Installer Guide and User Manual for the

Evolution Camera Range

Oncam Grandeye

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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 use this apparatus near water.
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. Do not defeat the safety purpose of the polarized or grounding-type plugs. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9. Protect all power cords from being walked on 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. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart / apparatus combination to avoid injury from tip-over.
12. Unplug this apparatus during lighting storms or when unused for long periods of time.
13. 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.

Contents

1 Oncam Grandeye 360° IP Camera Basics

Oncam Grandeye's IP series cameras are based on an innovative technology that uses a fisheye lens to create a 360° view with an extremely large area of coverage. With proper placement, the Oncam Grandeye 360° IP camera can 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 Grandeye 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. But unlike conventional PTZ cameras, Oncam Grandeye 360° IP cameras are silent. There are no mechanical motors and gears which are prone to wear and eventual failure. The camera produces three types of views, each suited to a particular set of requirements.

1.1 Fisheye View

The high quality fisheye lens produces a spherical image from which all other views are derived. The raw image appears warped around a central axis. Special dewarping software is built into the NVR / VMS to convert the spherical image into a flat view which is more familiar to human viewers. When using video management software (VMS) to record a fisheye video stream, the entire image is preserved, allowing you to 'retrospectively' look at all directions, regardless of the area being viewed live or when viewing recorded video after an incident has occurred.

2 The Evolution Camera Range

2.1 IP camera Module

The camera module (CM) has the ability to be mounted in to a number of different camera housings and mounting adaptors. These alternative housings form a camera range of three models. Each model within the range is suitable for mounting in different applications and environments.

The camera modules within the housings and mountings are based on two modules; (long nose camera module and a short nose camera module), but camera firmware, the software features, the connection ports, the communication ports and input / output connections are the same across the Evolution range.

Common Features of the Evolution camera range:

- The camera module is able to be configured to stream either an H.264 or MJPEG single stream at either:-
  - 10fps with a frame size of 2144x1944 pixels (4MP)
  - 15fps with a frame size of 1488 x 1360 pixels (2MP)
  - 15fps with a frame size of 1056 x 960 pixels (1MP)
  - 15fps with a frame size of 528 x 480 pixels (1/4MP)
- The user can enable and configure a second fisheye stream for either H.264 or MJPEG. If the second stream is enabled the maximum frame rates of both the main stream and the second stream will be reduced (see section 11.3.6 for the maximum fps when the second stream is enabled)
- The user has simultaneous access to a third stream of MJPEG at a fixed fps with a frame size of 528 x 480 pixels (1/4MP)
- An external microphone can be connected to the camera module via a 3.5mm input jack. Please contact Oncam Grandeye for details of compatible microphones.
- The camera module has 1x input and 1x output hardware alarms connected via hardwire plug connector.
- The camera module can be powered from an external 12v dc power source, with a minimum 1amp supply, or via Power over Ethernet (IEEE Standard 802.3af)
- The camera module design allows for easy and fast installation in to any of the camera module housing options.

2.1.1 Evolution - Outdoor Dome Camera (for external and internal use)

- IP66 rated mini-dome model, outdoor/indoor use
- Uses the short nose Evolution camera module
- Surface mounting wall / ceiling
- Cable entry - rear entry via 2x grommets / side entry via compression or conduit gland

The Outdoor Dome Camera is an IP66 weatherproof surface mount configuration. The enclosure is constructed of an aluminium die cast part (mounting base) and a plastic trim ring assembly.

The die-cast mount base contains the means for mounting the product to a mounting surface or to pendant adapter. It also provides the means for mounting the camera module (CM) and the mounting holes for attaching the trim ring assembly.

The trim ring assembly consists of two main parts – injection moulded trim ring and optical dome bubble. The dome bubble is fastened to the trim ring via laser welding. This trim ring assembly has captivated fasteners for attachment to the die-cast mount base.

This enclosure, when fastened is IP66 rated and will mount to a vertical or horizontal surface. IP66 rated waterproof compression glands allow cable entry in to the outdoor enclosure.

The Evolution Outdoor Dome camera comes with a Gore® vent fitted in to the inside of the die-cast mount base. Gore ® vent helps create a breathable membrane that is waterproof.

Gore® Vents provide a simple, yet technologically advanced solution to manage differential pressure within a container to maintain container regulatory guidelines that require ventilation for heavy-duty waterproof and breathable products.

2.1.2 Evolution - Indoor Camera (internal use only)

- Indoor camera model, indoor use
- Uses the short nose Evolution camera module
- Surface mounting wall / ceiling
- Cable entry - rear entry / side Entry
- Pendant adapter (optional)

The Indoor camera is an indoor surface (ceiling, wall, desk top) configuration. It uses a metal mounting plate and plastic enclosure (trim ring) to enclose the camera module (CM) and wiring.

The metal mounting plate attaches to the ceiling or wall and provide the means for mounting the camera module (CM) and the trim ring together.

By using the optional pendant adapter (OBE-01-IWA [white] / OBE-01-IBA [black]) can be directly mounted to any length of pipe (M32). This is popular in businesses with high ceilings.

2.1.3 Evolution - Indoor Concealed Camera (internal use only)

- In-wall / In ceiling concealed model, indoor use
- Uses the Evolution 'concealed' camera module

The Indoor Concealed Camera is a concealed (above) ceiling mounts / (behind) wall mount configuration. The concealed camera module (CCM) is the same as for the indoor and outdoor mini domes but uses a different front lens nose. It has a front cover with a longer nose, allowing mounting above false ceilings and false walls of thickness between 6mm (1/4") and 25mm (1") through the use of a mounting adaptor ring and mounting retaining nut that attaches to the front cover.

The mounting retaining nut tightens against the false ceiling/wall, sandwiching the ceiling/wall material between the concealed mounting adaptor ring and mounting retaining nut. This camera requires access from above the ceiling or behind the wall to install.

3 Planning Your Deployment

Camera placement is an important factor in planning your deployment. If your goal is to provide comprehensive coverage of a very wide area, then look for a mounting position with an unobstructed view.

3.1 Ceiling Mount

Ceiling mounting is preferred if most of the action is occurring below you on a horizontal plane. A good example is an indoor shopping mall or a hotel lobby. Small to mid-sized rooms can be very effectively covered with a single camera placed in the middle of the ceiling. Use to monitor doorways, customer service counters, or other areas of special interest. A top-of head shot is captured when someone stands directly below the camera, but much more of their face and body will become visible as they move away in any direction.

3.2 Wall Mount

If you want to get closer to a subject to see under their hats and hair, then a wall-mounted position is best. Wall mountings below 1.8 metres (6 feet) can be obstructed by people walking by and, if the camera is mounted too high, the upper portion of the view is wasted. Vertically oriented scenes, such as escalators and cityscapes, are very well suited to wall mounting. The ideal shot will be found somewhere near the middle height and far enough away from the object to get a full view. This position places an equal amount of the view above and below the mid-line. Transportation applications should use a wall-mount configuration for views outside of the vehicle. Ceiling mounting is often not practical because it is difficult to get the camera high enough above the ground. For views inside the vehicle, a ceiling-mounted camera is quite acceptable.

3.3 Some Examples

One ceiling-mounted camera can cover an entire room.

A wall-mounted camera works well for close-up views and low-angle shots.

The area of coverage can be enormous for a camera that is mounted high above the ground. This one is 10 stories high, yet cars and people on the street below are still visible.

3.4 Zones of Coverage

There are four key zones of coverage. All camera lenses have to trade off focal length versus angle of view. This is especially true for hemispheric fisheye lenses where the viewing angle is 180° in every direction. The fine detail and high-pixel count required for face recognition or license plate reading is limited to close-up views, however there is a very broad section of the view where detection and identification can occur.

3.4.1 Facial Recognition

(=< 5m / 15ft) Faces will be clearly visible and well defined.

Example: a camera mounted at 3m/9ft high, within less than 5m/15ft of a doorway, the camera view will be able to identify and recognise a person entering.

3.4.2 Facial Identification

(between 5m and 9m / 15ft and 27ft) People and objects are identifiable based on clothing, make and model of a car, body type and other criteria. At a counter or customer service desk, the identity of the customer is verifiable.

3.4.3 Object Recognition

(between 9m and 40m / 27ft and 120ft) Faces are somewhat indistinct, but clothing, body type and behaviour are distinguishable. If viewing co-workings or someone known within a scene, the viewer would be able to recognize then. Be able to clearly distinguish between people, animals and vehicles.

3.4.4 Situational Awareness / Movement Detection

(=> 40m / 120ft) The viewer will be able to see movement of objects and make some judgement on the direction of the movement.

3.5 Overhead Viewing Angle

Ceiling-mounted cameras will capture a top-of-head shot when the person under the camera. Hats will extend that top of-head zone by a few feet. To ensure a full-face shot in a given area, use the chart below to estimate where the face zone is relative to the height of the camera.

For example, in the picture below an eight-foot ceiling-mounted camera should be located 1.5 metres (5 feet) behind the counter. If this amount of space is not available, consider wall mounting the camera instead.

The usable horizon is determined by camera height and any obstructions that get in the way. For example, you cannot see anything higher than a ceiling-mounted camera, and buildings and landmarks may get in the way. However, the horizon can be several metres away for a high-mounted camera with no obstructions. This makes the Oncam Grandeye IP 360° cameras an ideal choice for urban street surveillance and traffic monitoring.

Height of camera (m)	Minimum for face view (m)
2.4	1.5
3.1	1.8
3.7	2.0
4.3	2.2
4.9	2.4
5.5	2.7
6.1	2.9
6.7	3.1
7.3	3.3

3.6 Positioning Multiple Cameras

For more detailed surveillance of a large area, add cameras every 9 to 15 metres (30 to 50 feet) to form overlapping circles of coverage.

3.6.1 Indoor Placements

Ceiling mounted cameras should be high enough to get an overview of the room, but not so high as to be away from the action. A height of 2.7 to 4.6 metres (9 to 15 feet) above the ground is ideal for most commercial buildings. Go higher for large auditoriums, lobbies and malls.

Wall mounted cameras should be low enough to fill the image, but not so low as to be obstructed. Try to avoid capturing too much ceiling in your shot.

3.6.2 Outdoor Placements

With ceiling or pendant mounted cameras, generally the higher you can mount the camera, the more area it will cover. Watch out for bright light sources – it is better to be below them than above. Mount at least 4.6 metres (15 feet) above ground to avoid vandalism.

For wall mounted cameras, mount at 3.7 to 4.6 metres (12 to 15 feet) above street level, possibly under an eave. Avoid direct sunlight; northern exposures are preferable

3.7 Lighting Recommendations

Auto sensor adjustment works best for nearly all environments. The camera continuously adjusts the exposure to optimise the image. Night mode drops the frame rate in half and doubles the exposure time. The image is rendered in black and white for better contrast. Motion-sensing lights may be used to illuminate the scene: The camera will quickly adjust when lights turn on.

3.7.1 Lighting tips

There are settings within the camera's web pages which will allow the camera to be used in a wide range of applications and lighting conditions

Image controls include: Brightness / Contrast / Saturation

But sometimes light condition may require additional special feature settings, these include;

EV Compensation: Can increase or decrease the image exposure. This should be adjusted to suit the lighting conditions.

Wide Dynamic Range: This increases the dynamic range in difficult lighting conditions. It will lighten dark areas without over brightening light areas.

WDR Level: This slider is only available when WDR is enabled and adjusts the amount of WDR processing that is applied to the image.

3.7.2 Summary

By following the simple recommendations in this guide you will be optimizing the performance of your Oncam Grandeye 360° IP camera. You can determine how many cameras are needed for complete coverage and position them at the best viewing angles. The image will appear in the most usable area of the sensor and you will not waste a large portion of the shot on ceilings or sky.

4 Installation Steps

This chapter provides a step-by-step guide to the installation and first-time operation of your Oncam Grandeye EVOLUTION 360° IP camera. Please refer to the Camera Web Interface configuration chapter for a more detailed explanation on features and functionality. All Oncam Grandeye 360° IP cameras can be either wall mounted or ceiling/table mounted. These cameras have an exceptionally wide viewing angle, so some consideration should be given to camera location. For example, if one side of a scene is brightly lit and another is in dark shadows, you may have to choose which portion of the picture to optimise.

4.1 Evolution Indoor Camera

4.1.1 Supplied Parts

- Evolution indoor ceiling plate
- Camera module
- Cover
- Quick start guide
- Mounting template

4.1.2 Description

This enclosure is designed for indoor use in surface mount or pendant applications. In its basic form, the indoor model consists of the Camera Module, a mounting plate, and a cover.

The enclosure portion of this model consists of two parts – a die cast mounting plate and a plastic cover. The cover does not require any fasteners to fix it to the base plate. Wires can be routed into the enclosure either from the back or the side.

4.1.3 Installation Steps

The ceiling mount plate is attached to a wall or ceiling surface via the holes and slots located on the plate. The fasteners used should be appropriate for the surface material, and should collectively support at least four times the weight of the camera and assembled enclosure.

The enclosure is designed to cover a hole or box in the mounting surface through which the wires are pulled. The mounting plate has been designed with holes and slots to allow it to be mounted directly to most European or American standard electrical boxes, if desired.

If the indoor installation is subject to vandalism, the Evolution outdoor camera model should be used. This indoor enclosure should only be used where it is well out of reach.

The wires are pulled through the centre hole in the plate, and then the plate is secured to the mounting surface. It is important to pay attention to the orientation of the plate, as this will affect where the elongated ears of the cover are oriented.

The enclosure has been designed to allow wires to be routed under and then around or over the Camera Module to the connection points. The alarm connector (if used) can be removed from the Camera Module to facilitate connection and service.

The Camera Module is installed by rotating the camera into the cleat in the base plate and fastening it in place with the captive thumb screw. Wires should be routed such that they do not cross over the lens area when the trim ring is attached.

A BNC video connector is provided for camera testing and providing a spot monitor video output. If used, then check the dip switch settings for either PAL or NTSC video. Once testing is completed, the BNC test cable can be removed. The cover can then be fastened in place by orienting the elongated 'ears' of the cover with the elongated tabs on the mounting plate and pushing it on until it snaps in place. There are guide tabs that will align the cover as it is pushed into place. To remove the cover, just grasp the sides of it and pull away from the mounting surface.

For installations where the wiring is from the side, there is a thin section of plastic on the cover at one end, this can be easily removed with a pair of pliers. Wiring in this case should be routed through the tunnel in the mounting plate.

4.1.4 Pendant Mounting

For applications that require the enclosure to be mounted below the ceiling plane, the accessory pendant adapter can be used to adapt the enclosure to M32 male pipe threads. This is an optional installation kit and can be purchased from Oncam Grandeye.

Wiring is fed down inside the pipe and enters the enclosure from the back. Before mounting the adapter to the pipe, the adapter is to be mounted to the mounting plate, there are two snap features in the pendant adapter that allow the mounting plate to be temporarily fastened to the mounting plate. The mounting plate should then be secured to the pendant adapter with the two thread forming plastite screws, which are screwed in to the two bosses in the pendant adapter. Mount the pendant adapter to the M32 pipe and pull wires through the mounting plate as before. Wiring and cover installation is then the same as a ceiling application.

4.1.5 Wall (Vertical Surface) Mounting

The Evolution housing may be mounted directly to a vertical surface. The wall mount is used for mounting to a vertical surface with the housing in a horizontal attitude (wall, pole, or building corner). The indoor pendant adapter as well as the wall mount to pendant adapter is required.

The base plate is used to adapt the wall mount to recessed wiring boxes or to uneven surfaces. Wiring is passed through the plate. It is then fastened to the mounting surface or box with appropriate fasteners. The mounting cleat is then attached to the base plate by placing the cleat over the two threaded studs that protrude from the base plate and fixing it with nuts provided. It is not symmetrical so the part has an arrow stamped on it. The arrow must point upward for proper installation. The wiring is passed through the mount and then the top is hooked over the upper cleat and lowered over the bottom cleat. The mount is secured to the cleat with the two socket head set screws using a 3/32" hex wrench.

When mounting to a studded wall or solid wall and where no electrical box is used, the base plate is not needed. With this method the cleat plate can be mounted directly to the wall/stud and the wiring is passed through the cleat plate via the holes provided on either side so that the wire can run on either side of a wall stud. Likewise, if the installation is to a pole or corner mount, the base plate is not needed.

For mounting to a wall surface where wiring cannot be fed though the wall, a flexible conduit entry can be created to the wall mount on the left and right sides of the part. There is a flat area on both sides for this purpose. It will be necessary to drill a hole in to the mount arm in these locations for the appropriate hole size for the conduit adapter of choice. It is recommended that the conduit hole is created prior to installing the mount to the cleat plate. It is suggested that the connection be done with a length of flex conduit.

This camera is not to be used in air handling spaces.
Failure to comply with this requirement
will invalidate the warranty.

4.2 Evolution Indoor Concealed Camera

4.2.1 Supplied Parts

- Camera module
- Concealed mounting bezel
- Concealed mounting locking nut
- Quick start guide

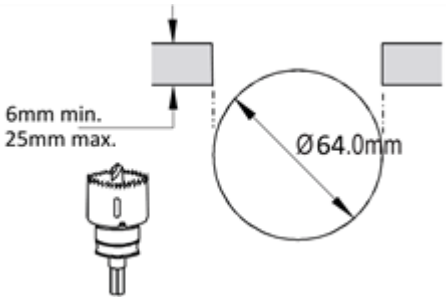
4.2.2 Description

This enclosure is designed for indoor use in above ceiling applications. In its basic form, the in ceiling model consists of the Camera Module, a bezel, and a mounting nut.

The enclosure portion of this model consists of parts – a plastic ceiling bezel and a plastic nut. The only portion of the camera that is visible below the ceiling is the lens and bezel.

4.2.3 Installation Steps

The in ceiling model requires that the installer have access to the space above the ceiling. The ceiling surface is first drilled or cut to accept the bezel (2 ½" or 64mm). Attach the supplied hole template to the installation location and mark the hole. If it is possible, remove the false panel and then using a pad saw carefully cut out the hole or using a hole cutter, cut a 64mm (2 ½") hole.



Insert the concealed bezel through the hole from the front of the cut out (Lens side) with one hand and using the other hand fit the blue locking nut to the rear to secure the bezel in place.

Ensure the locking nut is correctly orientated so that the smother side is against surface of the ceiling / wall material, and the finger grips are exposed.

Do not over tighten the locking nut.

The ceiling material should be strong enough to support four times the weight of the camera and cabling, or a suitable stiffener such as a metal plate should be used above the ceiling surface. Once the bezel is tight, the Camera Module is inserted into the bezel from above.

Site the camera module in to the rear of the bezel. Ensure the Camera Module is secured to the bezel by tightening the thumb screw on the camera module so the screw sits tightly into the slot on the bezel ring.

Attention should be paid to the orientation of the Camera Module, as this will affect where the edges of the image are oriented in the resulting full screen picture. Once the Camera Module is oriented, the thumb screw is tightened to fix the camera in the desired position.

The wires can be routed under and then around or over the camera module to the connection points. The alarm connector (if used) can be removed from the Camera Module to facilitate connection and service.

A BNC video connector is provided for camera testing and providing a spot monitor output. If used, then check the dip switch settings for either PAL or NTSC video. Once testing is completed, the BNC test cable can be removed. Wiring should be fastened down to a nearby ceiling member so that there are no torque forces acting on the camera module.

This camera is not to be used in air handling spaces.
Failure to comply with this requirement
will invalidate the warranty.

4.3 Evolution Outdoor Dome Camera

4.3.1 Supplied Parts

- Evolution ceiling base assembly
- Camera module
- Trim ring assembly
- Security screw driver bit
- Quick start guide

4.3.2 Description

This enclosure is a fully sealed IP-66 rated enclosure that is also vandal resistant. It is designed so that there is no opening for moisture to enter the inner enclosure. All mounting perforations are outside of the sealed area of the enclosure. The wire grommets on the back are sealed until perforated by the installer. The integrity of these seals is essential in order to keep moisture from entering the enclosure.

The back of the ceiling base has two wire grommets for cable entry plus a Gore® Vent to allow the enclosure to breathe. The Gore® Vent is the small white circular patch on the back that allows the enclosure to vent without letting moisture in. As the enclosure cools at night it contracts and will draw in cool, moisture laden air. When it heats up the next day, the air expands and pushes out. This warmer air will not hold moisture, so over time condensation builds inside the enclosure. The vent allows the enclosure to breathe without drawing in moisture. The Gore® Vent is relatively fragile, do not probe or touch it unnecessarily

The unit also has an M20 conduit entry on the side. A 20mm to 1/2“ adaptor can be fitted if imperial sized conduit is being used. The enclosure has an o-ringed plug installed in the conduit entry as shipped from the factory. If the conduit connection is used, the installer must make sure that water cannot enter the enclosure from the conduit.

The two wire grommets are designed for a single wire/cable each, which is 3.5-5mm in diameter (0.138 – 0.197”). This range is intended to accommodate most Ethernet and alarm signal cables used in the industry.

Do not put more than one wire through a
cable entry grommet as it will not seal properly.
This may invalidate the warranty.

Puncture the diaphragm inside of the grommet by inserting a wire or by using a sharp tool and gently pull the cable back to secure and seal.

4.3.3 Installation Steps

The ceiling base is attached to a wall or ceiling surface via the four holes located outside the trim ring seal joint. These holes are located on the two “ears” of the enclosure, are open to the back, and are not threaded. These holes will pass typical #10 hardware and have 25mm (1”) of internal boss to pass through The fixing hardware used should be appropriate for the surface material, and should collectively support at least four times the weight of the camera and assembled enclosure. If the installation is subject to vandalism, additional consideration needs to be made when selecting fixing hardware and mounting strategies. The enclosure is designed to cover a hole or box in the mounting surface through which the wires are pulled.

Do not drill holes through the enclosure.
This will defeat the IP66 rating and it will not seal properly.
This may invalidate the warranty.

The enclosure is designed to allow wires to be routed around or over the camera module to the connection points. The alarm connector (if used) can be removed from the Camera Module to facilitate connection and service.

The Camera Module is installed by attaching and routing the cables, then rotating the camera into the cleat in the base plate and fastening it in place with the captive thumb screw. Wires should be routed such that they do not cross over the lens area when the trim ring is attached.

A BNC video connector is provided for camera testing and providing a spot monitor output. If used, then check the dip switch settings for either PAL or NTSC video. Once testing is completed, the BNC test cable can be removed. Then the dome/trim ring assembly is fastened in place using the four captive security screws and the provided security driver bit. (Refer to dome handling and cleaning section for proper procedures on handling the dome bubble).

For installations where the side conduit entry is used for wiring, the sealed plug is removed and a 20mm conduit connector is used to attach directly to the enclosure. Care must be taken so as not to allow water to run into the enclosure from the conduit.

4.3.4 Pendant Mounting

For applications that require the enclosure to be mounted below the ceiling plane, the accessory pendant adapter must be used to adapt the enclosure to 1 ½" NPT female pipe threads. The pendant adapter has a male thread, so if the installation is to a length of pipe, a female-female coupler needs to be used. Use Teflon pipe tape on pipe threads to allow compliance, sealing and alignment. Wiring is inside the pipe and enters the enclosure from the back. The adapter is first mounted to the pipe. Wires are pulled into the enclosure as before. The ceiling base is then mounted to the pendant adapter using the 4 screws provided.

4.3.5 Wall (Vertical Surface) Mounting

The Evolution housing may be mounted directly to a vertical surface. If the application requires mounting to a vertical surface but with the housing on a horizontal plane (wall, pole, or building corner) the pendant adaptor and wall mount is required. The wall mount has a 1½" female pipe thread, allowing the adapter to be directly screwed into it. There is a set screw in the 1½" thread area which locks the housing into a fixed rotational orientation. Wiring is fed through the wall mount and adapter to the enclosure.

The wall mount kit fastens to the base plate, a wall mount cleat and the wall mount. and the pendant adapter with its associated mounting screws. The base plate is used to adapt the wall mount to recessed wiring boxes or to uneven surfaces. Wiring is passed through the plate. It is then fastened to the mounting surface or box with appropriate fasteners.

The mounting cleat is then attached to the base plate by placing the cleat over the two threaded studs that protrude from the plate and fixing it with the nuts provided. It is symmetrical so it can be mounted in either direction. The wiring is passed through the mount and then the top is hooked over the upper cleat and lowered over the bottom cleat. The mount is secured to the cleat with the two socket head set screws using a hex wrench.

When mounting to a studded or solid wall and where no electrical box is used, the base plate is not needed. With this method the cleat plate can be mounted directly to the wall and the wiring is passed through the cleat plate via the holes provided on either side so that the wire can run on either side of a wall stud if necessary. Likewise, if the installation is to a pole or corner mount, the base plate is not needed.

4.3.6 Pole or Corner Mounting

The wall mount may be used in conjunction with the accessory pole mount when mounting to a light pole, or to the corner mount to attach to the corner of a building. The pole mount is a bracket that attaches to a pole 100 to 150mm (4 to 6") in diameter, with the stainless steel clamping bands provided.

The bracket has a hole in it that accommodates a conduit connection into the back of the wall mount if it is necessary to protect the wires from the environment. The wall mount cleat attaches directly to the pole bracket in the same manner as the base plate.

The corner mount is a bracket that adapts the wall mount to fit diagonally on the corner of a building. Attachment to the building is via 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 cleat attaches directly to the corner mount bracket in the same manner as the pole mount.

4.3.7 Sun Shield

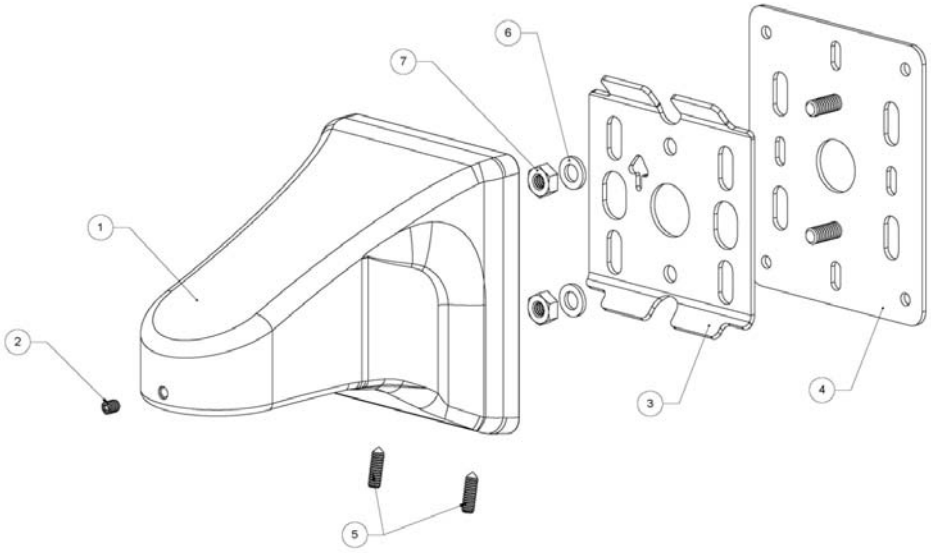
The sun shield is an accessory for applications where the enclosure is exposed to direct sunlight. The shield provides an outer surface that is separated from the enclosure by an air gap. The heat that is absorbed in the shield is not conducted into the enclosure because the air gap acts as an insulator. On a clear sunny day the enclosure's internal temperature can get too hot for the camera even when the ambient temperature is not very high. A sun shield is therefore recommended whenever there is significant exposure to the sun. The shield is only used in pendant mounting configurations with or without the wall mount. The shield is attached to the top of the pendant adapter with the three supplied screws.

5 Corner, Wall and Pole Mount Brackets

5.1 Evolution Wall Mount Kit - OBE-04-O#A

(#=W : white / #=B : black)

Ref.	Qty	Description
1	1	Wall Mount Arm
2	1	10-24 rotation set screw
3	1	Cleat Plate
4	1	Mounting Plate
5	2	Mount set screws
6	2	Flat Washers
7	2	Nylon lock nuts

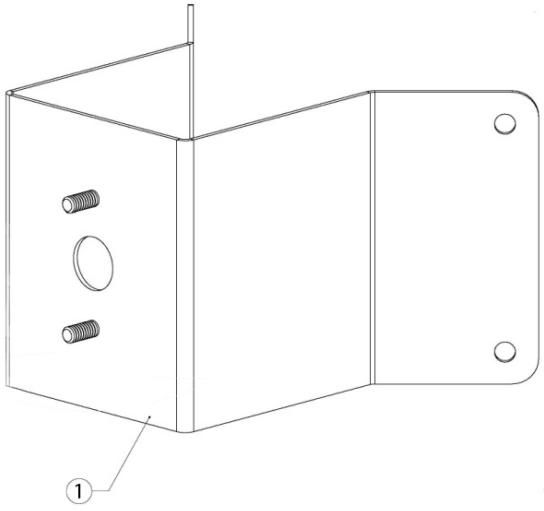


5.2 Evolution Corner Wall Mount Adapter OBE-05-O#A

(#=W : white / #=B : black)

Ref.	Qty	Description
1	1	Corner Mount Adapter *

*This needs to be used with the wall mount kit - OBE-04-O#A

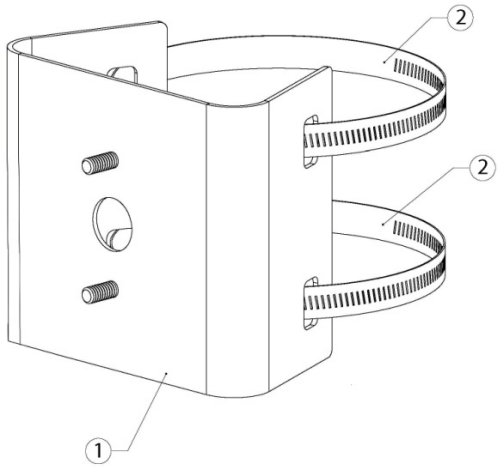


5.3 Evolution Pole Mount Adapter OBE-03-O#A

(#=W : white / #=B : black)

Ref.	Qty	Description
1	1	Pole Mount Adapter
1	2	Stainless Steel Strap Clamp

*This needs to be used with the wall mount kit - OBE-04-O#A



5.4 Installation

5.4.1 Wall Mount

The wall mount cleat plate (3) is first fastened to the wall surface using fasteners (not supplied) which are appropriate for the wall material and which are capable of supporting at least four times the weight of the wall mount and camera. Be sure that the arrow mark on the plate is oriented up. Cables are passed through one of the holes in the plate. The wall mount arm is then hooked over the top tabs on the cleat plate and the two set screws on the bottom are tightened to lock the arm to the cleat plate. Cables are passed through the mount arm and out the threaded hole on the end of the arm.

5.4.2 Installation on Rough Surfaces or Over Electrical Boxes

If the mount is to be installed over an electrical box, or if the wall surface is uneven, the wall mount plate (4) is first fastened to the box or the wall surface and then the cleat plate is fastened to it using the two nuts and washers provided. This provides an even surface for the cleat plate to work with.

Mounting directly to an electrical box may not provide sufficient mechanical strength to withstand a physical blow to the mount arm. We do not recommend mounting to electrical boxes when the camera is within reach. When mounting to an electrical box, make sure that the box is structurally sound enough to support the camera.

5.4.3 Pendant Adapter – Evolution Outdoor Housing

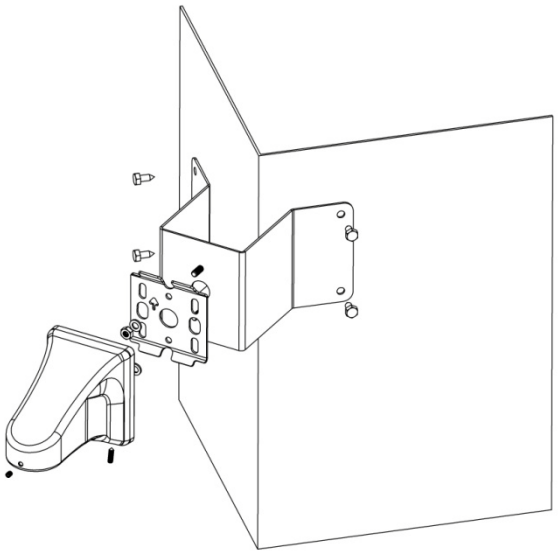
The Outdoor Evolution camera housing requires the use of a OBE-01-O#A *(#=W : white / #=B : black)* pendant adapter (sold separately) to fit it to the wall mount. Cabling is passed through the adapter, which is then threaded onto the mount arm. The rotation set screw (2) is tightened to lock the camera into the desired rotational orientation. The outdoor enclosure base is then mounted to the pendant adapter with the cables passing through the IP66 grommets in the back of the enclosure.

5.4.4 Pendant Adapter – Evolution Indoor Housing

The Indoor Evolution camera housing requires the use of the OBE-01-I#A *(#=W : white / #=B : black)* pendant adapter and the OXM-03-UWA adapter (sold separately) to fit it to the wall mount. Cabling is passed through the gender adapter, which is then threaded onto the mount arm. The indoor pendant adapter is then threaded onto the gender adapter. The rotation set screw (2) may be tightened to lock the camera into the desired rotational orientation. The indoor enclosure base plate is then mounted to the pendant adapter with the cables passing through it.

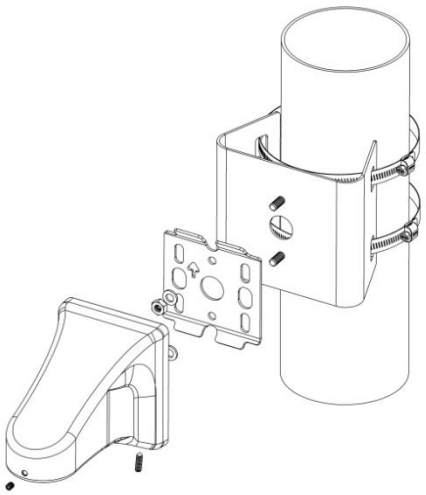
5.4.5 Corner Mount Applications

The corner mount adapter is first fastened to the wall surfaces using four fasteners (not supplied) which are appropriate for the wall material and which are capable of supporting at least four times the weight of the wall mount and camera. The wall mount cleat plate (3) is fastened to the corner mount adapter using the two nuts and washers provided with the wall mount. The wall mount plate (4) is not used. The hole in the corner adapter is designed to accept a flexible conduit adapter if desired. Cables are passed through this hole and into the mount arm, which is fastened to the cleat plate as described above.



5.4.6 Pole Mount Applications

The pole mount adapter is first fastened to the pole using the two stainless steel straps (2). The wall mount cleat plate (3) is fastened to the corner mount adapter using the two nuts and washers provided with the wall mount. The wall mount plate (4) is not used. The hole in the corner adapter is designed to accept a flexible conduit adapter if desired. Cables are passed through this hole and into the mount arm, which is fastened to the cleat plate as described above.



6 Audio Input

The mic input on the camera module follows the computer industry de facto standard for mic inputs on PCs. The physical connector is a 3.5mm stereo audio jack. As wired, it will work with an ordinary electrets mic sold for PC use. We have recommended two configurations for interfacing a mic with the camera depending upon application requirements. The LOCAL mode is the out of box configuration where the camera module is connected to a low cost electrets mic in close proximity to the enclosure. The electret mic and its connecting cable must be electrically floating to prevent noise and hum as a result of 'ground loops' We recommend a cable length of 1meter or less.. Any length longer than this will result in noise interference with the audio.

7 Power Requirements

Power can be supplied in two alternative ways:

- Power over Ethernet (PoE): Both power and data are connected using a single cable, plugged into the Ethernet port of the camera. The PoE supply equipment must be compliant with IEEE 802.3AF.
- Direct DC Input: Use only a UL/CSA-approved LPS or NEC Class 2 power source with a 12V DC 1A AC adapter (not supplied). It must be connected to the camera via the 12V jack. This connector is a 2.1mm positive centre jack.

If using an external power supply, note that use of power in excess of 12V DC may damage the camera and void the warranty.

8 Preparing the Camera for Installation

Make a note of the camera's location and MAC address as this information is needed during camera configuration. The MAC address can be found on a sticker on the side of the camera module and also on the rear of camera module.

8.1 Cabling the Camera for Ethernet and Power

Pass a stripped Ethernet cable (CAT5 or better) through either a 20mm compression cable gland (side entry) or through one of the rear rubber grommets of the enclosure. Now prepare the wires for an RJ45 connector (not supplied) for crimping.

Use appropriate equipment to crimp the RJ45 Ethernet connector. Pass the Ethernet cable around the Camera Module; ensure that the cable is secure by clicking connector into position.

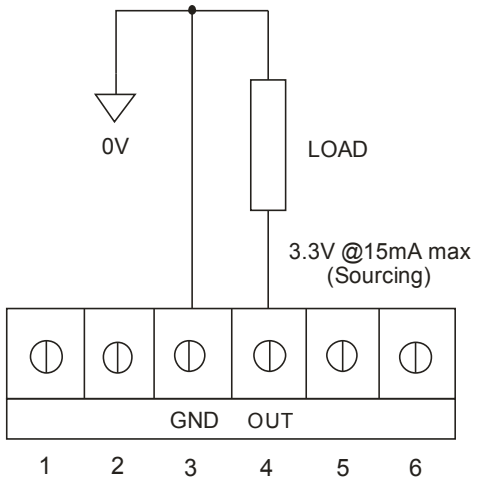
Power may be supplied to the camera via PoE IEEE 802.3af through the Ethernet cable. If PoE is not available, use only a UL/CSA-approved LPS or NEC Class 2 power source with a 12V DC 1A AC adapter (not supplied), this must have a wired plug connector with the correct polarity (+ve center). This cable should be fed through the rear second rubber grommet (supplied).

8.2 Cabling the Camera for External I/O

If an external I/O is to be connected, remove the multi-way connector block and wire it.

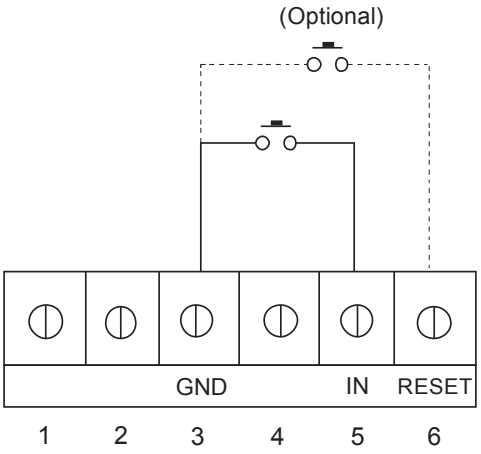
8.3 Alarms OUT

When an event occurs that is a trigger for an external alarm on the Evolution camera, the Alarm OUT pin outputs a signal (Low to High), which can be used to drive external alarm circuit (known as sourcing). The signal is 3.3V at 15mA (max).



8.4 Alarms IN

When Alarm IN gets shorted to GND, the camera's internal alarm gets latched. Through the web browser the user can specify the duration of time it gets latched for (10 sec's, 30 sec's, 60 sec's, 300 sec's, 600 sec's or infinite). After the specified amount of time has passed, the internal alarm will then be cleared. Alarm RESET pin is optional and can be used for overriding the counter in order to clear the internal alarm before the specified amount of time is up, by shorting it to GND. In the case where the duration is set to be infinite, this pin must be used in order to clear the internal alarm.



8.5 Camera Test

Ensure that the Camera Module has been inserted into its fixings on to the mounting base / plate. Ensure the thumb screw is fastened so there is no movement of the Camera Module.

Connect the network cable (RJ45) and the alarm input / output / alarm reset cable to the camera module along with the remote microphone if this is being used. If the device is not being powered via PoE IEEE 802.3af through the Ethernet cable, use only a UL/CSA-approved LPS or NEC Class 2 power source with a 12V DC 1A AC adapter (not supplied), this must have a wired plug connector with the correct polarity (+ve center).

The camera can now be powered.

A BNC connection has been supplied for local testing and could be used to feed a fisheye image to a spot monitor. Connect a suitable PAL or NTSC composite video test monitor to view the live "Fish Eye" image from the Camera Module. By selecting DIP switch **#2**, to either (1-on) PAL or (0-off) NTSC analogue video can be viewed.

This signal can also be routed to a permanent "spot" monitor if desired.

The focus is set at the factory so no adjustment is necessary.

Carefully re-seat the dome trim ring, taking care not to damage the dome surface, and ensuring that the dome seal is retained correctly.

- Outdoor Dome Camera - Refit the dome screws with the supplied Torx driver, and tighten to ensure ingress protection is maintained around the dome seal.
- Indoor Camera – align the dome trim ring over the base plate so the retaining clips align correctly to allow the trim ring to clip in to place.

Remove the screen protection film from the dome. Carefully polish the Surface of the dome with a soft, lint-free, nonabrasive cloth to complete the installation.

9 Dome Handling and Cleaning

The standard dome used in the Evolution enclosure is made of a polycarbonate (PC) polymer. Care must be taken when handling or cleaning PC bubbles so as to not scratch the surface.

- Always handle the dome by the outside edge of the flange or trim ring assembly.
- When handling domes, contact with the inside surface of the dome should be avoided.
- If dust or other surface contaminants accumulate in the dome's interior, it should be removed with clean, dry air pressure (compressed air cans).
- If heavy residue (spots, streaks, stains) or any other contaminants are present only on the surface of the dome, these can be removed with a solution of a mild liquid dish detergent or isopropyl alcohol and water and lint free "soft" paper towels or a microfiber cloth. After cleaning, the affected area of the dome should be blown off with clean, dry air.
- Scratches or other surface blemishes within the material of the dome may possibly be removed by applying a non-abrasive wax (Megiuars #18 or equivalent) with a microfiber cloth to the affected area. Again, after waxing, remove dust or lint with clean, dry air.

Excessive pressure or rubbing on the dome's surface can cause permanent scratches that may render the dome unusable.

10 First Time Operation

Once the camera has been successfully installed, it needs to be configured for first use. The steps for doing this are as follows:

- Configure the network setting
- Use a browser to connect to the camera Web interface for the first time AND set the root password
- Check the cameras view and ensure the camera is correctly focused
- Image setup
- Set up motion detection, if required
- Set up privacy zones, if required
- Define rules and actions for the event alarm

In order to use the camera, you will need to know its IP address. There are two typical installation types. The first type uses a DHCP server or router to automatically assign unique, valid IP addresses to each camera. The alternative is a manually configured network using static IP addresses.

Install the Oncam Grandeye IP Configuration Tool. The latest version of this is available on the Oncam Grandeye website www.oncamgrandeye.com and the IP addresses of the Oncam Grandeye 360° IP camera can be configured.

10.1 DHCP-Based Installation

The camera is configured for DHCP by default so that multiple cameras can be added to the network, each with a unique IP address. If you are using DHCP for the permanent camera 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.

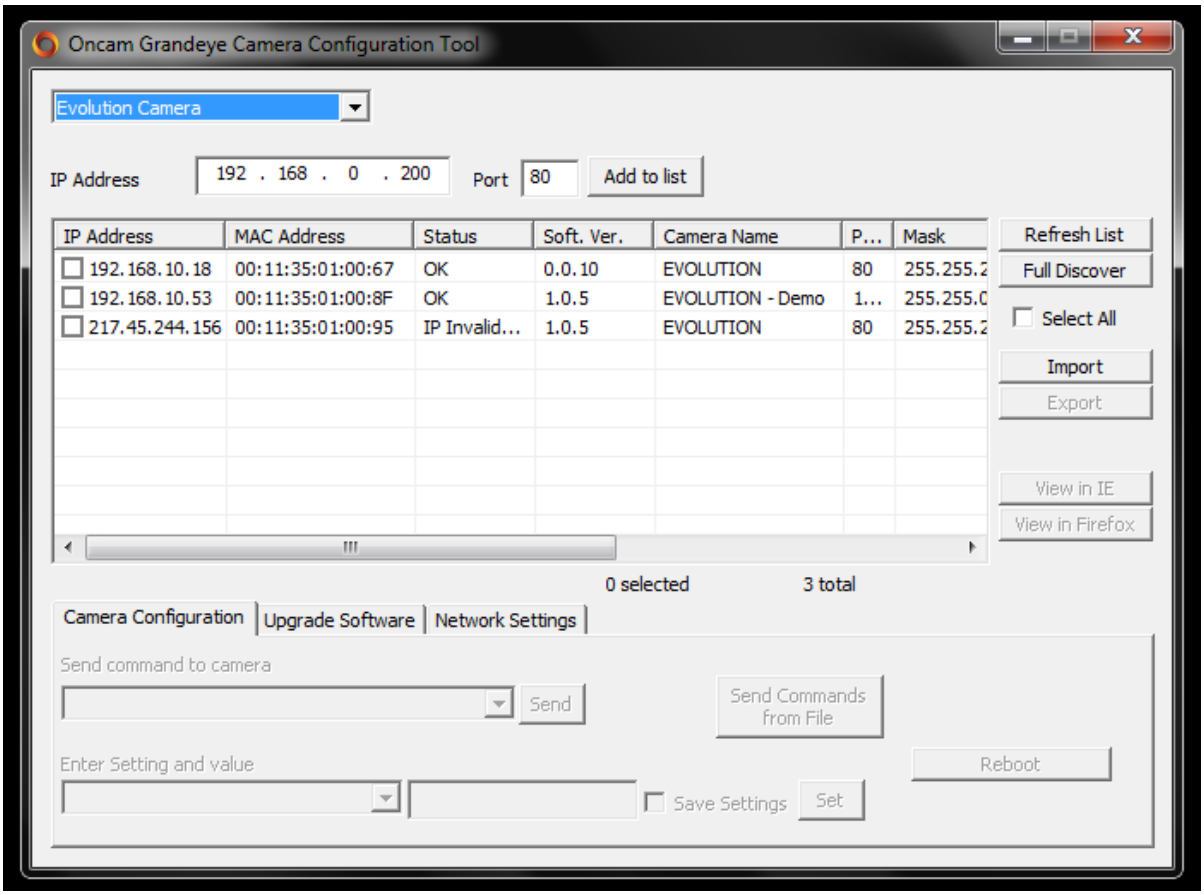
10.2 Static IP Installation

If there is no DHCP server or DHCP is disabled, then the factory default IP address is 192.168.0.200. For a multi-camera install, always introduce the cameras one at a time and then re-address them to a non-conflicting static IP address. This is done using the Network Settings page of the camera Web interface or the IP Configuration Tool.

10.3 Finding Available Cameras

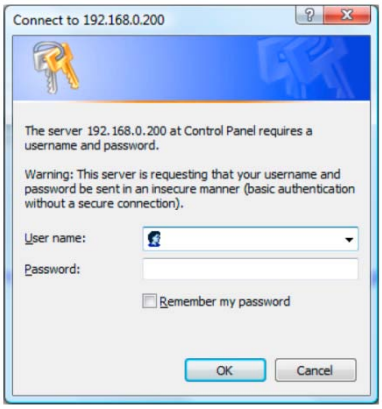
The Oncam Grandeye IP Configuration Tool is used to find the IP address of installed Oncam Grandeye 360° IP cameras, whether or not they are addressable on your current sub-LAN. Press the Refresh List or Discover button to find new cameras or update information on cameras already in the list.

If you need to change the IP address of a camera, check the box next to the IP address, then select the Network Settings tab. Enter the new IP address, Subnet Mask and Gateway. You can identify cameras by their MAC addresses, which are printed on the camera label.



10.4 Connecting to the Camera

To connect to any camera on your network, simply enter the IP address of the camera into the address bar of a browser running on a PC on the same network. To access the Web interface, open a browser window (Internet Explorer or Firefox) and enter the IP address of the camera. (e.g. `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)

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

When accessed with Internet Explorer, the camera uses an ActiveX control. If this is the first time the camera is being viewed on this IP address, you may get a warning:

NB: The Web site wants to run the following add-on: “Grandeye ActiveX Control” from Grandeye Ltd.

Allow this control to run and then wait a moment for installation. You should now be able to see live video from the camera. (Grandeye is the technology arm of Oncam Grandeye.)

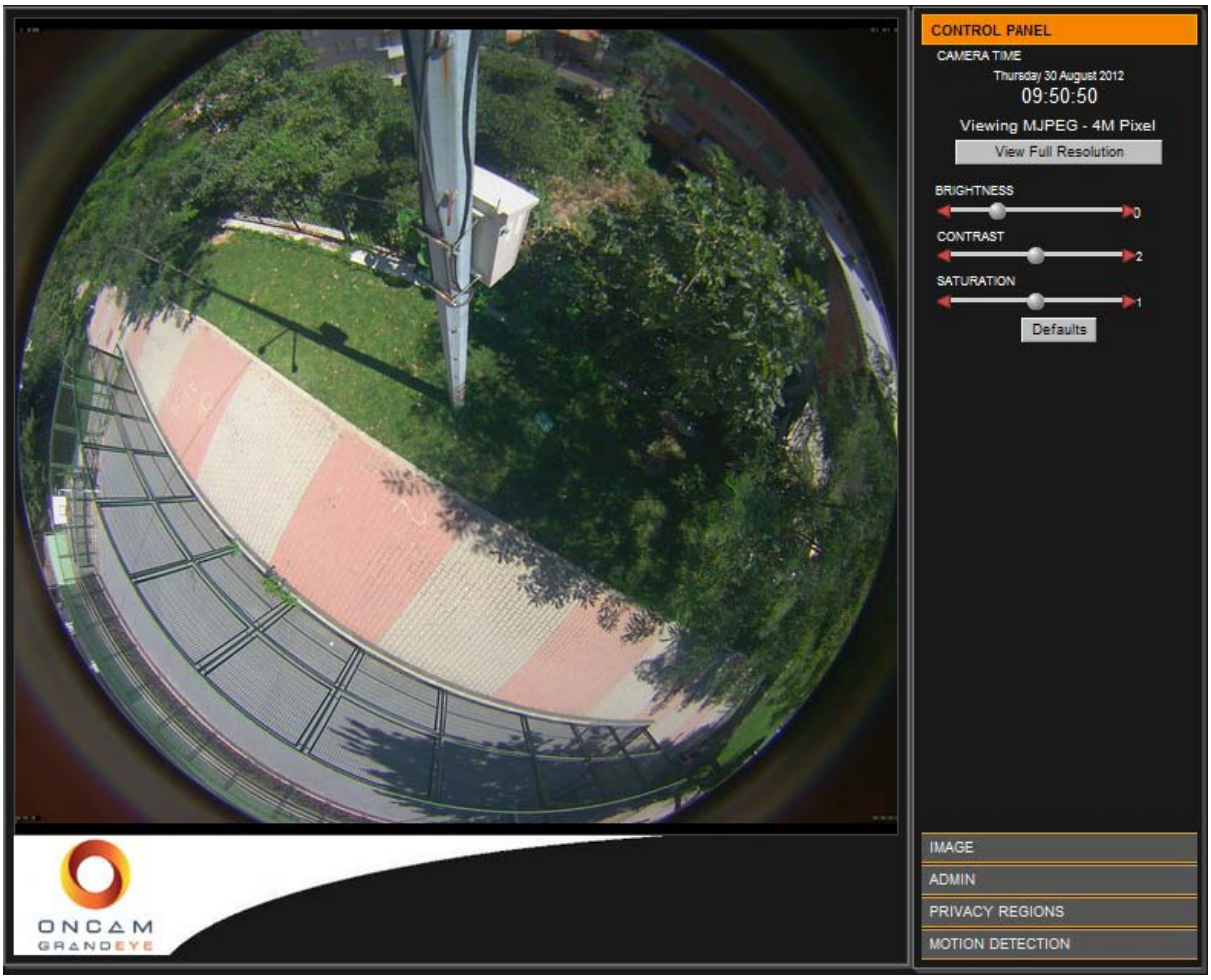
11 Camera Web Interface

Most of the configuration settings for the Oncam Grandeye 360 degree IP camera can be accessed through the Web interface of the camera. To access the Web interface, open a browser window and enter the IP address of the camera. After you enter the User name and Password for this camera the first screen you see will be the Control Panel screen.

11.1 Control Panel tab

The Control panel is the main page of the Web interface. Other tabs can be accessed from this screen, which will be covered one by one. The camera produces a fisheye view which is a full 360 degree image in a circular format using one of the following formats.

4M Pixel 2144 x 1944
2M Pixel 1488 x 1360
1M Pixel 1056 x 960
0.25M Pixel 528 x 480



The camera time is shown:

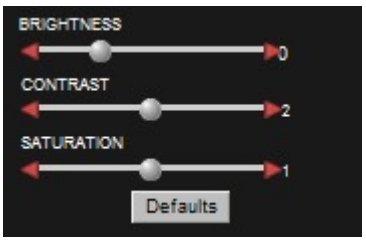
To set the current time, go to the Admin tab.

Full Resolution:

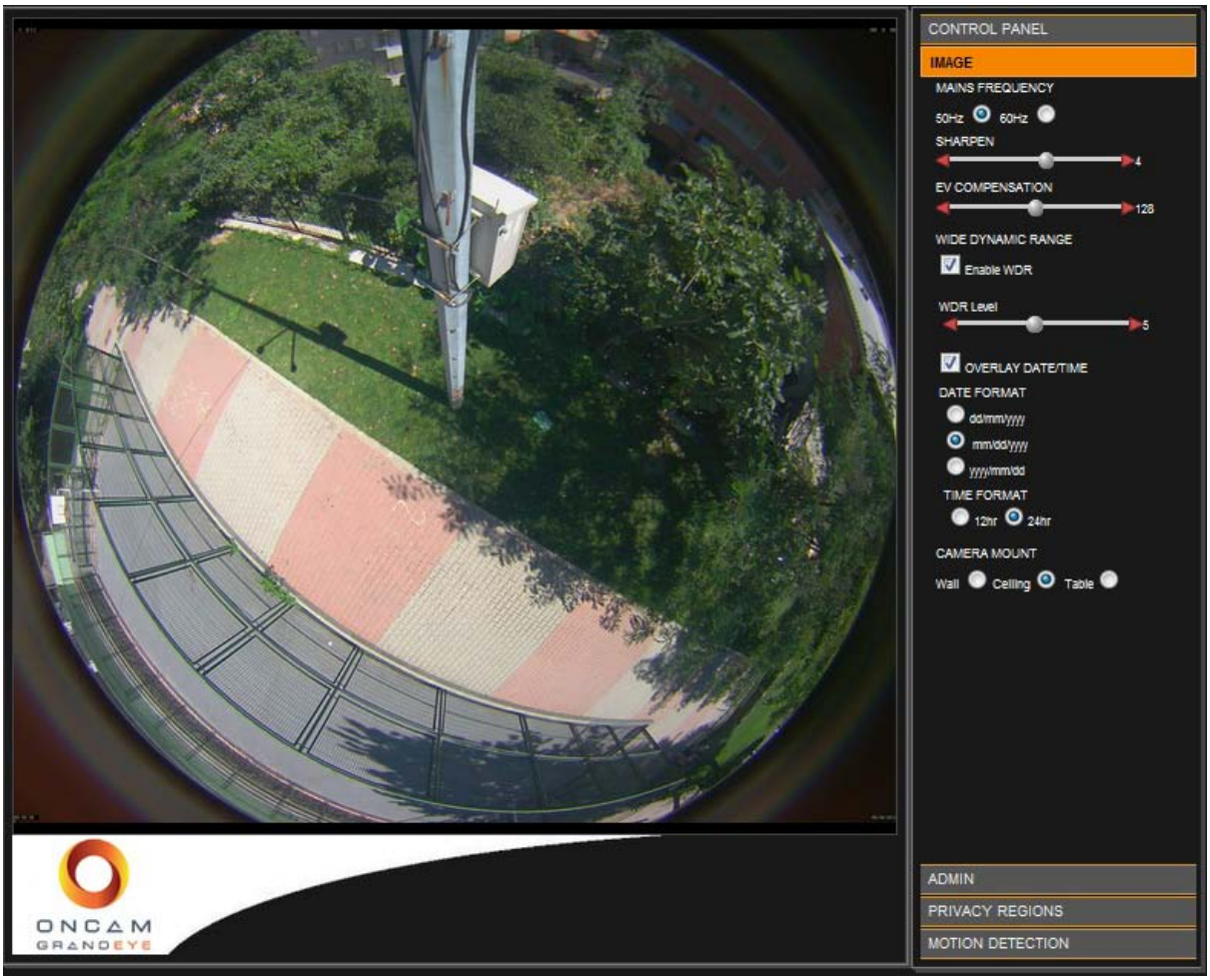
The fisheye view has been scaled down to fit in the browser page. The text above the View Full Resolution button shows the full size of this view. Select this button to see the view at its full resolution. A new browser window will be opened.

Image Controls:

The view can be adjusted using the image controls. Select the Defaults button to return the sliders to their default settings. Further adjustments are available on the Image tab.



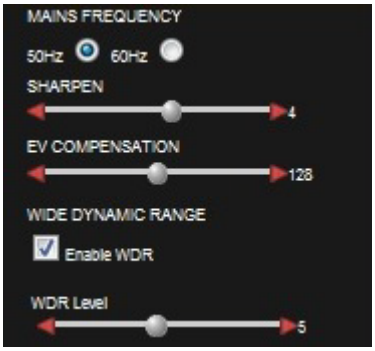
11.2 Image tab



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

11.2.1 Sharpen setting

Sharpen: Can increase or decrease the apparent clarity and focus of an image, but may also emphasize noise.



11.2.2 EV Compensation setting

EV Compensation: Can increase or decrease the image exposure. This should be adjusted to suit the lighting conditions.

11.2.3 Wide Dynamic Range setting

Wide Dynamic Range: This increases the dynamic range in difficult lighting conditions. It will lighten dark areas without over brightening light areas.

WDR Level: This slider is only available when WDR is enabled and adjusts the amount of WDR processing that is applied to the image.

11.2.4 Image Time/date overlay

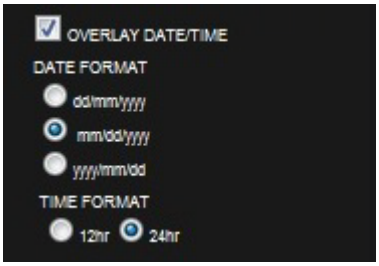
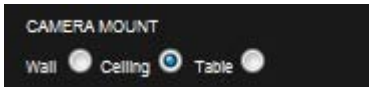
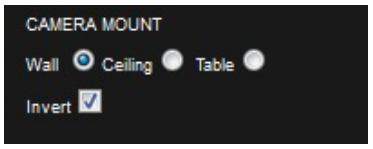


Image date and time: The current date and time can be overlaid onto the image outside of the fisheye circle so that the video is not obscured. These will appear small when viewed using a web browser because the image has been scaled down. Settings are available to set the format of the date and time text.

11.2.5 Camera Mount setting



Camera mount position: Oncam Grandeye 360 degree IP cameras are mounted either vertically or horizontally, most often on a wall or ceiling. When the camera is recoded and viewed using the Oncam Grandeye SDK which has been integrated into your NVR product, this setting ensures that the scene is properly de-warped and the NVR PTZ operations work correctly. It should be set to match the installation position of your camera.



When a camera is mounted on a wall it may need to be mounted upside down to help with routing the cabling. When the Wall Mount option is selected on the web page, an additional invert option is available to invert the video image if the camera is mounted up-side down. This only inverts the video image when the Wall mount setting is selected.

11.3 Admin tab

11.3.1 Network Settings

The camera is configured for DHCP by default and can be detected by the Camera Configuration Tool. If DHCP fails, the camera is configured with the configured static IP address. The default port for connecting to the web server is port 80. If the port number is changed, it will be applied regardless of whether a DHCP or Static IP address is being used.

Use the Camera Configuration Tool to locate the camera. If the camera did not receive a DHCP IP address and is not on a reachable subnet, then you must assign a static IP address using the Camera Configuration Tool. In the Camera Configuration Tool, the camera will be listed showing the Camera Name as entered in this screen.

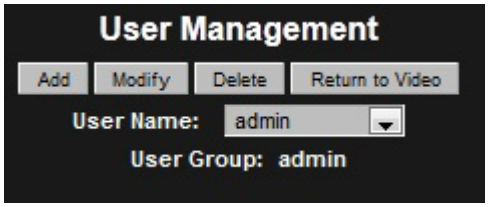
An NTP Server can optionally be used to provide accurate time services to the camera. If you are using a Network Time Protocol server, enter the DNS name or IP address of the NTP Server here.

! You must click Apply IP Settings in order to save any changes.

! You may lose your connection to the Web interface if the IP address changes to another subnet!

11.3.2 User Management Settings

Enter a User Name and Password for each user. There are three levels that users can belong to, as follows:

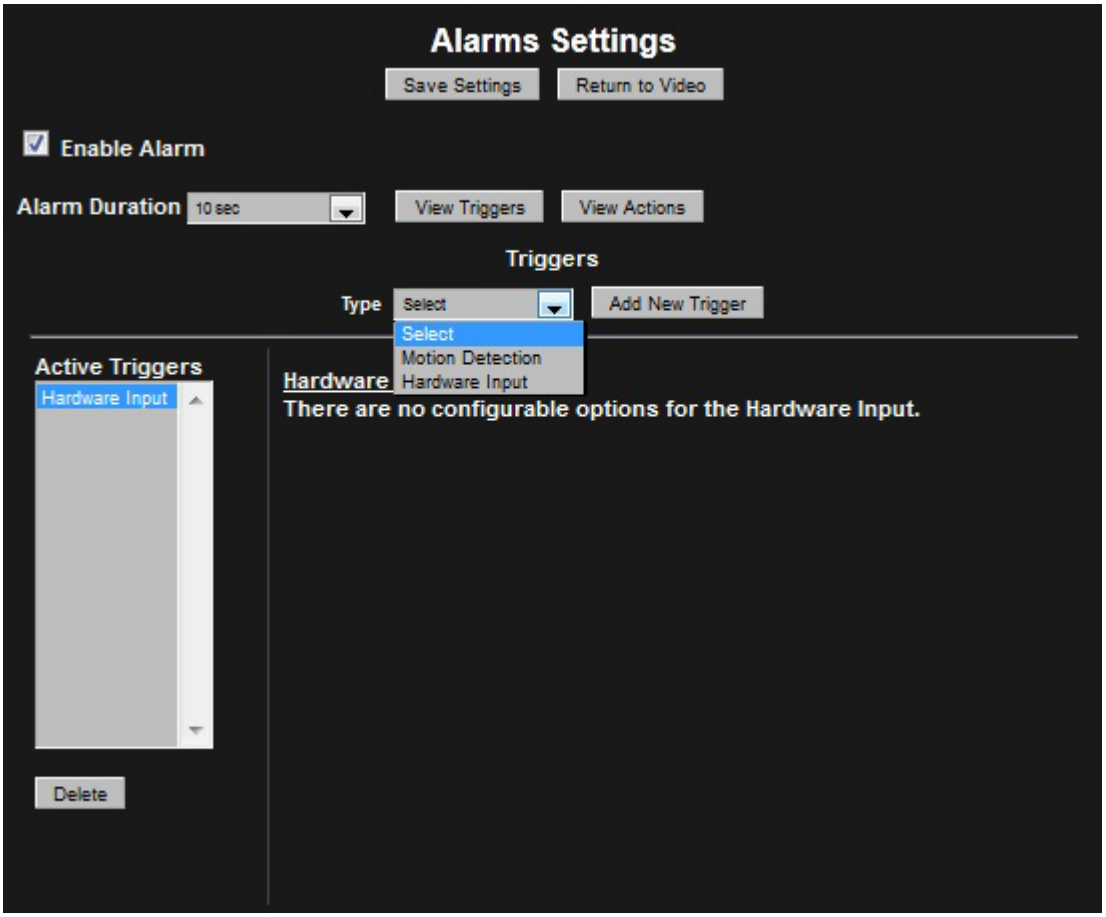


User: This level can view image streams and view camera configuration.

Operator: This level has the ability to change and save image settings, IP settings, motion regions, alarm settings and a factory reset.

Administrator: This level has access to all functions, including configuring users.

11.3.3 Alarm settings



Alarm Duration: This is the length of time that an alarm will persist after being triggered.

View Triggers:
Firstly you will need to configure the Active Triggers list. This is a list of triggers that will activate an alarm. Select the View Triggers button to do this.

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.

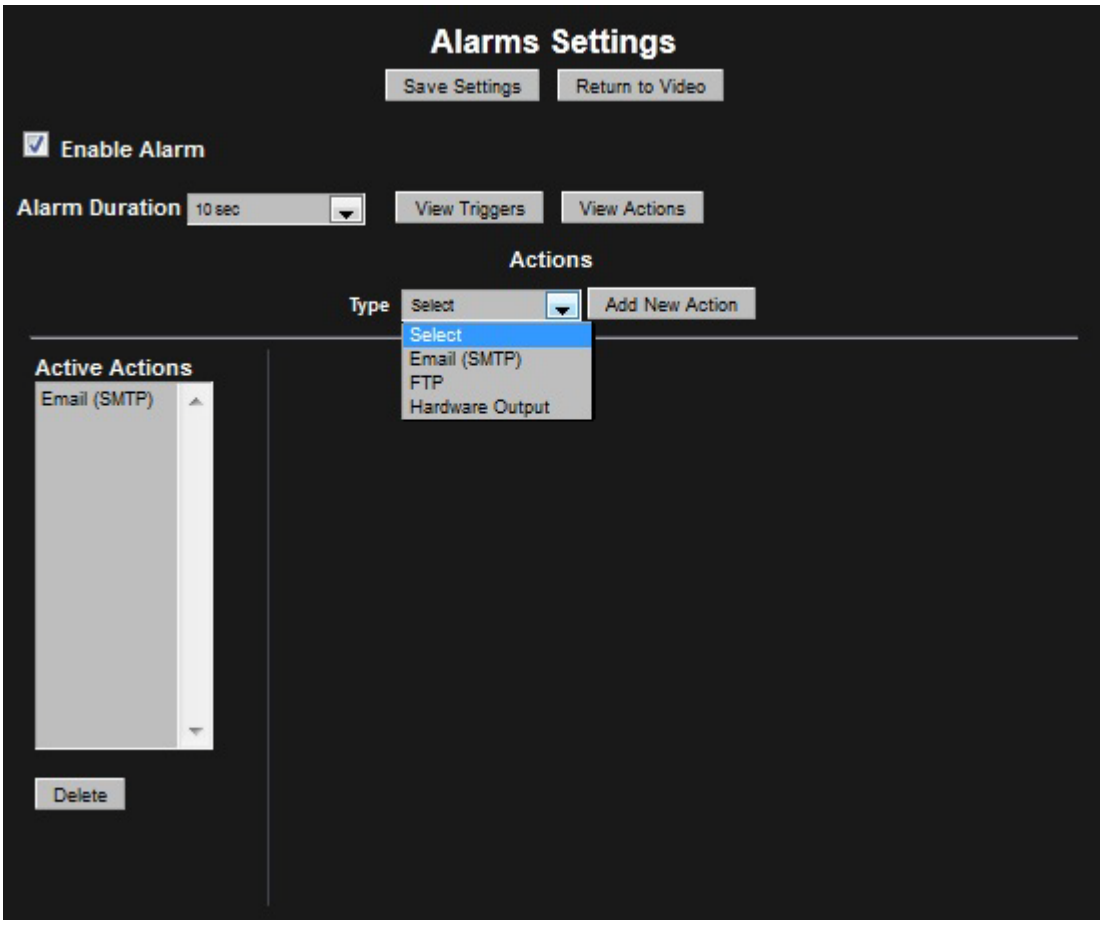
Available triggers are:

Motion detection – Movement detected in a defined region
Hardware input – A sensor or button attached to hardware I/O interface

Use the Delete button to delete a trigger from the list

View Actions:

After you have configured the active triggers list, you need to configure the active actions list. These actions are completed after a trigger has activated. Select the View Actions button to do this.

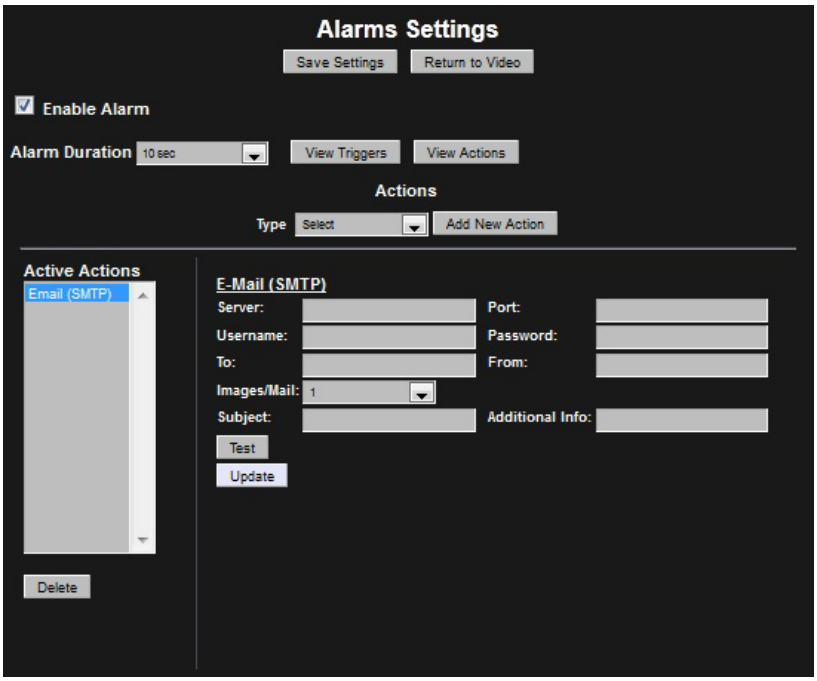


Some actions may have configurable options that need to be set up for these actions to work. For example, to send an email in response to an alarm, the email settings need to be set up. Select the action in the Active Actions list to configure the settings.

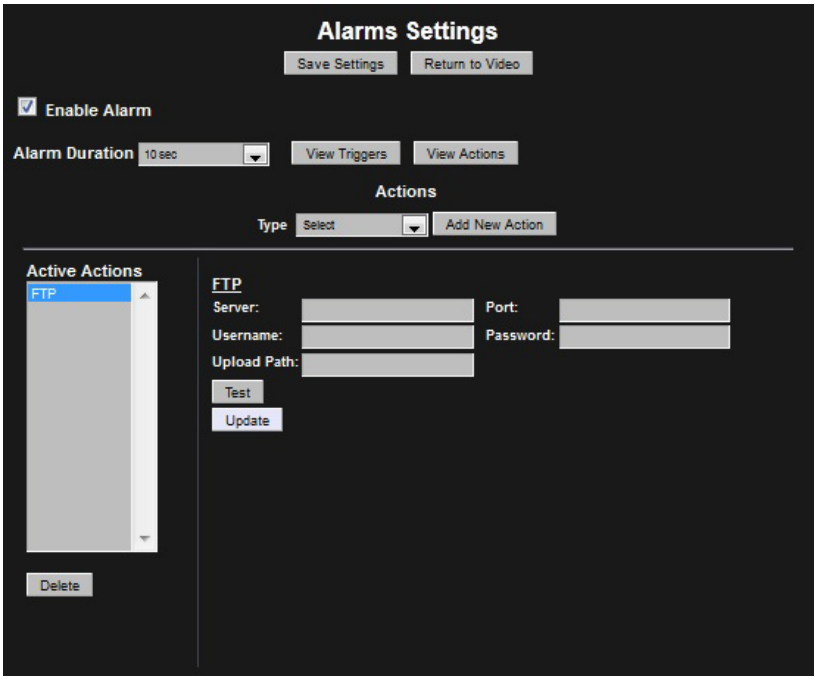
Available actions are:

Email (SMTP) – One or more emails are sent. Note: Requires an internal email server
FTP – Images are sent to an FTP server
Hardware output – A hardware device attached to the hardware I/O is activated.

Use the Delete button to delete a trigger from the list



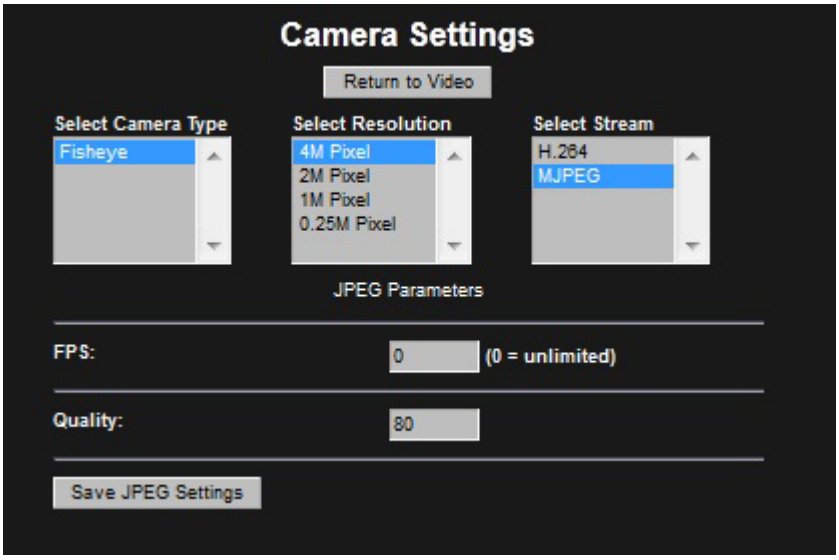
For example, to set up E-mail as an action, enter the server name, port, and login credentials for an SMTP server. Press the Test button and check your Inbox to see if an email was successfully sent.
Now enter the Subject and additional information for images coming from the camera. The camera will start sending images for a period specified by the Alarm Duration.



The settings for FTP actions are similar, except you will be providing a path to an FTP server and the credentials needed to log into it.

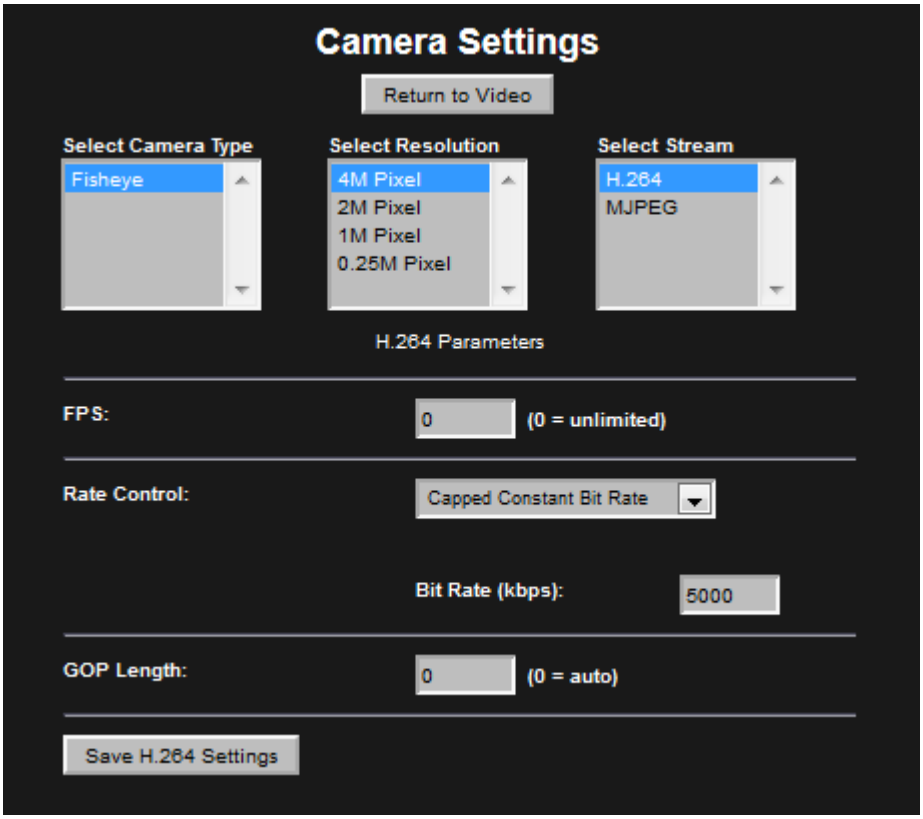
11.3.4 Camera Settings

Select Camera Type, Resolution and Stream type to access the settings for that camera.



FPS: Number of frames per second sent by the camera. A value of 0 means the frame rate is unlimited.

Quality: The quality of the JPEG images.



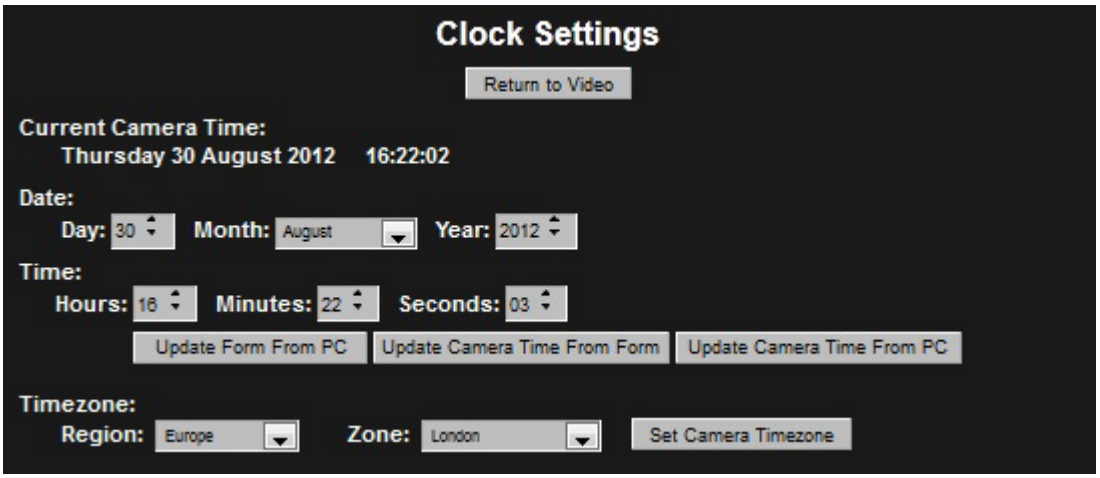
Max FPS: Number of frames per second sent by the camera. A value of 0 means the frame rate is unlimited.

Rate Control: The method used to control the network bandwidth used.

Capped Constant Bitrate	The network bandwidth should not go above the Bit Rate value.
Average Constant Bitrate	The network bandwidth may go above the Bit Rate value but the overall average will be less than the bit rate.
Rate Control Off	No network bandwidth control is used. When this option is selected a Quality value may be selected instead of a Bit Rate.

GOP Length: This is an advanced feature and sets the number of frames in a Group of Pictures (GOP). This is the number of frames between Intra frames or Key frames in the video stream. A small value means more frequent Key frames which may be required if the output is being recorded. Key frames use more bits to encode so more frequent Key frames will increase the bit rate and hence storage required to store the video. A value of 0 means this value is set automatically by the camera.

11.3.5 Clock settings

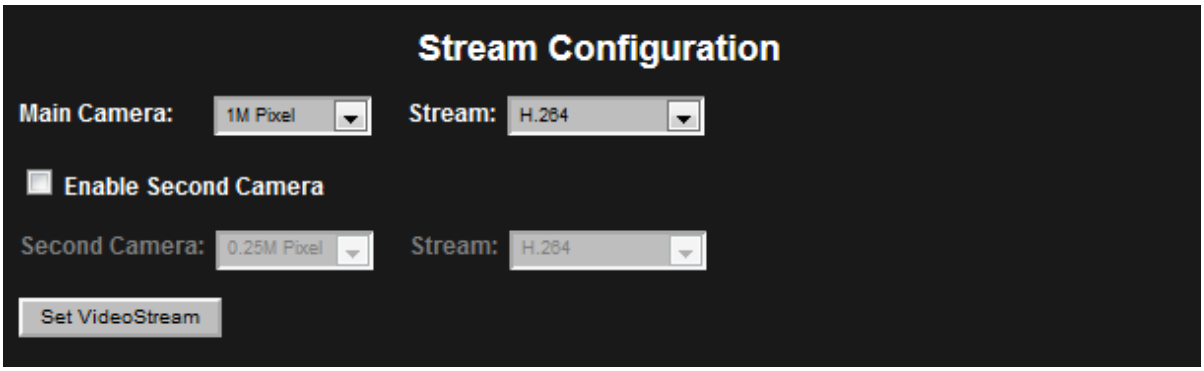


Clock functions

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 settings on this screen.

11.3.6 Stream Settings – Multi stream feature enable

The camera module can support either one or two camera streams.



Select the desired video resolution for the Main Camera (stream 1) and the stream type (MJPEG or H.264) and a second camera stream (stream 2) if required. Select the Set VideoStream button to set configure these settings. After changing your stream configuration, you will need to wait a few seconds for the camera to update the settings.

The camera module does not allow both the main camera and second camera streams to be set to MJPEG at the same time. The camera module also does not allow both streams to have the same settings, because each stream can have multiple concurrent connections and therefore there is no need for two streams to be the same.

When the second camera (stream 2) is enabled, then the maximum frame rate possible for each stream is reduced. You should only enable the second camera (stream 2) if it is required.

When only the main camera (stream 1) is enabled, the maximum frame rates are listed in the following table.

Main Camera (stream 1)							
H.264				MJPEG			
4M	2M	1M	0.25M	4M	2M	1M	0.25M
10fps	15 fps	15 fps	15 fps	10 fps	15 fps	15fps	15 fps

When both the main camera (stream 1) and the second camera (stream 2) are enabled, the maximum frame rates are listed in the following table.

			Main Stream (stream 1)							
			H.264				MJPEG			
			4M	2M	1M	0.25M	4M	2M	1M	0.25M
Second Camera (stream 2)	H.264	4M		6 fps	9 fps	10 fps	7 fps	6 fps	9 fps	10 fps
		2M	6 fps		10 fps	15 fps	6 fps	13 fps	10 fps	15 fps
		1M	9 fps	10 fps		15 fps	9 fps	10 fps	15 fps	15 fps
		0.25M	10 fps	15 fps	15 fps		10 fps	15 fps	15 fps	15 fps
	MJPEG	4M	7 fps	6 fps	9 fps	10 fps				
		2M	6 fps	13 fps	10 fps	15 fps				
		1M	9 fps	10 fps	15 fps	15 fps				
		0.25M	10 fps	15 fps	15 fps	15 fps				

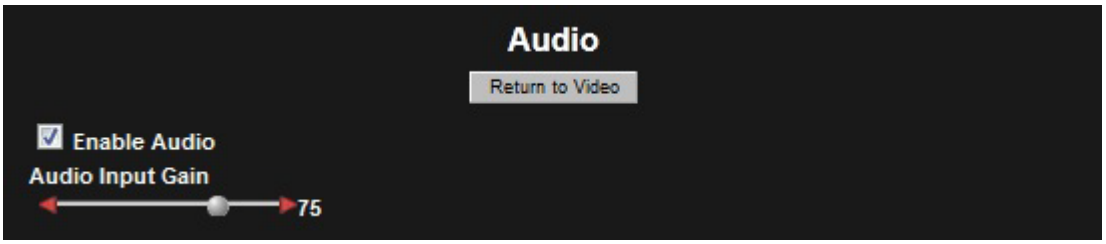
11.3.7 Audio settings

There is an audio button under the admin tab which can be used to access the audio configuration page.

The audio page contains two controls:-

- Enable Audio
- Audio Input Gain

The Enable Audio control enables the audio feature on the camera and the Audio Input Gain control allows adjustment of gain applied to the microphone signal.



You will need to provide an electret microphone and connect it to the microphone input socket on the camera module. When the Audio is enabled you should set the Audio Input Gain to the desired level. The Audio will then be included in any H.264 or MJPEG RTSP stream from the camera.

Note: RTSP streaming occurs when the stream request URL uses the prefix rtsp://. It is not possible to stream the MJPEG 4M pixel camera stream using RTSP. The HTTP streaming method is available but this does not include audio.

With audio enabled, when an RTSP connection is made to the camera to view video, an additional mono audio channel will be streamed to the player. The audio uses the G.711 mu-law codec. The audio operates with both H.264 and MJPEG video streams.

Note that video is not available over RTSP for a 4M pixel MJPEG video stream. MJPEG video of this size can only be streamed via HTTP.

11.3.8 Factory Defaults

A factory reset can be achieved in three ways

1. Factory Reset Button – Physical Button

Using the external recessed reset button on the side of the camera module by using a ball point pen. Whilst the camera is powered up, press and hold the Factory Default reset button for 3 seconds on the side of the camera module. When the camera has restarted, all the camera settings will be reset to factory settings, see below.

2. On screen 'Factory Default' button – Software Button

Via the camera's webpage 'Admin' screen, click the FACTORY DEFAULTS reset button on screen

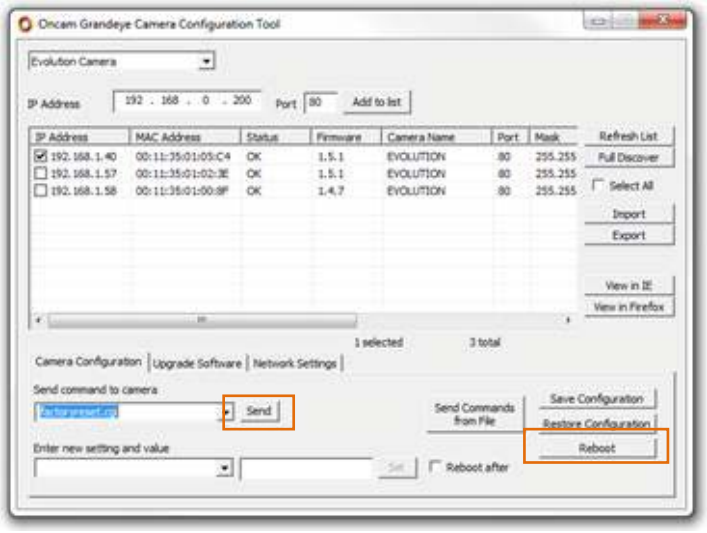
A warning message will pop up on screen.

3. Remote 'Factory Default' reset via the Oncam Grandeye camera configuration tool (software)

Via the camera configuration tool, tick the camera(s) that are required to be factory default reset. Under the camera configuration tab, in the send command to camera type ***'factoryreset.cgi'*** click the 'Send' button.

To complete the factory default reset, click on the 'Reboot' button to reboot the camera. Only after the camera has rebooted will the camera reset back to factory defaults.

A message will appear on the screen after the 'Send' request and the 'Reboot' request has been actioned.



If you proceed, the following defaults settings will reset to:

DHCP is enabled

Default static address 192.168.0.200

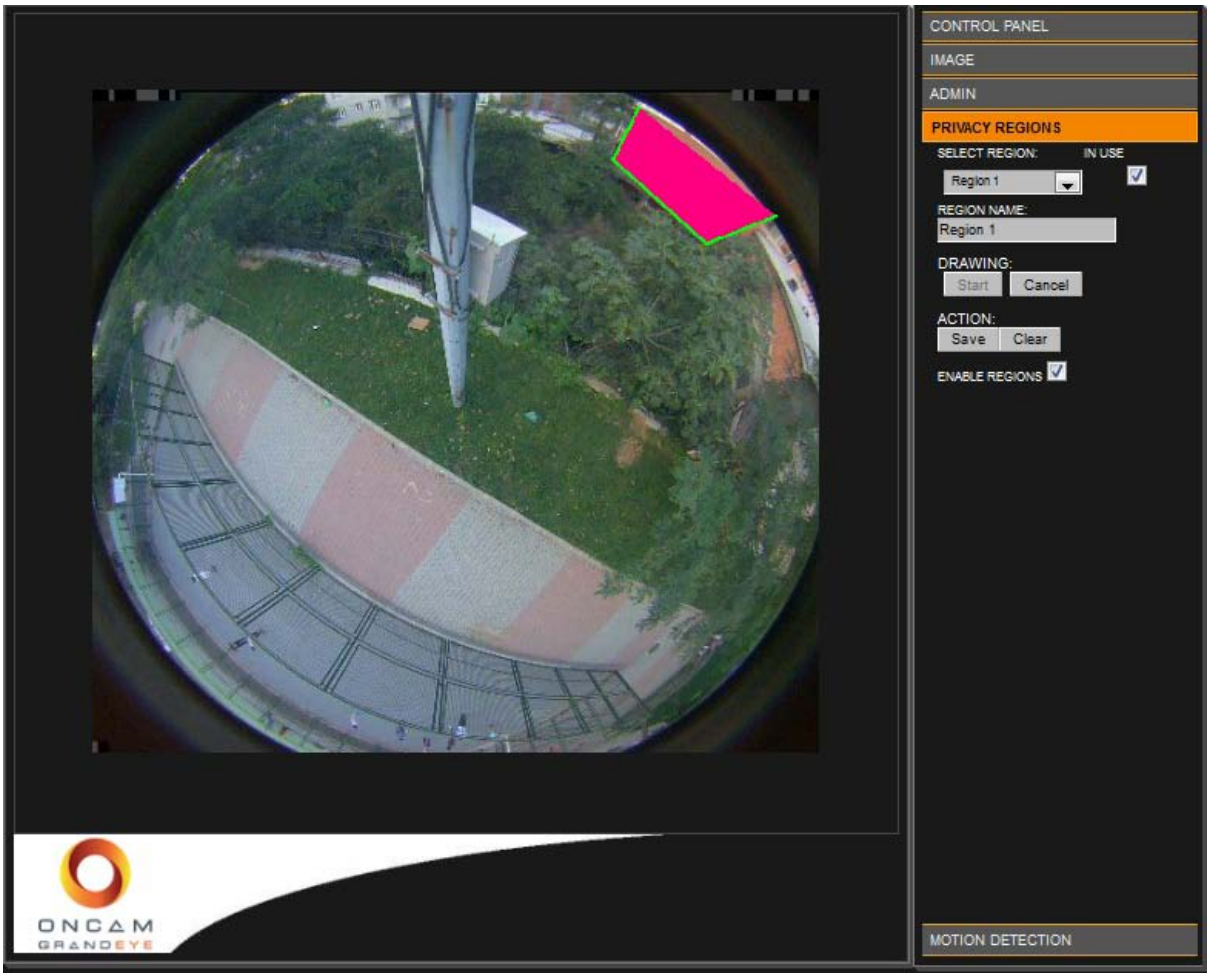
No regions (Privacy & Motion)

Alarm settings cleared.

Image settings set back to default values.
Default User Name: admin
Default Password: admin (case sensitive)

! You may lose your connection to the Web interface if the IP address changes to another subnet!

11.4 Privacy tab



1. Give the Region a Name
2. Click on Start under Drawing
3. Left click to set your initial point, then click again several times until you have defined a polygon
4. Press the Save to store these settings

Notes:

- Privacy Regions are enabled when created. You may disable them by un-checking Enable Regions.
- Each region can be turned on or off by selecting the In Use checkbox.
- If a region is no longer required, then you can clear the region. This will also delete any saved name and return the specific region number to default settings.

11.5 Motion Detection tab

Motion detection will only operate when the camera is in H.264 mode. Click on a rectangular region to toggle the setting between enabled and disabled. When a rectangle outline is green then this region is enabled for motion detection in H.264 mode.

The Alarm Settings page be used to configure detected motion as an alarm trigger which activates an alarm action.

The sensitivity may be changed. Available settings are Low, Medium, High or a Custom setting.

12 Connecting directly to the Camera streams

12.1 JPEG snapshot image

You can also access JPEG images from the Evolution using the following URL from your internet browser

Snap shot JPEG images in a browser

4MP JPEG snapshot :	http:// *camera_ip_address*:*port_number* /mjpg/snapshot.cgi?camera=13
2MP JPEG snapshot :	http:// *camera_ip_address*:*port_number* /mjpg/snapshot.cgi?camera=25
1MP JPEG snapshot :	http:// *camera_ip_address*:*port_number* /mjpg/snapshot.cgi?camera=12
¼ JPEG snapshot :	http:// *camera_ip_address*:*port_number* /mjpg/snapshot.cgi?camera=26

12.2 MJPEG / H.264 video streaming via media player

In order to connect to the video stream via your media streaming player, you will first need to select the appropriate camera stream as described in Section **11.3.4 Camera Settings** and **Section 11.3.6 Camera stream settings**, then use the appropriate URL below to stream via your media player.

MJPEG video streaming

4MP MJPEG video stream :	http:// *camera_ip_address*:*port_number* /video.cgi?camera=13
2MP MJPEG video stream :	http:// *camera_ip_address*:*port_number* /video.cgi?camera=25
1MP MJPEG video stream :	http:// *camera_ip_address*:*port_number* /video.cgi?camera=12
¼ MJPEG video stream :	http:// *camera_ip_address*:*port_number* /video.cgi?camera=26

H.264 video streaming

4MP H.264 video stream :	rtsp://*camera_ip_address*:*554*/h264/video.sdp?camera=13
2MP H.264 video stream :	rtsp:// *camera_ip_address*:*554*/h264/video.sdp?camera=25
1MP H.264 video stream :	rtsp:// *camera_ip_address*:*554*/h264/video.sdp?camera=12
¼ H.264 video stream :	rtsp:// *camera_ip_address*:*554*/h264/video.sdp?camera=26

Example, Evolution camera with the following IP address, 192.168.0.200, port 554 (Port 554 = H.264 rtsp stream)

First enable multi-stream mode and then set up the Main camera stream for 4MP H.264 and second camera stream to ¼ MP MJPEG. Using the following two URL's, you will be able to view the two streams via your media player.

To view the 4MP H.264 video stream use *rtsp://192.168.0.200:554/h264/video.sdp?camera=13*

To view the ¼ MP MJPEG video stream use *http://192.168.0.200:80/video.cgi?camera=26*

13 Connecting via ONVIF Profile S or PSIA

13.1 Evolution Camera with a PSIA driver

To use a camera from the Evolution range you can use the *PSIA Conformant Device* Hardware Driver when adding the camera hardware to your NVR System. You should set the camera to the desired codec type and resolution before you add the camera.

Please note that the PSIA driver normally uses RTSP for transferring the video from the camera. The Evolution camera sends the MJPEG data using the MJPEG RTP standard RFC 2435. This standard does not cater for JPEG images with a width greater than 2040. This means RTSP cannot be used to transfer the 2144 x 1944 MJPEG video from the camera. If you wish to stream MJPEG video at 2144 x 1944 then you will need to change the streaming method used by the PSIA driver to HTTP Multipart streaming. This can be found under the settings tab when the PSIA camera device is selected.

13.2 Evolution Camera with an ONVIF Profile S driver

To use a camera from the Evolution range you can use the *ONVIF Conformant Device* Hardware Driver when adding the camera hardware to your NVR System. You should set the camera to the desired codec type and resolution before you add the camera to your NVR system.

Please note that 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. This standard does not cater for JPEG images with a width greater than 2040. This means RTSP cannot be used to transfer the 2144 x 1944 MJPEG video from the camera. Any other MJPEG resolution or any H.264 resolution may be streamed using the ONVIF driver.

14 Troubleshooting and Technical Support

If your camera installation is not behaving as expected, use the following checklist to ensure that all components of the system are working properly.

- **Web interface not available in browser:** Use the IP Configuration Tool to confirm that you are looking at the correct address and there are no IP address conflicts. Also check your own network settings to make sure that the camera is on the same sub-LAN or is accessibly by routing.
- **Web interface fails to show a live image:** Check your browser security settings.
- **Motion detection is not working properly:** 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.
- **Camera image stops or drops frames:** This is probably due to a network connectivity problem, especially for cameras connected to wireless networks or the public Internet. Try reducing the JPEG quality or resolution settings in the camera Web interface.
- **One portion of the image is over or under-exposed:** Set the Brightness or try using an EV setting which will add 'over exposure' or 'under exposure' to the light in the scene.
- **There is a bright area in the scene and no detail can be seen with in it, but there is also dark areas in the scene and no detail can be seen here either:** Enable the WDR feature. This will make the dark areas brighter but will not affect the bright areas. Then by adjusting the EV settings so the bright areas are be under exposed and the dark areas will now be over exposed. Depending on the light differences the WDR settings can be adjusted so to obtain the best image.

14.1 Contact Technical Support

If none of these recommendations solve your problem, please send an email to support@oncamgrandeye.com Include a detailed description of the problem, the model number of the cameras you are using and any relevant configuration information.

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16 Appendix A - Technical Specifications

The following pages contain the technical specifications for the Evolution range of cameras.

Evolution Indoor Camera		
Model	EVO-05NID (White enclosure)	EVO-05NJD (Black enclosure)
General		
Field of View	360°	
Image Sensor	5 megapixel; Array Format (Active) 2592H x 1944V = 5,038,848 pixels; 1/2.5-Inch CMOS Sensor	
Angle of View	180° hemisphere	
Lens	185° 1.6mm / F2.0	
Minimum Illumination	0.2 lux = 50 IRE F/2.0 (6500K)	
Frame Rate	10 fps typical at maximum resolution and up to 15 fps for all other resolutions	
Video Motion Detection	12 regions of interest; VMD; configurable response; adjustable characteristics	
External Input	1x contact input	
External Output	1x contact output	
Security	Configurable password protection	
Advanced Event Management	Triggered by motion, external input or HTTP event, Result configurable; external output, FTP/SMTP upload, (Local recording, future feature via firmware update)	
Networking	TCP/IP, HTTP, DHCP, DNS, NTP, FTP, SMTP, RSTP	
Privacy	10 configurable privacy regions	
SD Card	Built-in SD Card slot (future feature via firmware update)	
Audio Connections	Audio in; Microphone input via 3.5mm jack; via RTSP using G711 codec (µLaw - 8K sample rate), via ONVIF S	
Analogue Video Out	BNC connection – selectable between PAL or NTSC	
Signal-to-Noise Ratio	45dB	
White Balance Range	Auto White Balance (Range = approx. 2500K~8000K)	
Electrical		
Ports	RJ45 for 100Base-TX; 2.1mm DC Input jack; 6-pin 1.5mm Phoenix for external I/O, BNC for test video output	
Network Cable Type	CAT5 or better for 100Base-TX	
Power Input	12V, 1.0A (min) “LPS or NEC Class 2” power supply or Power over Ethernet (PoE), IEEE standard 802.3af	
Power Consumption	8W max	
Video		
Video Stream 1 & 2 Codec’s	H.264 High, Level 5 / MJPEG (both streams configurable)	
Video Stream 1 & 2 Compression Level	Multi-levels of compression adjustment	
Video Stream 1 & 2 Pixel Resolution	Fisheyes at: ¼ MegaPixel (528x480), 1Mp (1056x960) , 2Mp (1488x1360), 4Mp (2144x1944)	
Video Stream 3 Codec	MJPEG	
Video Stream 3	Multi-levels of compression and frame rate adjustment (max 15 fps)	
Video Stream 3 Pixel Resolution	Fisheye at: ¼ Megapixel (528x480)	
Image Control	Settings: brightness/contrast/saturation/exposure compensation; compression quality; wall/ceiling/table mount	
Image Enhancement	Wide Dynamic range - Greater than 90db	
VMS / NVR / HDVR supported	Most major VMS / VMS / HDVR systems (contact Oncam Sales for latest list)	

Web Browser Compatibility	Internet Explorer IE9 (with ActiveX plug-in, supplied); Firefox 23 ; Chrome 29; using Quicktime, minimum version 7
Number of Unicast Users Supported	Up to 20 simultaneous users depending on the resolutions settings
Bit Rate Control	Selectable options: constant bit rate control; capped bit rate control; constant quality control
Minimum system requirements	
Processor and Memory	Computer with 1Ghz 32-bit (x86) or 64-bit (x64) processor and with minimum of 512 MB
Operating System	Windows Vista 32-bit with service pack 2 (SP2) of higher / 64-bit with service pack (SP2) of higher
Hard Drive Space	Windows Vista 32-bit = minimum 70MB / Windows Vista 64-bit = minimum 120MB
Display	Super VGA (800 x 600) of higher-resolution monitor with 256 colours
Peripherals	100Mbits or greater network connection, mouse or compatible pointing device, keyboard
Mechanical	
Camera Mount	Surface mount (or with a ranger of mounting accessories for mounting to a pole / wall / pedant)
Weight	0.58kg (1.08lbs)
Enclosure	Metal back plate with polycarbonate dome bubble and cover trim enclosure
Environmental	
Operating Temperature Range	-40 to +55°C (-40 to +131°F)
Storage temperature range	-40 to +70°C (-40 to +158°F)
Operating Humidity	Up to 98% (In accordance with BS EN 60068-2-30)
Ingress Protection rating	IP54-rated – Indoor use only
Certifications / Ratings / Patents	
Patents	15 patents; 15 patents pending; 20 licensed patents
Approvals	IEEE802.3af Class 2; EMC: (CISPR Class A) FCC; CE; ICES-003; Safety: UL60950
Other related products	Oncam Grandeye SDK integration pack, Evolution Accessories, IP Configuration Tool, 360-degree Viewer, OnVu360

Evolution Indoor Concealed Camera	
Model	EVO-05NCD
General	
Field of View	360°
Image Sensor	5 megapixel; Array Format (Active) 2592H x 1944V = 5,038,848 pixels; 1/2.5-Inch CMOS Sensor
Angle of View	180° hemisphere
Lens	185° 1.6mm / F2.0
Minimum Illumination	0.2 lux = 50 IRE F/2.0
Frame Rate	10 fps typical at maximum resolution and up to 15 fps for all other resolutions
Video Motion Detection	12 regions of interest; VMD; configurable response; adjustable characteristics
External Input	1x contact input
External Output	1x contact output
Security	Configurable password protection
Advanced Event Management	Triggered by motion, external input or HTTP event, result configurable; external output, FTP/SMTP upload, (Local recording, future feature via firmware update)
Networking / Supported IP Protocol	TCP/IP, HTTP, DHCP, DNS, NTP, FTP, SMTP, RSTP
Privacy	10 configurable privacy regions
SD Card	Built-in SD Card slot (future feature via firmware update)
Audio Connections	Audio in; Microphone input via 3.5mm jack; via RTSP using G711 codec (µLaw - 8K sample rate), via ONVIF S
Analogue Video Out	BNC connection – selectable between PAL or NTSC
Signal-to-Noise Ratio	45dB
White Balance Range	Auto White Balance (Range = approx. 2500K~8000K)
Electrical	
Ports	RJ45 for 100Base-TX; 2.1mm DC Input jack; 6-pin 1.5mm Phoenix for external I/O, BNC for test video output
Network Cable Type	CAT5 or better for 100Base-TX
Power Input	12V, 1.0A (min) “LPS or NEC Class 2” power supply or Power over Ethernet (PoE), IEEE standard 802.3af
Power Consumption	8W max
Video	
Video Stream 1 & 2 Codec’s	H.264 High, Level 5 / MJPEG (both streams configurable)
Video Stream 1 & 2 Compression Level	Multi-levels of compression adjustment
Video Stream 1 & 2 Pixel Resolution	Fisheyes at: ¼ MegaPixel (528x480), 1Mp (1056x960) , 2Mp (1488x1360), 4Mp (2144x1944)
Video Stream 3 Codec	MJPEG
Video Stream 3	Multi-levels of compression and frame rate adjustment (max 15fps)
Video Stream 3 Pixel Resolution	Fisheye at: ¼ Megapixel (528x480)
Image Control	Settings: brightness/contrast/saturation/exposure compensation; compression quality; wall/ceiling/table mount
Image Enhancement	Wide Dynamic range - Greater than 90db
VMS / NVR / HDVR Supported	Most major VMS / VMS / HDVR systems (contact Oncam Sales for latest list)

Web Browser Compatibility	Internet Explorer IE9 (with ActiveX plug-in, supplied); Firefox 23 ; Chrome 29; using Quicktime, minimum version 7
Number of Unicast Users Supported	Up to 20 simultaneous users depending on the resolutions settings
Bit Rate Control	Selectable options: constant bit rate control; capped bit rate control; constant quality control
Minimum system requirements	
Processor and Memory	Computer with 1Ghz 32-bit (x86) or 64-bit (x64) processor and with minimum of 512 MB
Operating System	Windows Vista 32-bit with service pack 2 (SP2) of higher / 64-bit with service pack (SP2) of higher
Hard Drive Space	Windows Vista 32-bit = minimum 70MB / Windows Vista 64-bit = minimum 120MB
Display	Super VGA (800 x 600) of higher-resolution monitor with 256 colours
Peripherals	100Mbits or greater network connection, mouse or compatible pointing device, keyboard
Mechanical	
Camera Mount	Behind ceiling or wall to conceal the camera module from view via flush mounted adaptor ring
Weight	0.45kg (0.95lbs)
Enclosure	Die-cast aluminium camera module with polycarbonate mounting adaptor and clamping ring
Cut out Required	Diameter cut out; 64mm (2 ½"), Max / Min ceiling or wall material thickness; 3mm (1/4") – 25mm (1")
Environmental	
Operating temperature range	-40 to +55°C (-40 to +131°F)
Storage temperature range	-40 to +70°C (-40 to +158°F)
Operating Humidity	Up to 98% (In accordance with BS EN 60068-2-30)
Certifications / Ratings / Patents	
Patents	15 patents; 15 patents pending; 20 licensed patents
Approvals	IEEE802.3af Class 2; EMC: (CISPR Class A) FCC; CE; ICES-003; Safety: UL60950
Other related products	Oncam Grandeye SDK integration pack, Evolution Accessories, IP Configuration Tool, 360-degree Viewer, OnVu360

Evolution Outdoor Dome Camera		
Model	EVO-05NMD (White enclosure)	EVO-05NND (Black enclosure)
General		
Field of View	360°	
Image Sensor	5 megapixel; Array Format (Active) 2592H x 1944V = 5,038,848 pixels; 1/2.5-Inch CMOS Sensor	
Angle of View	180° hemisphere	
Lens	185° 1.6mm / F2.0	
Minimum Illumination	0.2 lux = 50 IRE F/2.0 (6500k)	
Frame Rate	10 fps typical at maximum resolution and up to 15 fps for all other resolutions	
Video Motion Detection	12 regions of interest; VMD; configurable response; adjustable characteristics	
External Input	1x contact input	
External Output	1x contact output	
Security	Configurable password protection	
Advanced Event Management	Triggered by motion, external input or HTTP event, Result configurable; external output, FTP/SMTP upload, (Local recording, future feature via firmware update)	
Networking	TCP/IP, HTTP, DHCP, DNS, NTP, FTP, SMTP, RSTP	
Privacy	10 configurable privacy regions	
SD Card	Built-in SD Card slot (future feature via firmware update)	
Audio Connections	Audio in; Microphone input via 3.5mm jack; via RTSP using G711 codec (µLaw - 8K sample rate), via ONVIF S	
Analogue Video Out	BNC connection – selectable between PAL or NTSC	
Signal-to-Noise Ratio	45dB	
White Balance Range	Auto White Balance (Range = approx. 2500K~8000K)	
Electrical		
Ports	RJ45 for 100Base-TX; 2.1mm DC Input jack; 6-pin 1.5mm Phoenix for external I/O, BNC for test video output	
Network Cable Type	CAT5 or better for 100Base-TX	
Power Input	12V, 1.0A (min) “LPS or NEC Class 2” power supply or Power over Ethernet (PoE), IEEE standard 802.3af	
Power Consumption	8W max	
Video		
Video Stream 1 & 2 Codec’s	H.264 High, Level 5 / MJPEG (both streams configurable)	
Video Stream 1 & 2 Compression Level	Multi-levels of compression adjustment	
Video Stream 1 & 2 Pixel Resolution	Fisheyes at: ¼ MegaPixel (528x480), 1Mp (1056x960) , 2Mp (1488x1360), 4Mp (2144x1944)	
Video Stream 3 Codec	MJPEG	
Video Stream 3	Multi-levels of compression and frame rate adjustment (max 15 fps)	
Video Stream 3 Pixel Resolution	Fisheye at: ¼ Megapixel (528x480)	
Image Control	Settings: brightness/contrast/saturation/exposure compensation; compression quality; wall/ceiling/table mount	
Image Enhancement	Wide Dynamic range - Greater than 90db	
VMS / NVR / HDVR Supported	Most major VMS / VMS / HDVR systems (contact Oncam Sales for latest list)	
Web Browser Compatibility	Internet Explorer IE9 (with ActiveX plug-in, supplied); Firefox 23 ; Chrome 29; using Quicktime, minimum version 7	
Number of Unicast Users Supported	Up to 20 simultaneous users depending on the resolutions settings	

Bit Rate Control	Selectable options: constant bit rate control; capped bit rate control; constant quality control
Minimum system requirements	
Processor and Memory	Computer with 1Ghz 32-bit (x86) or 64-bit (x64) processor and with minimum of 512 MB
Operating System	Windows Vista 32-bit with service pack 2 (SP2) of higher / 64-bit with service pack (SP2) of higher
Hard Drive Space	Windows Vista 32-bit = minimum 70MB / Windows Vista 64-bit = minimum 120MB
Display	Super VGA (800 x 600) of higher-resolution monitor with 256 colours
Peripherals	100Mbits or greater network connection, mouse or compatible pointing device, keyboard
Mechanical	
Camera Mount	Surface mount (or with a ranger of mounting accessories for mounting to a pole / wall / pedant)
Weight	0.92kg (2.03lbs)
Enclosure	All-aluminium die-cast base enclosure with clear polycarbonate dome bubble and cover trim plate
Environmental	
Operating Temperature Range	-40 to +55°C (-40 to +131°F)
Storage Temperature Range	-40 to +70°C (-40 to +158°F)
Operating Humidity	Up to 98% (In accordance with BS EN 60068-2-30)
Ingress Protection Rating	IP66-rated
Certifications / Ratings / Patents	
Patents	15 patents; 15 patents pending; 20 licensed patents
Approvals	IEEE802.3af Class 2; EMC: (CISPR Class A) FCC; CE; ICES-003; Safety: UL60950
Other Related Products	Oncam Grandeye SDK integration pack, Evolution Accessories, IP Configuration Tool, 360-degree Viewer, OnVu360

17 Appendix B – Frame Rate, Resolution & Storage Needs

Default Settings

H.264

4MP	(2144x1944)	10fps	Constant bit rate settings	5 Mbits/s	24hrs = 54GB *
2MP	(1488 x1360)	15fps	Constant bit rate settings	3 Mbits/s	24hrs = 40GB *
1MP	(1056 x 1056)	15fps	Constant bit rate settings	1.5 Mbits/s	24hrs = 16GB *
1/4MP	(528 x 480)	15fps	Constant bit rate settings	0.8 Mbits/s	24hrs= 8GB *
*** Based on the same scene, with constant average light conditions**					

MJPEG

4MP	(2144x1944)	10fps	Average file size	640KB	Average bit rate	52.4 Mbits/s	24hrs = 552.96 GB *
2MP	(1488 x1360)	15fps	Average file size	350KB	Average bit rate	43.0 Mbits/s	24hrs = 453.60 GB *
1MP	(1056 x 1056)	15fps	Average file size	188KB	Average bit rate	23.1 Mbits/s	24hrs = 243.65 GB *
1/4MP	(528 x 480)	15fps	Average file size	62KB	Average bit rate	7.6 Mbits/s	24hrs = 80.35 GB *
*** Based on the same scene, with constant average light conditions**							

Notes:

Values for frame rate, size, and bandwidth are approximate and are 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 who need access to the full API interface should contact support@oncamgrandeye.com for additional details.

18 Appendix C – NVR and Storage Partners

For an up to date list of NVR / VMS partners that support the Oncam Grandeye 360° IP cameras, please visit the Oncam Grandeye web site www.oncamgrandeye.com

19 Appendix D – Drill Template, Evolution Outdoor Dome Camera – UK

Drill Template, ‘A4’ format (UK / Europe)

The following pages are the drilling template for installing the Evolution Outdoor mini dome. It must be printed as is, with no resizing, so that the proper drilling measurements are maintained.

If in doubt, check the measurements of your printed template before drilling.

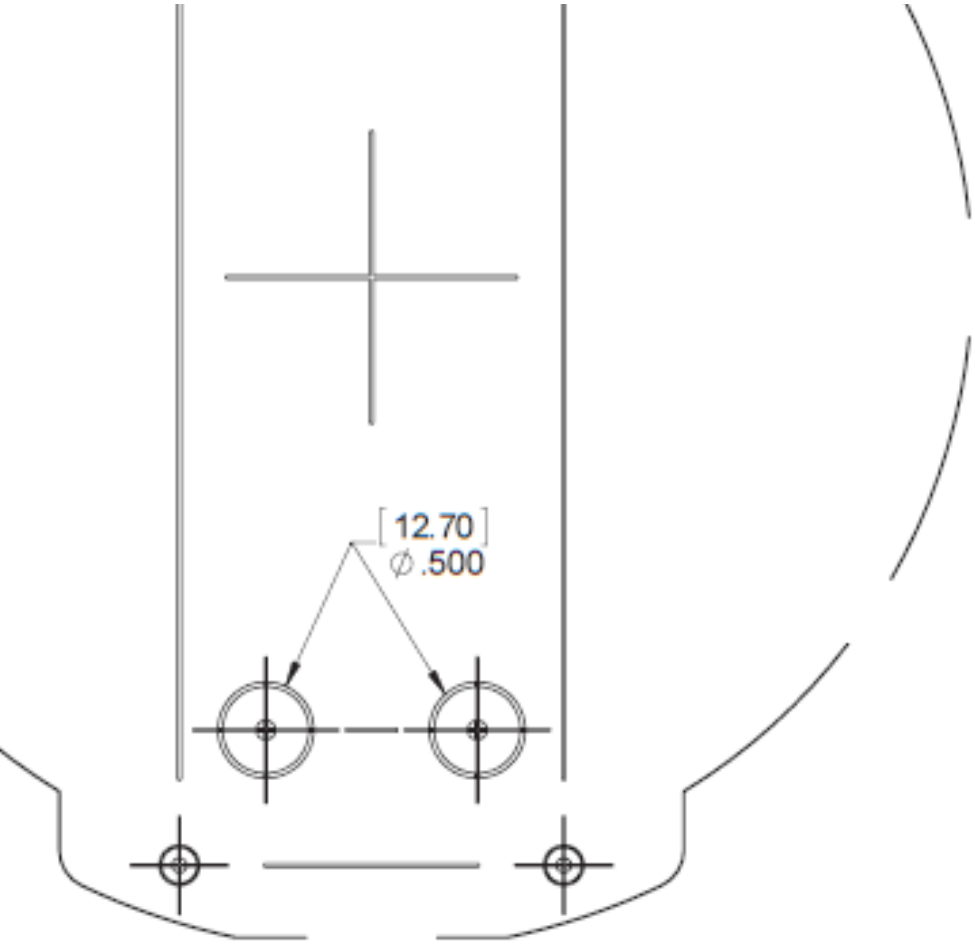


PLATE
CAMERA

TEMPLATE
F THE FIXING
TRY GLANDS

EURO "A4" SIZE = 1:1 SCALE

IPM-2901

Scale 1:1 when print as Euro ‘A4’ format size

20 Appendix E – Drill Template, Evolution Outdoor Dome Camera – USA

Drilling Template, ‘A’ format (USA)

The following pages are the drilling template for installing the Evolution Outdoor mini dome. It must be printed as is, with no resizing, so that the proper drilling measurements are maintained.

If in doubt, check the measurements of your printed template before drilling.

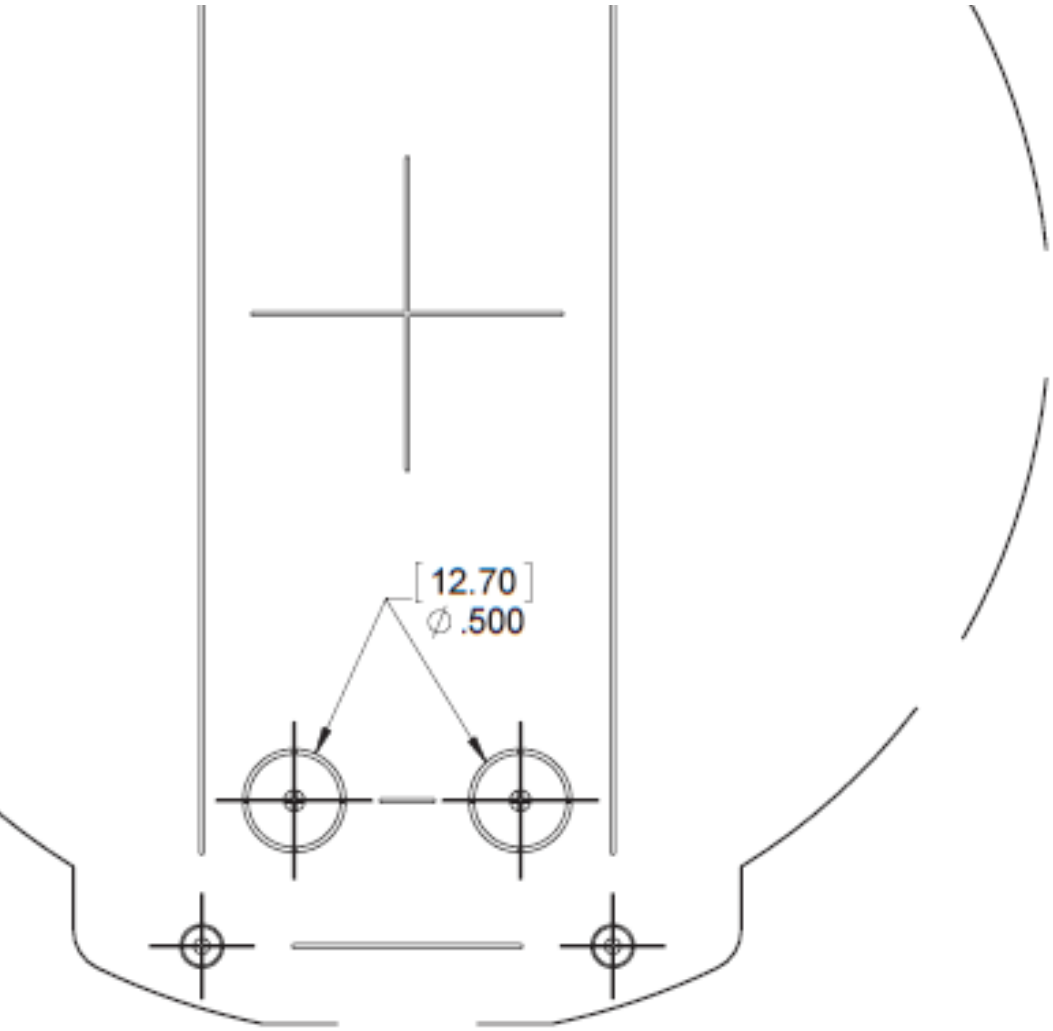


PLATE
CAMERA

TEMPLATE
F THE FIXING
NTRY GLANDS

USA "A" SIZE = 1:1 SCALE

IPM-2901

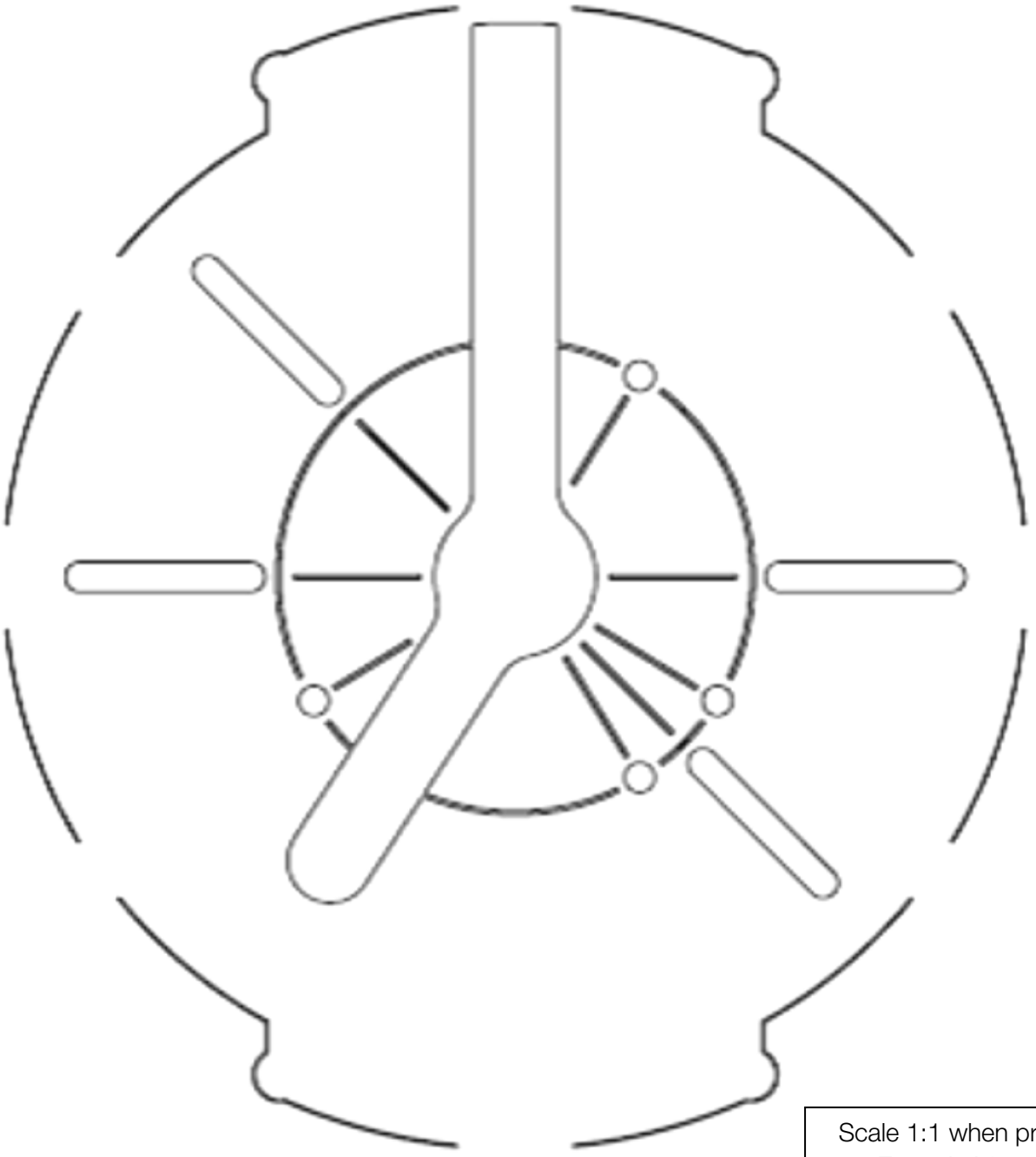
Scale 1:1 when printed as

USA ‘A’ format size

21 Appendix F – Drill Template, Evolution Indoor Camera – UK Drilling Template, ‘A4’ format (UK / Europe)

The following page is the drilling template for installing the Evolution Outdoor mini dome. It must be printed as is, with no resizing, so that the proper drilling measurements are maintained.

If in doubt, check the measurements of your printed template before drilling.



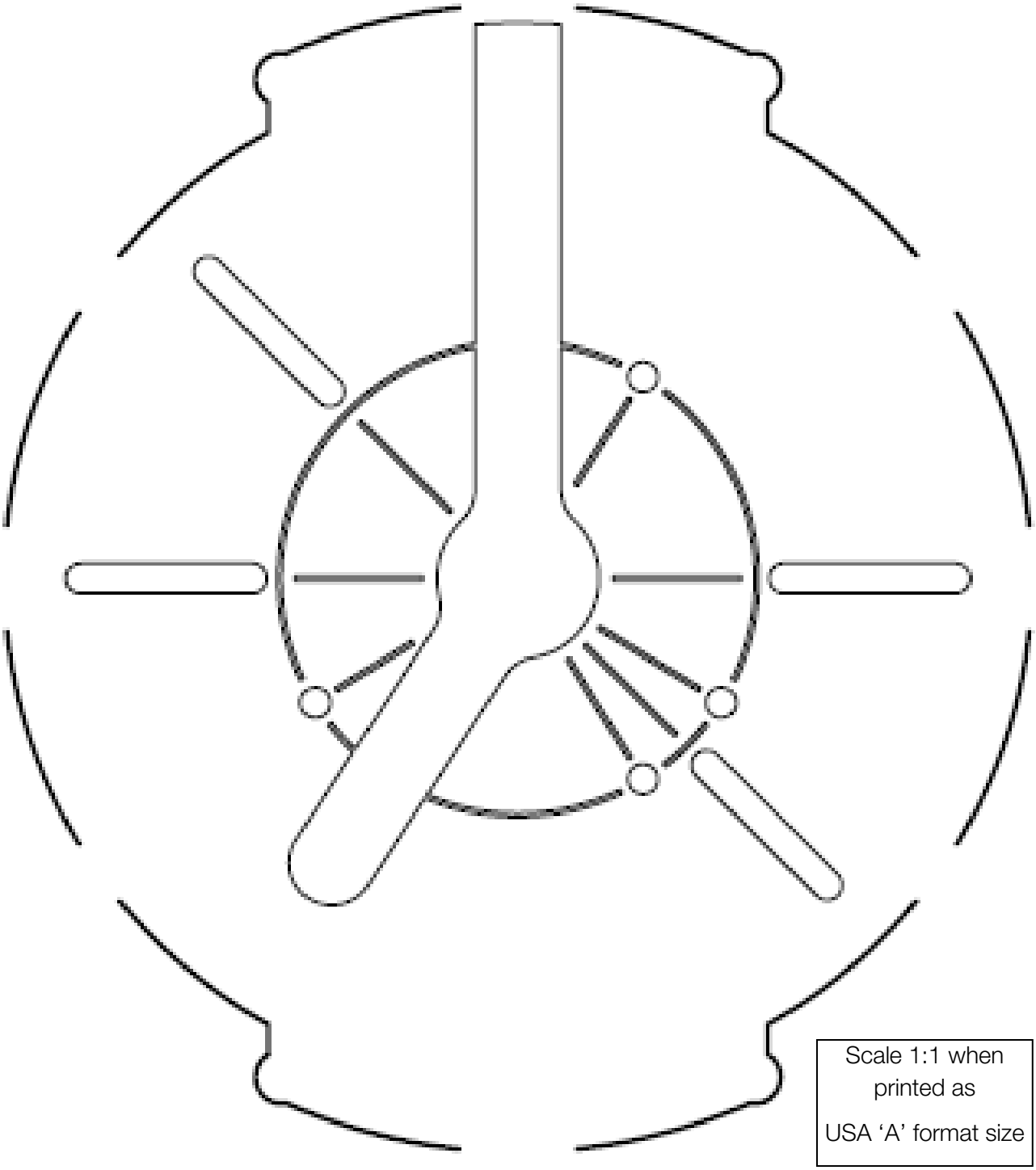
Scale 1:1 when print as Euro ‘A4’ format size

22 Appendix G – Drill Template, Evolution Indoor Camera - USA

Drilling Template, ‘A’ format (USA)

The following page is the drilling template for installing the Evolution Outdoor mini dome. It must be printed as is, with no resizing, so that the proper drilling measurements are maintained.

If in doubt, check the measurements of your printed template before drilling.



Scale 1:1 when printed as

USA ‘A’ format size