



## User Manual

Version 0.1

# TABLE OF CONTENT

## 1. Introduction

- Intended use
- Device description
- Indications of use

## 2. Symbols & Cautions

- Symbols
- Caution

## 3. Installation to Existing Stethoscope

## 4. Operation

- AyuSynk modes & LED states
- AyuSynk Working processes
- AyuShare workflow
- Compatible Stethoscope
- Bluetooth & Data connection
- System requirement

## 5. Cleaning

## 6. Troubleshooting and Maintenance

## 7. Technical Specification

## 8. Electrical Safety

## 9. Warranty

## 10. Disposal

## 11. Manufacturing and Regulatory Information

# 1. Introduction

- Intended use

The AyuSynk is an exceptional healthcare tool meticulously crafted to support and empower medical professionals in the vital task of listening and analyzing heart and lung sounds. Its primary aim is to bridge the gap between rural doctors and their urban counterparts, enabling seamless communication and collaboration.

Comprising a device seamlessly integrated with a stethoscope and the AyuShare App, AyuSynk is a comprehensive system designed to optimize efficiency and enhance patient care. By utilizing Bluetooth technology, it facilitates sound amplification and audio transmission to iOS and Android smartphones and tablets. This groundbreaking feature enables users to conveniently access, open, analyze and play back sounds through the AyuShare App, available on compatible devices.

AyuSynk enables healthcare providers to access saved sounds from anywhere, at any time, ensuring uninterrupted continuity of care. Furthermore, the app enables effortless sharing of recordings with other clinicians, fostering collaboration and promoting accurate diagnoses.

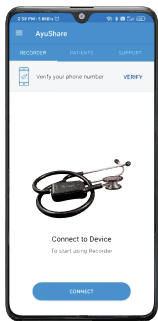
AyuSynk module is an electronic device used to amplify body sounds when used with the standard manual/conventional stethoscope. The AyuSynk module is intended to be used by health professionals in a clinical environment. The device is not intended for self-diagnosis.

Under certain conditions, the patient might be the intended operator.

**Warning:** Avoid using maintenance or servicing while the equipment is in operation.

# 1. Introduction

- Device Description



Fully assembled digital stethoscope and mobile app

- Indications for use

AyuSynk is an advanced electronic stethoscope designed for healthcare professionals in clinical settings. It offers amplified sound, noise reduction, and seamless transmission of heart and lung auscultation data. Additionally, visual graphs greatly enhance the diagnostic process for doctors, making it significantly more effective and efficient.

Whether clinicians are on-site or in different locations on the network, AyuSynk enables real-time listening to patient sounds.

With AyuSynk, healthcare professionals can elevate their auscultation capabilities, leading to improved patient care and enhanced healthcare practices.

## 2. Symbols & Cautions

- Symbols



Instructions for use



Do not dispose with household waste



Emits Radio Frequency signal



Humidity range



Temperature range



Wireless Bluetooth communication



Manufacturer



Manufacturing date



Quantity



MR Unsafe



Direct Current



“ON” / “OFF” (push - push)



Refer to Instruction Manual / Booklet

## 2. Symbols & Cautions

- Symbols



Type B Applied Part

**IP20**

An IP20 rating indicates that the product is touchproof and resistant to dust or items larger than 12mm in size. However, it has no protection against liquids and will be damaged if it comes into touch with water sprays.

## 2. Symbols & Cautions

- **Cautions**
- To reduce the risk of device interference, keep AyuSynk at least 1 meter away from all RF emitters including Wifi routers and radios.
- To reduce the risks associated with inaccurate data acquisition store and operate this stethoscope only as instructed in this manual. It is highly recommended that the battery be recharged once LED indicator turns red. Recharge the battery using only the standard USB power cord with a USB wall charger.
- DO NOT immerse the stethoscope in a liquid or subject it to any sterilization processes other than those described in this manual.
- To reduce the risks associated with very strong electromagnetic fields avoid using the stethoscope near strong radio frequency (RF) signals or portable and/or mobile RF devices and/or specific RF emitters that are known sources of electromagnetic disturbance such as diathermy, electrocautery, RFID, security systems (e.g., electromagnetic anti-theft systems, and metal detectors). Interference from hidden RF emitters like RFID might cause packet loss and this will be visible as a “Poor Bluetooth Signal” message on the mobile application. Move away from the hidden RF emitter if this happens.
- Please read, understand, and follow all safety information contained in these instructions prior to using the AyuSynk. It is recommended that these instructions be retained for future reference.
- To improve Bluetooth connection, reduce the distance and/or allow a line of sight between AyuSynk and mobile device. The Bluetooth range will be reduced when objects (walls, furniture, people, etc) are between the AyuSynk and a paired mobile device.
- Device is not functional while charging.
- To ensure high quality sounds location and position of AyuSynk placement should be taken into consideration when auscultating.

## 2. Symbols & Cautions

- Warnings
- No modification of this device is allowed.
- Do not modify this device without authorization of the manufacturer.
- If the device is modified, appropriate inspection and testing must be conducted to ensure continued safe use of device.
- Circuit diagram, component part list, description and other information that will assist service personal to repair the device will be made available on request to the service personal designated by Ayu Devices Pvt Ltd.



### 3. Installation to Existing Stethoscope



- Step One

Hold the chest piece of your stethoscope in one hand and Carefully insert the chest piece into the AyuSynk connecting tube provided with the Kit.

- Step Two

Attach the AyuSynk Digital Stethoscope to the other end of the AyuSynk connecting tube.

- Step Three

Attach the Binaural of the stethoscope to the other end of the AyuSynk device and assembly of the AyuSynk digital stethoscope is now complete

\*This is not required for pre-assembled digital stethoscope

### 3. Installation to Pre-assembled Stethoscope



- Step One

In pre-assembled digital stethoscope, the chest piece, connecting tube, and AyuSynk module are already assembled as depicted in the illustration on the left side.



- Step Two



Attach the Binaural of the stethoscope to the other end of the AyuSynk device and assembly of the AyuSynk digital stethoscope is now complete



## 4. Operation

- AyuSynk Modes and LED states

- Device Status

  AyuSynk is on/  
Heart mode is default

 AyuSynk is low on Battery

- During Charge

 Charging

 Charging Full

- Filter Mode

  Pink-White / Heart mode

  Blue-White / Lung mode

## 4. Operation

- AyuSynk Working processes
  - **Power On/Off (Turn on/Shut down procedure)**

To turn on the AyuSynk device, click on the power button. The LED will start blinking once the device is turned on. If you wish to power off the device, simply click the power button again, and the device will turn off.

- **Test the Volume level**

AyuSynk's sound level can be amplified higher than that of an acoustic stethoscope. Utilize the scroll wheel on the device to adjust the volume level, increasing or decreasing it as needed.

- **Charge Battery**

To charge the battery in AyuSynk, insert the included micro USB cable into the USB port on the device, and plug the other end into a USB wall charger. The LED will turn solid Blue to indicate that it is charging. Once the device is fully charged, the LED will change to solid green. In continuous usage mode, the fully charged battery should last for at least 8 hours.

- NOTE: AyuSynk will not turn on while it is plugged in and charging.

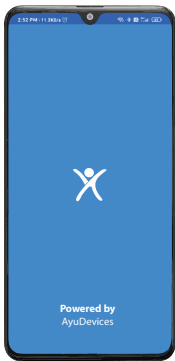
- **AyuShare App**

Download the AyuShare app, available on the App Store® and Google Play and follow the on-screen instructions to connect to AyuSynk (as shown on the next two pages).

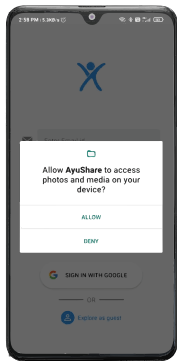
Bluetooth must be enabled in the mobile or tab's Bluetooth settings in order to use AyuSynk with the AyuShare App. Update to the latest version of the AyuShare App.

## 4. Operation

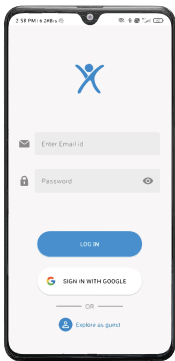
- Connection with AyuShare App



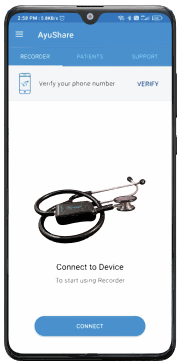
**Access:**  
Launch AyuShare app on  
your Phone



**Allow:**  
Click on allow for necessary  
permissions



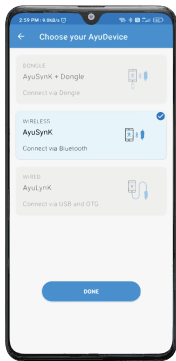
**Log in:**  
At the login page, Click on  
"Sign in with Google"



**Connect:**  
Now you are at Homepage,  
Click on "Connect" and Pair to wired or  
bluetooth headphones when connecting to ayushare

## 4. Operation

- Connection with AyuShare App



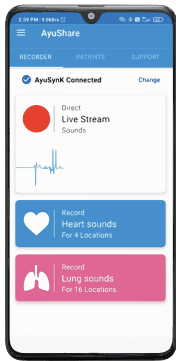
**Choose:**

In next step choose second option "AyuSynK- Connect via Bluetooth" and Click Done



**Select:**

Any active AyuSynK device will be available to connect on next page. Select your Device and Click "Connect"



**Connected:**

Now your mobile and AyuSynk has been successfully connected.

## 4. Operation

AyuSynk package includes

- Smart Stethoscope Module with Chest piece
- Connecting tubes
- Binaural
- USB Cable
- Wired Earphone / Wireless Earphone
- Thank you card
- E-Manual

The compatible hardware and software platforms are listed below.

### • Compatible Stethoscope

AyuSynk is designed to be compatible with other stethoscope brands and models, but there are no performance guarantees when using other stethoscope brands or models.

### • Bluetooth and Data Connection

In order to transmit sounds to the AyuShare App, the stethoscope and device must be connected via Bluetooth, and in order to fully use certain functions, the mobile device must be connected to the internet via cellular data connection or Wi-Fi. Please keep AyuSynk and AyuShare App within 10 feet for optimum Bluetooth connection.

### • System Requirements

The mobile app software can be used on iPhone with iOS 12.0 and higher. The mobile app software can also be used with Android devices with BLE support (Bluetooth 4.0) and Android 9.0 and above.

### • Adapter specification requirement:

Use standard adapter with 5v ,1amp

## 5. Cleaning

- **Cleaning and Disinfecting Procedure**

The AyuSynk stethoscope should be disinfected between each use. Infection control guidelines from the Centers for Disease Control and Prevention (CDC) state that reusable medical equipment, such as stethoscopes, must undergo disinfection between patients. Standard stethoscope hygiene practices apply to the AyuSynk device.

**NOTE: DO NOT** immerse the device in any liquid or subject it to any high-pressure/autoclave sterilization processes.

To prevent staining of stethoscope binaural, avoid contact with pens, markers, newsprint, or other printed material. It is good practice to wear your stethoscope over a collar whenever possible.



## 6. Troubleshooting and Maintenance

- For Help and Assistance

Please contact Ayu Devices if you need assistance or any product related concerns.

For more information please visit:  
<https://www.ayudevices.com/>

Direct Contact: [contact@ayudevices.com](mailto:contact@ayudevices.com)


Purchase and Sales enquiry  
Phone: +91 8047191146

After sales service  
Call Support: +91 8047191855  
Whatsapp Support: +91 8073972906

## 7. Technical Specification

Stethoscope Type	Electronic/Digital
Power Source	Secondary Rechargeable battery (Li-Poly)
Battery Life	Approx. 8 hrs. of continuous use on a single charge
Charging Time	Max 2 hours.
Audio Output	Built-in speaker
Amplification	Adjustable volume levels for enhanced sound amplification (upto 60X)
Frequency Range	Typically between 20 Hz and 20,000 Hz
Heart Sound Recording	Capable of recording and storing heart sounds for later playback or analysis
Filter Options	Heart and lung filters to emphasize specific sound frequencies.
Bluetooth Connectivity	Enables wireless connection to a smartphone, tablet, or computer for data transfer and remote monitoring.
Software Compatibility	Compatible with dedicated AyuShare app (Android & iOS)
Noise Reduction	Advanced noise reduction algorithms to minimize ambient noise interference
Diaphragm and Bell Modes	Switchable modes for capturing different types of body sounds (high-frequency and low-frequency sounds)
Material	Durable and lightweight construction (stainless steel, high-grade biodegradable plastic material)
Accessories	1 binaural, 2 Connectors, 1 USB cable, 1 Wired earphones.
Weight	80g

## 7. Technical Specification

Temperature	Temperature between -10°C to 40°C
Humidity	Humidity between 30% to 90% RH
Bluetooth Specification	Bluetooth v5.2.
Transport/storage	
Device type	Internally powered device
Mode of operation	Continuous
Battery	3.7 V Nominal Voltage, 500mAh Li- Polymer battery

Features	Ayu Synk2Pro	Ayu Synk 2+
Record and Share	✓	✓
Playback speed upto 0.25x	✓	✓
In app noise cancellation	✓	✓
In app heart and lung filter	✓	✓
Visualization of sound	✓	✓
Report generation	✓	✓
In device noise cancellation	✓	✓
In device Heart and lung filter	✓	✓
Realtime transmission of sound	✓	-
SDK Support	✓	-
1 year software access	✓	-
Wired	-	-

## 8. Electrical Safety

Guidance and Manufacturer's Declaration- Electromagnetic Emission	
The AyuSynk 2Pro is intended for use in the electromagnetic environment specified below.	
Applicable Emissions Test	Compliance
RF emissions CISPR 11	Group 1
RF emissions CISPR 11	Class B
Harmonic Emissions IEC 6100-3-2	Not Applicable
Voltage fluctuations/flicker emissions IEC 61000-3-3	Not Applicable

Warning: The use of accessories other than those specified, with the exception of accessories sold by Ayu devices as replacement parts, may result in increased emissions or decreased immunity of the AyuSynk 2Pro Stethoscope System.

Guidance and Manufacturer's Declaration- Electromagnetic Immunity			
The AyuSynk 2Pro is intended for use in the electromagnetic environment specified below.			
Immunity Test	IEC 60601 Test Level	Compliance level	Electromagnetic Environment-Guidance
Electrostatic Discharge (ESD) IEC 61000-4-2	+/- 8 kV contact +/- 15 kV	+/- 8 kV contact +/- 15 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical Fast Transient/Burst IEC 61000-4-4	+/- 2kV for supply lines +/- 1kV for input/output lines	Not Applicable	
Surge IEC 61000-4-5	+/- 1kV line(s) to line(s) +/- 2kV line(s) to earth	Not Applicable	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	100% drop in UT for 0.5 cycle 0/45/90/135/180/225/270/315 degrees, 100% dip in UT for 1 cycle, 30% dip in UT for 25 cycle, 100% drop in UT for 5 sec	Not Applicable	
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial magnetic field or hospital environment.

## 8. Electrical Safety

Guidance and Manufacturer's Declaration- Electromagnetic Immunity			
The AyuSynk 2Pro is intended for use in the electromagnetic environment specified below.			
Immunity Test	IEC 60601 Test Level	Compliance level	Electromagnetic Environment-Guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	Not Applicable	
Radiated RF IEC 61000-4-3	10 v/m 30 MHz to 5.7 GHz	10 v/m 30 MHz to 5.7 GHz	$d = 1.2 \sqrt{P}$ 80MHz to 800MHz $d = 2.3 \sqrt{P}$ 800MHz to 2.7 GHz Where p is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).  Field Strengths from fixed RF transmitters, as determined by an electromagnetic site survey, a should be less than the compliance level in each frequency range,b

## 9. Warranty

Ayu Devices provide limited warranty on Device and accessories.

### Device (AyuSynk)

---

Warranty Period

**12** Months

---

Additional Information: Type of Service - Repair service carried at Ayu Devices service centre.

### Accessories (Others)

---

Warranty Period

**6** Months

---

Applicable accessory: Binaural, Connectors, USB cable, Wired earphones.

## 10. Disposal

- Electronic waste

Please do not dispose it as household waste treat it as E-Waste.

**Compliance with Local Regulations:** Laws and regulations regarding Electronics waste disposal may vary depending on your location.

It is essential to familiarize yourself with local regulations and guidelines to ensure compliance with proper waste management practices



Do not dispose with household waste.

## 11. Manufacturing and Regulatory Information



Manufactured by: Ayu Devices Pvt. Ltd.  
CM-06, 4th Floor, KReSIT Building,  
Near Gulmohar Cafe, Main Gate  
road, IIT Bombay, Powai  
Mumbai Maharashtra 400076

Service Centre: Ayu Devices Pvt. Ltd.  
CM-06, 4th Floor, KReSIT Building,  
Near Gulmohar Cafe, Main Gate  
road, IIT Bombay, Powai  
Mumbai Maharashtra 400076

Made in India

Supported by  
SINE, IIT Bombay: Society of Innovation and  
Entrepreneurship  
BeTiC, IIT Bombay: Biomedical Engineering and  
Technology Innovation Centre  
BIRAC: Biotechnology Industry Research Assistance  
Council  
DBT: Department of Biotechnology  
DST: Department of Science and Technology