P A P R I T E C H

# AirMotion Neo

## User Manual

*Wireless MIDI Breath & Motion Controller — Headset Edition*

# Table of Contents

# 1. Introduction

Thank you for choosing AirMotion Neo — the next evolution in wireless MIDI breath and motion control by Papritech.

AirMotion Neo retains everything musicians loved about AirMotion Pro — intuitive breath control, head-motion MIDI, and wireless connectivity — and takes it further. Designed as a comfortable over-ear headset, Neo is built for long sessions. Its upgraded sensors deliver smoother, more accurate data, and three entirely new expressive technologies unlock playing techniques that were previously impossible in electronic music performance:

- Vibrato Detection — sense natural vibrato depth and rate directly from your breath, just like a real wind instrument.
- Flutter Tongue Detection — detect and map the intensity of flutter tongue technique.
- Growl Automation — trigger growl effects automatically when breath crosses a user-defined threshold.

This manual will walk you through setup, all settings, and the new Neo-exclusive features step by step.

# 2. What's New in AirMotion Neo

| Parameter | Range / Options | Description |
|---|---|---|
| **Form Factor** | Over-ear Headset | Ergonomic headset design for comfort during long sessions — hands-free and stable. |
| **Sensors** | Upgraded | Higher-resolution breath and motion sensors for smoother, more accurate MIDI output. |
| **Vibrato Detection** | New Feature | Detects vibrato depth and rate from natural breath modulation, as on real wind instruments. |
| **Flutter Tongue** | New Feature | Detects flutter tongue technique and maps its intensity to any MIDI CC. |
| **Growl Automation** | New Feature | Automatically triggers a growl effect when breath exceeds a user-defined threshold. |
| **Breath Sensor** | Enhanced | Added Attack Time, Release Time, and Minimum Threshold for precise, noise-free breath response. |

# 3. Device Overview & Hardware Diagram

AirMotion Neo is worn as an over-ear headset. The breath sensor is positioned near the mouth via an adjustable gooseneck arm. The motion sensor is embedded in the headset frame, tracking natural head movements.

> ℹ **Note:** A hardware diagram is available on our website at papritech.com/neo.

# 4. Package Contents

Inside the EVA protective case:

- AirMotion Neo headset device
- Mouthpiece / breath sensor arm
- BLE USB Dongle

# 5. Safety & General Usage

- Do not expose the device to water or high humidity
- Use only standard USB chargers (5V)
- Do not open or modify the device
- Avoid impacts, bending, or excessive force on the headset frame
- Do not share the mouthpiece with other users
- Always ensure sufficient battery before starting a firmware update

# 6. Getting Started

## 6.1 Charging the Device

Before first use, fully charge your AirMotion Neo.

- Connect the supplied USB Type-C cable to the charging port on the headset.
- Plug the other end into a standard USB charger, computer, or power bank.

LED INDICATOR

- Blue LED ON → Charging in progress
- Blue LED OFF → Fully charged

- ⏱ Charging time: approximately 2 hours
- ϟ Battery life: approximately 6 hours of continuous use

⚠ **Important:** Never start a firmware update with a low battery.

## 6.2 Powering ON / OFF

AirMotion Neo uses a single press-and-hold button on the headset frame.

- Power ON: Press and hold the button for 2–3 seconds.
- Power OFF: Press and hold the same button for 2–3 seconds.

LED STATUS

- Green LED blinking → Device is powered ON and ready to pair
- Green LED OFF → Device is successfully paired

# 7. Mechanical Airflow Adjuster

AirMotion Neo includes a mechanical airflow adjuster on the breath sensor arm. This gives you a hardware-level way to control how much air reaches the sensor before any software calibration.

**Slider More Open (More Airflow)**

- More air passes through the sensor
- Requires stronger breath to reach maximum MIDI output
- Ideal for: wind instrument players, live performance, wide expressive dynamics

**Slider More Closed (Less Airflow)**

- Less air passes through the sensor
- Requires lighter breath to reach maximum MIDI output
- Ideal for: soft breath technique, long studio sessions, precise expression

✦ **Tip:** Always set the mechanical airflow adjuster first, then fine-tune response using software curves in the app.

# 8. Installing the AirMotion Mobile App

The AirMotion app is required for all configuration, calibration, presets, and firmware updates.

- Android: Search for "AirMotion" on the Google Play Store
- iOS: Search for "AirMotion" on the Apple App Store

Install, launch, and follow the onboarding screens.

# 9. App Onboarding & Permissions

When launching the app for the first time, you will see 4 onboarding screens explaining AirMotion basics. After onboarding, the app will request the following permissions:

- Location permission (required on Android for BLE scanning)
- Nearby Devices / Bluetooth permission (required on Android and iOS)

⚠ **Important:** These permissions are mandatory for Bluetooth Low Energy (BLE) communication. If denied, AirMotion Neo will not connect.

Once permissions are granted, the app automatically opens the Connectivity Page.

# 10. Connectivity

AirMotion Neo offers 3 connection modes. Choose the one that best fits your workflow.

## 10.1 Mode 1 – BLE USB Dongle (Recommended)

**Best for:** Live performance, studio sessions, maximum stability and lowest latency.

- Plug the BLE Dongle into your computer.
- Power ON AirMotion Neo.
- Open the AirMotion app and go to the Connectivity Page.
- Press Connect.
- Navigate to the MIDI Page and assign your MIDI Channel and CCs.

✦ **Tip:** MIDI values appear on the dongle screen, confirming successful setup.

## 10.2 Mode 2 – Built-in BLE (Without Dongle)

**Best for:** iPad, iPhone, Android tablets, mobile producers.

- Power ON AirMotion Neo.
- Open the AirMotion app and go to the Connectivity Page.
- Press Connect and wait for a successful connection.
- Navigate to the MIDI Page and assign your settings.

⚠ **Important:** macOS and iOS users connecting via built-in BLE must also install the midimittr app from the App Store and keep it running during use.

## 10.3 Mode 3 – USB MIDI (Wired)

**Best for:** Studio setups, users who prefer a wired connection.

- Connect AirMotion Neo to your computer using a USB Type-C cable.
- Power ON the device.
- Open your DAW, navigate to MIDI Settings, and select AirMotion Neo as a MIDI Input device.

✦ **Tip:** No driver or additional software is required in USB MIDI mode.

# 11. MIDI Page – Configuration & Presets

## 11.1 MIDI Channel & CC Assignment

From the MIDI Page you can configure:

- MIDI Channel (1–16)
- MIDI CC number for Breath Sensor
- MIDI CC number for Nod (Up / Down head motion)
- MIDI CC number for Tilt (Left / Right head motion)
- MIDI CC numbers for Neo Expressive Features (Vibrato, Flutter Tongue, Growl)

⚠ **Important:** MIDI Channel and CC numbers must match your DAW or VST settings exactly. If they do not match, you will hear no expression.

## 11.2 Pitch Bend via Head Motion

AirMotion Neo can control Pitch Bend using natural head movements, enabling realistic bends similar to wind instruments, strings, or guitar.

- Go to the Motion Sensor Page.
- Enable Pitch Bend Mode.
- Use the Tilt Range slider to set how much head movement is required for a full bend.

## 11.3 Preset Management

Presets store all MIDI, breath, motion, and Neo expressive feature settings in one slot.

- Create one preset per DAW, VST, or instrument for quick switching.
- To save: configure all settings, tap Save Preset, and name it.
- Presets can be recalled instantly during a session or live performance.

# 12. Settings Page – Calibration & Expression

## 12.1 Breath Sensor Settings

AirMotion Neo features an enhanced breath sensor with additional controls for a cleaner, more natural response.

| Parameter | Range / Options | Description |
|---|---|---|
| **Sensitivity** | Low → High | Controls how responsive the sensor is to airflow. Higher = more resistance needed. Lower = responds to lighter breath. |
| **Breath Style** | Light / Medium / Heavy | Pre-configured response profile matching your natural breath technique. |
| **Minimum Threshold** | 0 – 50 | Sets the minimum breath level required before any MIDI is sent. Increase this to eliminate noise from tiny, unintentional puffs of air. |
| **Attack Time** | 5 ms – 50 ms | How quickly the sensor responds when you start breathing. A short attack reacts instantly; a longer attack smooths the onset for a softer start. |
| **Release Time** | 0 ms – 300 ms | How quickly the MIDI value falls back to zero when you stop breathing. A short release cuts off cleanly; a longer release adds a natural tail. |
| **Offset** | 0 – 127 | Sets the breath starting threshold — raise it if the sensor activates too easily at rest. |

✦ **Tip:** Start with Minimum Threshold first. Set it just above any resting noise to get a clean signal, then adjust Attack and Release to match your playing style.

## 12.2 Curve Styles – Choosing the Right One

Curve styles define how physical breath or motion input is translated into MIDI output values.

| Parameter | Range / Options | Description |
|---|---|---|
| **Linear** | 1:1 direct | Straightforward response — input equals output. Best for beginners and predictable control. |
| **Exponential** | Soft start, strong end | Gentle response at low breath, intense at high breath. Ideal for crescendos and filter sweeps. |
| **Logarithmic** | Strong start, plateau | Reaches high values quickly. Great for fast attacks and expressive phrasing. |
| **Sigmoid** | S-curve | Smooth, very natural and musical feeling. Recommended for most wind-style playing. |
| **Cubic** | Smooth expressive | A smooth but dynamic curve. Works well for lead instruments. |
| **Piecewise** | Zone-based | Different response in different breath ranges. Useful for precise control in specific zones. |

| Parameter | Range / Options | Description |
|---|---|---|
| **Power** | Adjustable intensity | Advanced shaping — tune the exponent to create your ideal curve. |
| **Quadratic** | Gentle curve | Smooth transitions between values. Good for pad swells and slow expressions. |
| **Hyperbolic** | Extreme near limits | Extreme response near the top and bottom. For sound design and special effects. |
| **Inverse** | Reversed | Response is flipped — more breath = less MIDI output. Creative and experimental. |

## 12.3 Motion Sensor Calibration

### Center Calibration

This defines the neutral head position — the reference point for all head movements.

- Hold your head in a comfortable, neutral position.
- Tap Calibrate Center.
- From this point, any tilt or roll will be measured relative to this center.

### Tilt & NodRange

- Higher value: Requires a larger head movement to reach maximum MIDI output.
- Lower value: Requires a smaller head movement to reach maximum MIDI output.

✦ **Tip:** Adjust the range to your comfort level. A lower range is useful for subtle playing; a higher range suits more expressive or dramatic movements.

### Dead Zone

The dead zone ignores small head movements around the center position, preventing unintended modulation from micro-movements or trembling.

### Timeout (Immobility Timer)

Defines how many seconds of no head movement must pass before the motion MIDI output is automatically reset to zero. Useful to prevent stuck CC values.

## 12.4 Reset to defaults

Restores all parameters — including Neo expressive feature settings — to their default factory values.

ℹ **Note:** Use Factory Reset if your configuration becomes unstable or if you want to start fresh.

# 13. Neo Expressive Features

AirMotion Neo introduces three breakthrough features that bring your breath control closer to the natural expressivity of real acoustic wind instruments. These features detect specific playing techniques directly from your breath and map them to MIDI in real time.

✦ **Tip:** Each expressive feature outputs its own MIDI CC. Assign these CCs in the MIDI Page, and map them to the corresponding parameters in your VST or DAW.

## 13.1 Vibrato Detection

### What Is It?

Real wind instrument players create vibrato by rhythmically modulating their breath pressure — a subtle pulsing of air that gives notes a singing, expressive quality. AirMotion Neo detects this breath modulation and converts it into MIDI in real time, just as your body produces it.

### How It Works

- The sensor continuously analyses the rhythm and depth of your breath modulation.
- When vibrato is detected, it outputs two independent MIDI values: Depth and Rate.
- These can be routed to vibrato depth, LFO rate, modulation wheel, or any parameter in your VST.

### Parameters

| Parameter | Range / Options | Description |
|---|---|---|
| **Sensitivity** | Low → High | How easily the sensor detects vibrato in your breath. Increase if your vibrato is subtle and not being picked up. Decrease if unwanted modulation is being triggered. |
| **Depth** | 0 – 127 | Scales the output MIDI value that represents vibrato depth — how wide the pitch or effect modulation swings. Higher values = more intense vibrato effect. |

### Setup Tips

- Assign the Depth output CC to a vibrato depth or LFO amount parameter in your VST.
- Start with Sensitivity at a mid value and adjust based on your natural playing.
- If false triggers occur, lower Sensitivity slightly.
- If your vibrato is not being detected, raise Sensitivity.

ℹ **Note:** Vibrato rate output reflects how fast your natural breath modulation oscillates. You can map this to LFO rate for automatic tempo-synced-style modulation.

## 13.2 Flutter Tongue Detection

### What Is It?

Flutter tongue is a technique used on flutes, brass, and other wind instruments where the player rolls the tongue rapidly to create a stuttered, buzzing articulation. AirMotion Neo detects this technique from your breath and outputs it as a MIDI value.

### How It Works

- The breath sensor detects the rapid pressure oscillations produced by rolling the tongue.
- The detected intensity is mapped to a MIDI CC that you assign in the MIDI Page.
- You can use this CC to trigger stuttering effects, trem, bit-crushing, or any other effect in your VST.

### Parameters

| Parameter | Range / Options | Description |
|---|---|---|
| **Strength** | Light / Medium / Strong | Sets the expected intensity of your flutter tongue technique. Match this to how hard you flutter. Light = a gentle roll; Strong = an aggressive, forceful flutter. |
| **Sensitivity** | Low → High | Controls how responsive the detection is. Higher sensitivity picks up even light flutter attempts. Lower sensitivity requires a more pronounced technique to trigger. |

### Setup Tips

- Set Strength to match your natural flutter tongue power before adjusting Sensitivity.
- Practice the flutter tongue technique while watching the live MIDI output in the app to calibrate accurately.
- Use the output CC to trigger a gate, stutter, or tremolo effect in your DAW or VST.

✦ **Tip:** If you are new to flutter tongue, start with Strength set to Light and Sensitivity set to High to make detection easier while you develop the technique.

## 13.3 Growl Automation

### What Is It?

Growl is a technique where wind players add a vocal, gritty quality to a note by singing or humming into the instrument while playing. In AirMotion Neo, Growl Automation triggers a growl effect automatically when your breath pressure crosses a threshold that you define — no hands required.

### How It Works

- The sensor monitors your breath pressure continuously.
- When breath pressure exceeds the Threshold value, the Growl MIDI output activates.
- The Intensity parameter controls how aggressively the growl rises toward its maximum value.
- Map the output CC to a growl, overdrive, distortion, or any timbral effect in your VST.

### Parameters

| Parameter | Range / Options | Description |
|---|---|---|
| **Threshold** | 0 – 127 | The breath pressure level at which Growl Automation activates. Set this to the breath intensity where you want the growl to begin. Breath below this value produces no growl output. |
| **Intensity** | Slow / Medium / Fast | Controls how quickly the growl MIDI value rises to its maximum once the threshold is crossed. Slow = growl builds gradually for a smooth swell. Fast = growl snaps to maximum almost instantly for a hard, aggressive effect. |

### Threshold Explained

Think of the Threshold as a "growl gate". Below the threshold, your playing is clean. As soon as you push harder and cross the threshold, the growl is triggered. This means you can switch seamlessly between clean and growl tones simply by varying your breath intensity.

### Intensity Explained

Once the threshold is crossed, Intensity controls the speed of the growl attack — how fast the effect reaches its full strength:

- Slow: Growl builds gradually — useful for a smooth, controlled swell into the effect.
- Medium: A balanced rise — natural and musical for most playing styles.
- Fast: Growl snaps to maximum almost instantly — aggressive, percussive, and powerful.

### Setup Tips

- Start with Threshold at around 60–70 so casual breath does not trigger growl, only intentional pushes.

- Use Slow Intensity for ballads or smooth transitions; use Fast Intensity for jazz, funk, or aggressive tones.
- Map the Growl CC to a distortion, overdrive, or formant filter in your VST for maximum effect.
- Combine with Vibrato Detection for highly expressive, layered real-time control.

✦ **Tip:** Growl Automation works best when your breath curve is set to Sigmoid or Exponential, giving you smooth control below the threshold and a clear crossover point.

# 14. Connecting to DAWs & VSTs

**macOS / iOS – Important Note**

If you are using AirMotion Neo via built-in BLE (without the USB Dongle) on a MacBook, iPad, or iPhone, you must install the midimittr app from the App Store and keep it running during use. If you are using the USB Dongle, no additional app is required.

**Logic Pro (macOS)**

- Connect AirMotion Neo (BLE or Dongle).
- Open Logic Pro → Settings → MIDI → Inputs.
- Enable AirMotion Neo (or Dongle) as a MIDI input.
- Load a Software Instrument track.
- Ensure the track MIDI Channel matches AirMotion Neo.
- Map CCs (e.g. CC11 Expression, CC1 Modulation, CC74 Growl) in the VST or via Logic's MIDI CC assignment.

**Cubase (macOS / Windows)**

- Connect AirMotion Neo.
- Open Cubase → Studio → Studio Setup → MIDI Port Setup.
- Enable AirMotion Neo as a MIDI Input.
- Create an Instrument Track and match the MIDI Channel.
- Use MIDI Learn inside the VST to map Neo expressive feature CCs.

**Other Compatible Software**

AirMotion Neo works with all MIDI-compatible software, including:

- Ableton Live (MIDI Preferences → Track & Remote ON)
- FL Studio (MIDI Settings → Enable Controller)
- Pro Tools (Setup → MIDI → Input Devices)
- MainStage
- Any VST / AU instrument supporting MIDI CC

# 15. Firmware Update

Keeping your firmware up to date ensures you have the latest features, sensor improvements, and bug fixes.

### Updating AirMotion Neo

- Connect to AirMotion Neo from the Connectivity Page.
- Go to Info Page → Firmware Update.
- The app checks your current firmware version.
- If an update is available, enter your Wi-Fi SSID and password when prompted.
- The device downloads and installs the firmware automatically.
- Restart the device when prompted: power OFF, then power ON.

### Updating the Dongle

- Connect to the Dongle from the Connectivity Page.
- Go to Info Page → Firmware Update.
- Enter your Wi-Fi SSID and password when prompted.
- Wait until the update completes.
- Restart the Dongle: unplug and plug back in.

## 16. Cleaning & Maintenance

- Wipe the headset frame with a soft, dry cloth.
- Do not use water, alcohol, or solvents on any part of the device.
- Keep the breath sensor airflow opening clean at all times.
- Do not insert sharp objects into the sensor opening.
- If needed, gently clean the opening with a soft small brush.

✦ **Tip:** Proper cleaning ensures accurate breath sensing and extends the life of the device.

## 17. Warranty

AirMotion Neo comes with a 1-year limited warranty from the date of purchase.

**COVERED**

- Manufacturing defects
- Hardware malfunctions under normal use

**NOT COVERED**

- Physical damage from drops or impacts
- Liquid damage
- Unauthorized modifications
- Damage from improper usage

## 18. Support & Contact

If you need help or have any questions:

- Website: papritech.com/contact
- Email: contact@papritech.com
- WhatsApp: +44 7466 258715

*Enjoy your music.*
**— Papritech Team**