CRYSOUND

CRY2624

Acoustic Imaging Camera

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

CRY2624 is the ATEX version anti-explosion hand-held industrial acoustic imager, support the ultrasonic frequencies, with II 3G Ex ic IIC T5 Gc explosion-proof grade. The instrument uses the microphone array beamforming technology to acquire the sound source distribution data and collects the video images in real time with the high-definition camera. By integrating the sound source distribution data with the video image, the changing sound source is dynamically presented on the display screen.

CRY2624 industrial acoustic imager helps you quickly detect potential pressurized gas leakage and vacuum leakage in noisy industrial environments. Used in power systems, it can help you quickly identify potential partial discharge fault points.

The industrial acoustics imager is made of aluminum alloy shell, which is strong and durable and can adapt to the complex and changeable working environment.

The equipment is simple and convenient to operate and can be used quickly. It only needs to adjust two parameters, the test frequency range and test dynamic range to meet the vast majority of test requirements. Support camera mode, video mode, and the data recording on the job site is flexible. Large capacity microSD data memory card can be expanded, and test results can be exported and reported quickly.

03 Safety Instruction

To prevent possible fire or personal injury, please note:

1. Please read this safety instructions carefully before using the product.
2. Use the product only for the specified usage.
3. Do not disassemble the equipment without authorization.
4. In case of equipment malfunction or abnormal heat, please stop using.
5. Please contact the manufacturer for maintenance requirement.
6. Do not place the device near a heat source, flame or high temperature environment.
7. Please do not charge the device in a high temperature environment (over 45℃).
8. If internal lithium battery leakage occurs, please stop using the device.
9. In the event of leakage from a battery or device getting on the eyes, wash with water immediately and seek medical attention.
10. In case of leakage from battery or device getting on the skin, wash with water immediately and seek medical attention.

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.

05 Product and Accessories

5.1 Product Accessory List

Item Numbers	Name	Description
1	Acoustic Imaging Camera	CRY2624
2	Power Adapter	Power adapter for equipment charging.
3	USB-C Charge Cable	Cable used to charge the device or export data.
4	Headphones	Connecting equipment is used to monitor ultrasonic wave, etc.
5	Protective Box	A storage protection box for the device and its accessories.

5.2 Battery and Charging

Battery Information

Built-in lithium battery nominal capacity 6600mAh@7.2V.

Charging Information

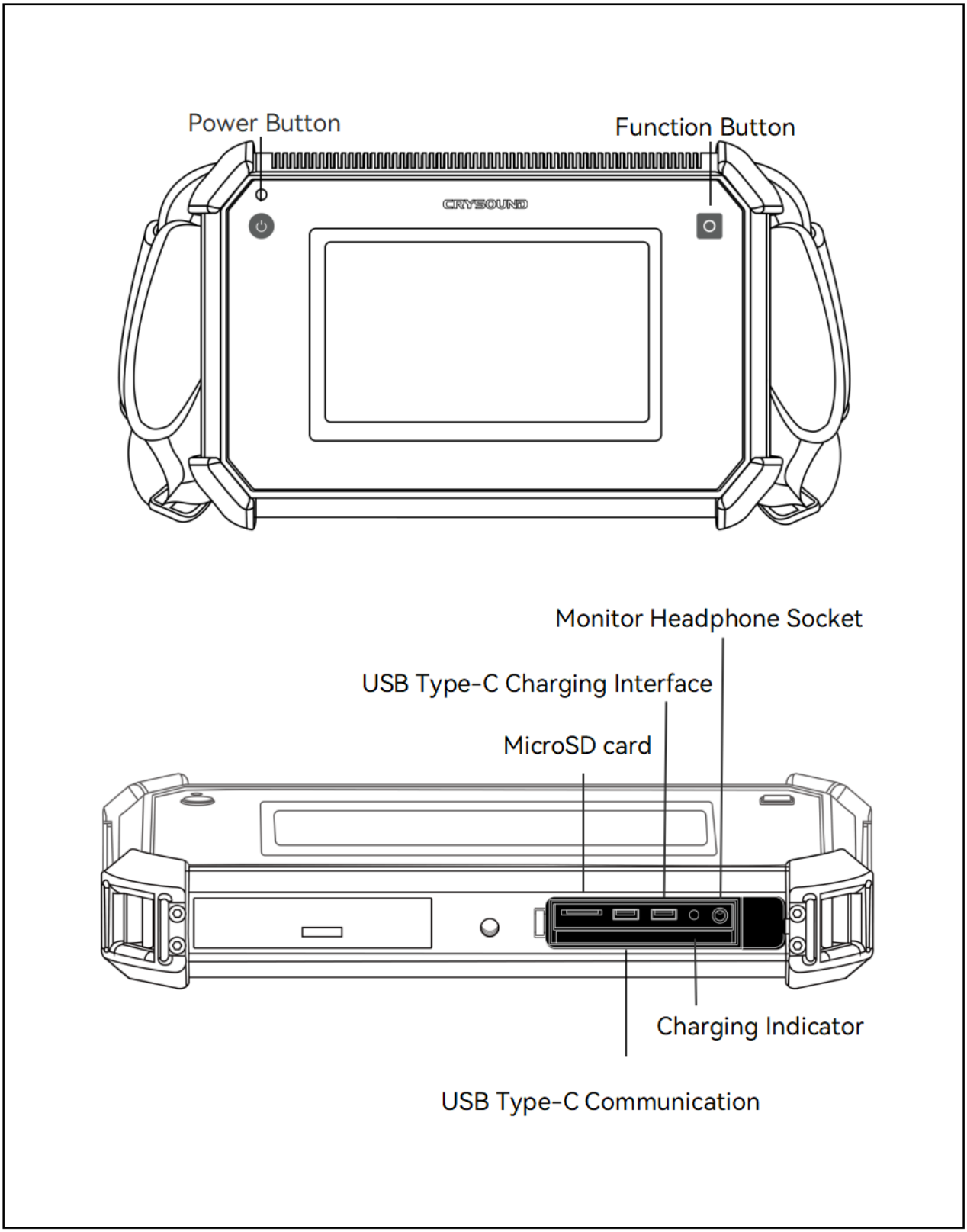
Please charge the device through the USB Type-C port marked with the charging logo “ ”.The device supports USB PD quick charging protocol. It is recommended to use a power adapter or power bank that supports 12V to 20V voltage output and the minimum output power is not less than 15W to charge the device.

Charging and Endurance Instructions

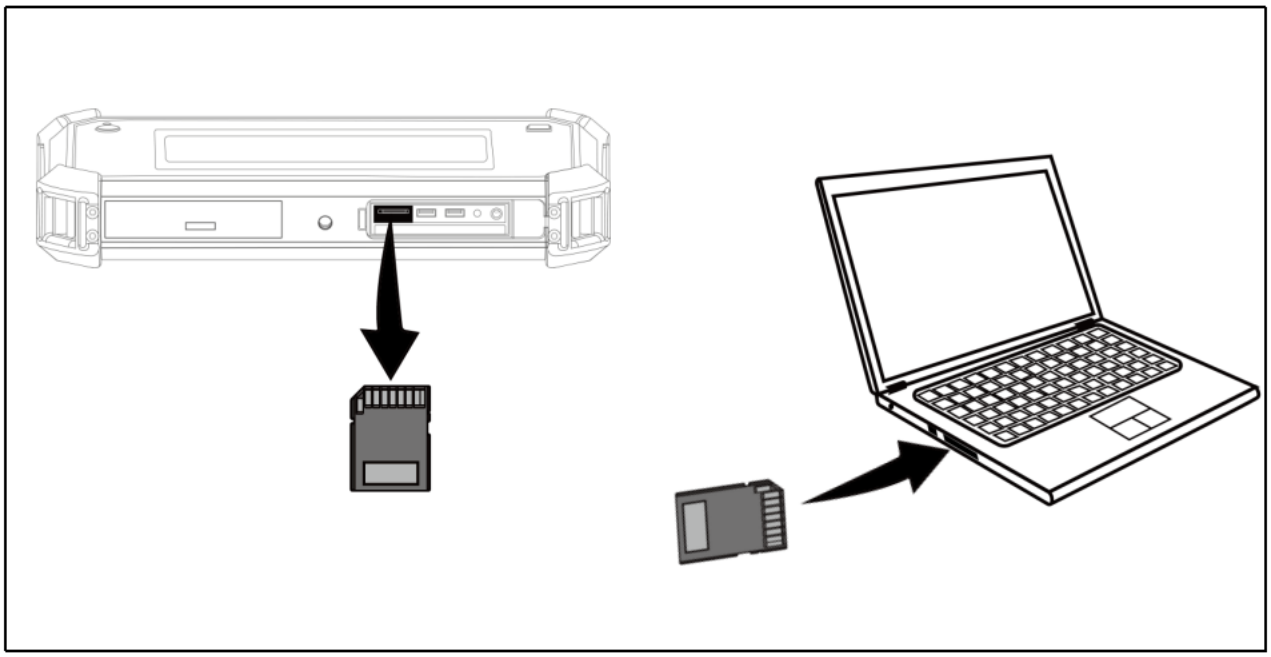
1. After inserting the charger, the charging indicator is always on, indicating that it is charging; the charging indicator is off, indicating that it is fully charged; keep device turn off on charging. Be sure to charge the device when the device is turned off.
2. When the battery is fully charged, the device displays 4 grids of electricity and can be used for about 4 hours; 3 grids can be used for about 2.5 to 3 hours; 2 grids can be used for about 1.5 to 2 hours; 1 grid can be used for about half an hour to 1 hour.
3. When the battery's charge gets low, you'll see the low battery warning on the screen. Please charge in time.

06 Product Instruction

6.1 Appearance



6.2 Expand MicroSD card



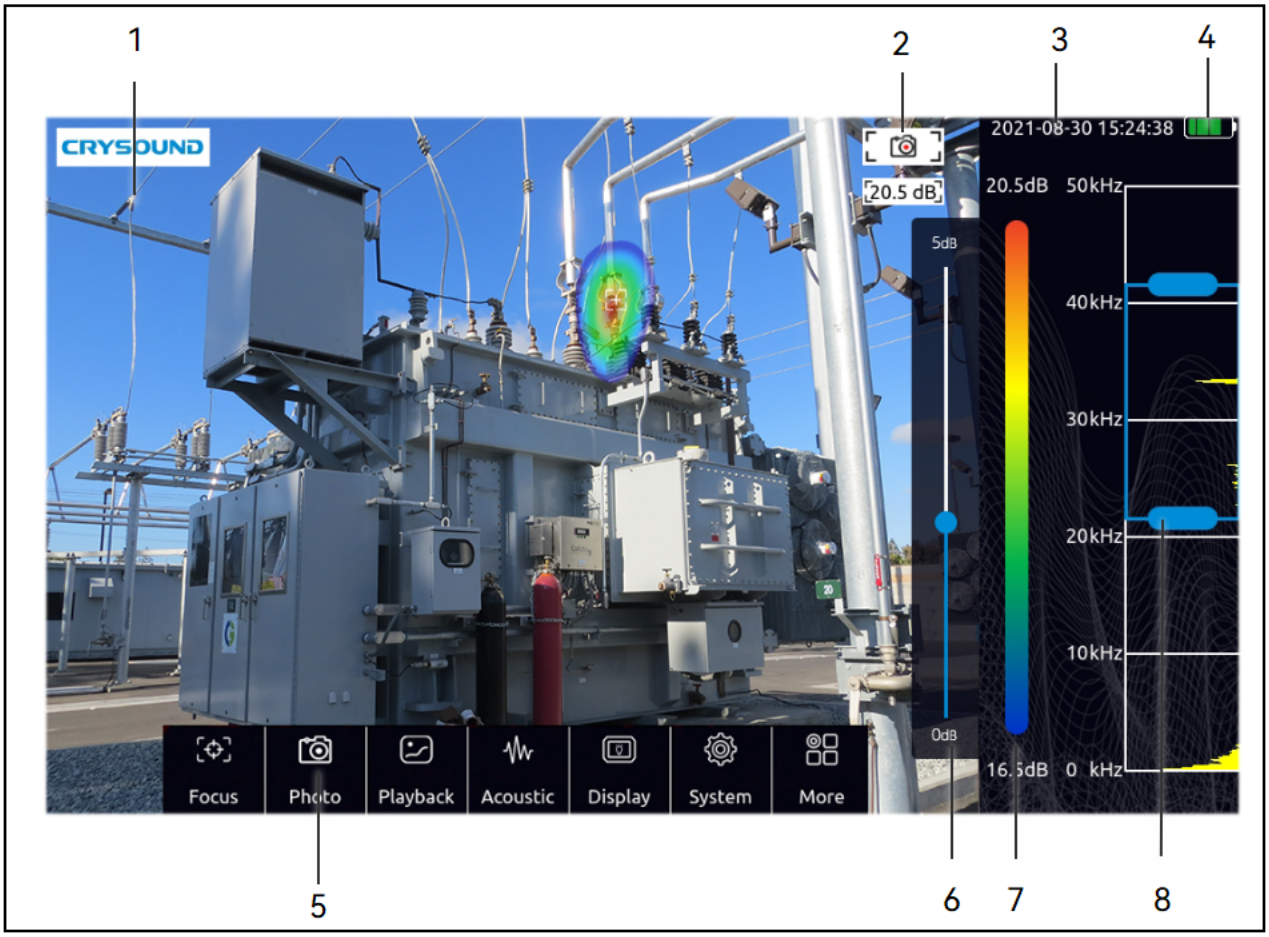
Notes for the use of MicroSD Card

1. Do not remove or insert the microSD card when video recording.
2. After taking photos and recording videos, please wait until the data is saved successfully before inserting and removing the microSD card.
3. Do not remove or insert the microSD card when browsing and marking data under the playback menu.
4. When reading microSD card data on the PC, do not change the names of files and folders in the microSD card, otherwise, test data may not be correctly identified and displayed in the playback menu.

07 Software Functions

7.1 Main Interface

3



1 - Video Areat

2 - Work Mode Icon

3 - System Time

4 - Battery

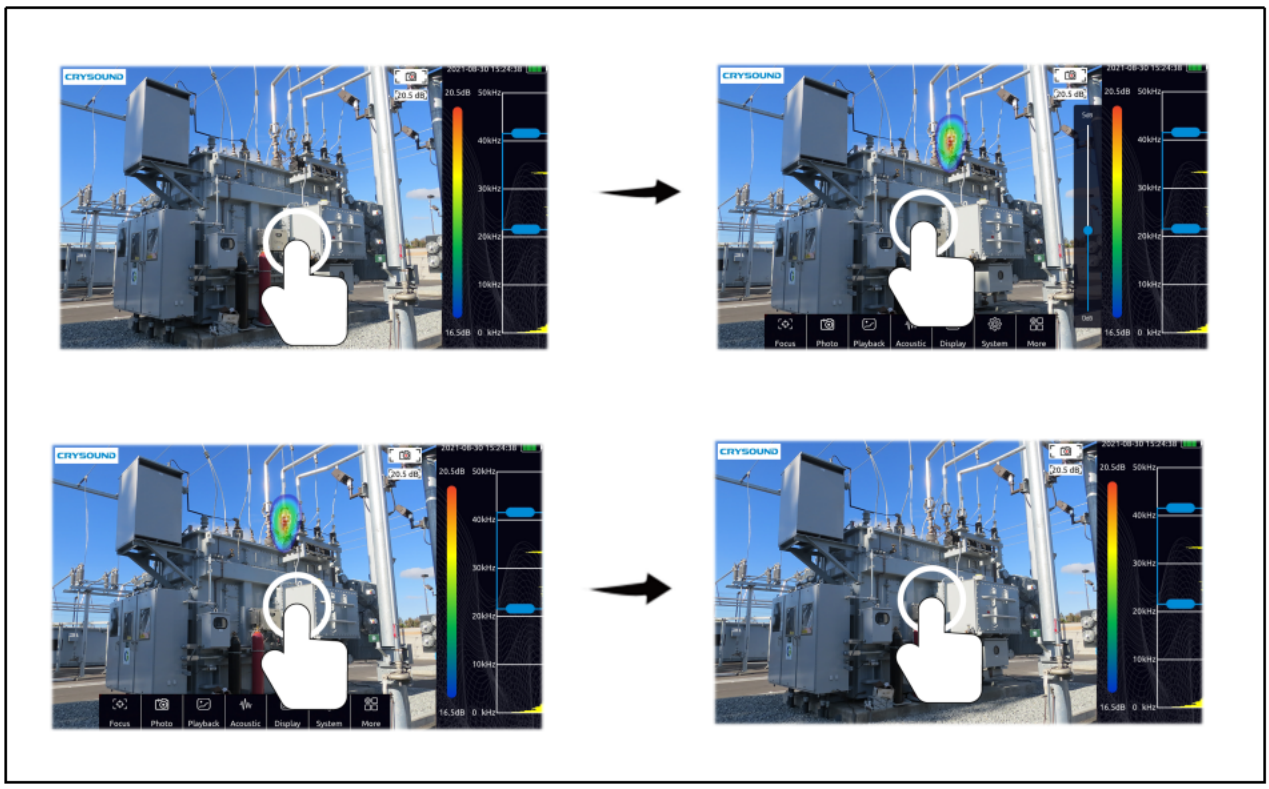
5 - Function Menu

6 - Dynamic Range Quick Setup

7 - Palette

8 - Spectrum and Select Box of Test Frequency Range

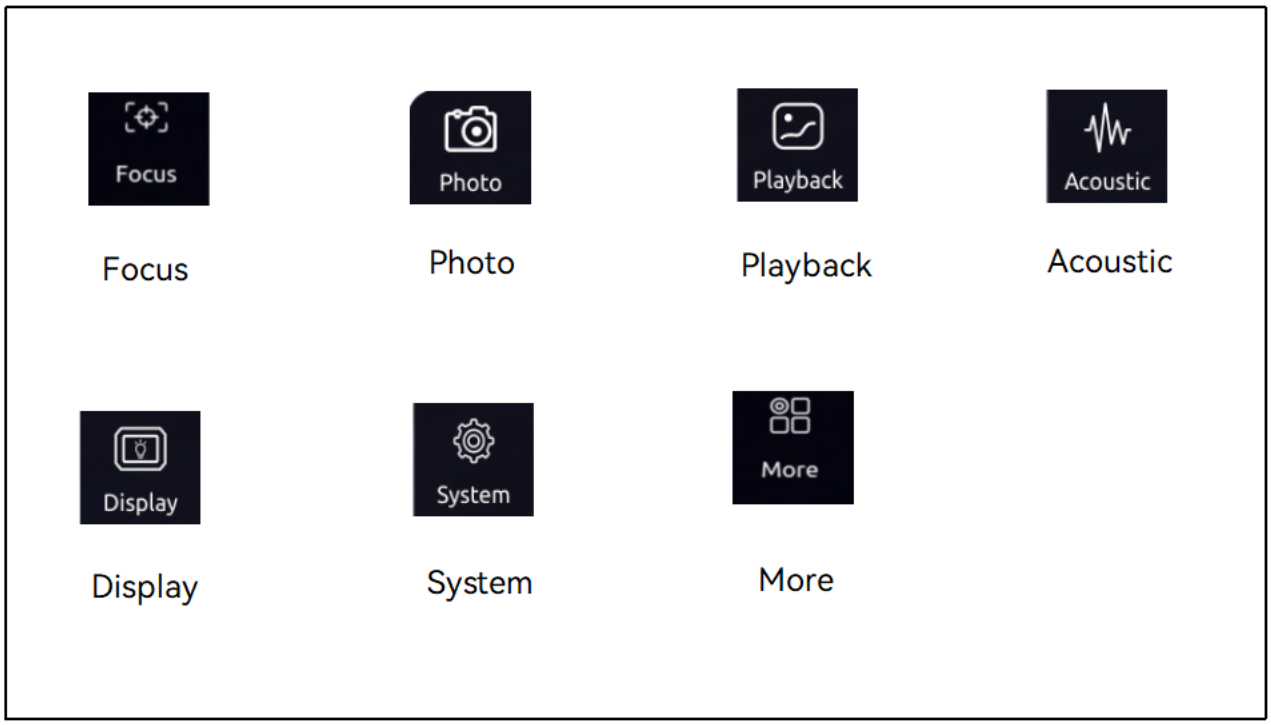
7.2 Interface Operation



Click in the video area of the screen to call out the menu bar.

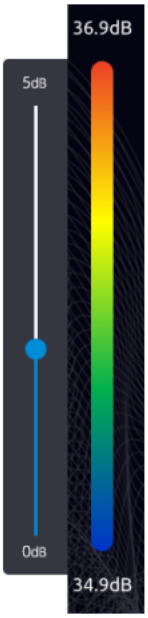
Click again or do nothing for seconds, the menu will hidden automatically.

7.3 The Function Menu Include



7.4 Software function

Palette and Dynamic Range

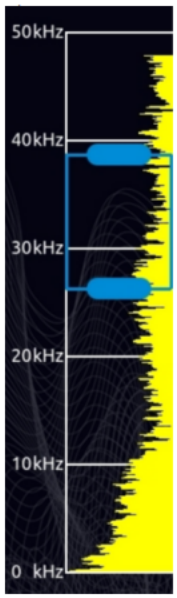


Click the palette on the main interface to call out the dynamic range dialog.

Click the area outside the dynamic range dialog to hide.

Dynamic range parameter can be adjusted into this dialog.

Test Frequency Range



Press on select box to move it.

Press on a single side of select box to adjust up limit or down limit.

Transient and Steady State Modes

Click the transient / steady state mode button to switch the working mode of the equipment.

In the transient mode, the equipment has a very fast response speed to the transient signal and can quickly respond to the change of sound source. It is suitable for locating rapidly changing sound source models, such as partial discharge sound source.

In the steady-state mode, the equipment will reduce the response speed to the signal, and the cloud image will be relatively stable. It is suitable for the observation of stable signals.

Video and Photo

Click the button on the left of the menu bar to switch between camera mode and video mode.

The icon in the upper right corner of the video area will remind you of the work mode which the device is currently in.

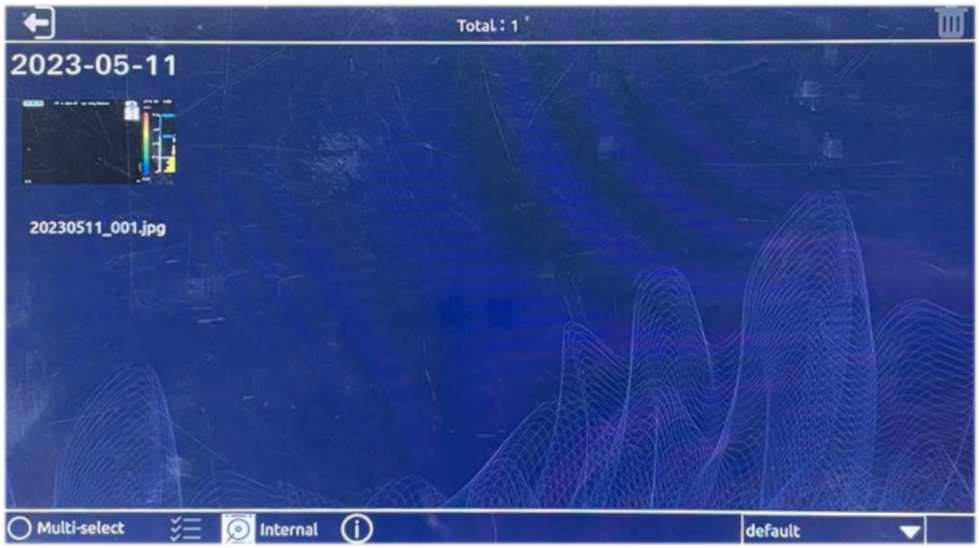
a. In camera mode, press the function button to take a picture.

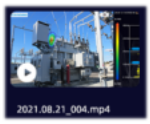
b. In video mode, press the function button to start recording, press again to stop or it will automatically stop when video exceeds 5 minutes.

During video recording, you can know the duration of current recording through the icon in the upper right corner of the video area.

Playback

Pictures and recorded video data can be viewed in the playback window.



a.  Click a picture or video to check full size image or play a video.

b. Multi-select Click Multiple Selection to select multiple videos or photos for deletion.

b.  Click the select all button to select all.

d. After selecting a video or photo, click the upper right corner“  ”to delete the data.

e. Press button“  ”to check usage information of current storage space.

Video Playback

Click the video thumbnail to zoom in and play the video.

Press on “  ”to playback a video.

Press the video to stop.

Press the“ 〈 ”and“ 〉” or touch and slide left and right to view the next or before. Drag the progress bar below the video to adjust the playback progress.

Picture, Audio, Text Tags

In "Playback," click a video or an image and six white flag ICONS appear at the bottom of the screen. You can click the icon to mark a video or picture. The video or picture can be tagged with image, audio, and text. A total of six tag contents can be added for the three tag types.

Picture tag can take a picture as the tag content, the picture content can be nameplate, character tag, etc. Click the icon to select image markers, press the function button on the right to take a photo with the camera, click the save icon in the upper right corner to save the marked content, click the button on the right to cancel the picture taken, click the lower right corner to select the photo resolution, the marked picture supports 1920*1080, 1280*720 and 640*480 resolutions.

Audio tag can record a piece of audio as the tag content, the audio can be a human voice or other live voice. Click the icon to select the audio mark and press the function button on the right to record an audio with the microphone in the microphone array. The audio is single channel. To improve sound recording, microphone arrays can be placed close to the source or speaker. After recording, press the function button on the right to stop recording. Click the save button to save the recording.

Text tag can input a paragraph of text as the markup content, it also supports keyboard input and two-dimensional code scanning. Click the mark icon to select the text mark and then click the keyboard icon. Click in the pop-up input box and the input keyboard will pop up. You can use the keyboard to input words, symbols, English and so on. After typing, click Save to save the text markup.

Click the icon to select the text mark and then click the two-dimensional code icon. The device will start the camera to scan the two-dimensional code automatically. Identify to the two-dimensional code will display its contained text information, press

the save button to save the text information, press "re-identify" to re-identify the code again.

Click on "Multi-select" to select multiple files on the device for performing operations.

Click on the symbol to the right of“External”to view the Storage Used and Storage Available.

Click on "All", You can save all selected photos or videos in a folder named "All". To do this, open the "All" folder and select the desired files. Then, click on the the symbol to the right of“All” to save the selected files in the "All" folder.

Acoustic

Dynamic Range

Sliding the slide to adjust dynamic range.

Or click the palette bar on the right of the software interface to call out the dynamic dialog and quickly adjust it.

Cursor Sound Pressure Level

The cursor function can be turned on or off.

When the cursor sound pressure level function is enabled, the cursor will be displayed on the video screen, and the cursor number will be displayed below the cursor. And the image energy of the position indicated by the cursor will be displayed below the photo and frequency recording status indicator in the upper right. If three cursors are set, the sound pressure level shown by the cursor 1, 2 and 3 will be displayed from top to bottom. The number of cursors can be set in System Settings > Tools > Number of cursors. A maximum of three cursors can be set.

Record Sound While Recording Video

Press button to enable record sound while recording video.
When it is enabled, if you record video, the sound will be recorded as well.

Ultrasonic Monitoring

The equipment can modulate the signal in the ultrasonic frequency band to the audible frequency band and can monitor the signal with headphones.

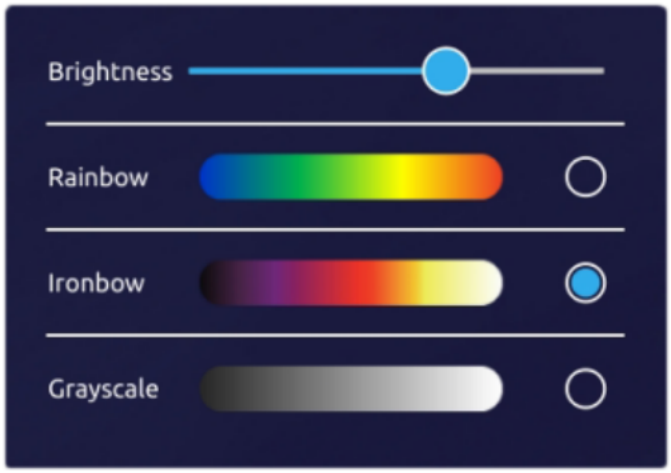
Ultrasonic modulation is realized by superheterodyne. The reference frequency of modulation can be set. It is recommended to use a frequency band of about 38.6khz for near modulation and monitoring.

Focus

The focusing function is mainly used to eliminate environmental interference noise, reflection noise, multi-source interference, etc. when the test environment is noisy and the cloud image is more than single one, scattered and chaotic, the focusing function can be turned on to focus the presentation of the audio-visual cloud image within a circle and eliminate other interference sources.

Double click the circle in the center of the main interface to switch the size of the test range. Double click again to restore the initial size.

Display



Brightness: the brightness is adjustable.When used outdoors, it is recommended to increase brightness for better visual clarity. When used indoors, it is recommended to reduce the brightness for a longer battery life.
Rainbow: set palette to use rainbow.
Ironbow: set palette to use ironbow.
Grayscale: set palette to use grayscale.
Logo: set whether to display “CRYSOUND”.

System

Language

English, French, Chinese, German, Japanese, Korean, Russian, Spanish, Portuguese, Italian , Hungarian, Dutch is supported, after selecting the language, the software will switch the language.

Time

Adjust system time.
When system time is changed, press ”update time”to take effect.

Lock

The device can implement a low power strategy . You can turn on the auto sleep function of the device.

After selecting the sleep time, the device will automatically enter the sleep mode if it does not perform any operation during the time. When the device sleeps, the power indicator will flash. By pressing the power button, the device can quickly wake up and be ready for testing.

Only when the auto sleep function is set can the device set auto shutdown.
After selecting the shutdown time, the device will automatically shutdown if it does not be awakened during the time.

Tool

Log export function: click and confirm to export the equipment operation log to the microSD card. The equipment operation log is generally used by the manufacturer to diagnose the equipment status, and users generally do not need to use it.
Sensitivity is used to set the minimum sensitivity of cloud image imaging, which can limit the imaging when the cloud image energy is higher than the sensitivity value. This function can be enabled when the button is turned on, and the sensitivity threshold can be set by sliding the slider.

High Sensitivity: By enabling the high sensitivity mode, the device's sensitivity will be increased, making it suitable for use in situations where the cloud imaging is unstable.

About

Display device model, serial number, software version and manufacturer information.

Click on "CERT", you can view the Certificate of Quality and Certificate of Calibration. After the device is manufactured, these two certificates will be automatically imported into the device. When the device is recalibrated, the Certificate of Calibration will also be uploaded again.

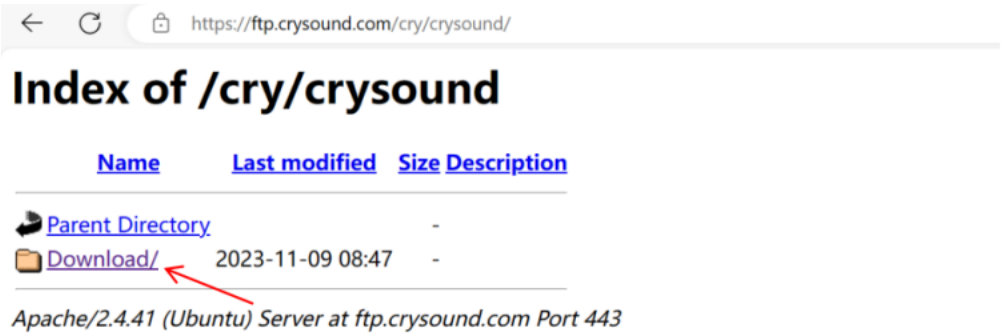
Click "IP" to view the default static IP address of the device. When connecting the device to a computer, you can directly view the data on the microSD card by entering the static IP address of the device on the computer. We need to connect the device and the computer using an Ethernet cable, can not directly use a Type-C connection.

Click on an image to enter the image viewing interface. Tap the screen to reveal the photo's name and tag button.

Upgrade

Firmware Upgrade

Log in to the download address below, which contains the latest firmware:
https://ftp.crysound.com/cry/crysound/



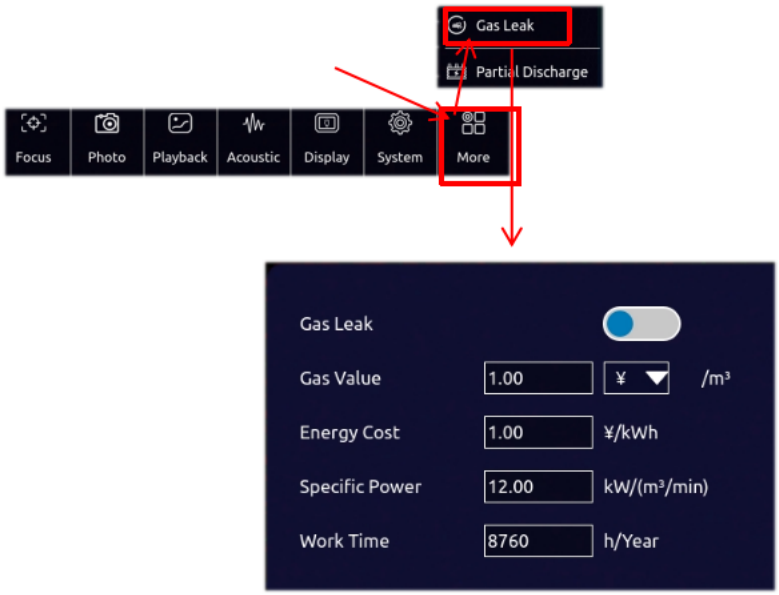
Click“Download”, it will display the materials available.Click “Firmware”, it will show the firmware for different models. Click“CRY2624”, download the firmware inside. Save the downloaded firmware in the microSD card.

Insert the microSD card into the acoustic imager. Click “Update” to install the previously downloaded firmware.

Estimation of Gas Leakage

Turn on the function of gas leakage level calculation in the equipment. After opening, the software will turn on the focusing function by default to avoid interference.

There are options of air pressure and distance on the left side of the software. The user needs to input the air pressure (unit: kPa) and distance (unit: m) of the leaked gas according to the actual situation of the site. The software will calculate the leakage level and the approximate range of gas leakage according to the gas pressure, distance and calculated leakage energy (for reference).



Partial Discharge Spectrum

Click "partial discharge spectrum" to open the partial discharge spectrum setting menu.

Click "switch" to open and display the partial discharge spectrum. The AC frequency can be selected as 50Hz or 60Hz.

The partial discharge spectrum is as follows . Observing the characteristics of the spectrum can help users identify the discharge type.

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