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› Nobsound AK2515 Audio Spectrum VFD Display User Manual

Nobsound AK2515

Nobsound AK2515 Audio Spectrum VFD Display User Manual

Model: AK2515

1. INTRODUCTION

This manual provides detailed instructions for the assembly, setup, operation, and maintenance of your Nobsound AK2515 Audio Spectrum VFD Display. Please read this manual thoroughly before using the device to ensure proper functionality and to maximize your user experience.

2. PACKAGE CONTENTS

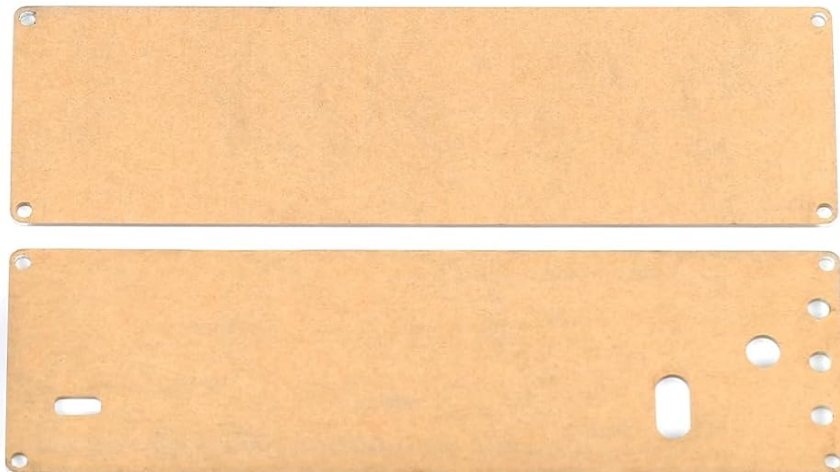
Verify that all items listed below are included in your package. If any items are missing or damaged, please contact customer support.

- 1x AK2515 Audio Spectrum Analyzer Board
- 2x Acrylic Boards (for casing)
- 1x 3.5mm Audio Cable
- 1x USB-DC Power Cable
- 1x 23.5mm Cable
- 1x Set of Mounting Screws (with spare)

包装内容明細書



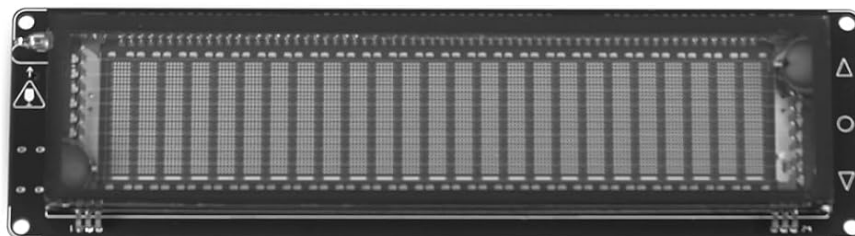
1×3.5mmオーディオケーブル



2×アクリルボード



1×USB-DC電源ケーブル



1×AK2515オーディオスペクトラムアナライザボード



1×1 : 23.5mmケーブル



1セット×取り付けネジ

Figure 2.1: Contents of the Nobsound AK2515 package. Includes the main circuit board, two acrylic panels for the enclosure, a 3.5mm audio cable, a USB-DC power cable, a 23.5mm cable, and a set of screws for assembly.

3. ASSEMBLY INSTRUCTIONS

The main board and acrylic boards are packaged separately. Assembly is straightforward and requires only a few screws.

1. Carefully unpack all components.
2. Identify the main circuit board and the two acrylic panels.
3. Align the acrylic panels with the main board, ensuring the display faces outwards and the input/output ports are accessible.
4. Secure the acrylic panels to the main board using the provided screws. Use the small L-shaped hex wrench if necessary.



Figure 3.1: The Nobsound AK2515 unit after assembly, showing connected audio and power cables.

4. FEATURES

- **Accurate Music Spectrum Analyzer and Clock Display:** Features a 25x15 high-resolution dedicated VFD display, ensuring accuracy across various frequency bands. An integrated SD3078 crystal oscillator provides high-precision clock display with an accuracy of $\pm 5\text{ppm}$, resulting in a monthly error of less than 10 seconds.
- **Wide Frequency Range Display and 3.5mm AUX/MIC Input:** Supports a frequency sweep from 20 Hz to 20 KHz, allowing for precise frequency point testing. Equipped with a 3.5mm AUX input and a high-sensitivity microphone pickup, enabling both wired and wireless connections to easily detect subtle sound changes.
- **Special AGC Algorithm and Customizable Output Curves:** A unique AGC algorithm ensures ideal visual effects across a wide range of input signal levels, preventing non-display for low signals and full-screen display for high inputs. Gain can be switched between -10/-5/-3/-1/0dB. Three display modes are available: Real Output, Smooth Output I, and Smooth Output II, providing accurate and high-level display effects for various usage scenarios.
- **Multiple Adjustable Items and Display Effects:** Brightness, main light column fall speed, hold time, and peak fall

speed can be individually adjusted. Choose freely from 5 music spectrum display modes and 2 clock display modes. All settings are saved with power-off memory, eliminating the need for re-configuration after restarting.

正確な音楽スペクトラム アナライザーと時計表示

25×15の高解像度の専用VFD表示画面を採用し、各周波数帯域の精度を保証できます。

また、SD3078内蔵水晶発振器を使用した高精度時計表示により、時計精度±5ppm、10秒以内の月誤差が実現されます。



Figure 4.1: The VFD display showing both audio spectrum analysis and a digital clock, highlighting its dual functionality.

広い周波数範囲のディスプレイと 3.5mmAUX入力/MIC 入力

20 Hz ~ 20 KHz の周波数スイープをサポートし、高精度の表示で周波数ポイントテストも実行できます。

3.5mm AUX と高感度の MIC ピックアップにより、有線および無線接続を完璧に実現し、
サウンドのあらゆる微妙な変化を簡単に確認できます。

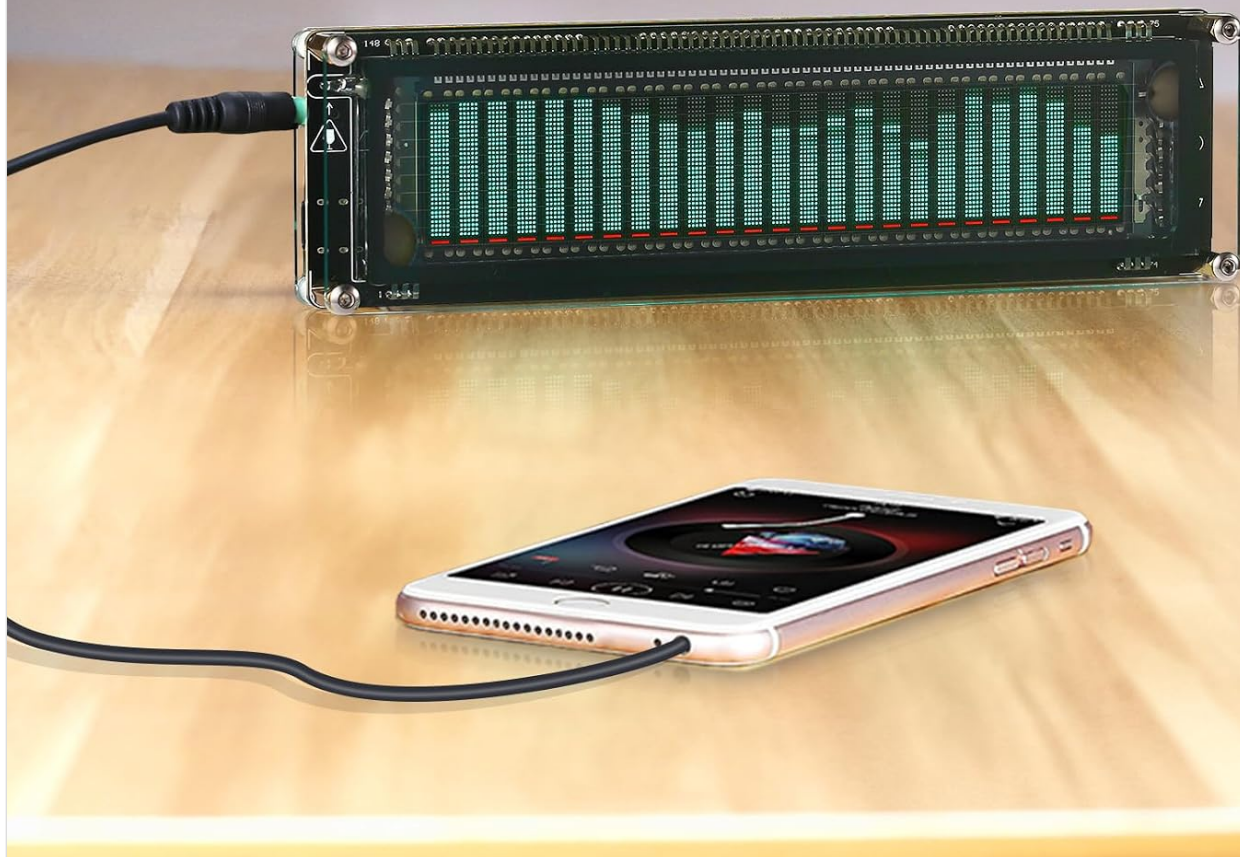
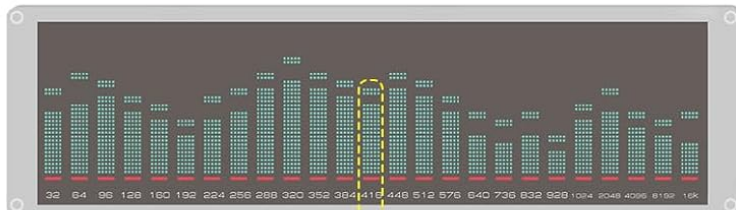


Figure 4.2: The Nobsound AK2515 unit demonstrating its 3.5mm AUX input for wired audio sources and its built-in microphone pickup for wireless sound detection.

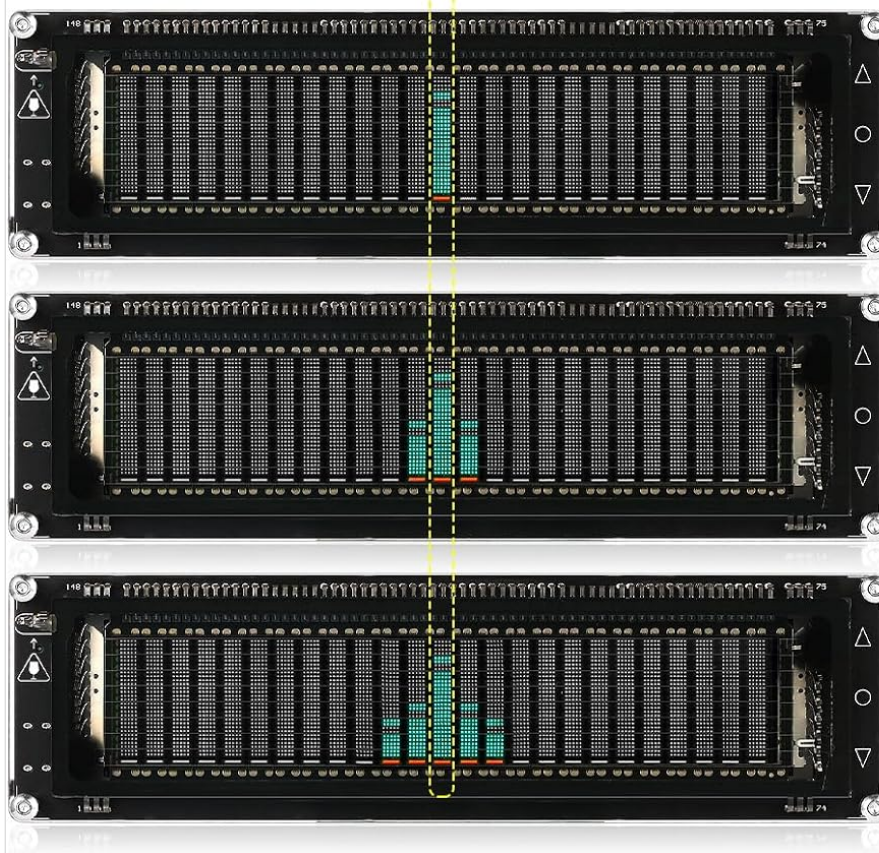
特殊なAGCアルゴリズムとカ スタマイズされた出力曲線

特殊なAGCアルゴリズムにより、入力信号が小から大の範囲にある場合でも理想的な視覚効果を保証し、
低信号を入力すると表示されない、高入力時に全画面で表示することを回避します。

(ゲインを -10/-5/-3/-1/0dB の間で切り替えることはできます。) 実出力/スムーズ出力I /
スムーズ出力IIの3種類の表示モードで、精度と高レベルの表示効果を保証し、さまざまな使用要件を満たします。



例えば、
416Hzのみ入力の場合、
さまざまな表示効果が得られます
さまざまなモードで表示されます。



実際の出力
ディスプレイモード

スムーズな出力 I
ディスプレイモード

スムーズな出力 II
ディスプレイモード

Figure 4.3: Visual representation of the AGC algorithm and the three customizable output curves (Real Output, Smooth Output I, Smooth Output II) available on the Nobsound AK2515.

多くの調整可能なアイテムと表示効果

明るさ、メインライトカラムの落下速度、保持時間、ピークの落下速度を個別に調整できます。

5つの音楽スペクトル表示モードと2つのクロック表示モードで自由に選択できます。

すべての設定は電源オフメモリ機能を備えているため、再起動後に再度設定する必要はありません。

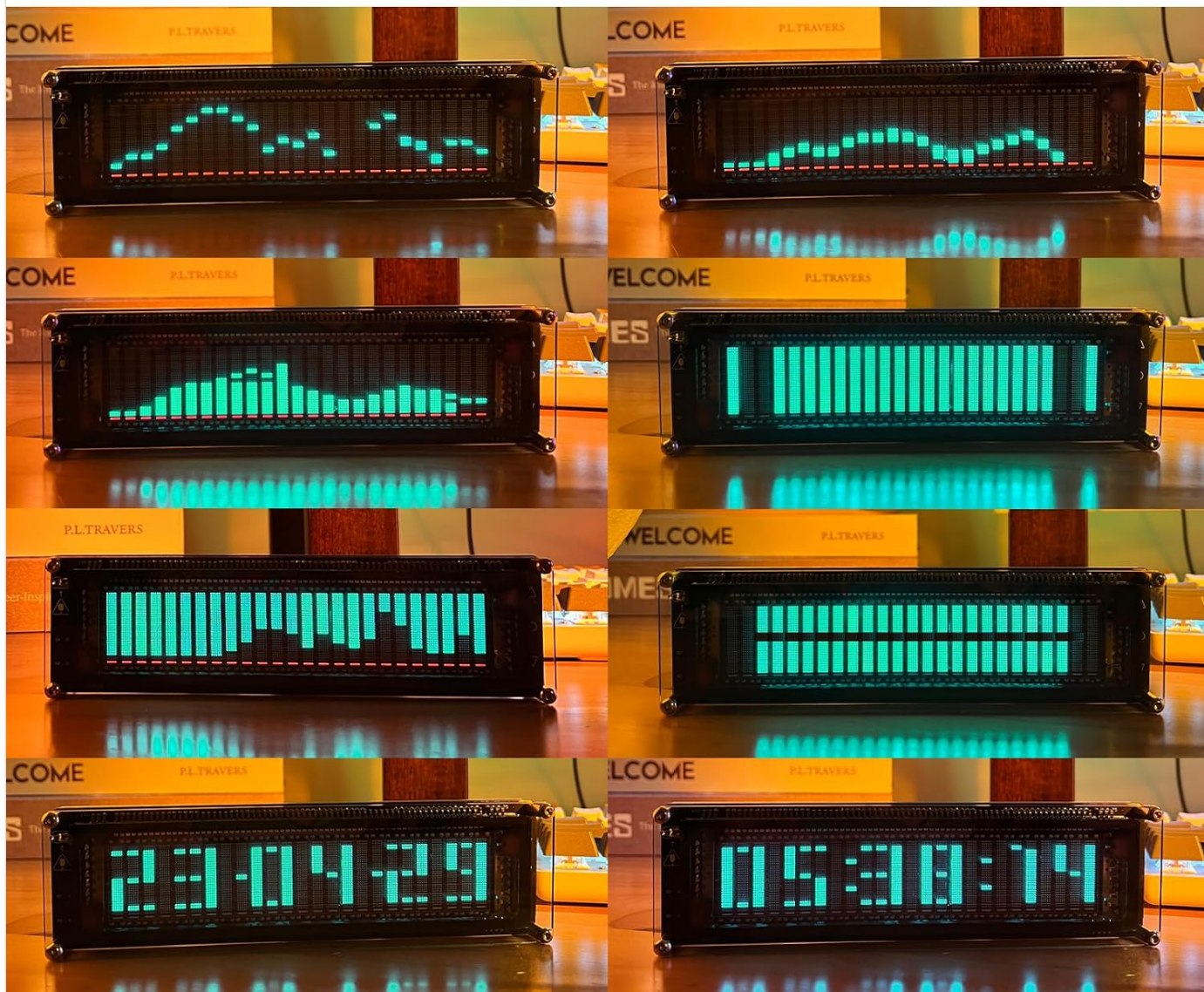


Figure 4.4: Examples of the five music spectrum display modes and two clock display modes, showcasing the adjustable visual effects of the Nobsound AK2515.

分周・増幅カーブ機能 とノイズフィルタリング

周波数分割/増幅曲線機能とノイズフィルタリング：5つの周波数分割モードにより視覚効果が向上します。

5つの増幅カーブモードにより、低周波を抑制したり、高周波をブーストしたりできます。

ワンクリックのノイズフィルタリング機能により、音の明瞭さが効果的に向上し、さまざまな環境での使用に適しています。



Figure 4.5: The Nobsound AK2515 in an operational setting, illustrating its frequency division, gain curve, and noise filtering capabilities for enhanced visual clarity.

5. SETUP

5.1 Power Connection

Connect the USB-DC power cable to the 5V DC IN port on the device and plug the other end into a compatible USB power source (e.g., a 5V USB adapter, computer USB port).

5.2 Audio Input

The AK2515 supports two types of audio input:

- **3.5mm AUX Input:** Use the provided 3.5mm audio cable to connect your audio source (e.g., smartphone, computer, audio player) to the 3.5mm AUX input port on the device. This is suitable for direct, wired audio signals.
- **Microphone Pickup:** The device has a built-in high-sensitivity microphone for wireless sound detection. This allows

the display to react to ambient sounds without a direct cable connection.

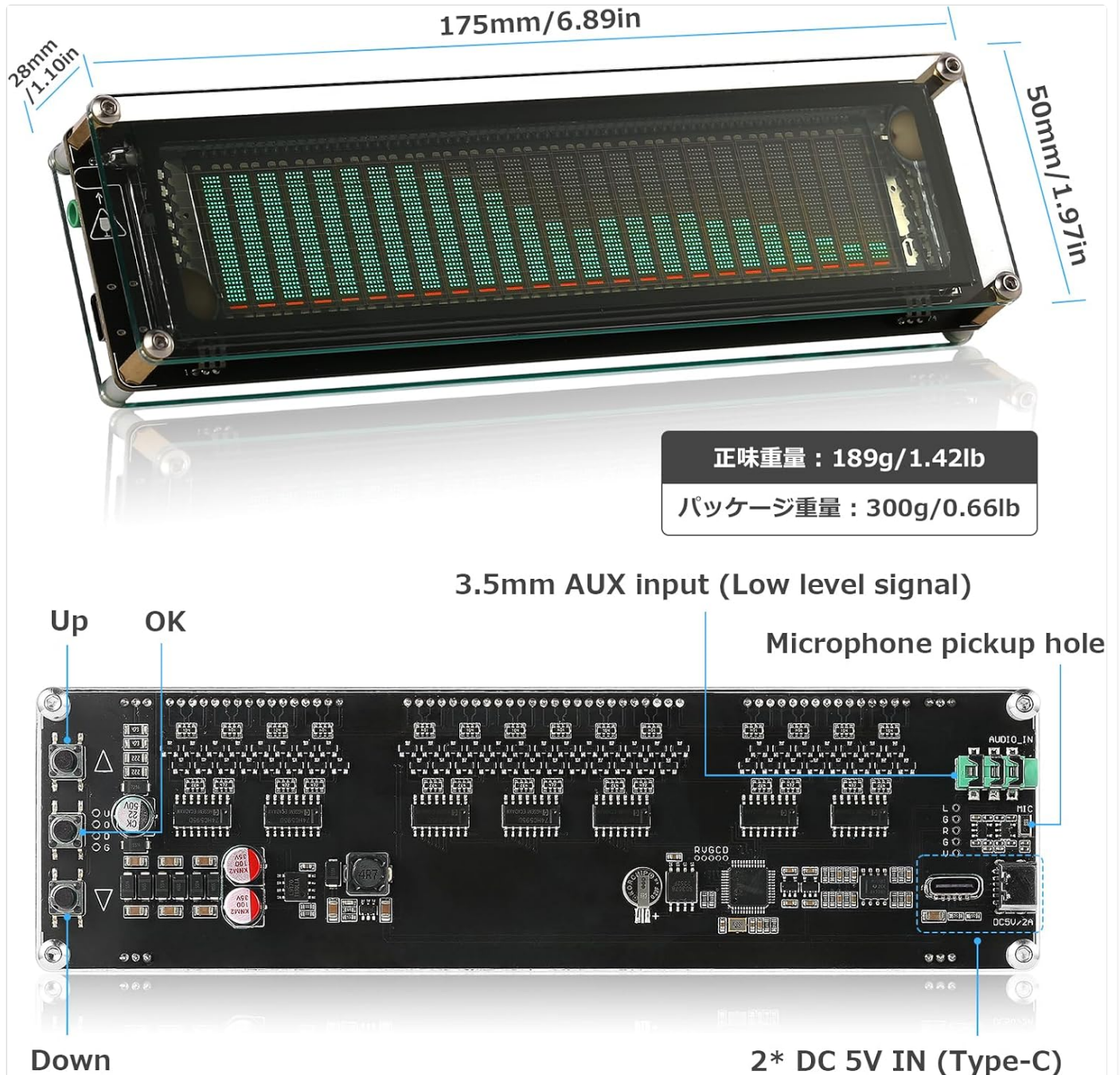


Figure 5.1: Rear view of the Nobsound AK2515, indicating the 3.5mm AUX input, microphone pickup hole, DC 5V IN (Type-C) ports, and control buttons (Up, OK, Down).

6. OPERATION

The device is controlled using the 'Up', 'OK', and 'Down' buttons located on the unit.

6.1 Basic Navigation

- **'Up' Button:** Navigates through menu options or increases values.
- **'Down' Button:** Navigates through menu options or decreases values.
- **'OK' Button:** Selects an option or confirms a setting.

6.2 Display Modes

The AK2515 offers 5 music spectrum display modes and 2 clock display modes. Use the navigation buttons to cycle

through and select your preferred mode.

6.3 Adjustable Parameters

You can adjust various display parameters to suit your preferences:

- **Brightness:** Adjust the overall display intensity.
- **Main Light Column Fall Speed:** Controls how quickly the main spectrum bars descend.
- **Hold Time:** Sets the duration for which peak values are held on the display.
- **Peak Fall Speed:** Controls how quickly the peak indicators descend.
- **Gain:** Adjust the input sensitivity between -10/-5/-3/-1/0dB to optimize visual response for different audio levels.

All settings are saved automatically due to the power-off memory function, so you do not need to reconfigure them after restarting the device.

7. SPECIFICATIONS

Parameter	Value
Brand	Nobsound
Model Number	PJ454 (AK2515)
Max Supply Voltage	5 Volts
Min Supply Voltage	5 Volts
Channel Count	15
Frequency Response	20 Hz - 20 KHz
Clock Accuracy	±5ppm (monthly error < 10 seconds)
Display Type	VFD (Vacuum Fluorescent Display)
Display Resolution	25x15

8. TROUBLESHOOTING

- **No Display:** Ensure the power cable is securely connected to a 5V power source. Check if the device is turned on.
- **No Audio Reaction:** Verify that the audio source is playing and connected correctly to the 3.5mm AUX input, or that the microphone is not obstructed if using MIC pickup. Adjust the gain setting if the input signal is too low.
- **Incorrect Time Display:** Use the navigation buttons to enter clock settings and adjust the time.
- **Display Appears Dim:** Adjust the brightness setting using the control buttons.

9. MAINTENANCE

To ensure the longevity and optimal performance of your Nobsound AK2515, follow these maintenance guidelines:

- Keep the device clean by wiping it with a soft, dry cloth. Avoid using abrasive cleaners or solvents.
- Do not expose the device to extreme temperatures, humidity, or direct sunlight.
- Avoid dropping or subjecting the device to strong impacts.

- Ensure proper ventilation around the device to prevent overheating.

10. WARRANTY AND SUPPORT

Nobsound products are designed for reliability and performance. For warranty information, technical support, or service inquiries, please refer to the contact information provided with your purchase or visit the official Nobsound website. Please retain your proof of purchase for warranty claims.

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