CRY2626G

Drone-mounted Acoustic Imaging Camera

User Manual

Table of Contents

Revision History

Revision number	Description	Revision date
1.0	● Initial version	2024/09/30
1.1	● Update contact information	2025/09/12

01   User Notice

Legal Disclaimer

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Warranty and Calibration

This product is covered by a free warranty repair service for abnormalities or malfunctions within two years from the date of purchase. The free warranty repair service does not cover issues caused by improper use or accidental damage such as drops. Unauthorized disassembly of the product will void warranty.

In case of malfunctions caused by improper use or accidental damage, we offer repair services at cost price. The device is calibrated during the manufacturing process. We recommend sending the device back to the manufacturer for calibration, testing, and maintenance every two years to ensure optimal performance during prolonged use.

Notice

When the drone is DJI M300 equipped with the DJI RC Plus remote controller, you may not be able to view the device screen in the remote controller, so it is recommended to use the DJI M300 with the Smart Controller Extension Box (Model: PJ001) and DJI M350 with the DJI RC Plus (Model: RM700B).

Due to the limitations of DJI PSDK's gimbal function design, when the drone lands, the remote controller cannot control the gimbal rotation by flipping the switch, so you need to click "PSDK", then click "⊡" to open the gimbal control interface, and then click "⊕" to reset the gimbal to control the gimbal rotation.

Safety Usage Reminder

To prevent potential fire or personal injury, please note:
1. Please read the contents of this safety notice carefully before using the product.
2. Use the product only for the purpose for which it was intended.
3. Do not disassemble this device without authorization.
4. If the appliance malfunctions or generates abnormal heat, stop using it.
Please contact the manufacturer to be responsible for equipment maintenance.

02   Introduction

The CRY2626G is the world's first drone-mounted acoustic imaging camera for detection of pressurized system leaks and electrical partial discharge. The camera utilizes a microphone array with beamforming technology to pinpoint and acquire sound source distribution data and overlay it on a high-resolution video image.

The system features a 2-axis electric gimbal that allows pan and tilt control of the camera from the drone remote controller. This is beneficial for swiftly identifying potential gas leaks and partial discharge faults.

Featuring a robust and lightweight aluminum alloy body, the CRY2626G is designed to be durable under the most demanding environmental conditions. The included DJI SKYPORT allows for easy assembly and disassembly. Both photo and video modes are supported and data is stored on a large-capacity TF card for easy export of test results.

03   Glossary

Sound Pressure Level (SPL)

The device measures the amplitude of the sound source using sound pressure level (SPL), which is a physical quantity that represents the magnitude of a sound wave. SPL is expressed in decibels (dB) and is referenced to a standard sound pressure level in air. It is commonly denoted as dBSPL when used for representation.

Audible Domain

The frequency range of sound that can be perceived by human ears generally refers to the sound in the frequency band of 20Hz-20kHz.

Ultrasonic

Generally, refers to a frequency of more than 20kHz, which the human ear cannot perceive.

Sound Image

It refers to the two-dimensional data table representing the intensity distribution of sound sources in space, after the signal collected by microphone array is calculated by the algorithm.

Palette

The color data used in the color mapping of a sound image.

Sound Cloud Image

The sound pressure level data of each resolution point on the sound image is mapped to a certain color number on the palette, according to a certain conversion formula to form a color image. Then it is fused with the visible image to form a sound cloud image.

Test Frequency Range

When a frequency range is selected within the full frequency range supported by the device, the device will only measure and display a sound cloud image that is within this frequency range. Sound outside this frequency range will not be displayed.

Frequency Peak

A peak in the spectrum denotes a strong sound energy distribution at this frequency.

Dynamic Range

The scale of the intensity of the sound source that can be shown on the sound cloud image.

Field of View

An angle formed by the camera and the two diagonal points of the rectangular picture captured by it.

For sound cloud image, it is an angle formed by the microphone array and the two diagonal points of the rectangular sound image.

04   Product and Accessories

4.1   Product Accessory List

Item numbers	Name	Description
1	Drone-mounted Acoustic Imaging Camera	Drone-mounted acoustic imaging camera device
2	Landing Gear	Used for installation on a drone, providing space for mounting a 2626G.
3	Downward Gimbal Connector	Used for installation on a drone to increase the payload weight capacity of the drone
4	Protective Case	Used for storing the Drone-mounted Acoustic lmaging Camera, Landing Gear, and Downward Gimbal Connector.
5	TF Card	Used to store photo and video data
6	TF Card Reader	Used for PC to read TF card data

4.2   Port

CRY2626G uses DJI's original SKYPORT V2 as the power supply and communication interface, as well as the interface fixed to the drone.CRY2626G supports DJI M300 RTK drones and is installed with SKYPORT V2. It can be quickly installed and disassembled.
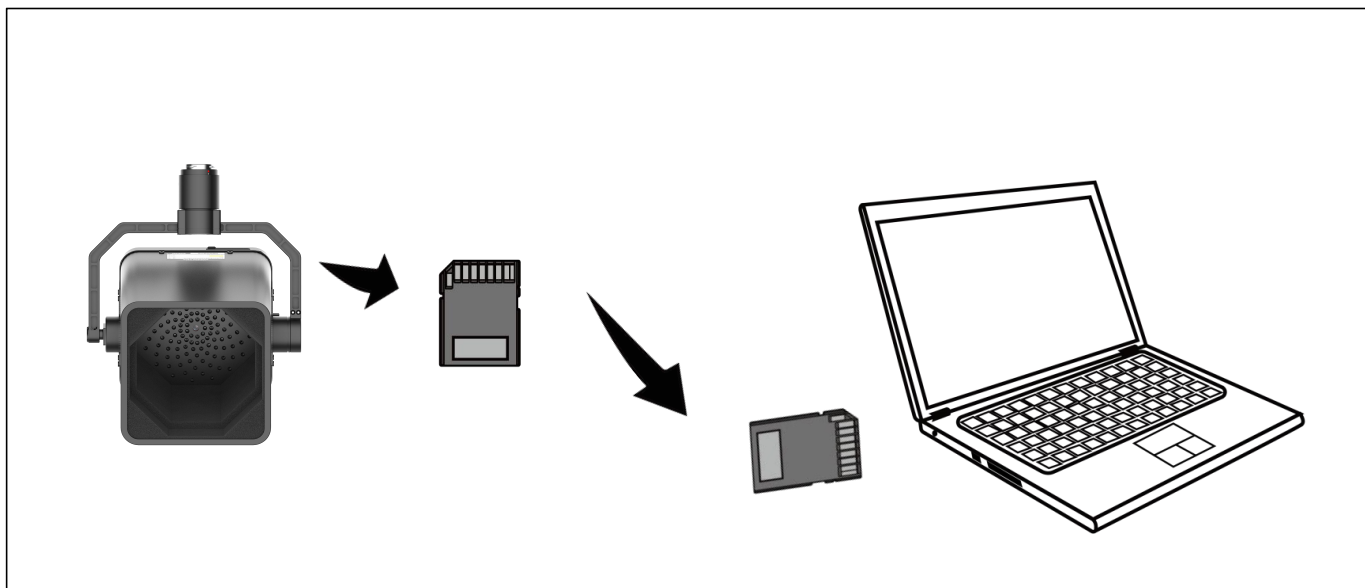
05   Product Instruction

5.1   Appearance



5.2   Data Export


Precautions for the use of TF card:

1. During the video recording, please do not plug or unplug the TF card.

2. After taking photos and videos, please wait for the data to be saved before inserting and unplugging the TF card.

3. When reading the TF card data on the PC, please do not modify the names of the files and folders in the TF card, otherwise the test data may not be correctly recognized and displayed in the playback menu.
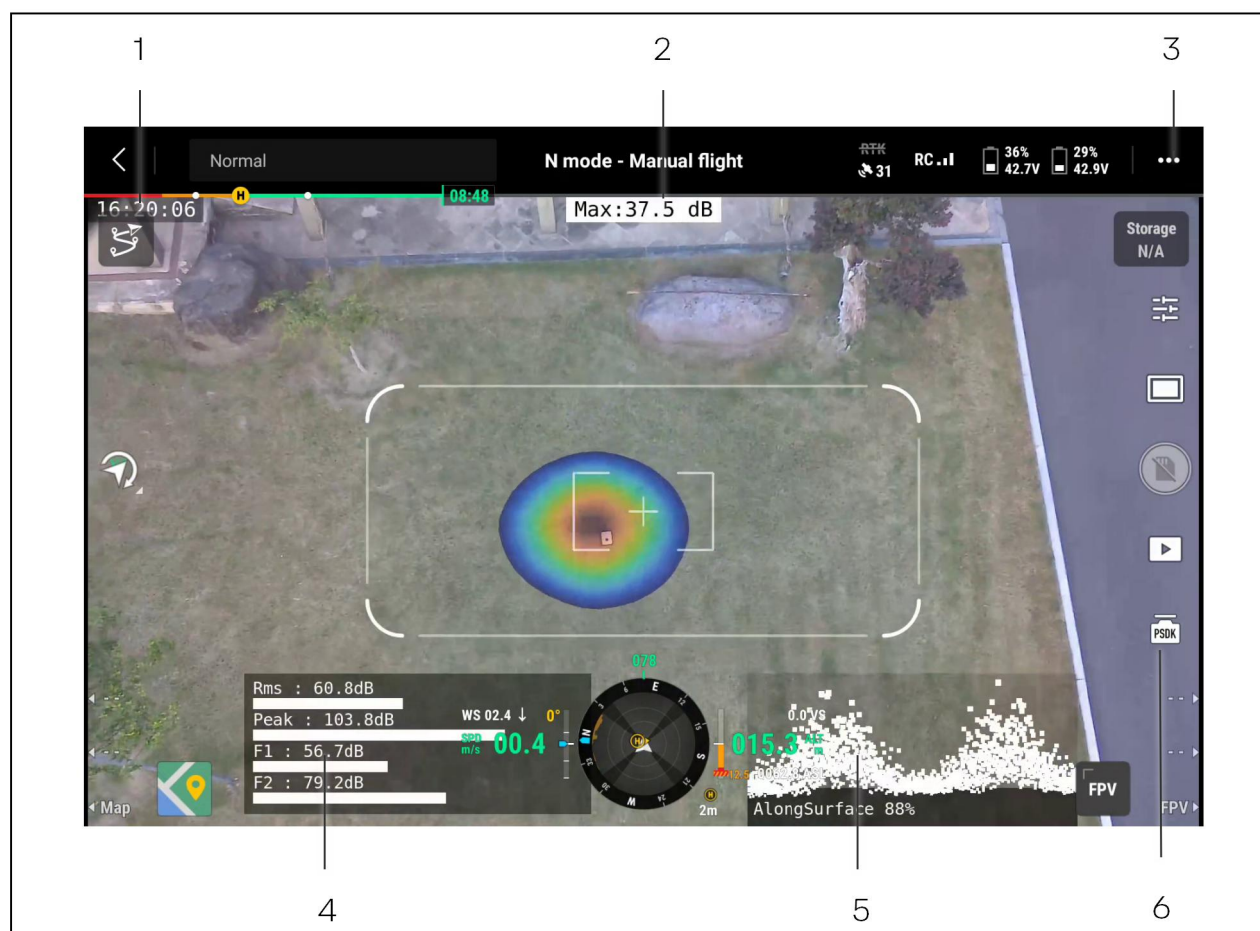
5.3   Landing Gear Mount
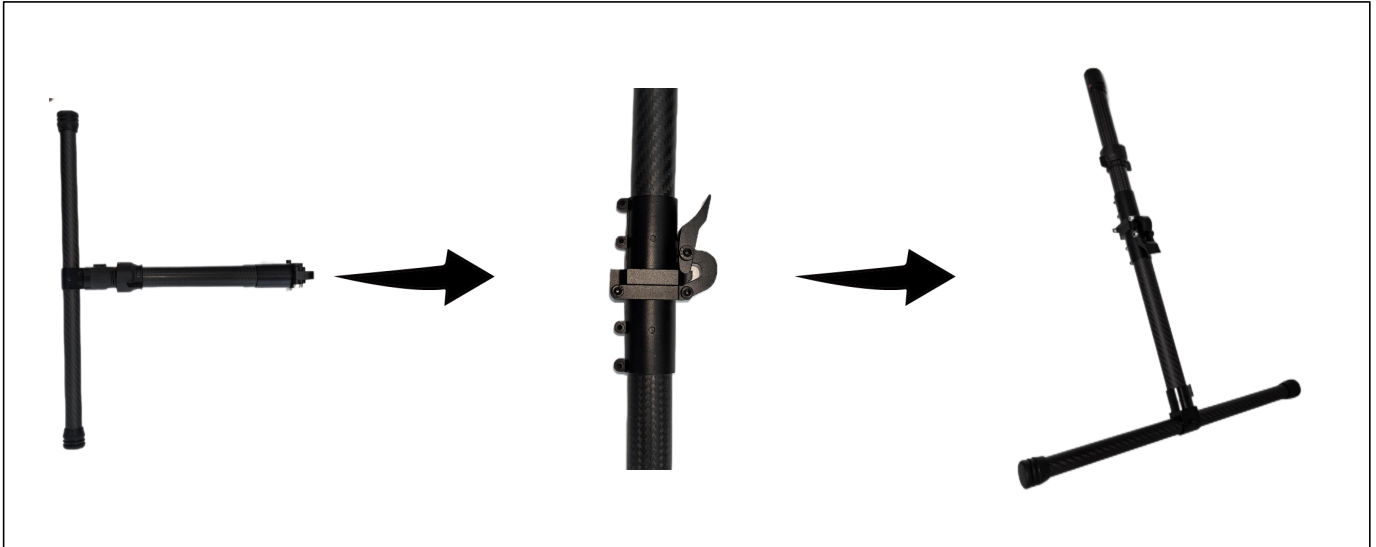
5.4   Device Installation
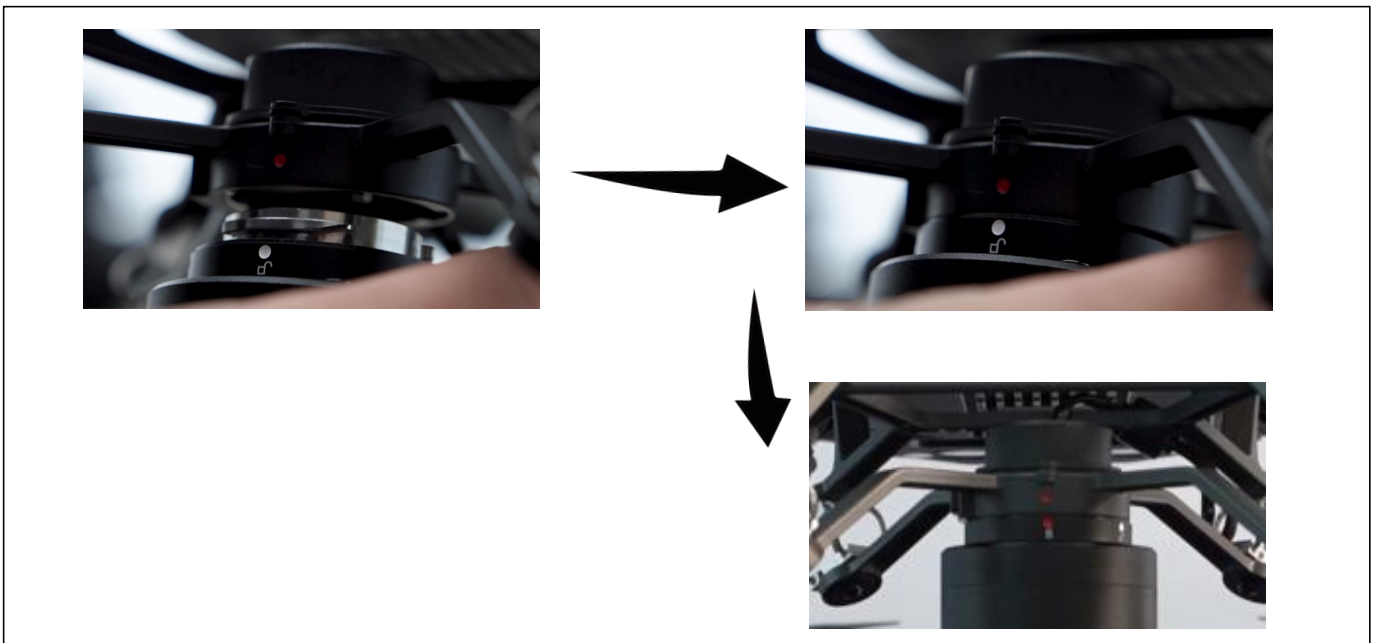
06   Software Functions

6.1   Main Interface

1 - Host time

The internal time of the host.

2 - Maximum sound pressure

Displays the maximum sound pressure value tested by the current host.

3 - Host function

expand function after entering PSDK, adjustable frequency range, cloud color, etc.

4 - Partial discharge data

partial discharge effective value, peak value per cycle, frequency component 1, frequency component 2.
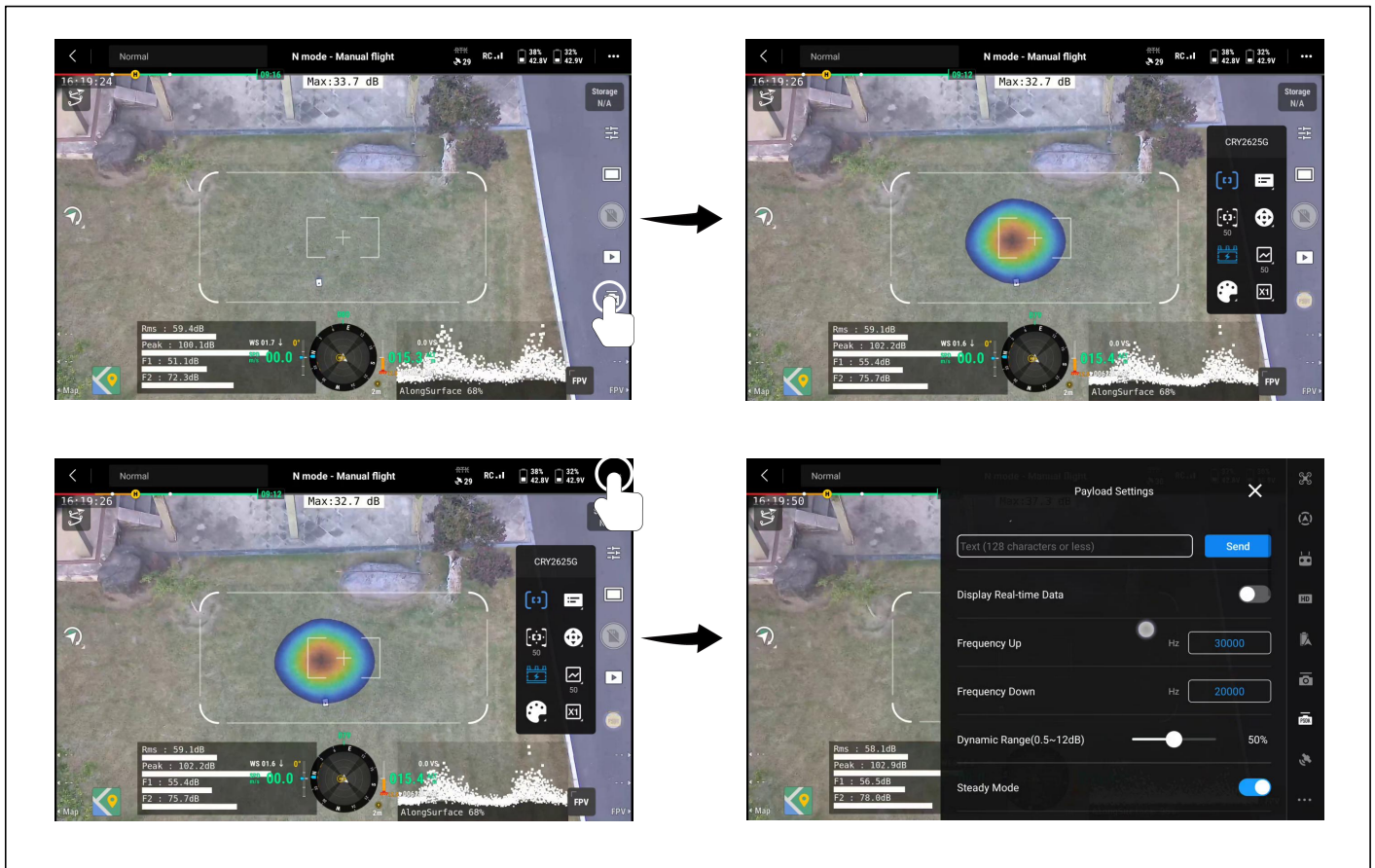
5 - PRPD Spectrum

Displays the PRPD Spectrum and Discharge Type.

6 - PSDK shortcut function

click to expand the shortcut function button, you can adjust the focus, PRPD map, dynamic range, digital zoom, etc.

6.2   PSDK Function

Click the "PSDK" button on the right side of the interface to open the shortcut function menu.

Click on the "..." in the top right and then click on the "PSDK" option to open the settings menu.

Click "⬚" to open/close the focus window.

Click "⬚" to adjust the size of the focus window (it is recommended to adjust it to the maximum).

Click "⬚" to turn on/off the PRPD map.

Click "🎨" to select the color of the pan image (iridescent, iron-red, grayscale).

Click "⬚" to open/close the information window (model, firmware version, SN).

Click "⊕" to open the gimbal control interface, and you can control the gimbal rotation.

Click "⬚" to adjust the dynamic range (it is recommended to adjust it to the minimum).

Click "X1" to set the number multiplier, which can be set to 1x and 2x.

6.3   Take Photos and Videos
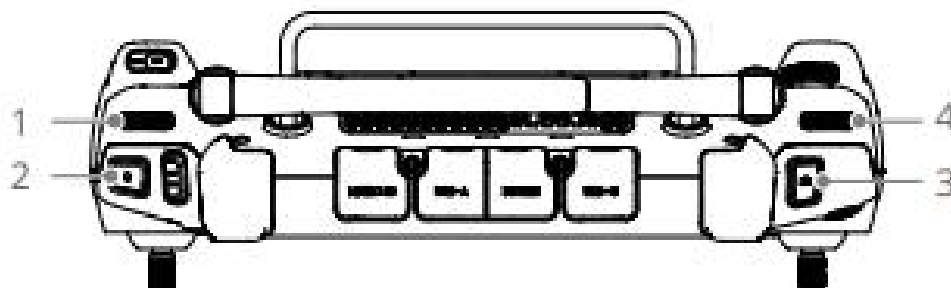
Press the photo button(3) once, a photo will be taken and stored to the TF card.

Press the recording button(2) once, and a recording time of more than 5 minutes will begin.

When you press the recording button(2) again, the recording will be stopped and the video will be automatically saved to the TF card.

You can observe the duration of the current video recording by using the icon on the right side of the video area.

6.4   Parameters Setting

Click "...", the function pop-up window will pop up, and then click "PSDK" to expand CRY2626GG parameter settings.

Display product information
After the switch is enabled, you can view the device model, software version number, serial number, and TF card usage.

Frequency capping
Set the maximum frequency of the sound source signal to be detected, it is recommended to set it to 30kHz.

Frequency lower limit
Set the minimum frequency of the sound source signal to be detected, it is recommended to set it to 20kHz.

Dynamic range

Set the dynamic range of the device, 0%~100% corresponding, 0.5dB~12dB. It is recommended to set 40%.

Steady-state mode

The steady state is turned on during the test partial discharge, and it is recommended to be in the open state.

High sensitivity mode

The default setting is to enable High Sensitivity Mode.

PRPD Atlas

Turn on or off the PRPD spectrum display, and it is recommended to turn it on when testing partial discharge.

PRPD mode

Set the PRPD synchronization frequency to the same frequency as the power grid, you can get a more accurate PRPD map, Chinese mainland default 50Hz.

Minimum sound pressure level

When the sound pressure of the sound source is greater than the minimum sound pressure level limit, the contour can be displayed in the picture, and 0%~100% corresponds to -40dB~120dB.

Image flip

The default setting is 180°.

Focus

The focus can be turned on or off, and it is recommended to turn on the focus all the time during the use of the device (after turning on the focus, it can block some drone noise).

Focus size

Set the size of the focus window, you can set the size of the focus window, it is recommended to set it to 100%.

Ultrasound Monitor

When the ultrasound listening function is turned on, you can see the monitor.wav in the picture folder, and you can hear the modulated ultrasound when you play the file.

Modulation frequency

The modulation frequency of ultrasound listening can be set, and it is recommended to set it to 20 kHz.

Discharge alarm

After the discharge alarm is enabled, the discharge type will be displayed in the upper left corner of the device when the discharge type is identified. It is recommended to turn it on.

Alarm sound pressure

When the sound pressure value is set to 45dB, an alarm will be displayed in the upper left corner of the screen when the sound pressure is detected to be greater than 45dB in the focus. It is recommended to set it to 45dB (20kHz~30kHz).

Cloud map palette

You can set the color of the image image to rainbow, iron red, and grayscale. It is recommended to set it to rainbow colors.

resolution

The resolution can be set to 1080p, 720p, 640p, and it is recommended to set it to 1080p.

language

You can set the device display language to English or Chinese.

Microphone self-test

After clicking the microphone self-test button, the device starts to detect if the microphone array is damaged.

Gimbal reset

After clicking the gimbal reset button, the gimbal angle of the device returns to the initial state.

07   Usage Tips

7.1   Capturing Sound Source

Observe the frequency spectrum graph for any prominent signals or peaks. If such signals exist, adjust the frequency band to encompass the frequency range where the prominent signal or peak is located. Then, observe if any sound sources appear in the display.

Try adjusting the dynamic range to relatively larger values. This allows for capturing multiple sound sources with similar sound pressure levels simultaneously. In scenarios where there are significant differences in sound pressure levels among multiple sound sources in the display, smaller dynamic range parameters may result in larger sound sources overshadowing smaller ones.

7.2   Eliminating Reflection Interference

If you are not unsure whether the sound cloud image in the display is the actual source or a reflected virtual image, you can try capturing the sound source from different angles. If the sound source is captured from multiple angles, it is likely the actual source location. Reflected sound sources may exhibit position shifts or even disappear at different angles.

7.3   Eliminating Interference Noise

Low-frequency ranges are susceptible to environmental noise interference. Depending on the characteristics of the sound source, it's advisable to use the mid to high-frequency ranges to pinpoint the location of the sound source effectively.

Select a relatively narrow frequency band range for locating the sound source. This helps to eliminate interference noise from other frequency bands.

7.4   Equipment Maintenance

Keep the acoustic sensor ports clean to prevent dust buildup, when there is dust in the acoustic sensor ports, gently blow air to clean them, and do not use a wet cloth for cleaning.

When the device is not in use for a long time, fully charge the device, then place it in its original packaging, and store it in a dry environment at room temperature.

Regularly checking and replenishing the device's battery can effectively prolong its lifespan.

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