

## ASHATA ASHATAvd1tg39nah-11

# ASHATA LNA Module (Model ASHATAvd1tg39nah-11) User Manual

Wideband 0.1MHz to 6GHz Low Noise Amplifier

## 1. INTRODUCTION

This manual provides essential instructions for the safe and efficient operation of your ASHATA Low Noise Amplifier (LNA) Module, model ASHATAvd1tg39nah-11. This device is designed to amplify weak radio frequency (RF) signals across a wide frequency range, from 0.1MHz to 6GHz, with a high gain of 20dB. Please read this manual thoroughly before using the product to ensure proper functionality and to prevent damage.

## 2. SAFETY INFORMATION

Observe the following safety precautions to prevent injury or damage to the device:

- Do not expose the device to moisture, rain, or extreme temperatures.
- Ensure proper ventilation to prevent overheating.
- Use only the specified power supply (5V).
- Avoid applying excessive force to connectors or switches.
- Do not attempt to disassemble or modify the device. Refer all servicing to qualified personnel.
- Keep out of reach of children.

## 3. PACKAGE CONTENTS

Verify that all items are present in the package:

- 1 x ASHATA Low Noise Amplifier Module (ASHATAvd1tg39nah-11)
- 1 x USB Cable (for power)
- (Note: This version includes a built-in 2500mAh Li-Ion Battery)

## 4. PRODUCT OVERVIEW

## 4.1 Features

- **Wide Frequency Range:** 0.1MHz to 6GHz.
- **High Gain:** 20dB at 1.95GHz.
- **Low Noise Figure:** Enhances weak signal reception.
- **High Linearity:** +35dBm output IP3.
- **High Input Power Ruggedness:** +22dBm continuous wave.
- **Built-in Battery:** 2500mAh Li-Ion battery for portable operation.
- **Compact Design:** Durable metal casing.

## 4.2 Components



Figure 1: Front view of the ASHATA LNA Module, showing the RF-IN connector and power switch.

This image displays the ASHATA LNA Module from the front. Visible components include the RF-IN SMA female connector on the left side and a black ON/OFF toggle switch. The orange metal casing is labeled with "TOP3M9037-LNA", "mode: RF AMP 04A", "frequency range: 0.1MHz - 6GHz", and "input/output impedance: 50 Ohm".



Figure 2: Rear view of the ASHATA LNA Module, showing the RF-OUT connector and power input.

This image shows the rear side of the ASHATA LNA Module. From left to right, it features a "5V" label, a micro USB port for power input and charging, and an "RF-OUT" SMA female connector.





Figure 3: ASHATA LNA Module alongside its included USB charging cable.

This image presents the ASHATA LNA Module next to its USB charging cable. The module's front side, with the RF-IN connector and power switch, is visible. The USB cable has a standard USB-A connector on one end and a micro USB connector on the other, used for powering and charging the device.

## 5. SETUP

Follow these steps to set up your LNA Module:

1. **Charge the Battery:** Before first use, connect the provided USB cable to the micro USB port on the LNA module and to a 5V USB power source (e.g., computer USB port, USB wall adapter). The internal 2500mAh Li-Ion battery will begin charging.
2. **Connect RF Input:** Connect your RF signal source (e.g., antenna, signal generator) to the **RF-IN** SMA female connector on the LNA module. Ensure the connection is secure.
3. **Connect RF Output:** Connect your receiving device (e.g., spectrum analyzer, radio receiver) to the **RF-OUT** SMA female connector on the LNA module. Ensure the connection is secure.
4. **Power On:** Toggle the ON/OFF switch to the "ON" position to power on the LNA module.

Suitable for shortwave, FM radio, remote control receiver, cable TV signal amplifier, etc.



Figure 4: Illustrative examples of LNA module applications.

This image provides visual examples of where the ASHATA LNA Module can be utilized. It shows the LNA module centrally, surrounded by various devices such as satellite dishes, a satellite, a remote control and set-top box, a laptop, cellular towers, a smartphone, a Wi-Fi router, and a vintage radio, indicating its versatility in amplifying signals for shortwave, FM radio, remote control receivers, and other RF applications.

## 6. OPERATING INSTRUCTIONS

Once the LNA module is set up, it operates as a signal amplifier. No further configuration is typically required for basic amplification.

- The LNA will automatically amplify the signal received at the RF-IN port and output the amplified signal through the

RF-OUT port.

- Monitor your receiving device for improved signal strength and clarity.
- To turn off the device, toggle the ON/OFF switch to the "OFF" position.
- Recharge the battery when the performance degrades or the device indicates low power (if applicable, check for LED indicators not specified in current data).

## 7. MAINTENANCE

To ensure the longevity and optimal performance of your LNA module:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. Do not use liquid cleaners or solvents.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures when not in use.
- **Battery Care:** For optimal battery life, avoid fully discharging the battery frequently. Recharge it regularly, especially if stored for extended periods.
- **Connector Care:** Keep SMA connectors clean and free from dust or debris. Avoid overtightening connections.

## 8. TROUBLESHOOTING

| Problem                                  | Possible Cause   | Solution  |
|--|--|---|
| No signal amplification.                 | Device not powered on.<br>Low battery.<br>Incorrect RF connections.                  | Ensure the ON/OFF switch is in the "ON" position.<br>Charge the battery using the USB cable.<br>Verify RF-IN and RF-OUT connections are secure and correct.   |
| Poor signal quality after amplification. | Input signal too strong (overload).<br>Faulty cables or connectors.<br>Interference. | Ensure the input signal level is within the device's specifications (+22dBm continuous wave max).<br>Check and replace any damaged RF cables or connectors.<br>Relocate the LNA or antenna to avoid interference sources. |
| Device does not power on.                | Battery completely discharged.<br>Faulty USB cable or power source.                  | Connect to a known good 5V USB power source and allow time for charging.<br>Try a different USB cable and power adapter.  |

## 9. SPECIFICATIONS

| Parameter              | Value               |
|------------------------|---------------------|
| Model                  | ASHATAvd1tg39nah-11 |
| Frequency Range        | 0.1MHz - 6GHz       |
| Gain                   | 20dB (at 1.95GHz)   |
| Input/Output Impedance | 50Ω                 |
| Input Voltage          | 5V                  |

| Parameter                  | Value                           |
|----------------------------|---------------------------------|
| Current Consumption        | 70mA                            |
| Output IP3                 | +35dBm                          |
| Max Continuous Input Power | +22dBm                          |
| Connector Type             | SMA Female                      |
| Material                   | Metal                           |
| Battery                    | Built-in 2500mAh Li-Ion Battery |
| Dimensions (Approx.)       | 5.43 x 3.82 x 1.18 inches       |
| Weight (Approx.)           | 2.46 ounces                     |

## 10. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the ASHATA official website or contact your retailer. Keep your purchase receipt as proof of purchase.

Manufacturer: ASHATA

