



HIKMICRO AI Series  
Acoustic Imaging Camera (V5.5.57)

Release Notes

## Legal Information

© 2023 Hangzhou Microimage Software Co., Ltd. All rights reserved.

### 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/](http://www.hikmicrotech.com/)).

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

### Trademarks



and other HIKMICRO's trademarks and logos are

the properties of HIKMICRO in various jurisdictions.

Other trademarks and logos mentioned are the properties of their respective owners.

### LEGAL DISCLAIMER

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, THIS MANUAL AND THE PRODUCT DESCRIBED, WITH ITS HARDWARE, SOFTWARE AND FIRMWARE, ARE PROVIDED "AS IS" AND "WITH ALL FAULTS AND ERRORS". HIKMICRO MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE. THE USE OF THE PRODUCT BY YOU IS AT YOUR OWN RISK. IN NO EVENT WILL HIKMICRO BE LIABLE TO YOU FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES, INCLUDING, AMONG OTHERS, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, OR LOSS OF DATA, CORRUPTION OF SYSTEMS, OR LOSS OF DOCUMENTATION, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE), PRODUCT LIABILITY, OR OTHERWISE, IN CONNECTION WITH THE USE OF THE PRODUCT, EVEN IF

HIKMICRO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSS. YOU ACKNOWLEDGE THAT THE NATURE OF THE INTERNET PROVIDES FOR INHERENT SECURITY RISKS, AND HIKMICRO SHALL NOT TAKE ANY RESPONSIBILITIES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER-ATTACK, HACKER ATTACK, VIRUS INFECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, HIKMICRO WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED. YOU AGREE TO USE THIS PRODUCT IN COMPLIANCE WITH ALL APPLICABLE LAWS, AND YOU ARE SOLELY RESPONSIBLE FOR ENSURING THAT YOUR USE CONFORMS TO THE APPLICABLE LAW. ESPECIALLY, YOU ARE RESPONSIBLE, FOR USING THIS PRODUCT IN A MANNER THAT DOES NOT INFRINGE ON THE RIGHTS OF THIRD PARTIES, INCLUDING WITHOUT LIMITATION, RIGHTS OF PUBLICITY, INTELLECTUAL PROPERTY RIGHTS, OR DATA PROTECTION AND OTHER PRIVACY RIGHTS. YOU SHALL NOT USE THIS PRODUCT FOR ANY PROHIBITED END-USES, INCLUDING THE DEVELOPMENT OR PRODUCTION OF WEAPONS OF MASS DESTRUCTION, THE DEVELOPMENT OR PRODUCTION OF CHEMICAL OR BIOLOGICAL WEAPONS, ANY ACTIVITIES IN THE CONTEXT RELATED TO ANY NUCLEAR EXPLOSIVE OR UNSAFE NUCLEAR FUEL-CYCLE, OR IN SUPPORT OF HUMAN RIGHTS ABUSES. IN THE EVENT OF ANY CONFLICTS BETWEEN THIS MANUAL AND THE APPLICABLE LAW, THE LATTER PREVAILS.

This product is designed to assess energy leakage to achieve energy savings. However, due to potential environmental factors that may impact 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 energy savings or a recommendation, and may not accurately reflect the specific situation of your facilities.

# TABLE OF CONTENTS

<b>Chapter 1 Introduction .....</b>	<b>1</b>
1.1 Version Information .....	1
1.2 How to Update to New Version .....	1
<b>Chapter 2 New Features .....</b>	<b>3</b>
2.1 Real-time Leak Rate, Leak Cost & Leak Level Display .....	3
2.2 New Detection Mode: Partial Discharge Detection .....	4
2.2.1 Automatic Partial Discharges Detection .....	4
2.2.2 PRPD Diagram Display .....	5
2.3 Set Measurement Tool .....	5
<b>Chapter 3 FAQ on Upgrade .....</b>	<b>7</b>
3.1 Why my PC failed to detect the camera as a USB drive? .....	7
3.2 What should I do when my PC notifies power surge on the USB port? .....	7
3.3 What should I do when my PC notifies USB device not recognized? .....	7
3.4 What should I do if my PC notifies the USB drive has a problem to be fixed? .....	8

# Chapter 1 Introduction

The HIKMICRO AI56 acoustic imaging camera is a professional product for sound source localization. With 64 Low-noise MEMS microphones and an adjustable bandwidth range from 2 kHz to 65 kHz, AI56 provides an easy and effective way to locate pressurized air 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 V5.5.57 of AI series cameras.

For detailed operation guide, please refer to the user manual of AI series acoustic imaging camera, V5.5.57.

## Note

- This product is designed to assess energy leakage to achieve energy savings. However, due to potential environmental factors that may impact 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 energy 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
Firmware Version	V5.5.57 build 230626
FPGA Version	V1.01.04 BUILD20220903
Models	AI56

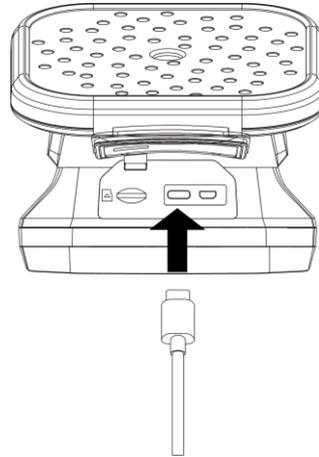
## 1.2 How to Update to New Version

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.

Step 1 Download new firmware from our website (<https://www.hikmicrotech.com/en/industrial-products/ai56-acoustic-camera/>), and save it to your PC. FPGA has not been updated this time.

Step 2 Use supplied USB cable (USB type C to USB type A) to connect the device to PC.



Step 3 Open the detected disk on your PC.

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

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

## Chapter 2 New Features

### 2.1 Real-time Leak Rate, Leak Cost & Leak Level Display

HIKMICRO AI56 of V5.5.57 offers real-time estimated leak rate, leak cost, and leak level for gas leak detection, and displays them in live view. You can turn on/off the leak rate, leak cost, and leak level display in **Settings** → **Display Settings**.

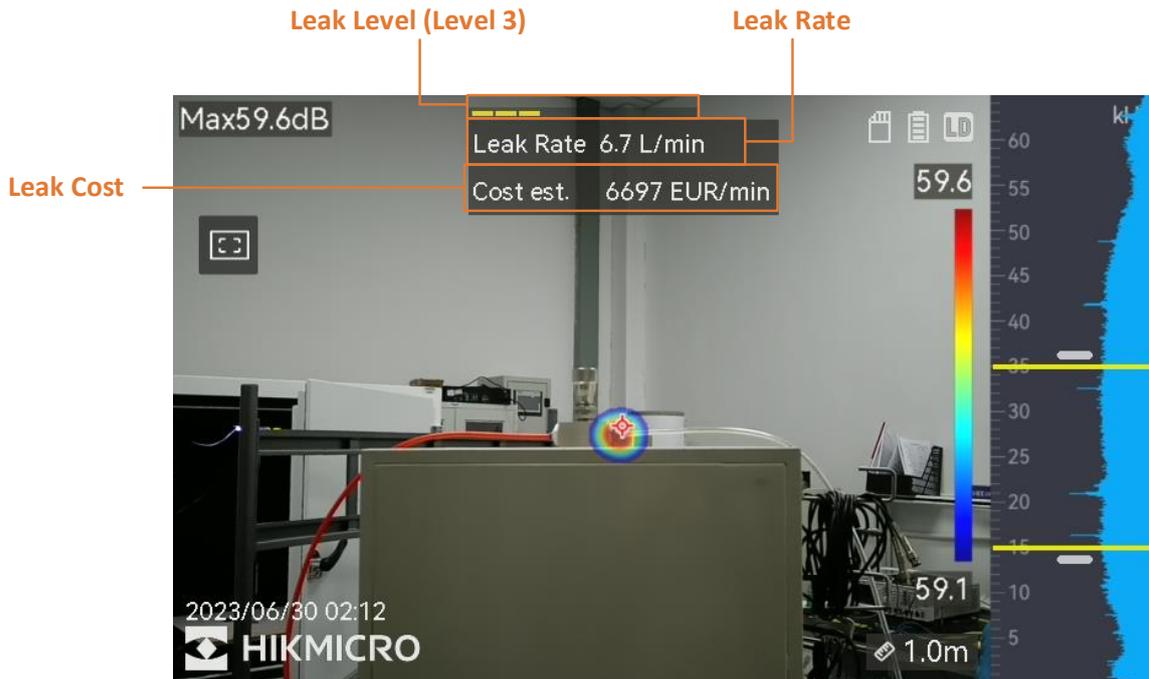


Figure 2-1 Leak Rate, Leak Cost & Leak Level Display

- **Leak Rate:** Leak rate refers to the estimated gas leak volume within a certain time range. For AI56 of V5.5.57, the unit of leak rate is **L/min** by default.
- **Leak Cost:** Leak cost refers to the estimated cost of the gas leak within a certain time range. To estimate the leak cost, you should first configure the following parameters in **Settings** → **Acoustic Settings** → **Gas Leak Settings**:
  - Unit Price: The price of the target gas per unit.
  - Time Unit: The preferred unit time range for leak cost estimation.
  - Currency: The preferred currency for leak cost estimation.
- **Leak Level:** Leak level refers to the severity levels of gas leak. The leak level includes 10 levels (from low to high levels: level 1 to 10). The higher the level is, the more severe the gas leak situation is. The leak levels are displayed as color rectangles in live view (see Figure 2-1).

## 2.2 New Detection Mode: Partial Discharge Detection

HIKMICRO AI56 of V5.5.57 offers partial discharge (PD) detection to locate the partial discharges that might jeopardize the operational safety of electrical systems. Select **Detection Mode** in the main menu, and switch to **Partial Discharge Detection**. You can also go to **Settings** → **Acoustic Settings** → **Detection Mode** to enable **Partial Discharge Detection**.

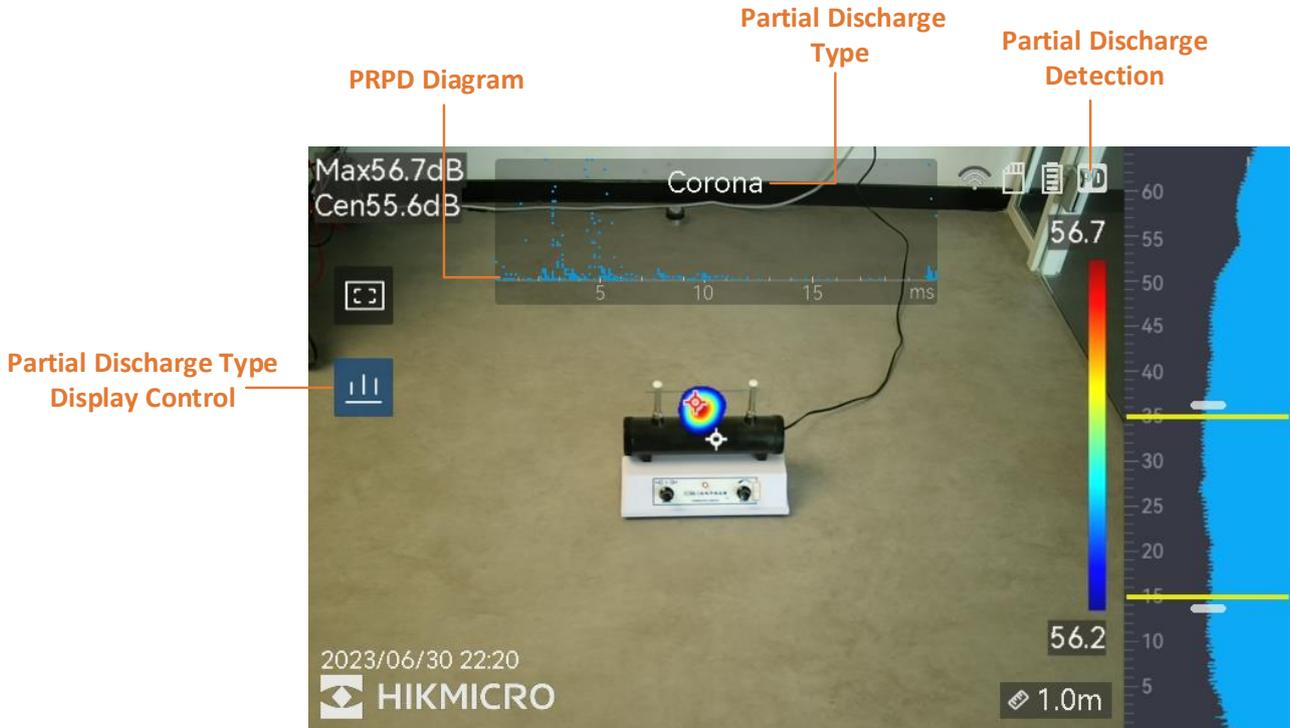


Figure 2-2 Live View Description of Partial Discharge Detection

### 2.2.1 Automatic Partial Discharges Detection

HIKMICRO AI56 of V5.5.57 is capable of estimating partial discharge types based on sound frequency, and displaying the real-time estimation in live view for your reference. AI56 is able to identify corona, floating, surface, and particle discharges, and exclude background noise in the scene. You can turn on/off the estimation display by tapping  on the left. The PD type is displayed on the upper middle of live view (see Figure 2-2).

The partial discharge types can be detected are as follows:

- **Corona Discharge:** Corona discharge occurs on the sharp surface of a conductor surrounded by gas. It usually happens in electrical systems like high-voltage power lines, transformers, or electrical motors.
- **Floating Discharge:** Floating discharge, one of arcing discharges, happens when the electrical current flows through the conducting path created by voltage difference between two conductors. It might occur in various situations, such as high-voltage power transmission systems, electrical switches, circuit breakers, and welding equipment.
- **Surface Discharge:** Surface discharge refers to the electrical discharge travels along the surface of insulation. It is primarily caused by the contamination and weather conditions like high humidity,

of the insulator surface. It often occurs in high-voltage equipment, such as transformers, cables, switchgear, and motors.

- **Particle Discharge:** Particle discharge refers to the partial discharge of electrical energy that interacts with metallic particles and debris present in the electrical systems. It can result from loose particles or particles generated by mechanical wear, corrosion, or degradation of insulation materials.

 **Note**

- The PD type display control appears in live view after partial discharge detection is on.
- If different types of partial discharges coexist in the scene, the most prominent partial discharge type shows in live view.

### 2.2.2 PRPD Diagram Display

HIKMICRO AI56 of V5.5.57 offers the phase resolved partial discharge (PRPD) diagram for you to better diagnose the PD activity. A PRPD diagram is a visual representation of partial discharges in electrical and insulation systems. It shows the amplitude of the detected partial discharges plotted against the phase angle (x-axis). The PRPD diagram is useful to analyze and diagnose PD activity within insulation systems. The PRPD diagram is displayed on the upper middle of live view (see Figure 2-2). You can turn on/off PRPD diagram display in live view by tapping the diagram.

### 2.3 Set Measurement Tool

HIKMICRO AI56 of V5.5.57 allows you to focus on detecting the target in the scene using a rectangle measurement tool. When the measurement tool is enabled, the device only detects the gas leak or partial discharges within the rectangle area. You can turn on/off the measurement tool by tapping

 on the left.

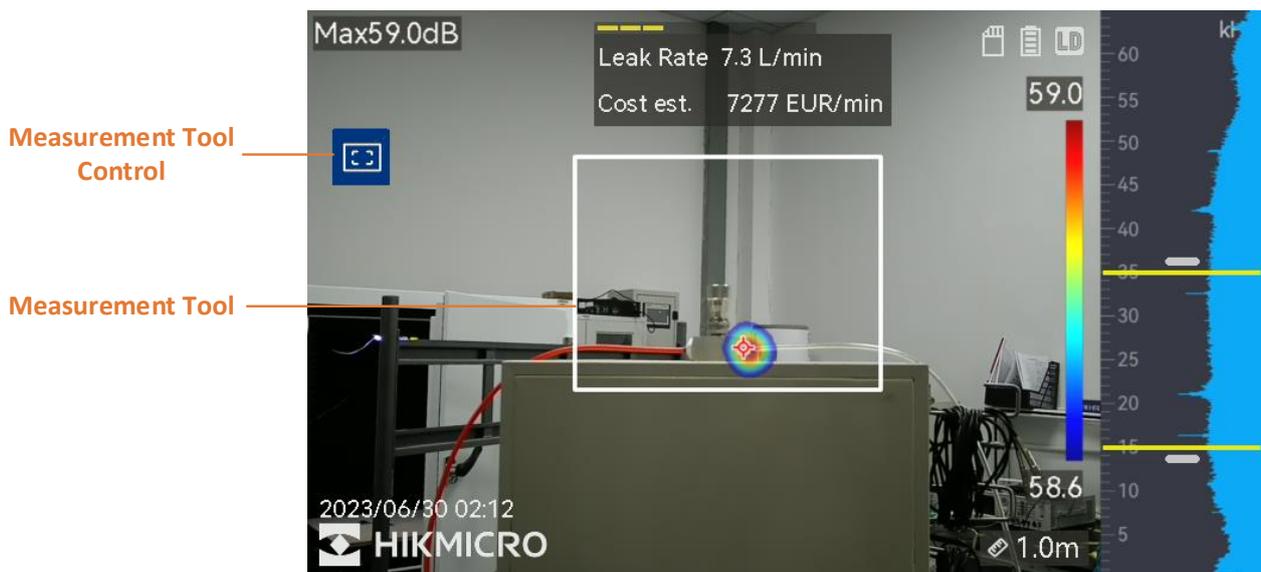


Figure 2-3 Enable Measurement Tool

 **Note**

- Digital zoom is not supported when the measurement tool is enabled.
- The size and position of the measurement tool are not configurable.

## Chapter 3 FAQ on Upgrade

### 3.1 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.

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



Check the following items:

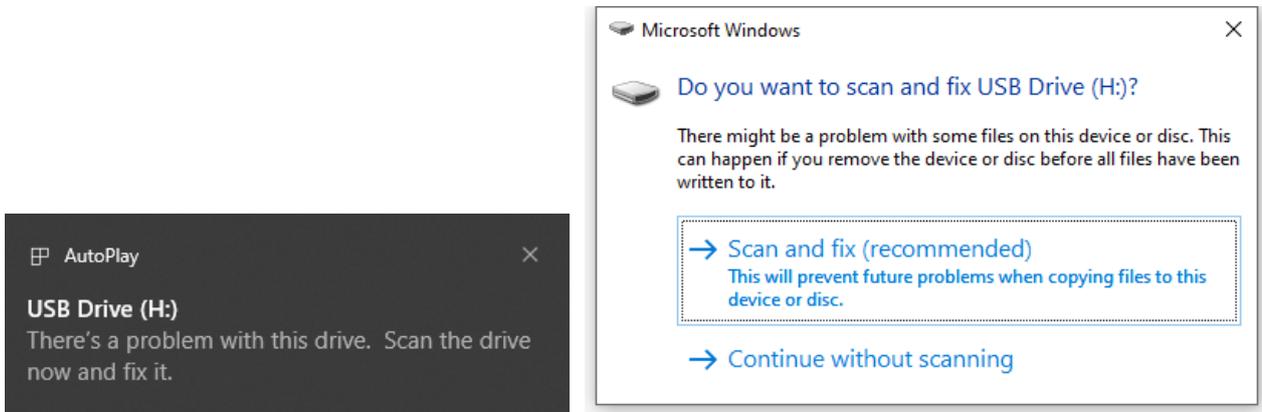
- When you are looking for an adapter of USB type C to USB type A, please choose an unpowered hub. A powered hub such as Surface Dock Station is not compatible.
- If you are using a built-in USB PowerShare in your PC, please try another port.

### 3.3 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**.

### 3.4 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.



**HIKMICRO**

See the World in a New Way