Honeywell

Performance Series

IP Cameras

H4W2PER3V	H4W2PER2V	HBW2PER1V	HBW2PER2V	HEW2PER3V
HEW2PER2V	H4W4PER3V	H4W4PER2V	HBW4PER1V	HBW4PER2V
HEW4PER3V	HEW4PER2V	H2W4PER3V	H4W8PER2V	HBW8PER2V
HEW8PER2V	H4W8PER1V	HBW8PER1V	HEW8PER1V	

User Guide

Recommended   Find the latest version of this and other Performance Series IP camera documents on the Honeywell Video website. Go to: https://www.security.honeywell.com/All-Categories/video-systems/performance-series-ip-cameras to find your camera and view/download the latest documentation.

Refer to the Honeywell Open Technology Alliance to learn more about our open and integrated solutions (go to: http://www.security.honeywell.com/hota/).

Revisions

Issue	Date	Revisions
A	03/2021	New document.

Cautions and Warnings

⚠	**CAUTION** RISK OF ELECTRIC SHOCK DO NOT OPEN	⚠	THIS SYMBOL INDICATES THAT DANGEROUS VOLTAGE CONSTITUTING A RISK OF ELECTRIC SHOCK IS PRESENT WITHIN THE UNIT.
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		⚠	THIS SYMBOL INDICATES THAT IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS ACCOMPANY THIS UNIT.

⚠ **WARNING** **Installation and servicing should be performed only by qualified and experienced technicians to conform to all local codes and to maintain your warranty.**

⚠ **WARNING** **To ensure compliance with electrical safety standards this product is intended for use with a Listed Power Adapter marked with "Limited Power Source", "LPS", on the unit, output rated 12 V DC, minimum 0.7A, Tma=60°C or from Power over Ethernet (PoE) provided by Listed Information Technology Equipment meeting the IEEE 802.3af PoE standard.**

The Ethernet connection is not intended to be connected to exposed (outside plant) networks. Do not connect two power sources to the camera at the same time.

CAUTION **Invisible LED radiation (850 nm). Avoid exposure to beam.**

Regulatory Statements

FCC Compliance Statement

Information to the User: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note	Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canadian Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe B est conforme à la norme NMB-003 du Canada.

Manufacturer's Declaration of Conformance

The equipment supplied with this guide meets the provisions of the following European Union council directives:

- 2014/30/EU for EMC
- 2001/95/EC for safety, and
- 2011/65/EU for RoHS compliance.

Waste Electrical and Electronic Equipment (WEEE)

Correct Disposal of this Product (applicable in the European Union and other European countries with separate collection systems).

This product should be disposed of, at the end of its useful life, as per applicable local laws, regulations, and procedures.

Regulation (EC) No 1907/2006

According to Article 33 of Reach Regulation be informed that the substances listed below may be contained in these products above the threshold level of 0.1% by weight of the listed article.

Product	Part Name	Substance Name	CAS Number
HBW8PER1V	Crystal (X1), TVS tube (TVS1,TVS2, D14), Fixed Focus Lens (M12/M16 etc.), FFC, Cable, IPC Cable	Lead	7439-92-1
HBW4PER1V	Crystal (X1,X2), Rectifier diode (D13), TVS tube (D9), Fixed Focus Lens (M12/M16 etc.), FFC, Cable, IPC Cable	Lead	7439-92-1
HEW8PER2V	Crystal (X1), TVS tube (TVS1,TVS2,D14), Rectifier diode (D1,D2), Cable, IPC Cable	Lead	7439-92-1
HEW4PER2V	Crystal (X2), Diode assembly (D1,D2,D6), TVS tube (D9), Rectifier diode (D1,D2), Cable, IPC Cable	Lead	7439-92-1
HEW2PER2V	Rectifier diode (D1,D2), Crystal (X1), TVS tube (TVS1,TVS2,D7), Cable, IPC Cable	Lead	7439-92-1
HEW8PER1V	Crystal (X1), TVS tube (TVS1,TVS2,D14), Fixed Focus Lens (M12/M16 etc.), Internal Wire Harness, IPC Cable	Lead	7439-92-1
HEW4PER3V	Crystal (X1,X2), TVS tube (D9), Fixed Focus Lens (M12/M16 etc.), Cable, IPC Cable	Lead	7439-92-1
HEW2PER3V	Crystal (X1,X2), TVS tube (TVS1,TVS2,D7), Fixed Focus Lens (M12/M16 etc.), Internal Wire Harness, IPC Cable	Lead	7439-92-1
H2W4PER3V	FFC, IPC Cable, Crystal (X2,X3), Rectifier diode (D44), Diode assembly (D1,D2), TVS tube (D9), Fixed Focus Lens (M12/M16 etc.)	Lead	7439-92-1
HBW8PER2V	Diode assembly (D90), Rectifier diode (D82), Crystal (X1), TVS tube (TVS1,TVS2,D14), Internal Wire Harness, Cable, FFC, IPC Cable	Lead	7439-92-1
H4W8PER1V	Crystal (X1), TVS tube (TVS1,TVS2,D21,D14), Fixed Focus Lens (M12/M16 etc.), Cable, IPC Cable	Lead	7439-92-1
HBW4PER2V	Rectifier diode (D24), Crystal (X2), Diode assembly (D1,D2,D6), TVS tube (D9), FFC, Cable, IPC Cable	Lead	7439-92-1
HBW2PER2V	Rectifier diode (D24), Crystal (X1), TVS tube (TVS1,TVS2,D7), FFC, IPC Cable, Cable	Lead	7439-92-1
H4W4PER3V	Crystal (X2,X3), Rectifier diode (D17), TVS tube (D9), Fixed Focus Lens (M12/M16 etc.), FFC, Cable, IPC Cable	Lead	7439-92-1
H4W2PER3V	Crystal (X1,X2), TVS tube (TVS1,TVS2,D7), Fixed Focus Lens (M12/M16 etc.), Cable, IPC Cable	Lead	7439-92-1
HBW2PER1V	Crystal (X1,X2), TVS tube (TVS1,TVS2,D7), Fixed Focus Lens (M12/M16 etc.), Internal Wire Harness, IPC Cable	Lead	7439-92-1

H4W8PER2V	Crystal (X1), TVS tube (TVS1,TVS2,D21,D14), IPC Cable	Lead	7439-92-1
H4W4PER2V	Crystal (X2), Rectifier diode (D5), TVS tube (D9), FFC, IPC Cable	Lead	7439-92-1
H4W2PER2V	Crystal (X1), Rectifier diode (D12), TVS tube (TVS1,TVS2,D7), IPC Cable	Lead	7439-92-1

General Data Protection Regulation

Please be aware that this product can store personal data.

Personal data is protected by the General Data Protection Regulation (2016/679) in Europe and therefore the owners of personal data have obtained certain rights thanks to this regulation.

We strongly advise you to be fully aware of these owner ("data subjects") rights as well as which limitations you have to obey regarding the use and distribution of this data.

Further details can be found on the GDPR website of the EU: https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en

Safety Instructions

Before installing or operating the unit, read and follow all instructions. After installation, retain the safety and operating instructions for future reference.

1. **HEED WARNINGS** – Adhere to all warnings on the unit and in the operating instructions.

2. **INSTALLATION**

   - Install in accordance with the manufacturer's instructions.

   - Installation and servicing should be performed only by qualified and experienced technicians to conform to all local codes and to maintain your warranty.

   - Any wall or ceiling mounting of the product should follow the manufacturer's instructions and use a mounting kit approved or recommended by the manufacturer.

3. **POWER SOURCES –** This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your facility, consult your product dealer or local power company.

4. **MOUNTING SYSTEM** – Use only with a mounting system recommended by the manufacturer, or sold with the product.

5. **ATTACHMENTS/ACCESSORIES** – Do not use attachments/accessories not recommended by the product manufacturer as they may result in the risk of fire, electric shock, or injury to persons.

6. **CLEANING** – Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

7. **SERVICING** – Do not attempt to service this unit yourself. Refer all servicing to qualified service personnel.

8. **REPLACEMENT PARTS** – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards. Using replacement parts or accessories other than the original manufacturers may invalidate the warranty.

Warranty and Service

Subject to the terms and conditions listed on the product warranty, during the warranty period Honeywell will repair or replace, at its sole option, free of charge, any defective products returned prepaid.

In the event you have a problem with any Honeywell product, please call Customer Service at 1.800.323.4576 for assistance or to request a **Return Merchandise Authorization (RMA)** number.

Be sure to have the model number, serial number, and the nature of the problem available for the technical service representative.

Prior authorization must be obtained for all returns, exchanges, or credits. **Items shipped to Honeywell without a clearly identified Return Merchandise Authorization (RMA) number may be refused**

Table of Contents

Figures

Tables

About This Document

This document provides instructions for accessing, configuring, and operating the Performance Series IP cameras. This document is intended for system installers, administrators, and operators.

Overview of Contents

This document contains the following chapters and appendixes:

- *Chapter 1, Introduction*, provides an overview of the main features of the Performance Series IP cameras.

- *Chapter 2 , Accessing the Camera*, describes how to install the Unified Tool to access the camera remotely from a web browser. It also describes how to update your camera's firmware.

- *Chapter 3, Logging In and Viewing Live Video*, describes how to log in to a camera and the Live View interface.

- *Chapter 4, Playing Back Video*, describes how to search for recorded video and snapshots and how to export them (**Note** This function is not supported by model HBW2PER1V).

- *Chapter 5, Configuring Camera Settings*, describes camera configurations.

- *Chapter 6, Configuring Network Settings*, describes network configurations.

- *Chapter 7, Configuring Video Analytics* Settings, describes video analytics configurations.

- *Chapter 8, Configuring Storage Settings*, describes storage configurations.

- *Chapter 9, Configuring System Settings*, *describes general system configurations.*

- *Chapter 10, Viewing System Information*, *describes system information, such as version, log and online user information.*

- *Chapter 11, Configuring Alarms Settings*, describes how to set up notifications for alarm inputs, motion detection, and network failure events.

- *Chapter 12, Troubleshooting*, lists common problems and solutions.

- *Chapter 13, Appendix*, lists maximum frame rate and resolution when integrating Performance Series IP cameras with Honeywell Embedded NVRs and lists the descriptions of symbols.

- *Chapter 14, Specifications*, lists the specifications of the Performance Series IP cameras.

1 Introduction

This chapter contains the following sections:

- *Overview, page 1*
- *Key Features, page 1*

Overview

Honeywell's Performance Series IP cameras integrate traditional camera and network video technology, combining video data collection and transmission. These flexible, fully featured cameras are the ideal choice for a wide range of indoor and outdoor surveillance applications.

Plug-and-play compatible with Honeywell 4/8/16-channel Performance Series Embedded NVRs, the cameras offer 2, 4 or 8 megapixel resolution at up to 30 frames per second and use video compression technology to save bandwidth and storage while ensuring maximum video quality. All the cameras are True Day/Night with intelligent IR capability, providing up to 200 ft (60 m) of illumination in low-light and nighttime scenes. Also, all the cameras support WDR function at up to 120 dB.

Each camera comes with configurable motion detection and camera tamper detection and supports up to 4 user-defined privacy mask areas. In addition to a 12 VDC adapter, all the cameras support Power over Ethernet (PoE), eliminating the need for a separate power supply and associated wiring. Select models also support local video storage on microSDHC cards (up to 128 GB) when network service is interrupted.

You can monitor Performance Series IP cameras from anywhere, at any time, using the free HonView Touch mobile app for both Apple and Android smartphones and tablets.

Key Features

Key features of the Performance Series IP cameras include the following (* - the feature is only supported by certain models.):

Camera

- Day/Night mode auto-switch
- Video parameter setup, such as electronic shutter and gain
- Motion detection
- Camera tampering detection
- Scene change detection
- *Audio detection
- *Face detection
- Wide Dynamic Range

- Backlight compensation
- Video watermark function to prevent modification
- IR night vision

Storage

- Central server backup (configure in Alarm or Schedule settings)
- Recording over Internet, files stored on client PC
- Network storage (FTP)

Network Monitoring

- One-channel video data transmission to a network
- Terminal and decoding
- Latency time less than 200–250ms (network bandwidth support required)
- Up to 20 connections
- Compatible with the following network protocols: HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS

Network Management

- Camera configuration and management via Ethernet
- Device management via Internet or client PC

User Management

- Each user belongs to specific group
- Different user rights for each group
- User rights cannot exceed group rights

System Management

- Log function
- System resource information and running real-time status display

2 Accessing the Camera

This chapter contains the following sections:

Installing the Unified Tool

To get the installation package of Unified Tool:

- Browse to https://mywebtech.honeywell.com, login, navigate to **Download Center → Video → IP Cameras → Camera Discovery Tools & Utilities → Honeywell Unified Tool**. Download and unzip the installation package of Unified Tool to your computer.

- Copy the installation package of Unified Tool from the CD along with the package of the camera to your computer.

To install the Unified Tool:

1. Double-click the installation program in the installation package.

Figure 2-1 Install Unified Tool
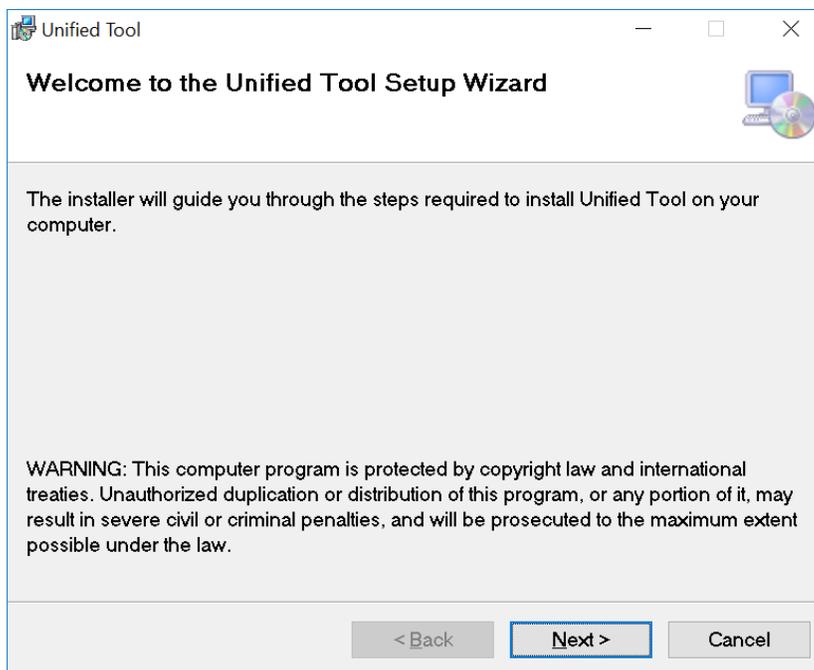
2. Click **Next** and the following figure is displayed:

Figure 2-2 Select Installation Folder
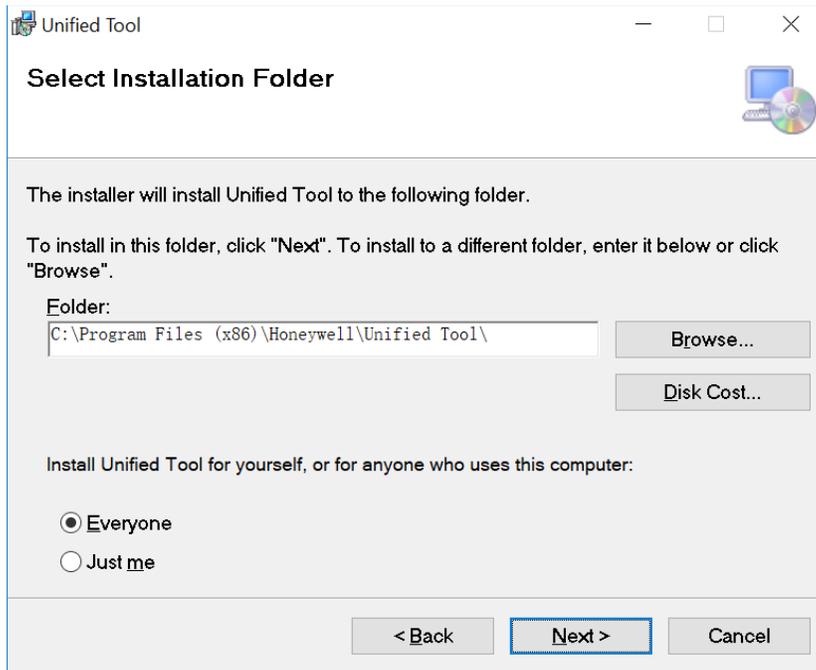
3. Follow the on-screen instructions to configure your settings and click **Next**. The following figure is displayed:

Figure 2-3 Confirm Installation
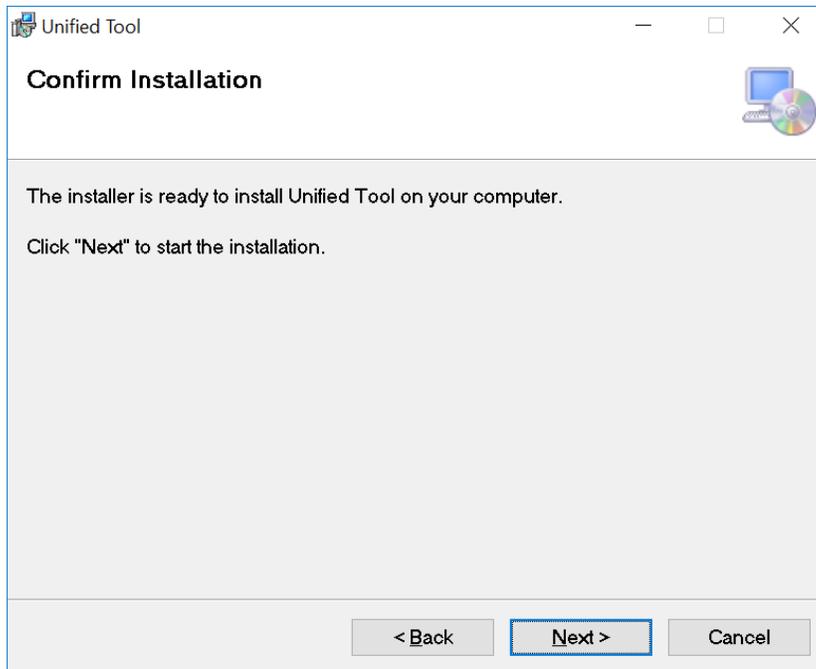
4. Click **Next**. When the installation is completed, click **Close**. A shortcut of Unified Tool will be displayed on your desktop.

Discovering Your Camera on the Network

Double-click on the desktop and the following figure is displayed:

Figure 2-4 Splash Screen
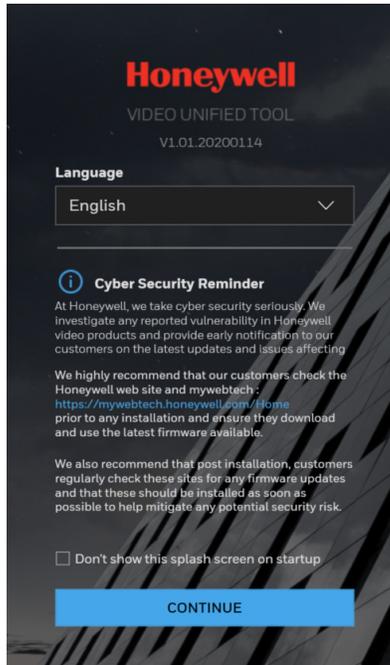
1. Select your language from the dropdown list of Language. Currently, only English is supported.

2. Check "Don't show the splash window on startup" and this page can be skipped next time.

    If you want to check the splash window again, click as shown in *Figure 2-6* and select the checkbox of Show the splash page on startup.

3. Click **CONTINUE**. It will scan devices in the network automatically.

Figure 2-5 Scanning the network
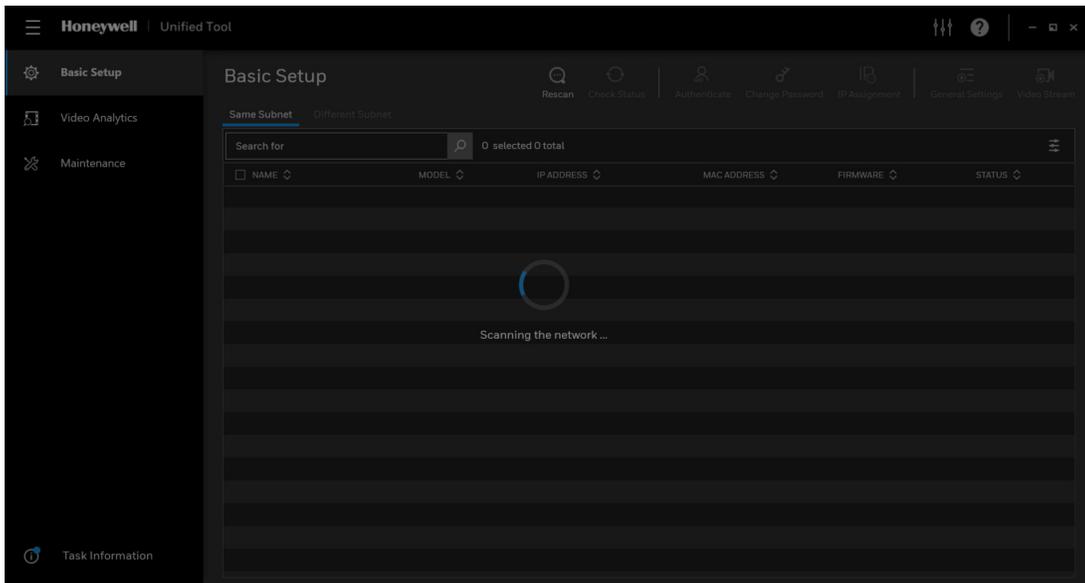
After the scanning, all scanned devices in the same subnet and different subnet will be displayed in the devices list.

Figure 2-6 Device List
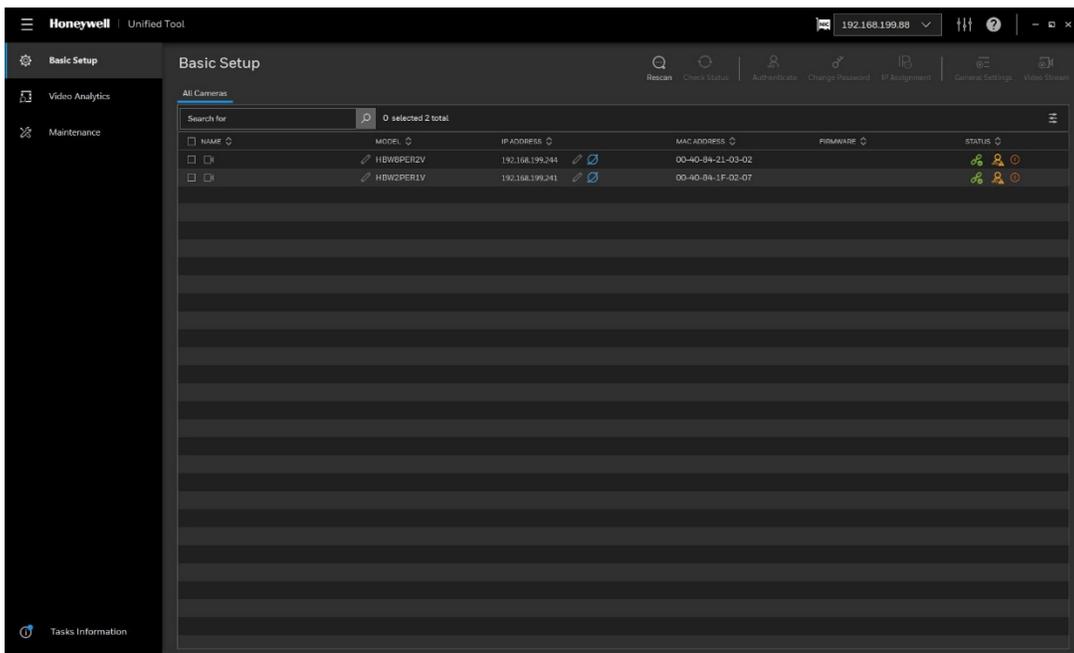
Assigning a New IP Address to Your Camera

The current IP address of your camera appears in the **IP ADDRESS** column of the devices list. If you want, you can assign a new static IP address to the camera.

Select the target device(s) as shown in *Figure 2-6*, click [IP Assignment icon] and the following figure is displayed:

Figure 2-7 IP Assignment
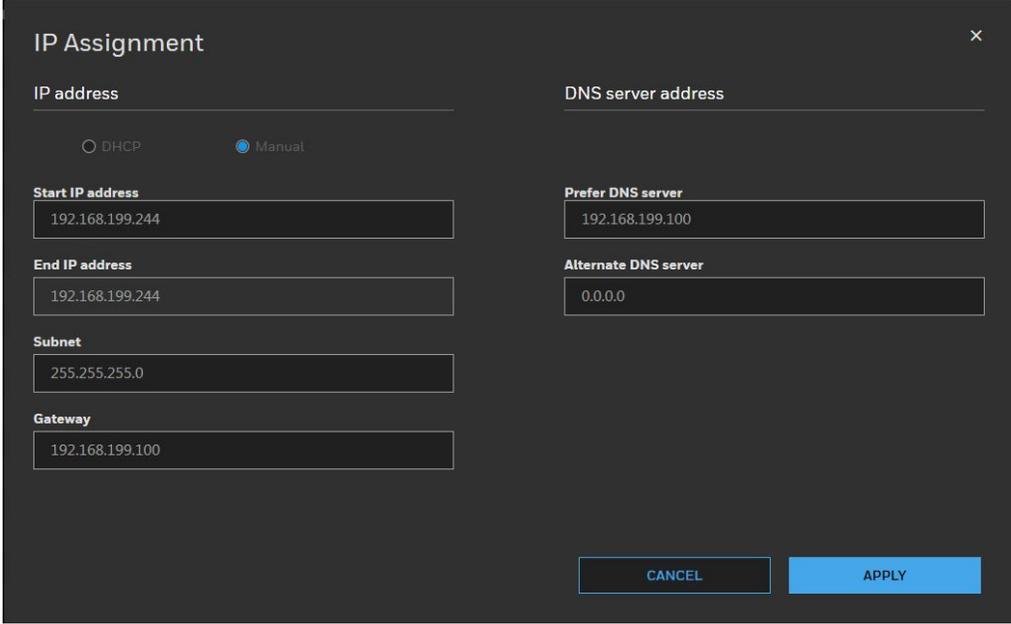
Configure IP Address Setting

- To obtain IP address, subnet mask, and default gateway settings automatically, select the check box of **DHCP**.

- To configure IP address, subnet mask, and default gateway settings manually, select the check box of **Manual** and enter the settings. If you enter the start IP address, the system can calculate the end IP address automatically according to the number of your selected device(s).

- After all settings are completed, click **APPLY**.

Configure DNS Server Address

- To obtain the DNS server address automatically, select the check box of **Obtain automatically**.

- To manually enter the DNS server address, select the check box of **Manual assignment** and enter the settings.

- After all settings are completed, click **APPLY**.

Upgrading the Camera's Firmware

Before you begin using your camera, make sure you have the latest firmware installed. You can upgrade a single camera or multiple cameras at the same time.

Select the **Maintenance** tab from the left pane as shown in *Figure 2-6*, select target device(s) and click and the following window is displayed:

Figure 2-8 Firmware Upgrade
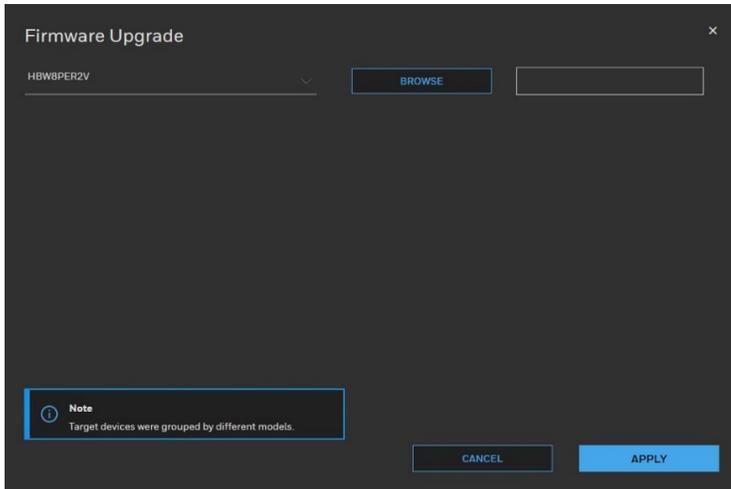
The devices were grouped by model. To upgrade the firmware:

1. Select the target device(s) under a model.
2. Click **BROWSE** and select the upgrade file from your computer.

Figure 2-9 Firmware Upgrade 2
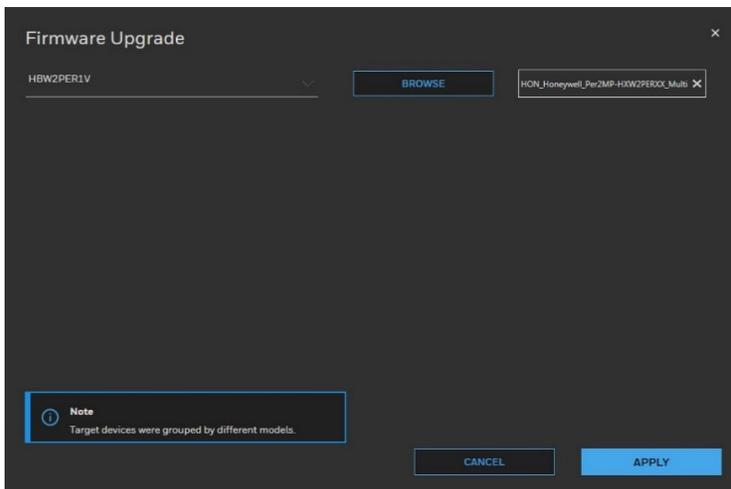
3. Click **APPLY**. You can check the progress status in the device list.

Accessing the Camera from a Web Browser

To access the camera from a web browser, click next to the IP address of the device as shown in *Figure 2-6*.

Note	The Unified Tool will choose Chrome as default browser to access the camera webpage firstly. If you haven't installed Chrome, it will run IE instead. When neither Chrome nor IE is available, it will open Edge to access the camera.

3   Logging In and Viewing Live Video

This chapter contains the following sections:

Logging In to the Camera via the Web Client

Using the web client, you can monitor live video, play back recorded video, and configure camera settings.

Before You Begin

Before you log in to the web client, ensure that the following conditions are met:

- The camera is properly connected to the network.
- The camera's IP address and the PC's IP address are in the same network segment. If there is a router, set the corresponding gateway and subnet mask.
- A network connection has been established. To check this, ping the camera's IP address. (Enter "ping [IP address]").

Logging In to the Camera

1. Open **Internet Explorer**, type the camera's IP address in the address bar, and then click **Enter**. For example, if your camera's IP address is **192.168.1.108**, you would type http://192.168.1.108.

Note	• Internet Explorer 11 (or later) is recommended.
	• IP address of the device is assigned automatically by DHCP server. If the DHCP server is not available, the device will acquire 192.168.1.108 as the default IP address.

2. On the login screen, enter the admin user name and password, and then click **Login**. The default user name is **admin** (case-sensitive) and the default password is **1234**.

Figure 3-1 Login Interface
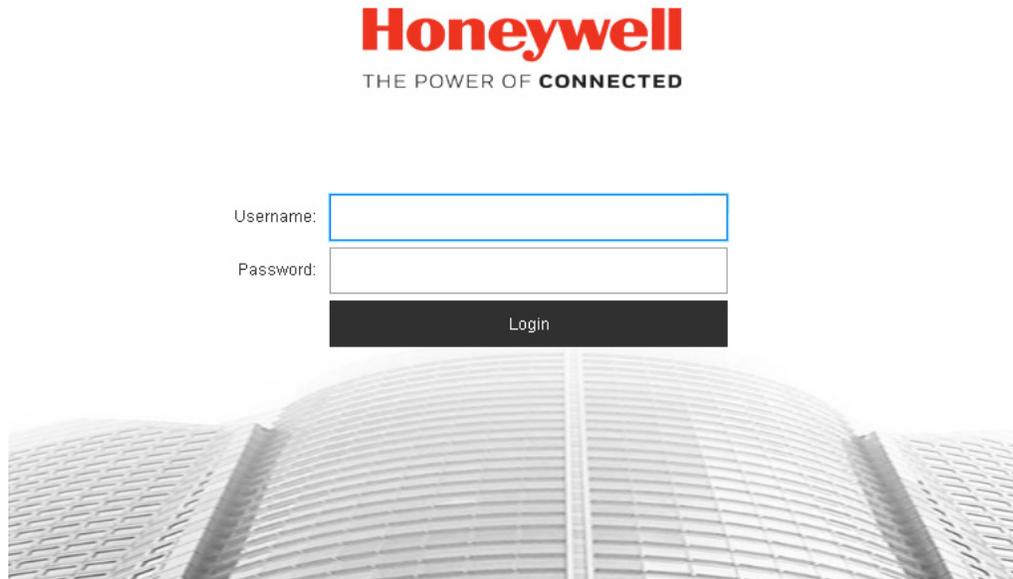
For security purposes, you are required to create a new secure password at the first login.
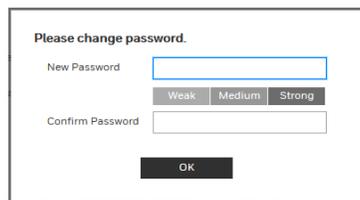
The password must be at least 8 characters long and contain at least one lowercase letter, one number, and one special character. The password cannot be blank.

Installing the Browser Plug-In

If you are logging in for the first time, you will be prompted to download and install a browser plug-in. Follow the on-screen instructions to install the plug-in. When the installation is complete, the web client automatically refreshes and the Live View interface opens (*Figure 3-4*).

If this is your first time logging in, you will see the following message:

Click here to download and install the plug-in.

Perform the following steps to install the plug-in:

1. Click **Click here to download and install the plug-in**. The following window is displayed. Click **Continue to this website (not recommended)**.

Figure 3-2 Security Certificate Problem
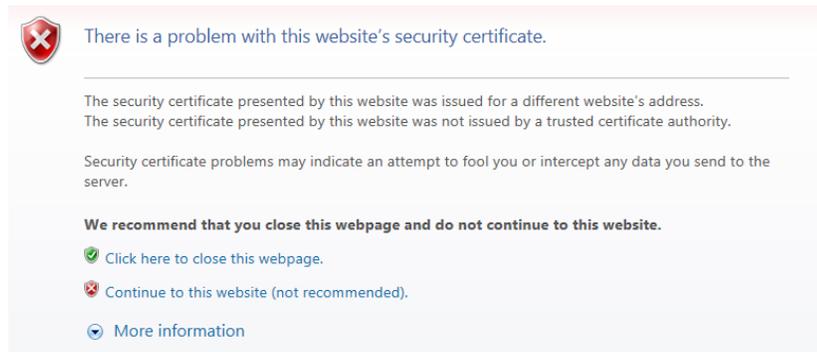
2. A message appears asking if you want to run or save the file.

Figure 3-3 File Download Security Warning Message for the Plug-in

3. Click **Run** to start the installation.

4. After the plug-in installation is complete, login again and the web client displays the Live View interface (*Figure 3-4*).

Using the Live View Interface

The Live View window has four areas with controls and options for monitoring live video.

Figure 3-4 Live View Interface
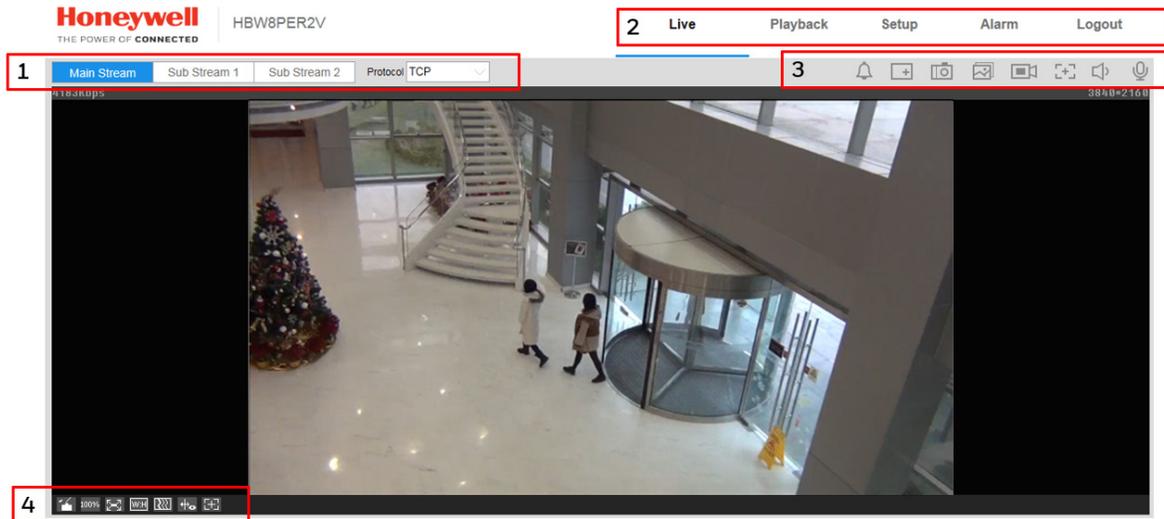
1. Video encoder settings area (see *Video Encoder Settings, page 12*)
2. System menus (see *System Menus, page 13*)
3. Live View controls toolbar (see *Live View Controls, page 13)*
4. Live View interface settings toolbar (see *Live View Window Configuration,* page 14)

Video Encoder Settings

In the video encoder settings area of the Live View interface, you can choose a stream and set the stream protocol.

Figure 3-5 Video Encoder Settings

Table 3-1 Video Encoder Settings

Setting	Description
Main Stream	Delivers high definition video for real-time monitoring, recording, and storage. Uses the most bandwidth.
Sub Stream 1	Delivers low/standard definition video, typically for remote monitoring in lower network bandwidth environments.
Sub Stream 2	Delivers low, standard, or high definition video.

	You can select the stream media protocol from the drop-down list. There are three options: **TCP**, **UDP**, or **Multicast**.
	TCP: Provides most reliable data transmission. Higher latency and bandwidth use than UDP.
Protocol	**UDP**: Provides fastest data transmission. Lower latency and bandwidth use than TCP but allows some data loss (such as dropped frames).
	Multicast: Provides the most efficient use of bandwidth if large numbers of clients are viewing the video simultaneously.

System Menus

Figure 3-6 System Menu

Live	Playback	Setup	Alarm	Logout

When you log in to the camera using the web client, the Live View interface opens by default. To access the Playback, Setup, and Alarm interfaces, or to log out, select the corresponding tab in the system menus area.

Live View Controls

From the Live View controls toolbar, you can zoom in on a scene, take a snapshot, or manually record video. These controls are described in more details below.

Figure 3-7 Live View Window Controls

Table 3-2 Live View Window Controls

Icon	Control	Description
🔔	**Alarm**	Displays alarm sound state. Click the icon to enable or disable the alarm sound forcibly.
⊞	**Digital Zoom**	While viewing live video, click and hold down the left mouse button to zoom in on a specific area. Right-click the mouse to return to the previous magnification.
📷	**Snapshot**	Click to take a snapshot, saved as a JPEG at the default location (**\picture download**). To change the save path, see *Path* on page *68*. Or go to **Setup→ Camera Setup →Video→Path**.
🖼	**Triple Snap**	Click to take three snapshots at 1 fps. All images are saved to **Setup → Camera Setup →Video →Path.**
🎥	**Record**	Click to start manual recording. All video is saved to **Setup → Camera Setup →Video→Path**.

Icon	Control	Description
	Easy Focus	Click to enable Easy Focus. You can see AF Peak and AF Max adjustments on the Preview window. Select from AF Peak and AF Max.
		AF Peak: Displays the video's definition when focusing.
		AF Max: Displays the most suitable focus for video definition.
		The closer the AF Peak and AF Max, the better the focus.
	Audio	Click the icon to enable or disable audio output.
	Help	Displays online help for the Live View window.
	Talk	Click the icon to enable or disable the audio take.

Live View Window Configuration

From the Live View window configuration toolbar, you can adjust the screen brightness, contrast, hue, or saturation; change the screen size and/or aspect ratio; and adjust image fluency. These controls are described in more detail below.

Figure 3-8 Live View Window Configuration Toolbar

Table 3-3 Live View Window Configuration Tools

	Image Control	Click to open the **Image Adjustment** panel.
		Move the sliders to adjust the image brightness, contrast, hue, or saturation. Click the **–** and **+** signs to make fine adjustments. To restore the settings to their default values (**64**), click **Reset**.
		Note These settings only apply to the client end. To change the settings at the camera end, go to **Setup → Camera Setup → Conditions**.
	Original Size	Click to display the video at actual size (the exact dimensions are determined by the stream resolution).
	Full Screen	Click to display the video in full-screen mode. Double-click (or press Esc) to exit full-screen mode.
	Width and Height Ratio	Displays the video in its original size (**Original**) or fitted to your screen (**Adaptive**).
	Adjust Fluency	Sets the video fluency level (**Realtime**, **Normal**, or **Fluency**).
		Select a fluency level based on the capabilities of your network.
		For example, if your connection is slow, selecting **Fluency** will prioritize smoothness over image quality.
	Rules Info	Tracks movement in the video window when video analytics is enabled.
	Zoom and Focus	Opens the **Zoom and Focus** panel.
		Move the sliders to adjust the zoom and focus settings. Click the – and + signs to make fine adjustments. The **Step** number determines the magnitude of the adjustment. To set the focus automatically, click **Auto Focus**. To restore the default zoom and focus settings, click **Restore All**. To focus on a specific region, click **Regional Focus**, and then drag your mouse over the area in the video window.

4 Playing Back Video

This chapter contains the following sections:

Note	This function is not supported by model HBW2PER1V.

Introduction

This chapter describes how to play back recorded video and saved snapshots on cameras using the web client, how to zoom in and take snapshots while playing back recorded video using the Playback Assistant, and how to create custom video clips.

Note	Before you can play back recorded video or saved snapshots, you must first configure storage settings in the **Setup** menu. See *Configuring Storage Settings* on page *67*.

Click the **Playback** tab to display the playback interface.

Overview of the Playback Interface

The Playback interface has six areas with controls and options for playback (see *Figure 4-1*).

Figure 4-1 Playback Interface
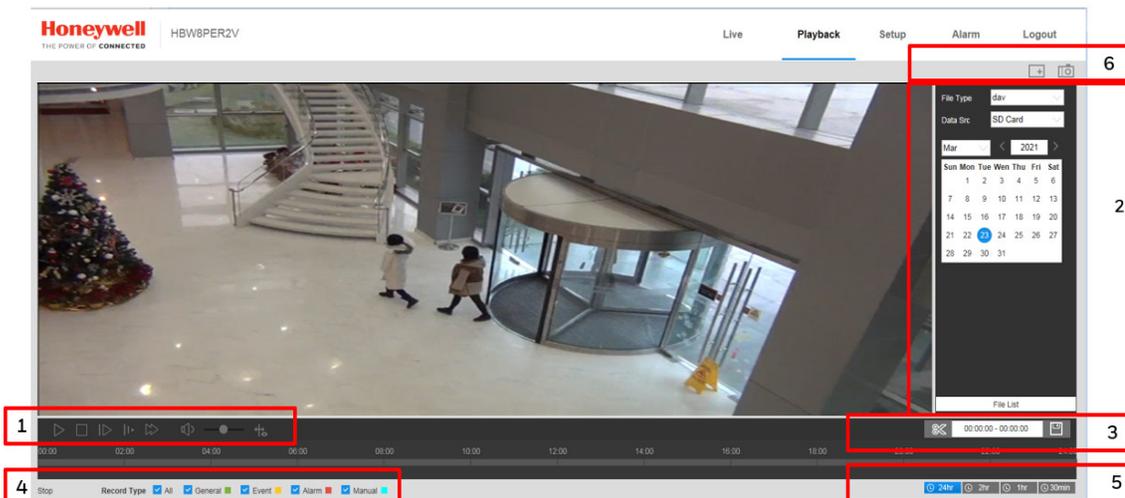
1   Playback controls (see *Playback Controls on page 17*)

2   Calendar area (see *Playing a Recorded File from the Calendar on page 18*)

3   Clip selection (see *Creating a Video Clip on page 20*)

4   Recording type (see *Searching for a File by Recording Type on page 19*)

5   Timeline configuration (see *Timeline Configuration on page 20*)

6   Playback Assistant (see *Using the Playback Assistant on page 20*)

Playing Back Recorded Video

Playback Controls

Figure 4-2 Playback Controls

Table 4-1 Playback Controls

Control	Description
▷	Click to play video.
☐	Click to stop video playback.
▷	Click to go to the next frame. **Note** Video playback must be paused before you can use this function.

Control	Description
	Slow playback
	Fast playback
	Mute sound
	Volume control
	Rules Info

Playing a Recorded File from the Calendar

On the playback calendar, a day in red indicates a day on which video was recorded and a day in blue indicates the day you select.

Figure 4–3 Playback Calendar
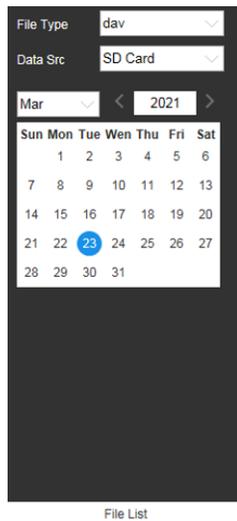
From the **File Type** list, select **dav** for video playback and **jpg** for snapshots. The default **Data Src** is **SD Card**.

Playing a Recorded File

1. In the calendar field of the Playback interface, perform the following steps to find a recorded file:

   a. From the **File Type** list, select **dav**.

   b. From the **Data Src** list, select **SD Card**.

   c. Select the month and year that you want to search. Dates with recorded video are shown in red.

   d. Click the date that you want to search. Recordings for the selected date appear in the timeline (color coded according to recording type).

      • Green – Normal recording

- Yellow – Motion detection recording

- Red – Alarm-triggered recording.

- Blue – Manual recording.

Figure 4-4 Recording Timeline
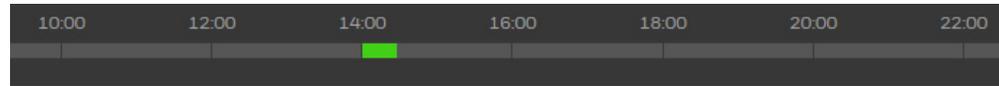
2. Below the calendar, click the **File List** button to narrow your search by time period and/or by download format.

3. Play the file using one of the following methods:

- In the file list, double-click the file that you want to play.

- In the timeline, click a colored bar at the time that you want to start playing from (click ⏱ 30min to zoom in on the timeline), and then click the Play button.

Figure 4-5 Playback File Details
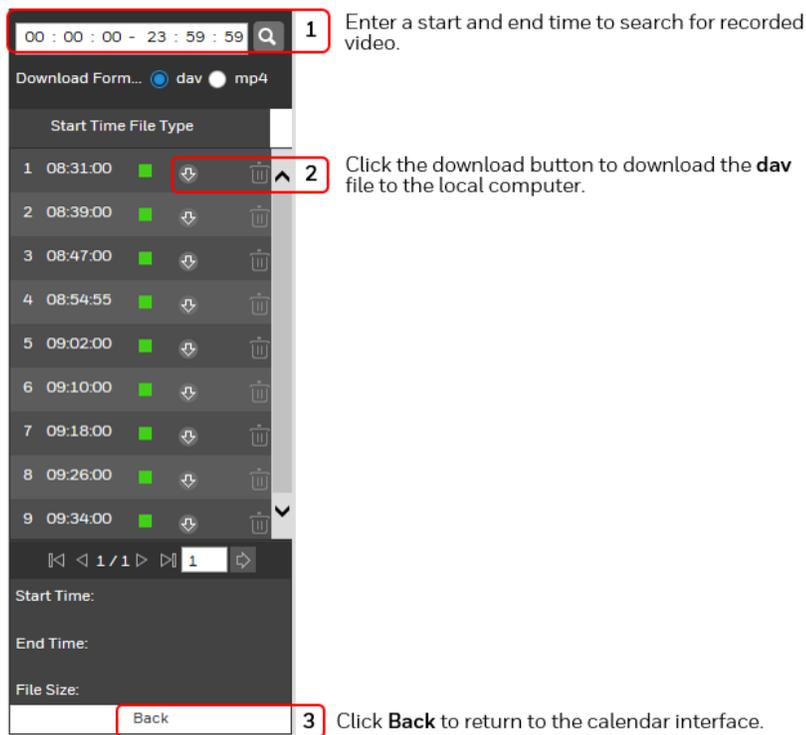
| Note | On the playback file interface, you can download a file to your local PC. |

Searching for a File by Recording Type

By selecting a recording file type, you can filter by a particular recording type so that the timeline and file list display only those types of recorded files. You can also select the

recording type to display in the Playback interface. The filter is at the bottom of the Playback interface.

Figure 4-6 Record Type Filter in Playback

Record Type ☑ All ☑ General ■ ☑ Event ■ ☑ Alarm ■ ☑ Manual ■

Timeline Configuration

You can configure the playback timeline in Playback to show the last 24 hours, 2 hours, 1 hour, or 30 minutes of recorded video. Click to select the target time scale.

Figure 4-7 Playback Timeline Configuration

🕐 24hr | 🕐 2hr | 🕐 1hr | 🕐30min

Using the Playback Assistant

The Playback Assistant buttons allow you to zoom in and out on video, and to take snapshots.

| Note | This function is not supported by model HBW2PER1V. |

Zooming In and Out

To zoom in, in the Playback Assistant area (see *Figure 4-1*), click the **Zoom In** button ⊞ , and then use the scroll wheel on your mouse to zoom in on an area of the video.

Right-click the mouse to return the video to its original size.

Taking a Snapshot

Click 📷 while playing video to manually take a snapshot. The snapshot is saved to the file path on your local PC. To configure the file path, see *Path* on page *68*.

Creating a Video Clip

You can clip and save a section of recorded video during video playback using the clip function. Playback of recorded video is automatically paused during clipping.

Note	This function is not supported by model HBW2PER1V.

Figure 4-8 Clip Function Controls

1. Find the recording that you want to create a clip from.

2. On the timeline, click the recording at the time you want to start the clip, and then click . This is the start time of the clip.

3. Next, click the recording at the time you want to end the clip, and then click . This is the end time of the clip.

4. Click to save the clipped file to your local PC. To configure the saving path, see *Path* on page *68*.

Viewing Snapshots

Note	This function is not supported by model HBW2PER1V.

1. In the calendar field of the Playback interface, perform the following steps to find a snapshot:

   a. From the **File Type** list, select **jpg**.

   b. From the **Data Src** list, select **SD Card**.

   c. Select the month and year that you want to search. Dates with snapshots are shown in red.

   d. Click the date (in red) that you want to search.

2. In the **Snapshot Type** field, you can refine your search results by selecting specific snapshot types to search (**General**, **Motion**, or **Alarm**).

3. Below the calendar, click **File List** to display a list of snapshots for the selected date.

4. If you want, you can refine your search results further by entering a specific time range to search.

5. To view a snapshot, double-click the file name (start time). To download a snapshot to your local PC, click the download button next to the file name. To configure the saving path, see *Path* on page *68*.

5 Configuring Camera Settings

This chapter contains the following sections:

- *Configuring Camera Conditions, page 22*
- *Configuring Video Settings, page 29*
- *Configuring Audio Settings, page 33*

Configuring Camera Conditions

Go to **Setup → Camera Setup → Conditions**.

This section describes how to configure camera properties (picture, exposure, lighting compensation, white balance, day and night, IR light, etc.).

Conditions

Go to **Setup → Camera Setup → Conditions**.

On the **Conditions** tab, you can view camera property information. The configurations become valid immediately after they are saved.

Note	The settings that are available on the **Conditions** tab may differ depending on the selections made in the **Profile Management** setup (see *Profile Management* on page *26* for more information).

Figure 5-1 Camera Conditions
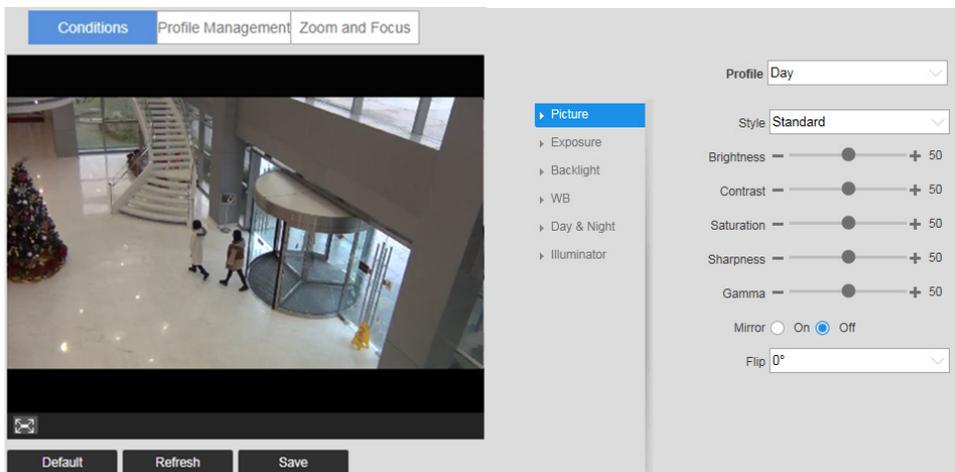
Profile

From the **Profile** list, select the camera profile that you want to configure settings for: **Normal**, **Day**, or **Night**.

Picture

In the **Picture** field, select a picture style from the Style list: **Soft**, **Standard**, or **Vivid**.

To adjust the image brightness, contrast, saturation, sharpness, or gamma settings, drag the slider left or right or click the − and + signs to make fine adjustments.

Brightness

Adjusts monitor brightness. Choosing a higher value increases the video brightness. Adjustments to this value affects the brightness of the video. Select from **0** to **100**. The recommended range is between **40** and **60**. The default value is **50**.

Note	If this value is too high, then the video can become hazy.

Contrast

Adjusts monitor contrast. Choosing a higher value increases the contrast. Select from **0** to **100**. The recommended range is between **40** and **60**. The default value is **50**.

Note	If this value is too low, then the video can become hazy. If this value is too high, then the dark parts of the video could lose details, and the bright parts of the video could become overexposed.

Saturation

Adjusts monitor color saturation. Choosing a higher value increases the color saturation/strength. This value has no effect on the general brightness of the video. Select from **0** to **100**. The recommended range is between **40** and **60**. The default value is **50**.

Sharpness

Adjusts video sharpness. Choosing a higher value increases the sharpness of the video. Select from **0** to **100**. The recommended range is between **40** and **60**. The default value is **50**.

Note	Choosing a higher value can introduce video noise to the image.

Gamma

Adjusts dynamic range. Choosing a higher value increases the brightness of the image non-linearly. Select from **0** to **100**. The recommended range is between **40** and **60**. The default value is **50**.

Mirror

Select **ON** to switch the video from left to right. This function is disabled by default.

AOV

0° (Normal): This is the default setting.
90° (Flip Mode 1): Rotates the video by 90°.
180° (Inverted): Rotates the video by 180°.

270° (Flip Mode 2): Rotates the video by 270°.

Exposure

In the **Exposure** field, you can set the anti-flicker mode, exposure mode, auto iris, and digital noise reduction level.

Anti-Flicker

This setting helps reduce flicker in the image. Select from **Outdoor**, **50 Hz** and **60 Hz** according to your environment.

Outdoor: Minimizes flicker in outdoor applications. Works with auto, low noise, low motion blur, and manual exposure modes

50 Hz: Minimizes flicker in indoor applications where the AC frequency is 50 Hz (generally PAL regions). Works with auto and manual exposure modes

60 Hz: Minimizes flicker in indoor applications where the AC frequency is 60 Hz (generally NTSC regions). Works with auto and manual exposure modes.

Mode

Select an exposure mode from Auto, Gain Priority, Shutter Priority and Manual.

Auto: The camera automatically sets the gain value and shutter speed.

Gain Priority: You set a gain value and the camera sets the proper exposure by assigning an appropriate shutter speed.

Shutter Priority: You set a shutter speed and the camera sets the proper exposure by assigning an appropriate gain.

Manual: Maximum shutter speed and maximum gain for normal light conditions are set by the user.

3DNR

This setting reduces noise and retains good video quality in low light conditions. It is enabled by default.

Grade

This value ranges from **0** to **100**. The default value is **50** when 3D NR is on.

Backlight

In the **Mode** field, you can apply backlight compensation (BLC), highlight compensation (HLC), or wide dynamic range (WDR) adjustment to the image.

Set Lighting Mode to OFF, BLC, HLC, or WDR.

WDR

By lowering the brightness of the brightest area, and enhancing the brightness of the darkest area, WDR balances brightness and darkness in a scene so that both the darkest area and the lightest area can be seen clearly at the same time.

This value ranges from **1** to **100**. The default value is 50.

Note	When you switch the camera from non-WDR to WDR mode, there might be a few seconds of lapse in video.

BLC

The camera automatically adjusts the exposure to suit the conditions, so that the darkest area of the video can be seen.

Default: Apply BLC to the entire scene.

Customized: Apply BLC to a specified portion of the scene.

HLC

When the HLC function is enabled, the camera can lower the brightness of the brightest section of video, according to the selected HLC control level. HLC can reduce the amount of halo and lower the brightness of the entire video image.

This value ranges from **1** to **100**. The default value is **50** when HLC is selected.

White Balance

Sets the **White Balance** mode, which affects the general hue of the video.

You can select different scene modes among **Auto**, **Natural**, **Street Lamp**, **Outdoor**, **Manual**, or **Customized Region**, to achieve the best quality video.

Auto: Auto white balance is on. The system automatically adjusts the color temperature to ensure that the video color is correct.

Natural: White balance is optimized for natural lighting.

Street Lamp: White balance is optimized for yellow-tinted lighting.

Outdoor: White balance is optimized for outdoor environments.

Manual: Red gain and blue gain values are set by the user. The value ranges from **0** to **100**.

Customized Region: White balance is applied to a user-defined area within the scene.

D&N Mode

In the **D&N Mode** field, you can set the day and night mode, sensitivity, and delay time.

By default, the camera automatically outputs color video or black-and-white video depending on the amount of light in the scene. To output *only* color video, set **Mode** to **Color**. To output *only* black-and-white video, set **Mode** to **Black & White**.

Sensitivity

Adjusts the sensitivity threshold at which the camera switches from **Color** to **Black & White** mode. Set to **Low**, **Medium** (default), or **High**.

Note	Available only when **Day & Night** is set to **Auto**.

Delay

Adjusts the delay value of the switch from **Color** to **Black & White** mode. The value ranges from **2** to **10**. The default value is 6.

Note	Available only when **Day & Night** is set to **Auto**.

Illuminator

This configuration is available only when the device is equipped with illuminator.

Go to **Setup → Camera Setup → Conditions→ Illuminator**.
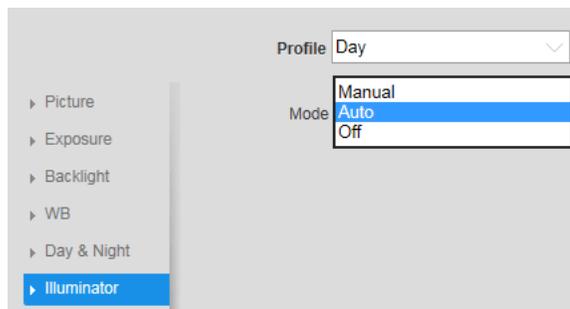
Manual: Adjust the brightness of illuminator manually, and then the system will supply illuminator to the image accordingly.

Auto: The system adjusts the illuminator intensity according to the ambient lighting condition.

Off: Illuminator is off.

Profile Management

Go to **Setup → Camera Setup → Conditions→ Profile Management**.

After you have configured the camera properties for each profile (Normal, Day, Night), you can set the profile(s) that you want the system to use.

Figure 5-2 Profile Management

The Profile Management has three modes: **Normal**, **Full Time**, and **Schedule**. By default, the system has the **Day** profile always enabled.

- **Normal**: The Normal profile is always enabled.

- **Full Time**: The Day profile or Night profile is always enabled, depending on your selection.

- **Schedule**: The system switches between the Day profile and Night profile. Drag the sliders on the left and right sides of the timeline to set the Night-to-Day and Day-to-Night switching times.

Figure 5-3 Schedule
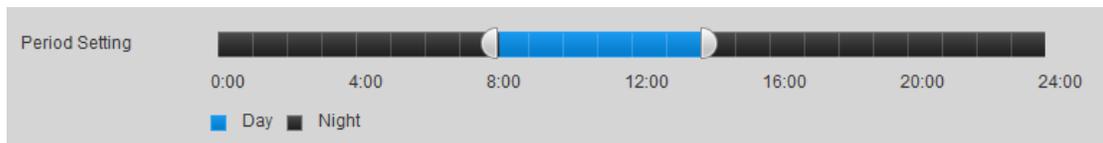
| Note | When you make changes to the video configuration, you will immediately see the effects of those changes in the video. However, you must click **Save** to save and apply these settings. |

Zoom and Focus

Go to **Setup** → **Camera Setup** → **Conditions**→ **Zoom and Focus**.

Note	This section only applies to HEW4PER2V/HEW2PER2V/H4W2PER2 V/HBW2PER2V motorized focus/zoom cameras.

Figure 5-4 Zoom and Focus
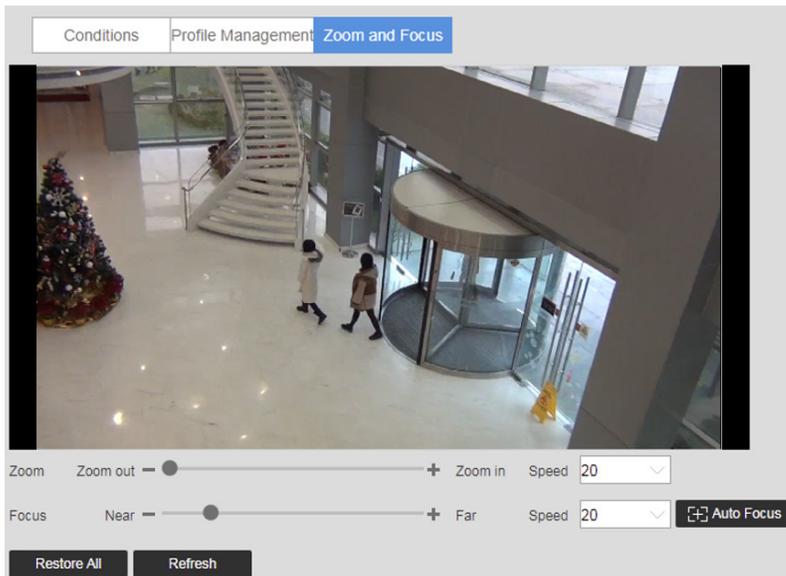
Table 5-1 Zoom and Focus

Parameter	Function
Zoom	Adjust the focal length of the lens by clicking "+" to zoom in or "−" to zoom out. Changing the **Speed** setting adjusts the length of a single-click increment. **Note** After adjusting zoom, the lens will focus automatically.
Focus	Adjust the definition of the image by clicking "+" to focus far or "−" to focus near. Changing the **Speed** setting adjusts the length of a single-click increment.
Auto Focus	Click to adjust the focus automatically.
Restore All	Click to reset the lens to 0 position. **Note** Reset the lens periodically if you are making a lot of zoom and focus adjustments.
Refresh	Click to refresh the video image.

Configuring Video Settings

Go to **Setup → Camera Setup → Video**.

This section describes how to configure video streaming properties (format, resolution, frame rate, bit rate, I-frame interval, etc.).

Video Stream

Go to **Setup → Camera Setup → Video→ Video**.

Figure 5-5 Video Stream

Encode Mode

In the **Encode Mode** box, select **H.264B**, **H.264**, **H.264H**, **MJPEG**, or **H.265**.

H.265: High Efficiency Video Coding. Supports 4K resolution. Twice as efficient as H.264.

H.264: Main Profile. Uses less bandwidth than Baseline Profile at the same quality.

H.264B: Baseline Profile. Uses up to 50% less bandwidth than MPEG4 and up to 80% less than MJPEG. Higher compression and lower quality than H.264.

H.264H: High Profile. Uses less bandwidth than Main Profile at the same quality. Lower compression and higher quality than H.264.

MJPEG: Uses the most bandwidth but produces excellent image quality with access to every image in the stream.

Note   The mode may vary according to different camera models.

Smart Codec

Set Smart Codec to **ON** or **OFF**.

By taking reference frames and applying them to refreshed frames, Smart Codec eliminates the need to transmit data for an unchanged image or parts of the image where there is no movement. Used together with H.264, Smart Codec can lead to storage savings of up to 60 percent and bandwidth savings of up to 40 percent over H.264 alone.

Note	If **Smart Codec** is set to **ON**, video analytics will be unavailable.

Resolution

You can select from multiple resolutions from the drop-down list. The recommended bit stream value is different for each resolution.

Frame Rate (FPS)

In the **Frame Rate (FPS)** box, select a frame rate within the available range (1–60 fps for NTSC cameras; 1–50 fps for PAL cameras).

Note	The frame rate range may vary according to different camera models.

Bit Rate Type

In the **Bit Rate Type** box, select **CBR** or **VBR**.

CBR   Constant bit rate. The bit rate remains constant (recommended for low-bandwidth environments). Required if MJPEG compression is used.

VBR   Variable bit rate. The bit rate changes according to the complexity of the scene. Select a **Quality** level between **1** (lowest quality) and **6** (highest quality).

In the **Bit Rate** box, select a bit rate from the list using the **Reference Bit Rate** as a guide.

I-Frame Interval

In the **I-Frame Interval** box, set the number of P-frames between I-frames. The value ranges from **30** to **150**. The default value is **60**.

The recommended value for **I Frame Interval** is 2 times the frame rate setting.

Watermark Settings

Click to enable Watermark Settings and then type the watermark text. This function allows you to verify that the video has not been altered. The default watermark text is **DigitalCCTV**. The maximum length is 85 digits. Only numbers, letters, and the underscore character (_) can be used.

Snapshot

Go to **Setup** → **Camera Setup** → **Video**→ **Snapshot**.

Figure 5-6 Snapshot

Table 5-2 Snapshot Configurations

Parameter	Function
Snapshot Type	Select from either **General** (schedule) or **Event** (activation). **General**: Snapshots are taken according to a user-defined schedule. **Event**: Snapshots are taken whenever an alarm, motion detection, camera tampering, or system event occurs.
Image Size	The image size is determined by the main stream resolution setting. It is not configurable.
Quality	Set the **Quality** to a value between **1** (lowest) and **6** (highest).
Interval	Select a snapshot frequency between **1** snapshot per second (**1s**) and **7** snapshots per second (**7s**), or click **Customized** to define a custom setting between **1** and **50,000** seconds.
Note	See *Path* on page *33* for information about configuring where snapshots are saved. Snapshots are saved as JPEGs.

Video Overlay

Go to **Setup** → **Camera Setup** → **Video**→ **Overlay**.

Figure 5-7 Video Overlay
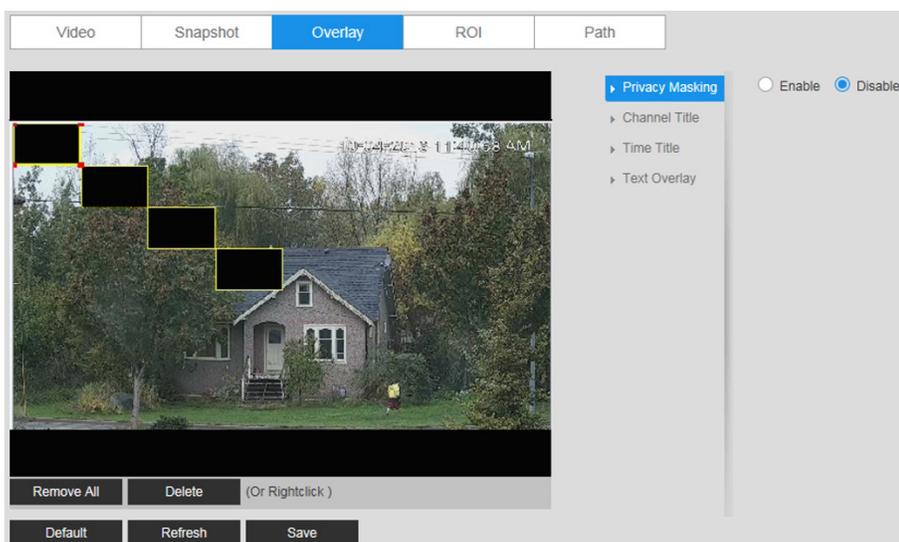
Table 5-3 Video Overlay Configurations

Parameter	Function
Privacy Masking	Masks areas of the video for privacy.
	To enable privacy masking, click **Enable**. Four privacy masks appear in the preview window.
	Delete any masks that you don't need. To delete a mask, right-click it or select it and then click **Delete**. To remove all the masks, click **Remove All**.
	To move a mask, select it and drag the center of the mask.
	To resize a mask, drag one of the corner handles. To draw a new mask, drag your mouse anywhere in the preview window.
Channel Title	Enable this function to overlay channel information in the video window. Use the mouse to drag the channel title to the desired position.
Time Title	Enable this function to overlay time information in the video window. Use the mouse to drag the time to the desired position.
Text Overlay	Enable this function to overlay text in the video window. Enter the text to be overlaid in the **Enter Text** field and select **Right** or **Left** alignment from the Text Alignment drop-down menu.

ROI

Go to **Setup → Camera Setup → Video→ ROI**.

To enable the ROI function, click **Enable**.

In the preview window, drag your mouse over the portion of the scene that you want to designate as a region of interest, select an **Image Quality** level between **1** (lowest) and **6** (highest), and then click **Save**. You can add up to 4 regions of interest.

To delete a single region of interest, select it, and then click **Delete**. To delete all regions of interest, click **Remove All**.

Path

Go to **Setup → Camera Setup → Video→ Path**.

Figure 5-8 Storage Path

Set the storage path for snapshots (☐ in the live interface) and for recorded video (☐ in the live interface). Click **Browse** to select a storage path for snapshots and recorded videos.

Click **Save** to save any changes to the storage paths.

Configuring Audio Settings

Note	This function is supported by H4W2PER2V/HBW2PER2V/HEW2PER3V/H4W4PER3V/H4W4PER2V/HEW4PER2V/HEW4PER3V/HBW4PER2V/H4W8PER1V/H4W8PER2V/HEW8PER2V/HBW8PER2V/HBW8PER1V.

Go to **Setup → Camera Setup → Audio.**

Figure 5-9 Audio

To enable audio for the stream, select the **Enable** check box, select the format (**G.711A**, **G.711Mu**, **G.726**, **AAC**), and then select a sampling frequency (**8–64 kHz**).

In the **Conditions** area, select the audio input type (**LineIn** or **Mic**), enable or disable noise filtering, and adjust the microphone and/or speaker volumes by moving the sliders. Click the + and - signs to make fine adjustments. Click **Save** to apply the settings.

6 Configuring Network Settings

This chapter contains the following sections:

Configuring TCP/IP Settings

Go to **Setup** →**Network Setup** → **TCP/IP**.

Figure 6-1 TCP/IP

Table 6-1 TCP/IP Configurations

Parameter	Function
Hostname	Configure to set the current host camera's name. Maximum 32 characters.
Ethernet Card	Select an Ethernet port. The default is **Wire (Default).** **Note** If you modify these settings, you should reboot your camera to activate the new setup.
Mode	Select **Static** or **DHCP** mode. The **IP Address**, **Subnet mask**, and **Default Gateway** fields are unavailable when you select **DHCP** mode to automatically search for the IP address. If **Static** mode is selected, you must manually assign the **IP Address**, **Subnet mask**, and **Default Gateway**. If **DHCP** mode is selected, the **IP Address**, **Subnet mask**, and **Default Gateway** are assigned automatically. **Note** **IP Address**, **Subnet mask**, **Default Gateway**, and **DHCP** are read-only when **PPPoE** is enabled.
MAC Address	Displays the MAC address.
IP Version	Select the IP version you are using: IPv4 or IPv6.
IP Address	If **Static** mode is selected, type values for the **IP Address**, **Subnet mask**, and **Default Gateway**.
Preferred DNS Server	Enter the preferred DNS server IP address.
Alternate DNS Server	Enter an alternate DNS server IP address.
Enable ARP/Ping to set IP address service	If you know the camera's MAC address, then use the ARP/Ping command to modify or set the camera's IP address. Before operating the camera, please ensure that the network camera and the PC are in the same LAN. Perform the following steps to set the IP address: 1. Get an IP address. Set up the network camera and the PC in the same LAN. 2. Get the physical address from the label on the network camera. 3. Open the **Run** interface (**Start menu > Run**), and then type the following commands: arp -s <IP Address> <MAC> ping -l 480 -t <IP Address> For example: **arp -s 192.168.0.125 11-40-8c-18-10-11 ping -l 480 -t 192.168.0.125** 4. Reboot the camera. If the setup was successful, output information such as **Reply from 192.168.0.125...** will appear in the command output lines.

Parameter	Function
	5. Close the command line. Open your browser, type **http://<IP address>** in the address bar, and then press **Enter**.

Configuring Port Settings

Go to **Setup → Network Setup → Port**.

Figure 6-2 Port

Port

Table 6-2 Port Configurations

Parameter	Function
Max Connection	Displays the maximum number of network connections for the same camera. The value ranges from **1** to **20**. The maximum number of connections is **20**.
TCP Port	The default setting is **37777**. You can modify this setting as necessary.
UDP Port	The default setting is **37778**. You can modify this setting as necessary.
HTTP Port	The default setting is **80**. You can modify this setting as necessary.
RTSP Port	The default setting is **554**. The RTSP stream query format is: **Main stream**: rtsp://username:password@ip:port/cam/realmonitor?channel=1&subtype=0 **Sub stream**: rtsp://username:password@ip:port/cam/realmonitor?channel=1&subtype=1 You are required to manually enter the following four items: **Username, Password, IP**, and **Port**. **IP**: The camera's IP address. **Port**: The default is **554**. You can leave this field blank if you are using the default value. Follow the standard RTSP protocols. When the encode mode is **MJPEG**, the maximum supported resolution is 2040×2040.

Parameter	Function
HTTPS Port	The default setting is **443**.

ONVIF

Figure 6-3 ONVIF

ONVIF (Open Network Video Interface Forum) is a global open standard for the interface of IP-based security products. It covers network video mode, interface, data type, and data interaction mode. The ONVIF specification aims at interoperability of network video products regardless of manufacturer.

The ONVIF setting is enabled by default.

- To enable ONVIF, click **ON**.

- To disable ONVIF, click **OFF**.

Note	HTTPS is enabled by default. If your headend only supports ONVIF HTTP, you can disable HTTPS by clearing the **HTTPS Setting** check box and then clicking **Save**. A warning message will appear indicating that your connection is no longer secure.

RTSP

Figure 6-4 RTSP
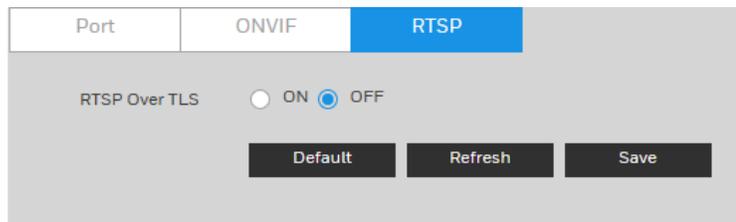
RTSP Over TLS: RTSP Over TLS is used to encrypt video stream transmit between browser and device or device and headend. Click **ON** to enable **RTSP Over TLS**. The default setting is **OFF**.

Configuring PPPoE Settings

Go to **Setup → Network Setup → PPPoE**.

Figure 6-5 PPPoE

1. To enable PPPoE, select the **Enable** checkbox.

2. Enter the PPPoE user name and password that you received from your Internet service provider (ISP).

3. Click **Save** to save the current setup, and then reboot the camera to activate this new setup. The camera connects to the Internet via PPPoE after rebooting.

Note	When **PPPoE** is enabled, disable **UPnP** so that it does not interfere with **PPPoE**.

Configuring SMTP (Email) Settings

Go to **Setup → Network Setup → SMTP (Email)** page.

Figure 6-6 SMTP

Table 6-3 SMTP (Email) Configurations

Parameter	Function
SMTP Server	Enter the server address.
Port	The default setting is **25**. You can modify this setting as necessary.

Parameter	Function
Anonymous	Supports the anonymity function for the server. You can automatically log in anonymously. You do not need to enter the user name, password, and the sender information.
User Name	Enter the username for the sender's email
Password	Enter the password for the sender's email
Sender	Enter the sender's email address.
Authentication	This is the encryption mode. Select **SSL**, **TLS**, or **None**.
Title	Enter the email subject.
Attachment	Select the check box to have the system send out a snapshot with the email.
Mail Receiver	Enter the receiver's email address here. You can enter up to three addresses.
Health Mail	To have the system periodically verify that the email notification settings are working, select the **Health Mail** check box, and specify the **Interval**.
Update Period	The interval for sending ranges from 30 to 1440 seconds. The system will not immediately send the email when the alarm occurs. When an alarm, motion detection, or other event occurs to activate an email, the system sends the email according to the interval that you have specified here. This reduces the load on the email server when multiple emails are triggered simultaneously.
Test	The system will automatically send an email to test the connection. Before you can do an email test, you must save the email setup information.

Configuring UPnP Settings

Go to **Setup** → **Network Setup** → **UPnP**.

UPnP lets you establish the mapping relationship between the LAN and the public network. In the UPnP configuration interface, you can add, modify, or remove a UPnP item.

Figure 6-7 UPnP
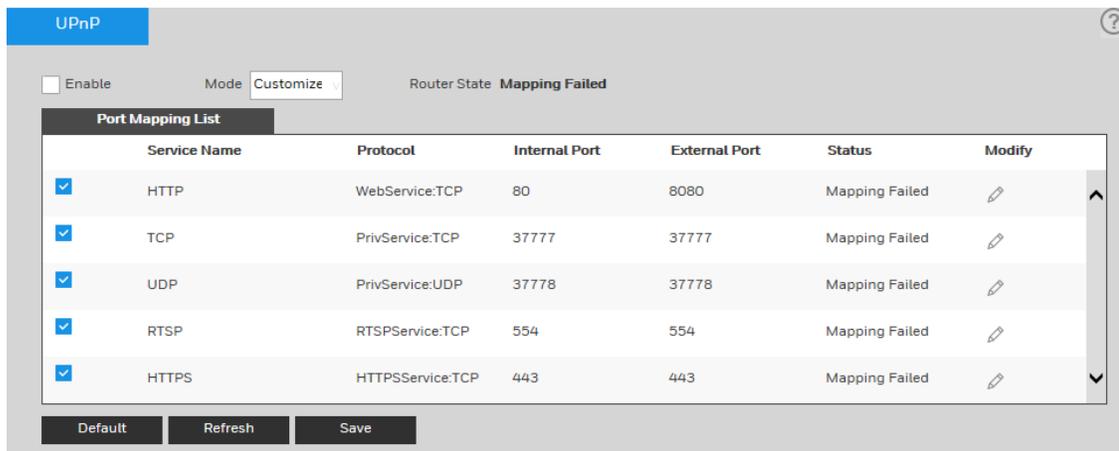
Enabling UPnP in Windows

The UPnP protocol is used to detect network devices with clients running Windows.

To enable UPnP, select the **Enable** check box. The camera can now be detected by Windows' built-in network browser (My Network Places in Windows XP; Network in Windows 7).

To enable UPnP in Windows XP:

1. Go to **Start →Control Panel → Add or remove programs**.

2. Click **Add or remove programs**, then select **Networking Services** in the Windows Components Wizard.

3. Click **Details**, then select **Internet Gateway Device Discovery** and **Control Client and UPnP User Interface**.

4. Click **OK** to begin the installation.

To enable UPnP in Windows 7:

1. Go to **Start→ Control Panel→ Network and Internet → Network and Sharing Center**.

2. On the left pane, click **Change advanced sharing settings**.

3. On your current network profile, in the **Network discovery** area, click **Turn on network discovery**, and then click **Save changes**.

Configuring SNMP Settings

Note	This function is not supported by H4W2PER3V/H4W2PER2V/HBW2PER1V/HBW2PER2V/HEW2PER3V/HEW2PER2V.

Go to **Setup → Network Setup → SNMP**.

SNMP (Simple Network Management Protocol) is a protocol for collecting, organizing, and exchanging management information between managed devices on a network.

Figure 6-8 SNMP

Table 6-4 SNMP Configurations

Parameter	Function
SNMP Version	When **SNMP v1** is selected, the device can only process SNMP v1 information.
	When **SNMP v2** is selected, the device can only process SNMP v2 information.
	When **SNMP v3** is selected, you can set user name, password and authentication type.
	The server needs to set the corresponding management system account when you want to access the device. For best security, use SNMPv3. You can select SNMPv1 only, SNMPv2 only, both SNMPv1 and SNMPv2, or SNMPv3 only.
SNMP Port	This is the listening port of the proxy applications in the device. The default value is **161**. The value ranges from **1** to **65535**.
Read Community	The community string will read all the objects the SNMP supported in the specified name. The default setup is public.
Write Community	The community string will read/write/access all the objects the SNMP supported in the specified name. The default setup is write.
Trap Address	The destination address of the trap information from the proxy program of the device.
Trap Port	By default, the Trap Port is **162**. To change the port, enter a number in the range **1** to **65535**.

Configuring Bonjour Settings

Go to **Setup → Network Setup → Bonjour**.

Bonjour is based on the multicast DNS service from Apple. It can automatically broadcast its service information and listen to the camera information from the other camera.

Figure 6-9 Bonjour

Bonjour is a zero configuration networking application that allows you to create a network in which devices can discover each other without requiring any user configuration.

When this function is enabled, you can discover the camera on a Mac OS computer by opening Safari and going to **Display All Bookmarks → Bonjour**.

Bonjour is enabled by default. To disable it, clear the **Enable** check box, and then click **Save**.

Configuring Multicast Settings

Go to **Setup → Network Setup → Multicast**.

Multicast is a transmission mode for data packets. When there are multiple hosts to receive the same data packet, multiple cast (multicast) is the best option for reducing the bandwidth and the CPU load. The source host can send out just one data packet. This function depends on the relationship between group members and the router's group.

In the **Multicast** configuration interface, you can set the multicast address and port.

Note	You must go to the **Live** interface to set the protocol to **Multicast**. See Protocols in *Video Encoder Settings* on page *12*.

Figure 6-10 Multicast

Table 6-5 Multicast Configurations

Parameter	Function
Enable	Select the check box to enable the multicast function. **Note** Main stream and sub stream cannot be used at the same time.
Multicast Address	The main/sub stream multicast address is **224.1.2.4** and its range is **224.0.0.0 – 239.255.255.255**.
Port	Multicast port. The default multicast port of main stream is **40000**, and the default multicast port of sub stream is **40016**. The range is **1025 – 65500**.

Configuring IEEE802.1X Settings

Go to **Setup → Network Setup →802.1X**.

IEEE802.1X is the access control and authentication protocol for local and metropolitan area networks. It uses a port-based network access control protocol to restrict unauthorized user and/or device access to the LAN.

IEEE802.1X supports the client's ability to manually choose how authentication works for accessing the LAN or not. IEEE802.1X supports the ability to:

- authenticate
- calculate the fee
- ensure security
- maintain requirements

Figure 6-11 802.1X

Table 6-6 802.1X Configurations

Parameter	Function
Enable	Select the check box to enable this function.
Authentication	PEAP (protected EAP protocol)
Username	Enter a username to log in. This username is authenticated by the server.
Password	Enter a password.

Configuring Firewall Settings

Configure **Network Access**, **PING prohibited** and **Prevent Semijoin** to enhance network and data security. This section takes **Network Access** as an example.

- Network Access: Set trusted list and restricted list to limit access.
- Allowlist: Only when the IP/MAC of your PC in the allowlist, can you access the camera. Ports are the same.
- Blocklist: When the IP/MAC of your PC is in the blocklist, you cannot access the camera. Ports are the same.
- PING prohibited: Enable PING prohibited function, and the camera will not respond to the ping request.
- Prevent Semijoin: Enable Prevent Semijoin function, and the camera can provide service normally under Semijoin attack.

Note	You cannot set allowlist or blocklist for camera IP or MAC addresses.
	You cannot set allowlist or blocklist for port MAC addresses.
	When the IP addresses of the camera and your PC are in the same LAN, MAC verification takes effect.
	When you access the camera through internet, the camera verifies the MAC address according to the router MAC.

1. Go to **Setup** → **Network Setup** →**Firewall** →**Firewall**.

Figure 6-12 Firewall

2. Select **Network Access** from **Rule Type** list, and then select the **Enable** check box.
3. Check **Mode** by **Allowlist** and **Blocklist**.
4. Click **Add IP/MAC**.

Figure 6-13 Add IP/MAC

Table 6-7 Add IP/MAC Configurations

Parameter	Function
Rule Type	Select IP address, IP segment, MAC address or all IP addresses. • IP address: Select IP version and enter the IP address of the host to be added. • IP segment: Select IP version and enter the start address and end address of the segment to be added. • MAC address: Enter MAC address of the host to be added. • All IP addresses: Set all IP addresses in allowlist or restricted list.
Device All Ports Device Start Server Port Device End Server Port	Set access ports. You can select all ports or the ports in defined areas. • Device all ports: Set all IP port in allowlist or Blocklist. When selecting BlocklList in Mode, and All IP Address in Rule Type, you cannot select the Device All Ports check box. • Device start server port and Device end server port: Set Device start server port and device end server port, and the range is 1–65535.

Note	Enable **PING prohibited/Prevent Semijoin** and click **Save**. You do not need to configure parameters.

5. Click **OK**, and the Firewall interface is displayed.

6. Click **Save**.

Configuring QoS Settings

Go to **Setup → Network Setup →Qos**.

Quality of Service (QoS) is a network security mechanism. It fixes problems with network delays and jams. For network service, the quality of service includes the transmission bandwidth, delay, and packet loss, for example. Through QoS, you can guarantee the transmission bandwidth, reduce the delay, reduce the loss of data packets, and enhance the transmission quality with packet prioritization.

Figure 6-14 QoS

Table 6-8 QoS Configurations

Parameter	Function
Realtime Monitor	This value ranges from **0** to **63**. The router or the switcher can provide different service for different packets.
Command	This value ranges from **0** to **63**. The router or the switcher can provide different service for different packets.

Configuring Certificate Settings

Go to **Setup → Network Setup →Certificate**.

The camera uses HTTPS, a secure communication protocol that verifies the identities of visited websites and servers and encrypts data exchanged between the client and the server. When you log in to the camera's web client for the first time, some browsers may display a warning that the connection is not private/secure. To access the web client, you must install a Honeywell-signed security certificate.

Figure 6-15 Certificate

Certificate

To install a Honeywell-signed root certificate:

1. Click **Export**, navigate to the directory where you want to save the certificate (**ca.crt**) on your PC, and then click **Save**.

2. Go to the directory where you saved the certificate and double-click the certificate. The **Certificate** window opens.

3. In the **Certificate** window, on the **General** tab, click **Install Certificate** to open the Certificate Import Wizard.

4. Click **Next** to continue.

5. Click **Place all certificates in the following store**, click **Browse**, click **Trusted Root Certification Authorities**, and then click **OK**.

6. Click **Next**, and then click **Finish** to close the Certificate Import Wizard. A confirmation dialog box appears with the message "The import was successful."

7. Click **OK**, and then click **OK** to close the Certificate window.

To import certificate from 3rd party:

1. Select a certificate type from the **Type** drop-down list.

2. In the **File** field, click **Browse** to select a certificate file you have already applied from 3rd party or CA domain.

3. In the **Key** field, click **Browse** to select a certificate key you have already applied from 3rd party or CA domain.

4. Click **Import** button and reboot camera.

| Note | Supported certificate type: HTTPS protocol. |
| | Supported certificate file and Key: PEM format. |

Certificate Request

You can fill in certificate information and the certificate request file can be exported to the certificate issuing authority for signing and then being imported to camera.

1. Go to **Setup → Network Setup →Certificate Request**.

2. Enter the required information and then click **Export.**

Figure 6-16 Certificate Request

Note	Special characters are not supported in the fields of certificate request.

7 Configuring Video Analytics Settings

This chapter contains the following sections:

Configuring Video Detection Settings

Configuring Motion Detection Settings

1. Go to Select **Setup → Video Analytics → Video Detection → Motion Detection**.

Figure 7-1 Motion Detection

Table 7-1 Motion Detection Configurations

Parameter	Function
Enable	Check to enable **Motion Detection**.
Period	The camera **Motion Detection** function is activated during the specified period. See *Configuring the Alarm Period* on page *51*. You can configure up to six periods per day. Select a date. If you do not select a date, the current setup will be applied to today only. You can select **All** to apply the alarm period to the whole week. Click **Save** to exit.
Anti-Dither	Enter the anti-dither time in seconds. Enter a value between **0** and **100** seconds. The system will only allow one motion detection event within this period.
Area	Configure the motion detection region, its sensitivity, and area. The default settings covers the entire area. Click **Save** to enable these settings. See *Configuring the Motion Detection Area* on page *53*.
Record	If **Record** is enabled, a scene change event can activate recording.
Record Delay	The system will wait for the specified time before it begins recording. Select from **10s** to **300s**.
Relay-out	Select the **Relay-out** check box, and when alarm is triggered, the system

	interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.
Send Email	When enabled, the system sends an email alert when an alarm occurs.
Snapshot	When enabled, the system attaches a snapshot to an email alert when an alarm occurs.
SMD Enable	Select the check box to enable the smart motion detection function. The system performs alarm linkage when human, non-motorized vehicle, or motor vehicle appear on the image and its moving speed reaches the preset sensitivity. Enabling smart motion detection can avoid the alarms triggered by the environment changes, and the function is enabled by default.
Effective object	Includes Human and Motor vehicle. When you select Human, the camera will detect human and non-motorized vehicle.
Sensitivity	Includes Low, Middle, and High. The higher the sensitivity is, the easier the alarm will be triggered.

Configuring the Alarm Period

Define a period during which motion detection is active.

Figure 7-2 Configuring the Alarm Period
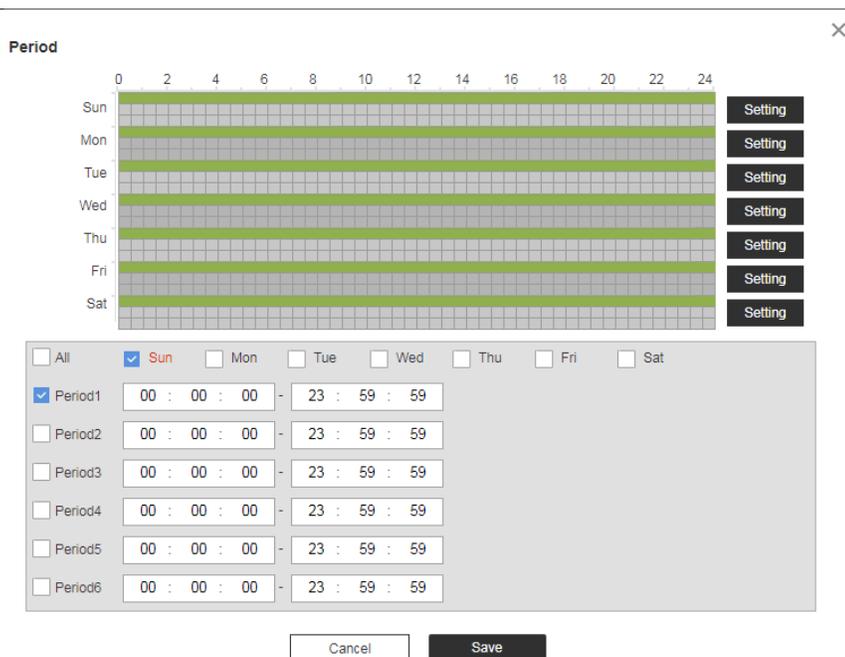
Perform either of the following methods to configure the alarm period:

Method 1:

1. Select a day of the week check box. Select from a day of the week or All.

Note	• If you select All, the schedule will apply to all days of the week. • You can configure up to 6 periods within a day.

2. Configure a time range for when the motion detection is active, and then click the Period check box to select that time range for the selected day of the week.

3. Repeat steps 1 and 2 to set up multiple time periods in a day or to setup other days of the week, as required.

4. Click **OK**.

Method 2:

Use the green bar to configure the time periods needed for motion detection. Click the green bar to disable the time and day, drag on the target time and day to enable them.

Configuring the Motion Detection Area

Figure 7-3 Configuring the Motion Detection Area
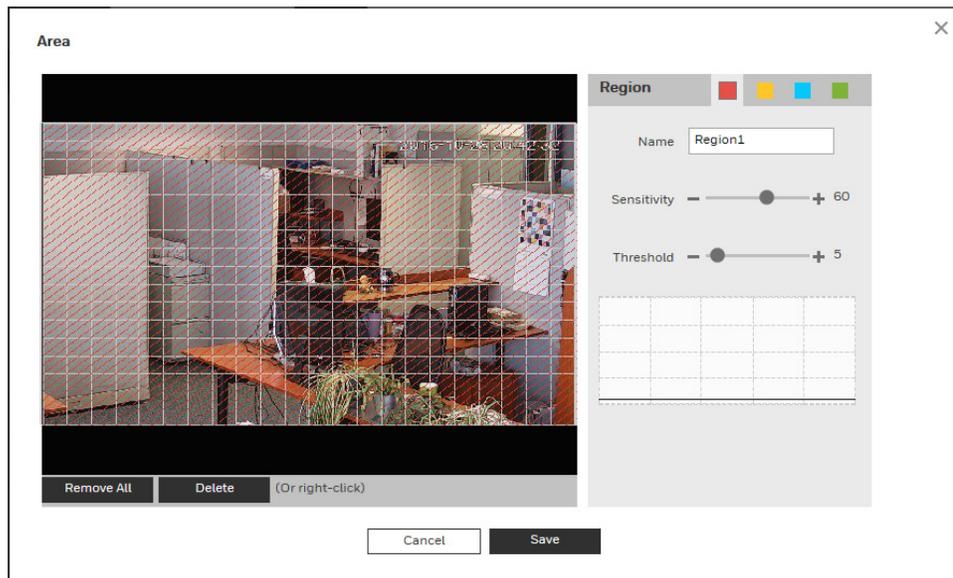
Perform the following steps to configure the motion detection area:

1. Select the motion detection region from the 4 regions (red, yellow, blue and green). You can configure 4 different regions of motion detection. If necessary, enter a name for the region in the name field.

2. Select the detection area by clicking and dragging the mouse over the video image.

   The color of the area tile indicates which region is set for motion on that area. If there is no color, then motion detection is not set for that area.

3. Select a sensitivity value, from 1 to 100 for each region. The higher the number, the higher the motion detection sensitivity. It is recommended that you choose a sensitivity between 30 to 70. The default is 60.

4. Select a threshold value, from 1 to 100 for each region. The higher the number, the more motion will be needed to trigger a motion event. It is recommended that you choose a sensitivity between 5 to 50. The default is 5.

5. Click **Remove All** to delete all motion detection regions. Click **Delete** to delete the selected motion detection region.

6. Click **OK** to save the configurations. Click **Cancel** to exit the setup without saving the changes.

Configuring Video Tamper Settings

1. Go to **Setup → Video Analytics →Video Detection → Video Tamper**.

2. Configure the parameters.

Figure 7-4 Video Tamper

Table 7-2 Tamper Configurations

Parameter	Function
Video Tamper	When the percentage of the tampered image and the duration exceed the configured values, an alarm will be triggered.
Defocus Detection	When the image is blurred, an alarm will be triggered. This function is available on some select models.
Enable Tamper Detection	Check to enable video tamper detection.
Enable Defocus Detection	Check to enable defocus detection. **Defocus Detection** is only supported by the following models:

	HEW4PER2V/HEW2PER2V/H4W2PER2V/HBW2PER2V.
Period	The video tampering function is activated during the specified period. See *Configuring the Alarm Period* on page *51*. You can configure up to six periods per day. Select a date. If you do not select a date, the current setup will be applied to today only. You can select **All** to apply the alarm period to the whole week. Click **Save** to exit.
Record	If **Record** is enabled, a camera tampering event can activate recording.
Record Delay	The system will wait for the specified time before it begins recording. Select from **10s** to **300s**.
Relay-out	Select the **Relay-out** check box, and when alarm is triggered, the system interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.
Send Email	When enabled, the system sends an email alert when an alarm occurs.
Snapshot	When enabled, the system attaches a snapshot to an email alert when an alarm occurs.

3. Click **Save**.

Configuring Scene Changing Settings

1. Go to **Setup → Video Analytics → Video Detection → Scene Changing**.

2. Configure the parameters.

Figure 7-5 Scene Changing

Table 7–3 Scene Change Configurations

Parameter	Function
Enable	Check to enable scene change.
Period	The camera scene change function is activated during the specified period. See *Configuring the Alarm Period* on page *51*. You can configure up to six periods per day. Select a date. If you do not select a date, the current setup will be applied to today only. You can select **All** to apply the alarm period to the whole week. Click **Save** to exit.
Record	If **Record** is enabled, a scene change event can activate recording.
Record Delay	The system will wait for the specified time before it begins recording. Select from **10s** to **300s**.
Relay-out	Select the Relay-out check box, and when alarm is triggered, the system interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.
Send Email	When enabled, the system sends an email alert when an alarm occurs.
Snapshot	When enabled, the system attaches a snapshot to an email alert when an alarm occurs.

Configuring Audio Detection Settings

Note	This function is supported by H4W2PER2V/HBW2PER2V/HEW2PER3V/H4W4PER3V/H4W4PER2V/HEW4PER2V/HEW4PER3V/HBW4PER2V/H4W8PER1V/H4W8PER2V/HEW8PER2V/HBW8PER2V/HBW8PER1V.

1. Go to **Setup → Video Analytics → Audio Detection**.

2. Configure the parameters.

Figure 7-6 Audio Detection
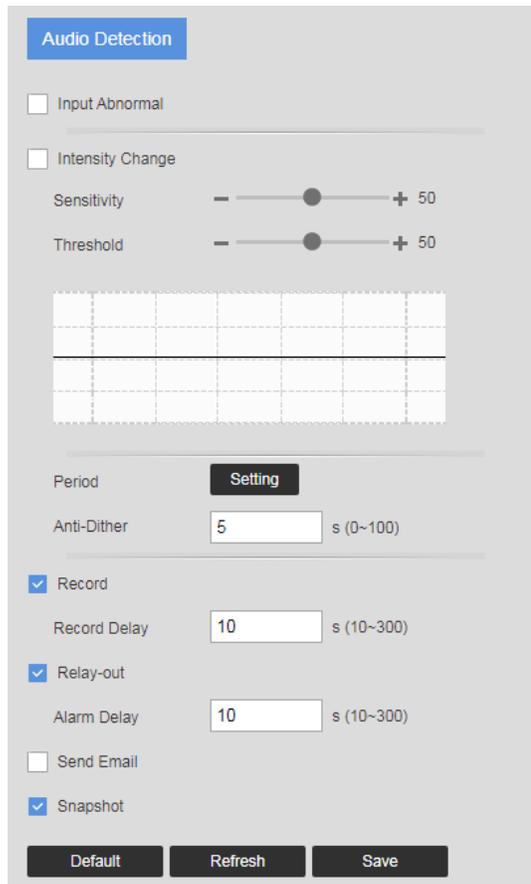
Table 7-4 Scene Change Configurations

Parameter	Function
Enable Input Abnormality	Select Enable Input Abnormal and it will trigger alarms when it detects audio input abnormity.
Enable Intensity Change	Select Enable Intensity Change and it will trigger alarms when it detects that audio intensity change exceeds the threshold.
Sensitivity	Drag the slider to adjust the sensitivity value. The default value is **50**. When the input volume change exceeds continuous environment volume, it can be judged as audio abnormity. You need to adjust it according to the actual environment test.
Threshold	Drag the slider to adjust the threshold value. The default value is **50**. If the environmental noise is too big, then the value needs to be set higher. You need to adjust it according to the actual environment test.
Alarm Period	The audio detection function is activated during the specified period. See *Configuring the Alarm Period* on page *51*. You can configure up to six periods per day. Select a date. If you do not select a date, the current setup will be applied to today only. You can select All to apply the alarm period to the whole week.

	Click **OK** to save the changes. The system goes back to the scene change interface. Click **Save** to exit.
Anti-Dither	Enter the anti-dither time in seconds. Enter a value between **0** and **100** seconds. The system will only allow one motion detection event within this period.
Record	If **Record** is enabled, an audio detection event can activate recording.
Record Delay	The system will wait for the specified time before it begins recording. Select from **10s** to **300s**.
Send Email	When enabled, the system sends an email alert when an alarm occurs.
Snapshot	When enabled, the system attaches a snapshot to an email alert when an alarm occurs.

Configuring Smart Plan

Smart plan is a master switch for the intelligent analytics such as Face Detection and People Counting. The device intelligent functions can be valid after smart plan is enabled.

Go to **Setup → Video Analytics → Smart Plan**. Select the plan by clicking its icon and click **Save**.

Figure 7-7 Smart Plan
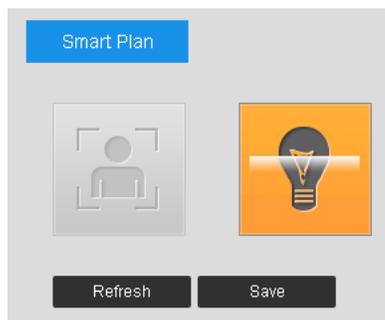
Configuring IVS

Set rules for IVS as **Tripwire** or **Intrusion** which is applicable for scenes with sparse targets and no occlusion among targets, such as the perimeter protection of unattended area.

1. Go to **Setup → Video Analytics → IVS → Rule Config**.

2. Click ✚ to add rules for IVS. Double-click the name to modify the rule name.

Figure 7-8 Configuring IVS
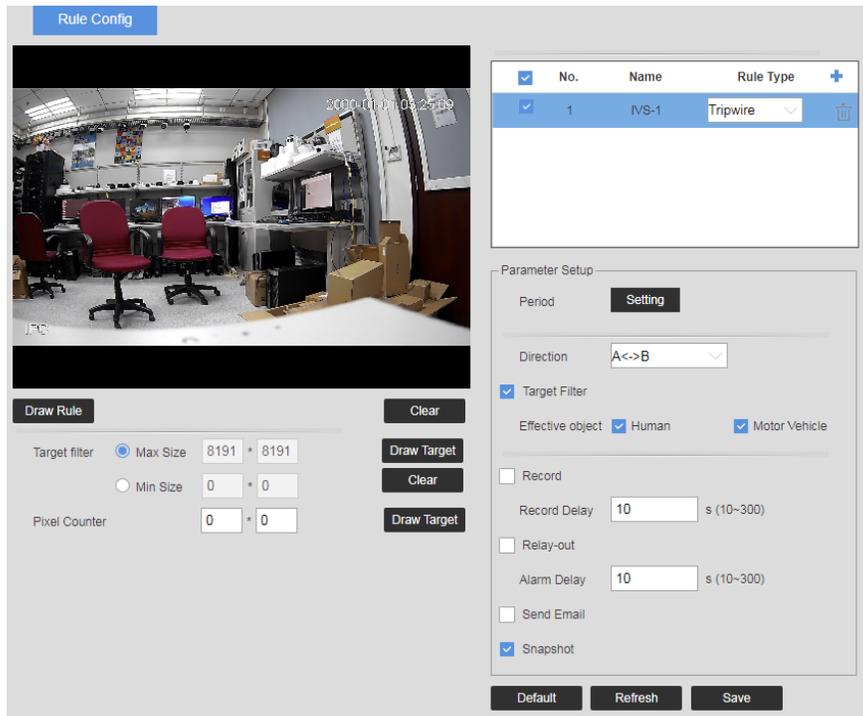
- **Tripwire**: When the target crosses tripwire from the defined motion direction, the system performs alarm linkages.

- **Intrusion**: When the target enters, leaves, or appears in the detection area, the system performs alarm linkages.

3. Click **Draw Rule** to draw rule line in the image. Right-click to finish drawing.

   After drawing rules, drag corners of the detection area to adjust the area range.

- Tripwire draw rule: Draw a detection line.

- Intrusion: Draw a detection area.

  During the detection of abandoned object, the alarm is also triggered if pedestrian or vehicle stays for a long time. If the abandoned object is smaller than pedestrian and vehicle, set the target size to filter pedestrian and vehicle or properly extend the duration to avoid false alarm triggered by transient staying of pedestrian.

  During the detection of crowd gathering, false alarm might be triggered by low installation height, large percentage of single person in an image or obvious target occlusion, continuous shaking of the camera, shaking of leaves and tree shade, frequent opening or closing of retractable door, or dense traffic or people flow.

4. (Optional) Click **Draw Target** at the right side of Target Filter, and then draw the target in the image.

   When the rule of crowd gathering is configured, you do not need to set target filter, but draw the minimum gathering area. Click Draw Target to draw the minimum gathering area in the scene. The alarm is triggered when the number of people in the detection area exceeds the minimum area and the duration.

5. Click **Clear** to delete all drawn detection lines.

6. Click **Draw Target** at the right side of **Pixel Counter**, and then press and hold the left mouse button to draw a rectangle, the **Pixel Counter** then displays its pixel.

7. Set rule parameters for IVS.

Table 7-5 Scene Change Configurations

Parameter	Function
Period	The IVS function is activated during the specified period. See *Configuring the Alarm Period* on page *51*. You can configure up to six periods per day. Select a date. If you do not select a date, the current setup will be applied to today only. You can select **All** to apply the alarm period to the whole week.Click **Save** to exit.
Direction	Set the direction of rule detection. • When setting tripwire, select **A->B**, **B->A**, or **A<->B**. • When setting intrusion, select **Enters**, **Exits**, or **Enter&Exit**.
Target Filter	Select the check box to enable the smart Tripwire/ Intrusion function.
Effective object	Includes Human and Motor vehicle. When you select Human, the camera will detect human and non-motorized vehicle.
Record	If **Record** is enabled, a scene change event can activate recording.
Record Delay	The system will wait for the specified time before it begins recording. Select from **10s** to **300s**.
Relay-out	Select the Relay-out check box, and when alarm is triggered, the system interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.
Send Email	When enabled, the system sends an email alert when an alarm occurs.
Snapshot	When enabled, the system attaches a snapshot to an email alert when an alarm occurs.

8. Click **Save**.

Configuring Face Detection

Note	This function is only supported by H4W4PER3V/H4W4PER2V/HBW4PER1V/HBW4PER2V/HEW4PER3V/HEW4PER2V/H2W4PER3V/H4W8PER2V/HBW8PER2V/HEW8PER2V/H4W8PER1V/HBW8PER1V.

Go to **Setup → Video Analytics →Face Detection**.

Figure 7-9 Face Detection
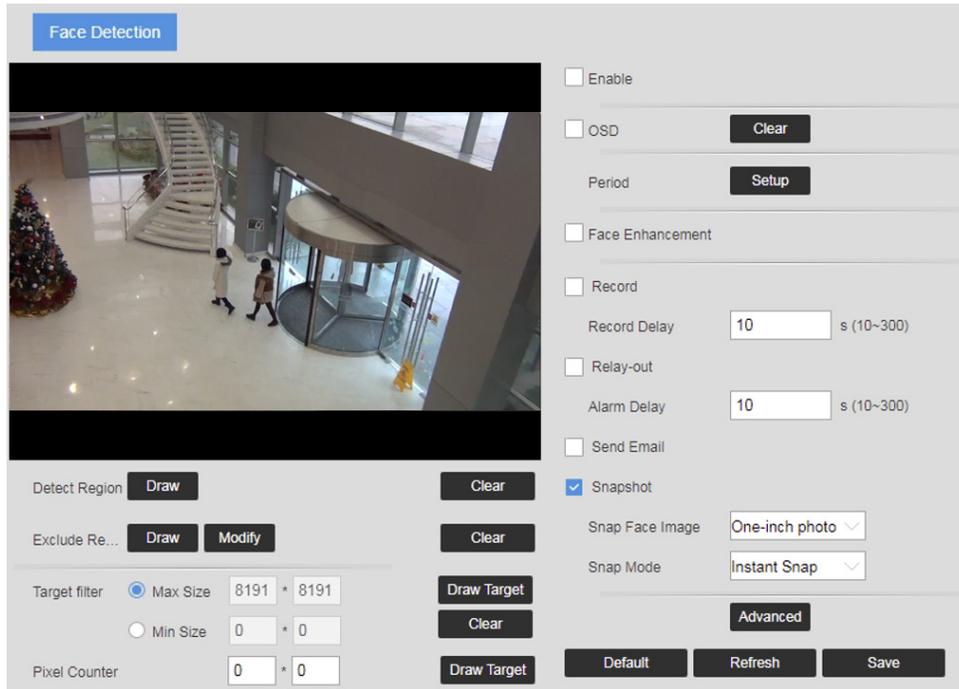
To enable face detection:

1. Select the **Enable** check box.

2. (Optional) Click **Draw** next to **Detect Region** to draw a face detection area in the image.

3. (Optional) Click **Draw** next to **Exclude Region** to draw a non-face detection area in the Detect Region.

4. (Optional) Select **Max Size** or **Min Size**, click **Draw Target** at the right side of **Target filter**, and then draw the target in the image.

5. Set parameters.

Table 7-6 Face Detection Configurations

Parameter	Function
OSD	Select the **OSD** check box, and the number of people with face detected and recognized is displayed on the Live interface.
Period	Click Setup. On the Period window, set the days and times when you want the alarm function to be active, and then click **Save**.
Face Enhancement	Select the Face Enhancement check box to preferably guarantee clear face with low stream.
Snapshot	select the Snapshot check box to take a snapshot when an event is detected.
Snap Face Image	Set a range for snapping face image, including Face and One-inch photo.
Snap Mode	Instant Snap: Capture the picture when camera detects face. Optimized Snap: Capture the clearest picture within the configured

	time after the camera detects face.
	Quality Priority: Repeatedly compare the captured face to the faces in the armed face database and capture the most similar face image and send the alarm. It is recommended to use this mode in access control scene.
	Click **Advanced** to set the optimized time.
Advanced	• Snapshot Angle Filter: Set snapshot angle to be filtered during the face detection.
	• Snapshot Sensitivity: Set snapshot sensitivity during the face detection. It is easier to detect face with higher sensitivity.
	• Quality Threshold: Set snapshot quality level during the face detection.
	• Optimized Time: Set a time period to capture the clearest picture after the camera detects face.
Record	If **Record** is enabled, a scene change event can activate recording.
Record Delay	The system will wait for the specified time before it begins recording. Select from **10s** to **300s**.
Relay-out	Select the Relay-out check box, and when alarm is triggered, the system interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.
Send Email	When enabled, the system sends an email alert when an alarm occurs.
	Email settings must be configured in **Setup → Network Setup → SMTP (Email).** See *Configuring SMTP (Email) Settings* on page *39*, and for the snapshot to be attached to the email notification, the **Attachment** check box must be selected.

6. Click **Save** to apply the settings.

Configuring Abnormality Settings

Configuring for SD Card Event Settings

Go to **Setup → Video Analytics → Abnormality → SD Card**.

SD card events include **No SD Card**, **SD Card Error**, and **Capacity Warning**.

Figure 7-10 No SD Card Warning

Figure 7-11 SD Card Error Warning Configuration Interface

Figure 7-12 Capacity Warning

Table 7-7 SD Card Configurations

Parameter	Function
Event Type	Select an event type in the dropdown list.
Enable	Check to enable the selected event type
Relay-out	Select the Relay-out check box, and when alarm is triggered, the system

	interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.
Send Email	When enabled, the system sends an email alert when the event occurs.
Capacity Limit	Enter a value between 0-99. If the capacity of SD card exceeds the set value, it will send a warning.

Note	Emails cannot be sent if the network is offline or if there is an IP conflict.

Configuring Network Event Settings

Go to **Setup → Video Analytics → Abnormality →Network**.

Figure 7-13 Network Event

Table 7-8 Network Configuration

Parameter	Function
Event Type	Select a network event type in the dropdown list.
Enable	Check to enable the selected network event type.
Record	If **Record** is enabled, the selected event type can activate recording.
Record Delay	The system will wait for the specified time before it begins recording. Select from **10s** to **300s**.
Relay-out	Select the Relay-out check box, and when alarm is triggered, the system interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.

Configuring Illegal Access Event Settings

Go to **Setup → Video Analytics → Abnormality → Illegal Access**.

You can specify how many unsuccessful login attempts can be made before the system triggers an illegal access alarm.

Figure 7-14 Illegal Access Configuration

Table 7-9 Illegal Access Configurations

Parameter	Function
Enable	Check to enable the illegal access event.
Login Error	Enter the number of times a user can attempt to log in. Select from 3 to 10.
Relay-out	Select the Relay-out check box, and when alarm is triggered, the system interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.
Send Email	Check to send an email to a specified receiver if someone attempts to illegally access the camera.

Configuring Voltage Detection Settings

When the input voltage is higher than or lower than the rated value of the device, the system performs alarm linkage.

Go to **Setup → Video Analytics → Abnormality → Voltage Detection**.

Figure 7-15 Voltage Detection

Table 7-10 Voltage Detection Configurations

Parameter	Function
Enable	Check to enable the **Voltage Detection** function.
Overlay	Check it, and the alarm icon is displayed by overlapping when the alarm is triggered. ▭ indicates undervoltage and ▯ indicates overvoltage.
Relay-out	Select the Relay-out check box, and when alarm is triggered, the system interacts with the linked alarm devices.
Alarm Delay	The Alarm linkage keeps running for the configured time after alarm is ended.
Send Email	Check to send an email to a specified receiver.

8 Configuring Storage Settings

This chapter contains the following sections:

Configuring Schedule Settings

Configuring Record Schedule

Go to **Setup** →**Storage** →**Schedule** → **Record Schedule**.

You can add or remove schedules for recording. There are three recording modes: **General** (auto), **Motion,** and **Alarm**. You can configure up to nine recording periods per day.

Figure 8-1 Record Schedule
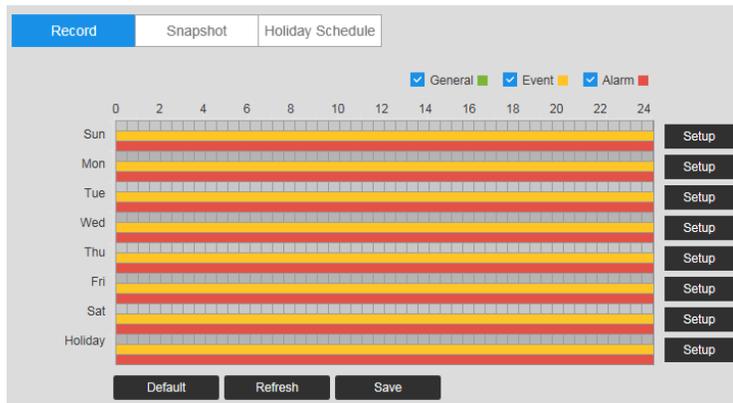
Record Schedule Color Codes:

- **Green**: General recording
- **Yellow**: Motion detection recording
- **Red**: Alarm recording

Configuring Snapshot

Follow the same procedure to configure the settings on the **Record Schedule** tab.

Setting Holidays

Go to **Setup →Storage Setup →Schedule → Holiday Schedule**.

You can designate holidays by clicking dates on the calendar.

On the selected dates, the video recording/snapshot schedule will follow the holiday settings you configured in the **Record Schedule** and **Snapshot Schedule** tabs. Click **Save** to apply the settings.

Figure 8-2 Holiday Schedule
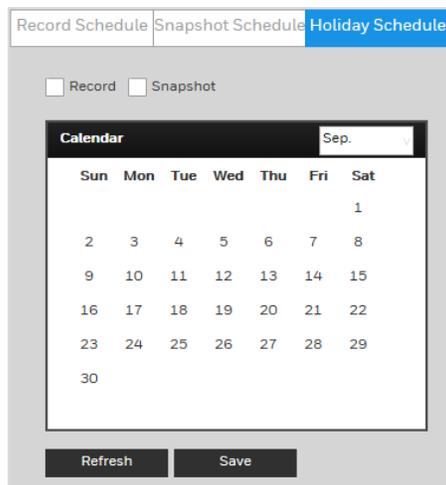
Configuring Destination Settings

Go to **Setup →Storage Setup →Destination**.

Path

On the **Path** tab, you can assign where recorded video files or snapshots will be saved. Depending on your camera model, you can save recorded video or snapshots to a microSD card, an FTP server, and/or an NAS disk.

You can also set up the system to save recorded video files and snapshots according to event type (Scheduled, Motion Detection, Alarm), corresponding to the three recording modes in the **Schedule** interface (General, Motion, Alarm).

Figure 8-3 Path
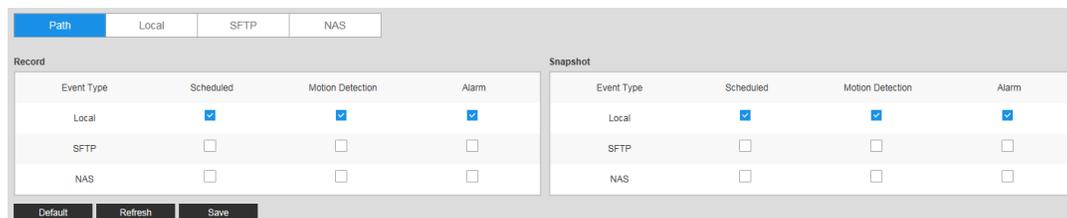
Table 8-1 Path Configurations

Parameter	Function
Event Type	Select **Scheduled**, **Motion Detection**, or **Alarm**.
Local	Select to save files to the microSD card
SFTP	Select to save files to the SFTP server.
NAS	Select to save files to the NAS disk.

Local

If the camera has a microSD card installed, the **Local** tab displays the microSD card details.

Note	This function is not supported by model HBW2PER1V.

Figure 8-4 Local Storage
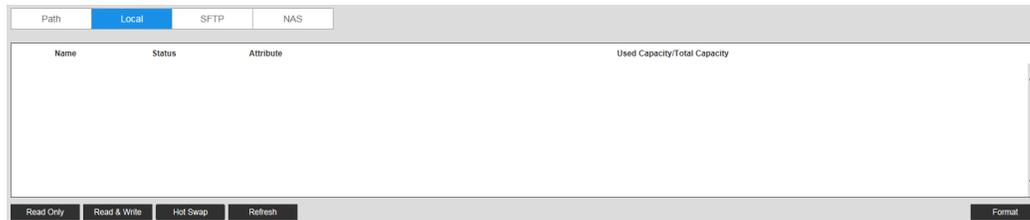
You can set up the installed microSD card for read-only, read-and-write, or hot swap operation by clicking the corresponding button.

- **Read Only**: Data on card can be displayed but not modified.
- **Read & Write**: Data on card can be displayed and modified.
- **Hot Swap**: Card can be inserted or removed without turning off the camera.

If you want to erase all the data on the microSD card, click **Format**. A confirmation message appears. Click **OK** to continue. The card is formatted and the camera reboots.

SFTP

On the **SFTP** tab, you can enable the SFTP storage function. When enabled, event-triggered video and snapshots (either scheduled or motion detection, depending on what you chose in *Figure 8-3*) will be saved to the specified SFTP server.

Figure 8-5 SFTP

Table 8-2 SFTP Configurations

Parameter	Function
Enable	Check to enable the SFTP storage function.
Server Address	Enter the IP address of the SFTP server.
Port	The default setting is **21**. You can modify this setting as necessary.
Username	Enter the server user name.
Password	Enter the server password.
Remote Directory	Create a name for the directory where recorded video and snapshots will be stored.
Emergency (Local)	Select Emergency (Local), and when the SFTP server does not work, all the files are saved to the internal SD card.

NAS

On the **NAS** tab, you can enable network attached storage and configure storage settings.

Figure 8-6 NAS

Table 8-3 NAS Configurations

Parameter	Function
Enable	Select the checkbox to enable this function.
Server Address	Set the IP address of the server.

Remote Directory	Set storage directory where recorded video and snapshots will be stored.

Configuring Record Control

Go to **Setup** →**Storage Setup** →**Record Control**.

Figure 8-7 Record Control

Table 8-4 Record Control Configurations

Parameter	Function
Pack Duration	Set the file size between1 to 120 minutes. The default is **8 minutes.**
Pre-event Record	Enter a pre-record value. For example, if you enter 4, the system can record the four seconds of video in the buffer. Recording begins five seconds before the event trigger.
Disk Full	Select **Stop** or **Overwrite**. **Overwrite**: If the current working HDD is full, then the system will overwrite the previous file. **Stop**: If the current working HDD is full or is overwriting, the system will stop recording.
Record Mode	Select **Auto**, **Manual**, or **Off**.
Record Stream	Select **Main Stream** or **Sub Stream**.
Encrypt	Check to enable the **Encrypt** function. The recording in the SD card will be encrypted.

9 Configuring System Settings

This chapter contains the following sections:

General System Setup

Go to **Setup →System Setup →General**.

The general interface includes the local host setup (including the camera name and GUI language) and the date/time setup.

General

Figure 9-1 General System Configuration

Table 9-1 General System Configurations

Parameter	Function
Device Name	Enter the camera's name.
Language	Select a language from the drop-down list.
Video Standard	Select the video standard: **NTSC** or **PAL**. **Note**: If you modified PAL/NTSC on the HRHT client, the modifications will not be synchronized to the IPC web client.
Max Log Quantity	Select a value between 1 to 1024. The default is **1024**.

Date and Time

Figure 9-2 Date and Time Configuration

Table 9-2 Date and Time Configurations

Parameter	Function
Date Format	Select a date format from the drop-down list.
Time Format	Select a time format, either **24-hour** or **12-hour**.
Time Zone	Select the time zone for the camera.
Current Time	Set it to set the system's time. Click **Save** to activate this time.
Sync PC	Click to sync the camera's time with your PC's time.
DST	Set when Daylight Saving Time begins and ends. Select **Date** or **Week** and then set the **Start Time** and **End Time**.
NTP	Click to enable synchronization with a Network Time Protocol (NTP) server.
Server	Configure the NTP server.
Port	Configure the port for the NTP server.
Interval	Configure the interval of a PC.

Account Setup

Account

Go to **Setup** →**System Setup** →**Account** →**Account**.

The system supports up to 15 characters for the user name or user group name. You can use letters, numbers, and the underscore character (_) for the user or group name.

You can configure up to 18 users and eight groups (default factory settings). The factory default setup includes two user levels: **user** and **admin** (case-sensitive).

When configuring groups, you can configure the rights of those groups. You can also set permissions for individuals within groups.

Note	The user name and the group name should be unique. A user can be included in only one group at a time.

User Name

On the **Username Configuration** tab, you can add/remove users, and manage user accounts and permissions.

Figure 9-3 Username

Add User: Add a user to a group and configure the permissions for the user.

Figure 9-4 Add User

To add a user, in the **Add User** configuration interface, enter a user name and password, then select a group. Ensure that a general user has fewer rights than the admin user.

Note	A user's rights cannot exceed the rights of the group to which the user belongs.

Modifying Users: Click to modify a user's properties, including their group, passwords, and rights.

Figure 9-5 Modifying User

Modifying Password: Enter the old password once, and then enter the new password twice to confirm the new password. Click **Save** to save the new settings.

Note   Passwords can contain up to 32 characters, using numbers and letters only.

Only users with account rights can modify other users' passwords.

Group Name

In the **Group Name** configuration interface, you can add/remove groups and modify group passwords.

Figure 9-6 Group Name Configuration
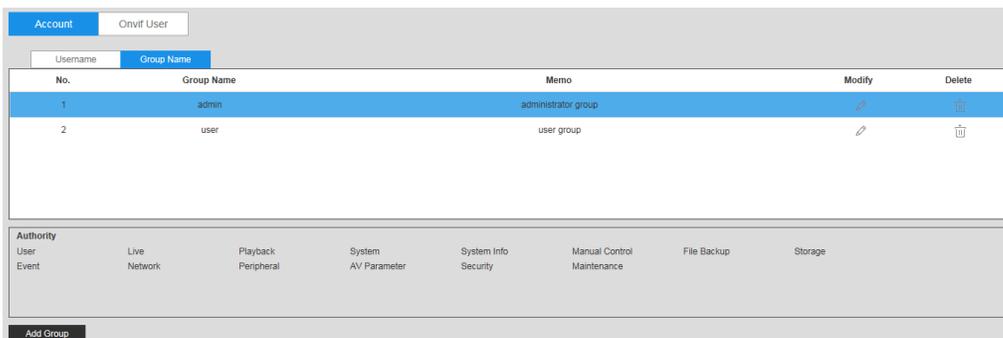
Click **Add Group**, enter the group name, select from the **Authority List** the rights that you want to assign to the group, then click **Save**.

Figure 9-7 Add Group Interface
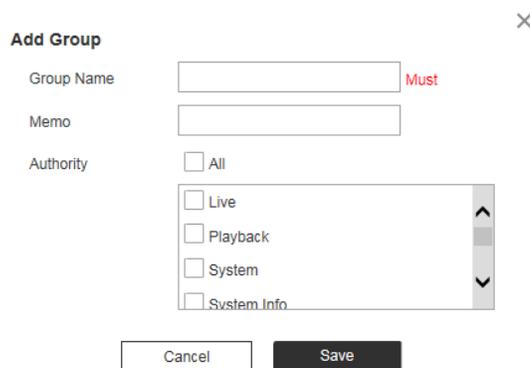
Click to edit the remark and/or the rights assigned to the group. Click **Save** to save the new settings.

Figure 9-8 Modify Group

Onvif User

Go to **Setup →System Setup →Account → Onvif User**.

Figure 9-9 Onvif User

You can add, delete Onvif user, and modify their passwords.

Figure 9-10 Add User

Parameter	Function
Username	User's unique identification. You cannot use existed user name.
Password	Enter password and confirm it again.
Confirm Password	The password must consist of 8 to 32 non-blank characters and contain at least two types of characters among upper case, lower case, number, and special character (excluding ' " ; : &).
Group Name	The group that users belong to. Each group has different authorities.

Click ✎ to modify user.

Figure 9-11 Modify User
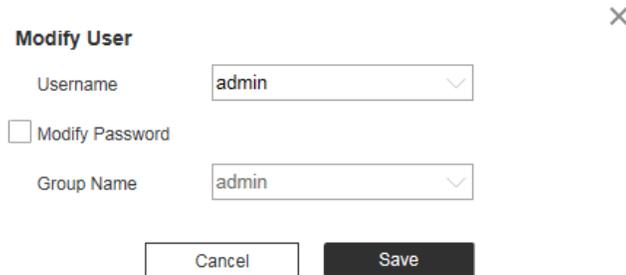
Note You can only change the password of the admin.

The methods of changing password vary with different account.

- Login with admin account, you can change password through **Old Password** and **Admin Account**.

- The password of admin account can be changed through **Old Password** only.

- Login with non-admin account (an added account with the permission of user management), you can change password through **Old Password**.

- **Old Password**: Change the password through entering the old password to be changed, and then the new password.

- **Admin Account**: Change the password through entering the admin password, and then the new password for the non-admin account to be changed.

 Click 🗑 to delete user.

Note Admin account cannot be deleted.

Restoring Default Settings

Go to **Setup →System Setup →Default**.

Figure 9-12 Default
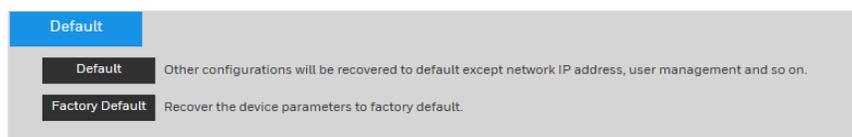
To reset the camera, click:

- **Default** – Recover configurations to default except network IP address and user

management.

- **Factory Default** – Completely recover device parameters to factory default.

A confirmation message appears. Click **OK** to continue. The camera reboots automatically and reverts to its factory default settings.

Import/Export

Go to **Setup** →**System Setup** → **Import/Export**.

Figure 9-13 Import/Export Configuration
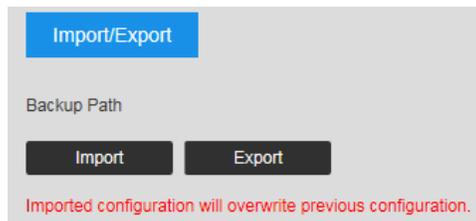
Table 9-3 Import/Export Configurations

Parameter	Function
Import	Click to import local setup files to the system.
Export	Click to export the current system setup to your local PC.

Automatic Maintenance

Go to **Setup** →**System Setup** → **Auto Maintain**.

Figure 9-14 Auto Maintain
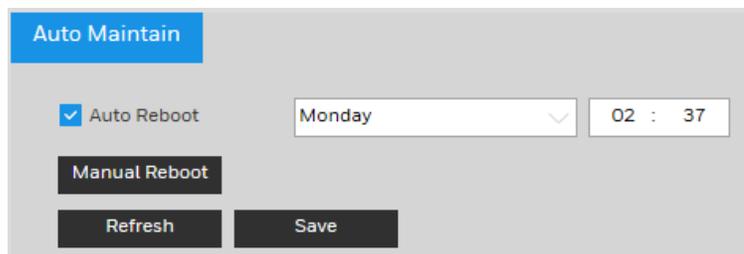
Auto Reboot: Click the checkbox to enable **Auto Reboot**. Select the day (**Everyday** or **Monday** to **Sunday**) and the time (from **00:00** to **24:00**) to reboot the camera automatically.

Manual Reboot: Reboot the camera manually.

Upgrade

To upgrade your system firmware or language package:

Go to **Setup** →**System Setup** → **Upgrade**.

Figure 9-15 Upgrade

Upgrade			
Firmware File		Import	Upgrade

Click **Import**, go to the location of the firmware file or language package on your computer, select it, and click **Upgrade**.

Note	• Selecting the incorrect upgrade file might cause a camera malfunction.
	• A language package includes three files.

10   Viewing System Information

This chapter contains the following sections:

Version

Go to **Setup →Information →Version**.

In the **Version** interface, you can view the system hardware features, the software version, and the release date. This information is for reference only.

Figure 10-1 Version

Version	
Device Type	HEW4PER2
System Version	1.000.HW01.1.R, Build Date: 2018-08-16
Web Version	3.2.1.618435
ONVIF Version	16.12
Serial Number	B209100031

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Log

Go to **Setup →Information →Log**.

Figure 10-2 Log
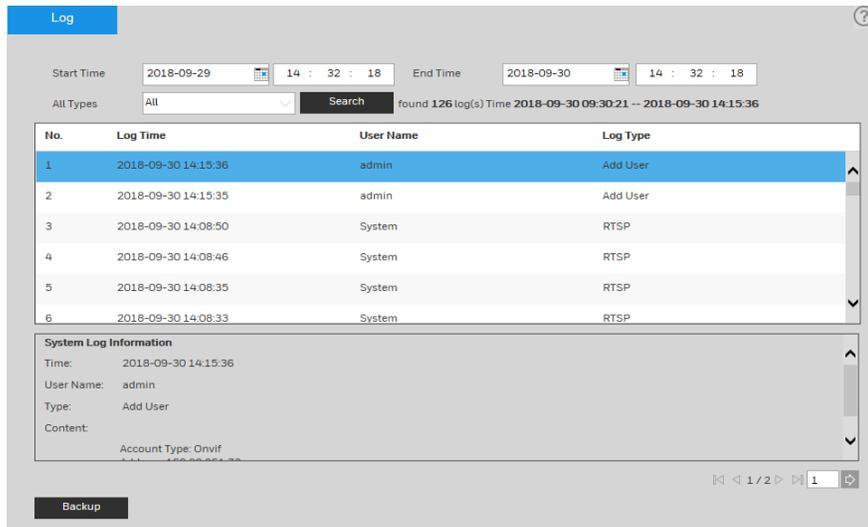
Table 10-1 Log Interface Configurations

Parameter	Function
Start Time	Configure the start time for the requested log.
End Time	Configure the end time for the requested log.
Types	Select a log type: **System**, **Setting**, **Data**, **Event**, **Record**, **Account**, **Clear Log**.
Search	Select a log type from the drop-down list, and then click **Search** to view the list that is generated by the search. Click **Stop** to terminate the current search.
System Log Information	Select one item to view its detailed information.
Backup	Click **Backup** to back up log files to the currently selected PC.

Online User

Go to **Setup** →**Information** →**Online User**.

You can view the current online users, group names, IP addresses, and login times.

Figure 10-3 Online User
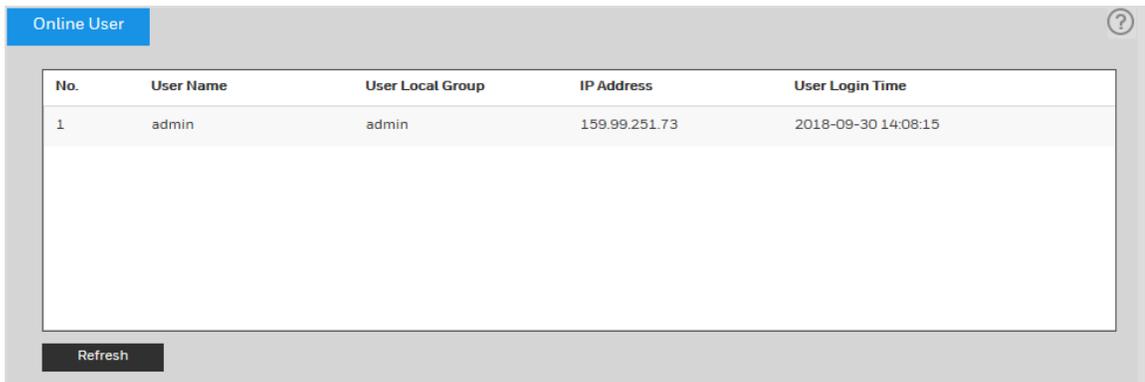
11 Configuring Alarms Settings

Click the **Alarm** tab to open the alarm configuration interface.

Figure 11-1 Alarm Configuration

Table 11-1 Alarm Configurations

Type	Parameter	Function
Alarm Type	**Motion Detection**	Check to enable Motion Detection. The system will then trigger an alarm when motion is detected under the specified circumstances.
	Disk Full	Check to enable Disk Full. The system will then trigger an alarm when the disk (microSD card) is full.
	Video Tampering	Check to enable Video Tampering. The system will then trigger an alarm when the camera has been tampered with.
	Disk Error	Check to enable Disk Error. The system will then record alarm information when a microSD card error occurs.
	Illegal Access	Check to enable Illegal Access. The system will then trigger an alarm when someone attempts to illegally access the camera.
	Scene Changing	Check to enable Scene Changing. The system will then trigger an alarm when the camera scene change event occurs.
	External Alarm	Check to enable External Alarm. The alarm is triggered when there is external alarm input.

	Audio Detection	The alarm is triggered when there is audio connection problem.
	IVS	The alarm is triggered when intelligent rule is triggered.
	Voltage Detection	The alarm is triggered when the device detects abnormal voltage input.
Operation	Prompt	Check to enable Prompt. The system will then automatically pop up an alarm message on the main window when there is an alarm.
Alarm Tone	Play Alarm Tone	Check to enable Play Alarm Sound. When an alarm occurs, the system automatically generates an audible sound. You can select a sound from your PC for the alarm sound prompt.
	Tone Path	Select the alarm sound file.

12   Troubleshooting

Refer to the following guidelines to troubleshoot any performance issues. If you require additional assistance, contact Honeywell Technical Support (see back cover for contact information).

Table 12-1 Troubleshooting

Issues	Solutions
Cannot play downloaded file	• Use the player located on the CD that came with your camera. • Ensure that DirectX 8.1 or higher is installed on your PC. • Install the DivX503Bundle.exe plugin for playing AVI files. • If you are running Windows XP, install the ffdshow codec.
Cannot set camera frame rate above 20 fps when Embedded NVR resolution set at 3 MP or lower.	1. On the NVR, go to NVR setup and set the resolution to 3MP and click **Save**. 2. Go to **Remote Device** and click **Delete** to remove the camera. Then select the camera in the Searched Device area and click **Add**. 3. Click Modify for the camera in the Added Device area. Select **ONVIF** from the drop-down list of manufacturers and click **Save**. You can now set the frame rate at 20 fps or above for 3 MP or lower resolutions at the NVR end.
Cannot get 4 MP resolution at the NVR.	1. Make sure the NVR supports 4 MP (2688×1520) resolution. 2. On the NVR, go to NVR setup➔**Remote Device** and click **Modify** for the 4 MP camera in the added device area. Select **ONVIF** from the drop-down list of manufacturers and click **Save**. You can now setup 4 MP resolution on the NVR end.
IR video is poor.	• Ensure that the power supply is adequate. An inadequate power supply may not be able to support the IR lights.

	• Ensure that the objects to be illuminated are within the camera's IR range.
	• If the IR-cut filter does not switch to Night mode, the photosensitive chip at the front of the camera may be malfunctioning.
Cannot upgrade firmware through the network	• If you cannot upgrade firmware over the network, try using port 3800.
Cannot install/log in to web client.	• Ensure that your browser's security settings allow ActiveX controls. • Ensure that DirectX 8.1 or higher is installed on your PC. • Ensure that you have a valid network setup and that you are using the correct login user name and password.
Water leaking into camera housing.	• Ensure that the front glass cap and rear waterproof cap are tightly secured. Loosening or removing the front and rear caps will allow water to enter the housing.
Power supply is unstable.	• The operating temperature range for the supplied power adapter is approximately 32°F to 104°F (0°C to 40°C). Replace with an industry-level power adapter if operating the camera in temperatures below 32°F (0°C). • Use of a UPS power supply is strongly recommended.
No alarms	After you enabled the events on the IPC web client, you must click **Refresh** on the NVR client.

The accuracy of people counting is low.	• Install the camera according to the recommended height.
	
	   • For average height of 1.7m, the recommended height is 2.3m-2.5m;
	
	   • For average height of 1.8m，the recommended height is 2.4m-2.6m;
	
	   • For average height of 1.9m，the recommended height is 2.5m-2.7m.
	
	• The algorithm is based on the height and shoulder width of adults, so the accuracy is low when the camera detects children.

	• Luggage and other objects that have similar width to human shoulder will be counted.
	• For wide entrance, if multiple cameras are installed, repeated statistics may occur in the overlapping area.
	• Wrong statistics may occur when people are in fast moving, when people are wandering on the rule lines, when lights are changing instantly, when two people walk shoulder by shoulder and when the movement direction of people is not vertical to the rule lines.

13   Appendix

List of Symbols

The following is a list of symbols that may appear on the camera:

Symbol	Explanation
	The WEEE symbol. This symbol indicates that when the end-user wishes to discard this product, it must be sent to separate collection facilities for recovery and recycling. By separating this product from other household-type waste, the volume of waste sent to incinerators or landfills will be reduced, and thus natural resources will be conserved.
	The UL compliance logo. This logo indicates that the product has been tested and is listed by UL (formerly Underwriters Laboratories).
	The FCC compliance logo. This logo indicates that the product conforms to Federal Communications Commission compliance standards.
	The direct current symbol. This symbol indicates that the power input/output for the product is direct current.
	The alternating current symbol. This symbol indicates that the power input/output for the product is alternating current.
	The RCM compliance logo. This logo indicates that the product conforms with Australian RCM guidelines.
	The CE compliance logo. This logo indicates that the product conforms to the relevant guidelines/standards for the European Union harmonization legislation.
	The caution symbol. This symbol indicates important information.
	The protective earth (ground) symbol. This symbol indicates that the marked terminal is intended for connection to the protective earth/grounding conductor.

14   Specifications

H4W2PER2V Mini Dome Camera

Table 14-1 H4W2PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC / PAL
SCANNING SYSTEM	Progressive scan
IMAGE SENSOR	12.8" 2 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	1920(H) × 1080(V)
MINIMUM ILLUMINATION	0.002ux / F1.5 (color, 30IRE), 0Lux / F1.5 (IR on)
S/N RATIO	More than 45dB
ELECTRONIC SHUTTER SPEED	1 / 3 ~ 1 / 100000s
IR DISTANCE	Up to 40m(131ft), depending on scene reflectance
IR LIGHT CONTROL	Manual / SmartIR / OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto(ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto / Natural / Street Lamp / Outdoor/ Manual / Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120 dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H:109°~28°, V:57°~16°
VIDEO	
VIDEO COMPRESSION	H.265 / H.264 B / Smart Codec / MJPEG (Sub Stream)
RESOLUTION	1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 ×720); D1 (704 × 576 / 704 × 480); VGA (640 × 480); CIF (352 × 288 / 352 × 240)
FRAME RATE	Main Stream: 1920 × 1080 / 1280 × 960 / 1280 × 720@ (1 ~ 25 / 30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps)
BIT RATE CONTROL	CBR / VBR
BIT RATE	H.264: 32 kbps–6144 kbps H.265: 12 kbps–6144 kbps
INTERFACE	
ETHERNET	RJ-45 (10 / 100 Base-T)
AUDIO	1 In; 1 Out
ALARM input/output	1 In; 1 Out

NETWORK (CONT'D)	
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4 / v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S / G / Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128 / 256, SSH / Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tampering, Scene Changing, Tripwire Intrusion
ELECTRICAL	
POWER SUPPLY	DC12V, PoE (802.3af)(Class 0)
POWER CONSUMPTION	<6.4W
MECHANICAL	
DIMENSIONS	Ø122mm × 88.9mm (4.80"x3.50")
PRODUCT WEIGHT	0.50kg (1.10lb)
PACKAGE WEIGHT	0.66kg (1.46lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	-30° C ~ 60° C (-22° F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing IP
INGRESS PROTECTION	IP66
VANDAL RESISTANCE	IK10
REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

H4W2PER3V Mini Dome Camera

Table 14-2 H4W2PER3V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC / PAL
SCANNING SYSTEM	Progressive scan
IMAGE SENSOR	12.8" 2 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	1920 (H) × 1080 (V)
MINIMUM ILLUMINATION	0.002ux / F1.6 (color, 30IRE), 0Lux / F1.6 (IR on)
S/N RATIO	More than 45dB
ELECTRONIC SHUTTER SPEED	1 / 3~1 / 100000s
IR DISTANCE	Up to 30m(98.4ft), depending on scene reflectance
IR LIGHT CONTROL	Manual / SmartIR / OFF
IR LIGHT NUMBER	3
DAY/NIGHT	Auto(ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto / Natural / Street Lamp / Outdoor/ Manual / Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120 dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.8mm, F1.6
ANGLE OF VIEW	H:106º, V:56º

VIDEO	
VIDEO COMPRESSION	H.264 / H.264B / H.265 / Smart Codec / MJPEG (Sub Stream)
RESOLUTION	1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576 / 704 × 480); VGA (640× 480); CIF (352 × 288 / 352 × 240)
FRAME RATE	Main Stream: 1920 × 1080 / 1280 × 960 / 1280 × 720@ (1 ~ 25 / 30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps)
BIT RATE CONTROL	CBR / VBR
BIT RATE	H.264: 32 kbps–6144 kbps H.265: 12 kbps–6144 kbps

INTERFACE	
ETHERNET	RJ-45 (10 / 100 Base-T)
AUDIO	NA
ALARM input/output	NA

NETWORK (CONT'D)	
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4 / v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S / G / Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH / Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)

ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tampering, Scene Changing, Tripwire Intrusion

ELECTRICAL	
POWER SUPPLY	DC12V, PoE (802.3af)(Class 0)
POWER CONSUMPTION	<5.4W

MECHANICAL	
DIMENSIONS	Ø81mm×109.9mm (3.20"x4.30")
PRODUCT WEIGHT	0.35kg (0.77lb)
PACKAGE WEIGHT	0.48kg (1.06lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)

ENVIRONMENTAL	
OPERATING TEMPERATURE	–40º C ~ 60º C (-40 F ~ 140º F)
RELATIVE HUMIDITY	Less than 95%, non-condensing IP
INGRESS PROTECTION	IP66
VANDAL RESISTANCE	IK10

REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HBW2PER1V Bullet Camera

Table 14–3 HBW2PER1V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC / PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1 / 2.8" 2 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	1920 (H) × 1080 (V)
MINIMUM ILLUMINATION	0.002ux / F1.6 (color, 30IRE), OLux with IR on
S/N RATIO	More than 45dB
ELECTRONIC SHUTTER SPEED	1 / 3~1 / 100000s
IR DISTANCE	Up to 30m (98.4ft), depending on scene reflectance
IR LIGHT CONTROL	Manual / SmartIR / OFF
IR LIGHT NUMBER	1
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto / Natural / Street Lamp / Outdoor / Manual / Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	3.6mm, F1.6
ANGLE OF VIEW	H: 87º, V: 46º

VIDEO	
VIDEO COMPRESSION	H.264 / H.264B / H.265 / Smart Codec / MJPEG (Sub Stream)
RESOLUTION	1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576 / 704 × 480); VGA (640× 480); CIF (352 × 288 / 352× 240)
FRAME RATE	Main Stream: 1920 × 1080 / 1280 × 960 / 1280 × 720@ (1 ~ 25 / 30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps)
BIT RATE CONTROL	CBR / VBR
BIT RATE	H.264: 32 kbps–6144 kbps H.265: 12 kbps–6144 kbps

NETWORK	
ETHERNET	RJ-45 (10 / 100 Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit / 64-bit; Windows® 10 32-bit / 64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4 / v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S / G / Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128 /256, SSH / Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)

ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tampering, Scene Changing, Tripwire Intrusion

ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af)(Class 0)
POWER CONSUMPTION	<4.9W

MECHANICAL	
DIMENSIONS	Ø166.2mm×70mm (6.5"×2.8")
PRODUCT WEIGHT	0.48kg (1.1lb)
PACKAGE WEIGHT	0.57kg (1.3lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)

ENVIRONMENTAL	
OPERATING TEMPERATURE	−40º C ~ 60º C (−40º F ~ 140º F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66

REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HBW2PER2V Bullet Camera

Table 14–4 HBW2PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC / PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1 / 2.8" 2 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	1920(H) × 1080(V)
MINIMUM ILLUMINATION	0.002ux / F1.5 (color, 30IRE), 0 Lux with IR on
S/N RATIO	More than 45dB
ELECTRONIC SHUTTER SPEED	1 / 3~1 / 100000s
IR DISTANCE	Up to 60m (197ft), depending on scene reflectance
IR LIGHT CONTROL	Manual / SmartIR / OFF
IR LIGHT NUMBER	4
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto / Natural / Street Lamp / Outdoor / Manual / Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H: 109°~28°, V: 57°~16°
VIDEO	
VIDEO COMPRESSION	H.264 / H.264B / H.265 / Smart Codec / MJPEG (Sub Stream)
RESOLUTION	1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576 / 704 × 480); VGA (640× 480); CIF (352 × 288 / 352 × 240)
FRAME RATE	Main Stream: 1920 × 1080 / 1280 × 960 / 1280 × 720@ (1 ~ 25 / 30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps)
BIT RATE CONTROL	CBR / VBR
BIT RATE	H.264: 32 kbps–6144 kbps H.265: 12 kbps–6144 kbps
INTERFACE	
AUDIO	1 In; 1 Out
ALARM input/output	1 In; 1 Out

NETWORK	
ETHERNET	RJ-45 (10 / 100 Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit / 64-bit; Windows® 10 32-bit / 64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4 / v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S / G / Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128 / 256, SSH / Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tampering, Scene Changing, Tripwire Intrusion
ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af)(Class 0)
POWER CONSUMPTION	<9.6W
MECHANICAL	
DIMENSIONS	Ø241.8mm×90.7mm (9.52"×3.57")
PRODUCT WEIGHT	0.95kg (2.09lb)
PACKAGE WEIGHT	1.16kg (2.56lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	-30° C ~ 60° C (-22° F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HEW2PER2V Eyeball Camera

Table 14-5 HEW2PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC / PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1 / 2.8" 2 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	1920(H) × 1080(V)
MINIMUM ILLUMINATION	0.002ux / F1.5 (color, 30IRE), 0 Lux with IR on
S/N RATIO	More than 45dB
ELECTRONIC SHUTTER SPEED	1 / 3~1 / 100000s
IR DISTANCE	Up to 40m (131.23ft), depending on scene reflectance
IR LIGHT CONTROL	Manual / SmartIR / OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto / Natural / Street Lamp / Outdoor / Manual / Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H: 109°~28°, V: 57°~16°

VIDEO	
VIDEO COMPRESSION	H.264 / H.264B / H.265 / Smart Codec / MJPEG (Sub Stream)
RESOLUTION	1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576 / 704 × 480); VGA (640 × 480); CIF (352 × 288 / 352 × 240)
FRAME RATE	Main Stream: 1920 × 1080 / 1280 × 960 / 1280 × 720@ (1 ~ 25 / 30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps)
BIT RATE CONTROL	CBR / VBR
BIT RATE	H.264: 32 kbps–6144 kbps H.265: 12 kbps–6144 kbps

NETWORK	
ETHERNET	RJ-45 (10 / 100 Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit / 64-bit; Windows® 10 32-bit / 64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4 / v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S / G / Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128 / 256, SSH / Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)

ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tampering, Scene Changing, Tripwire Intrusion

ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af)(Class 0)
POWER CONSUMPTION	<6.4W

MECHANICAL	
DIMENSIONS	Ø108.3mm×122mm (4.26"×1.80")
PRODUCT WEIGHT	0.69kg (1.52lb)
PACKAGE WEIGHT	0.88kg (1.94lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)

ENVIRONMENTAL	
OPERATING TEMPERATURE	-30° C ~ +60° C (-22° F ~ +140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66

REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HEW2PER3V Fixed Eyeball Camera

Table 14-6 HEW2PER3V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC / PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1 / 2.8" 2 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	1920(H) × 1080(V)
MINIMUM ILLUMINATION	0.002ux / F1.6 (color,30IRE), 0 Lux with IR on
S/N RATIO	More than 45dB
ELECTRONIC SHUTTER SPEED	1 / 3~1 / 100000s
IR DISTANCE	Up to 30m (98.4ft), depending on scene reflectance
IR LIGHT CONTROL	Manual / SmartIR / OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto / Natural / Street Lamp / Outdoor / Manual / Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.8mm, F1.6
ANGLE OF VIEW	H: 106°, V: 56°

VIDEO	
VIDEO COMPRESSION	H.264 / H.264B / H.265 / Smart Codec / MJPEG (Sub Stream)
RESOLUTION	1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576 / 704 × 480); VGA (640 × 480); CIF (352 × 288 / 352 × 240)
FRAME RATE	Main Stream: 1920 × 1080 / 1280 × 960 / 1280 × 720@ (1 ~ 25 / 30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps)
BIT RATE CONTROL	CBR / VBR
BIT RATE	H.264: 32 kbps–6144 kbps H.265: 12 kbps–6144 kbps

NETWORK	
ETHERNET	RJ-45 (10 / 100 Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit / 64-bit; Windows® 10 32-bit / 64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4 / v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S / G / Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128 / 256, SSH / Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)

ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tampering, Scene Changing, Tripwire Intrusion

ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af)(Class 0)
POWER CONSUMPTION	<6.5W

MECHANICAL	
DIMENSIONS	Ø100.9mm×109.9mm (4.0"×4.3")
PRODUCT WEIGHT	0.39kg (0.9lb)
PACKAGE WEIGHT	0.56kg (1.6lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)

ENVIRONMENTAL	
OPERATING TEMPERATURE	-40° C ~ +60° C (-40 F ~ +140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66

REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

H2W4PER3V Micro Dome Camera

Table 14-7 H2W4PER3V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/3" 4 Megapixel progressive scan CMOS
NUMBER OF PIXELS (H × V)	2688(H) × 1520(V)
MINIMUM ILLUMINATION	0.005lux/F1.6 (Color, 30IRE) 0Lux/F2.0 (IR On)
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3(4)~1/100000s
IR DISTANCE	Up to 30m(98.4ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	8
DAY/NIGHT	Auto(ICR) / Color / B/W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/ Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
FACE DETECTION	Supported
AUDIO DETECTION	Supported
LENS	2.8mm, F1.6 Fixed, Board-in
ANGLE OF VIEW	H: 103°, V:55°
VIDEO	
VIDEO COMPRESSION	H.265/H.264H/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4M (2688 × 1520); 3M (2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main Stream: 2688 × 1520 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps) ; 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps) Third Stream: 1280 × 720 / 704 × 576 / 640 × 480 @ (1 ~ 25fps); 1280 × 720 / 704 × 480 / 640 × 480 @ (1 ~30 fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32Kbps–8192 Kbps H.265: 32Kbps–8192 Kbps

AUDIO	
COMPRESSION	G.711a /G.711Mu /AAC /G.726
INTERFACE	Built-in Mic
NETWORK	
ETHERNET	RJ-45 (10/100Base-T)/M12 D-Coding
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP, TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion, Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V, PoE (802.3af) (Class 0)
POWER CONSUMPTION	<5.7W
MECHANICAL	
DIMENSIONS	Ø106mm×50.3mm (4.17"×1.98")
PRODUCT WEIGHT	0.32kg (0.71lb)
PACKAGE WEIGHT	0.46kg (1.01lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	−40° C ~ 60° C (-40° F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
VANDAL RESISTANCE	IK10
REGULATORY	
EMISSIONS	FCC Part 15B, EN55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

H4W4PER2V Mini Dome Camera

Table 14–8 H4W4PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive scan
IMAGE SENSOR	1/3" 4 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	2688mm × 1520mm
MINIMUM ILLUMINATION	0.005ux/F1.5(color,30IRE)0Lux/F1.5(IR on)
S/N RATIO	More than 55dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 40m(131ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto(ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/ Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120 dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H:104°~27°, V:55°~15°
VIDEO	
VIDEO COMPRESSION	H.265/H.264/H.264B/H.264H/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4M (2688 × 1520); 3M (2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main Stream: 2688 × 1520 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps) ; 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps) Third Stream: 1280 × 720 / 704 × 576 / 640 × 480 @ (1 ~ 25fps); 1280 × 720 / 704 × 480 / 640 × 480 @ (1 ~ 30 fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32 kbps–8192 kbps H.265: 32 kbps–8192 kbps
INTERFACE	
ETHERNET	RJ-45 (10/100Base-T)
AUDIO	1 In; 1 Out
ALARM INPUT/OUTPUT	1 In; 1 Out

NETWORK (CONT'D)	
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion, Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V, PoE (802.3af)(Class 0)
POWER CONSUMPTION	<8.5W
MECHANICAL	
DIMENSIONS	Ø122mm×88.9mm(4.80"x3.50")
PRODUCT WEIGHT	0.50kg (1.10lb)
PACKAGE WEIGHT	0.66kg (1.46lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	-40° C ~ +60° C (-40 F ~ +140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing IP
INGRESS PROTECTION	IP66
VANDAL RESISTANCE	IK10
REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

H4W4PER3V Mini Dome Camera

Table 14-9 H4W4PER3V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive scan
IMAGE SENSOR	1/3.0" 4 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	2688 (H) × 1520 (V)
MINIMUM ILLUMINATION	0.005ux/F1.6(color, 30IRE) 0Lux/F1.6(IR on)
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 50m(164.0ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	3
DAY/NIGHT	Auto(ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120 dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.8mm, F1.6
ANGLE OF VIEW	H:103°, V:55°,D:122°

VIDEO	
VIDEO COMPRESSION	H.265/H.264B/H.264/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4M (2688 × 1520); 3M (2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main Stream: 2688 × 1520 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps) Third Stream: 1280 × 720 / 704 × 576 / 640 × 480 @ (1 ~ 25fps); 1280 × 720 / 704 × 480 / 640 × 480 @ (1 ~30 fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 3 Kbps–8192 Kbps H.265: 3 Kbps–8192 Kbps

INTERFACE	
ETHERNET	RJ-45(10/100Base-T)
AUDIO	1-output;1-input
ALARM input/output	1-output;1-input

NETWORK (CONT'D)	
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)

ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion, Face Detection

ELECTRICAL	
POWER SUPPLY	DC12V, PoE (802.3af)(Class 0)
POWER CONSUMPTION	<7.3W

MECHANICAL	
DIMENSIONS	Ø81mm×109.9mm(3.20"x4.30")
PRODUCT WEIGHT	0.35kg (0.77 lb)
PACKAGE WEIGHT	0.48kg (1.06lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)

ENVIRONMENTAL	
OPERATING TEMPERATURE	-40° C ~ 60° C (-40 F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing IP
INGRESS PROTECTION	IP66
VANDAL RESISTANCE	IK10

REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HBW4PER1V Bullet Camera

Table 14–10 HBW4PER1V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/3" 4 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	2688 (H) × 1520(V)
MINIMUM ILLUMINATION	0.005ux/F1.6(color,30IRE), 0 Lux with IR ON
S/N RATIO	More than 55dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 50m (164ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	1
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/ Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	3.6mm, F1.6
ANGLE OF VIEW	H: 84°, V: 45°
VIDEO	
VIDEO COMPRESSION	H.264/H.264B/H.264H/H.265/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4M (2688 × 1520); 3M (2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main Stream: 2688 × 1520 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps) ; 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps) Third Stream: 1280 × 720 / 704 × 576 / 640 × 480 @ (1 ~ 25fps); 1280 × 720 / 704 × 480 / 640 × 480 @ (1 ~30 fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32 kbps–8192 kbps H.265: 32 kbps–8192 kbps
INTERFACE	
AUDIO	1 in; 1 out
ALARM input/output	1 in; 1 out

NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion, Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af)(Class 0)
POWER CONSUMPTION	<5.4W
MECHANICAL	
DIMENSIONS	192.7 mm × 70.5 mm × 66.4 mm
PRODUCT WEIGHT	0.59kg (1.3lb)
PACKAGE WEIGHT	0.78kg (1.7b)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	-40° C ~ 60° C (-40 F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HBW4PER2V Bullet Camera

Table 14–11 HBW4PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/3" 4 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	2688 (H) × 1520(V)
MINIMUM ILLUMINATION	0.005ux/F1.5(color,30IRE), 0 Lux with IR ON
S/N RATIO	More than 55dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 60m (197ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	4
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H: 104°~27°, V: 55°~15°
VIDEO	
VIDEO COMPRESSION	H.264/H.264B/H.264H/H.265/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4M (2688 × 1520); 3M (2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main Stream: 2688 × 1520 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps) ; 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps) Third Stream: 1280 × 720 / 704 × 576 / 640 × 480 @ (1 ~ 25fps); 1280 × 720 / 704 × 480 / 640 × 480 @ (1 ~30 fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32 kbps–8192 kbps H.265: 32 kbps–8192 kbps
INTERFACE	
AUDIO	1 in; 1 out
ALARM input/output	1 in; 1 out

NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion, Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af)(Class 0)
POWER CONSUMPTION	<9.8W
MECHANICAL	
DIMENSIONS	Ø241.8mm×90.7mm (9.52"×3.57")
PRODUCT WEIGHT	0.95kg (2.09lb)
PACKAGE WEIGHT	1.16kg (2.56lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	-30° C ~ 60° C (-22° F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HEW4PER2V Ball Camera

Table 14–12 HEW4PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/3" 4 Megapixel progressive scan CMOS
NUMBER OF PIXELS (H × V)	2688(H) x1520(V)
MINIMUM ILLUMINATION	0.005lux/F1.5(color,30IRE) 0Lux/F1.5(IR on)
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 40m (131.2ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto(ICR) / Color / B/W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
FACE DETECTION	NA
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H:104°~27°, V:55°~15°

VIDEO	
VIDEO COMPRESSION	H.265/H.264H/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4M(2688×1520)/ 3M(2304×1296)/1080P(1920×1080)/ 1.3M(1280x960)/720P(1280×720)/ D1(704×480/576)/VGA(640×480)/ CIF(352×240/288)
FRAME RATE	Main Stream: 2688 × 1520 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps) ; 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps) Third Stream: 1280 × 720 / 704 × 576 / 640 × 480 @ (1 ~ 25fps); 1280 × 720 / 704 × 480 / 640 × 480 @ (1 ~ 30 fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32 Kbps–8192 Kbps H.265: 32 Kbps–8192 Kbps

NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)

ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion, Face Detection

ELECTRICAL	
POWER SUPPLY	DC12V, PoE (IEEE802.3af) (Class 0)
POWER CONSUMPTION	<8.3W

MECHANICAL	
DIMENSIONS	108.3 mm × Φ 122 mm (4.3" × Φ 4.8")
PRODUCT WEIGHT	0.68Kg(1.5lb)
PACKAGE WEIGHT	0.82kg (1.8lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
AUDIO	Bulid-in Mic

ENVIRONMENTAL	
OPERATING TEMPERATURE	-30° C ~ 60° C (-22° F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66

REGULATORY	
EMISSIONS	FCC Part 15B, EN55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HEW4PER3V Ball Camera

Table 14–13 HEW4PER3V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/3" 4 Megapixel progressive scan CMOS
NUMBER OF PIXELS (H × V)	2688(H) x1520(V)
MINIMUM ILLUMINATION	0.005lux/F1.6(color, 30IRE) 0Lux/F1.6(IR on)
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 50m (164ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto(ICR) / Color / B/W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
FACE DETECTION	Supported
AUDIO DETECTION	Supported
LENS	2.8mm, Fixed, F1.6
ANGLE OF VIEW	H:103°, V:55°
VIDEO	
VIDEO COMPRESSION	H.265/H.264H/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4M (2688 × 1520); 3M (2304 × 1296); 1080p (1920× 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1(704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main Stream: 2688 × 1520 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30fps) Sub Stream: 704 × 576 / 640 × 480 / 352 × 288 @ (1 ~ 25fps) ; 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30fps) Third Stream: 1280 × 720 / 704 × 576 / 640 × 480 @ (1 ~ 25fps); 1280 × 720 / 704 × 480 / 640 × 480 @ (1 ~30 fps)
VIDEO (CONT'D)	
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32~8192Kbps H.265: 32~8192Kbps
AUDIO	
COMPRESSION	G.711a /G.711Mu /AAC /G.726
INTERFACE	Built-in Mic

NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion, Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V, PoE (IEEE802.3af) (Class 0)
POWER CONSUMPTION	<7.7W
MECHANICAL	
DIMENSIONS	99.1 mm × Φ121.9 mm (3.9" × Φ4.8")
PRODUCT WEIGHT	0.46kg (1.01lb)
PACKAGE WEIGHT	0.65Kg (1.43lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 7022 (Grey)
ENVIRONMENTAL	
OPERATING TEMPERATURE	–40° C ~ +60° C (-40° F ~ +140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
REGULATORY	
EMISSIONS	FCC Part 15B, EN55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

H4W8PER1V Mini Dome Camera

Table 14–14 H4W8PER1V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive scan
IMAGE SENSOR	1/2.8" 8 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	3840 mm × 2160 mm
MINIMUM ILLUMINATION	0.005ux/F1.6(color, 30IRE) 0Lux/F1.6(IR on)
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 30m(98.4ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	3
DAY/NIGHT	Auto(ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/ Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120 dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	3.6mm, F1.4
ANGLE OF VIEW	H:85°, V:45°,D:100°

VIDEO	
VIDEO COMPRESSION	H.265/H.264B/H.264/Smart Codec/ MJPEG (Sub Stream)
RESOLUTION	8M (3840 × 2160); 6M (3072 × 2048); 5M (3072 × 1728/2592 × 1944); 4M (2688 × 1520); 3M (2048 × 1536/2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1(704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main stream:3840 × 2160 / 3072 × 2048 3072 × 1728@(1~ 20 fps by default); 2592 × 1944 / 2688 × 1520 / 2048 × 1536 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1~25/30 fps) Sub stream:704 × 576 /640 × 480 / 352 × 288 @(1~ 25 fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1~ 30 fps) Third stream:1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1~ 25fps); 1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1~ 30fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 3 Kbps–8192 Kbps H.265: 3 Kbps–8192 Kbps

INTERFACE	
ETHERNET	RJ-45 (10/100Base-T)
AUDIO	1-output;1-input
ALARM INPUT/OUTPUT	1-output;1-input

NETWORK (CONT'D)	
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)

ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion , Face Detection

ELECTRICAL	
POWER SUPPLY	DC12V, PoE (802.3af)(Class 0)
POWER CONSUMPTION	<7.0W

MECHANICAL	
DIMENSIONS	Ø81.0mm×109.9mm(Ø3.20"x4.30")
PRODUCT WEIGHT	0.35kg (0.77lb)
PACKAGE WEIGHT	0.48kg (1.06lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)

ENVIRONMENTAL	
OPERATING TEMPERATURE	–40° C ~ 60° C (-40 F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing IP
INGRESS PROTECTION	IP66
VANDAL RESISTANCE	IK10

REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

H4W8PER2V Mini Dome Camera

Table 14–15 H4W8PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive scan
IMAGE SENSOR	1/2.8" 8Megapixel Progressive Scan CMOS
NUMBER OF PIXELS (H × V)	3840(H) × 2160(V)
MINIMUM ILLUMINATION	0.007lux/F1.5(color,30IRE), 0 Lux with IR ON
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 40m (131.2ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120 dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H:113°~31°, V:58°~17°
VIDEO	
VIDEO COMPRESSION	H.264/H.264B/H.264H/H.265/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4K(3840×2160)/6M(3072×2048)/5M(3072*1728)/5M(2592*1944)/4M(2688*1520)/3M(2048x1536)/3M(2304×1296)/1080P(1920×1080)/1.3M(1280x960)/720P(1280×720) Sub Stream:D1(704×480/576)/VGA(640×480)/CIF(352×240/288)
FRAME RATE	Main stream:3840 × 2160 / 3072 × 2048 3072 × 1728@(1~ 20 fps by default); 2592 × 1944 / 2688 × 1520 / 2048 × 1536 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30 fps) Sub stream:704 × 576 /640 × 480 / 352 × 288 @(1 ~ 25 fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30 fps) Third stream:1920 × 1080 /1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 25fps); 1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 30fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	3Kbps~8192Kbps
INTERFACE	
AUDIO	1 in; 1 out
ALARM input/output	1 in; 1 out

NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion , Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af) (Class 0)
POWER CONSUMPTION	<8.2W
MECHANICAL	
DIMENSIONS	Ø122mm×88.9mm (4.80"x3.50")
PRODUCT WEIGHT	Approx. 0.49Kg (1.09lb)
PACKAGE WEIGHT	Approx. 0.66Kg(1.46lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	−22°F~140°F (−30°C~60°C)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
IMPACT RESISTANCE	IK10
REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HBW8PER1V Bullet Camera

Table 14–16 HBW8PER1V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/2.8" 8 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	3840 (H) × 2160 (V)
MINIMUM ILLUMINATION	0.005ux/F1.4(color,30IRE), O Lux with IR ON
S/N RATIO	More than 55dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 30m (98.4ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	1
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/ Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	3.6mm, F1.4
ANGLE OF VIEW	H: 84°, V: 45°
VIDEO	
VIDEO COMPRESSION	H.264/H.264B/H.264H/H.265/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	8M (3840 × 2160); 6M (3072 × 2048); 5M (3072 × 1728/2592 × 1944); 4M (2688 × 1520); 3M (2048 × 1536/2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1(704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main stream:3840 × 2160 / 3072 × 2048 3072 × 1728@(1~ 20 fps by default); 2592 × 1944 / 2688 × 1520 / 2048 × 1536 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30 fps) Sub stream:704 × 576 /640 × 480 / 352 × 288 @(1 ~ 25 fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30 fps) Third stream:1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 25fps); 1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 30fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32 kbps–8192 kbps H.265: 32 kbps–8192 kbps

INTERFACE	
AUDIO	1 in; 1 out
ALARM input/output	1 in; 1 out
NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion , Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af)(Class 0)
POWER CONSUMPTION	<6.3W
MECHANICAL	
DIMENSIONS	192.7 mm × 70.5 mm × 66.4 mm
PRODUCT WEIGHT	0.59kg (1.3lb)
PACKAGE WEIGHT	0.78kg (1.7b)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	–40° C ~ 60° C (-40 F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HBW8PER2V Bullet Camera

Table 14–17 HBW8PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/2.8" 8 Megapixel progressive CMOS
NUMBER OF PIXELS (H × V)	3840(H) x 2160(V)
MINIMUM ILLUMINATION	0.0907ux/F1.5(color,30IRE), 0 Lux with IR ON
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 60m (197ft), depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	4
DAY/NIGHT	Auto (ICR) / Color / B&W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H: 113°~31°, V: 58°~17°
VIDEO	
VIDEO COMPRESSION	H.264/H.264B/H.264H/H.265/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	4K(3840×2160)/6M(3072×2048)/5M(3072*1728)/5M(2592*1944)/4M(2688*1520)3M(2048x1536)/3M(2304×1296)/1080P(1920×1080)/1.3M(1280x960)/720P(1280×720) Sub Stream: D1(704×480/576)/VGA(640×480)/CIF(352×240/288)
FRAME RATE	Main stream:3840 × 2160 / 3072 × 2048 3072 × 1728@(1~ 20 fps by default); 2592 × 1944 / 2688 × 1520 / 2048 × 1536 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30 fps) Sub stream:704 × 576 /640 × 480 / 352 × 288 @(1 ~ 25 fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30 fps) Third stream:1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 25fps); 1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 30fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	3Kbps~8192Kbps

INTERFACE	
AUDIO	1 in; 1 out
ALARM input/output	1 in; 1 out
NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion Detection, Smart Tripwire, Smart Intrusion , Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V PoE (802.3af)(Class 0)
POWER CONSUMPTION	<10.7W
MECHANICAL	
DIMENSIONS	Ø244.1mm×79mm×75.9mm (9.61"×3.11"×2.99")
PRODUCT WEIGHT	0.95kg (2.09lb)
PACKAGE WEIGHT	1.16kg (2.56lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 9003 (White)
ENVIRONMENTAL	
OPERATING TEMPERATURE	-30° C ~ 60° C (-22° F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
REGULATORY	
EMISSIONS	FCC Part 15B, EN 55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HEW8PER1V Ball Camera

Table 14–18 HEW8PER1V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/2.8" 8 Megapixel progressive scan CMOS
NUMBER OF PIXELS (H × V)	3840 mm × 2160 mm
MINIMUM ILLUMINATION	0.007 Lux @F1.4
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 30 m (98.4 ft) depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto(ICR) / Color / B/W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/ Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
FACE DETECTION	Supported
AUDIO DETECTION	Supported
LENS	3.6mm, Fixed, F1.4
ANGLE OF VIEW	H:85°, V:45°,D:100°

VIDEO	
VIDEO COMPRESSION	H.265/H.264H/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	8M (3840 × 2160); 6M (3072 × 2048); 5M (3072 × 1728/2592 × 1944); 4M (2688 × 1520); 3M (2048 × 1536/2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1(704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main stream:3840 × 2160 / 3072 × 2048 3072 × 1728@(1~ 20 fps by default); 2592 × 1944 / 2688 × 1520 / 2048 × 1536 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30 fps) Sub stream:704 × 576 /640 × 480 / 352 × 288 @(1 ~ 25 fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30 fps) Third stream:1920 × 1080 /1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 25fps); 1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 30fps)

VIDEO (CONT'D)	
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32~8192Kbps H.265: 32~8192Kbps

AUDIO	
COMPRESSION	G.711a /G.711Mu /AAC /G.726
INTERFACE	Built-in Mic

NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)

ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion, Detection, Smart Tripwire, Smart Intrusion , Face Detection

ELECTRICAL	
POWER SUPPLY	DC12V, PoE (IEEE802.3af) (Class 0)
POWER CONSUMPTION	<7.9W

MECHANICAL	
DIMENSIONS	99.1 mm × Ø121.9 mm (3.9" × Ø4.8")
PRODUCT WEIGHT	0.46kg (1.01lb)
PACKAGE WEIGHT	0.65kg (1.43lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
CONSTRUCTION COLOR	RAL 7022 (Grey)

ENVIRONMENTAL	
OPERATING TEMPERATURE	-40° C ~ 60° C (-40° F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66

REGULATORY	
EMISSIONS	FCC Part 15B, EN55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

HEW8PER2V Ball Camera

Table 14–19 HEW8PER2V Specifications

OPERATIONAL	
VIDEO STANDARD	NTSC/PAL
SCANNING SYSTEM	Progressive
IMAGE SENSOR	1/2.8" 8 Megapixel progressive scan CMOS
NUMBER OF PIXELS (H × V)	3840 mm × 2160 mm
MINIMUM ILLUMINATION	0.005lux/F1.5(color,30IRE) 0Lux/F1.5(IR on)
S/N RATIO	More than 50dB
ELECTRONIC SHUTTER SPEED	1/3~1/100000s
IR DISTANCE	Up to 50 m (164 ft) depending on scene reflectance
IR LIGHT CONTROL	Manual/SmartIR/OFF
IR LIGHT NUMBER	2
DAY/NIGHT	Auto(ICR) / Color / B/W
BACKLIGHT COMPENSATION	BLC / HLC / WDR
WHITE BALANCE	Auto/Natural/Street Lamp/Outdoor/Manual/ Customized Region
GAIN CONTROL	0~100
WIDE DYNAMIC RANGE	120dB
NOISE REDUCTION	3D DNR
PRIVACY MASKING	Off / On (4 Areas, Rectangle)
MOTION DETECTION	Off / On (4 Zones, Rectangle)
REGION OF INTEREST	Off / On (4 Zones)
FACE DETECTION	NA
LENS	2.7mm~13.5mm, Motorized, F1.5
ANGLE OF VIEW	H:113°~31°, V:58°~17°
VIDEO	
VIDEO COMPRESSION	H.265/H.264H/Smart Codec/MJPEG (Sub Stream)
RESOLUTION	8M (3840 × 2160); 6M (3072 × 2048); 5M (3072 × 1728/2592 × 1944); 4M (2688 × 1520); 3M (2048 × 1536/2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1(704 × 576/704 × 480); VGA (640 × 480); CIF (352 × 288/352 × 240)
FRAME RATE	Main stream:3840 × 2160 / 3072 × 2048 3072 × 1728@(1~ 20 fps by default); 2592 × 1944 / 2688 × 1520 / 2048 × 1536 / 2304 × 1296 / 1920 × 1080 / 1280 × 960 / 1280 × 720 @ (1 ~ 25/30 fps) Sub stream:704 × 576 /640 × 480 / 352 × 288 @(1 ~ 25 fps); 704 × 480 / 640 × 480 / 352 × 240 @ (1 ~ 30 fps) Third stream:1920 × 1080 /1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 25fps); 1920 × 1080 / 1280 × 720 / 704 × 480 / 640 × 480@(1 ~ 30fps)
BIT RATE CONTROL	CBR/VBR
BIT RATE	H.264: 32 Kbps–8192 Kbps H.265: 32 Kbps–8192 Kbps

NETWORK	
ETHERNET	RJ-45 (10/100Base-T)
SUPPORTED WEB BROWSERS	Internet Explorer (11.0+)
SUPPORTED OS	Windows® 7 32-bit/64-bit; Windows® 10 32-bit/64-bit
PROTOCOLS*	HTTP; HTTPs; TCP; ARP; RTSP; RTP; RTCP; UDP; SMTP; DHCP; DNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; Bonjour; IEEE 802.1x; Multicast; ICMP; IGMP; TLS
INTEROPERABILITY	ONVIF Profile S/G/Q
MAXIMUM USERS ACCESS	20 Users
SECURITY	User account and password protection HTTPS, IP Filter, Digest authentication, User access log, TLS1.2 only, AES-128/256, SSH/Telnet closed, sFTP by default, PCIDSS compliance
EVENT	No SD card, SD card error, Capacity warning, Network disconnection, IP conflict, Illegal access
MICRO SD	Up to 128 GB microSDHC card, Class 10 (not included)
ANALYTICS	
VIDEO ANALYTICS	Motion Detection, Video Tamper, Scene Change, Smart Motion, Detection, Smart Tripwire, Smart Intrusion , Face Detection
ELECTRICAL	
POWER SUPPLY	DC12V, PoE (IEEE802.3af) (Class 0)
POWER CONSUMPTION	<7.3W
MECHANICAL	
DIMENSIONS	108.3 mm × Ø122 mm (4.3" × Ø4.8")
PRODUCT WEIGHT	0.68Kg(1.5lb)
PACKAGE WEIGHT	0.82kg (1.8lb)
CONSTRUCTION	Die-cast aluminum housing with powder coat
AUDIO	Bulid-in Mic
ENVIRONMENTAL	
OPERATING TEMPERATURE	-30° C ~ 60° C (-22° F ~ 140° F)
RELATIVE HUMIDITY	Less than 95%, non-condensing
INGRESS PROTECTION	IP66
REGULATORY	
EMISSIONS	FCC Part 15B, EN55032
IMMUNITY	EN 50130-4
SAFETY	UL 60950-1, EN 62368-1
ROHS	EN 50581

* Some development may be required in specific user cases to support some of these protocols in the field as they mature over time.

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