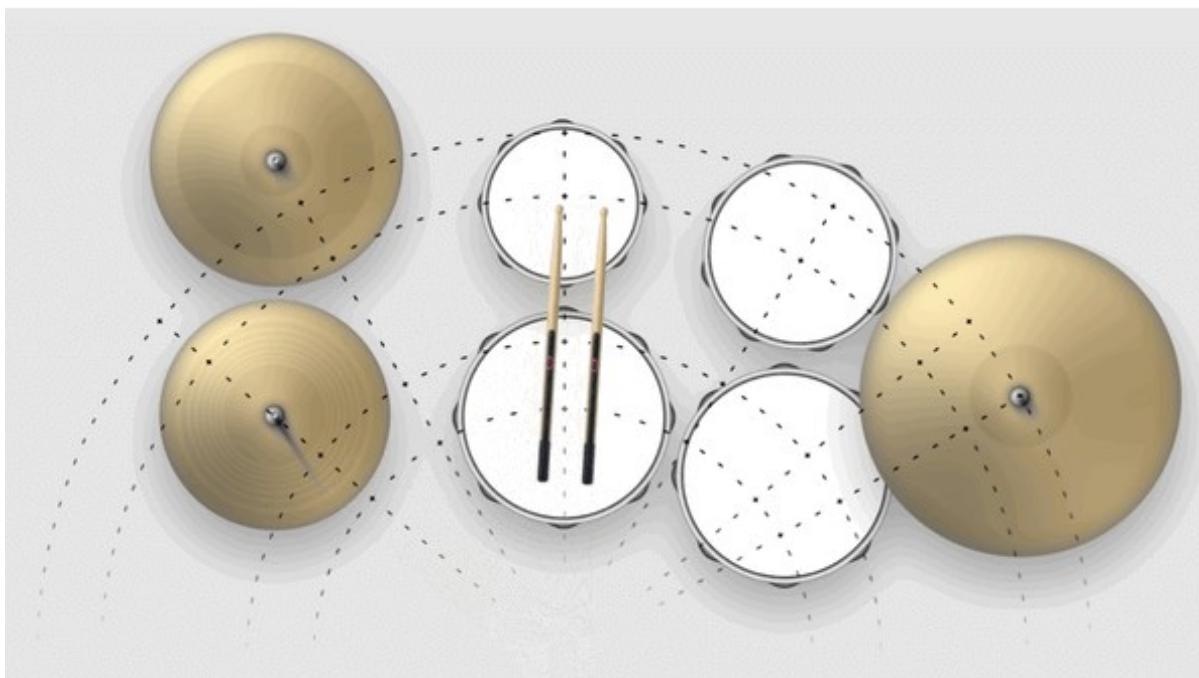
To create the right sound, use your wrists and underarms to hit the drums. Avoid using too much force or whipping the sticks around. It's important to keep your drumsticks in the same position when playing the same drum with both hands. Also, try to avoid sticking your elbows out too far as this can cause you to hit the wrong drums. You can experiment with different hand and arm positions to find a comfortable playing style that works for you. Have fun exploring and finding your own unique drumming technique!

Finally, using your whole arm and too much force can cause the drumsticks to play the wrong sounds and lose their calibration, so make sure to focus on using the correct playing style.



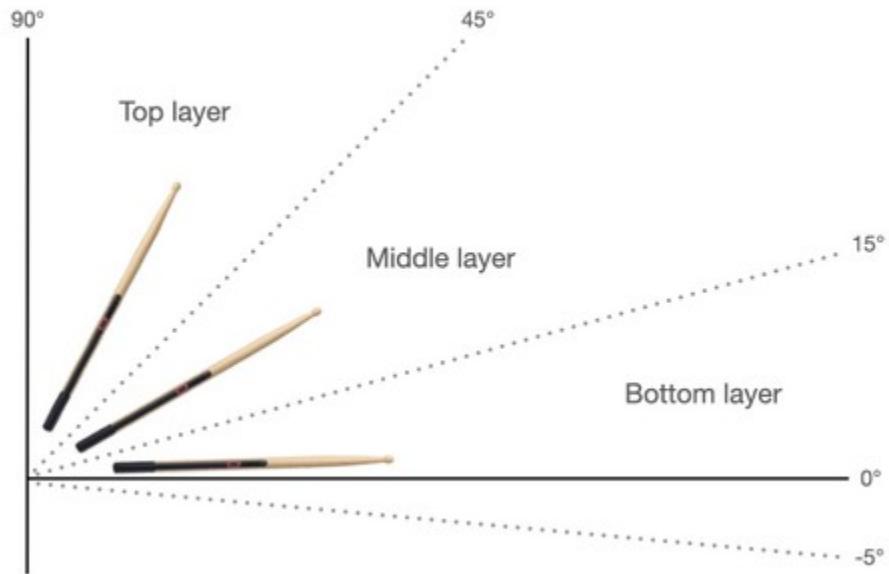
## Drum Angles

When you're playing with your Freedrum Electronic Drumsticks, remember that they can sense changes in the angle of the sticks, but not the spatial difference or distance. This means that you can switch between drum parts by changing the angle of the sticks from left to right.



To hit different drum parts, make sure you point the sticks in the right direction. But it's not just about direction - we use three different layers for the different drum parts:

1. The Top layer is for the crash and ride cymbals, so if you want to hit these parts, hold the sticks at a higher angle.
2. The Middle layer is for the hi-hat, high tom, and mid tom.
3. The Bottom layer is for the snare and floor tom, so if you want to hit these parts, hold the sticks at a lower angle.



With Freedrum Electronic Drumsticks, you have the flexibility to rotate the sticks in your hand. However, if you lift the drumsticks too high (over a 90-degree angle), they might produce the wrong sound. We know about this issue and are actively working to improve the drumming experience by fixing this problem in our future updates. Keep in mind the different layers and angles, and you'll be able to create awesome beats with your Freedrum Electronic Drumsticks!

## Pedal Sensors

### Right Pedal Sensor

You can play the kick drum by using the right pedal sensor. Currently, the default setting is for you to play with your heel up. However, in future updates, we will give you the option to choose between playing with your heel up or heel down. We'll also provide three different sensitivity settings for each option, giving you more control over how you play the kick drum.



### Left Pedal Sensor

To control the hi-hat when drumming, use the left pedal sensor. To play a closed hi-hat sound, keep your foot flat on the floor and hit the hi-hat with your drumstick. To play an open hi-hat sound, lift your heel and hit the hi-hat with your stick. If you want to play the hi-hat sound using only your foot, lift your heel and drop it down on the floor.

We are working on improving the sensitivity settings for the hi-hat pedal in future updates to make playing even smoother and more enjoyable. Additionally, we're bringing back the double kick feature, which allows you to play double bass by moving your left leg slightly to the left. This feature will make it easier to create complex drum beats and add more variety to your drumming.

## Kit Behaviour Guide

### Introduction

A Freedrum Kit comes with 4 devices - 2 sticks, a left pedal and a right pedal. Each device plays a different role in the kit and behaves differently depending on the mode of operation. This guide will help explain the different scenarios you may encounter while using your Freedrum Kit.

The 4 devices in the kit communicate with each other wirelessly and can also connect to your smartphone or computer via Bluetooth.

The kit includes 3 different types of devices, each with their own role:

- The sticks are always "slave devices" both in normal operation and when buddying with other devices in the kit.
- The left pedal is the "communication master" within the kit's wireless connection and acts as a "buddy slave" when buddying with other devices in the kit.
- The right pedal is the "buddy master" when buddying with other devices in the kit and a "slave device" for the kit's wireless connection. It also serves as the Bluetooth device for connecting the kit to your smartphone or computer.

## Operation modes

### Factory

When you first get your Freedrum Kit devices, they will be in "factory mode". To turn them on and off, just click the button once. In this mode, the devices will show different color patterns:

- The sticks and left pedal will cycle through blue, green, and red every second.
- The right pedal will cycle through blue, yellow, and magenta every second. If you don't touch the device for 5 seconds, it will turn off on its own. If you shake the device, it will blink cyan rapidly. The sticks will also have a haptic rumble. This mode is for testing the button, sensors, and haptic feedback.

To exit "test mode", press and hold the button while it's doing the cyclic pattern until the device blinks rapidly.

Once you exit test mode, the devices won't go back to it unless you perform a factory reset. You can find instructions on how to do this in the Factory reset section of the guide.

## **Motion sensor calibration**

When you power down the device and plug it in for charging after exiting factory mode, it will blink magenta. This means it's doing a sensor calibration. To do the calibration, just leave the device on a flat surface until the magenta blink stops. It will take a few seconds for the device to finish calibrating. Once it's done, it will start charging.

If the device is not calibrated during this phase, it will be calibrated automatically when the device is still enough.

## **Charging state**

When you're charging your Freedrum Kit devices, the light on the device will turn red to let you know it's charging. Once the device is fully charged, the light will turn off. If you plug in the device and the red light doesn't turn on but turns blue instead, do a single press and later a long press, if the light is red it's charging if not the device is fully charged.

## Buddying

When you turn on your Freedrum Kit devices for the first time, they will enter "Buddying mode", which means they will look for other devices in the kit. The right pedal is the "buddy master" and it needs to be buddied with the left pedal first, since the left pedal is the "communication master". Once the right pedal is buddied with the left pedal, it will look for the sticks. The sticks and left pedal will stop looking for a buddy once they find the right pedal, aka, "buddy master".

A device looking for buddies will blink in magenta.

During buddying the right pedal will blink magenta and blue until all buddies are found and the rest of devices, if already buddied, will show yellow. If there was a problem during buddying, there are 3 possible scenarios:

- A stick is not buddied: The unbuddied stick will show magenta and the rest will show yellow.
- The right pedal is not buddied: As in the previous case, the right pedal will show magenta and the rest will show yellow.
- The left pedal is not buddied: In this case the left pedal will still show magenta but the rest of the devices will show blue.

In any of those scenarios, the action to take is a **Buddy reset**. A device will stay in "buddy state" for 30 seconds. If it doesn't find a buddy at that time, it will shut down. If you're trying to buddy several kits at the same time, the devices may end up buddied with the wrong kit.

## Normal state

Once all 4 devices in your Freedrum Kit are buddied, the kit will be in "normal state". You can tell the status wireless kit connection by the color of the lights:

- Steady blue: This means the device is not connected to any other device or the left pedal is turned off.
- Steady yellow: The device is connected to the left pedal but one or more devices in the kit are missing.
- Steady green: All the devices are connected and communicating with each other.

If the left pedal is only connected to one or two other devices, it will show a steady yellow light. The other devices that are connected will also display steady yellow. If a device is showing a blue light for 50 seconds, it will turn off automatically. There is no indication for the status of the Bluetooth connection. This feature will be added in the future.

If a device detects an error, it will blink magenta and red every second. The only errors that will be reported this way are:

- Motion sensor error
- Kit communication error

The device will try to fix the problem and reboot itself. If the problem persists, please contact Freedrum.

Each time the kit is turned on, it will search for the best radio channel to use. If the devices have trouble communicating (as indicated by the lights alternating between blue, yellow, and green), try turning off and on the devices to select a new radio channel.

## User Calibration

Before you start playing music with your Freedrum Kit, you'll need to do a "calibration" to set everything up. To do this, you'll need to:

- Hold the sticks forward, so they're parallel to each other.
- Make sure the pedals can see the sticks.
- All devices are displaying green colour, meaning that they are connected between each other.
- Click the button on both sticks at the same time to start the calibration.

If the calibration is successful, the left stick will turn red for a second, and the right stick will turn blue for a second.

Calibrating the devices is important to reset their sensors and record the resting position, so the devices know how to respond to your movements correctly.

## Turning off/reset

### Normal shutdown

To turn off your Freedrum Kit device, press and hold the button for a few seconds. After 2 seconds, the device will blink blue rapidly. Release the button to turn off the device.

### Forced HW reset

If the device is frozen or not responding, press and hold the button for more than 7 seconds. This will do a "forced HW reset" which can be useful if the device becomes unresponsive. If the device does not recover after a forced HW reset it should be examined at Freedrum.

### Buddy reset

To erase the buddy information of the device, press the button 4 times quickly, then press and hold the button. If you do this correctly, the device will blink magenta instead of blue when turning off. Repeat this for all devices. To complete the buddy reset, turn the devices back on in this order: right pedal, left pedal, then sticks. Wait for each one to turn yellow. Once the right pedal stops blinking magenta, the devices are all connected and should turn green.

### Factory reset

To erase any user calibration and configuration, press the button 9 times quickly, then press and hold the button. If you do this correctly, the device will blink red instead of blue when turning off. Keep in mind that if you perform a factory reset,

you will need to calibrate the device and buddy it again with the other devices of the kit.

### **FW Upgrade**

During a firmware update, all the devices in your Freedrum Kit will blink magenta and dull pink every second. At first, only the right pedal will blink this way, but eventually all the devices will.

When the devices blink each second, it means they're in "FW Upgrade mode" but waiting for an actual update. Only the devices that are blinking irregularly are actively updating.

The firmware update is first sent over Bluetooth to the right pedal. That's why only the right pedal is blinking irregularly at first. The right pedal then broadcasts the update to the other devices in the kit.

It is not possible to "brick" the device by turning it off during a firmware update. However, a firmware update can fail for various reasons so it is recommended to be performed after a full charge and leave the kit untouched while its doing the update. If the update fails it will go back to the previous version.

After the firmware update is finished, all devices will reboot. This is when the update will take effect.

If a firmware update doesn't take effect, it's a good idea to reboot all the devices and try again. If the device becomes unresponsive and cannot be recovered with a **Forced HW reset** please contact Freedrum.

## Kit behaviour chart

Left Pedal	Right Pedal	Left Stick	Right Stick	State	Action
				All Devices connected	Play
				Not connected	This means the device is not connected to any other device or the left pedal is turned off. If a device is showing a blue light for 50 seconds, it will turn off automatically.
				Device missing	When the device is connected to the left pedal but one device in the kit is missing, it will show a yellow light.
				User calibration	<p>Before you start playing music with your Freedrum Kit, you'll need to do a "calibration" to set everything up. To do this, you'll need to:</p> <ul style="list-style-type: none"> <li>- Hold the sticks forward, so they're parallel to each other.</li> <li>- Make sure the pedals can see the sticks.</li> <li>- All devices are displaying green colour, meaning that they are connected between each other.</li> <li>- Click the button on both sticks at the same time to start the calibration.</li> </ul> <p>If the calibration is successful, the left stick will turn red for a second, and the right stick will turn blue for a second.</p>

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Left Pedal	Right Pedal	Left Stick	Right Stick	State	Action
				Normal shutdown	To turn off your Freedrum Kit device, press and hold the button for a few seconds. After 2 seconds, the device will blink blue rapidly. Release the button to turn off the device.
				Charging state	When you're charging your Freedrum Kit devices, the light on the device will turn red to let you know it's charging. Once the device is fully charged, the light will turn off. If you plug in the device and the red light doesn't turn on but turns blue instead, do a single press and later a long press, if light is red it's charging if not the device is fully charged.
				Factory mode	When you first get your Freedrum Kit devices, they will be in "factory mode". To turn them on and off, just click the button once. In this mode, the devices will show different color patterns: - The sticks and left pedal will cycle through blue, green, and red every second. - The right pedal will cycle through blue, yellow, and magenta every second.
				Factory reset	To erase any user calibration and configuration, press the button 9 times quickly, then press and hold the button. If you do this correctly, the device will blink red instead of blue when turning off.

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Left Pedal	Right Pedal	Left Stick	Right Stick	State	Action
				Motion sensor calibration	<p>When you power down the device and plug it in for charging after exiting factory mode, it will blink magenta. This means it's doing a sensor calibration. To do the calibration, just leave the device on a flat surface until the magenta blink stops. It will take a few seconds for the device to finish calibrating. Once it's done, it will start charging.</p> <p>If the device is not calibrated during this phase, it will be calibrated automatically when the device is still enough.</p>
				Error	<p>If a device detects an error, it will blink magenta and red every second. The only errors that will be reported this way are:</p> <ul style="list-style-type: none"> <li>- Motion sensor error</li> <li>- Kit communication error</li> </ul> <p>The device will try to fix the problem and reboot itself. If the problem persists, please contact Freedrum.</p>

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Left Pedal	Right Pedal	Left Stick	Right Stick	State	Action
				Buddying	<p>When you turn on your Freedrum Kit devices for the first time, they will enter "Buddying mode", which means they will look for other devices in the kit. The right pedal is the "buddy master" and it needs to be buddied with the left pedal first, since the left pedal is the "communication master". Once the right pedal is buddied with the left pedal, it will look for the sticks. The sticks and left pedal will stop looking for a buddy once they find the right pedal, aka, "buddy master".</p> <p>A device looking for buddies will blink in magenta.</p> <p>During buddying the right pedal will blink magenta and blue until all buddies are found.</p>
				Stick not buddied	The unbuddied stick will show magenta and the rest will show yellow. The action to take is a buddy wipe.
				Right pedal not buddied	The right pedal will show magenta and the rest will show yellow. The action to take is a buddy wipe.
				Left pedal not buddied	The left pedal will still show magenta but the rest of the devices will show blue. The action to take is a buddy wipe.

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Left Pedal	Right Pedal	Left Stick	Right Stick	State	Action
				Buddy reset step 1	To erase the buddy information of the device, press the button 4 times quickly, then press and hold the button. If you do this correctly, the device will blink magenta instead of blue when turning off.
				Buddy reset step 2	To complete the buddy reset, turn the devices back on in this order: right pedal, left pedal, then sticks. Wait for the left pedal and the sticks to turn yellow. The right pedal will blink magenta and blue. Once the right pedal stops blinking magenta and blue, the devices are all connected and should turn green.
				Firmware update	<p>During a firmware update, all the devices in your Freedrum Kit will blink magenta and dull pink every second. At first, only the right pedal will blink this way, but eventually all the devices will.</p> <p>When the devices blink each second, it means they're in "FW Upgrade mode" but waiting for an actual update. Only the devices that are blinking irregularly are actively updating.</p> <p>After the firmware update is finished, all devices will reboot. This is when the update will take effect.</p>

# MIDI Note Numbers

This page provides a summary of how we've configured the MIDI note numbers in our app.

#	Drum Part Name	Freedrum App Midi Value
0	Open Hi-Hat Outer	46
1	Open Hi-Hat Inner	46
2	Pedal Hi-Hat	44
3	Closed Hi-Hat Outer	42
4	Closed Hi-Hat Inner	42
5	Ride Outer	51
6	Ride Inner	51
7	Ride Center	53
8	Crash Outer	49
9	Crash Inner	49
10	Crash Center	49
11	Snare	38
12	Kick	36
13	Hi Tom	50
14	Low Tom	45
15	Low Floor Tom	41

We use MIDI channel 10.

# Safety & Regulatory Information

## Safety information

1. Do not expose your Freedrum sensors to liquid, moisture, humidity, or rain.
2. The Freedrum sensors are not waterproof.
3. Do not tamper with or abuse the Freedrum sensors. For example, without limitation, do not drop, disassemble, open, crush, bend, deform, puncture, shred, microwave, incinerate, paint, or insert foreign objects into the Freedrum sensors.
4. Do not use abrasive cleaners to clean your Freedrum sensors.
5. Do not expose your Freedrum sensors to extremely high or low temperatures.
6. Do not leave your Freedrum sensors in direct sunlight for an extended period of time.
7. Do not leave your Freedrum sensors near open flames such as cooking burners.
8. Do not dispose of your Freedrum sensors in a fire. The batteries could explode.
9. Do not bring your Freedrum sensors into contact with any sharp objects. This can cause scratches and damage.
10. Do not insert anything into your Freedrum sensors unless otherwise specified in the user manual. This may damage the internal components.
11. Do not attempt to disassemble your Freedrum sensor, it does not contain serviceable components.
12. Freedrum has an operating temperature of between 0°C and 35°C.
13. Avoid leaving Freedrum in a parked car due the high temperatures that may occur.

## Regulatory information

### IC

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## FCC

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

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.

RF Exposure: "FCC RF Radiation Exposure Statement Caution: To maintain compliance with the FCC's RF exposure guidelines."