HIKMICRO AI Series
Acoustic Imaging Camera (**V5.5.79**)
Release Notes

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1   Introduction

The HIKMICRO AI Series acoustic imaging camera are professional product for sound source localization. With Low-noise MEMS microphones and an adjustable bandwidth range from 0 kHz to 96 kHz, the camera provides an easy and effective way to locate gas leaks in industrial environments or detect partial discharge in high-voltage systems. By using a large 4.3" LCD touch screen, the results presented on top of a digital picture allow you to quickly find the source of the problems. The maximum operating distance could reach 100 meters, which can ensure you stay at a safe distance to inspect the high-voltage equipment. By adopting this lightweight and easy-to-use tool, you can discover potential safety risks, minimize troubleshooting, and save extra costs of equipment failures and downtime.

This document introduces new features and optimizations in V5.5.79 of AI series cameras.

For detailed operation guide, please refer to the user manual of AI series acoustic imaging camera, V5.5.79.

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- This product is designed to assess gas leakage to achieve cost savings. However, due to potential environmental factors that may affect detection accuracy, the estimations provided are approximate and for informational purposes only. It should be noted that the results presented by the devices are not a guarantee of actual cost savings or a recommendation, and may not accurately reflect the specific situation of your facilities.
- The images used in this document are for demonstration only. Please refer to the actual product.

1.1   Version Information

Item	Description
Models	AI56, AI76
Firmware	V5.5.79 build240430
HIKMICRO Viewer (Mobile APP)	V2.1.0 and newer verion
HIKMICRO Anlayzer Acoustic (PC Client)	V1.1.2

1.2   How to Update to New Version

1.2.1   Upgrade with HIKMICRO Viewer APP

Connect your device to HIKMICRO Viewer APP and tap on **Device Upgrade** to check device firmware version and proceed online upgrading.

Download and install HIKMICRO Viewer to your phone. Search the APP name in your APP store, or scan the following QR code.

1.2.2   Upgrade with an Upgrade File

Before upgrading your device, make sure:

● Device battery is fully charged.
● Auto Power-off function is turned off to avoid accidental suspension during upgrading.
● A memory card has been installed to device.

Steps

1. Download new firmware from our website https://www.hikmicrotech.com/en/industrial-products/ai56-acoustic-camera/, and save it to your PC.

2. Use supplied USB cable (USB type C to USB type A) to connect the device to PC.
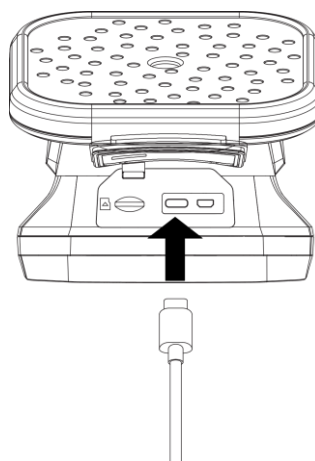
3. Open the detected disk on your PC.

4. Unzip the firmware and copy the .dav file to the root directory of the disk.

5. Disconnect the device from PC and reboot the device to start upgrading automatically.

2 New Feature

2.1 Gas leak detection: cost calculation and result display refined

2.1.1 Differentiated cost calculation between compressed air and bottled gas

This version differentiates the cost calculation and result display between bottled gas and compressed air.

Table 2-1 Gas Leak Modes

Gas Leak Mode	Cost Calculation and Result Display
Bottled Gas	Locate the leak point and detect leak rate. Calculate estimated cost acorrding the price of gas and leak rate.
Compressed Air	Locate the leak point and detect leak rate. The leak cost is the cost of extra power that the air compressor consumed to maintain system pressure. The cost is calucated according to detected leak rate, price of electricity, air compressor specific power and its everday working hours. The power waste can also be converted to CO2 emissions for display.

Set leak mode from **Settings > Acoustic Settings > Gas Leak Settings > Gas Leak Mode**.

For the required parameters for calculation and result display of the two leak modes, see the following tables.

Table 2-2 Required Parameters for Compressed Air Leak

Parameter	Description	Setting Path
Leak Rate Unit	Unit for leak rate display.	Settings > Acoustic Settings > Gas Leak Settings > Unit Settings > Leak Rate Unit
Air Compressor Specific Power	Air compressor specific power, indicating the working efficiency of an air compressor, is the ratio of input power to compressed air flow rate at a given pressure. It can be found in the data sheet of the air compressor.	Settings > Acoustic Settings > Gas Leak Settings > Compressed Air Settings > Air Compressor Specific Power
Price of Electricty	The electricity price of the inspected plant/facility.	Settings > Acoustic Settings > Gas Leak Settings > Compressed Air Settings > Price of Electricty
Leak Cost Time Unit	Time period for cost calculation.	Settings > Acoustic Settings > Gas Leak Settings > Unit Settings > Leak Cost Time Unit
Operating Hours per Day	Working hours of the air compressor per day. It affects the estimated cost display.	Settings > Acoustic Settings > Gas Leak Settings > Compressed Air Settings > Operating Hours per Day
CO_2 Emissions per kWh	CO_2 emissions per kWh (carbon emissions from electricity) are determined by the type of energy source used for power generation and are affected by factors such as the efficiency of the power generation equipment. It can be obtained by querying the carbon emission factor of the local power grid.	Settings > Acoustic Settings > Gas Leak Settings > Compressed Air Settings > CO_2 Emissions per kWh

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Table 2-3 Required Parameters for Bottled Gas

| Parameter	Description	Setting Path
Leak Rate Unit	Unit for leak rate display.	Settings > Acoustic Settings > Gas Leak Settings > Unit Settings > Leak Rate Unit
Price of Gas	Price of leaking gas.	Settings > Acoustic Settings > Gas Leak Settings > Bottle Gas Settings > Price of Gas
Leak Cost Time Unit	Time period for cost calculation.	Settings > Acoustic Settings > Gas Leak Settings > Unit Settings > Leak Cost Time Unit

2.1.2 Added leak type and system pressure settings for better accuracy

For better detection accuracy, this version provides leak type and system pressure settings.

Table 2-4 Leak Type and System Accuracy

Parameter	Description	Setting Path
Leak Type	Set according target type, metal pipes, threaded pipe, quick pipe joint, and other are selectable. Different target type calls different algorithms to improve accuracy.	Settings > Acoustic Settings > Gas Leak Settings > Leakage Type
System Pressure	The pressure of inspected container or pipes. The paramter helps improve accuracy when detecting small leaks. Pressure unit can be changed from Settings > Acoustic Settings > Gas Leak Settings > Unit Settings > Pressure.	Settings > Acoustic Settings > Gas Leak Settings > System Pressure

2.1.3   Leak level configurable, up to 10 levels
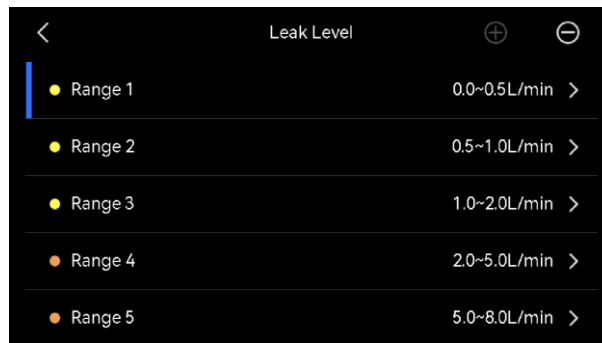
User defined leak levels are available in this version. Leak level of different leak rates indicates different severity.

Go to **Settings > Acoustic Settings > Gas Leak Settings > Leak Level** to customized the settings.

2.1.4   More frequently used units available

- Leak rate: L/min (litre per minute), CFM (cube feet per minute), m3/min (cube meters per minute)
- Leak cost time unit: leak cost can be calculated by minute, hour, day, month, or year.
- Pressure: kPa, bar, psi, and inH2O

Go to **Settings > Acoustic Settings > Gas Leak Settings > Unit Settings** to switch units.

2.2   Listening to ultrasonic sound with Bluetooth headsets

Normally, human ear can hear sound with its frequency ranges from about 20 to 20,000 Hz. Sound of higher frequency should be converted to audible sound for hearing.

This version supports Ultrasonic to Audible function for the conversion. Connect the camera to Bluetooth headsets for listening to the real-time ultrasonic sound sources.

Go to **Settings > Acoustic Settings > Ultrasonic to Audible** to enable the function.

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Adjust the volume of the headsets before using for hearing protection.

2.3   Tagging captured snapshots

With this version, you can tag the captured snapshots during editing. The tag templates (*.json) should be generated in HIKMICRO Analyzer Acoustic software, and then be saved in the camera storage before you can use them.
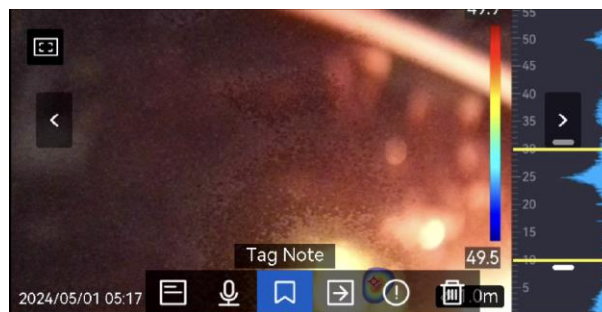
1. Read the user manual of HIKMICRO Analyzer Acoustic for generating tag note templates.

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On the top-right corner of the software, click 🔘 to view the manual.

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2. Connect your camera to PC by the supplied cable. Copy and paste the template files to the TextNote folder of the camera storage.


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If more than one templates are imported, the first template is the active one by default. Up to 10 templates can be imported.

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3. Go to **Settings > Capture Settings > Tag Note Template** to manage templates.

1) Select a template.
2) Tap on ••• at the upper right corner of screen.
3) Set the template as the default template or delete the template.

2.4 Numbering snapshots and videos files

For captured file naming, you can choose to number them.
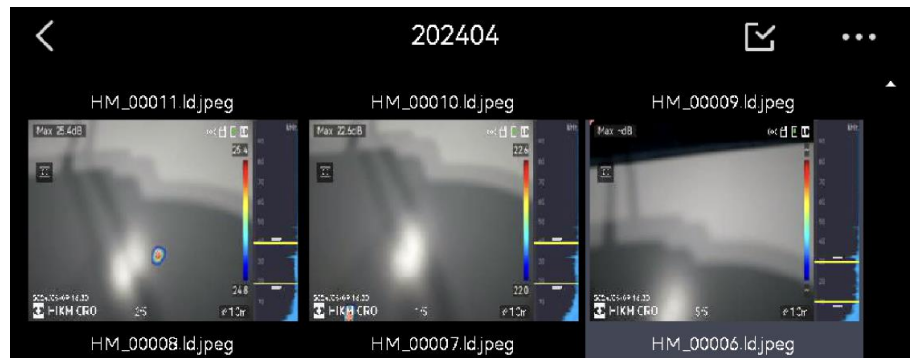
Set the rule from **Settings > Capture Settings > File Naming**.

2.5 Video standard configurable

Video standard refers to the standard used in the visual camera. Set it according to the mains frequency in your country/region. PAL and NTSC are selectable.

Go to **Settings > Device Settings > Video Standard** to switch standards. It takes effect after camera restart.

2.6 Maintenance and trouble shooting

2.6.1 Microphone array auto check

The device supports Auto Microphone Check for microphone array self-test.

Go to **Settings > Device Settings > Auto Microphone Check** for the test. If microphone error is detected, please contact your dealer or our technical support for help.

2.6.2 Record sound source

When error occurs in microphone array, use the Record Sound Source function to record a piece of original sound source, export and send the *.sonic file to your dealer or our technical support for trouble shooting.

Go to **Settings > Capture Settings > Record Sound Source** to enable the function.

The audio files are saved in DCIM folder of the device storage/memory card. The file name is the same as the video file, and the format is *.sonic.

2.6.3 Save operation logs

Device supports saving operation logs for trouble shooting. The logs are saved in the top directory of the camera's storage. Connect the camera to a PC via with supplied USB-C to USB-A cable to export the logs (*.tar).

When troubleshooting is necessary, please provide the operation logs to HIKMICRO tech support team or support@hikmicrotech.com.

Go to **Settings > Device Settings > Save Log** to enable the function, and the camera starts saving operation logs. It stops when you turn off the function or when the camera restarts or powers off.

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You need to enable the function again if you need the camera to save logs after a restart.

3 Optimization

3.1 Improved leak rate detection algorithm and manual calibration

Besides the improved LD detection algorithm, users can also manually calibrate the leak rates in this version.

If you find the leak rate is deviated from the actual amount, set a calibration factor for each leak rate range. Calibrated leak rate = the detected leak rate × the set calibration factor.

You can set different calibration factors for different leak rate ranges. Calibration factor is a number from 0.000000 to 10.000000, up to 6 decimal places allowed.

Go to **Settings > Acoustic Settings > Gas Leak Settings > Leak Rate Calibration** to set factors.

3.2 Snapshot capture mode: scheduled capture mode changed

This version cancels the continuous capture mode, and merges its function into the scheduled capture mode.

In the new scheduled capture mode, set the interval and number to capture certain amount of snapshots with certain interval after pulling the trigger.
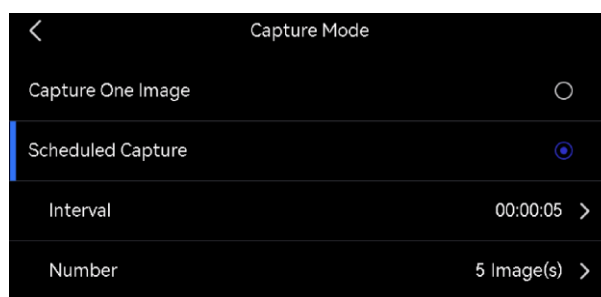
3.3 More

- New UI style.
- Solved the problem of PD type misjudging.

4 FAQ on Upgrade

4.1 Why my PC failed to detect the camera as a USB drive?

Check the following items:

- Use a good quality type A to type C USB cable to connect your PC to your camera. The supplied cable is recommended. Normally, a cable should be able to charge a camera and transfer data.
- Keep the microSD card inserted and do not remove it during connection.
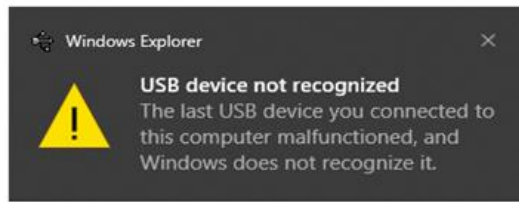- Keep the camera powered on.

4.2 What should I do when my PC notifies power surge on the USB port?

Check the following items:

- When you are looking for an adapter of USB type C to USB type A, please choose an unpowered hub. A powered hub such as Surface Dock Station is not compatible.
- If you are using a built-in USB PowerShare in your PC, please try another port.

4.3 What should I do when my PC notifies USB device not recognized?

In most cases, it does not affect use. You can just ignore the prompt and find the detected USB drive in **This PC**. If the USB drive is not found, please try to Restore/Initialize the camera.

4.4 What should I do if my PC notifies the USB drive has a problem to be fixed?
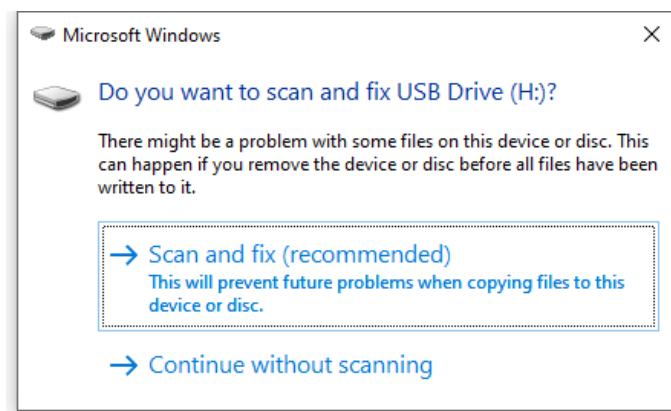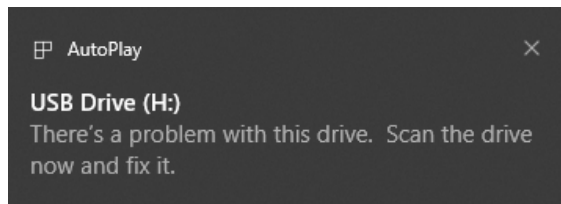
Some Windows computers will scan a USB drive when it is connected, and show the error. Click scan and fix, Windows will confirm the drive is fine and connect to it. You can also skip scanning and find the detected USB drive in **This PC**, which does not affect use in most cases.

Legal Information

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About this Manual

The Manual includes instructions for using and managing the Product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version of this Manual at the HIKMICRO website (www.hikmicrotech.com/).

Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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HIKMICRO AI Series
Acoustic Imaging Camera (V5.5.58)

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1   Introduction

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1.1   Version Information

Item	Description
Firmware Version	V5.5.58 build 240428
Models	AI76, AI56

1.2   How to Update to New Version

Before upgrading your device, make sure:

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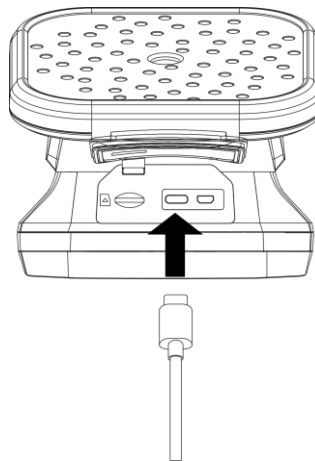
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5. Disconnect the device from PC and reboot the device to start upgrading automatically.

2　　　New Feature

2.1　Random Password for Hotspot Connection

After update the camera firmware, a pop-up window recommends users to change the hotspot password for a stronger threshold of Hotspot access request. Click OK to let the camera change the password. The new password for Hotspot connection can be viewed in camera's Hotspot settings. Then every time when the camera restores, the Hotspot password changes.

3   Important Notice

3.1   Previous Versions of Firmware

With this update to Version 5.5.58, it will not be possible to reinstall previous versions of firmware. If you need assistance with the update, please contact our service center (https://www.hikmicrotech.com/en/contact-us/) and we will help you through the process.

4 FAQ on Upgrade

4.1 Why my PC failed to detect the camera as a USB drive?

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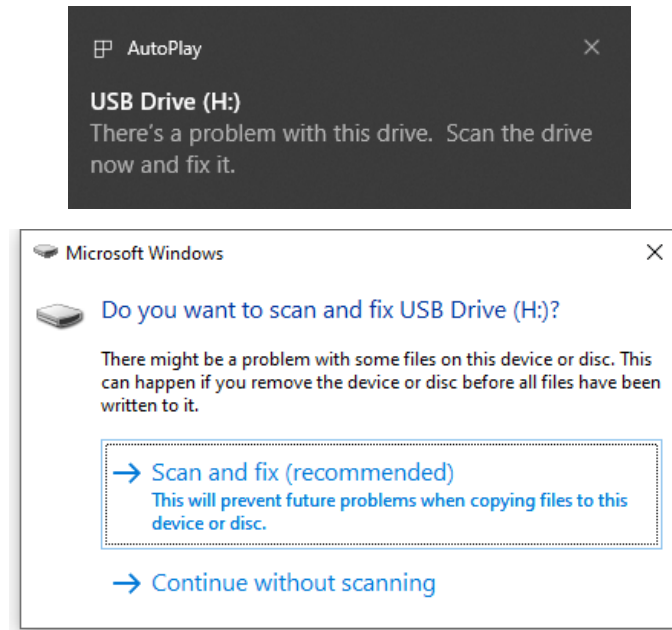- When you are looking for an adapter of USB type C to USB type A, please choose an unpowered hub. A powered hub such as Surface Dock Station is not compatible.
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