

# SurroundVideo<sup>®</sup> Omni G2

## Installation Manual

### Models:

#### 12 Megapixel

- AV12275DN-NL
- AV12275DN-28
- AV12275DN-08
- AV12276DN-NL
- AV12276DN-28
- AV12276DN-08

#### 20 Megapixel

- AV20275DN-NL
- AV20275DN-28
- AV20275DN-08

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## CAUTION!

1. Do not attempt to service a damaged unit yourself. Refer all servicing to qualified service personnel.
2. Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/ANSI, and with all local codes and authorities having jurisdiction. Wiring should be UL Listed and/or Recognized wire suitable for the application.
3. Always use hardware e.g. screws, anchors, bolts, locking nuts etc. which are compatible with mounting surface and of sufficient length and construction to insure a secure mount.

## Package Contents

This equipment should be unpacked and handled with care. The original packaging is the safest container in which to transport the unit and can be used if returning the unit for service. The packaging contains:

- One (1) Arecont Vision Camera
- One (1) mounting template
- Three (3) Mounting Wood Screws (#6x1" for wood or sheet metal)
- Three (3) Mounting Dry Wall Anchors
- One (1) Ceiling Gasket
- One (1) Aux Power Cord
- One (1) Network Patch Cable
- One (1) Security L-key
- One (1) Tether plate
- One (1) CD with Manual and Software

## Warranty Information

### Global (3 Year) Limited Warranty

ARECONT VISION warrants to Purchaser (and only Purchaser) (the “Limited Warranty”), that: (a) each Product shall be free from material defects in material and workmanship for a period of **thirty-six (36) months** from the date of shipment (the “Warranty Period”); (b) during the Warranty Period, the Products will materially conform with the specification in the applicable documentation; (c) all licensed programs accompanying the Product (the “Licensed Programs”) will materially conform with applicable specifications. Notwithstanding the preceding provisions, ARECONT VISION shall have no obligation or responsibility with respect to any Product that (i) has been modified or altered without ARECONT VISION’s written authorization; (ii) has not been used in accordance with applicable documentation; (iii) has been subjected to unusual stress, neglect, misuse, abuse, improper storage, testing or connection; or unauthorized repair; or (iv) is no longer covered under the Warranty Period. ARECONT VISION MAKE NO WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, OTHER THAN THE EXPRESS LIMITED WARRANTIES MADE BY ARECONT VISION ABOVE, AND ARECONT VISION HEREBY SPECIFICALLY DISCLAIMS ALL OTHER EXPRESS, STATUTORY AND IMPLIED WARRANTIES AND CONDITIONS, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT AND THE IMPLIED CONDITION OF SATISFACTORY QUALITY. ALL LICENSED PROGRAMS ARE LICENSED ON AN “AS IS” BASIS WITHOUT WARRANTY. ARECONT VISION DOES NOT WARRANT THAT (I) THE OPERATION OF THE PRODUCTS OR PARTS WILL BE UNINTERRUPTED OR ERROR FREE; (II) THE PRODUCTS OR PARTS AND DOCUMENTATION WILL MEET THE END USERS’ REQUIREMENTS; (III) THE PRODUCTS OR PARTS WILL OPERATE IN COMBINATIONS AND CONFIGURATIONS SELECTED BY THE END USER; OTHER THAN COMBINATIONS AND CONFIGURATIONS WITH PARTS OR OTHER PRODUCTS AUTHORIZED BY ARECONT VISION OR (IV) THAT ALL LICENSED PROGRAM ERRORS WILL BE CORRECTED.

For RMA and Advance Replacement information visit <http://www.arecontvision.com>

## Camera Overview

The SurroundVideo® Omni G2, next generation multi-sensor, multi-megapixel dome camera pushes the ease of installation even further providing users with four (4) remote focus lens options on a unique 360° magnetic track encompassed in a single indoor/outdoor, impact-resistant housing. The customization of this camera is unparalleled offering a range of interchangeable lens options for each individual sensor including 2.1, 2.8, 4, 6, 8, 12 and 16mm options.

For added flexibility, users can place the four individual three-axis lens gimbals independently in nearly any configuration on the track for applications such as hallway intersections or the corner of a building for a 270° view. The three-axis lens adjustment provides users with more camera placement options, allowing the cameras to be easily mounted on a wall or ceiling so they can pan, tilt, and rotate the lens in a variety of directions for a precise field of view.

The SurroundVideo® Omni G2 multi-megapixel camera series features a choice of 12- or 20-megapixel resolution options. These cameras provide an all-in-one solution for capturing wide area video surveillance while maximizing the field-of-view and reducing the total number of cameras required saving installers time and end users money.

Regardless of time-of-day, this camera is ideal for applications with challenging lighting conditions. The series combines a day/night mechanical IR cut filter for the highest image quality at any time of day. For applications with bright or over saturated lighting conditions, optional wide dynamic range delivers up to 100dB at full resolution and is available on select 12MP models. For applications with poor low lighting conditions, Binning Mode increases the camera's low light performance by combining pixels so that more light can be collected.

Once mounted, the operator can quickly focus and position the camera remotely, eliminating the need to adjust the camera on-site. No more hassle individually installing multiple cameras to cover a wide area, manually focusing lenses, or risk missing critical information.

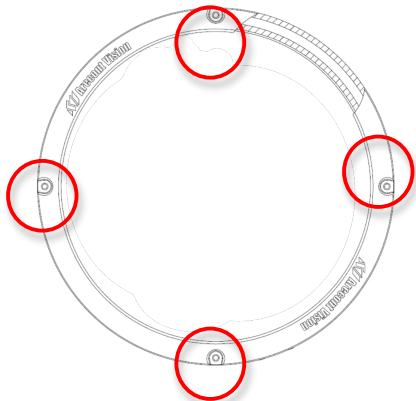
SurroundVideo® Omni G2 is designed for demanding environments. Subjected and certified to rigorous dust and water tests, the IP66 rating, and its extended operating temperature range make it ideal for outdoor applications. The IK-10 rated, rugged dome housing is perfect for deterring vandals since it can withstand the equivalent of 55 kg (120 lbs) of force.

The camera offers advanced streaming capabilities and is designed on an efficient H.264 encoding platform capable of delivering high quality video without straining the network. Power can be supplied via a single Power-over-Ethernet compliant network cable or with power from a 12-48V DC/24V AC power supply.

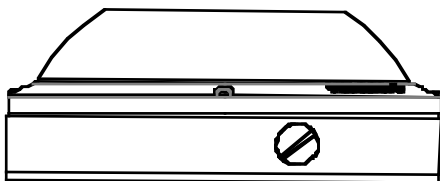
The camera's interface allows for an intuitive, fast, and easy configuration; while the Free AV IP Utility tool allows users to quickly configure multiple cameras at one time. The SurroundVideo® Omni G2 is PSIA (Physical Security Interoperability Alliance) compliant, providing interoperability between network video products regardless of manufacturer.

## Installation

1. Determine a secure location to mount the camera.
2. Use the supplied security L-key, to loosen the four (4) screws securing the dome cover.



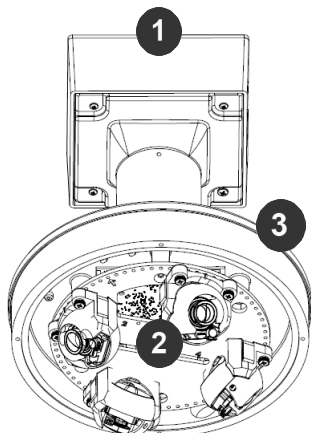
3. Remove the dome cover and protective foam. Do not remove screws from the dome cover.



The SurroundVideo® Omni G2 camera has been designed to provide installers with flexible mounting options such as ceilings, walls, poles or corners.

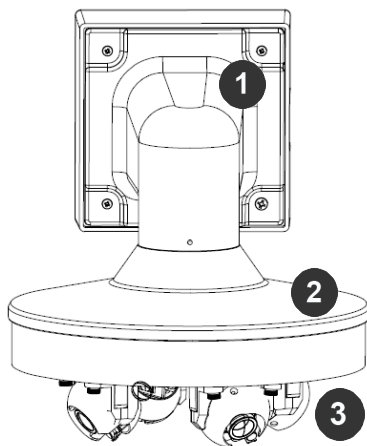
NOTE: When mounting the camera outdoors or in a wet environment, use of supplied rubber gasket is recommended. Ensure the three holes on the top of the housing are aligned with the gasket and it is properly seated flush with the camera housing.

Ensure you have the proper compatible mounting parts prior to starting your installation:



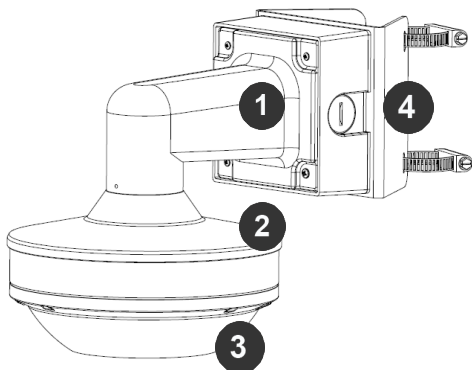
*Pendant mount*

Reference #	Pendant Mount Components Required
1	Pendant mount (AV-PMJB) with integrated junction box
2	SurroundVideo® Omni G2 camera
3	SO-CAP mounting cap



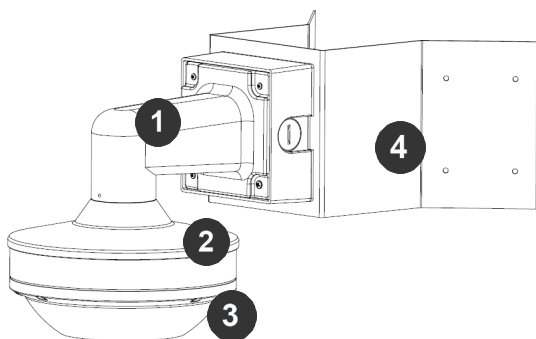
*Wall mount*

Reference #	Wall Mount Components Required
1	Wall mount (AV-WMJB) with integrated junction box
2	SurroundVideo® Omni G2 camera
3	SO-CAP mounting cap



Pole mount

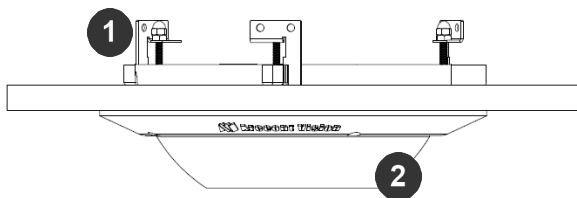
Reference #	Mount Type	Pole Mount Components Required
1	Pole mount	AV-WMJB wall mount
2		SO-CAP mount cap
3		SurroundVideo® Omni G2 camera
4		AV-PMA pole mount adapter



Corner mount

Reference #	Mount Type	Corner Mount Components Required
1	Corner mount	AV-WMJB wall mount
2		SO-CAP mount cap
3		SurroundVideo® Omni G2 camera
4		AV-CRMA corner mount adapter





Reference #	Mount Type	In-ceiling Mount Components Required
1	In-ceiling mount	SO-FMA in-ceiling adapter
2		SurroundVideo® Omni G2 camera

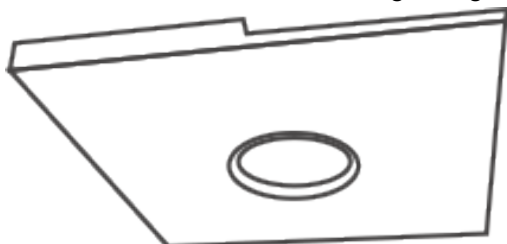
NOTE: It is recommended to conduct periodic inspections of the installation. Rust on the metal parts or screws may result in damage to the camera.

4. Use the Arecont Vision software AV IP Utility located on the CD or available for download at our website ([www.arecontvision.com](http://www.arecontvision.com)) for camera discovery and setup (see Instruction Manual located on the CD or available on our website).

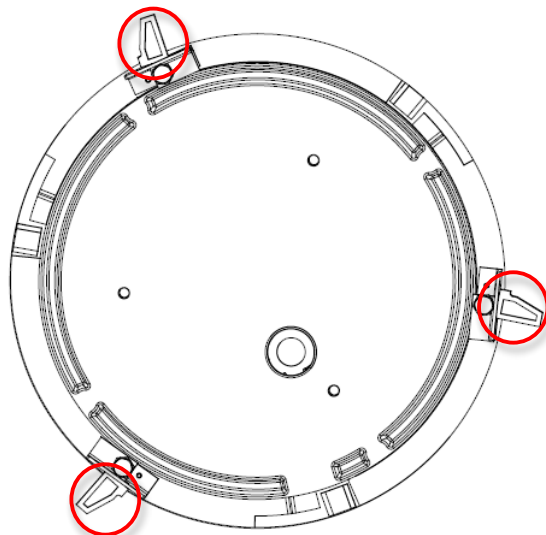
## In-ceiling Mount

To properly flush mount the SurroundVideo® Omni G2 to a drop ceiling or similar surface, a flush mount adapter kit (SO-FMA) is required (sold separately).

1. Cut a hole in the ceiling using the template provided.



2. Insert the Flange Plate brackets from the SO-FMA into the ceiling hole. The lip of the plate should be flush with the ceiling.



*Figure 1: Insert the Flange Plate brackets via the SO-FMA into the ceiling hole*

3. With a user-supplied Phillips head screwdriver, screw the 3 screws into the ceiling. Continue to tighten the screws until the flush mount is snugly installed. The “Support Arm” will ride down the screw to compress the mounting surface. NOTE: Do not over-torque the lever screws.

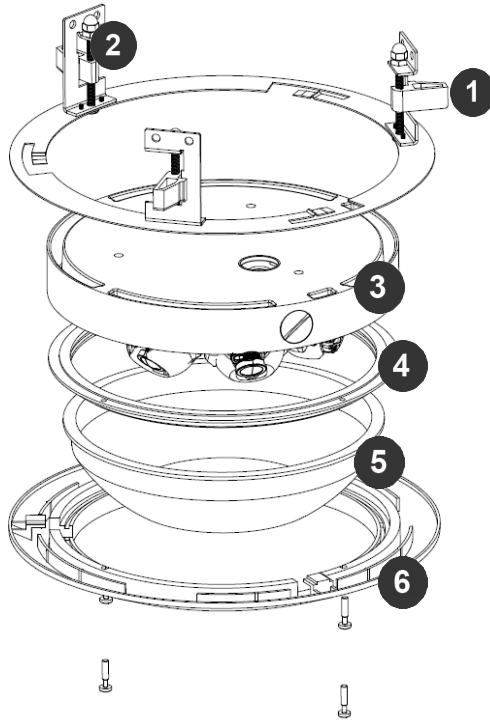


Figure 3: Compress the mounting surface with lever screws

Reference #	Description
1	SO-FMA flange plate support arm
2	Lever screw
3	SurroundVideo Omni G2 camera
4	Rubber gasket
5	Dome cover
6	SO-FMA trim ring

- Attach the trim ring to the flush mount adapter by rotating counter clockwise (Figure 4).

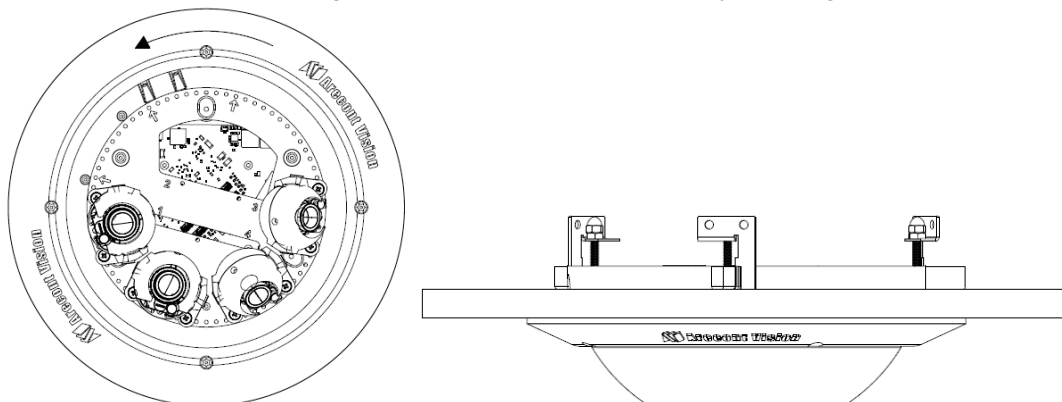


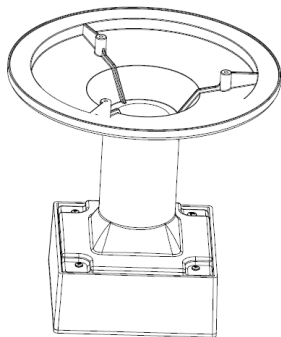
Figure 4: Attach trim ring to the flush mount adapter counter clockwise

- To configure the camera, reference the set-up section.

## Pendant Mount

For a proper pendant mount installation, the AV-PMJB pendant mount and SO-CAP mount cap are required (sold separately). A pendant mount should only be attached onto hard ceilings including wood, plastic, metal, and concrete.

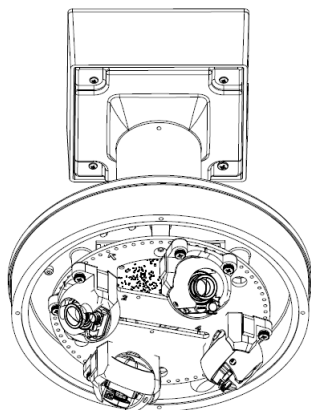
1. Using the mounting template, prepare the mounting provisions for the camera installation.
2. Connect top shield, pendant pole and mount together as shown in Figure 1.



*Figure 1: Attach the mount cap and pendant mount*

NOTE: The thread size of top shield, pendant pole and mount is 1.5" NPT.

3. Attach the pendant mount to the ceiling using the four wood screws provided or any optional hardware suitable for the mounting surface.
4. Run the Ethernet Cable and outside power cable (if necessary) through the supplied rubber gasket and then through the pendant. Ensure the gasket is seated properly.



*Figure 2: Attach the camera to the SO-CAP with the supplied screws*

5. To configure the camera, reference the camera discovery, set-up and configuration section.

## Surface Mount

The SurroundVideo® Omni G2 can be directly attached onto hard ceilings or walls including wood, plastic, metal and concrete.

1. Use the template, anchors, and screws provided to prepare the mounting provisions for the camera installation.
2. Use the supplied security L-key, to loosen the four (4) tamper resistant screws securing the dome cover. Do not remove screws from the dome cover.

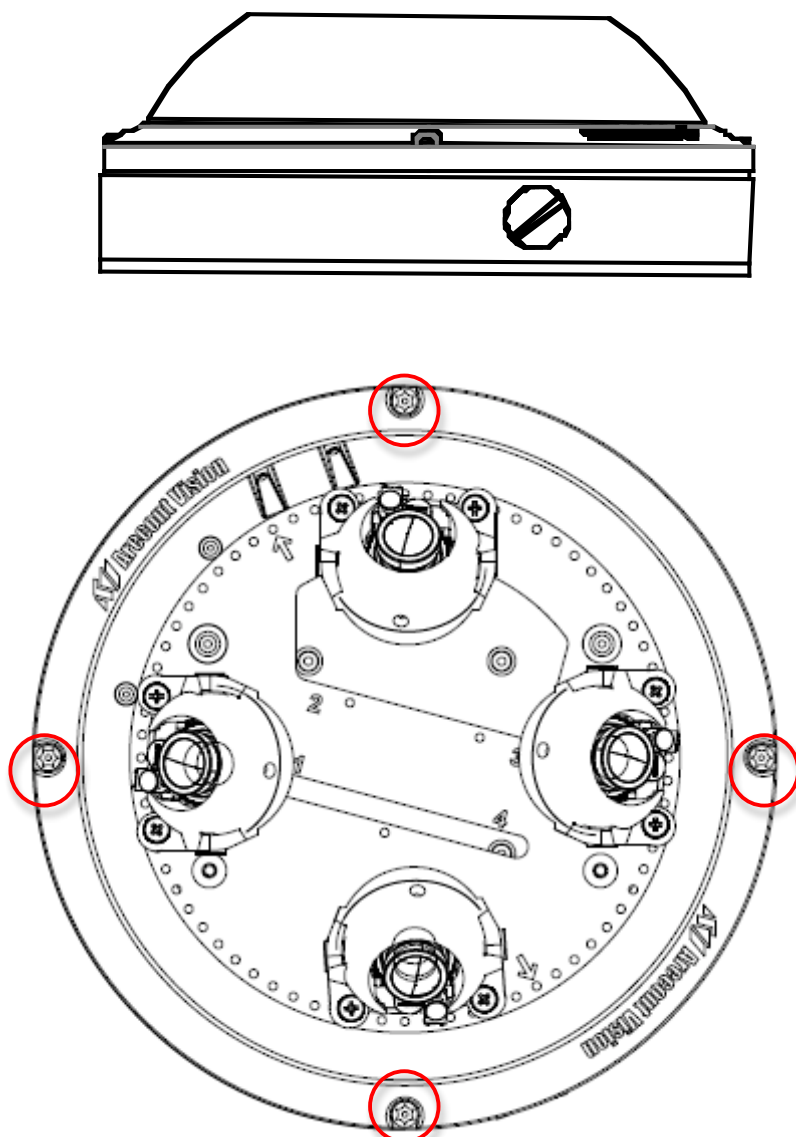
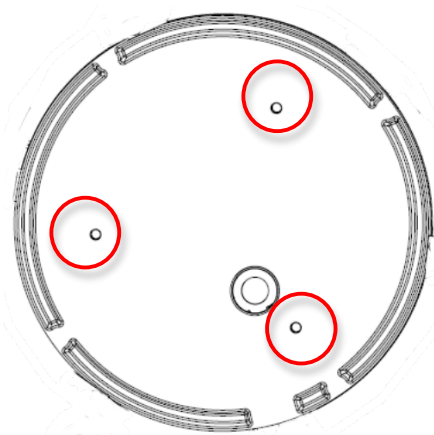


Figure 1: Remove four (4) tamper resistant screws

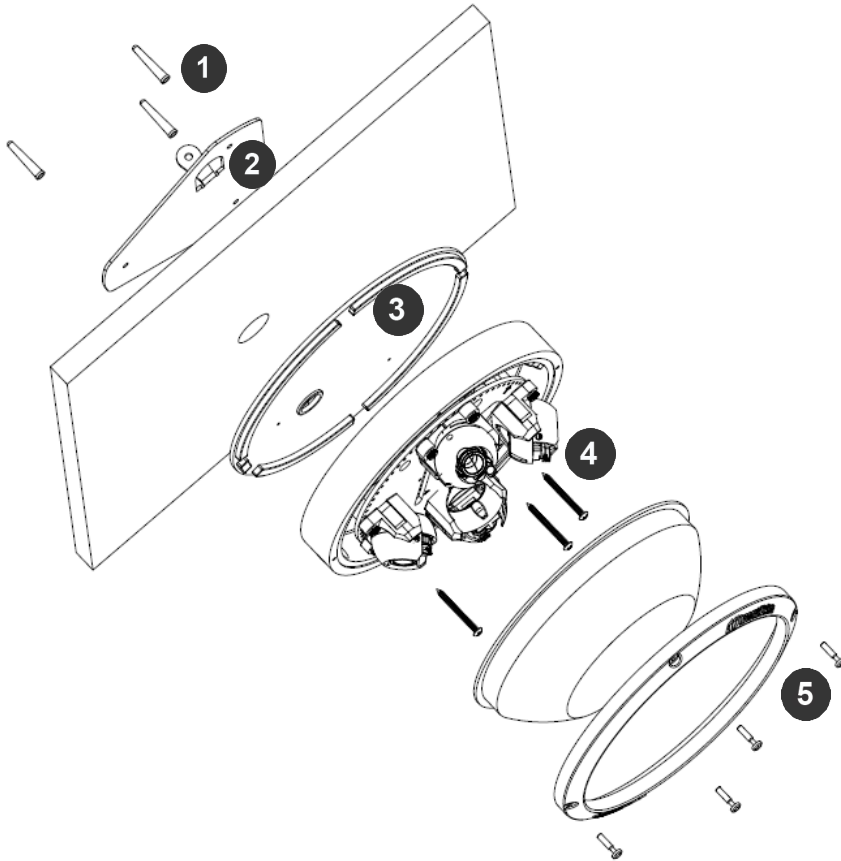
3. Remove the dome cover and set aside. Remove the protective foam and discard.
4. If mounting the camera outside or in a wet environment, thread the camera cable through the hole on the supplied rubber gasket and align with the three holes on the top of the housing. Ensure the gasket is properly seated flush with the camera housing.



*Figure 2: Mount the Surface mount to the wall or ceiling using the three holes on the housing*

NOTE: If you use the side connection of the NPT port, remove the cap covering the side entrance, otherwise; leave the cap in place. If using the NPT port, always use Teflon tape around the threads to ensure proper sealing. The conduit fits 3/4" NPT standard. Ensure NPT port is facing downward.

5. Using the three holes on the top of the camera housing, use the supplied screws and attach to the mounting surface.



Reference #	Description
1	Install 3 supplied dry wall anchors using the supplied mounting template
2	Attach supplied (optional) tether plate
3	Attach supplied rubber gasket to the camera housing by threading the camera cable through the hole in the gasket (ensure the gasket is seated properly)
4	Align 3 supplied screws with the dry wall anchors and screw camera into place
5	Attach the dome cover, ensuring the rubber gasket is properly seated, with the tamper resistant screws

6. Route the cable tree from the camera around the rear of the camera module and secure all cables. See the Connections section for details on how to connect the camera.
7. Check that the indicator LED's are illuminated to the desired conditions (see LED Indicator table).

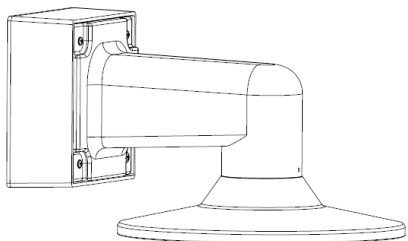


**CAUTION!** The captive fasteners must be used to properly secure the dome cover. Failure to use the captive fastener may result in serious injury. When mounting the dome cover to the camera housing, ensure that the gasket is properly seated and not folded. Failure to do so may result in water and dust ingress. Water damage from improper installation is not covered by the warranty!

## Wall Mount

For a proper wall mount installation, the AV-WMJB wall mount and SO-CAP wall mount cap are required (sold separately). A wall mount should only be attached onto hard ceilings including wood, plastic, metal, and concrete.

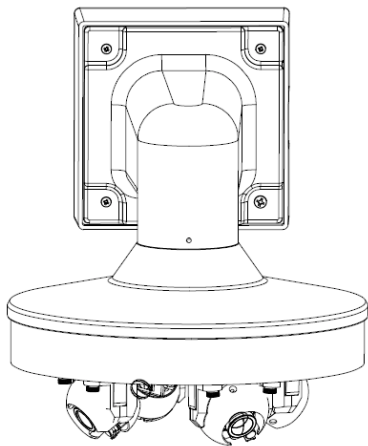
1. Using the Mounting template, prepare the mounting provisions for the camera installation.
2. Connect wall mount cap and wall mount as shown in Figure 1.



*Figure 1: Attach wall mount cap to the wall mount*

NOTE: The thread size for Top shield, pendant pole and mount is 1.5" NPT.

3. Run Ethernet Cable and outside power cable (if necessary) through the supplied rubber gasket and then through the wall mount. Ensure the gasket is seated properly.
4. Attach the wall mount to the wall using drywall screws or any optional hardware suitable for the mounting surface.



*Figure 2: Attach the camera to the SO-CAP with the supplied screws*

5. To configure the camera, reference the camera discovery, set-up and configuration section.



## Pole Mount

For a pole mount installation, the AV-WMJB wall mount, AV-PMA pole mount, and SO-CAP mount cap are required (sold separately). A pole mount should only be attached onto hard ceilings including wood, plastic, metal, and concrete.

1. Using the mounting template, prepare the mounting provisions for the camera installation.
2. Connect the wall mount cap and wall mount.
3. Attach the AV-JBA (Junction Box Adapter) to the Pole Mount Adapter (Figure 1).
4. Remove the conduit plug on the junction box adapter and connect 3/4" NPT conduit to the junction box adapter (Figure 1).

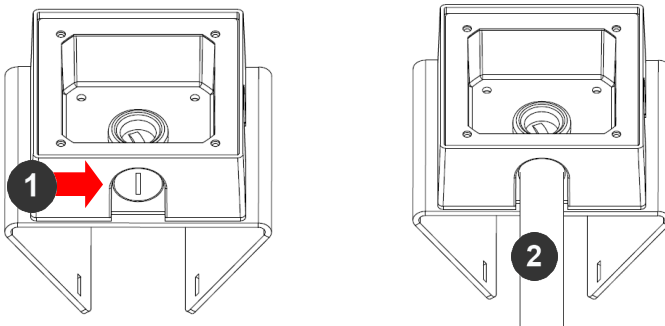


Figure 1: Attach conduit to AV-JBA junction box adapter

Reference #	Description
1	Remove conduit plug
2	Connect 3/4" NPT conduit to junction box adapter (ensure use of water seal tape)

NOTE: Use silicon or water pipe seal tape to make sure no water leakage between conduit pipe and junction box adapter.

5. Run the Ethernet cable and outside power cable (if necessary) through the supplied rubber gasket and then through the Junction Box Adapter and SV-WMJB, Wall Mount Adapter. Ensure the gasket is seated properly.
6. Attach the Wall Mount Adapter (SV-WMJB) to the Pole Mount Adapter (AV-PMA) as shown in Figure 2.

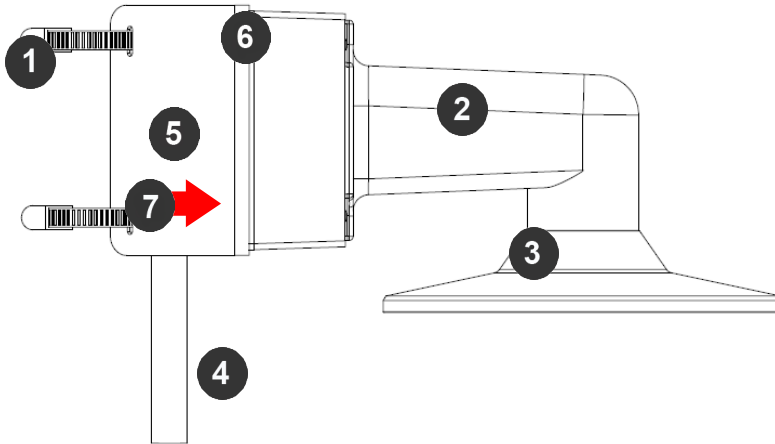


Figure 2: Attach wall mount adapter to pole mount adapter

Reference #	Description
1	Steel straps with compression screws
2	AV-WMJB wall mount
3	SO-CAP mount cap
4	Conduit
5	AV-PMA pole mount
6	AV-JBA Junction box
7	Apply Teflon water seal tape to the thread of 3/4" NPT pipe to avoid water leakage

7. Use the supplied two Steel Straps to attach the Pole Mount Adapter to the pole and tighten the compression screws as shown in Figure 2.
8. Attach the camera with the in-ceiling mount to the Wall Mount Adapter.
9. To configure the camera, reference the camera discovery, set-up and configuration section.

## Corner Mount

For a corner mount installation, the AV-WMJB wall mount, AV-CRMA corner mount, and SO-CAP mount cap are required (sold separately). A corner mount should only be attached onto hard corner surfaces including wood, plastic, metal, and concrete.

1. Using the Mounting template, prepare the mounting provisions for the camera installation.
2. Connect the wall mount cap and wall mount.
3. Attach the AV-JBA (Junction Box Adapter) to the Corner Mount Adapter (Figure 1).
4. Remove the conduit plug on the junction box adapter and connect 3/4" NPT conduit to the junction box adapter (Figure 1).

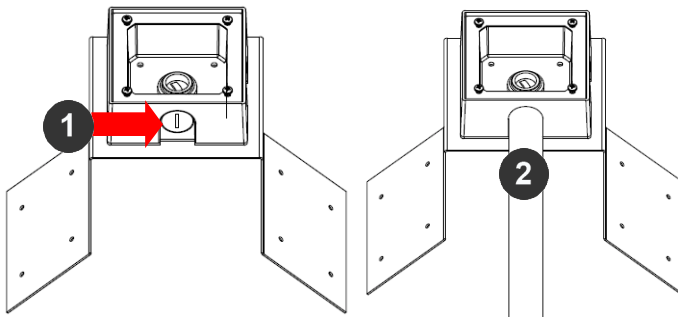


Figure 1: Attach conduit to SV-JBA junction box adapter

Reference #	Description
1	Remove conduit plug
2	Connect 3/4" NPT conduit to junction box adapter (ensure use of water seal tape)

NOTE: Use silicon or water pipe seal tape to make sure no water leakage between conduit pipe and junction box adapter.

5. Run the Ethernet cable and outside power cable (if necessary) through the supplied rubber gasket and then through the Junction Box Adapter and SV-WMJB, Wall Mount Adapter. Ensure the gasket is seated properly.
6. Attach the Wall Mount Adapter (SV-WMJB) to the Corner Mount Adapter (AV-CRMA) as shown in Figure 2.

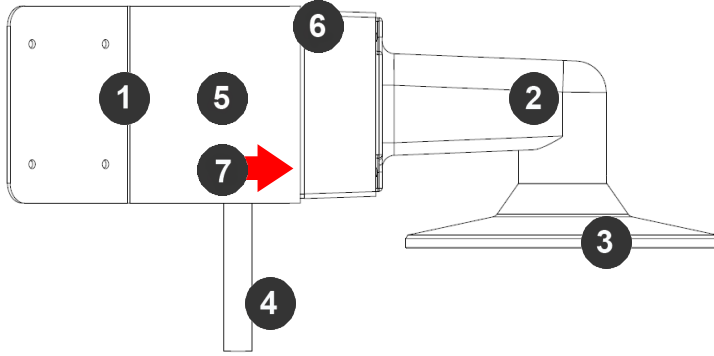


Figure 2: Attach corner mount adapter to exterior corner wall

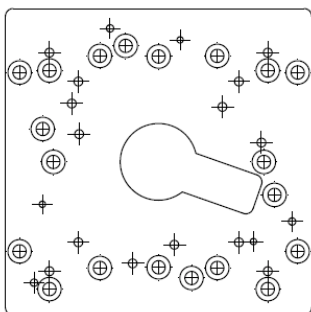
Reference #	Description
1	Attach corner mount adapter to exterior 90° corner wall
2	AV-WMJB wall mount
3	SO-CAP mount cap
4	Conduit
5	AV-CRMA corner mount adapter
6	AV-JBA Junction box
7	Apply Teflon water seal tape to the thread of 3/4" NPT pipe to avoid water leakage

7. Using the screws provided (or other hardware), attach the Corner Mount Adapter to an exterior 90° corner wall.
8. Attach camera with in-ceiling mount to Wall Mount Adapter.
9. To configure the camera, reference the camera discovery, set-up and configuration section.

## Electrical Box Adapter

The AV-EBA electrical box adapter is used to attach the camera to a common single, double or square electrical box.

1. Using the AV-EBA's supplied machine screws, match the mounting holes on the adapter with the threaded holes on the electrical box. Ensure every threaded hole is matched with a mounting hole.
2. Attach the electrical box adapter to the user supplied electrical box.



*Figure 1: Attach AV-EBA adapter to common electrical box*

## Setting up the Cameras

The SurroundVideo® Omni is user configurable. Prior to installing the camera, thought should be given to the sensor positions. It is always easier to make adjustments before the camera is installed.

The camera lenses are shipped in a 360° position as shown below (Figure 2). To customize the sensors, simply remove the two screws for each individual sensor, position anywhere on the magnetic track and then screw into place. Screw holes around the circumference are spaced in 5 degree increments. The arrows marked on the track plate are 45 degree reference points (Figure 1).

Sensor numbering is indicated on the track plate; which corresponds to the sensor number via the camera software (Figure 1). The slots on the track plate provide additional adjustment of the camera after installation. Simply loosen the three screws to rotate the plate then tighten the three screws after alignment. This feature is most useful for repositioning the cameras mounted to the center locations after the camera installation.

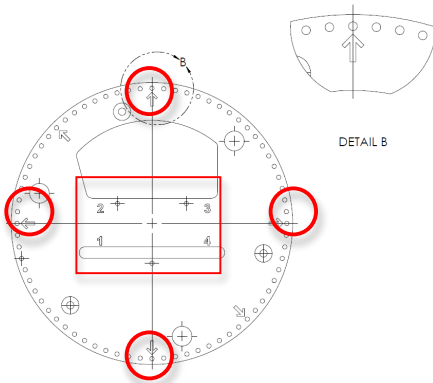


Figure 1: Arrows on the track plate indicate 45° increments

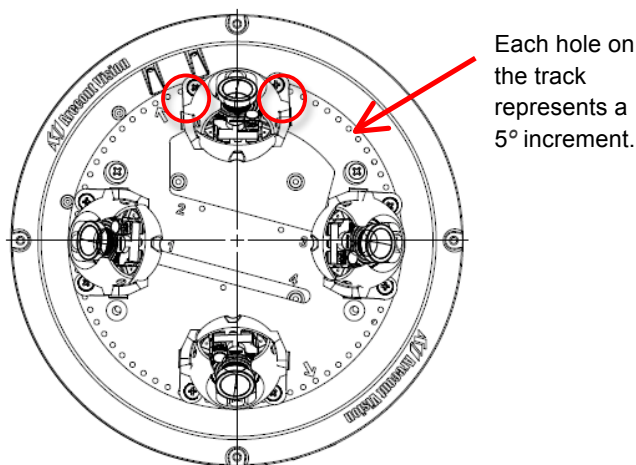
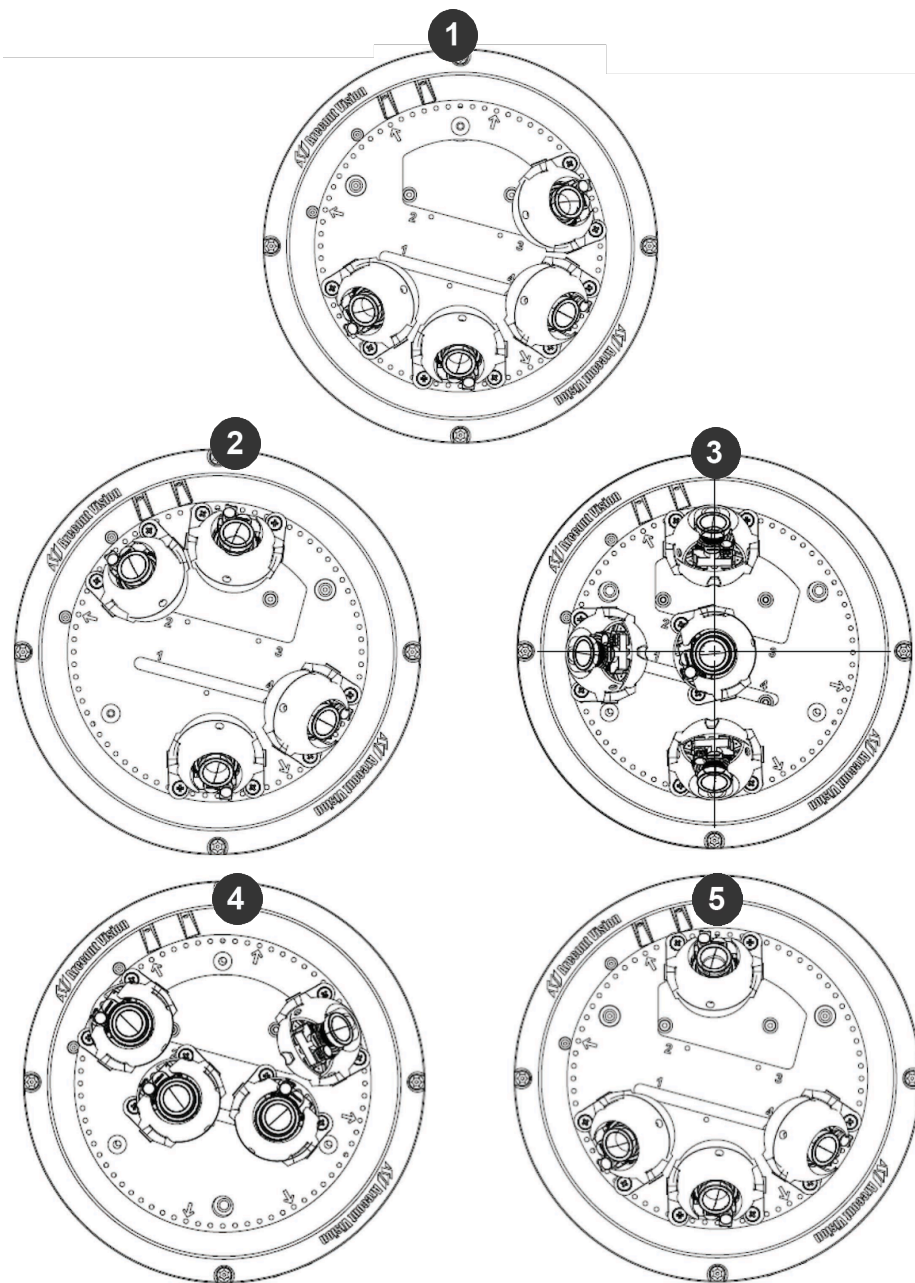


Figure 2: 360° configuration (ideal for hallways)



Reference #	Description
1	180° configuration
2	Random configuration
3	270° configuration
4	Assembly line configuration
5	Random configuration

### Aligning the Cameras

Properly aligning each camera is essential during setup. Each camera must be placed in a counterclockwise sequence on the circumference of the track to ensure proper viewing of each camera.

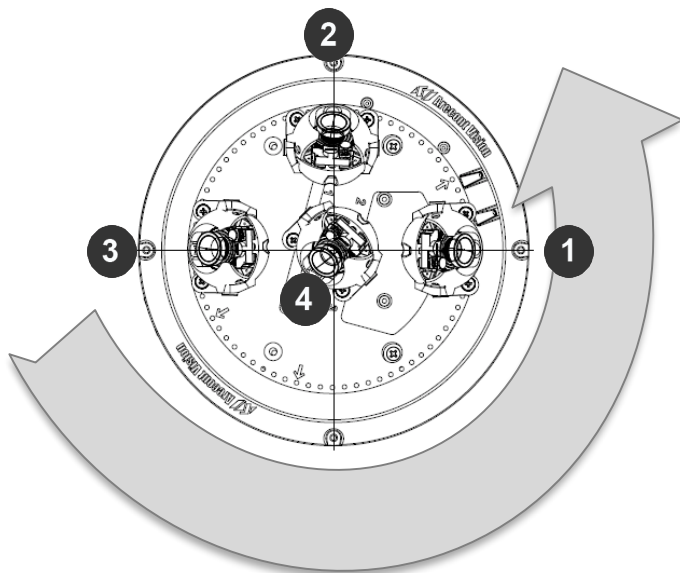
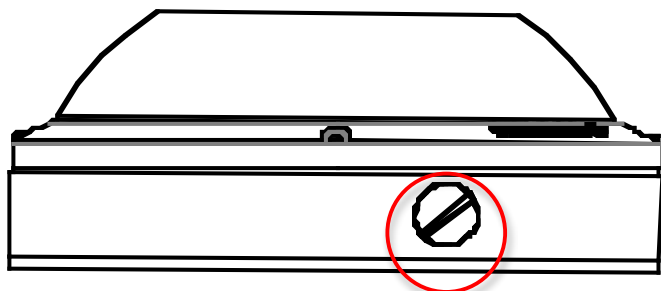


Figure 1: Place cameras in counterclockwise position on the track

Reference #	Description
1	Sensor 1
2	Sensor 2
3	Sensor 3
4	Sensor 4

When positioning the sensors, ensure the conduit mounting hole does not obstruct the cable when positioning the sensor.





## Adjusting the Pan, Tilt and Focus

1. Remove the dome cover by loosening the captive fasteners with the supplied Philips head screwdriver.
2. Power on the camera to adjust the pan, tilt and focus.
3. Adjust the pan and tilt to obtain the desired field of view. Then, lock the camera head in place by tightening at least two of the three set-screws with the supplied flat-head screwdriver (Figure 1). Do not over torque the screws.

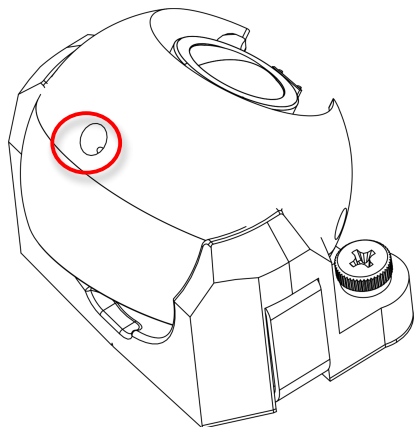


Figure 1: Lock camera head after adjusting the field of view

NOTE: Ensure not to press the remote focus motor against the sides of the camera module when adjusting the field of view (Figure 2).

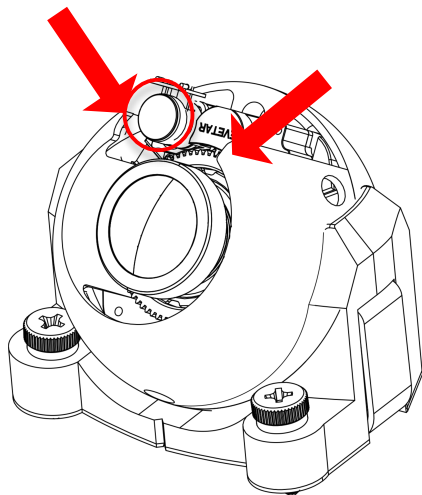
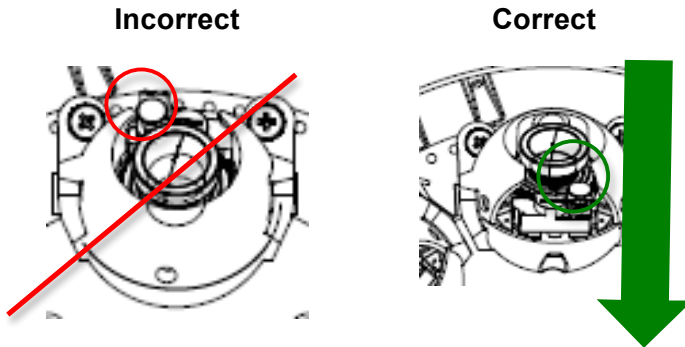


Figure 2: Remote focus motor

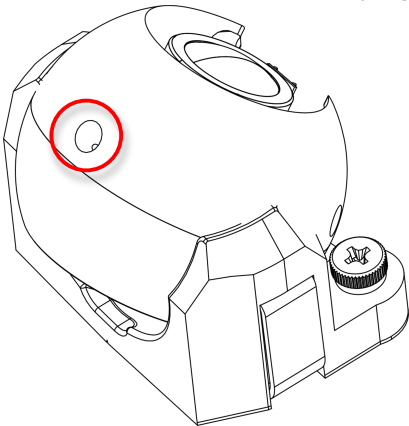
4. To adjust the focus, see the Remote Focus Section of this manual.

NOTE: Positioning the lens motor to close to the board may cause interference with the magnetic Omni track. Ensure each lens motor is positioned away from the board.

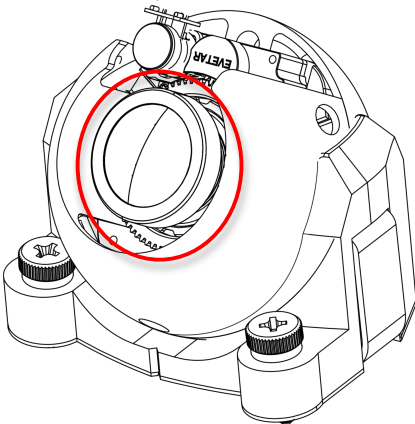


### Changing the Lens

1. Remove the dome cover by loosening the captive fasteners with the supplied L-key.
2. Loosen the lens lock screws (3) using the supplied flat-head screwdriver (if necessary). Only do so if the lens seems very tight when turning.



3. Manually unscrew the lens counter clockwise, this may take several seconds.



4. Screw the replacement lens clockwise until you feel some resistance and hit a hard stop.
5. Retighten the lens lock screws (3) if necessary per instructions outlined above. Do not over torque the screws.

### Optional: Connecting Digital I/O

To use digital I/O, connect digital I/O with pigtail cable connector as shown below.

Reference #	Description
1	Input (White + / Black -)
2	Output (Orange + / Yellow -)

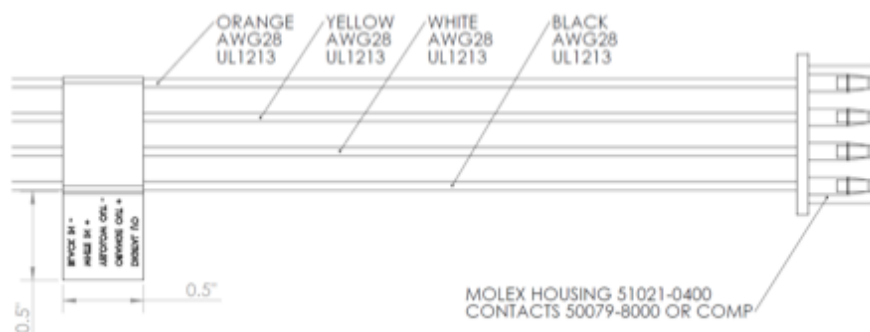
NOTE: SurroundVideo® Omni G2 supports digital input and digital output. See **Table 1** for electrical characteristics.

Electrical Characteristics		MIN	MAX
Input Voltage (V) (Measured between + and – terminals)	ON	3.5	6.3
	OFF	0	1.3
Output Current (mA) (Measured between + and – terminals) Applied Voltage Range: 0-80V	ON	-	50
	OFF	-	0.1

**Table 1**

NOTE: The digital input is electrically isolated from the rest of the camera’s electrical circuitry via general-purpose photo couplers. The input is additionally protected with a serial 250 Ohm resistor, and a de-bouncing circuit. Duration of any input signal should be at least 5 ms to comply with the requirements of the de-bouncing circuit.

NOTE: **Table 2** shows the cable color for digital input and output. Use 4 position connector inside camera housing to interface with Digital I/O.

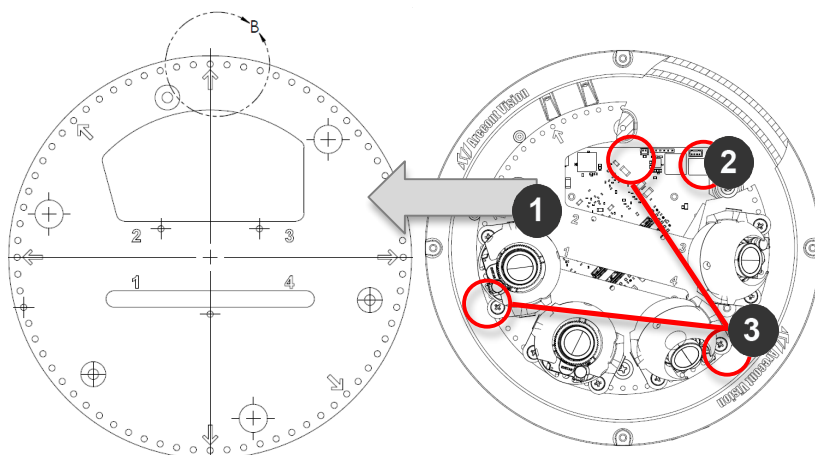


Digital I/O

<b>Orange</b>	Digital OUT +
<b>Yellow</b>	Digital OUT -
<b>White</b>	Digital IN +
<b>Black</b>	Digital IN -

Table 2

The 4 position connector inside camera housing located on the main circuit board used for I/O can be accessed by removing the track plate. Simply loosen the three screws indicated in the image below, lift the track plate and find the connector.



Reference #	Description
1	Track plate
2	4-position connector location
3	Loosen 3 black screws on track plate (depending on where the sensors are positioned, you may need to move the sensor(s) first)

## Auxiliary I/O Functions

The auxiliary input and output are accessible from the back panel, as shown in Figure 1.

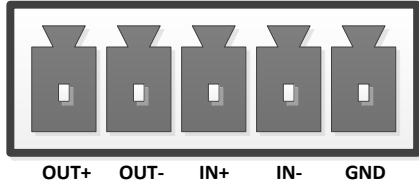


Figure 1

The output consists of an optically coupled solid state relay (SSR) and the input has an optocoupler. Both the SSR and optocoupler have an isolation voltage of 1500 VRMS between the external terminals and internal camera circuitry. The input is further protected with a serial 250Ω resistor and a debouncing circuit.

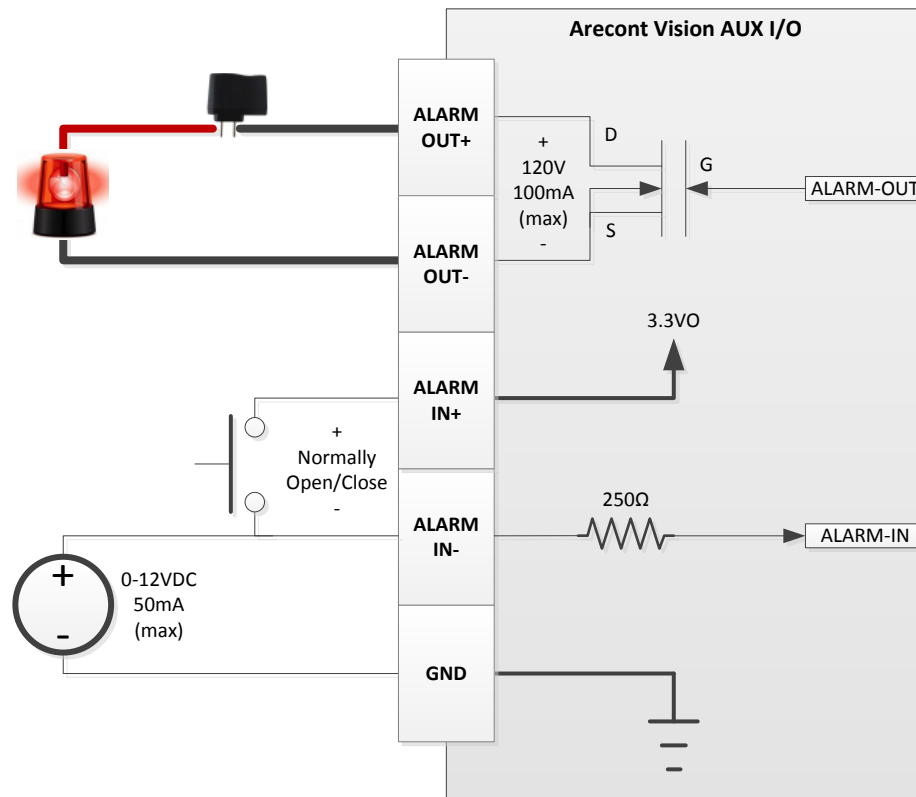


Figure 2: AUX I/O use case example

## OUTPUT Relay Control and Function

The camera has an output for activating an external device. The camera supports both transient and continuous relay operation. You can operate the relay during an active connection using the API command set. Typical applications include turning on lights or activating doors and locks.

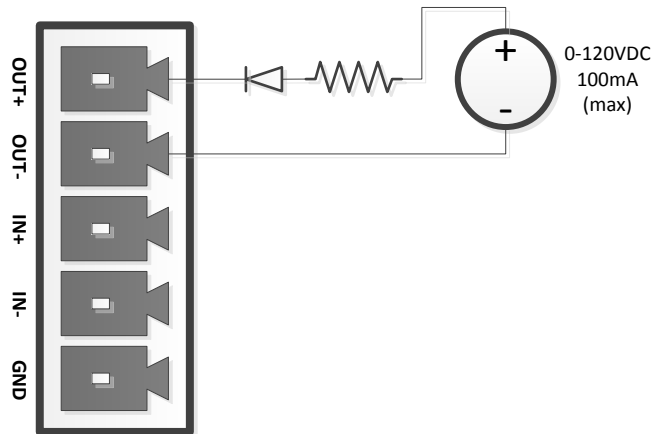


Figure 3: Relay wiring with power source to the camera

Camera output can be turned on/off with the following command:

[http://camera\\_ip/set?auxout=\(“on”|“off”\)](http://camera_ip/set?auxout=(“on”|“off”))

The following table shows the output control and electrical characteristics:

Output Control				
Terminals	External Status	Camera Status	Max Voltage	Max Current
OUT+ & OUT-	OPEN	OFF	120V	-
	CLOSED	ON	-	100mA

## INPUT Alarm Control and Detection

The input optocoupler supports two ways to connect external unsupervised alarms to Arecont Vision camera. **Only one of the following two schemes should be used at any given time.**

### OPTION-1: UNSUPERVISED ALARM DETECTION

In this scheme the IN+ & IN- terminals can be used for external signaling devices, such as door contacts or motion detectors. Both normally open and normally closed devices are supported as shown in Figure 4:

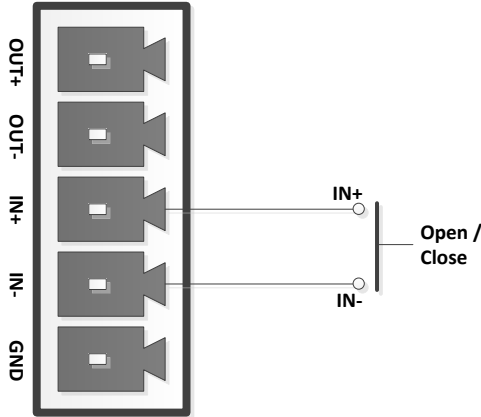


Figure 4

Figure 5 illustrates the unsupervised alarm conditions:

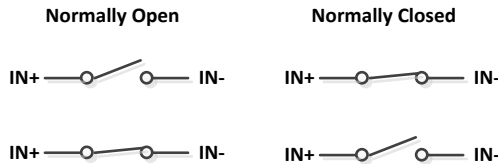


Figure 5

The following table shows how camera detects unsupervised alarms:

Input Unsupervised Alarms		
Terminals	External Status	Camera Status
IN+ & IN-	OPEN	ON
	CLOSE	OFF

Camera status can be read with the following command:

[http://camera\\_ip/get?auxin](http://camera_ip/get?auxin)

**OPTION-2: INPUT VOLTAGE DETECTION**

In this scheme the IN- & GND terminals can be tied to an external power source. The camera can detect a range of voltage to trigger an internal alarm on|off condition.

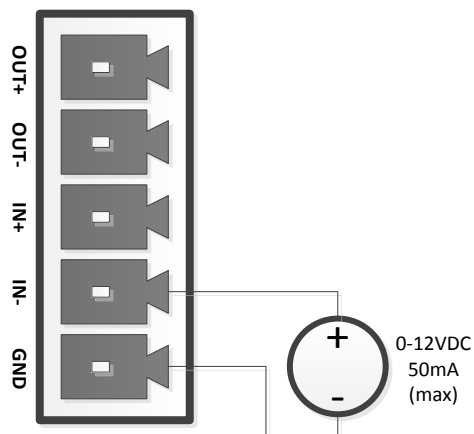


Figure 6

The following table shows the input voltage range and electrical characteristics:

Input Voltage Detection				
Terminals	External Status	Camera Status	Voltage Range	Current Range
IN- & GND	OFF	ON	0-1V	0-2mA
	ON	OFF	2-12V	10-50mA

The status of the camera can be read with the following command:

[http://camera\\_ip/get?auxin](http://camera_ip/get?auxin)

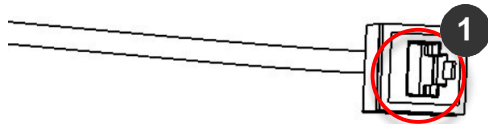


## Camera Power Up



This product should be installed by a qualified service technician in accordance with the National Electrical Code (NEC 800 CEC Section 60) or applicable local code. Make sure that your installation of wires complies with Electrical Code of the local government where the camera is installed and no bare wires are exposed.

1. Connect the camera to a PoE port on 100Mbps network PoE switch using an Ethernet cable as shown in the image below.

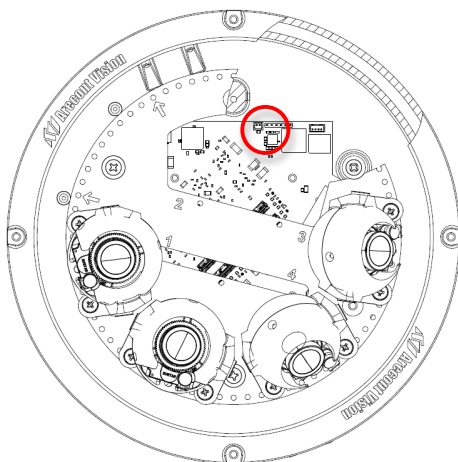


Reference #	Description
1	PoE Connector

2. If the camera is powered by an outside power supply, 18~48VDC or 24VAC, connect the power cable.

## Auxiliary Power

If the camera is powered by a separate outside AC or DC power source, run the supplied power cable through the access hole on the camera housing and connect the power cable to the 2-position connector on the main camera board. The approximate location of the 2-position connector is circled below.

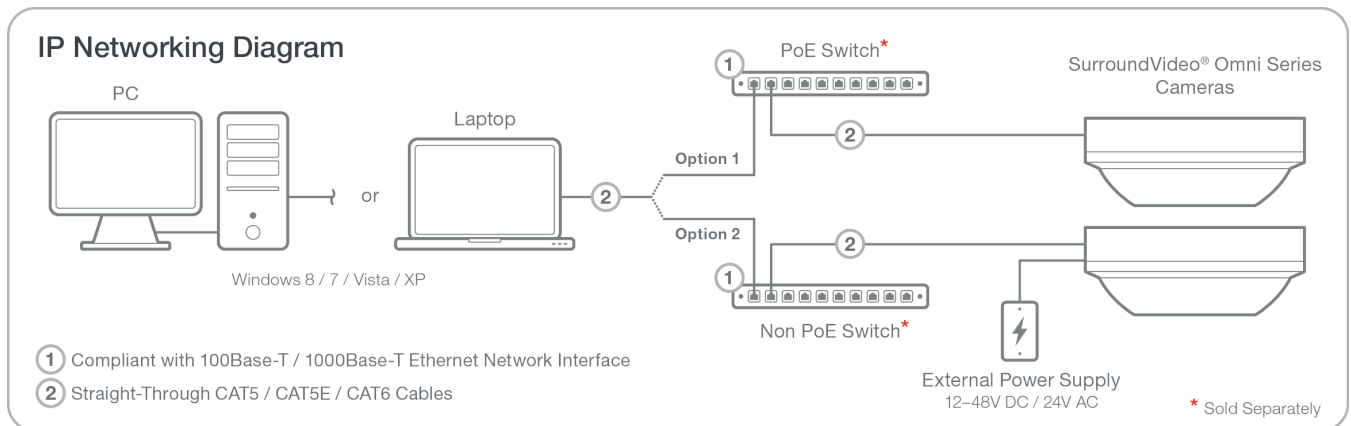




**CAUTION!** Make the connections inside a watertight compartment. Isolate unused power wires individually.

After connections are made, ensure that the watertight compartment is tightly closed and cables and conduits are properly sealed to prevent ingress of water.

3. Connect the PoE switch to your computer's network port using an Ethernet cable.



NOTE: A yellow LED on the rear of the camera illuminates after a few seconds.

- The flashing yellow LED indicates that a link to your computer has been established.
- A green LED will blink when the camera has been accessed.

LED	Status	Description
Yellow	Flashing	Link has been established.
	Solid	Normal Operation.
Green	Flashing	Camera has been accessed. Normal operation.
	Solid	N/A
None	None	No Connection.

NOTE: Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/ANSI, and with all local codes and authorities having jurisdiction. Wiring should be UL Listed and/or Recognized wire suitable for the application.

## System Requirements

Computer with Windows XP/Vista/7 operating system, network access, and Microsoft Internet Explorer web browser version 9.0 or later (32-bit).

## Camera Discovery, Setup, and Configuration

For camera discovery and setup, the AV IP Utility is recommended. The software can be found on the CD included with your camera or at: <http://www.arecontvision.com/software.php>.

The AV IP Utility has the ability to provide multiple discovery options, including broadcast and multicast, check the status of a camera, change camera settings, import and export camera settings via a .csv file, and update firmware and/or hardware from virtually anywhere with a network connection.

Whether used for large installations that require an update to multiple settings, or smaller installations where only one camera needs changed, the AV IP Utility tool is efficient and convenient for mass or single camera uploads.

The AV IP Utility tool is compatible with all Arecont Vision® megapixel cameras. The user manual for the software is included on the CD that came with your camera or available on our website.

## Network Protocols

The Arecont Vision SurroundVideo® G5 cameras support RTSP, RTP/TCP, RTP/UDP, HTTP, DHCP, TFTP, and IP version 4 (IPv4).

Note: Concurrent multi-streaming via RTSP and TFTP is not supported.

**RTSP** – Cameras communicate with video management systems over Real Time Streaming Protocol. Do not change the RTSP port unless you are sure your VMS does not use the default setting.

**RTP/TCP** – The Real-time Protocol/Transmission Control Protocol is best suited for applications that require high reliability, and transmission time is relatively less critical.

**RTP/UDP** – The Real-time Protocol/User Datagram Protocol is used for live unicast video, especially when it is important to always have an up-to-date video stream, even if some images are dropped.

**HTTP** – The Hypertext Transfer Protocol is an application protocol for distributed, collaborative, hypermedia information systems.

**DHCP** – The Dynamic Host Configuration Protocol allows network administrators to centrally manage and automate the assignment of IP addresses. DHCP should only be enabled if using dynamic IP address notification, or if the DHCP can update a DNS server.

**TFTP** – The Trivial File Transfer Protocol is a simple, lock-step, File Transfer Protocol which allows a client to get from or put a file onto a remote host. TFTP lacks security and most of the advanced features offered by more robust file transfer protocols such as File Transfer Protocol.

**QoS** – Quality of Service guarantees a certain level of a specified resource to selected traffic on a network. A QoS-aware network prioritizes network traffic and provides a greater network reliability by controlling the amount of bandwidth an application may use.

**IPv4** – This camera supports the IPv4 internet-layer protocol for packet-switched internetworking across multiple IP networks. IPv4 uses 32-bit addressing which allows for devices and users on the internet for routing traffic.

### General Remote Focus

1. To control the remote focus via the web interface, double click the camera within the AV IP Utility (Figure 1) or open your preferred web browser and type the camera's IP address (Figure 2).

NOTE: For supporting H.264 streaming on a webpage, the recommended browsers are Internet Explorer and Firefox.

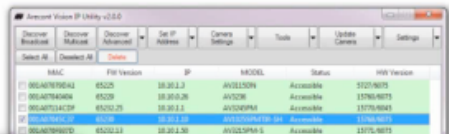


Figure 1: Double click via AV IP Utility

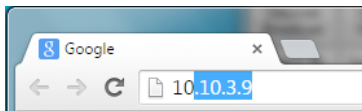
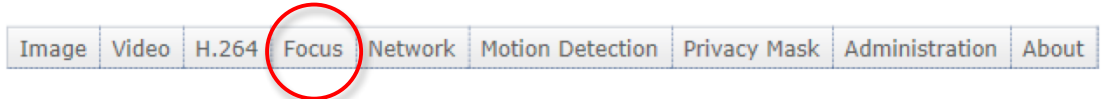


Figure 2: Type the camera IP address

2. Scroll to the Focus Tab section.



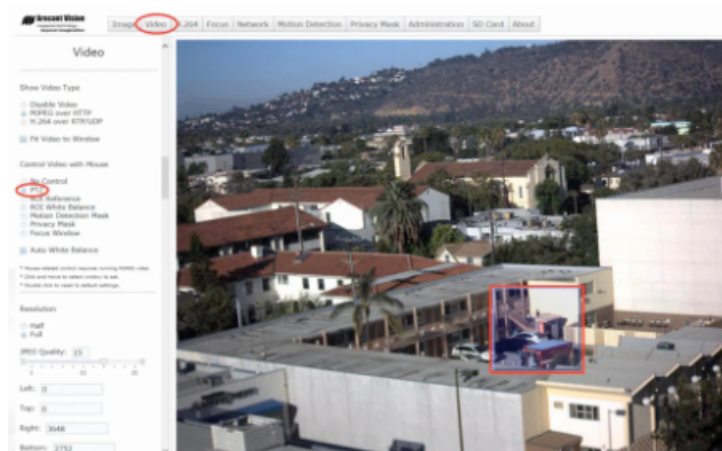
NOTE: Additional information regarding the Arecont Vision® web interface is found separately in the **AV IP Utility Web Browser Manual** via the Arecont Vision website.

- Click the Full-range Focus button. The camera begins to autofocus with the lens stopping at the best overall point of focus. When the focus area turns to Green, the autofocus is complete.



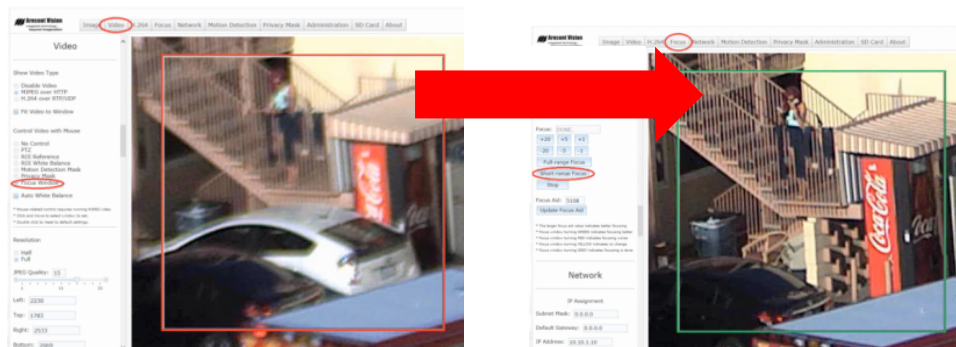
## Refined Remote Focus

- For a more refined, detailed focus, scroll to the Video Tab section and select the PTZ radial button.

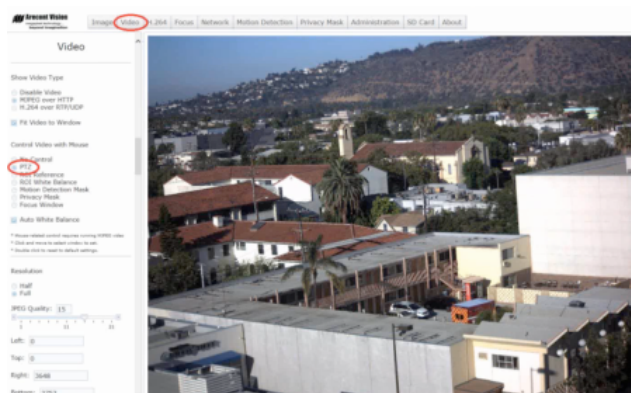


- Choose an area that has a lot of objects or an area you have an interest in seeing more details. Left click and drag the box to the area where you want to see finer details. The image zooms in.
- Repeat until you are able to see pixelization of the image as shown below.

- Select the radial Focus Window option.

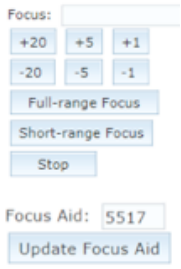


- Left click and drag to highlight the area within the zoomed window you created.
- Click the focus menu, then the Short-Range Focus button.
- The camera proceeds to go through the short range adjustment around the original focus. It stops at the best point of focus using the new reference area. When the box around the image illuminates green, the camera has completed the focus. For an additional focus, press the manual focus buttons (+20, +5, +1, -20, -5, -1).
- When satisfied with the camera's focus setting, click the Video menu.



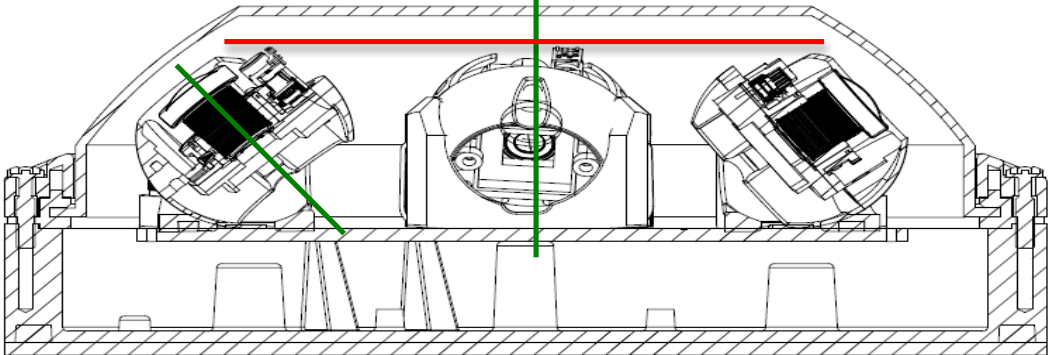
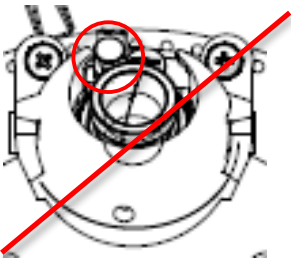
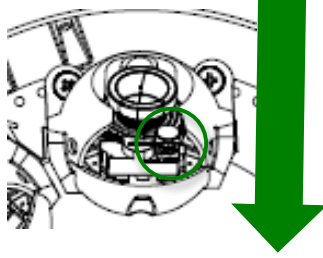
- Click the PTZ radial button.
- Double click the image; the video returns to the full field of view.

### AV IP Utility Focus Tab

Menu	Feature	Description
 <p>The screenshot shows a 'Focus' section with a text input field containing '5517' and an 'Update Focus Aid' button. Below this are several buttons: '+20', '+5', '+1', '-20', '-5', '-1', 'Full-range Focus', 'Short-range Focus', and 'Stop'.</p>	Manual Focus: +20, +5, +1, -20, -5, -1	Numbers indicate the level of focusing in order to adjust the field-of-view.  To set-up a focus area (if necessary), draw a rectangle with the mouse (by left-clicking and dragging the mouse to a desired zoom size). To automatically adjust focus, choose “Full-range Focusing” or “Short-range Focusing” depending on the image clarity.
	Full-range Focus	Best for scenes that are completely out of focus. The camera automatically scans the full focus range of the scene to find the best focus position.
	Short-range Focus	Best for scenes that are slightly of out of focus. The camera quickly fine-tunes for a precise focus position.
	Stop	Stops any command in progress.
	Focus Aid	<p>The higher the focus aid value means the more the lens is required to focus.</p> <p>If the focus window box illuminates GREEN, the lens has reached its optimal focus level.</p> <p>If the focus window box illuminates RED, the lens is having difficulty reaching an optimal focus level.</p> <p>If the focus window box illuminates YELLOW, the focusing of the lens remains unchanged.</p> <p>If the focus window box illuminates GREY, the focusing of the lens has been completed.</p>

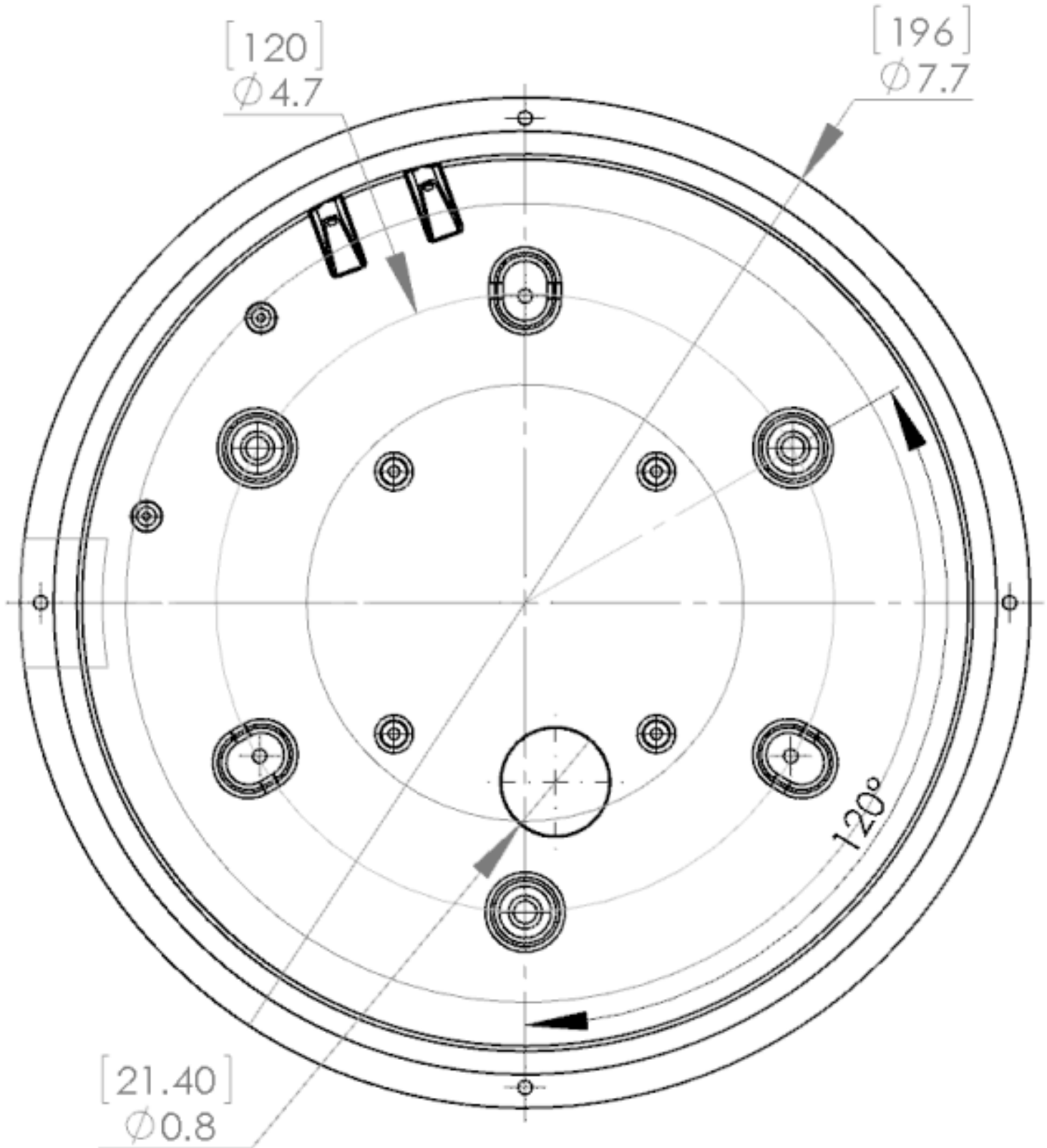
## Troubleshooting

Before troubleshooting, visit <http://www.arecontvision.com/> to ensure your camera has the most current firmware version.

Problem	Possible Cause	Solution
Reflection on the image	<ul style="list-style-type: none"> <li>• Lens faces the bubble's crease.</li> <li>• The angle between the lens and bubble are not perpendicular.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure the lens faces the bubble perpendicularly.</li> <li>• Avoid facing the lens at the bubble's crease.</li> <li>• Ensure each lens is tilted up 90° when facing down as shown below.</li> </ul>
		
Day/Night switch failure or image quality problem	<p>The lens motor positioned too close to the board may cause interference.</p> 	<p>Ensure each lens motor is positioned away from the board.</p> 



### SurroundVideo Omni Mounting Template



## Support

1. Arecont Vision FAQ Page Located at [ArecontVision.com](http://ArecontVision.com)
2. Check the following before you call:
  - Restore camera to factory default with AV200 or the camera webpage.
  - Upgrade to the latest firmware by visiting [ArecontVision.com](http://ArecontVision.com).
  - Isolate the camera on a dedicated network and test with AV200.
  - Swap the “troubled” camera with a known good camera to see if the problem follows the camera or stays at the location.
3. Contact Arecont Vision Technical Support one of three ways:
  1. Online Portal: [Support.ArecontVision.com](http://Support.ArecontVision.com)
  2. Phone: 1.818.937.0700 (option #1)
  3. Email: [support@arecontvision.com](mailto:support@arecontvision.com)