

Manual

Magic Wand

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Acronyms

1 Welcome

I sincerely appreciate your choice and congratulations on acquiring your magic wand. The newest device that lets you create magical forms like the animation is the Magic Wand. It is made to provide you and your kids with incredible fun. It makes your enchanted dreams come true by fusing gesture recognition with lighting effects. This manual contains details on the Magic Wand's more sophisticated functions and serves as a guide for using it. To find the interest section, refer to the contents list. We hope that you will have years of trouble-free use from your goods. If there is even the slightest mistake, or if you If you need more details about Magic Wand, our custom experts will be happy to assist you. Further information can also be found on our website at <https://docs.arduino.cc/hardware/nano-33-ble-sense/>.

The development team of your Magic Wand

2 Important Safety Instructions

1. Please read the Safety Instructions before using your Magic Wand
2. Heed all warnings
3. Clean only with hygienic towel
4. Use attachments and accessories only from reputable manufacturers.
5. Avoid placing near any heat sources, including stoves, heat registers, radiators, and other appliances that emit heat, including amplifiers.
6. Object or liquid entry **WARNING**
Avoid exposing the apparatus to rain or water, including near bathtubs, sinks, or pools. Do not place liquid-filled objects on it, as this may cause electric shock.
7. This apparatus uses power banks. Check with local authorities for proper disposal or recycling guidelines, as there may be environmental regulations.
8. Disconnect power banks when not in use, especially if children, elderly, or disabled individuals are present. This helps prevent damage from battery leakage.
9. **Climate**
The gadget has been engineered for application in moderate climates and in domestic situations
10. **Abnormal smell or sound**
If any foul smell or sound is detected from the equipment, unplug the cable from the Micro-USB Port and Power banks. Contact your authorized dealer or service center and do not reconnect the equipment

2 Important Safety Instructions

11. Damage requiring services

The equipment should be serviced by qualified service personnel when:

- The power-supply or the cable has been damaged, or
- Objects have fallen, or liquid has spilled into the equipment, or
- The equipment has been exposed to rain, or
- The hardware does not appear to operate normally or exhibits a marked change in performance, or
- The equipment has been dropped or the enclosure damaged.

12. The figures and illustrations in this User Manual may not exactly match the appearance of the product; they are only meant to be used as a guide. Product specs and design are subject to change at any time.

3 Overview

3.1 What's in the box?

Make sure the following items are included with your box. If any items are missing, contact your dealer at once.

1. Magic Wand
2. Data Transformation and Charging Micro-USB Cable
3. User Manual



Figure 3.1: **Magic Wand**

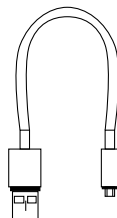


Figure 3.2: **Micro USB Cable**

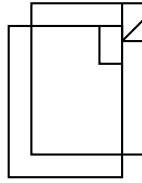


Figure 3.3: User Manual

- The items' colours and shapes may vary depending on the models.
- Please check for any accessories hidden behind or in the packing materials when opening the box.

Warning: The board can be damaged from direct pressure when handled incorrectly. We recommend toughing the board at the edges.

3.2 Overview of Magic Wand

3.2.1 Top View of Magic Wand

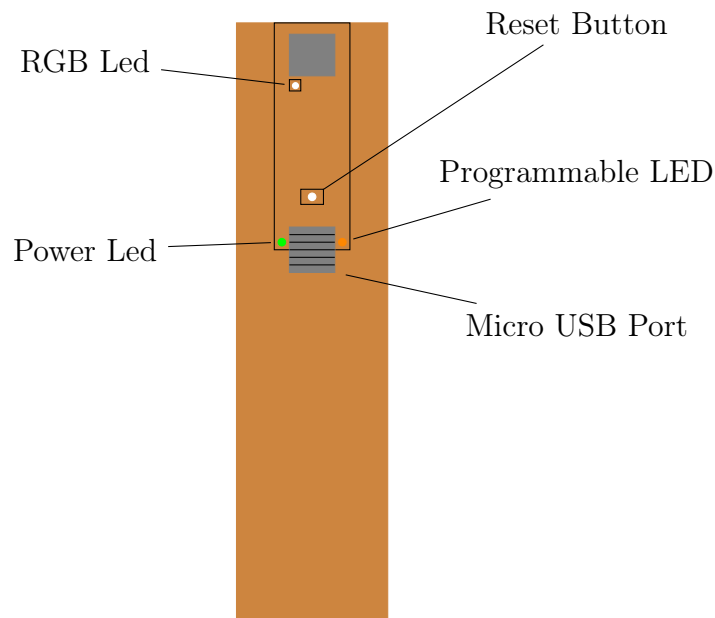


Figure 3.4: Magic Wand Top View

3.2.2 Front View of Magic Wand

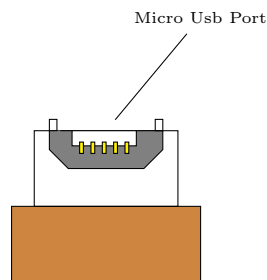


Figure 3.5: Magic Wand Front View

1. **Power LED** - See "Switching On"5.1
2. **Reset Button** - See "Reset Magic Wand"5.3
3. **RGB LED** - See "Motion Movement"5.2
4. **Micro-USB Port** - Connect the main micro USB cable here. See "Switching On" 5.1
5. **Placing the unit**
 - The Magic Wand should never be placed near a fire or other source of heat.
 - Avoid placing any other part or object on top of the board since this could harm the sensor and make it unable to detect motion correctly.
 - When connecting the cable, be sure to only touch the board's edge to avoid contact with any conductive areas.

4 Getting Started

4.1 Getting Started

1. **Unbox Your Wand:**

Open the packing and take out your Magic Wand carefully. It includes a quick start instruction and the Magic Wand itself.

2. **Acquaint yourself with the Wand:**

Take a moment to familiarize self with the feel and balance of your Magic Wand. Observe its elegant design, meticulously crafted to fit comfortably in your hand, enabling precise control over your magical gestures.

3. **Harness the Power:**

Connect the board with the power bank to check if the board initiate successfully

4. **Follow the setup Guidelines:**

Comply with the setup section and complete these steps at the PC

5. **Rehearse Gestures:**

Practice the basic gestures outlined in the manual.

4.2 Ready to Cast

All Set to Cast, Your Magic Wand is now attuned to your movements and prepared to bring your spells to life after the initial setup is finished. Your magical experience will be enhanced as you get more acquainted with the wand's capabilities and realize the full potential of its gesture detection and light effects.

Recall that the Magic Wand is an imaginative and creative instrument. Investigate its characteristics, try out different movements, and uncover its charm. Let's enjoy!

5 Product Main Functions

5.1 Switching On

Connect the Cable Micro USB here for power inlet, The Power LED indicates whether the main power is connected. The light will turn to green once you connect.

5.2 Motion Movement

Your Magic Wand is equipped with a state-of-the-art motion sensor capable of detecting a wide range of movements. Each gesture corresponds to a magical command that activates different light colors.

5.2.1 Wings

Hold your arm straight out in front of you with the wand pointing up. Start by moving the wand down toward your lower right, then bring it up to the middle, creating the first “V” shape. From the middle, move the wand down again toward your lower left, and then back up to the upper right, completing the second “V” shape. Together, these motions form a "W" shape in the air. The figure below shows the direction of the movements. A red color generates when the wing gesture is recognized.



Figure 5.1: **Wing Gesture**

5.2.2 Rings

Hold the wand vertically in front of you. Move the wand in a circular motion, drawing a ring in the air. Ensure the motion is smooth and steady, completing the circle. A green color generates when the ring gesture is detected.

5.2.3 Slope

Point the wand up and hold your arm straight out in front of you. Start by moving the wand in a downward slope from the higher right to the lower left. Complete the

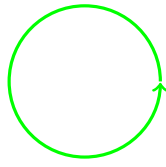


Figure 5.2: **Ring Gesture**

shape by extending the wand horizontally to the left, creating a diagonal line in the air. A blue color generates when the slope gesture is detected.

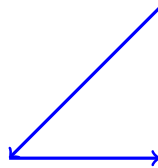


Figure 5.3: **Slope Gesture**

5.2.4 Unknown

All gesture movements apart from the three types mentioned above will appear as a cross shape in the monitor output. A yellow light generates when unknown gestures are discovered.

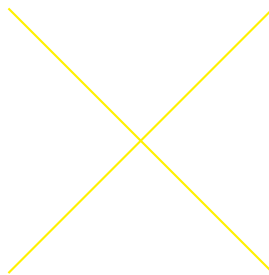


Figure 5.4: **Unknown Output**

5.3 Reset Magic Wand

Press the reset button once on the board if the magic wand does not run properly. You will see all the led lights would fade out at once and the Power LED will fade in back after clicking. This can help to run the program from the beginning.

6 Using Magic Wand

6.1 Connect with Computer

Connect the device using cable Data Transformation and Charging Micro-C USB.

6.2 Open Arduino IDE

Open Arduino IDE on your computer. The setup procedure can be referred back to the setup. section.7

6.3 Select Port

There are two selections we require to do in the Arduino IDE:

- Tools -> Board -> Aruino Nano 33 BLE
- Tools -> Port -> choose the COM with name of your connected board

6.4 Open Serial Monitor

Tools -> Serial Monitor

6.5 Start waving magic wand

Start waving for the desired output. Gestures will be predicted according to the movement of the wand.

7 Setup Menu

7.1 Performing the initial setup

The initial setup differs from model to model.

7.1.1 Initial Setup

The setup menu allows you to access and perform the magic wand.

7.1.2 Installation

Arduino Nano 33 BLE Sense uses the Arduino software integrated development environment (IDE) for programming, which is the most widely used and common (IDE) for all arduino boards that can be run online and offline. This is a open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. There are various version of software which is supported for each operating system (OS) e.g: mac, linux, and windows. Arduino community also provide us to start coding online and save our sketches in the cloud, this online arduino editor is most up-to-date version of the IDE includes all libraries and also supports new Arduino boards. For getting access to these software packages go to the following link <https://www.arduino.cc/en/software> and get more up to date inforamtion, because every single day there are some updates occurs which is available on the link mention above. These software can be used with any Arduino board, the most recent offline arduino IDE 1.8.15 can be seen in Figure,7.1. it is also supportive for all operating systems.

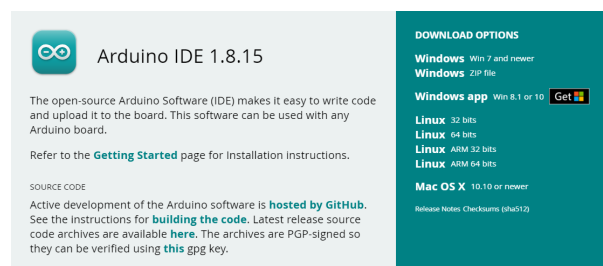


Figure 7.1: Arduino CREAT Agent Installation.

7.1.3 System Requirement

Operating System	Windows 7 or above, MacOS X or higher
CPU	Intel i3 or above
RAM	Min 2GB
Arduino IDE	V. 1.819
Boards	Arduino mBED OS Nano
Libraries	LSM9DS1
Interface	USB port

7.1.4 Configuration

Configuration for the Arduino Nano 33 BLE Sense

To program the Arduino Nano 33 BLE Sense in offline state, we need to install one of the latest arduino IDE on our desktop. After installation, for getting access to the Arduino nano 33 ble sense board, we need to make configuration in our IDE. By opening the IDE, go to tool which can be seen on the upper left corner in IDE, in the tool there is an option for managed board. At this point we need to write our board name in the search which is Arduino Nano 33 BLE Sense as shown in figure,7.2. Select the Arduino Mbed OS Boards and install it. The Mbed OS nano board supports also other nano family boards including Arduino nano 33 ble sense, after installing simply connect the Arduino Nano 33 BLE Sense to the computer via USB cable.

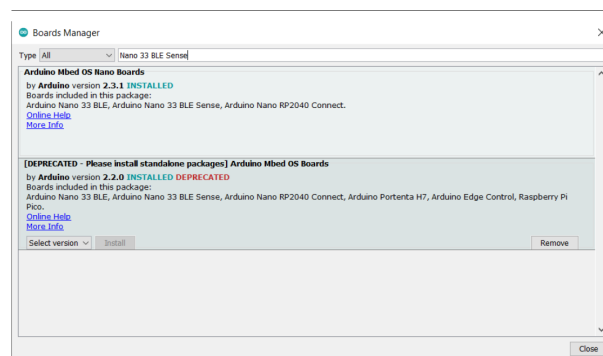


Figure 7.2: Arduino Mbed OS Nano Boards Installation.

7.1.5 Setup

There are set of examples which are build in Arduino (IDE) for the testing purpose, for checking all the configuration and setting up the board we can open one of the basic LED blink example first as shown in the figure. 7.3.

This LED-blink example support all the arduino boards, for the checking purposes just need to run this basic example on any arduino embed board and it will blink the

7.1 Performing the initial setup

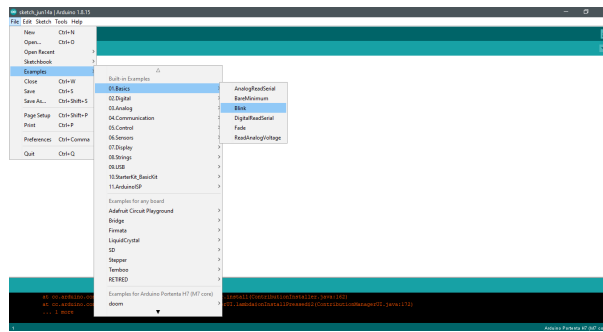


Figure 7.3: LED-Example Test.

LED on our Arduino board after pre-set milliseconds. In the same example folder, there are also number of build in usefull example written in Arduino IDE for embedded boards. These examples are very usefull for getting the basic knowledge about the board and programming.

7.1.6 Output Window (Serial Monitor)

Serial Monitor is the another window on the Arduino IDE, which shows the Input/Output of our program and results appear on it as per the required output. For getting access to Serial monitor, we need to go extreme right in the Arduino IDE, the small circle pop up when we reach it is the serial monitor as show in the figure.7.4 The



Figure 7.4: Serial Monitor Icon.

Final results, all the variables, input, sensor values are shown in the serial monitor the (Output Window) as shown in the figure7.5 by clicking the serial monitor button.

7 Setup Menu

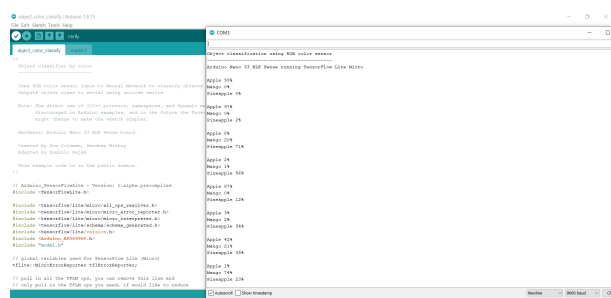


Figure 7.5: Output Window.

8 Troubleshooting and Maintenance

8.1 Troubleshooting

If the Magic Wand seems to have a problem, first review this list of possible problems and solutions. If none of these troubleshooting tips apply, please visit www.magic-wand.com and click on Support.

8.1.1 The Magic Wand can't turn on(i.e. Power LED or Orange Programmable LED are not working)

Common Issues

- Ensure you have FULLY inserted the USB cables.
- Check you have a COMMON GROUND where required.
- Where possible use USB 2.0 ports or a USB 2.0 POWERED HUB to rule out USB 3.0 issues.
- Try other computers where possible.
- Try other USB leads where possible.
- You may not have the correct driver installed. CH340/341 12 or CP2102 9 or FT232 VCP Drivers - FTDI 11
- There may be a problem with the board check or remove your wiring first.
- Remove any items connected to pins 0 and 1.

Computer Related

- Close any other serial programs before opening the IDE. Ensure you turn off any additional security / antivirus just to test.
- There may be a problem with the PC try RESTARTING it.
- You select the wrong COM port.

8 Troubleshooting and Maintenance

- Avoid cloud/network based installations where possible OR ensure your Network/Cloud software is RUNNING.
- Clear your browsers CACHE.
- Close the IDE before using any other serial programs. Preferably install IDE's as ADMINISTRATOR or your OS equivalent

8.1.2 I am not getting the gesture which I waved

- **Review Technique:** Revisit the gesture instructions to confirm you are performing the movements correctly.
- **Clear Space:** Make sure you have ample space around you, free from obstructions that could interfere with gesture detection.
- **Re-hold** Hold the wand in a manner properly. If the gesture still cannot detect, please contact the authorised dealers or service centres for further assistance.

8.1.3 Is it wireless, Can I connect it with Bluetooth?

It can be connected with the Bluetooth, but as there is no inbuilt battery it should be powered by connecting it with the Micro-B USB cable to the computer.

8.1.4 How to turn on/turn off the magic wand?

The board is powered via USB connector. Once turned on, Power green LED lights up. Removing the cable from the USB port can turn off the Magic Wand.

8.2 Maintenance

8.2.1 Caring for the Magic Wand

- Do not spray water or any liquid directly onto the board. Any liquid that goes into the product may cause a failure, fire, or electric shock.
- To clean the wand, gently wipe away smudges and fingerprints on the stick with a micro-fiber cloth. Clean the body of the wand only with a micro-fiber cloth dampened with a small amount of water. After that, remove the moisture with a dry cloth. While cleaning, do not apply strong force to the board because it can damage the board. Only the wand body can be cleaned, not the board. Never use flammable liquids (benzene, thinner, etc.) or a cleaning agent. For stubborn smudges, spray a small amount of water on a micro-fiber cloth, and then use the cloth to wipe away the smudges.

9 Warranty

9.0.1 International Guarantee

If you purchased the device from an authorized Magic Wand dealer, you are entitled to a free repair of the unit within a year of your purchase. The Magic Wand dealer is in charge of all after-purchase services. Any problems arising from mishaps, abuse, overuse, regular wear and tear, negligence, or unapproved repairs and modifications release the manufacturer from all liability. Furthermore, any loss or damage that arises during the unit's transportation to or from the person filing the warranty claim is not the manufacturer's responsibility. The section on warranty conditions contains the specific terms of the guarantee.

9.0.2 The warranty extends to

Parts (excluding disc drives) and labor costs for one year from the purchase date (see below for additional terms and conditions). After one year you must pay for both parts and labor costs. Disc drives (of any type) are covered under this warranty for one year from the purchase date. Battery replacement is not covered by the warranty at any point. At no point does the warranty cover the cost of transportation.

9.0.3 Assurance-backed claims

Please return this item to the dealer where you purchased it, using the original packing. Rather than using the postal service, it is advised to mail it via a reputable courier service with prepaid carriage. When the equipment is being shipped to the dealer or distributor, we are not liable for it. It is therefore wise to obtain equipment insurance to guard against any possible loss or damage while in transit. For additional information, please reach out to Magic Wand at XXX@magic-wand.com

9.0.4 Query

If your dealer is unable to answer any query regarding this or any other Magic Wand related-product please contact our Customer Support at the above address and we will do our best to help you.

9.0.5 Online Registration

You can register your product on-line at www.magic-wand.com. Moreover, extra 6 months will provide to customers who register through online.

9.0.6 Warranty Conditions

1. When warranty servicing is needed, the warranty is only valid if the warranty card is correctly filled out, together with the original sales slip, invoice, or confirmation, and the product's serial number hasn't been tampered with.
2. Our obligations are limited to the repair or, at its discretion, replacement of the product or the defective part.
3. Only Qualified Service Centers or Authorized Magic Wand Dealers are permitted to perform warranty repairs. For repairs performed by unapproved dealers, there will be no reimbursement, and this guarantee will not cover any harm these repairs may cause to the items.
4. The product in question does not meet national or local technical or safety standards that apply in any other country than the one for which it was developed and made, hence it is not deemed to be defective in terms of materials or workmanship.
5. This warranty covers none of the following:
 - Periodic check ups, maintenance and repair or replacement of parts due to normal wear and tear.
 - Performance due to differences in broadcasting method between countries.
 - Misuse, including the failure to use this product for its normal purposes or incorrect installation
 - Cost relating to transport, removal or installation of the product.
 - Damage caused by Lightning, Water, Fire, Acts of God, War, Public Disturbances, incorrect mains voltage, improper ventilation or any other cause beyond the control of our team.
 - Spillage of food or liquid or use of any other hazardous substances, which may effect the product.
6. This warranty is valid for any person who legally acquired possession of the product during the warranty period.
7. This warranty does not affect the consumer's statutory rights under any applicable national legislation, whether those rights are against the merchant stemming from the purchase contract or not. The only rights under this warranty belong to the customer, unless there is a national law that states otherwise. Samsung, its affiliates, and distributors will not be held responsible for any indirect or consequential loss or damage to audio tapes, videos, compact discs, records, or any other related equipment or material.
8. Some products may differ from these guidelines. Please check with your dealer or the local website.

10 FAQs

1. What is the button present on the board?

A. It is the reset button, which you can use for resetting the program.

2. Why LED's are not blinking?

A. Check the connection, also confirm the program is uploaded properly without any errors.

3. How should I hold the magic wand?

A. Hold the magic wand according to how it was trained. However handle with care by not harming the components and sensors present on the board.

4. What is input voltage required for the magic wand?

A. Arduino Nano 33 BLE only supports 3.3V. So make sure you do not connect it to any other input signals to this board or else it will be damaged.

5. Why I am not getting the gesture which I waved?

A. Hold the wand in a manner how you trained it, also train it with more datasets.

6. How to reset the magic wand?

A. Press the reset button present on the board.

7. How to turn on/turn off the magic wand?

A. The board can be powered via USB connector. Once turned on, Power LED lights up.

10 FAQs

8. Why does the orange light blink sometimes?

A. It is a programmable LED and in this case it blinks when a process is running.

9. Is it water and fire resistant?

A. No, it not. keep away from water or fire.

10. Is it wireless, Can I connect it with Bluetooth?

A. It can be connected with the Bluetooth, but as there is no inbuilt battery it should be powered by connecting it with the Micro-B USB cable to the computer.