

# Sunu band Quick Start



## Sunu band Quick Start Guide

### Welcome

Thank you for choosing Sunu. This quick start guide will help you become familiar with the Sunu Band and its basic operations. The quick start guide will show you the following:

1. What's included in the box.
2. Getting to know Sunu Band.
3. How to charge your Sunu Band.
4. The best way to wear Sunu Band.
5. The Sunu Band Interface and how to operate it.

### Included in the Box

The following is included within the Sunu Band box:

- One Sunu Band.
- One micro USB to USB charging cable.
- A welcome insert and a Sunu decal with one of our favorite inspirational quotes: "Life is either a daring adventure or nothing." – Helen Keller

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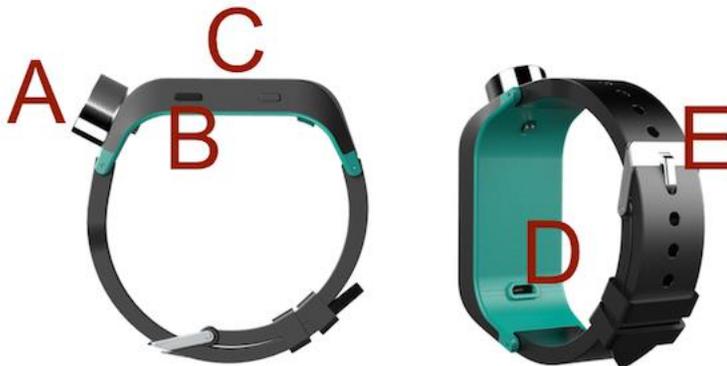
## Getting to Know Sunu band

The Sunu Band is the first intelligent mobility aid that is designed to improve navigation for the blind and visually impaired. Sunu Band combines a sonar or echolocation sensor with a high resolution vibrating actuator that the user can feel. Vibrations gently inform the user about objects or obstacles up to 15 feet away. Sunu Band augments awareness of the user's personal space and reduces accidents, ultimately providing a more confident and enjoyable mobility experience. On top of that Sunu Band comes with additional and upgradable functions thanks to its integration with the Sunu App available for iPhones (and soon on Android devices).

- Haptic Watch: Discreetly tell time without others taking notice by using vibratory pulses.
- Vibratory Alarms: Easily set up alarms from the App with different vibratory patterns on your Sunu Band.
- Obstacle Detection: The sonar sensor enables you to perceive objects or obstacles that are within your environment.
- Unlimited firmware updates: Keep your band updated with the latest improvements.
- Customizable – adjust the sonar range, sensitivity and vibratory feedback intensity via the app.
- Access to new applications and features via the Sunu App.

### Parts of the Sunu Band

It is important that you familiarize yourself with the different parts of the Sunu Band. The image below shows the parts of the Sunu Band as viewed from various angles.



A. Orient the Sunu Band by locating the round metal cylinder at one end of the band's control pad. This is the sonar sensor. The sonar sensor is a transducer that emits ultrasounds as well as detects the echo or reflected sound-waves that bounce back from objects or obstacles that are within the selected range while the Sunu Band is in obstacle detection mode.

B. There are two (2) buttons located along one edge of the Sunu Band's control pad. One of the buttons is long with a rough texture, and the other button is shorter with a smooth texture. The button nearest the

transducer cylinder is long and rough, and more pronounced. It is the Home button. The one furthest away from the transducer is shorter and smooth, and is also a little recessed. It is the Navigate button.

There are two ways in which we can interact with the buttons:

- **Press:** Push and immediately release the button.
- **Press and hold:** Push button and maintain pressed for three seconds before releasing the button.
- **Double Click:** Press the button twice.

Each of these ways of using the buttons activates a different set of functions. The use of these buttons will be covered in later sections of this guide.

C. The flat surface of the Sunu Band is the **touchpad**, which will allow users to control the interface of the Sunu Band. You will interact with the touchpad just like you would with any smartphone or tablet.

- **Swipe-Out:** Swipe finger in the direction that is going away from the sonar sensor.
- **Swipe-In:** Swipe finger in the direction towards the sonar sensor.
- **Tap and hold:** Place one finger on the touchpad, hold for three seconds and release by lifting your finger.
- **Double-Tap:** Tap twice on the touchpad rapidly with your finger.

The use of the touchpad will be covered in later sections of this guide.

D. The micro-USB connection is located on the inner face of the Sunu Band, the part in direct contact with the user's skin. It is on the end of the Sunu band opposite to the transducer, and feels like an indentation. The part of the strap with the silver buckle extends from this same end of the control pad.

E. Sunu Band comes with a standard 20mm hypoallergenic silicone strap (black) and silver buckle.

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## Charging the Sunu band

Please follow the instructions below to charge the Sunu Band, using the provided micro USB charging cable. It is recommended that you charge your Sunu Band before first use. To charge Sunu Band:

1. Hold the Sunu Band in your weaker hand.
2. Firmly grasp the thinner end of the micro USB cable.
3. There are two (2) dots on the thinner end of the cable. As you approach the connector indentation, Make sure the two dots on the thinner end are pointed toward the strap with the buckle, and away from the transducer.
4. Insert the cable into the connection slot until you feel a firm click. If the dots are facing the wrong way, the cable will not slide into the connector slot. If this happens, just turn the cable around so that the dots are sure to face the part of the strap with the buckle. -Note, the micro USB cable must be firmly inserted or the Sunu Band will not charge.
5. Connect the thicker end of the micro USB cable into a USB to AC adapter. This adapter is not included with the Sunu Band. However, you may use the USB to AC adapter that came with your iPhone or any other USB to AC adapters you may have at your disposal. You can also charge the Sunu Band by connecting the USB cable to a computer.
6. Wait for about 20 seconds. The Sunu Band will vibrate once it is receiving direct power. If the Sunu Band does not vibrate after 15 seconds, please insure all connections are firmly inserted in their respective slots.

It will take approximately one and a half hours for The Sunu Band to fully charge. Estimated use time is approximately 12 hours before the Sunu Band will need to be recharged.

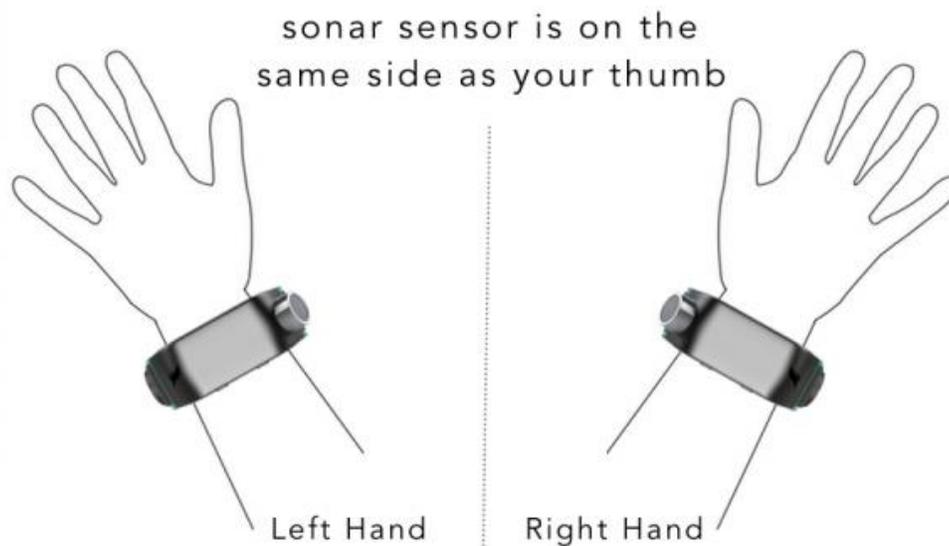


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## Wearing the Sunu band

You can wear Sunu band on either hand, just like any watch. It is important to wear Sunu band with ***the sonar sensor on the same side as your thumb***, as shown in the image below. Then adjust the belt and buckle until the Sunu band fits comfortably and securely around your wrist. We recommend that you wear Sunu band on the opposite hand to which you handle other travel aids such as a white cane or guide dog.

## Wearing Sunu Band



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## The Sunu band Interface

Sunu Band's interface works similarly to a smartphone or tablet. Sunu Band has:

- **Two buttons** located at one of the sides of the Sunu Band.
- **The touch-pad**, which is the flat top surface of the device.

### The Buttons:



1. The HOME button is closest to the sonar and has a rough texture.
2. the NAVIGATE button is furthest from the sonar and feels smooth.

The two ways in which we interact with the buttons are:

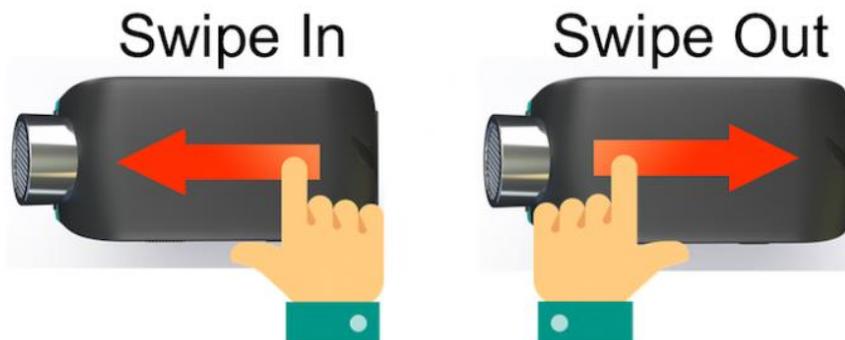
- **Press:** Push and immediately release the button.
- **Press and hold:** Push button and maintain pressed for 3 seconds before releasing.

## The Touch-pad

You interact with the touch pad just like you would with any smartphone or tablet surface. The two primary kinds of interactions you will be doing with the touch pad are:

### I. Swipe Interactions:

- **Swipe-Out:** Slide finger in the direction that is going away from the sonar sensor.
- **Swipe-In:** Slide finger in the direction towards the sonar sensor.



### II. Touch Interactions

- **Tap and hold:** Place your finger on the touch-pad, hold for 3 seconds, and release.
- **Double-tap:** Touch twice on the touch-pad with your finger.



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## Interface Operation

### HOME

Sunu Band's HOME button is the equivalent of the lock screen button on a smartphone. It basically exits from any active app and goes into a standby or low power mode, which we will refer to as HOME. Sunu Band's HOME allows you to use the **Haptic Watch** by swiping on the touchpad. The haptic watch enables you to read the time via a series of vibration patterns.

When you press the HOME button, you will immediately feel a **soft long pulse** to indicate that Sunu Band is now in the HOME mode. Remember that The Sunu Band will go into sleep mode after a minute has passed without the Band being used. To wake up The Sunu Band simply press the HOME button once more.

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## Sunu band Apps

You can turn ON/OFF, customize and manage specific apps or functions on the Sunu Band from within our mobile app for iOS and Android. Please refer to our mobile app quick start guide for details.

Applications on the Sunu Band are managed from the Sunu mobile app. Currently the app is only available for IOS. However, an Android version is coming soon. Sunu Band comes with three default apps:

1. Haptic Watch: Access from within HOME.
2. Vibratory Alarms: Managed from the alarms app located within the apps tab.
3. Obstacle Detection: Managed from the obstacle detection app located within the apps tab.

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## Haptic Watch

Sunu Band's haptic watch allows you to tell the time via a series of **short or long pulses**. You may choose to read the hour or the minutes depending on how you swipe on the touchpad. To access the haptic watch:

1. **Press the HOME button:** You will immediately feel a soft short pulse to indicate that you are now in the HOME mode. The haptic watch will be available for one minute before the Band goes to sleep. If the Sunu Band is in sleep mode, simply press the Home button again to begin using the haptic watch.
2. **Swipe-In to read the hours, or Swipe-Out to read the minutes:** You will feel a vibratory pattern which will indicate the hours or minutes. The following section will describe these vibratory patterns to help you confidently tell time using your Sunu Band.

### Reading the Time

Sunu Band uses a series of **long and short pulses** to tell the time. A **long pulse** equals five and a **short pulse** equals one. You will need to add up the number of short and long pulses that you feel to calculate the time.



#### I. Reading the hour:

**Swipe-In** on the touchpad to read the hour. You will feel a series of pulses. Remember that a short pulse equals one hour and a long pulse equals five hours.

For example, if it is 4:00 you would feel four short pulses when you swipe in.

**Remember that a long pulse equals five hours and a short pulse equals one hour.**

First example, if you swipe in and feel a single long pulse, it is 5:00.

Second example, if you swipe in and feel one long pulse and two short pulses, it is 7:00.

Third example, if you swipe in and feel two long pulses followed by one short pulse, it is 11:00.

## II. Reading the Minutes:

**Swipe-Out** on the touchpad to read the minutes. The minutes are indicated in groups of vibratory patterns separated by a long pause.

In the first group of pulses Sunu Band tells the time by 10 minute increments or “tens passed the hour”.

A long pulse equals 50 minutes, and short pulses equal 10 minutes.

For example, four short pulses in the first group equals 40 minutes.

Two short pulses equals 20 minutes.

If you feel one long pulse, this simply equals 50 minutes.

If there are no vibrations in the first group, you are less than 10 minutes passed the hour.

After the first group of pulses and a long pause, you will feel the second set of pulses, these pulses transcribe the minutes information.

The second set of pulses on the Sunu Band works exactly like the first set of pulses, a short pulse equals one, a long pulse equals five, and no pulse means that no additional minutes need to be added to the first group of minutes. In the second set, we are adding up sets of five minutes and one minutes instead of 50 and 10.

If you feel one long pulse and two short pulses in the second group, you know you need to add on seven minutes to the first group of pulses for your complete minutes information.

For example, if you feel four short pulses in the first group, then four short pulses in the second group, you are 44 minutes passed the hour.

Example #2: If you feel one long pulse, followed by the transitional pause, and then four short pulses in the second set, you have 54 minutes passed the hour.

Example #3: Now, if you feel three short pulses in the first group, then the transitional pause, in addition to one long pulse followed immediately by three short pulses, you have 38 minutes passed the hour.

### Adjusting Time Preferences

Sunu band derives the time from your mobile phone when the device is paired with the app.

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## Obstacle Detection App

The Obstacle Detection app activates the Sunu Band’s sonar sensor which detects objects or obstacles that are within your environment up to 16 ft. (4.8 meters) away. Sunu Band detects objects in ‘real time’.

Sunu Band provides haptic vibration feedback that informs the user about their proximity to an object.

Here is how the sonar or echolocation sensor works:

The sonar transducer emits a high-frequency sound wave that bounces back from objects that are within range of the sonar. The resulting sound waves or echoes that bound back are detected and processed to obtain information about the object's proximity. This information is converted into vibratory patterns or pulses that you feel on your wrist. Generally, the vibration pulses become more frequent as an object becomes closer or less frequent as the object becomes farther away.

***Our mobility guide will introduce you to the principles of echolocation, and you will practice detecting objects with the Sunu Band.***

The Obstacle Detection app allows you to:

- Activate the sonar sensor and vibration feedback.
- Switch between sonar modes.

### **Activating the Obstacle Detection App**

1. **Press the Navigate button** to activate the sonar. When you press the button, Sunu Band will immediately vibrate to indicate that the app is now active.
2. After a brief pause, you will feel one or two pulses to indicate the sonar mode.
3. After another short pause the Obstacle Detection App will be active and working in the selected mode. You can aim the sensor in different directions or pass your hand in front of it to make sure that it is working properly.

### **Switching Between Sonar Modes**

The Sunu Band has two sonar operating modes:

1. **Short range (indoor) mode:** allows you to detect obstacles at 6 ft. or 1.8 meters and has low sensitivity. This mode is ideal for navigating indoors and crowded spaces. Its low sensitivity allows for gaps, doorways and thresholds to be readily detected.
2. **Long range (outdoor) mode:** allows you to detect obstacles within 16 ft. or 4.8 meters and has high sensitivity. This mode is ideal for navigating outdoors and in wide open spaces. Its high sensitivity is optimized to detect thin objects like tree branches and bushes.

**Swiping In or Out** on the **touchpad** switches between sonar modes.

1. **Swipe-In** to switch to the short range mode. You will immediately feel one pulse to indicate that this mode is on.
2. **Swipe-Out** to switch to the long range mode. You will immediately feel two pulses to indicate that this mode is on.

### **Exiting the Sonar & Obstacle Detection app**

- Press the HOME button to exit and return to HOME.

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## **Gestures Control**

Gestures are simple movements of the hand that allow you to control certain functions of the Sunu Band. The Sunu Band's sensors track the position and movement of your hand to trigger, for example, an instant sleep or rapid ON/OFF of the Sunu Band. Gestures are intended to help in situations where you may have your hands occupied and pressing a button is a bit cumbersome.

Your Sunu Band comes with two active gesture controls that enable you to quickly put to sleep and wake up the Obstacle Detection App. This is especially useful when you are traveling, and a situation arises where you don't need the Sunu Band's Obstacle Detection App providing feedback. Gestures allow you to quickly send the Band to sleep and wake it up again. Here is how we do it.

## **Obstacle Detection SLEEP and WAKE-UP**

This gesture only works when you are in the short range or the long range of the Obstacle Detection App. You should perform the gesture with the hand on which you wear the Sunu Band.

To send Sunu Band to SLEEP:

1. Tap twice on your hip with your palm facing your hip.
2. You will feel a long pulse. This pulse begins with a high intensity and decreases to a low intensity. It indicates that the Obstacle Detection mode is asleep.

To WAKE-UP the Sunu Band:

1. Tap twice on your hip with your palm facing toward your hip.
2. The Sunu Band will pulse to indicate whether the short or long range is in use.

There is another way to quickly SLEEP and WAKE-UP your Sunu Band. You can do this by:

1. Bring your arm to your chest.
2. Turn your wrist so that your palm is facing downward.
3. The Obstacle Detection App will quickly SLEEP when your hand is in this position.

To WAKE-UP:

1. Return your arm to your side.
2. The Obstacle Detection app will quickly Wake-up.
3. Sunu Band will continue working in the same sonar mode that was selected prior to sleep.

You can manage, enable, or disable gesture control from within the mobile app. Please refer to the Sunu App guide for more details.

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## **Resetting Sunu band**

Sunu Band can be reset to its factory defaults. To reset Sunu Band:

1. Press and hold the NAVIGATE button for 3 seconds, unit Sunu Band begins to vibrate.
  2. Allow Sunu Band to go through the reset process. This should only take about 20-30 seconds.
  3. Sunu Band will vibrate again to indicate that's it's now reset and that it's now ready for use.
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