



## Evolution 05 Mini Camera Range



## Installation & User Manual

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## Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not immerse in water. Protect the connectors from moisture.
6. Do not block any ventilation openings, Install in accordance with the manufacturer's instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. The polarity of any connector attached to the product should be verified before connection.
9. Protect all cables from being crushed or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Only use attachments / accessories specified by the manufacturer.
11. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

### WARNING



**RISK OF EXPLOSION IF REPLACING A BATTERY WITH AN INCORRECT BATTERY TYPE**

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## 1 Overview

The Oncam Evolution 05 Mini IP Series cameras are innovative and use a fisheye lens to create a 360° view with an extremely large area of coverage. The Oncam 360° IP camera may replace two or more conventional fixed cameras for seamless coverage of an entire scene with no gaps or blind spots. The ability to see in all directions at once makes Oncam 360° IP cameras ideally suited for total situational awareness.

The 5-megapixel sensor produces enough detail to allow digital pan/tilt/zoom (PTZ) operations over the entire field of view (FoV). Unlike conventional PTZ cameras, Oncam 360° IP cameras are silent. Oncam 360° IP cameras have no mechanical motors or gears prone to wear and failure. The camera produces three types of views, each suited to a particular set of requirements.

The Evolution 05 Mini design allows for easy and fast installation with a range of mounting accessories for ceilings, walls, pendants and poles.

### 1.1 Fisheye View

The high quality fisheye lens produces a spherical image from which derive all other views. The raw image appears warped around a central axis. Special dewarping software built into the NVR / VMS converts the spherical image into a flat view that is more familiar to human viewers. When using video management software (VMS) to record a fisheye video stream, the entire image is preserved. You can retrospectively look at all directions regardless of the live or recorded viewed area after an incident.

### 1.2 Panoramic View

When using compatible VMS or NVR software integrated with the Oncam dewarping SDK, it is possible to generate a double 180-degree panoramic view from fisheye overview. The fisheye image is dewarped and split into two 180-degree bands for simpler viewing of the overall image.

**Note:** Due to the dewarping image cropping, the area directly underneath the camera is not visible. The camera does not generate the 180-degree panoramic view. The camera requires a compatible client machine with software to produce this panoramic view.

### 1.3 Camera Range

Configure the camera module for either an H.264 or MJPEG single stream.

- 10 FPS (maximum) with a frame size of 2144 x 1944 pixels (4 MP)
- 15 FPS (maximum) with a frame size of 1488 x 1360 pixels (2 MP)
- 30 FPS (maximum) with a frame size of 1056 x 960 pixels (1 MP)
- 30 FPS (maximum) with a frame size of 528 x 480 pixels (1/4 MP)

Enable and configure a second H.264 fisheye stream. If enabling the second stream, the maximum frame rates are reduced for both the main and second stream.

Simultaneously access a third MJPEG stream at a fixed FPS and a frame size of 528 x 480 pixels (1/4 MP).

### 1.4 Power Requirements

Supply power using IEEE 802.3af Power over Ethernet (PoE) through the RJ45 or M12 cable.

## 2 Camera Placement and Orientation

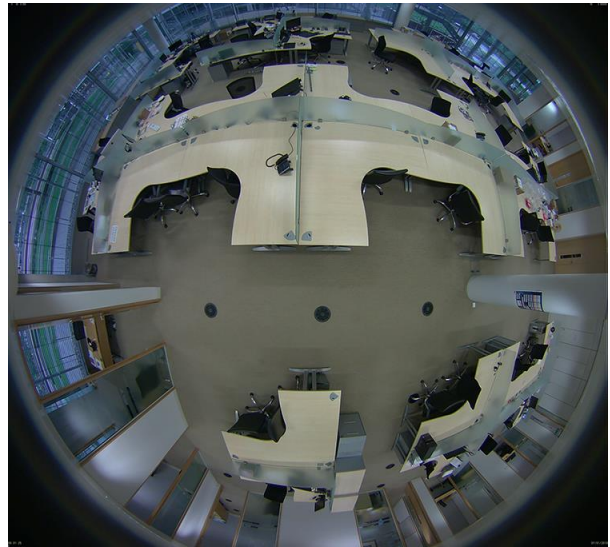
Camera placement is an important factor when planning your deployment. The Evolution 05 Mini camera has an exceptionally wide viewing angle. Consider the camera location for providing comprehensive coverage of a wide area. Mount the camera with an unobstructed view and consider scene optimization when one portion of the scene is bright and another dark.

The camera supports three different mounting orientations, Ceiling, Wall and Table. Each of these options require correct orientation settings selected from the Camera Web Interface. These camera settings ensure using the correct dewarping algorithm when connecting to a compatible VMS or NVR system.

### 2.1 Ceiling Mount

Ceiling mounting is preferred when most of the action is occurring below the camera in a horizontal plane. When a person is directly below the camera, captured is the top-of head view. When the person moves away from the camera, more of their face and body becomes visible.

Depending on the use case, use a single camera to cover a small to medium sized room. Mounting a camera high gives great situational awareness throughout a large room. When planning coverage ensure there are no obstructions. Some obstructions include pillars, high-sided furniture and any hanging objects near the camera such as signage.



### 2.2 Wall Mount

Wall mounting the camera can give a complete 180-degree side on view of an area. Use this view where ceiling mounting is not possible or if you need to capture a higher level of detail for objects closer to the camera (such as people's faces as they walk past the camera).





## 2.3 Table Mount

Install the Table Mount camera on a flat surface looking up. This configuration is for demonstration or testing purposes. You could use the Table Mount for inspecting systems or viewing under vehicles.



## 2.4 Coverage Area

The Evolution 05 Mini cameras provide coverage for open areas where situational awareness of people and objects are required.

The higher camera placement provides a larger coverage area. However, with higher camera placement a reduction in the pixel density is expected. Height impacts the image detail available, therefore ensure you consider image quality versus the mounting height.

Perform tests to ensure that the camera meets the system operational requirements and the required detail level is available.

Use a minimum height of 2 m (6.5 ft.) when ceiling mounting a camera for best results.

For multiple camera layouts, ensure the camera areas overlap for full coverage.

## 2.5 Overhead Viewing Angle

Ceiling-mounted cameras capture a top-of-head shot when the person is directly under the camera. Hats extend that top-of-head zone to some degree. Consider the viewing angle when requiring people identification or recognition.

## 2.6 Lighting

Avoid bright light sources pointing towards the camera lens. Always face lighting away from the camera or above the camera installation line (if ceiling mounted).

Adjust the auto-sensor in the camera from the Web Interface. Using auto-sensor adjusts the camera continuously to optimize the image by increasing exposure time. Furthermore, the maximum frame rate is reduced as exposure time increases. The image remains in full color until below one Lux, after which it transitions to black and white for better contrast.

The Indoor Night camera automatically switches to night mode, doubling the exposure time in progressive steps to maximize light sensitivity. The frame rate is halved accordingly. The image is rendered in black and white for better contrast. Optionally, use motion-sensing lights to illuminate the scene: The Indoor Night camera quickly adjusts when lights turn on.

### 3 Camera Installation

For installation of your Oncam Evolution 05 camera, provided are the following instructions. Reference the Camera Web Interface, page 24 for a more detailed features and functionality.

#### 3.1 Preparation

Document the camera's location and MAC address for camera configuration. Find the MAC address on a sticker on the side and rear of the camera module.



##### 3.1.1 Inserting an microSD card

Configure a microSD card for recording alarm-triggered events. The microSD card slot is located on the edge of the camera module.

##### Compatible SD cards

- microSD, microSDHC, microSDXC
- Up to 128 GB maximum capacity

The camera uses the format EXT3, while most microSD cards use the format FAT32. Therefore, it is necessary to format the microSD card to EXT3 prior to using the first time.

Use the camera to format the microSD card for an EXT3 file system using the Camera Web Interface. See Recordings, page 37.

In addition, you may use a computer to format several microSD cards for an EXT3 file system. While additional software is required, this method may be faster.



#### 3.2 Indoor & Indoor Night Cameras

The Evolution 05 Mini Indoor camera is designed for quick and easy installations. Install the Mini Indoor camera anywhere a professional lightweight enclosure is required. A range of mounting accessories includes an IK10 vandal-proof cover and pendant mount adapter.

Use the enclosure for indoor use in surface mount installations. The indoor camera consists of the polymer base and cover.

The Evolution 05 Mini Indoor camera comes fitted with an RJ45 flying lead for connectivity to data and PoE.



**NOTICE:** The Indoor Night camera requires an 850 nm infrared light source and passes visible, and near infrared light (850 nm).



Two Torx screws attach the cover to the base.

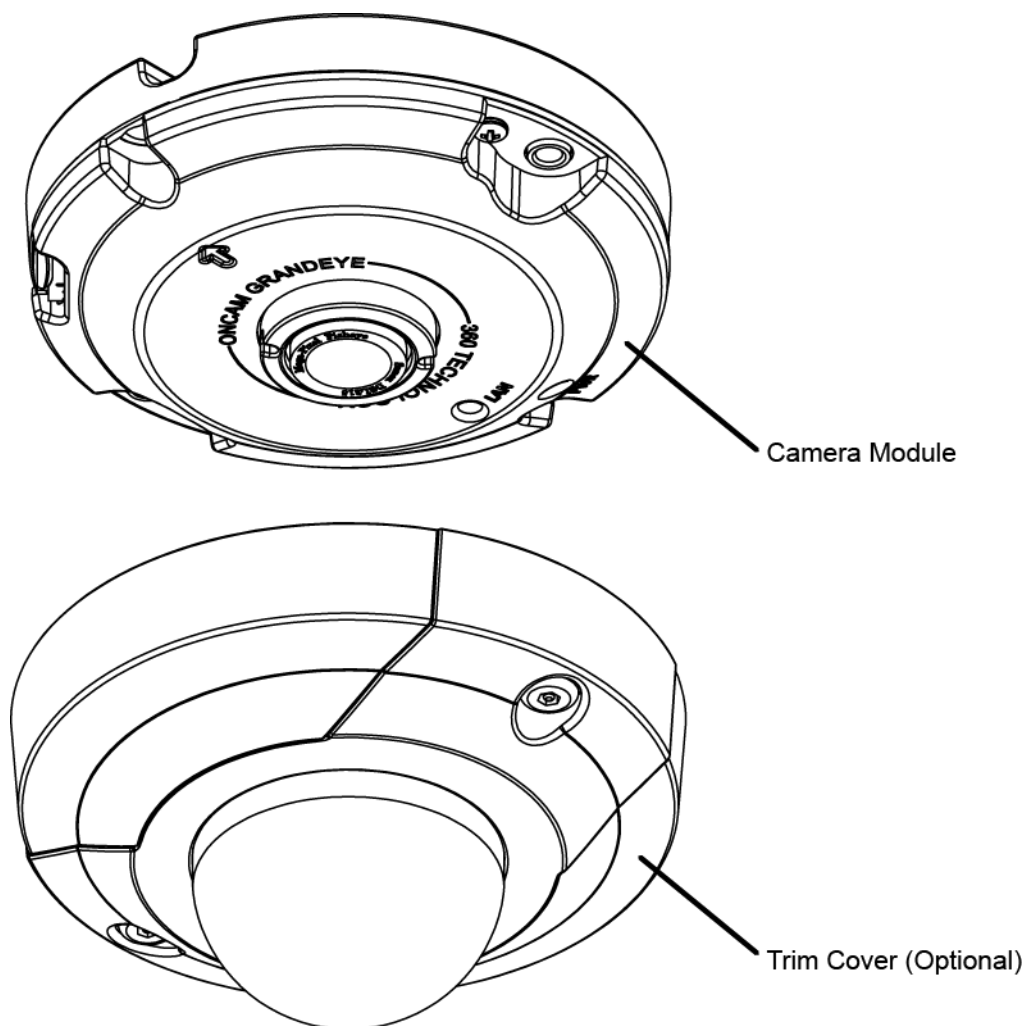


Figure 1 Indoor Camera Exploded View

### 3.2.1 Parts List

- Camera Module
- Mounting Kit
- Quick Start Guide
- Torx Screwdriver Bit
- Drilling Template

### 3.2.2 Installation Steps

**NOTICE:** Do not over-tighten the Torx screws. Only hand tighten.

1. Prepare the surface by using the supplied drilling template. Drill holes appropriately sized for the two base holes for use with mounting hardware.

**NOTICE:** Use the hardware appropriate for the surface material that collectively supports at least four times the weight of the camera.

2. Loosen the two cover screws using the Torx tool bit and remove the trim cover.
3. Attach the camera module to a wall or ceiling surface using the two base holes.

4. Route the network cable through the mounting plate cable routing canal to allow concealed cable access from the rear or side of the enclosure.
5. Reattach the trim cover to the camera base and apply power.
6. Remove the screen protection.

For mounting options, see Camera Mounts, page 17.

### 3.3 Panel-Mount Camera

The Evolution 05 Mini Panel Mount camera provides quick and easy installations in shallow areas requiring the EN50155/EN45545 transport certification. The panel mount camera comes with an RJ45 or M12 plug and spans a 108 mm (4.25-inch) diameter. Install the Mini Panel camera behind thin flat surfaces of 1 to 3 mm (.04 to .12-inch) thickness, such as walls or ceilings.

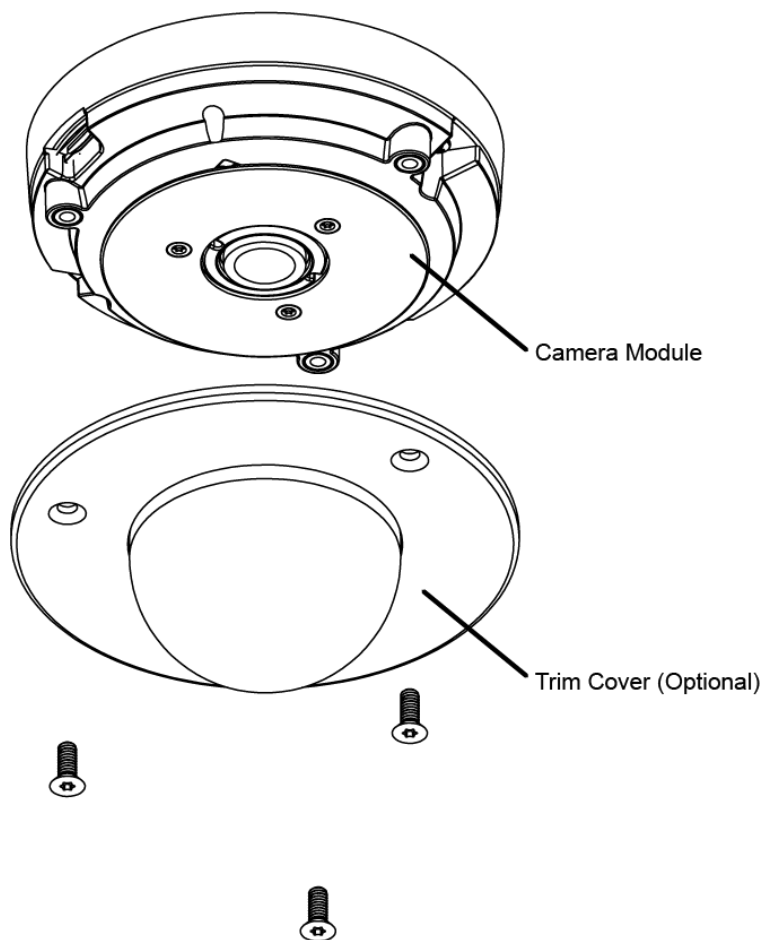


Figure 2 Panel-Mount Camera Exploded View

#### 3.3.1 Parts List

- Camera Module
- Mounting Kit
- Quick Start Guide
- Torx Screwdriver Bit
- Drilling Template

### 3.3.2 Installation Steps

**NOTICE:** Do not over-tighten the Torx screws. Only hand tighten.

1. Prepare the surface by using the supplied drilling template. Drill holes appropriately sized for the three base holes and center clearance hole.
2. Loosen the three cover screws from the front plate using the Torx tool, removing the front plate.
3. Position the camera behind the panel surface with the fisheye lens protruding through the center hole, aligning the surrounding three holes.
4. Reattach the front plate to the camera using the three Torx screws. The panel is sandwiched between the front plate and the camera.
5. Apply power and remove the screen protection.

### 3.4 Recessed Camera

The Evolution Mini Recessed camera allows for easy and fast internal installation from below the ceiling line. The camera is IP40-rated and UL2043 certified for installation in air handling spaces.

The Evolution 05 Mini Recessed camera provides recessed mounting in drop ceilings or walls with a maximum cross section of 25.4 mm (1-inch).

Remove the camera's trim cover and paint the cover to blend with your installation environment.

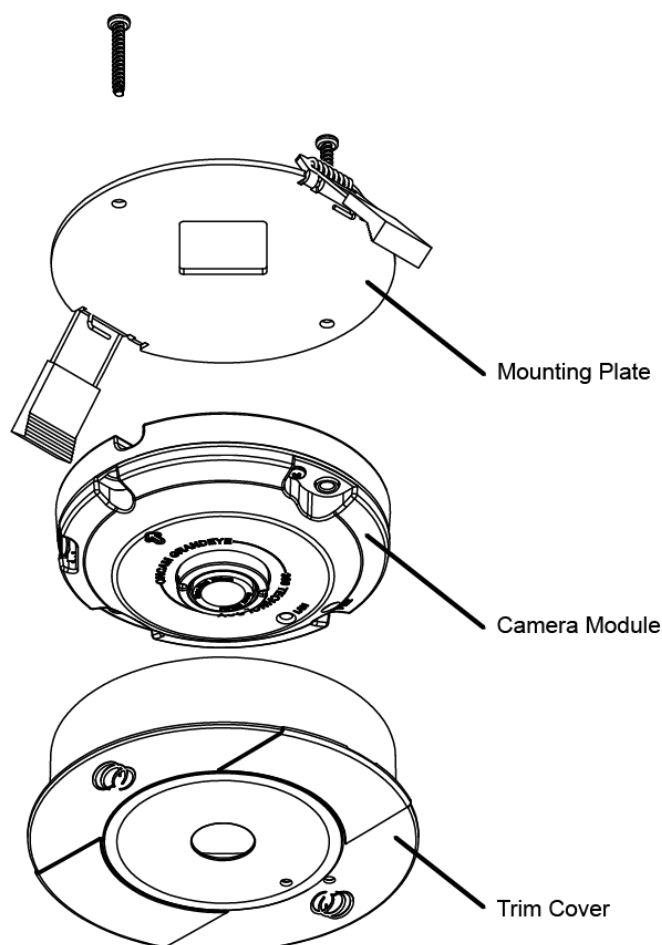


Figure 3 Recessed Camera Exploded View

### 3.4.1 Parts List

- Camera Module
- RJ45 Coupler
- Quick Start Guide
- Drilling Template

### 3.4.2 Installation Steps

1. Using the drilling template, cut a 108 mm (4.25-inch) mounting hole.



2. Connect the Ethernet coupler to the network infrastructure cable. Pass any spare cable length through the hole into the ceiling before fitting the camera.
3. Connect the camera and confirm the LED lights illuminate when powered.
4. Push both retaining springs to an upright position and insert the camera into the hole.



5. Release the springs and gently push the camera into position.



6. Carefully remove the lens protection film.

### 3.5 Outdoor Camera

Surface mount the Mini Outdoor camera to a flat surface, such as a wall or ceiling. The Evolution 05 Mini Outdoor model consists of the Camera module that is Polymer base and outer cover with an IK10-rated optical bubble.

The camera module is supplied fitted with a flying lead with either an RJ45 socket or an M12 plug. This provides connectivity for data and Power over Ethernet (PoE). The cover comes fitted with two stainless steel Torx security screws to fix it to the base module.

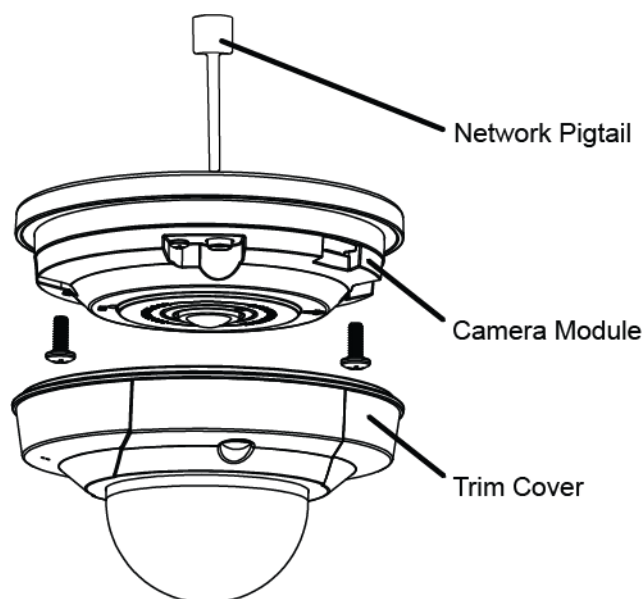


Figure 4 Outdoor Camera Exploded View

#### 3.5.1 Parts Supplied

- Camera Module
- Mounting Kit
- Quick Start Guide
- Torx Screwdriver Bit
- Drilling Template

#### 3.5.2 Installation Steps

**NOTICE:** Do not over-tighten the Torx screws. Only hand tighten.

1. Using the drilling template, drill holes sized for the mounting hardware and network connector pigtail.
2. Loosen the screws with the Torx screwdriver bit.
3. Carefully remove the trim cover, ensuring the gasket is not damaged or removed.
4. Secure the camera base to a wall or ceiling with the appropriate mounting hardware. Pull the cable through the mounting surface.
5. Realign the front cover to the base, ensuring the Gore vent holes are aligned with the side arrow.
6. Fasten the Torx screws, installing the protective caps.

For mounting options, see Camera Mounts, page 17.

### 3.6 Outdoor Pendant Camera Kit

The Mini Outdoor Pendant Camera Kit is intended for compatible wall, pole or pendant mount brackets. The Outdoor Pendant Camera Kit consists of an RJ45 camera module and a preassembled Pendant Mount Assembly (Sunshield, Back Box and thread adapter).

The RJ45 flying lead provides connectivity for data and Power over Ethernet (PoE).

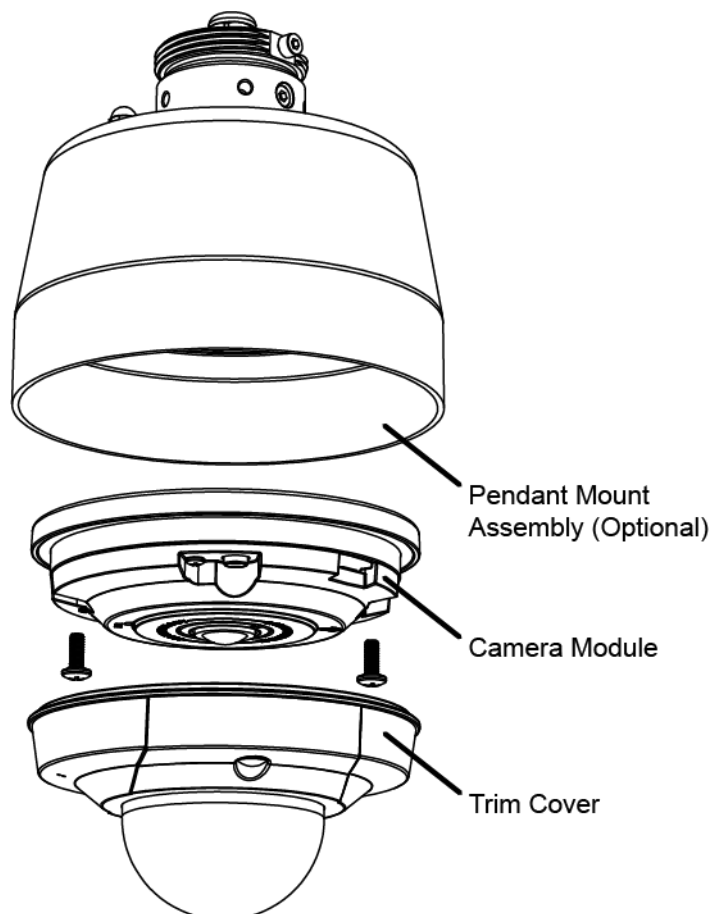


Figure 5 Outdoor Pendant Camera Kit Exploded View

#### 3.6.1 Parts Supplied

- Camera Module
- Pendant Mount Assembly
- Quick Start Guide
- Drilling Template
- Torx Screwdriver Bit
- Spanner

#### 3.6.2 Preparation

1. Remove the two dome cover screws using the Hex Screwdriver Bit.
2. Carefully remove the dome cover and set aside.



### 3.6.3 Installation Steps

**NOTICE:** Do not over-tighten the Torx screws. Only hand tighten.

1. Using the drilling template, drill holes sized for the mounting hardware.
2. For concealed cable entry, also drill the cable clearance hole.
3. Pass the unterminated network cable through the cable gland at the top of the pendant assembly.
4. Tighten the cable gland using the supplied spanner.
5. Align the camera base to the Pendant Mount assembly and twist into place.
6. Secure the Pendant Mount assembly into the bracket or mounting pole.
7. To ensure the cable does not twist, do not rotate the lower part of the Pendant Mount Assembly.
8. Using the Hex Screwdriver, fully tighten the Pendant Mount Assembly to the mounting bracket.
9. Trim the network cable to length and terminate, securing it to the camera module.
10. Ensure the excess cable fits comfortably into the back box of the Pendant Mount Assembly.
11. Secure the camera to the Pendant Mount Assembly.
12. Attach the dome cover to the camera.
13. Tighten the Pendant Mount Assembly locking screw.
14. Remove the protective dome cover film.



### 3.7 Accessories

Accessories are available to compliment and extend the flexibility of the Evolution 05 Mini camera. Some are in convenient kits to make ordering easier and ensure that nothing is missing at installation.

Camera Application	Part Number	Description
Indoor, Panel-Mount, Night	OBE-11-IWA (White) OBE-11-IBA (Black)	IK10+ vandal resistant bubble trim The bubble trim is made of optical grade polymer
Indoor, Night, Outdoor	OBE-16-OWA (White) OBE-16-OBA (Black)	M20 conduit back box Fitted for the camera back and provides three entry points for easy cabling through M20 size conduits. Coil excess cable within back box.
Indoor, Night	OBE-13-IBA	Pendant Mount Adapter M32 female thread; supplied with M32 to 1½ NPT male thread adaptor. Fit onto the camera back
Indoor, Night	OBE-17-OWA (White) OBE-17-OBA (Black)	Indoor Mounting Kit Includes a Pendant Mount Adapter and Conduit Back Box.

Camera Application	Part Number	Description
Outdoor	EVO-05-LWK (White) EVO-05-LBK (Black)	The kit contains the following items for the EVO-05 Mini Outdoor Camera (RJ45 option) Pre-assembled Pendant Mount Assembly (Sunshield, Back Box and thread adapter)



## 4 Camera Mounts

The following mounting accessories are available for the Indoor and Outdoor Evolution cameras to allow installation in multiple environments.

### 4.1 Wall Mount

The Wall Mount has a 1½-inch NPT female pipe thread. There is a set screw in the 1½-inch thread area which locks the housing into a fixed rotation.

OBE-04-OWA -White

OBE-04-OBA – Black

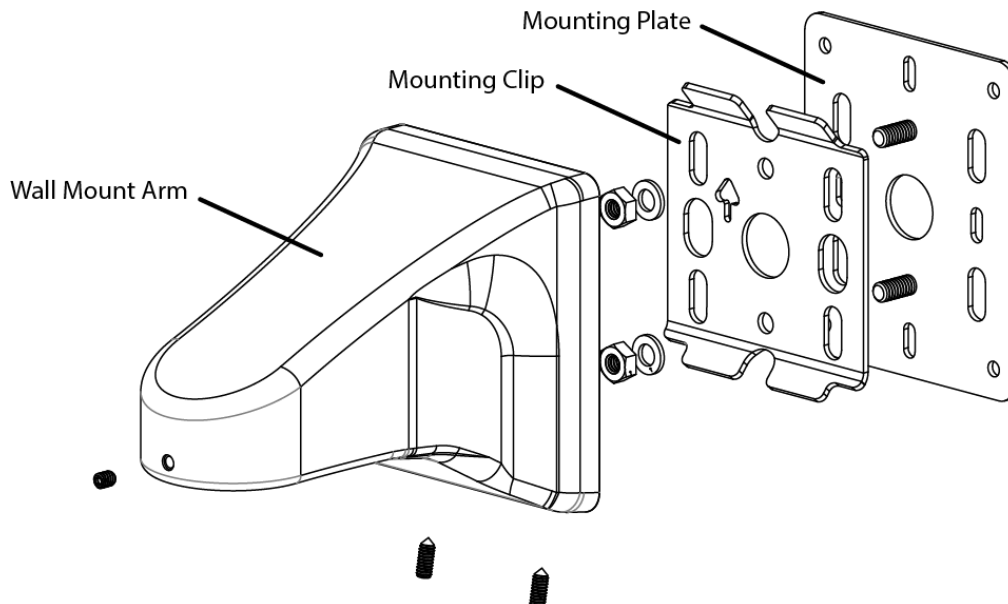


Figure 6 Wall Mount Exploded View

The Mounting Plate is not required when mounting to a studded or solid wall where you are not using an electrical box.

Likewise, do not use the Mounting Plate for Pole or Corner Mount installations.

1. Fasten the Mounting Clip to the wall surface using fasteners (not supplied). Ensure using the appropriate fasteners for the wall material (capable of supporting a minimum four times the weight of the wall mount and camera).
2. Ensure that the arrow mark on the plate is oriented up.
3. Pass the cables through one of the holes in the plate.
4. Hook the wall mount arm over the top tabs on the Mounting Clip.
5. Tighten the two set screws on the bottom, locking the arm to the Mounting Clip.
6. Pass the cables through the mount arm and out the threaded hole on the end of the arm.

#### 4.1.1 Rough Surfaces or over Electrical Boxes

1. Fasten the Wall Mount Plate to the box or the wall surface.
2. Fasten the Mounting Clip using the two nuts and washers provided.

This provides an even surface for the Mounting Clip Plate.

**CAUTION: Do not mount the camera to an electrical box where the camera would be easily accessible. Ensure the electrical box is structurally sound to support the camera.**

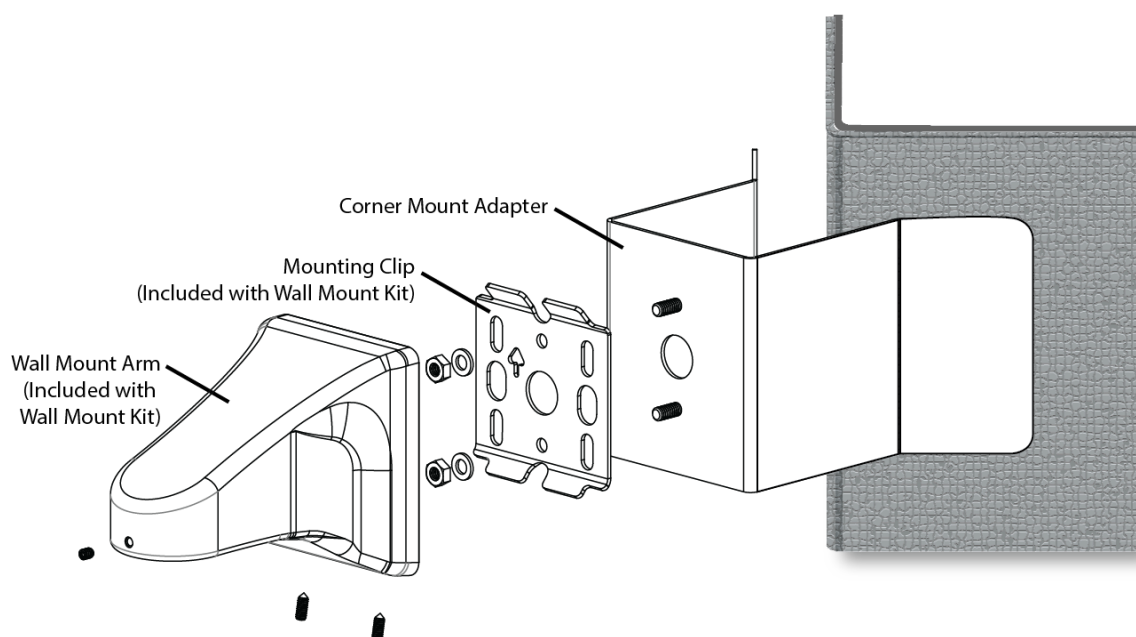
## 4.2 Corner Mount

The Corner Mount is a bracket that adapts the wall mount to fit diagonally on the corner of a building, giving a 270° FoV at the corner. Attach to the building through four appropriate fixings (not provided). The bracket has an opening that accommodates a conduit connection into the back of the wall mount. The Wall Mount Mounting Clip attaches directly to the Corner Mount bracket in the same manner as the pole mount.

OBE-05-OWA – White

OBE-05-OBA – Black

Use with the Wall Mount kit sold separately.



**Figure 7 Corner Mount Exploded View**

1. Fasten the Corner Mount Adapter to wall surfaces using four fasteners (not supplied). Ensure the fasteners are appropriate for the wall material and capable of supporting at least four times the weight of the wall mount and camera.
2. Fasten the Wall Mounting Clip to the Corner Mount adapter using the two nuts and washers provided with the Wall Mount Kit.

**Note:** The Wall Mount Plate is not used.

3. If necessary, the hole in the Corner Mount Adapter accepts a flexible conduit adapter.
4. Pass the cables through the hole and into the Wall Mount Arm.
5. Fasten to the Mounting Clip.

### 4.3 Pole Mount

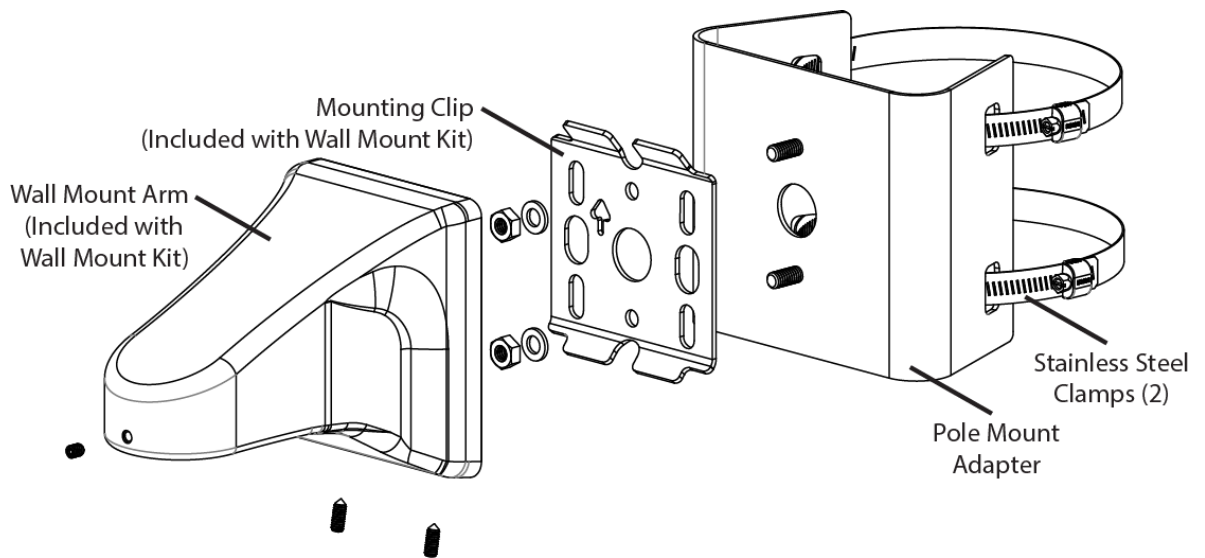
Use the Wall Mount Kit in conjunction with the Pole Mount when attaching to a light pole. In addition, use the Pole Mount and Corner Mount to connect to the corner of a building. The Pole mount is a bracket that attaches to a pole 100 to 150 mm (4 to 6 in.) in diameter with the provided stainless steel clamping bands.

The Pole Mount Adapter has a hole that accommodates a conduit connection from the Wall Mount Arm if it is necessary to protect the wires from the environment. The Mounting Clip attaches directly to the Pole Mount Adapter in the same manner as the Mounting Plate.

OBE-03-OWA – White

OBE-03-OBA – Black

Use with the Wall Mount kit sold separately.



**Figure 8 Pole Mount Exploded View**

1. Fasten the Pole Mount Adapter to the pole using the two Stainless Steel Clamps.
2. Fasten the Mounting Clip to the Pole Mount Adapter using the two nuts and washers provided with the Wall Mount kit.

**Note:** The Wall Mount Plate is not used.

The hole in the Pole Mount Adapter is designed to accept a flexible conduit if desired.

3. Pass through the cables into the hole and the Wall Mount Arm
4. Fastened the Wall Mount Arm to the Mounting Clip.



## 5 Dome Handling and Cleaning

The standard dome is made of a polycarbonate (PC) polymer. Take care when handling or cleaning a dome to avoid scratching the surface.

- Always handle the dome by the outside edge of the flange or trim ring assembly.
- Avoid contacting inside surface of the dome.
- Remove dust or other surface contaminants from the dome's interior with clean, dry air pressure (compressed air cans).
- Remove heavy residue (spots, streaks, stains) or other contaminants from the dome surface with a solution of a mild liquid dish detergent or isopropyl alcohol and water. Only use lint free soft paper towels or a microfiber cloth. After cleaning the dome, apply clean, dry air to complete drying and leave no dust.
- Scratches or other surface blemishes within the material of the dome maybe removed by applying a non-abrasive wax (Meguiar's #18 or equivalent) with a microfiber cloth. After waxing, apply clean, dry air to complete drying and leave no dust.

**NOTICE:** The dome may become unusable due to excessive pressure or rubbing causing permanent scratches.

## 6 First Time Operation

The factory default configuration is DHCP. When a DHCP server is unavailable, the factory default IP address is 192.168.0.200.

Install the Oncam Grandeye IP Configuration Tool. Find the latest version at [www.oncamgrandeye.com](http://www.oncamgrandeye.com). Configure all camera IP addresses with the IP Configuration Tool.

### 6.1 DHCP

DHCP is the default camera configuration. Cameras acquire a unique IP address when connected to a network with a DHCP server. If you are using DHCP permanently for the camera's IP address, be sure to reserve that address with the DHCP server to ensure that the assigned IP address does not change. If a DHCP server is not found or DHCP is disabled, the camera will revert to its current static IP address.

### 6.2 Static IP Installation

For a multi-camera installations, always introduce the cameras one at a time and then re-address them to a non-conflicting static IP address. Using the Network Settings page from the camera Web interface or the IP Configuration Tool.

### 6.3 Finding Available Cameras

Use the Oncam IP Configuration Tool to discover cameras installed on your Local Area Network (LAN).

1. Open and run the Configuration Tool.
2. Select the camera type to see a list of installed cameras on your network.

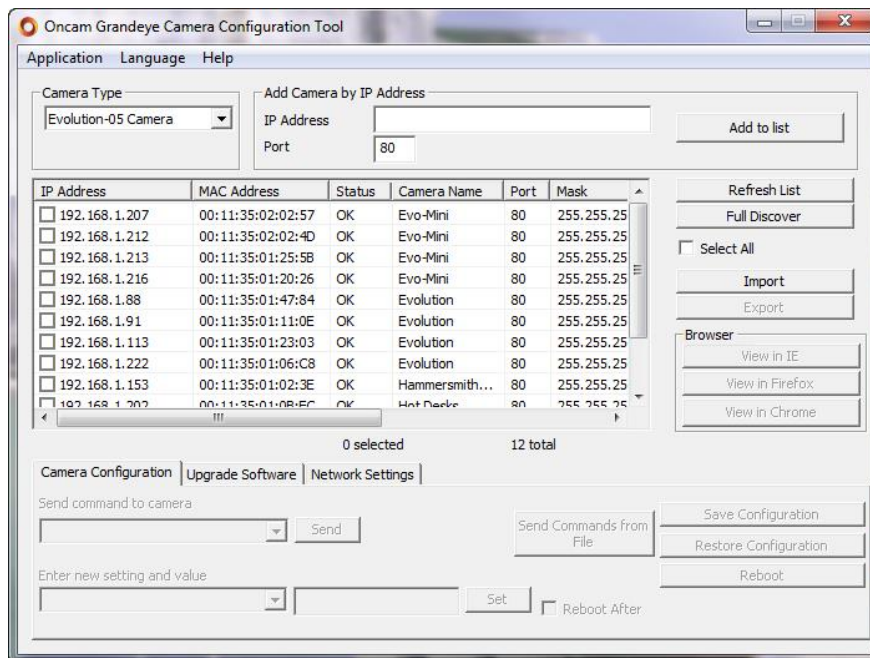


Figure 9 Oncam Grandeye Camera Configuration Tool

## 6.4 Assigning an IP Address

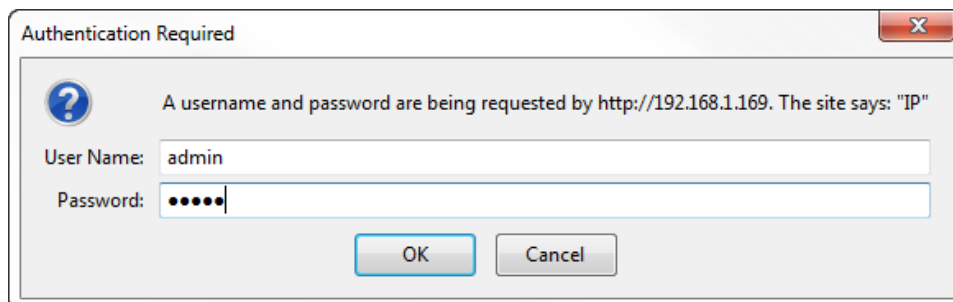
1. Select the Camera Type.
2. Press Refresh List or Full Discover to find new cameras, or update information on cameras already in the list.
3. Check the IP Address box for changing the IP address of a camera.
4. Select the Network Settings tab.
5. Click Get Network Settings to download current settings.
6. Click OK once the download completes.
7. Enter the new IP address, Subnet Mask and Gateway and disable DHCP.
8. Click Save Network Settings to upload new settings to the camera.

You can identify cameras by their MAC addresses. Find the MAC address printed on the camera label and packaging.

## 6.5 Connecting to the Camera

Connect to any camera on your network by entering the camera IP address into the address bar of a browser running on a PC on the same network. To access the Web interface, open a browser window (Firefox, Internet Explorer, Edge and Safari) and enter the IP address of the camera. (For example, <http://192.168.0.200>).

The first response will be an authentication screen requesting a User Name and Password:



**Default User name:** admin

**Default Password:** admin (case sensitive)

**Note:** The admin user is permanent and cannot be renamed or deleted.

For security purposes, you should change the admin password. If desired, add other users and set the admin password to a complicated random string. Then use another user name for routine maintenance.

## 6.6 Media Player Requirements

QuickTime or VLC media player are required for viewing video through a web browser. The web browsers supported are Firefox, Internet Explorer, Edge or Safari.

### 6.6.1 QuickTime

For firmware versions earlier than 1.9.9.243, use QuickTime version 7.7.4.

Download the QuickTime media player from <https://software.com/windows/video/apple-quicktime/7.7.4>.

## 6.6.2 VLC

For firmware versions later than 1.9.11.310, use the latest VLC media player.

Download the latest VLC media player from [www.videolan.org](http://www.videolan.org) > VLC > Download.

# 7 Camera Web Interface

Access camera configuration through the camera Web interface.

- Open a browser window and enter the camera IP address.
- Enter the User name and Password for this camera. The Control Panel screen displays.

**Note:** Images in the following sections may vary.

## 7.1 Control Panel

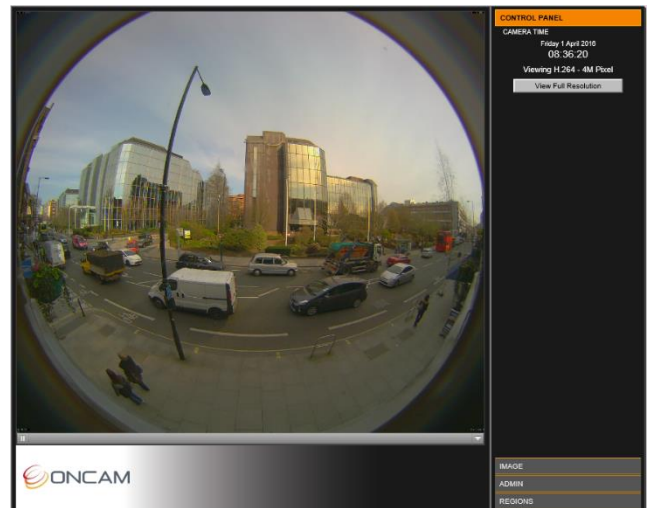
The camera produces a fisheye view that is a full 360-degree image in a circular format.

The camera streams two fisheye images at the same time.

By default, only Fisheye1 displays in the Control Panel with one of the following options.

<b>4 MP</b>	2144 x 1944
<b>2 MP</b>	1448 x 1360
<b>1 MP</b>	1056 x 960
<b>0.25 MP</b>	528 x 480

Set the resolution from Admin > Stream Settings. See Stream, page 35.



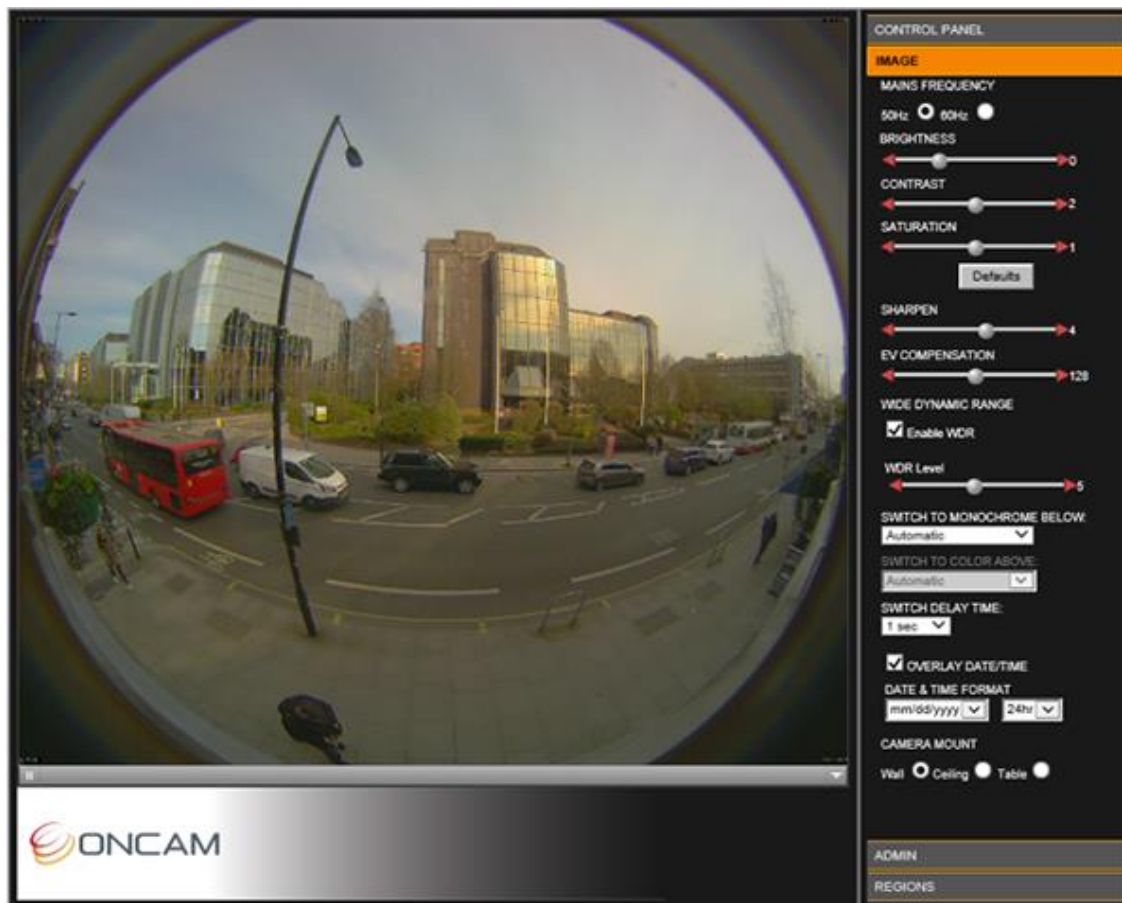
Shown in the right pane is the Control Panel that includes the camera date and time, and current image streaming.

Set the current date and time from the Admin tab.



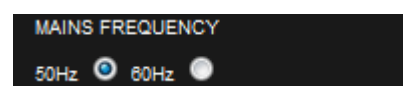
## 7.2 Image

The Image tab includes lighting and orientation controls for the image sensor.



### Mains Frequency

Select the mains frequency depending based on the camera location.



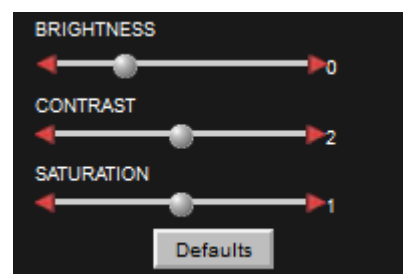
### Image Controls

Adjust the view using the image controls (Brightness / Contrast / Saturation).

Select the Defaults button to return the sliders to their default settings.

The camera has automatic imaging controls to guarantee the best image quality at all times.

Rarely use manual tuning.



### 7.2.1 Sharpen

Increase or decrease the clarity and focus of an image. Using the Sharpen setting also emphasizes noise and increases data size.

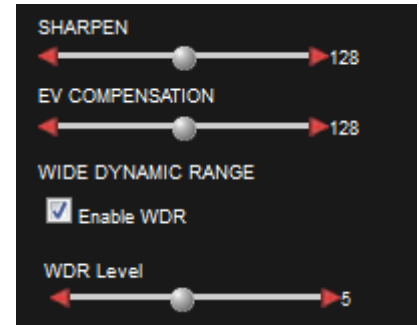
### 7.2.2 EV Compensation

Increase or decrease the image exposure. Adjust the EV Compensation for unusual lighting conditions.

### 7.2.3 Wide Dynamic Range

**Wide Dynamic Range.** This increases the dynamic range in difficult lighting conditions. WDR particularly lightens dark areas without over brightening light areas.

**WDR Level.** After enabling WDR adjust the amount of WDR processing that is applied to the image. Higher settings further bring-out detail in shaded areas, in exchange for slightly lowering the overall contrast.



### 7.2.4 Switch to Monochrome

Control how the camera image switches from Color to Monochrome in response to different illumination levels.

Selecting Automatic (default) and the camera transitions progressively between color and monochrome as the illumination level varies.

Selecting Always Monochrome and the camera image remains in monochrome at all times.

Selecting specific Lux thresholds separates settings made for the Color-to-Monochrome to help the color remain stable in varying low-light conditions. In this configuration, the color follows a hysteresis curve as illustrated in Figure 10 Color Hysteresis Curve, page 26.

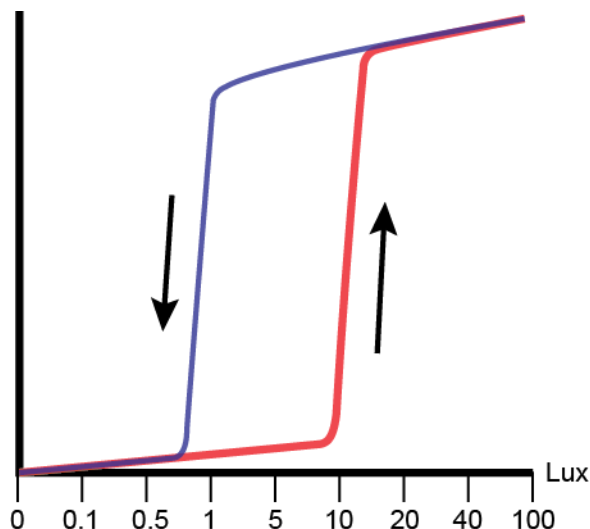
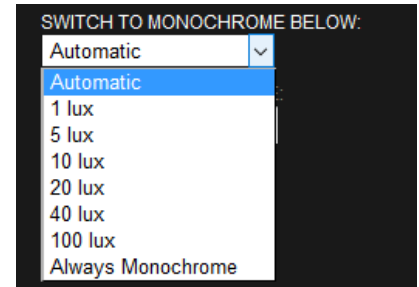


Figure 10 Color Hysteresis Curve



In Figure 10 Color Hysteresis Curve, page 26, the camera switches to Monochrome when the illumination falls to 1 Lux. The camera switches back to Color mode when the Lux rises to 20 Lux.

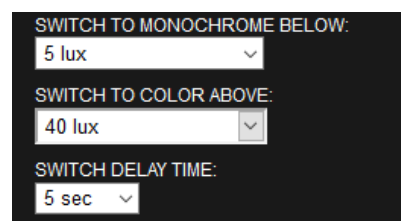
Set the two settings differently so the camera does not oscillate between color and monochrome when the illumination level is close to the threshold.

- **Non-Permanent IR Light.** Set the Monochrome-to-Color threshold high enough that the camera does not switch back to color mode when the IR lighting is present.
- **Lux Readings.** A lux meter reading may differ from a 360° sensor due to differing fields of view.
- **IR-Sensitive Camera.** Lux meter readings may differ because the camera accepts IR light.

### 7.2.5 Switch Delay Time

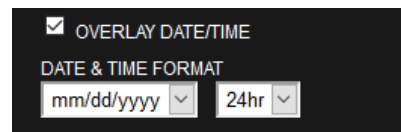
Select a delay time to prevent unwanted switching with large temporary light changes (for example, car headlights). Ignored are variations in illumination shorter than the defined Switch Delay Time.

The camera will not switch to Color mode if the illumination changes from 3 Lux to 100 Lux for 3 seconds and then falls back to 5 Lux.



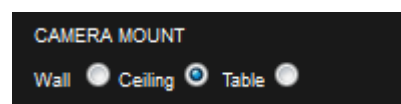
### 7.2.6 Image Time and Date Overlay

Overlay the current date and time onto the image outside of the fisheye circle so not obscuring the video. The scaled image and overlay appears small when viewed using a web browser. Settings are available to set the format of the date and time text.



### 7.2.7 Camera Mount

**Camera mount position.** Mount cameras vertically or horizontally (for instance, wall or ceiling). When using the Oncam SDK for camera viewing and recording this setting ensures the scene is properly de-warped and the NVR PTZ operations correctly work. Set PTZ to match the installation position of your camera.



## 7.3 Administration

The Admin menu provides the camera software version and MAC address. Access all administrative camera parameters through the Admin menu.

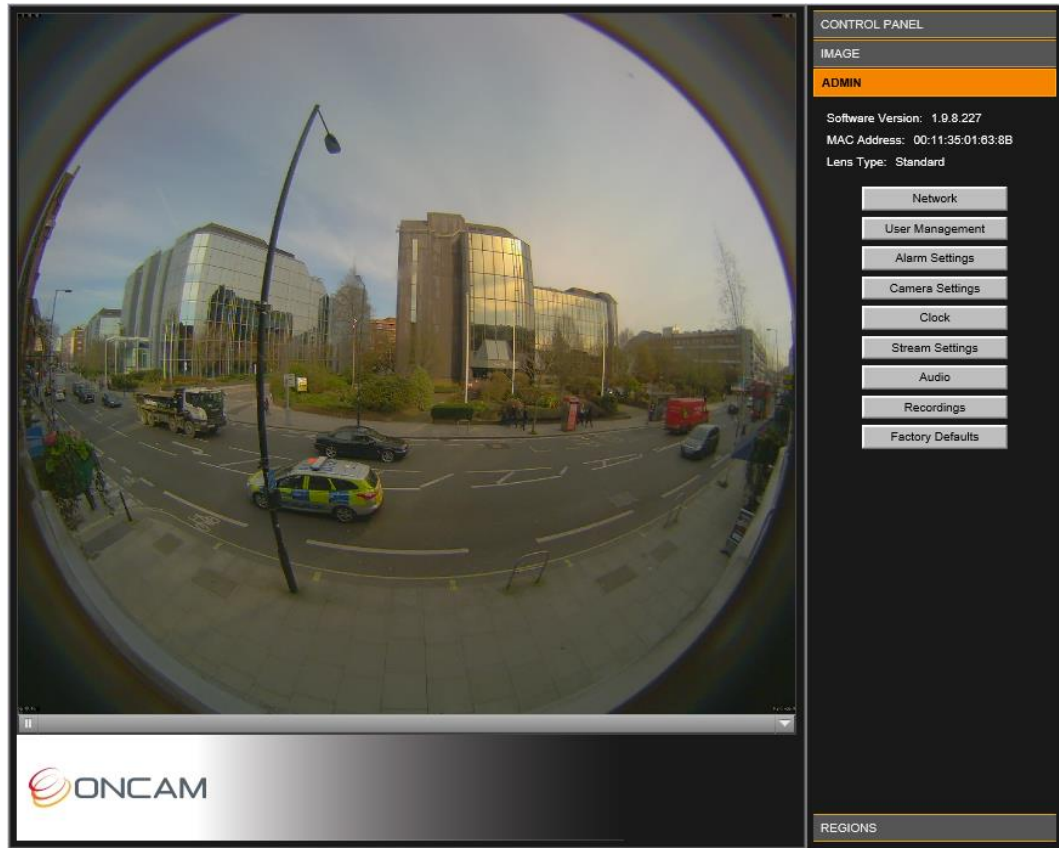
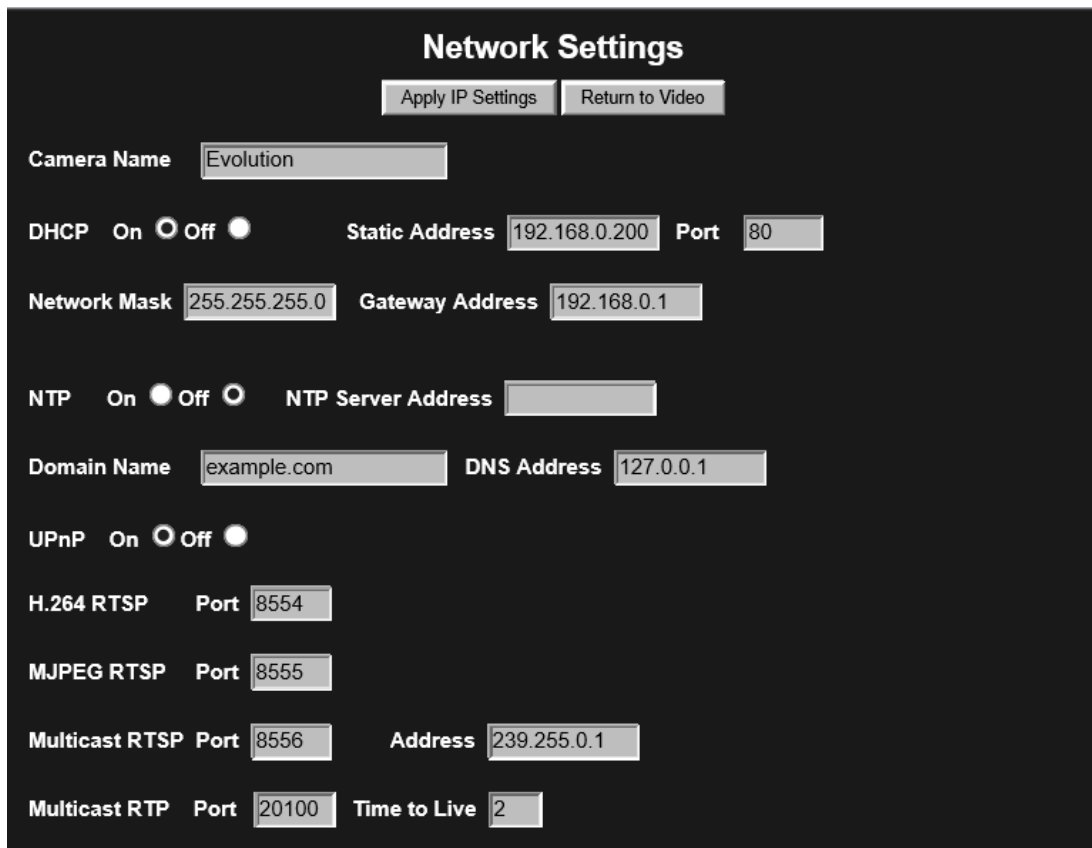


Figure 11 Administration Settings

### 7.3.1 Network

Using the Camera Configuration Tool you can configure the different Network Settings.



**Figure 12 Network Settings**

**DHCP (Default).** The camera is configured for DHCP. Detect the camera using the Camera Configuration Tool.

**Static IP Address.** Configure the camera using the Static IP address if DHCP is unavailable.

**Camera Name.** Modify the Camera Name.

**Default port.** Connecting the web server defaults to port 80.

**NTP Server.** Provides accurate time services to the camera. For a Network Time Protocol server, enter the DNS name or IP address of the NTP Server.

**UPnP (On / Off).** Enable the Universal Plug-and-Play feature to show the camera from other UPnP compatible devices on the same network (for example Windows computers).

**Multicast RTSP port.** Use the RTSP port for receiving a multicast RTSP request from a client.

**Multicast RTP port.** Use the RTP port for multicasting the video. The clients that receive the video use the Multicast RTP port and Address value to receive the video. Consult your network administrator.

**Address.** Use the IP address for multicasting the video. The clients that receive the video will use the Address value as well as the Multicast RTP port value to receive the video. Consult your network.

**Time to Live.** Sets the Time to Live value in your multicast IP packets. Consult your network.

**NOTICE:** If making changes, click Apply IP Settings to save changes. Your Web Interface connection may be lost if the IP address changes to another subnet.

### 7.3.2 User Management

Enter a User Name and Password for each user. There are three different user profiles.

#### User

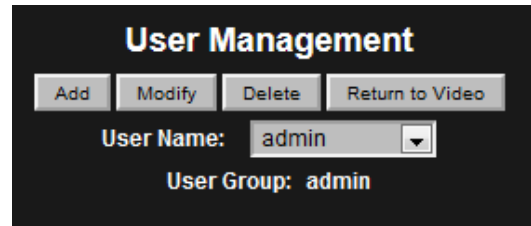
View image streams and camera configuration.

#### Operator

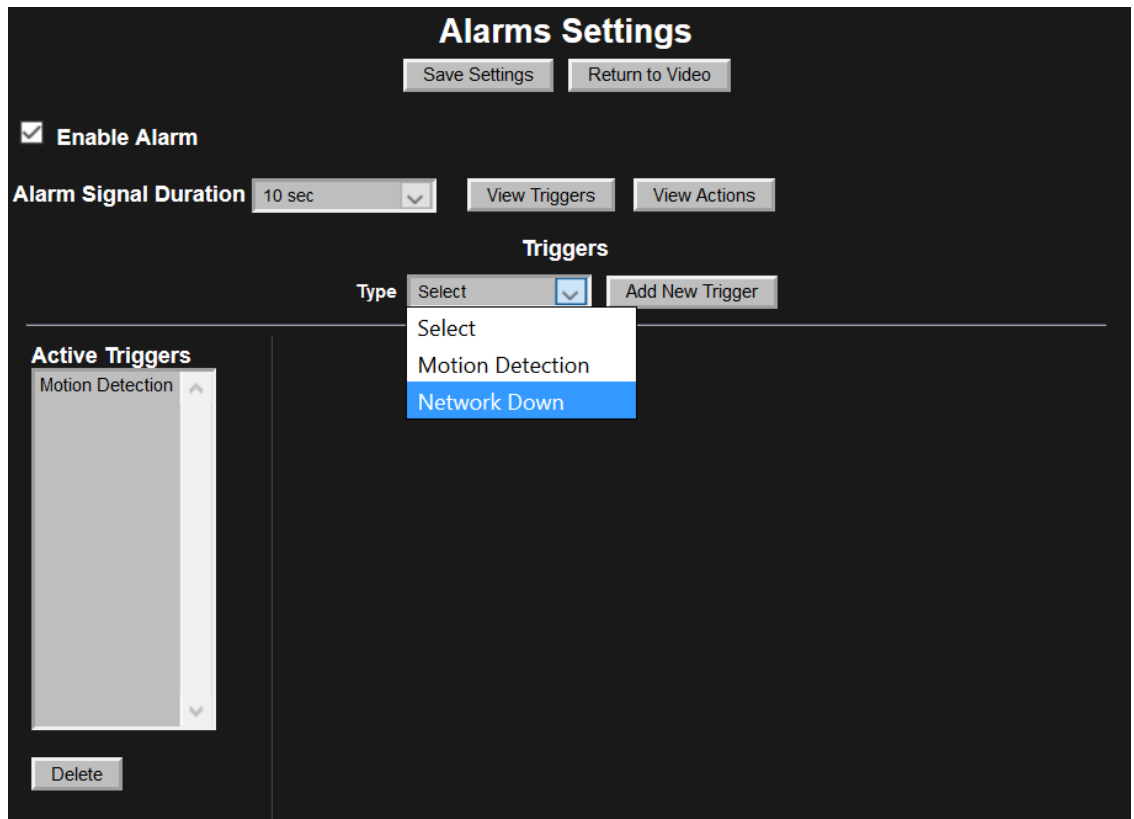
Change image and IP, motion regions, alarm settings and administer a factory reset.

#### Administrator

Access all functions, including user configuration.



### 7.3.3 Alarms



**Figure 13 Alarm Settings Triggers**

**Alarm Signal Duration.** The length of time that an alarm persists after the alarm is triggered.

**View Triggers.** Access a list of triggers that activate an alarm by selecting the View Triggers button. As necessary, configure the active Triggers list.

**Add New Trigger.** Select a trigger type from the drop down list and his button select the Add New Trigger button to add another trigger to the Active Triggers list.

Available triggers include the following.

- Motion Detection – Movement detected in a defined region
- Network Down – The camera has lost its network connection

Use the Delete button to delete an unwanted trigger.

**View Actions.** Select the View Actions button. Configure the active actions list after setting the active triggers. Complete these actions when any trigger has activated. You cannot set Triggers to individual specific Actions.

Available actions include the following.

- E-mail (SMTP) – Send images through notification e-mails
- FTP – Send video to an FTP server for storage
- Record to SD Card – Video is recorded to the microSD Card for a period of time

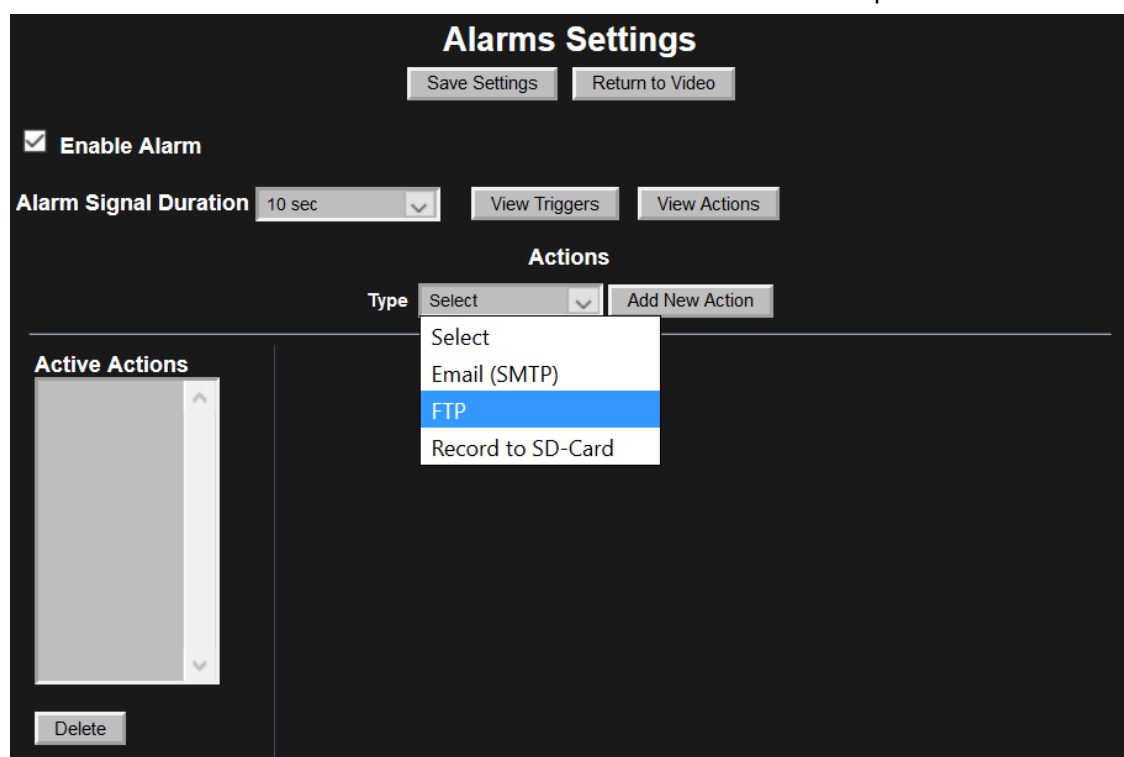
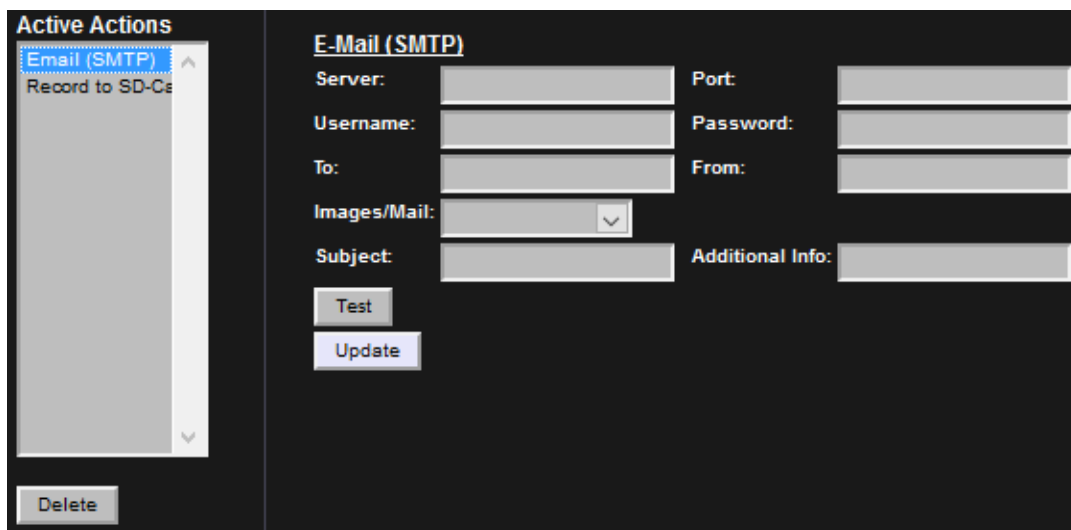


Figure 14 Alarm Settings Actions

Some actions have configurable options. From the Active Actions list, select the action to configure.

**Email (SMTP).** Send an email in response to an alarm by configuring Email (SMTP).



**Active Actions**

- Email (SMTP)
- Record to SD-Ca

**E-Mail (SMTP)**

Server:  Port:

Username:  Password:

To:  From:

Images/Mail:

Subject:  Additional Info:

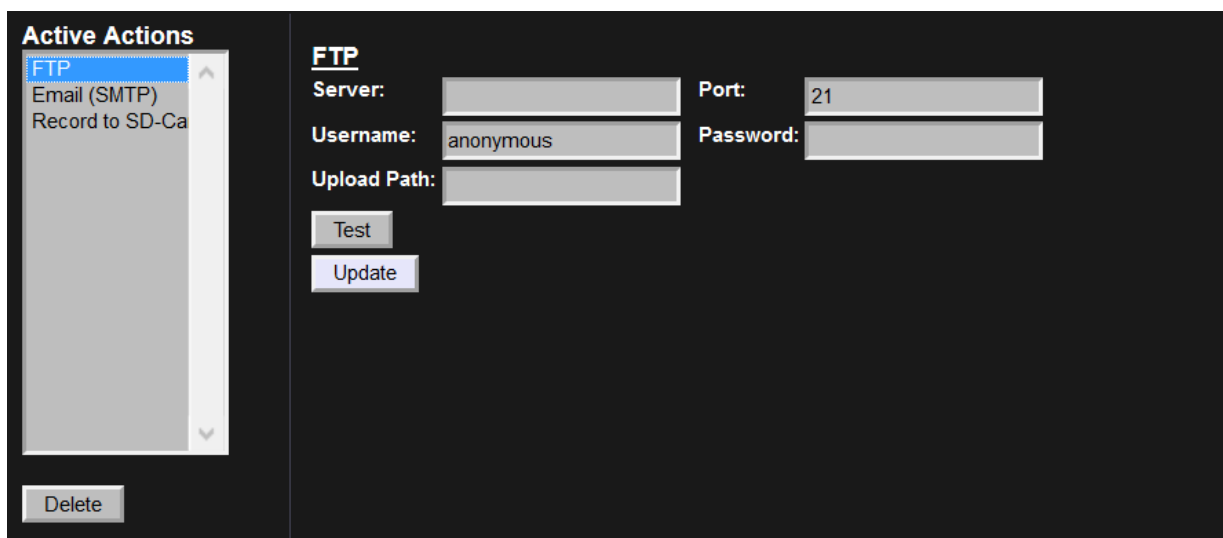
Test

Update

Delete

Figure 15 Alarm Settings Actions – E-Mail

**FTP.** Images sent to an FTP server.



**Active Actions**

- FTP
- Email (SMTP)
- Record to SD-Ca

**FTP**

Server:  Port:

Username:  Password:

Upload Path:

Test

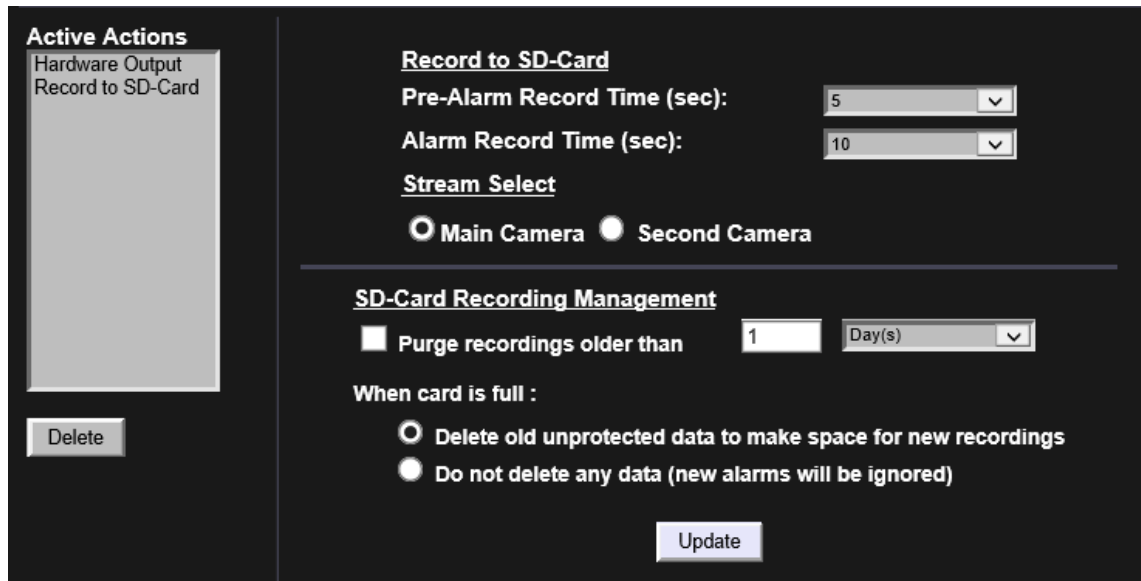
Update

Delete

Figure 16 Alarm Settings Actions – FTP



**Record to SD-Card.** Setup an alarm for recording to the microSD-Card.



**Figure 17 Alarm Settings Actions – Record to microSD-Card**

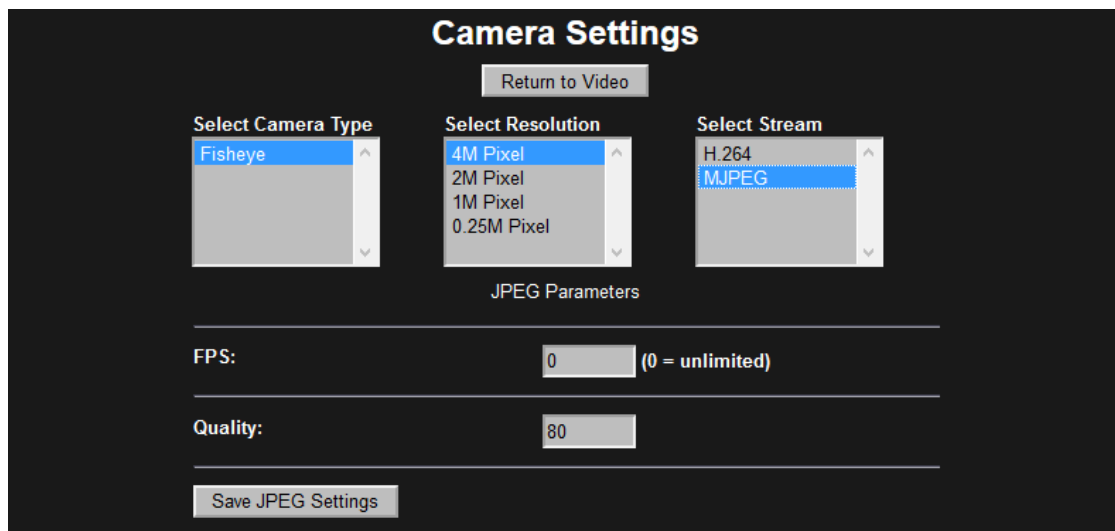
The entire recording duration is the sum of the pre-alarm and alarm times.

You can record from either the Main Camera or the Second Camera streams. The video recording has the same resolution as the live stream.

Use the Delete button to delete an action.

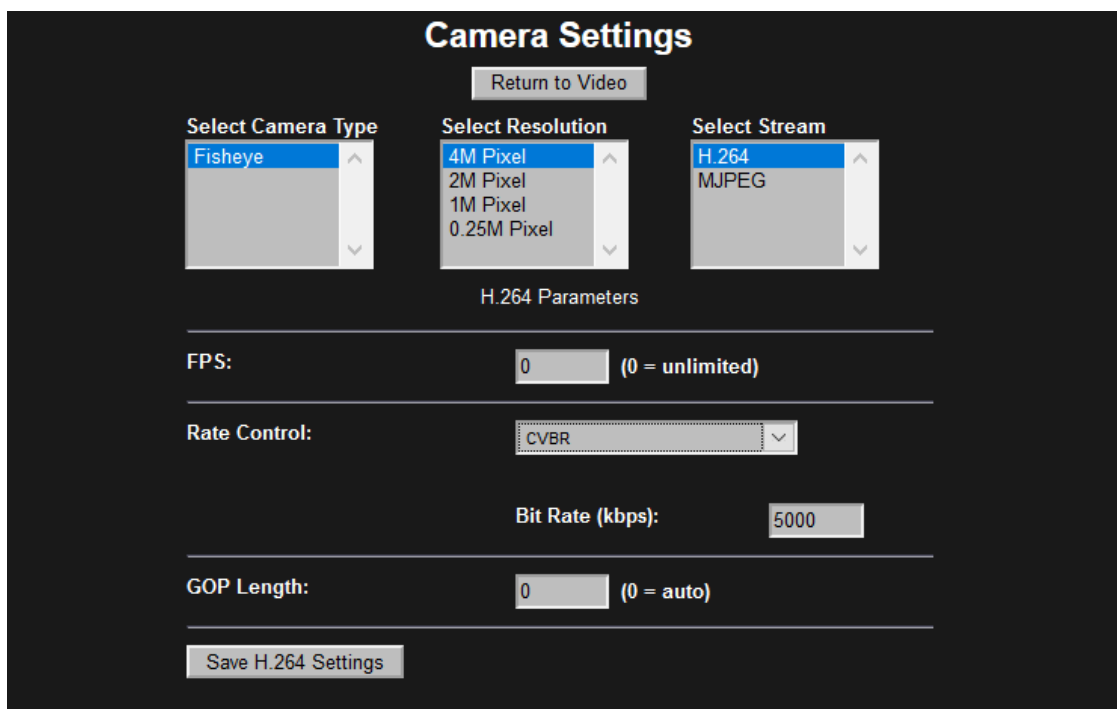
### 7.3.4 Camera

Set parameters for each individual camera resolution and stream combination. The MJPEG parameters are default when selecting the Camera Stream.



**Figure 18 Camera Settings – MJPEG**

When selecting the H.264 stream, choose from Rate Control, Bit Rate and GOP Length.



**Camera Settings**

Return to Video

Select Camera Type: Fisheye

Select Resolution: 4M Pixel, 2M Pixel, 1M Pixel, 0.25M Pixel

Select Stream: H.264, MJPEG

H.264 Parameters

FPS: 0 (0 = unlimited)

Rate Control: CVBR

Bit Rate (kbps): 5000

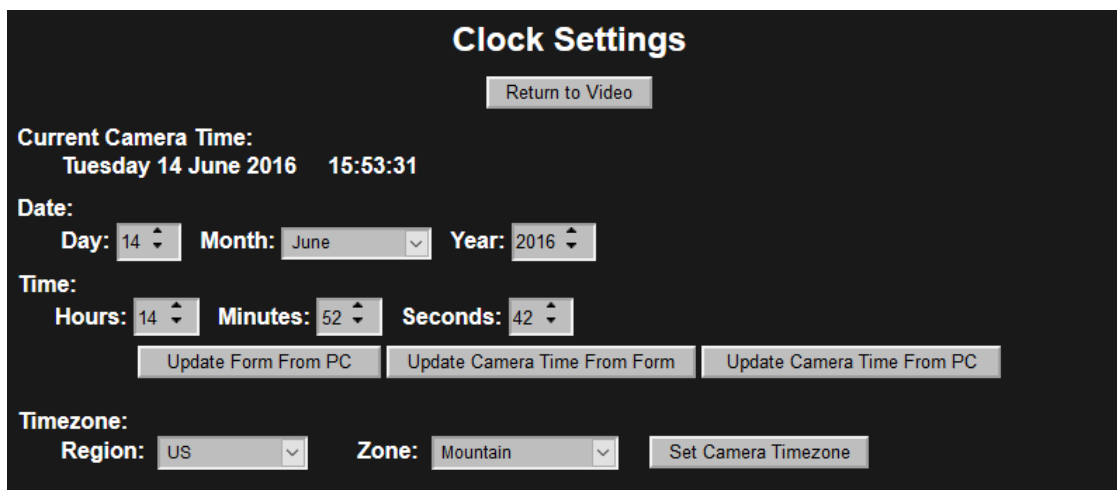
GOP Length: 0 (0 = auto)

Save H.264 Settings

Figure 19 Camera Settings – H.264

### 7.3.5 Clock

Enter the Region and Zone and set the Camera Time Zone. Then enter the current date and time using 24-hour time format. You can update the camera time directly from the PC or from the Clock Settings.



**Clock Settings**

Return to Video

Current Camera Time:  
Tuesday 14 June 2016 15:53:31

Date:  
Day: 14 Month: June Year: 2016

Time:  
Hours: 14 Minutes: 52 Seconds: 42

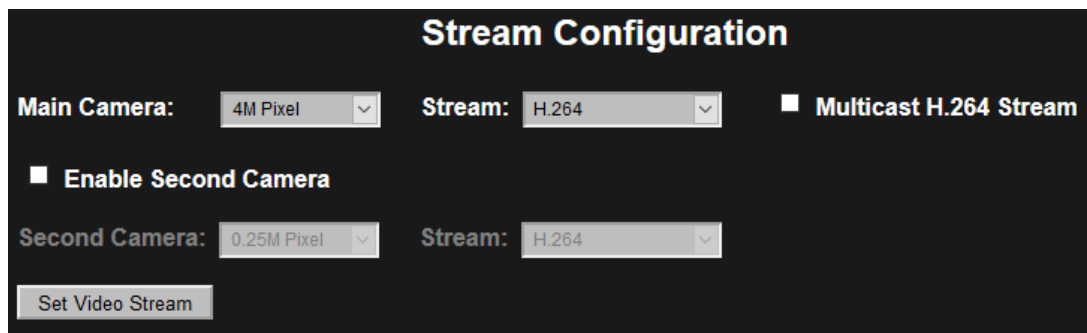
Update Form From PC Update Camera Time From Form Update Camera Time From PC

Timezone:  
Region: US Zone: Mountain Set Camera Timezone

Figure 20 Clock Settings

### 7.3.6 Stream

Configure either one or two camera streams.



The image shows a 'Stream Configuration' window with a dark background. At the top, the title 'Stream Configuration' is in white. Below it, there are two main sections. The first section is for the 'Main Camera', with a resolution dropdown set to '4M Pixel' and a stream format dropdown set to 'H.264'. To the right of these is a checkbox labeled 'Multicast H.264 Stream'. The second section is for the 'Second Camera', preceded by an 'Enable Second Camera' checkbox. Below this, the resolution dropdown is set to '0.25M Pixel' and the stream format dropdown is set to 'H.264'. At the bottom left, there is a button labeled 'Set Video Stream'.

**Figure 21 Stream Settings**

**Resolution.** Set the Main Camera or optional Second Camera's resolution.

**Stream.** Set the stream to either H.264 or MJPEG.

When enabling the Second Camera, the Main and Second camera cannot have the same settings. The maximum frame rate for each stream is reduced with both the Main and Second camera enabled.

**Multicast H.264 Stream.** Selecting this checkbox multicasts the main video stream according to Network Settings Multicast settings.

**Table 1 Main Camera Stream Maximum Frame Rates**

H.264				MJPEG			
4M	2M	1M	0.25M	4M	2M	1M	0.25M
10 FPS	15 FPS	30 FPS	30 FPS	10 FPS	15 FPS	30 FPS	30 FPS

**Table 2 Main and Second Camera Maximum Frame Rates**

			Main Stream (stream 1)							
			H.264				MJPEG			
			4M	2M	1M	0.25M	4M	2M	1M	0.25M
Second Camera (stream 2)	H.264	4M	N/A	6 FPS	9 FPS	10 FPS	7 FPS	6 FPS	9 FPS	10 FPS
		2M	6 FPS	N/A	10 FPS	15 FPS	6 FPS	13 FPS	10 FPS	15 FPS
		1M	9 FPS	10 FPS	N/A	25 FPS	9 FPS	10 FPS	11 FPS	21 FPS
		0.25M	10 FPS	15 FPS	25 FPS	N/A	10 FPS	15 FPS	16 FPS	25 FPS
	MJPEG	4M	7 FPS	6 FPS	9 FPS	10 FPS	N/A	N/A	N/A	N/A
		2M	6 FPS	13 FPS	10 FPS	15 FPS	N/A	N/A	N/A	N/A
		1M	9 FPS	10 FPS	15 FPS	25 FPS	N/A	N/A	N/A	N/A
		0.25M	10 FPS	15 FPS	25 FPS	25 FPS	N/A	N/A	N/A	N/A

The figures in Table 2 Main and Second Camera Maximum Frame Rates, page 36 have the mains frequency option set to 50Hz. When the mains frequency is set to 50 Hz, the frame rate is limited to 25 FPS to stop video flickering due to fluorescent lighting. When the mains frequency is set to 60 Hz, the frame rate is limited to 30 FPS. At 60 Hz the 25 FPS entries may achieve a higher frame rate.

### 7.3.7 Recordings

The Recordings dialog provides information and configuration options for the microSD card.

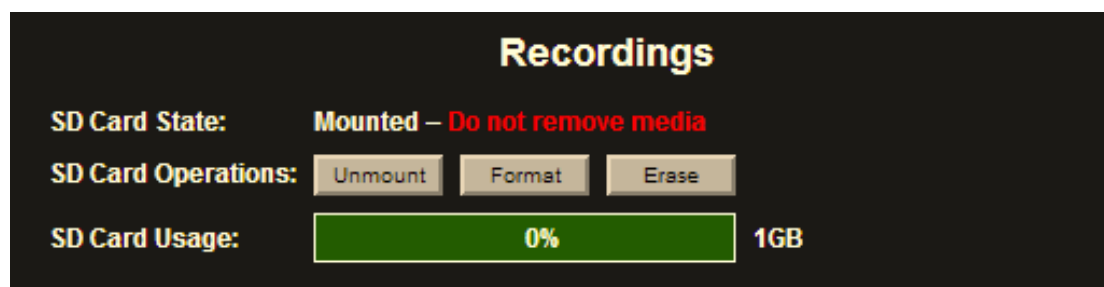


Figure 22 Recordings Dialog

**SD Card State.** Empty slot / Mounted / Unmounted

**NOTICE:** Avoid corrupting the microSD Card by Unmounting the card prior to removal. Do not remove the microSD Card when the microSD Card State is Mounted.

#### microSD Card Operations

- **Mount / Unmount.** Toggle between Mount and Unmount after inserting the microSD Card or prior to removing the microSD Card.
- **Format.** Use Format for formatting or reformatting the microSD Card. Formatting the microSD card erases all data.
- **Erase.** Click Erase to erase all content from the microSD Card.
- **SD Card Usage.** Shows the space remaining in the microSD card.

### 7.3.8 Factory Defaults

Achieve a factory reset in one of three ways.

- Camera Web Interface
- Configuration Tool
- Physical button on the camera

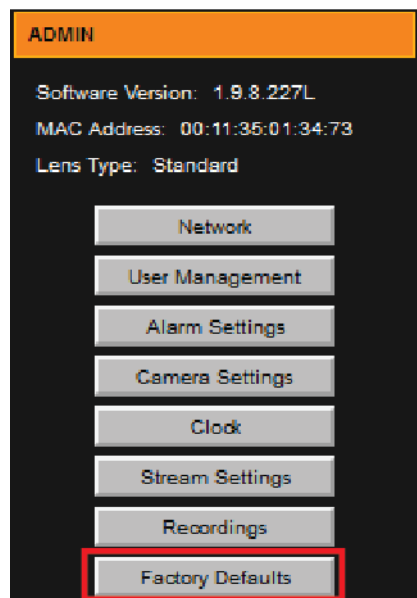
Reinstated are the following Factory Defaults.

<b>DHCP</b>	Enabled
<b>Static address</b>	192.168.0.200
<b>Privacy Regions</b>	None
<b>Motion Regions</b>	Enabled
<b>Alarm Settings</b>	Enabled
<b>Image Settings</b>	Default values
<b>User Name</b>	admin
<b>User Password</b>	admin (case sensitive)

**NOTICE:** Your Web Interface connection is lost when changing to another subnet.

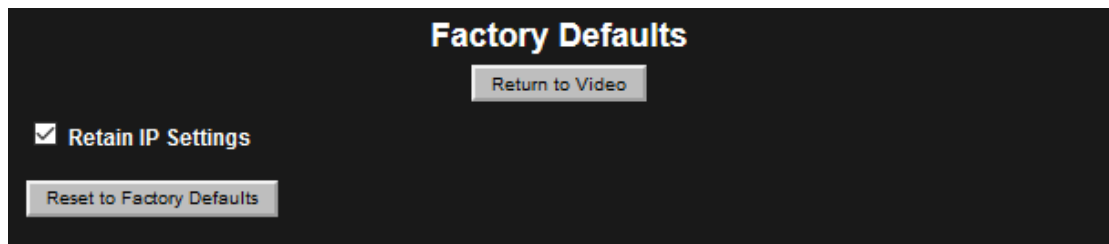
#### Web Interface

1. Through the camera's Web Interface Admin pane, click Factory Defaults.



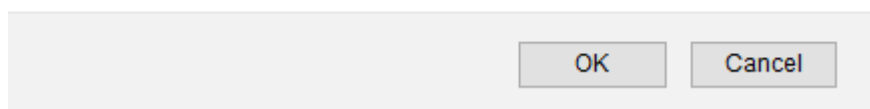
2. The Factory Defaults screen displays. Optionally select the Retain IP Settings checkbox.

- Click Reset to Factory Defaults.



- The following message displays before the Factory Default reset continues. Click OK.

This will reset all settings to their factory defaults and reboots the camera.  
Do you wish to continue?



**Configuration Tool.** Reset to factory defaults through the Camera Configuration tool. Through the Camera Configuration Tool, verify the camera(s) requires a factory reset.

- From Camera Configuration tab.
- Select **factoryreset.cgi** from the Send command to camera field drop-down menu.
- Click Send.

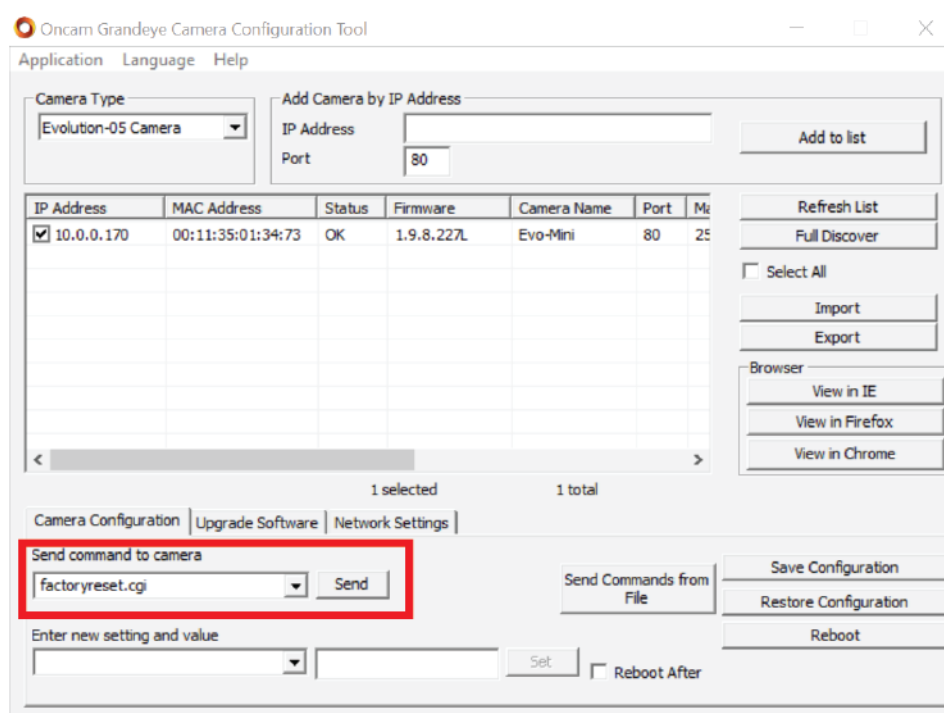
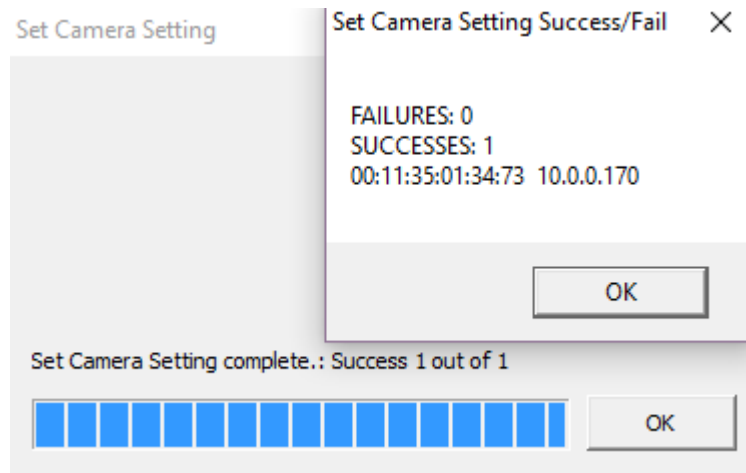


Figure 23 Camera Configuration Tool – Reset to Factory Defaults

4. When the Factory Reset completes, click OK.
5. Upon success, click OK.



6. Automatically the camera reboots. Click OK.
  7. A message appears after the Reboot action. Click OK.
- The camera resets back to factory defaults after a successful reboot.

### Physical Factory Reset Button

1. Remove the trim cover (if necessary).
2. Reset to factory defaults with the camera powered.
3. Visually align the LAN, Power and Factory Reset slot to access the Factory Reset button.
4. Press and hold the recessed Factory Default Reset button for 30 seconds.
5. When the camera restarts, all camera settings are reset to factory defaults.

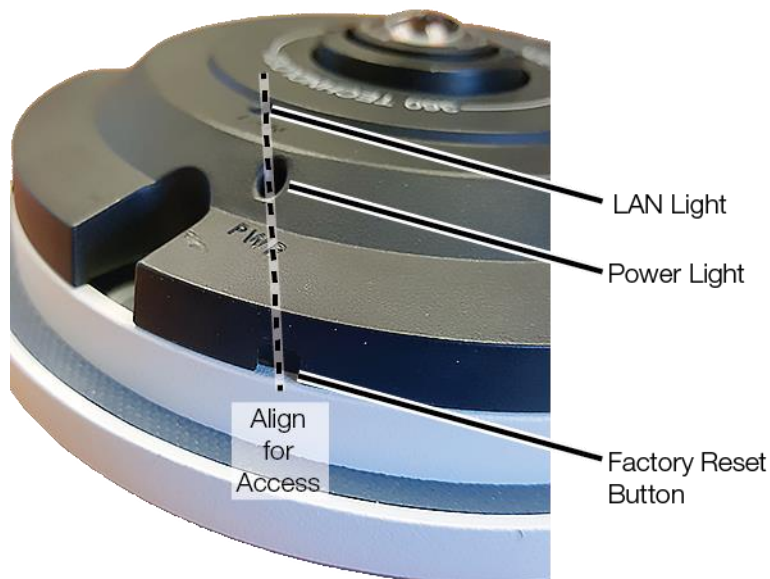


Figure 24 Factory Reset Button



## 7.4 Regions

Regions are user-defined zones in the image used to analyze an event, trigger an action, or add security that covers part of the image.

Set-up and configure two types of regions

- Privacy regions (up to 10)
- Motion Detection regions (up to 8)



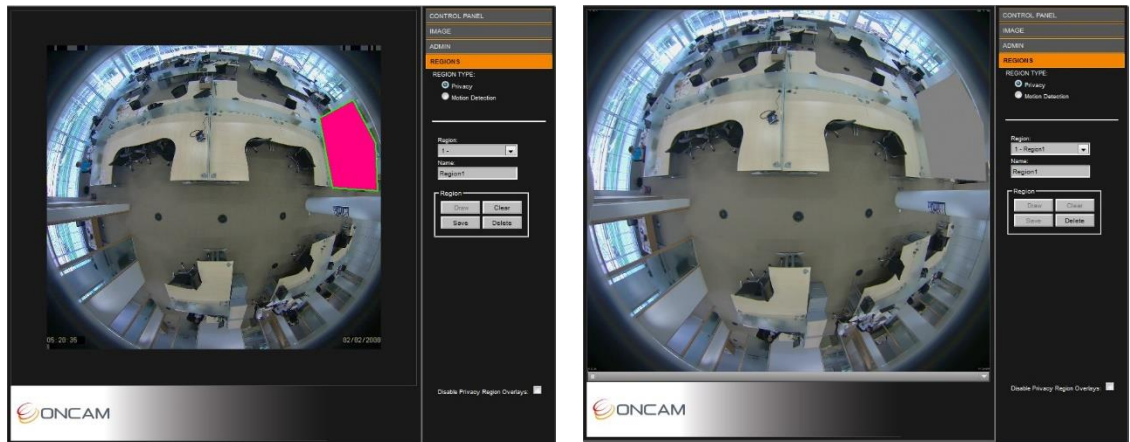
Figure 25 Region Settings

### 7.4.1 Privacy

Define a Privacy region using a video-embedded mask restricting the viewing of the video streams masked image portion.

1. Select a Region number (1 to 10).
2. Enter the region Name.
3. Click Draw (the image freezes while you are drawing the zone).

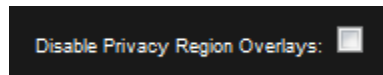
4. Click to set your initial point and continue clicking each point of the defined area until completing the area. Click Clear to restart drawing the shape.



5. Click Save to store the new region to the Region dropdown list.
6. Repeat as necessary for up to 10 regions.

#### Notes:

- Privacy Regions are automatically enabled when created. Disable them by checking the Disable Privacy Regions Overlay checkbox.



- Delete a region by selecting the region in the list and click Delete. This also deletes any saved name and returns the specific region number to default settings.

### 7.4.2 Motion Detection

A motion detection region is a user-defined zone for detecting motion and triggering an action such as recording for later analysis. Motion detection features one full region (default) or eight definable regions.

The full region motion option is enabled by default.

**Note:** When a region is defined, the full region motion is disabled.

1. Select Motion Detection
2. Select a Region number (1 to 8).
3. Enter a Region Name.
4. Click Draw (the image shrinks slightly while you are drawing the zone).
5. Left-click to set the initial point. Click several times around the area until defining a suitable polygon. Click the starting point again to complete the region.

Click Clear to restart drawing the polygon or cancel the current action.

6. Click Save to store the region in the dropdown Region list. The motion detection appears in the image as a blue polygon outline.



7. Repeat as necessary for up to 8 regions.

Improve Motion Detection efficiency by modifying the Sensitivity, Threshold, Persistence and Latency settings.

**Sensitivity.** Control the sensitivity of the camera to object movement. Where low-contrast objects are difficult to capture, increase the sensitivity to detect these objects. Setting the sensitivity lower requires more motion to activate an alarm.

**Note:** High sensitivity values in noisy environments may cause false alarms.

**Threshold.** The amount of moving pixels required to raise a motion alarm are determined by the threshold setting. Motion alarms are caused by the cumulative moving pixels regardless of their distribution. Setting the threshold higher increases the motion's time to activate an alarm.

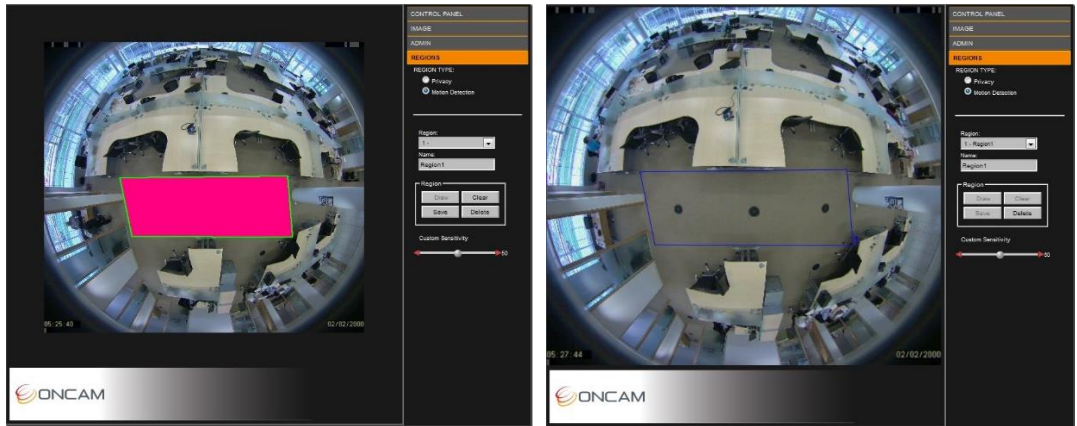
**Note:** Low motion threshold in noisy environments may cause increased false alarms.

**Motion Persistence.** The period when motion is detected in a frame prior to raising an alarm is the persistence. Raising a motion alarm immediately after the motion might lead to false alarms in noisy environments. Use the motion persistence setting to ensure the system raises an alarm only when persistent motion exists.

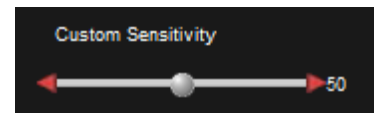
**Motion Latency.** Motion latency defines how many frames in an alarm remains true after motion stops. A low latency allows a rapid succession of motion events to appear as multiple alarms. A higher setting will group rapid triggers into a single alarm event.

#### Notes:

- To delete a region, select the region in the Region dropdown list and click Delete. This also deletes any saved name and returns the specific region number to default settings.
- Use the Alarm Settings to configure detected motion as an alarm trigger that activates an alarm action. See Alarm, page 30.



- Adjust the motion sensitivity by moving the Custom Sensitivity bar slider left or right to the desired value.  
Fine-adjust the value by clicking the red arrows on the slider. Apply Custom Sensitivity to all motion detection regions.



An Alarm Bell symbol flashes at the bottom of the window giving you a visual indication of the Custom Sensitivity setting. The alarm bell symbol displays when you enable the Alarm Trigger Motion Detection and displays when the Motion Detection event has triggered.

**NOTE:** Setup and test motion detection by setting the threshold above any natural motion that is occurring in the scene to eliminate false alarms. Set the threshold to a minimum and gradually raise the threshold until natural motion no longer triggers the alarm.

## 8 Connecting Directly to the Camera Streams

Connect directly to camera streams to acquire JPEG and MJPEG (H.264) video streams.

### 8.1 JPEG Snapshot

Access JPEG images from your camera by using your camera's IP address and port creating the following URLs.

4MP JPEG	<a href="http://camera_ip_address:port_number/mjpg/snapshot.cgi?camera=13">http://camera_ip_address:port_number/mjpg/snapshot.cgi?camera=13</a>
2MP JPEG	<a href="http://camera_ip_address:port_number/mjpg/snapshot.cgi?camera=25">http://camera_ip_address:port_number/mjpg/snapshot.cgi?camera=25</a>
1MP JPEG	<a href="http://camera_ip_address:port_number/mjpg/snapshot.cgi?camera=12">http://camera_ip_address:port_number/mjpg/snapshot.cgi?camera=12</a>
¼MP JPEG	<a href="http://camera_ip_address:port_number/mjpg/snapshot.cgi?camera=26">http://camera_ip_address:port_number/mjpg/snapshot.cgi?camera=26</a>

## 8.2 MJPEG / H.264 Video Stream

Using the Web Interface, find your camera's stream to determine the video setup. Using your camera's IP address and the appropriate URL, connect to your camera's video stream using your media player.

### MJPEG

4MP JPEG	<code>http://camera_ip_address:port_number/video.cgi?camera=13</code>
2MP JPEG	<code>http://camera_ip_address:port_number/video.cgi?camera=25</code>
1MP JPEG	<code>http://camera_ip_address:port_number/video.cgi?camera=12</code>
¼MP JPEG	<code>http://camera_ip_address:port_number/video.cgi?camera=26</code>

### H.264

4MP JPEG	<code>rtsp://camera_ip_address:554/h264/video.sdp?camera=13</code>
2MP JPEG	<code>rtsp://camera_ip_address:554/h264/video.sdp?camera=25</code>
1MP JPEG	<code>rtsp://camera_ip_address:554/h264/video.sdp?camera=12</code>
¼MP JPEG	<code>rtsp://camera_ip_address:554/h264/video.sdp?camera=26</code>

**For example**, the Evolution camera is the IP address 192.168.0.200, port 554 (H.264 RTSP stream is port 554).

1. From the Camera Web Interface, go to Admin > Video Setup
2. Check the Second Camera check box.
3. Select H.264 from the Stream dropdown menu,
4. Select 0.25M from the Resolution dropdown menu,
5. Click Set the Video Stream.

Using the following sample URLs provides the two video streams using your media player.

- 4MP H.264: `rtsp://192.168.0.200:554/h264/video.sdp?camera=13`
- 1/4MP MJPEG: `http://192.168.0.200:80/video.cgi?camera=26`

For MJPEG streaming the username and password are required. By default, use "admin" for both the username and password.

## 9 Connecting through ONVIF Profile S or PSIA

Use an Evolution camera with an ONVIF Conformant Device hardware driver when adding the camera hardware to your NVR System. Set the camera to the desired mode before adding the camera to your NVR system.

**Note:** The ONVIF driver uses RTSP for transferring the video from the camera. The Evolution camera sends the MJPEG data using the MJPEG RTP standard RFC 2435. The RFC 2435 standard does not work using JPEG images with a width greater than 2040. This means RTSP does not transfer the larger MJPEG video streams from the camera. Stream any other MJPEG or any H.264 resolution using the ONVIF driver.

## 10 Troubleshooting and Technical Support

Use the following guide to ensure all components of the system are properly working.

<b>Web Interface unavailable in browser</b>	Use the IP Configuration Tool to confirm that you are looking at the correct address and there are no IP address conflicts. Check your own network settings to ensure the camera is on the same subnet, or is accessible by routing.
<b>Web Interface fails to show a live image</b>	Check your browser security settings.
<b>Motion detection is not working properly</b>	There must be at least one motion detection region defined and in use. On the Motion Detection panel, the VMD mode must be set to Motion Detection. Check the size and sensitivity controls to ensure that movement is detected.
<b>Camera image stops or drops frames</b>	This is commonly due to a network connectivity or bandwidth issues, especially for cameras connected to wireless networks or the public Internet. Try reducing the JPEG quality or resolution settings from the camera Web interface.
<b>One portion of the image is over or under-exposed</b>	Set the Brightness or use an EV setting which will add over or under exposure to the scene light.
<b>There are bright or dark areas in the scene and no detail can be seen</b>	Enable the WDR feature. This increases the contrast in darker and brighter areas of the scene. Adjust the WDR setting depending on the light differences to obtain the best image. See Wide Dynamic Range, page 26. Enhance the image by adjusting the EV settings so the bright areas are not over-exposed and the dark areas are sufficiently exposed. In most lighting conditions, the WDR setting should not be required.

### 10.1 Contact

Send an email to [support@oncamgrandeye.com](mailto:support@oncamgrandeye.com).

Include in your email the following.

- Problems detailed description
- Camera model numbers
- Relevant configuration information

### 10.2 Revision History

Date	Revision	Description
2016-11-18	B	<ul style="list-style-type: none"> <li>• Added Outdoor Pendant Camera Kit instructions</li> <li>• Combined Evolution Mini products into one User Manual</li> <li>• Modifications for firmware version 1.9.11 and 1.9.12</li> </ul>
2016-04	A	Initial versions



## 11 Copyright and Legal Notices

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## 12 Additional Online Resources

### 12.1 Technical Specifications

Oncam is constantly working on new features and functionalities for its Evolution Mini camera range. For the latest Technical Specifications, go to the Oncam website and download the latest product specification.

**Indoor**

[www.oncamgrandeye.com/security-systems/evolution-indoor-mini-camera.html](http://www.oncamgrandeye.com/security-systems/evolution-indoor-mini-camera.html)

**Outdoor**

[www.oncamgrandeye.com/security-systems/evolution-outdoor-mini-camera.html](http://www.oncamgrandeye.com/security-systems/evolution-outdoor-mini-camera.html)

**Night**

[www.oncamgrandeye.com/security-systems/evolution-mini-indoor-night.html](http://www.oncamgrandeye.com/security-systems/evolution-mini-indoor-night.html)

**Recessed**

[www.oncamgrandeye.com/security-systems/evolution-mini-recessed-camera.html](http://www.oncamgrandeye.com/security-systems/evolution-mini-recessed-camera.html)

**Panel-Mount**

[www.oncamgrandeye.com/security-systems/evolution-mini-indoor-panel-mount.html](http://www.oncamgrandeye.com/security-systems/evolution-mini-indoor-panel-mount.html)

### 12.2 Oncam 360-degree Viewer

Download the latest Oncam 360-degree Live Viewer and Instruction Manual for the Evolution range of 360-degree IP Cameras. The Instruction Manual describes how to use the Oncam 360-degree Viewer to view and dewarp live images from any Oncam camera connected to the same network. There is no setup required as the Viewer automatically finds any Oncam IP cameras connected to the same network.

<http://www.oncamgrandeye.com/security-systems/360-camera-viewer>



## 12.3 OnVu360 Mobile Application (iOS and Android)

OnVu360 for mobiles enables users to experience surveillance through 360 degrees in the palm of your hand. The OnVu360 gives you the ability to monitor your 360-degree cameras in real-time enabling anytime access to the information.

Use the pinch to zoom features to Navigate 360-degree video (like iOS or Android device).

The OnVu360 app streams up to 5 MP, streaming over Wi-Fi, 3G and 4G/LTE networks.

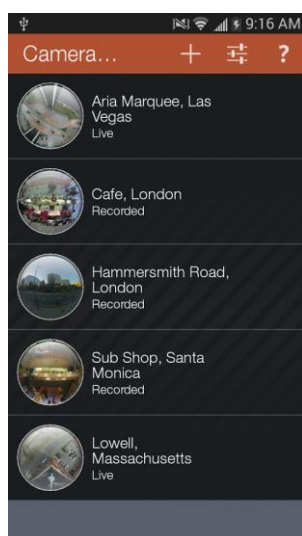
Take a snapshot to save precious data when using over a cellular-data network.

### Android

From <https://play.google.com/store> > Search OnVu360

### iOS

From within the iTunes Store > Search OnVu360



## 13 Frame Rate, Resolution & Storage Requirements

H.264 Default Settings					
4 MP	(2144x1944)	10 FPS	Constant bit rate settings	5 Mbps	24 HRS = 54GB*
2 MP	(1488 x1360)	15 FPS	Constant bit rate settings	3 Mbps	24 HRS = 40GB*
1 MP	(1056 x 960)	15 FPS	Constant bit rate settings	1.5 Mbps	24 HRS = 16GB*
¼ MP	(528 x 480)	15 FPS	Constant bit rate settings	0.8 Mbps	24 HRS = 8GB*

\* Based on the same scene, with constant average light conditions

MJPEG Default Settings					
4 MP	(2144x1944)	10 FPS	Average file size 640 KB	Average bit rate 52.4 Mbps	24 HRS = 552.96 GB*
2 MP	(1488 x1360)	15 FPS	Average file size 350 KB	Average bit rate 43.0 Mbps	24 HRS = 453.60 GB*
1 MP	(1056 x 960)	15 FPS	Average file size 188 KB	Average bit rate 23.1 Mbps	24 HRS = 243.65 GB*
¼ MP	(528 x 480)	15 FPS	Average file size 62 KB	Average bit rate 7.6 Mbps	24 HRS = 80.35 GB*

\* Based on the same scene, with constant average light conditions

### Notes:

Values for frame rate, size, and bandwidth are approximate and influenced by compression, quality settings, number of simultaneous viewers, and the amount of detail and movement in a scene.

Additional CGI commands are available. Software developers requiring the full API interface should contact [support@oncamgrandeye.com](mailto:support@oncamgrandeye.com) for additional details.

## 14 NVR and Storage Partners

For an up-to-date list of NVR / VMS partners supporting the Oncam 360° IP cameras, visit the Oncam web site [www.oncamgrandeye.com](http://www.oncamgrandeye.com).