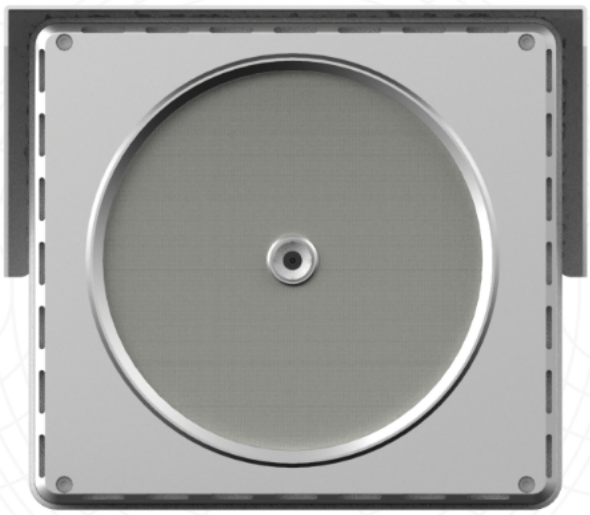
CRYSOUND

CRY2623M

Fixed Acoustic Imager

User Manual



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Revision History

Revision Number	Description	Revision Date
1.0	● Initial version	2025/08/21

01 Warranty and Calibration

Within two years from the date of purchase, we provide free warranty service for abnormal and malfunction caused by product quality. Free warranty service does not include the non-product quality problems caused by improper use, accidental drop, etc.

In case of equipment failure caused by improper use or accidental drop, we promise to provide maintenance service at cost price.

The equipment has been calibrated when delivered to the user. However, in the long-term use process, we suggest that you send the equipment to our office every two years for equipment calibration, testing and maintenance.

02 Introduction

CRY2623M is a fixed acoustic imager that supports ultrasonic frequency band The equipment uses the microphone array beamforming technology to obtain sound source distribution data, and cooperates with high-definition cameras to collect video images in real-time.

CRY2623M fixed acoustic imager can help you detect possible pressurized gas leaks and vacuum leaks in noisy industrial sites; when used in power systems, it can help you find and monitor potential partial discharge fault points.

Fixed acoustic imager adopts an all-aluminum alloy shell, which is strong and durable, and can adapt to the complex and changeable working environment.

The device is easy to install and operate. It only needs to configure two parameters: test frequency range and test dynamic range to meet most monitoring needs; and private network, etc. remote monitoring system. Help users achieve industrial digital transformation. Support remote real-time monitoring of video images.

03 Safety instruction

To prevent possible fire or personal injury,please note:

- Please read this safety instructions carefully before using the product.
- Use the product only for the specified usage.
- Do not disassemble the equipment without authorization.
- In case of equipment malfunction or abnormal heat, please stop using.
- Please contact the manufacturer for maintenance requirement.
- Do not place the device near a heat source, flame or high temperature environment.
- When installing on a wall or ceiling, make sure the product is securely fastened.

Reminder

- Avoid installing the product in a vibration or shock environment, and keep the product away from electromagnetic interference. (Ignoring this may damage the product)
- Do not directly touch the heat dissipation parts of the product to avoid burns.
- Please be careful not to bump the explosion-proof surface of the product, so as not to affect the explosion-proof performance.
- Do not use the product in extremely hot, cold, dusty or high-humidity environments. For specific temperature and humidity requirements, please refer to the product parameter table.
- The equipment needs to be stored in a dry and non-corrosive gas environment and avoid direct sunlight.
- Avoid aiming the lens at strong light (such as lighting, sunlight, or laser beams, etc.), otherwise the image sensor will be damaged.
- Avoid heat accumulation and keep ventilation around the product smooth.
- Do not touch the image sensor directly, and if cleaning is necessary, to prevent static buildup, wipe the surface with a damp cloth or other substitutes that are soft enough to gently remove dust.
- Do not use corrosive solvents or strong, abrasive cleaners, otherwise will damage the surface of the product or reduce the performance of the product.
- Equipments connected to the Internet may face network security issues. Please strengthen the protection of personal information and data security. When you find that the device may have network security risks, please contact us in time.

04 Glossary

USB Power Delivery (USB PD)

A power delivery protocol based on USB3.1, which is often used to transmit more power in USB interface.

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.

ADS

Acoustic Data Server——Acoustic Imaging Intelligent Data Server

ACS

Acoustic Compute Server —— Acoustic imaging intelligent computing Server.

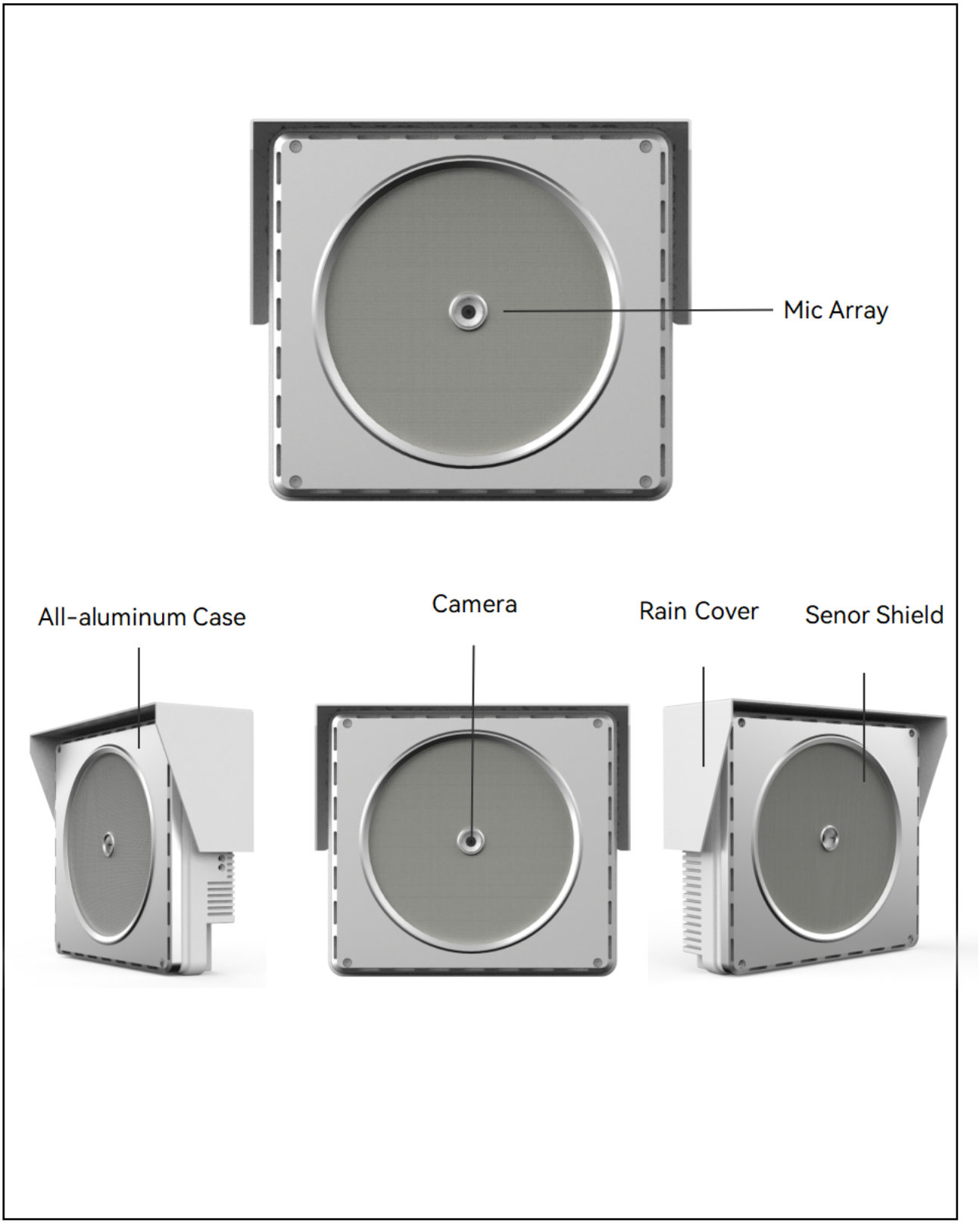
05 Product and Accessories

5.1 Product Accessory List

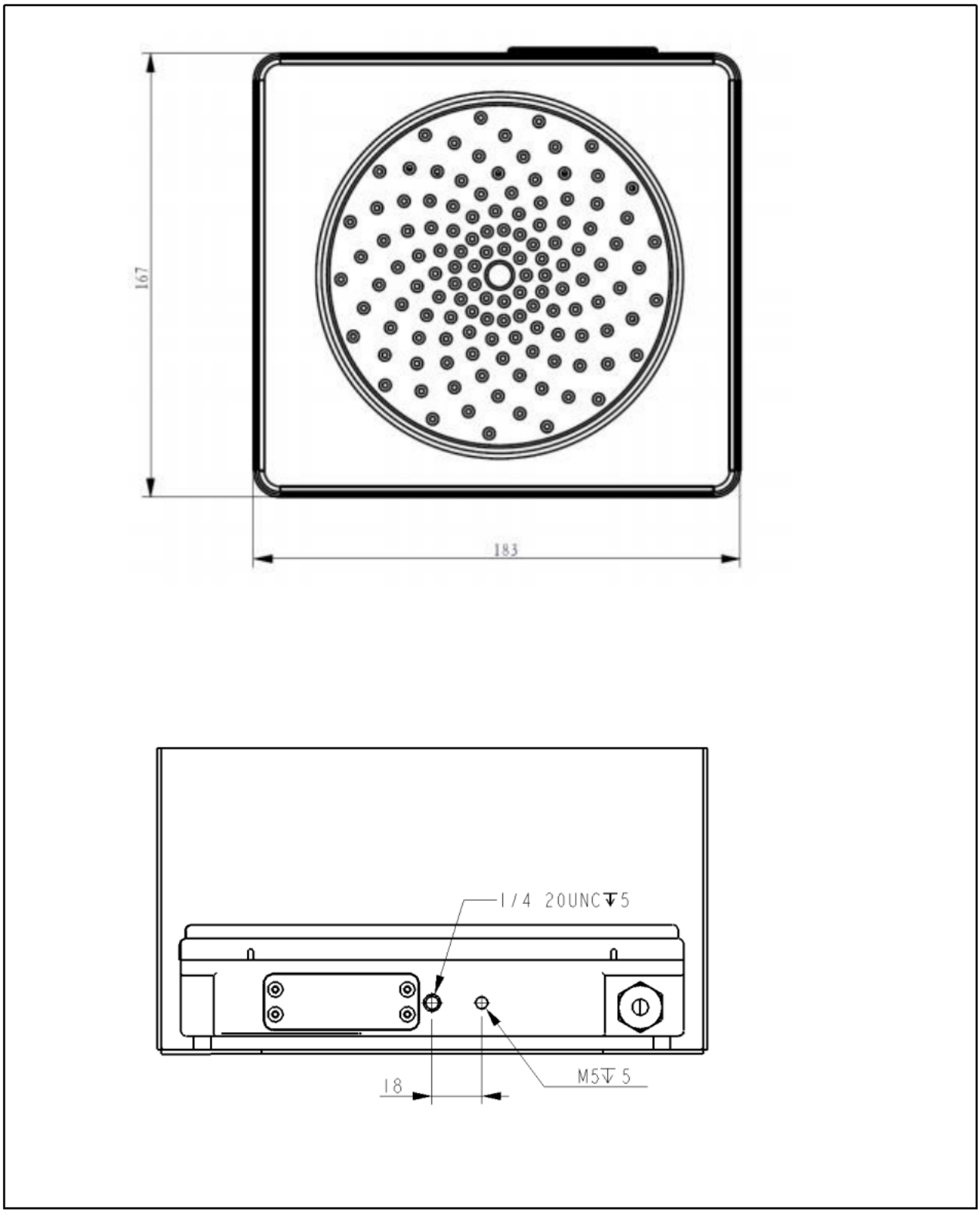
Item Numbers	Name	Description
1	Fixed Acoustic Imager	CRY2623M
2	Power Adapter	Power adapter for equipment charging.

06 Product Instruction

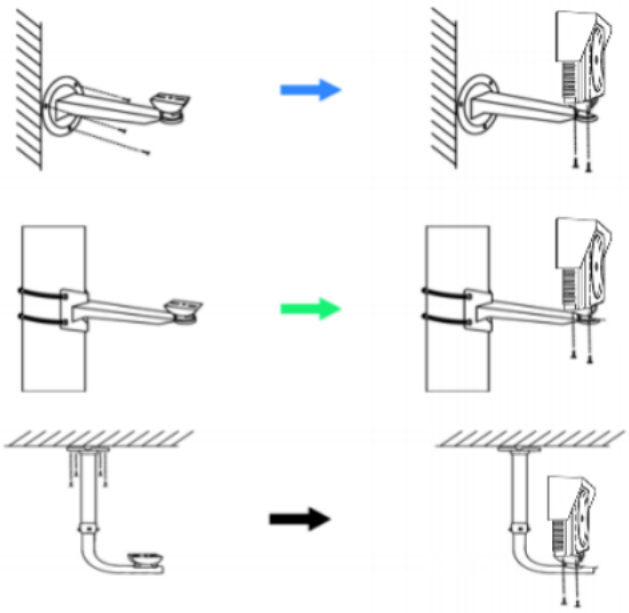
6.1 Appearance



6.2 Dimension



6.3 On-site Installation



Wall fixed installation
Fix the bracket to the wall with expansion bolts

Fixed column installation
Secure the brackets to the posts using straps

Hanging fixed installation
Use expansion bolts to fasten the bracket directly to the top of the wall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07 Monitoring Platform Software

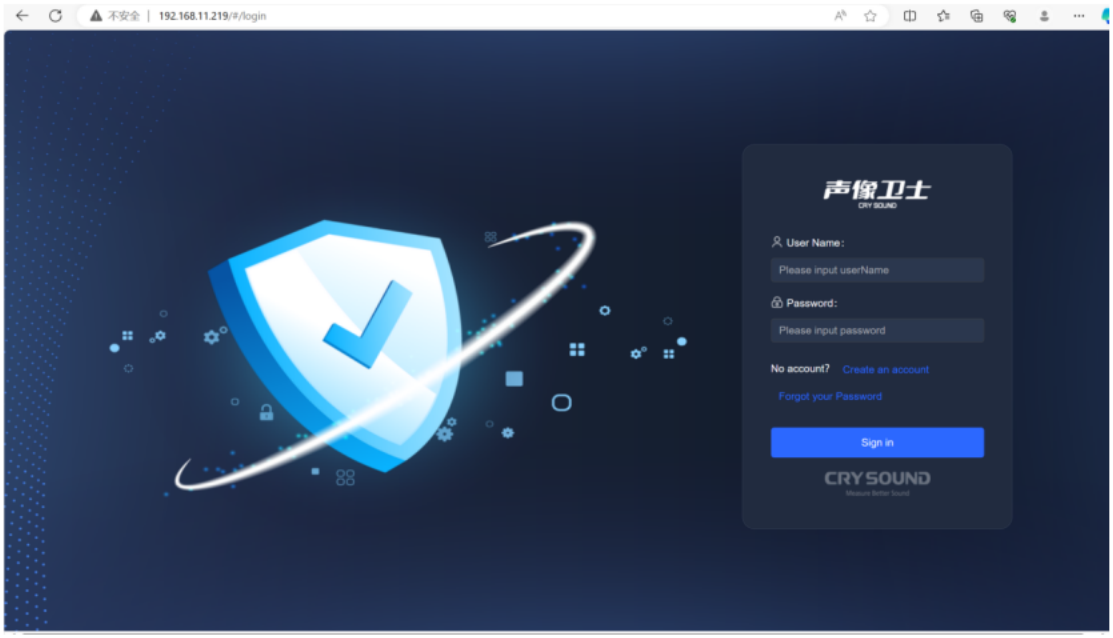
7.1 Monitor platform access

It is recommended to use the Google Chrome (kernel version ≥72.0) browser, while supporting other major browsers such as Firefox and Edge.

7.2 Network configuration instructions

Use the instrument for the first time

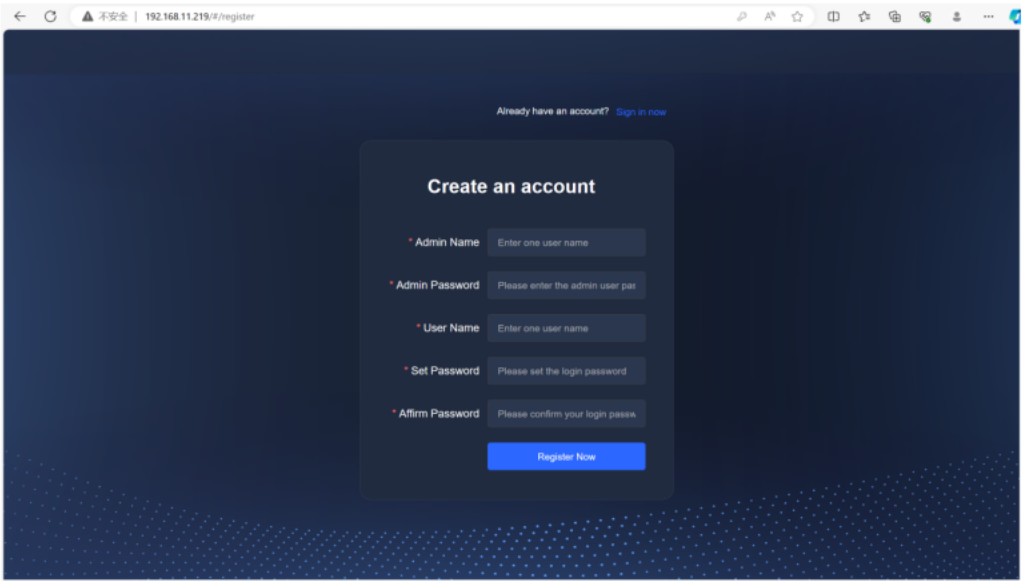
-Step 1: Make sure your PC and device are on the same network. Open a browser and type in the address bar: http://ip/ or http://ip:80, where IP is the IP address of the device, open the following interface:



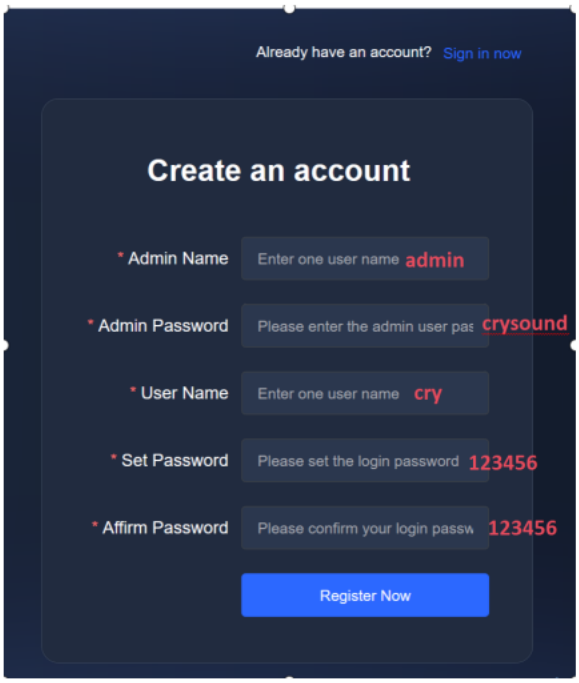
-Step 2: Log in to your account. Enter the username and password (default user admin, password crysound) to access the Fixed Acoustic imager device.

Create a new user

-Step 1: Click Create Account to open the following interface.

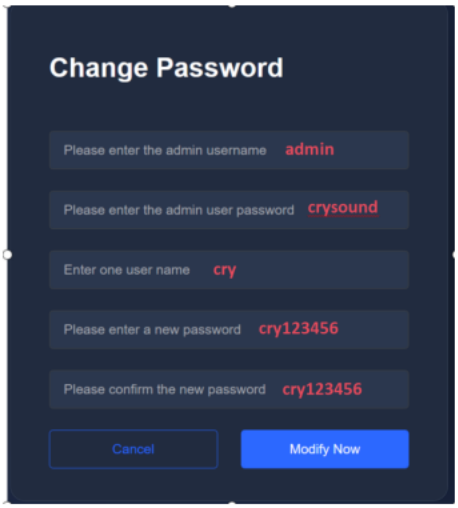


Note: To create a new user, you need to use the admin user for authentication, as shown in the figure below:



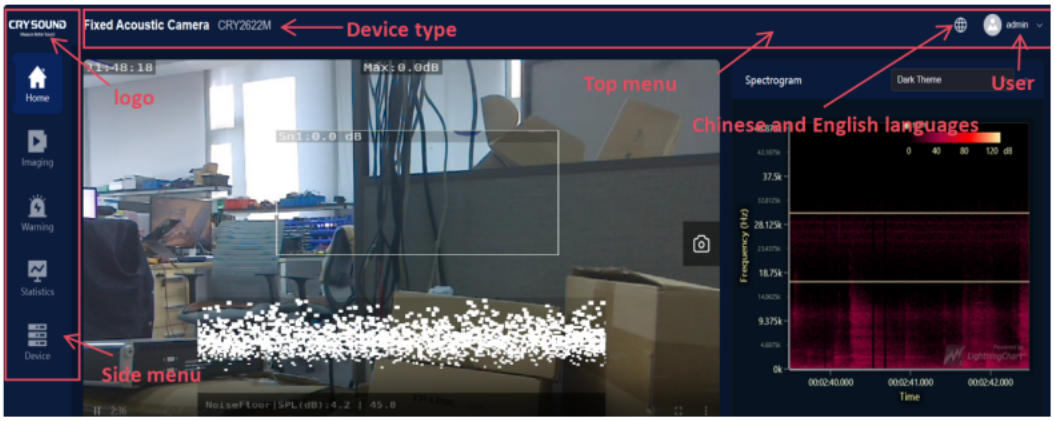
Forget password, change password

Note: To change the password, you need to use the admin user to authenticate. It is recommended not to change the password of the admin user. The reference interface is as follows:



7.3 Detailed function introduction

Menu bar



-Side menu bar: The side menu bar realizes jumps between pages, and the top is the company logo icon. There are five main interfaces: Home, Imaging Configuration, Alarm Configuration, Statistics Playback, and Device Configuration.

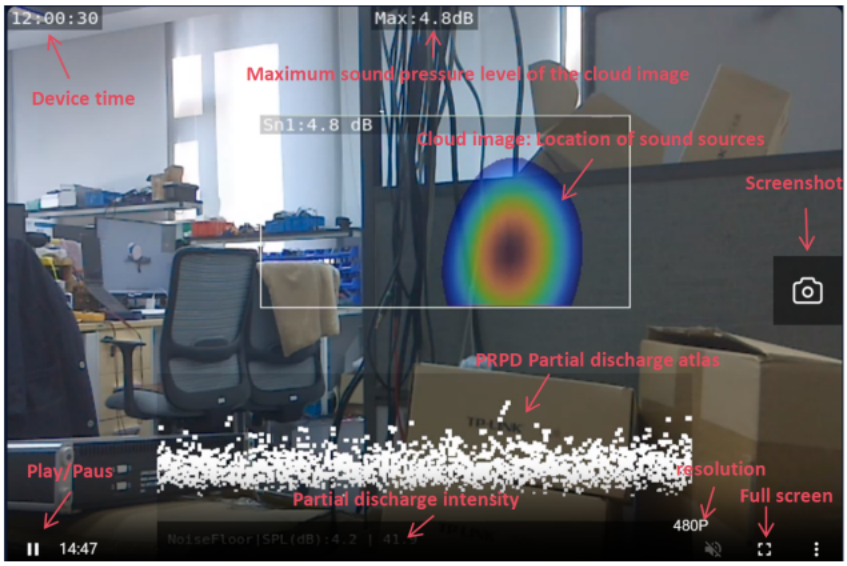
-Top menu bar:

The top menu bar displays the current device type;

Language switching: Support Chinese and English;

User: Displays the currently logged in user, click to opt out of login.

Video Preview



The video playback window is shown above:

Screenshot: The browser takes a screenshot of the current screen and saves it as an image;

Resolution: Read-only image size that displays the current video frame;

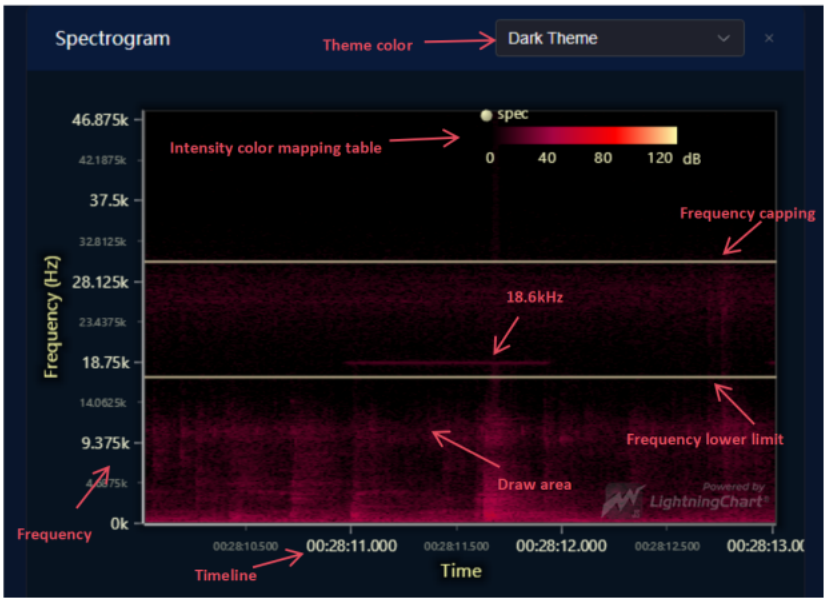
Full screen: The browser plays the video in full screen;

Start/Pause: Start or pause the video playback; Device time, Sound Image, Maximum

Sound Pressure Level of Sound Image and PRPD Graph: The image is fused for the video cloud image, which cannot be separated from the original video picture;

Floating window: When the video window is blocked by sliding up or down on the page, a floating window of live video is automatically generated at the bottom right of the interface.

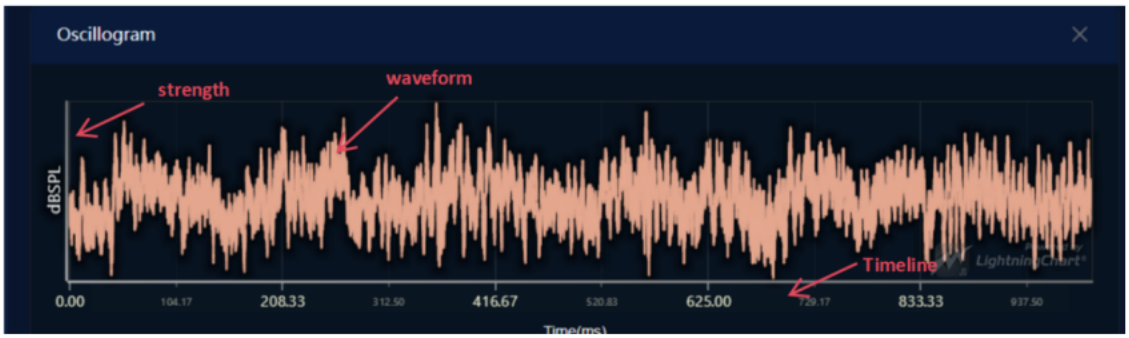
Spectrogram



The spectral chart shows the effect above:

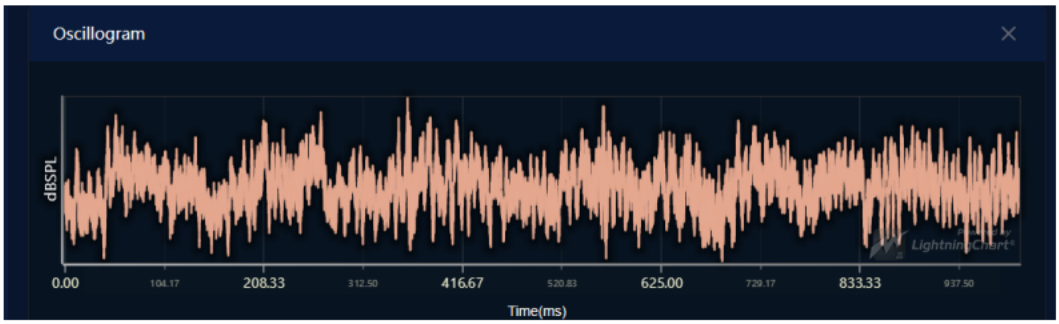
Spectrogram: The abscissa is the time, the ordinate is the frequency, and the coordinate point value is the speech data energy. The use of two-dimensional planes to express three-dimensional information is to reflect the magnitude of energy values through color;
Theme Color: Toggles the spectrum map display color;
Intensity Color Mapping bar: Indicates the relationship between energy intensity and drawing color;
Upper/Lower Frequency Limit: Indicates the frequency range of the sound monitored by the sound and Image Defender device,with units of Hz;
18.6kHz: Indicates that the currently monitored sound source frequency is 18.6kHz;
Plotting Area: Plotting a two-dimensional plane of sound energy data for a certain period of time;
Frequency Axis: The vertical axis, which indicates the frequency, ranges from 0-48kHz;
Time Axis: Horizontal axis, indicating the time, in s.

Waveform graph

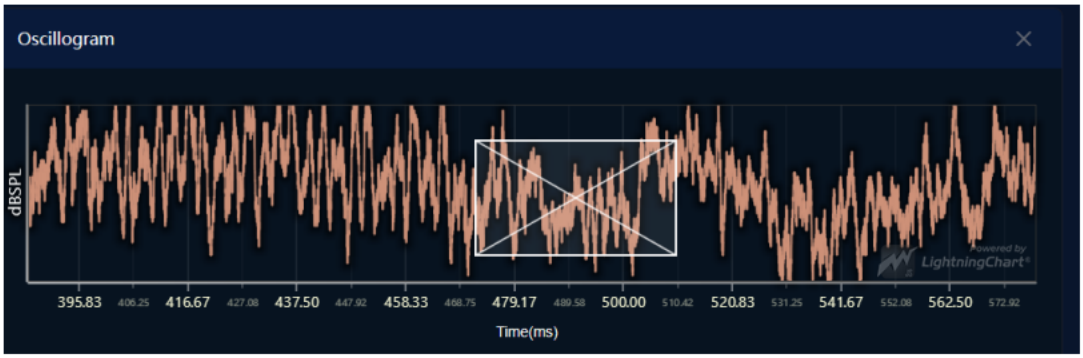


The waveform chart operation is as follows:

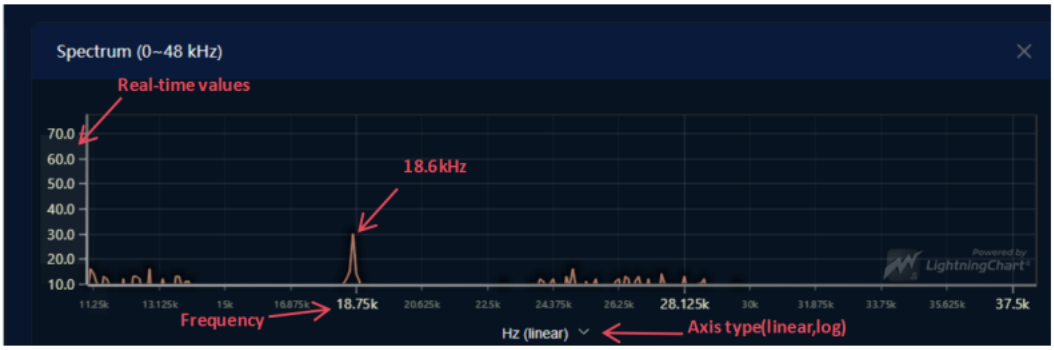
Specific data display: The mouse is placed on a squiggle to display data for the mouse position point waveform;
Zooming: Place the mouse over the horizontal or vertical axis, slide the scroll wheel to zoom, or use the left mouse button to zoom in on the selected rectangular area (from left to right), as shown in the following figure:



Restore: Draw a rectangular area (right-to-left) with the left mouse button to restore the original display effect, as shown in the following figure:

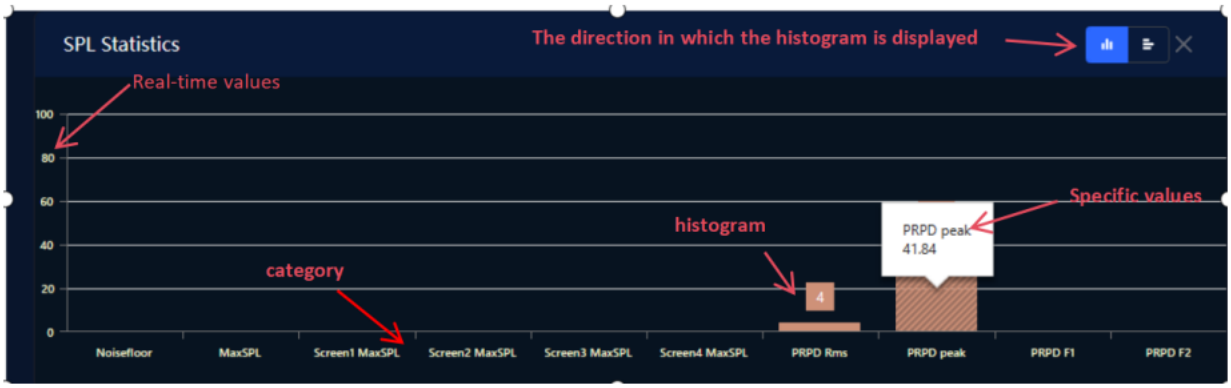


FFT



FFT: The frequency-amplitude curve calculated from short-time Fourier transform of the raw audio data;
Intensity: The vertical axis, which represents the intensity, in dBSpl;
Frequency: Horizontal axis, range 0-48kHz;
Axis type: Divided into linear axis and logarithmic axis, click to switch;
18.6kHz: The currently detected source frequency spike;
Zooming in/out, resetting the view, and numerical value display are the same operations as in the waveform graph.

SPL Histogram



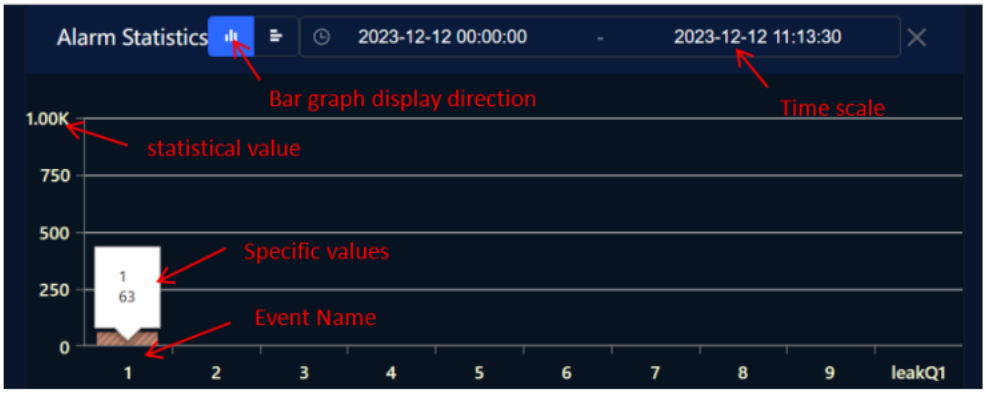
Category: Horizontal axis, column chart showing item categories;

Real-time value: Vertical axis;

Specific value: The mouse is placed on the bar and the corresponding bar value is displayed;

Orientation of histogram bars: The orientation of the histogram bars can be switched between vertical and horizontal.

Alarm Statistics Chart



Event name: The horizontal axis represents the name of the counted event, corresponding to the alarm policy name;

Statistics value: The vertical axis, which represents the number of events that have occurred;

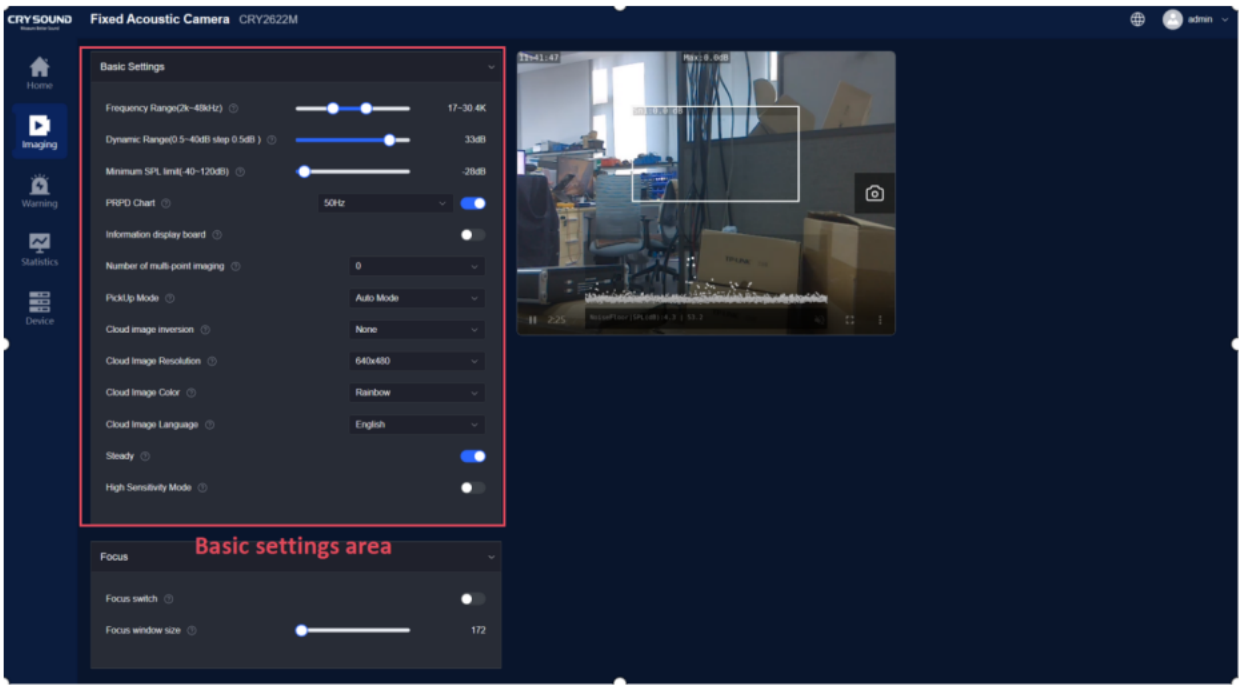
Orientation of histogram bars: You can switch the column chart in landscape and portrait orientation;

Event scope: Query the number of events within the specified time range, and if you do not specify the specified day, the default query is the current day;

Specific value: Displays the specific statistics of the event when the mouse is placed.

7.4 Imaging configuration

Basic settings



Frequency Range: Set the frequency range of the sound in the environment picked up by the microphone array. The range is 2k-48kHz, and the maximum difference between the upper and lower frequency limits is 2kHz.

Dynamic Range: Set the dynamic range of the energy cloud display, ranging from 0.5-12dB.

Minimum Sound Pressure Level Limit: Set the minimum sound pressure level limit of the device, which can be set to a value between -40-120dB.

PRPD Spectrum: The power version allows you to choose a power frequency of 50Hz or 60Hz. The toggle button indicates whether to enable the PRPD spectrum and PRPD data transmission.

Information Display Board: When enabled, the information display board is shown in the upper right corner of the video image.

Cloud Map Flip: Set the video image flip state: none, horizontal flip, vertical flip, or 180°flip.

Cloud Map Resolution: Display the current resolution setting. The device supports three resolutions: 480P(640x480), 720P (1280x720), and 1080P (1920x1080). To set a new resolution, the device needs to be restarted to take effect.

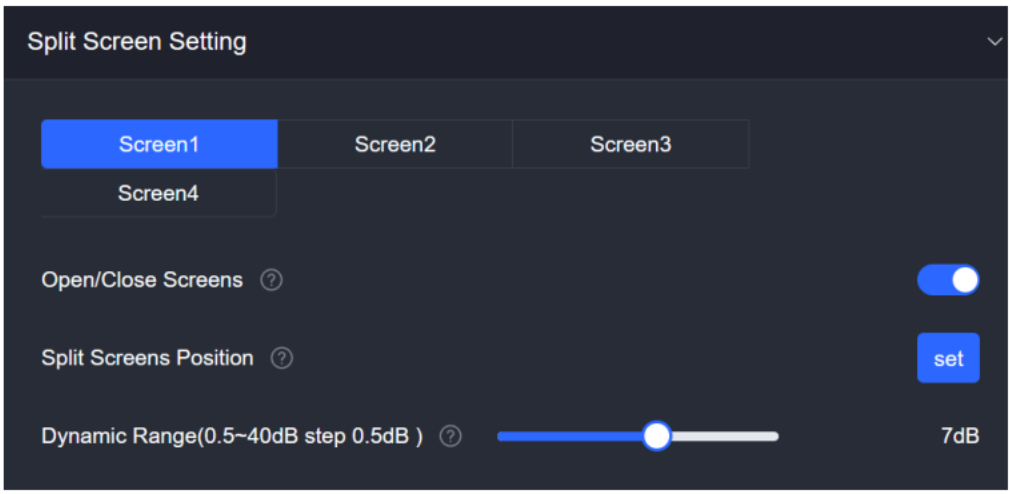
Cloud Map Language: The language of the font displayed in the video image, supporting both Chinese and English.

Cloud Map Color: Set the color of the cloud map. There are three colors to choose from: rainbow, iron red, and grayscale.

Steady State Mode: Enable/disable the energy cloud map steady state mode.

High Sensitivity Mode: High Sensitivity Modrequency Range.

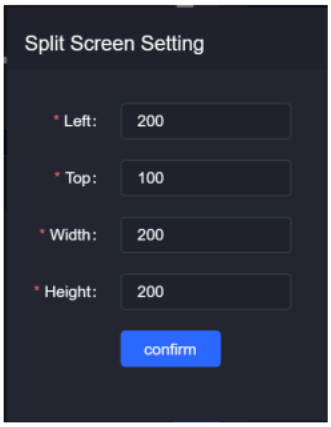
Split Screen Settings



Choose a split screen, as shown in the figure, the selected split screen is Split Screen 1

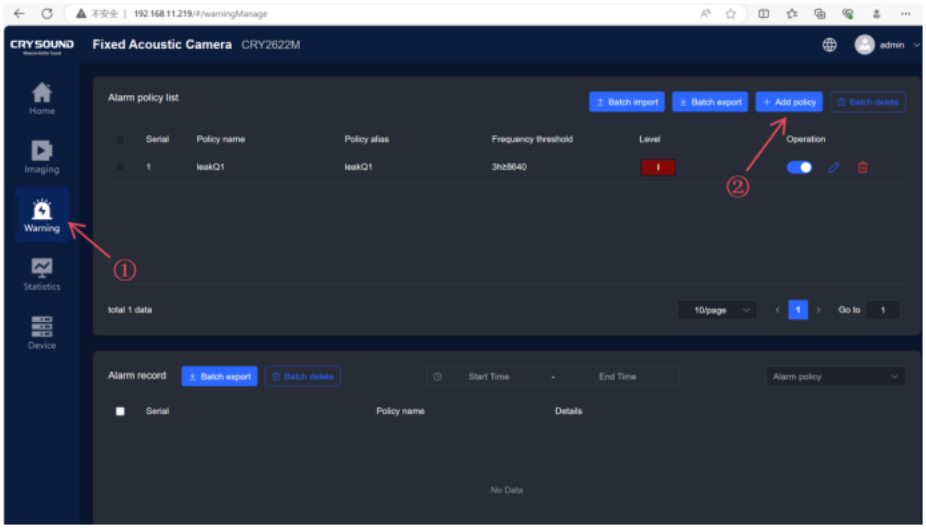
Enable/disable Split Screen: Toggle the Split Screen on/off.

Split Screen Position: Left - the distance from the left side of the image, Top - the distance from the top of the image, Width - the width of the Split Screen rectangle, Height - the height of the Split Screen rectangle. The following is an example input:

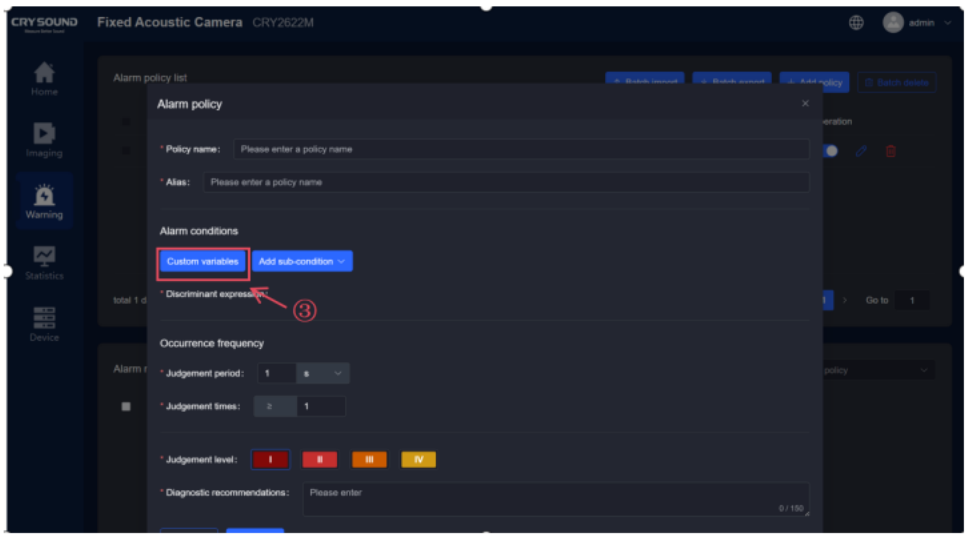


7.5 Alarm configuration

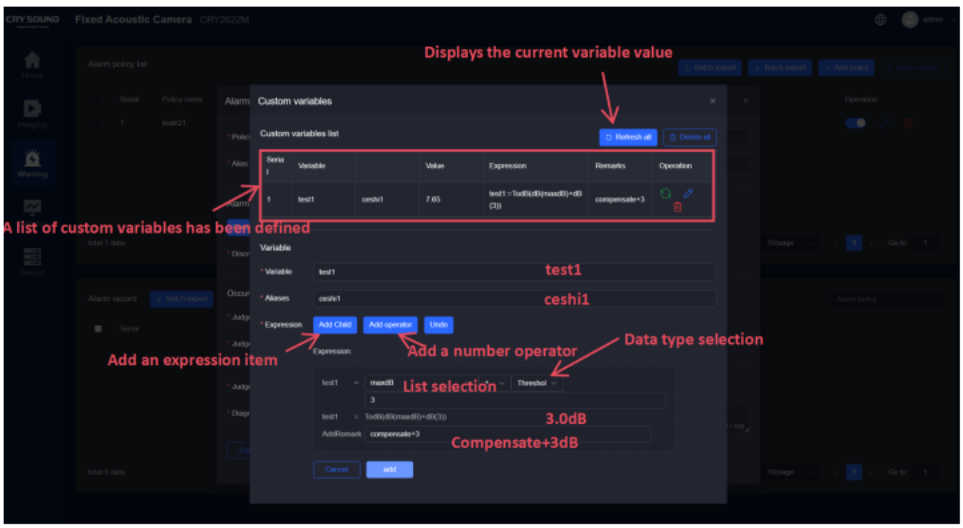
Custom Variable Settings



Click 1 and 2 in sequence to open the "Add Policy" interface.



Click on 3 to open the "Custom Variables" interface, as shown below:

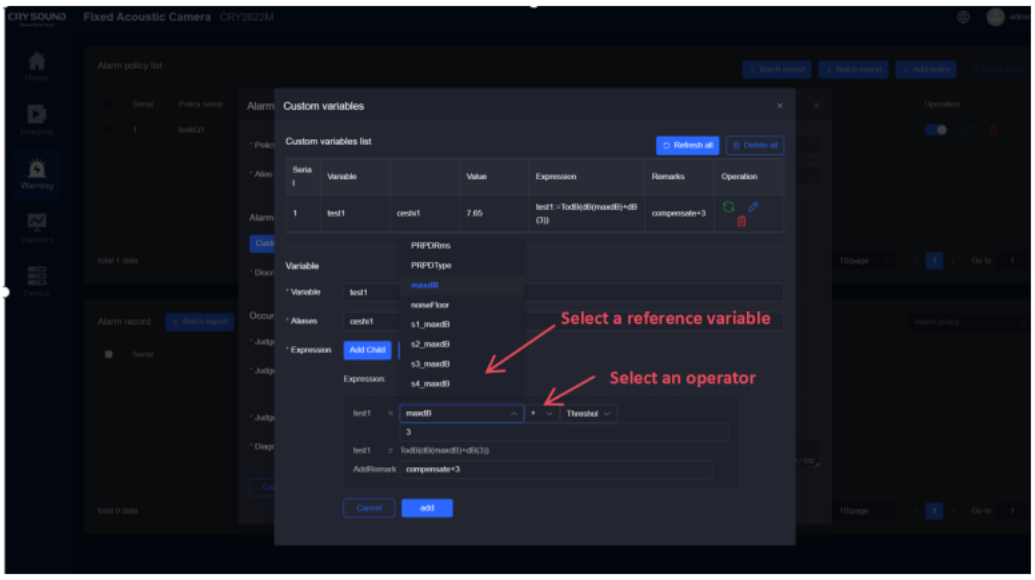


The upper part of the page is the area to display the list of custom variables.

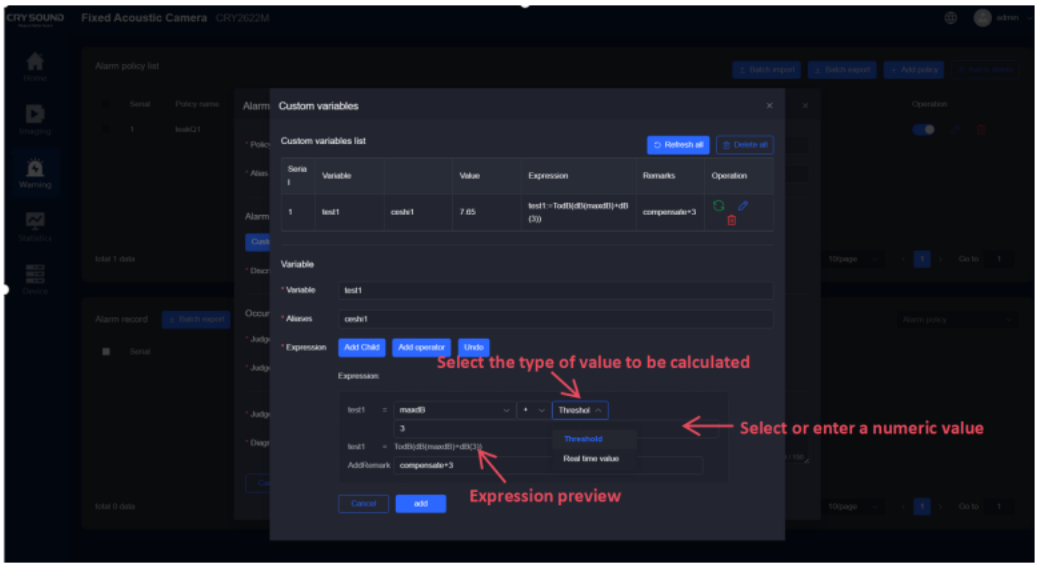
Custom variable list: Displays the custom variables that have already been added.
Refresh button: Refreshes the real-time value of the current variable.
Edit button: Edits the current variable.
Delete button: Deletes the current variable.
Refresh all: Refreshes the real-time values of all custom variables in the list.
Delete all: Deletes all variables in the listhe upper part of the page is the custom variable list display area;

Below is the area for editing custom variables. To add or edit a custom variable, follow these steps:

1.Enter a variable name
2.Enter the display alias
3. Create an expression
3.1. Select the reference variable and operator symbol, as shown in the following figure:

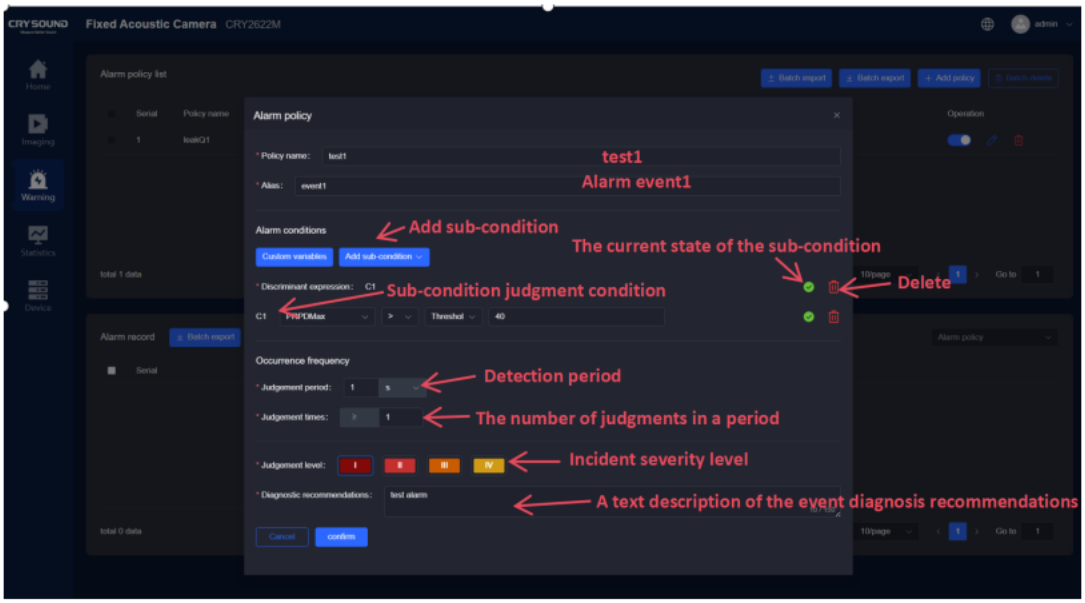


3.2. Select the type of value to be calculated, which is divided into two types: real-time value and threshold, where the real-time value is the reference variable in 3.1 above, and the threshold value is the manually entered value, as shown in the following figure:



3.3. Preview the expression of the custom variable, where dB(x) means that the unit of the current variable x is dB, and TodB(y) means that the output value of the current variable y is in dB.

Custom Event Configuration



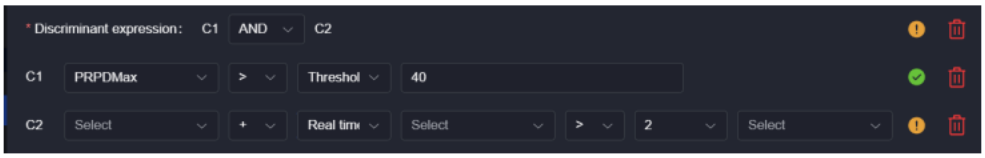
To add or edit an alert policy, perform the following steps:

1.Enter a policy name and policy display alias;

2.Set the alarm condition, that is, the judgment expression;

2.1. Click Add subcondition to add a subcondition: named C1, C2, C3...;

2.2. There are two types of subconditions, as follows, C1 is the relative value comparison condition, C2 is the absolute value comparison condition, and the logical relationship between C1 and C2 is determined, and the current is and:



2.3. Fill in the C1 and C2 contents, select and fill in in the order;

2.4. The current status of the subcondition determines whether the current setting determines whether the rule is established, and this step is only indicative;

3. Set the frequency, if it exceeds 1 time within 1 minute, the event will be triggered;

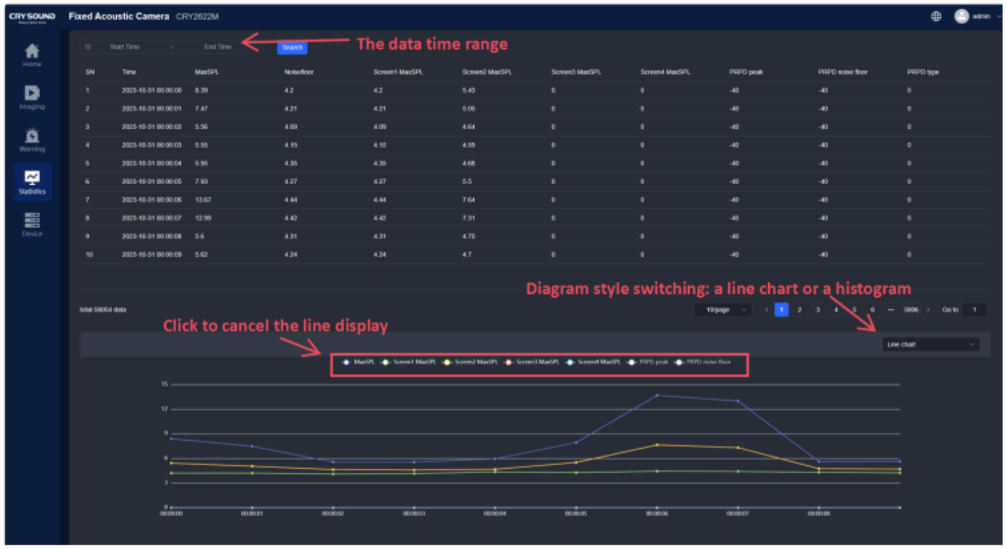
4. The preset severity level of the alarm is I., II., III., and IV. from high to low;

5. Enter diagnostic recommendations;

6. Click Confirm to finish adding or modifying the policy.

7.6 Statistical Playback

Overall Preview

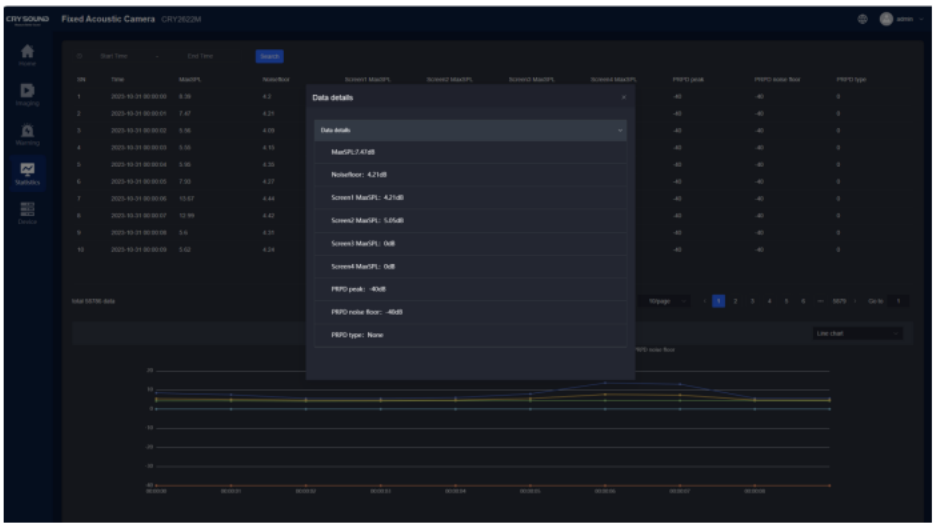


The statistics playback page mainly queries the historical monitoring data of the device, and queries the data of the current day when the time period is not specified.

The figure below can be switched to a line chart or a column chart by clicking on the chart style.

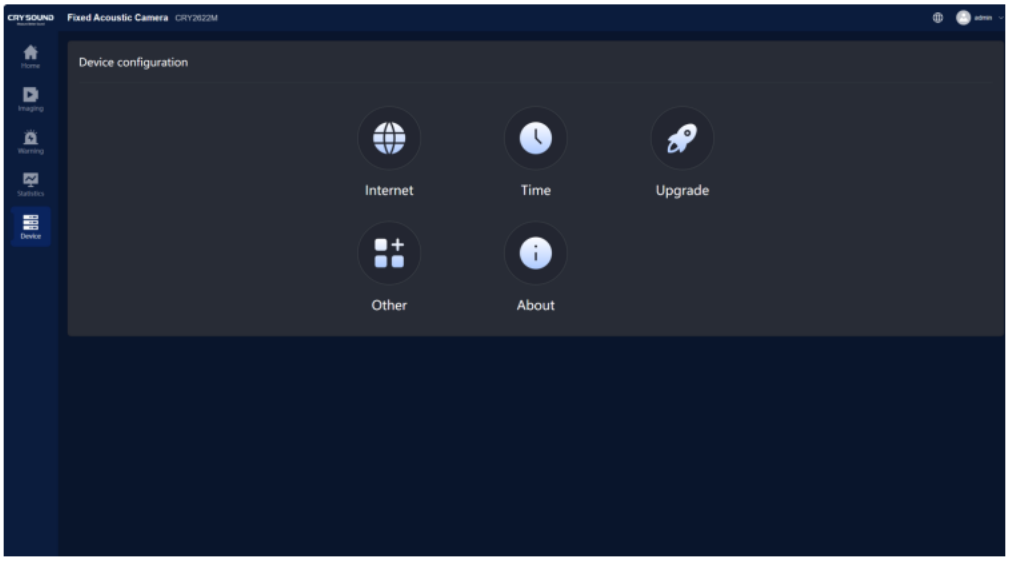
The plot displays all curves by default, and you can click the legend to cancel the display, as shown above: only the three polylines of the maximum sound pressure level of the cloud map, the screen1 maxSPL, and the screen2 maxSPL are displayed.

Data details



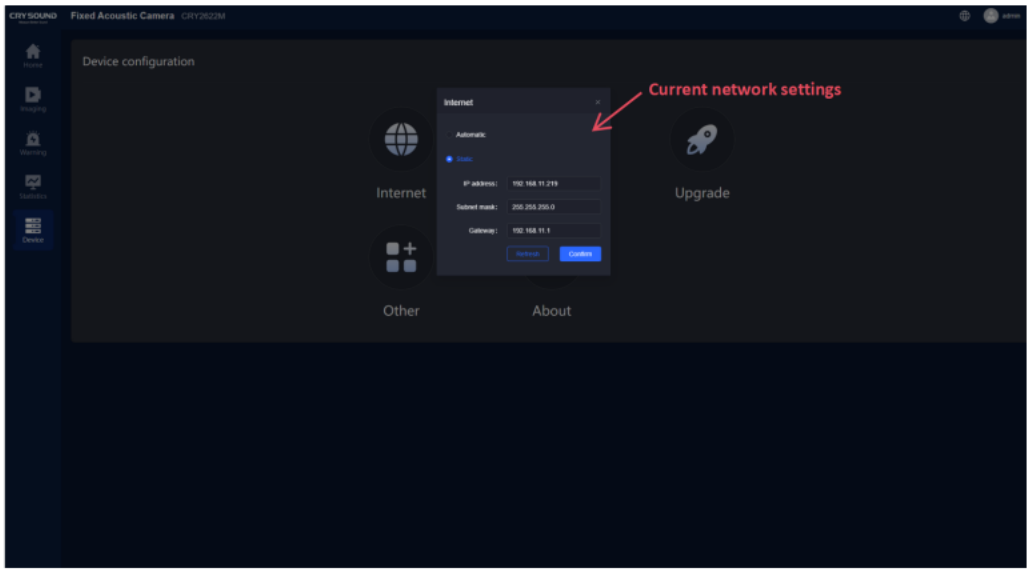
Click each piece of data to view the details of the corresponding entry.

7.7 Device Configuration



The device configuration is mainly divided into the following five parts: Network, Time, Firmware Upgrade, Other, About.

Network Settings

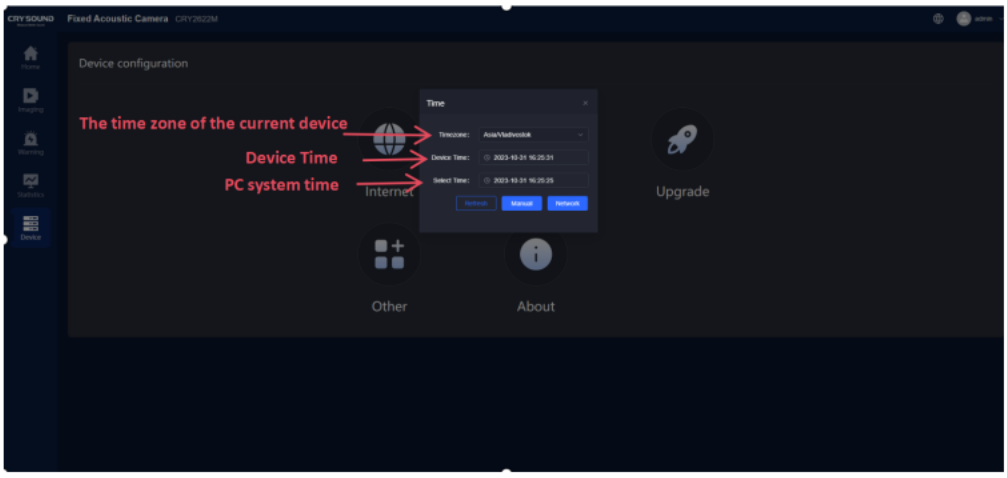


The network can be set to automatically obtain IP address mode (O) or use the following IP address pattern (P). As shown in the figure P static address mode, the current network configuration is displayed by default when the window is opened.

To modify the network settings, click or enter the corresponding network settings parameters and click the Confirm Modification button.

Note: It is recommended that you restart the device after modifying the network configuration to avoid the network settings not taking effect.

Time settings



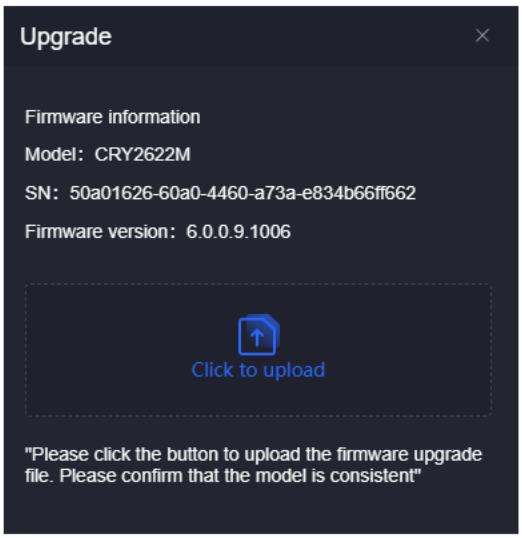
On the time setting interface, the three display boxes are; Current device time zone, current device time, PC system time.

Manual Calibration Time: Set the time manually. Select the time zone, set the target time in the "Select Time" column, and click "Manual Calibration Time" to apply the currently selected time zone and time to the device.

Network timekeeping: Click directly to calibrate the network time, and when the device is connected to the Internet, the network timing can be successfully performed.

Note: When the device is connected to the Internet, the device will automatically calibrate, and the manual calibration time will not take effect.

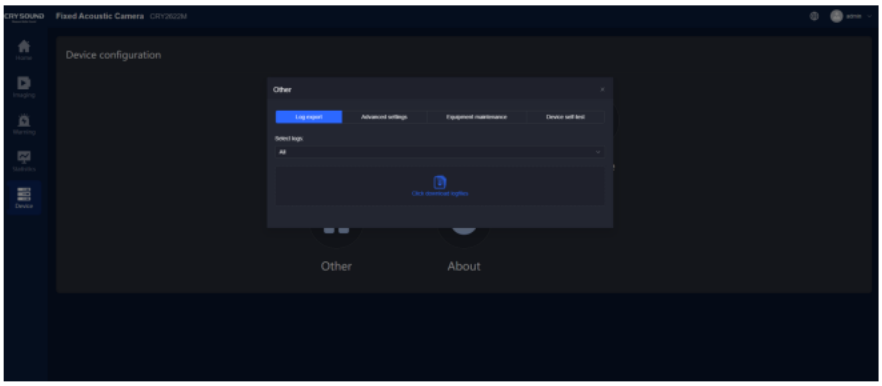
Firmware Upgrade



Click the "Click to upload" icon to select the upgrade firmware file and upload it.
After the upload is complete, the Confirm Upgrade dialog box appears.
Confirmation: The device is upgraded and automatically restarts after 3 seconds.
Cancel: Delete the uploaded upgrade package and abandon the upgrade process.

Other settings

Log Export

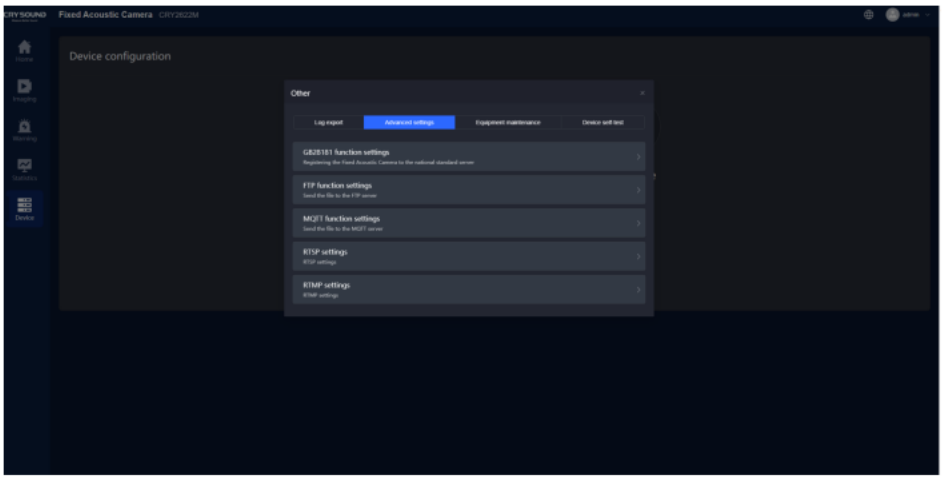


Log export process:

1.1.Click Select Log to select All Logs or Today's Logs;

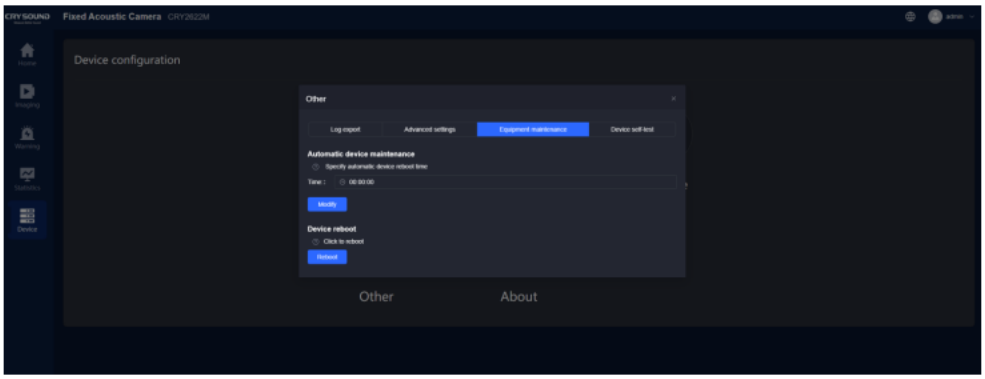
1.2.Click the "Click to download log file" icon, the current log can be directly opened and previewed in the browser; All logs are compressed into a zip archive for download.

Advanced Settings



Advanced settings are mainly other uncommon functions supported by the device, including: GB28181 settings, FTP settings, MQTT settings, RTSP settings, and RTMP settings.

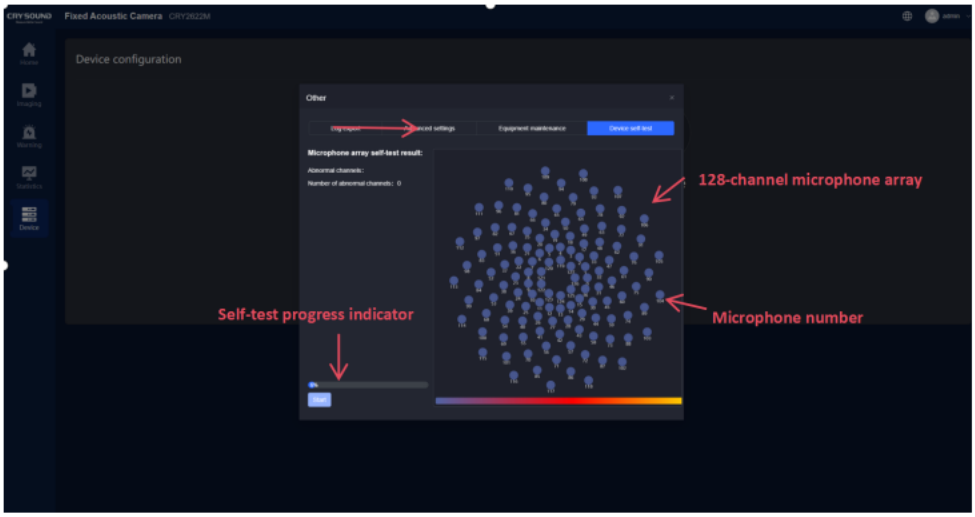
Equipment Maintenance



Set the daily scheduled restart time of the current device to 00:00:00 as shown in the figure.
Click the Restart button to confirm the completion of the device restart.

Device Self-test

The figure below shows the AVS self-test page, with a schematic diagram of the relative position of the device's microphone array to each channel in the middle of the page, and the number of each microphone channel below:

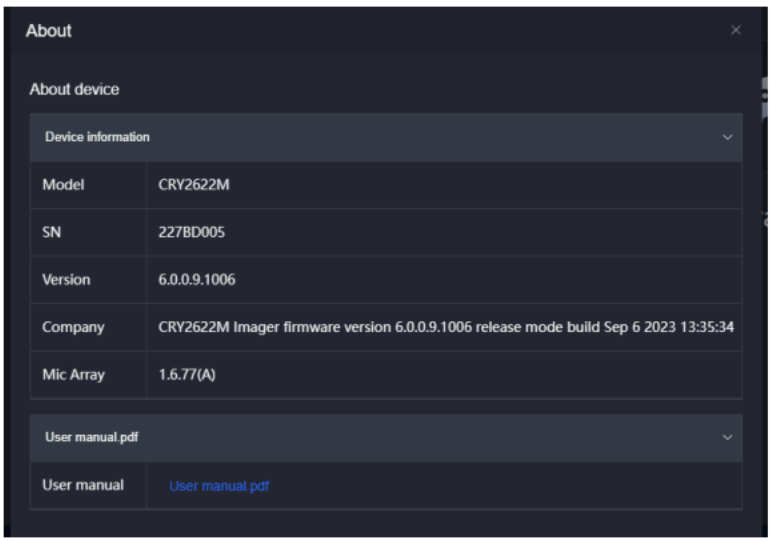


Click the Start Self-Test button to display a self-test process progress bar above the Start Self-Test button. The self-test process takes 90-120S.

After the self-test is completed, each channel displays its sound intensity value in dBSpl, and the channel color corresponds to the color map bar below. The color bar is 0-120dB from left to right.

The left side of the page shows the statistical self-test results, as shown in the figure above, the current 128-channel self-test has all passed.

About



This page displays basic information about the device and provides access to the Fixed acoustic imager user manual.

7.8 Attention

1. It is recommended to restart the device after setting up the network.

2. After the device restarts, you need to manually refresh the page.

3. The video screen on the home page and imaging configuration page needs to wait 5-6S for the video to load.

4. After the device is abnormal, we recommend that you restart the device and wait 2 minutes to refresh the webpage.

5. The same device can be accessed through multiple simultaneous logins through the browser, and there is currently no limit to the number.

08 Contact Us

8.1 Hangzhou Headquarters

Tel: +86-571-88225128
E-mail: info@crysound.com
Add: No. 10 Xianqiao Rd, Yuhang Dist, Hangzhou, China
Web: www.crysound.com

8.2 Dongguan Branch

Tel: +86-769-21688120
E-mail: info@crysound.com
Add: 7F, B1 Bldg, Songshan Lake Intelligent Valley, Minfu Rd, Liaobu Town, Dongguan, China
Web: www.crysound.com

8.3 U.S. Office

Tel: +1-877-215-7752
E-mail: info@crysound.com
Add: 515 S Fry Rd, Suite A-221, Katy, TX 77450, USA
Web: www.crysound.com

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