

# MicroDome<sup>®</sup> Duo

## Installation Manual

### Models:

#### **4 Megapixel**

AV4655DN-08

AV4655DN-28

AV4655DN-NL

#### **4 Megapixel WDR**

AV4656 DN-08

AV4656DN -28

AV4656DN-NL

#### **6 Megapixel**

AV6655DN-08

AV6655DN-28

AV6655DN-NL

#### **6 Megapixel WDR**

AV6656DN-08

AV6656DN-28

AV6656DN-NL

#### **10 Megapixel**

AV10655DN-08

AV10655DN-28

AV10655DN-NL

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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 Content

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 with Mounting Adapter Plate installed.
- One (1) Drop Ceiling Mount Plate Adapter
- One (1) I/O Cable
- One (1) M-F CAT-5E Network Patch Cable with grommet (installed)
- Blind Grommet
- Standard Grommet
- Grommet Insertion Tool
- One (1) Security L-key
- One (1) CD with Manual and Software
- One (1) Mounting Template (Drop Ceiling/Surface Mount)
- Four (4) Mounting Screws (#6x1" for wood or sheet metal)
- Four (4) Mounting Dry Wall Anchors
- Four (4) Ceiling Mount Mounting Screws #6-32 PPH UNC 1.0" LG.
- Four (4) Box Mount Mounting Screws #8-32 UNC PTH 0.5" LG. (Low profile head)
- One (1) Flat-head screwdriver
- One (1) Philips head screwdriver

Page | 3    [support@arecontvision.com](mailto:support@arecontvision.com)

 Made in the USA

 **Arecont Vision®**

## 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 MicroDome Duo multi-sensor, multi-megapixel 2-dome cameras provide users with professional surveillance experience for a variety of network surveillance requirements.

The MicroDome Duo multi-megapixel cameras series feature a choice of 4-, 6- or 10-megapixel resolution options, including 4- and 6-megapixel WDR options.

These remote focus true day/night cameras are available with a choice of lenses including 2.8mm, 8mm or no lens options.

For added flexibility, users can place both individual three-axis lens gimbals independently in any direction. These cameras are ideal for indoor and outdoor use and deliver excellent low light imaging.

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 4 and 6MP 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.

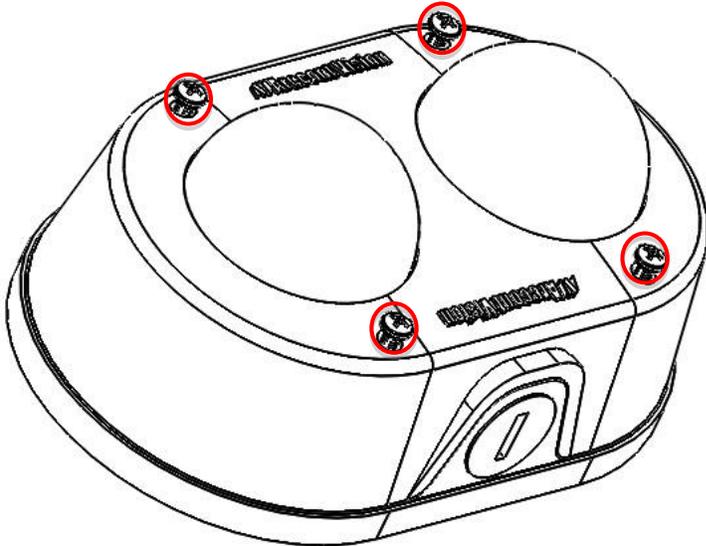
MicroDome Duo cameras are designed for demanding environments. They are rated IP 66 for dust and water ingress protection and rated IK-10 for vandal resistance.

The cameras offer 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 MicroDome Duo is PSIA (Physical Security Interoperability Alliance) compliant, providing interoperability between network video products regardless of manufacturer.

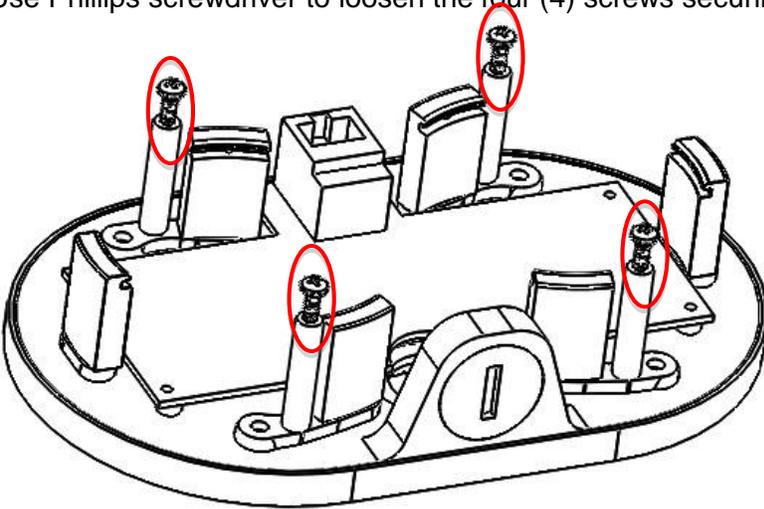
## Surface Installation

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



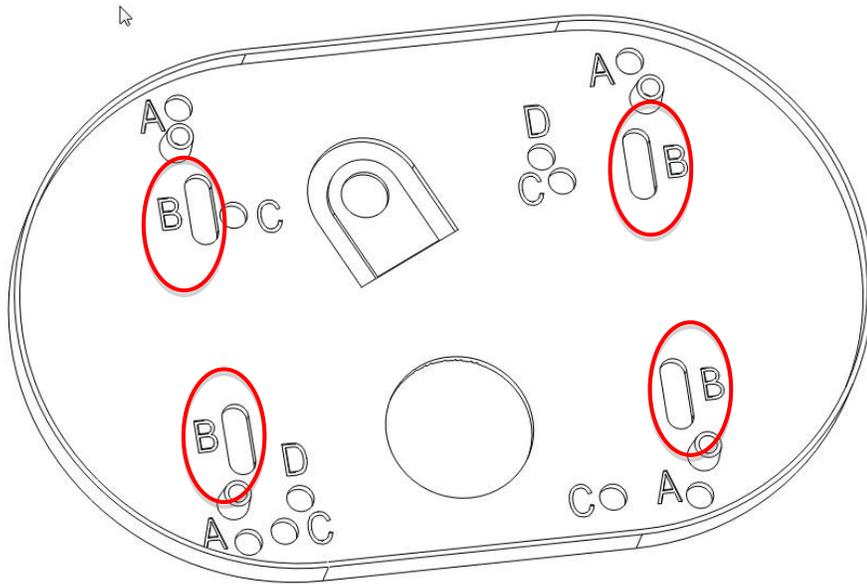
PIC. 1

3. Remove the cover. Do not remove screws from the dome cover.
4. Use Phillips screwdriver to loosen the four (4) screws securing the camera to adapter plate.

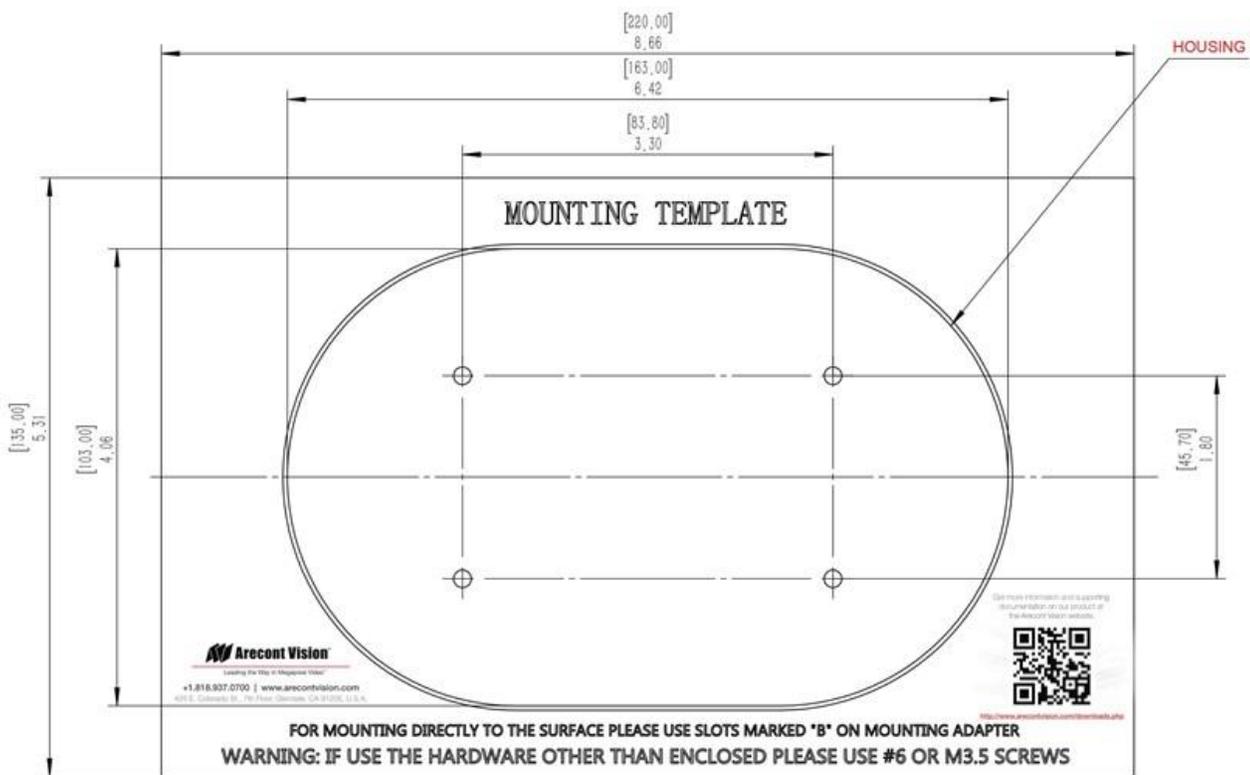


PIC. 2 (some parts removed for clarity)

5. Separate Camera from Adapter Plate Do not remove the screws.
6. Use Surface Mount template and cable location to create mounting provisions for the camera.
7. Mount Adapter Plate by installing mounting hardware in 4 slots "B" in adapter plate



PIC. 3



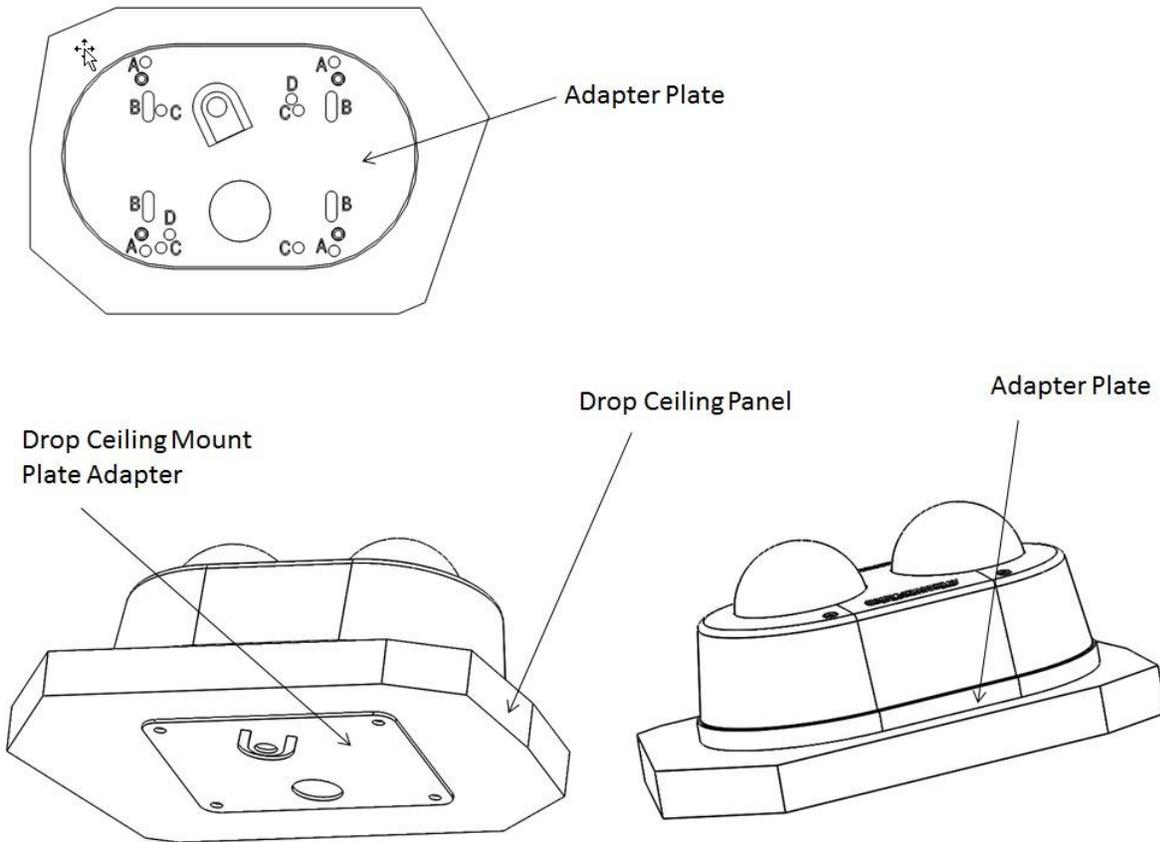
PIC 4

8. Re-attach camera to adapter plate (Reverse step 4 and 5)
9. Re-attach cover to camera (Reverse step 2 and 3)

## Drop Ceiling Mount Adapter Plate Installation

Repeat step 1-5 of Surface Installation (See Pic. 1-3)

6. Use template and cable location to create mounting provisions for the Plate. Use 3/16" drill bits for four mounting holes in Drop Ceiling Panel.
7. Using enclosed #6-32 screws attach enclosed Drop Ceiling Mount Plate Adapter and Adapter Plate onto opposite sides of Drop Ceiling Panel, so the panel is "sandwiched" between Adapter Plate and Drop Ceiling Mount Plate Adapter. Use 4 slots "B" in Adapter Plate.
8. Re-attach camera to adapter plate (Reverse step 4 and 5)
9. Re-attach cover to camera (Reverse step 2 and 3)
10. Re-install the Drop Ceiling Panel and plug Customer Ethernet cable into female end of Camera Ethernet cable.

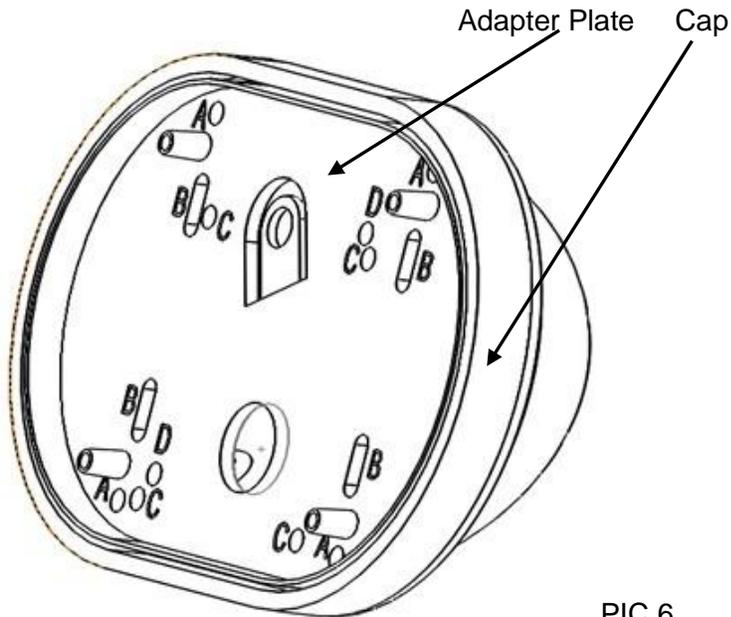


PIC. 5

## MDD-CAP Installation

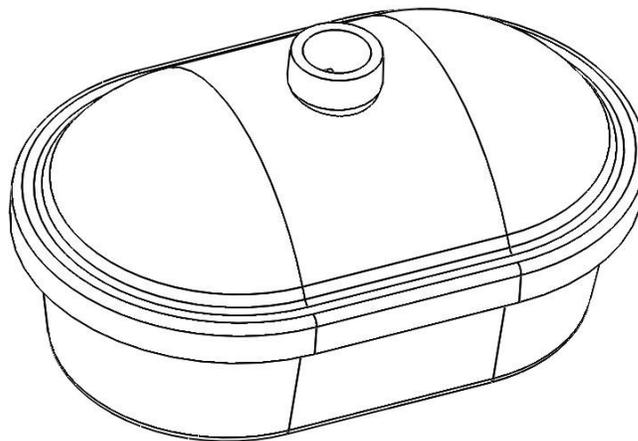
Repeat step 1-5 of Surface Installation (See Pic. 1-3)

6. Insert Adapter Plate into the Cap and attach it to the cap, using the 4 “A” holes using enclosed #6-32 screws.



PIC 6.

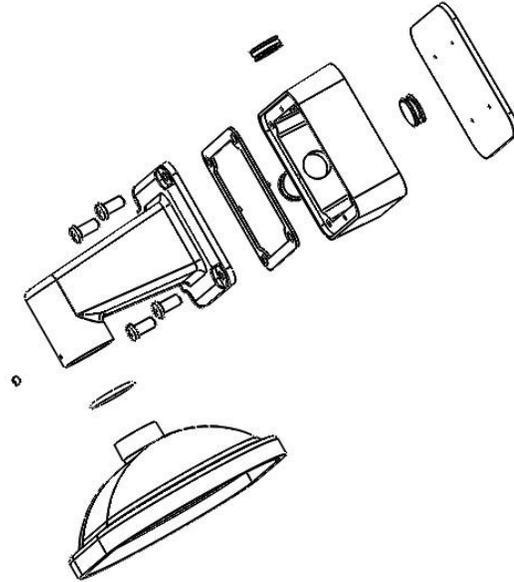
7. Re-attach camera to adapter plate (Reverse step 4 and 5)
8. Re-attach cover to camera (Reverse step 2 and 3)



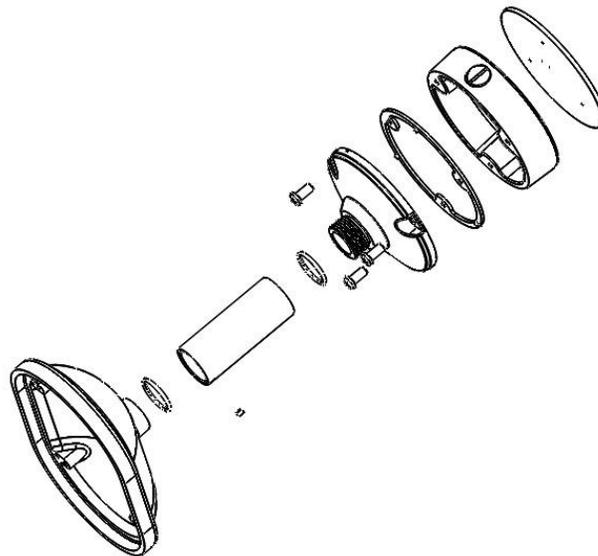
PIC. 7

## MDD-CMT/WMT Pendant Mount and Wall Mount Installation

Assembly (Pic. 7) can be used with wall mount or ceiling mount



PIC 8



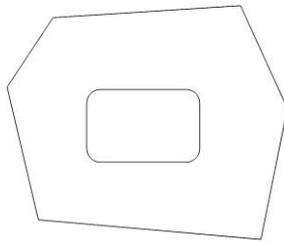
PIC. 9

Use MCD-CMT and MCD-WMT installation instructions for reference.

## MDD-FMA Flush Mount Installation

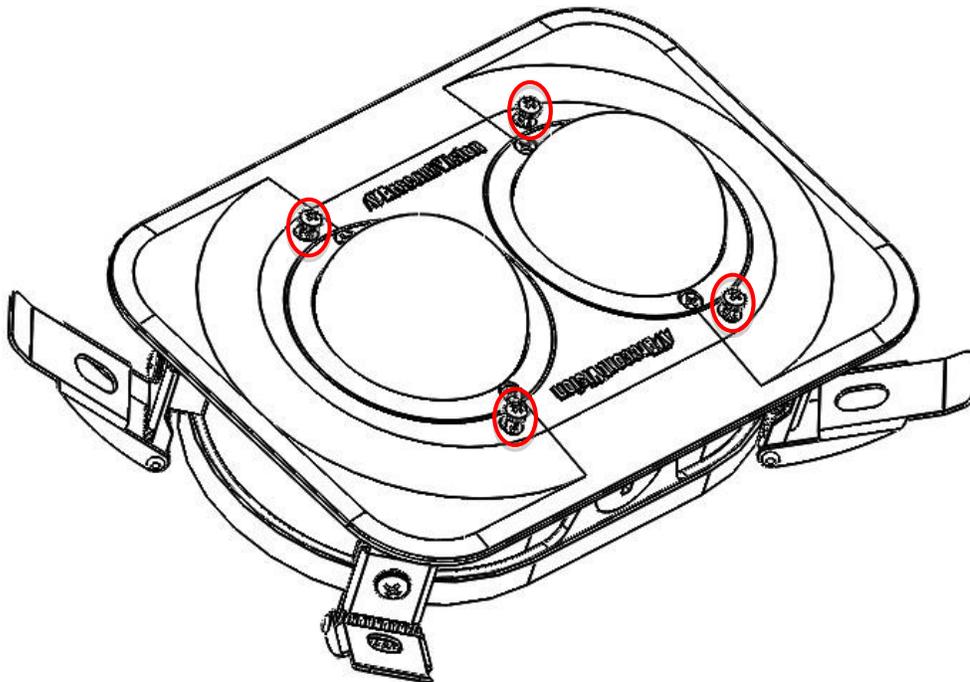
**Note: MDD-FMA is designed for indoor use only. Grommet use is recommended.**

1. Use template to cut the ceiling plate and create mounting provisions for the Flush Mount Ceiling Panel.



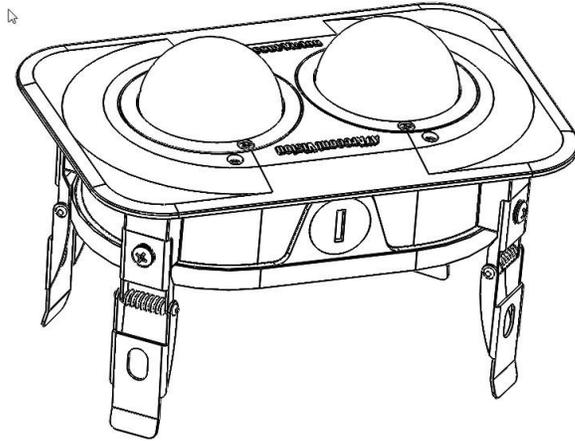
PIC. 10

2. Use the supplied security L-key, to loosen the four (4) screws which secure the cover on camera. (See Pic. 1). Remove the cover.
3. Install Flush Mount Cover and tighten the four (4) screws which secure the Flush Mount Cover to camera.



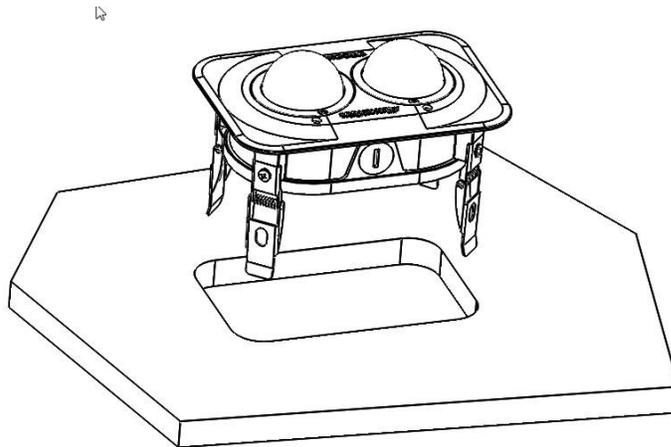
PIC. 11

4. Plug PoE cable (not shown for clarity)
5. Hold all four latches as shown on PIC. 12

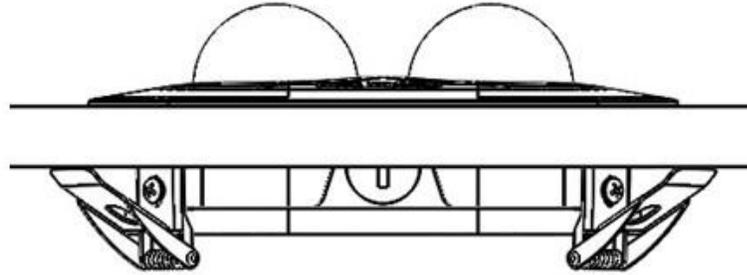


PIC. 12

6. Insert camera into cutout prepared in step 1

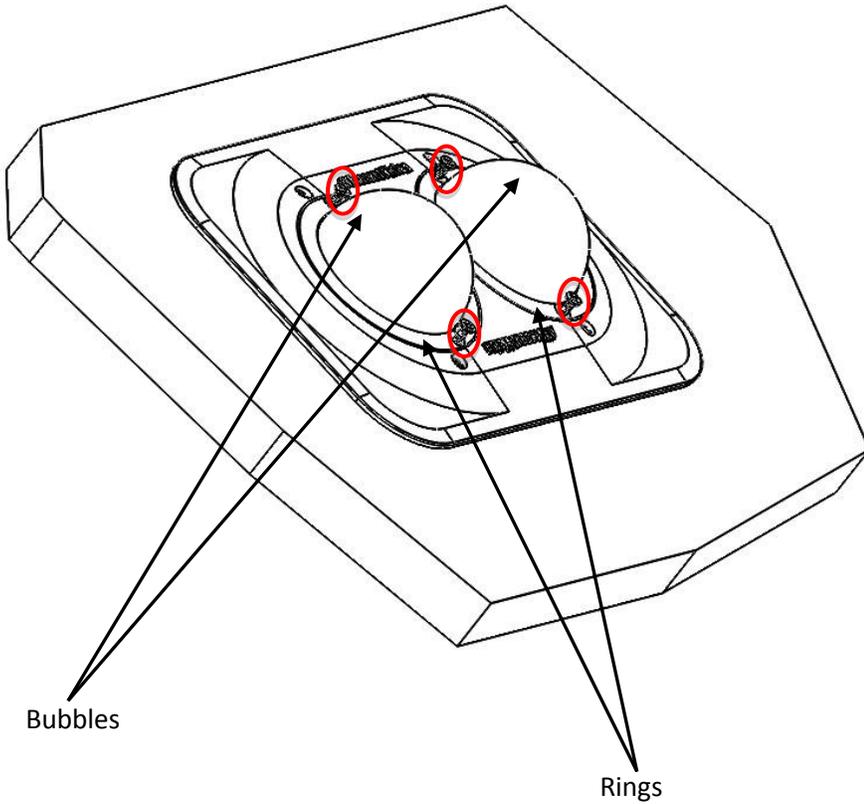


PIC. 13



PIC. 14

7. Undo 4 screws shown and remove both Rings and Bubbles.

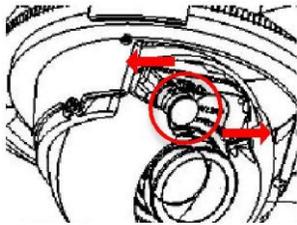


PIC. 15

- 8. Adjust Pan and Tilt for both modules as shown on page 14.
- 9. Re-attach Rings and Bubbles and tighten 4 screws from step 7.

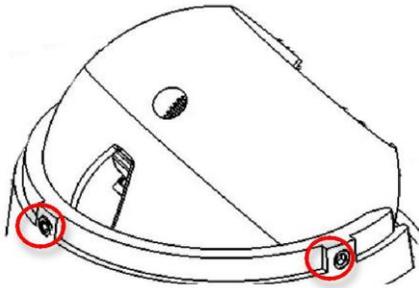
## Pan and Tilt Adjustment

1. Use the supplied security L-key, to loosen the four (4) screws which secure the cover. See Pic. 1.
2. Remove the cover.
3. Adjust the pan and tilt of each camera module to obtain the desired field of view.  
Do not to press the remote focus motor against the sides of camera module when adjusting the field of view (Pic. 5).



PIC. 16

4. Lock the camera head in place by tightening at least two of the three set-screws with the supplied flat-head screwdriver. Do not over torque the screws (Pic. 8)

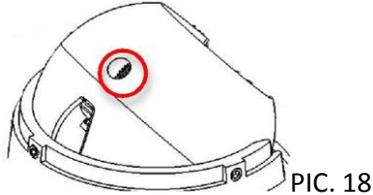


PIC. 17

5. Re-attach cover to camera.

## Lens Replacement

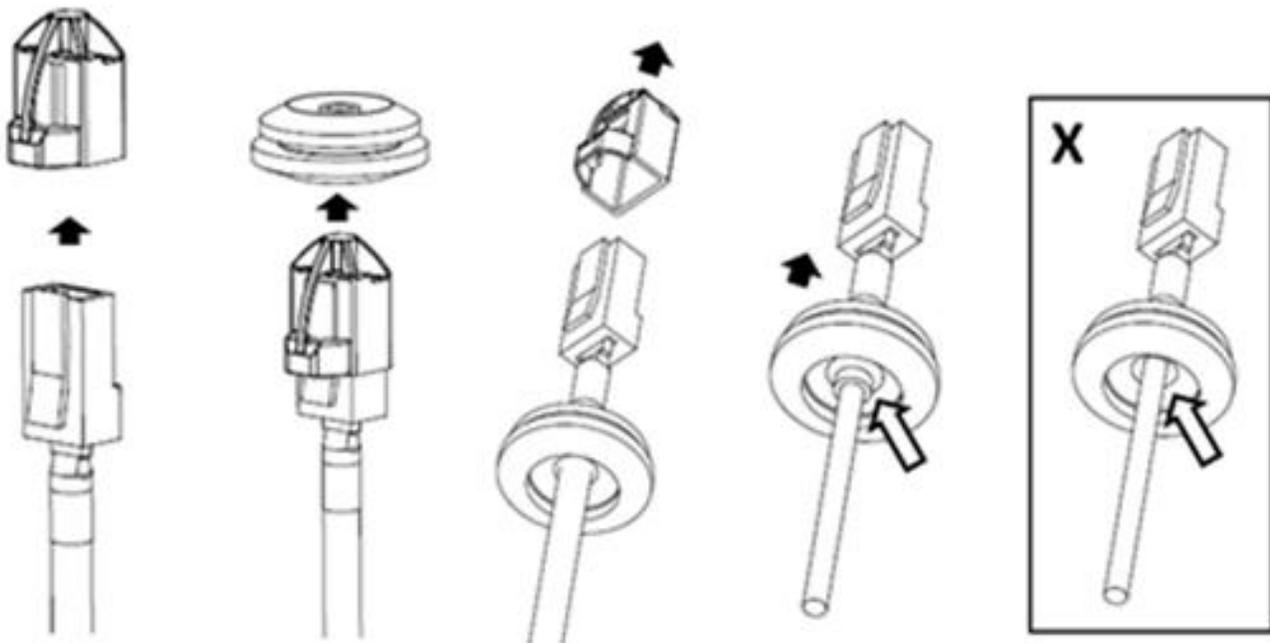
1. Use the supplied security L-key, to loosen the four (4) screws which secure the cover. (See Pic. 1). Remove the cover.



2. Manually turn the lens counter clockwise, this may take several turns.
3. Screw the replacement lens clockwise until you feel some resistance and hit a hard stop.
4. Repeat for another camera module if necessary

### Usage of Ethernet cable other than included M/F PoE cable.

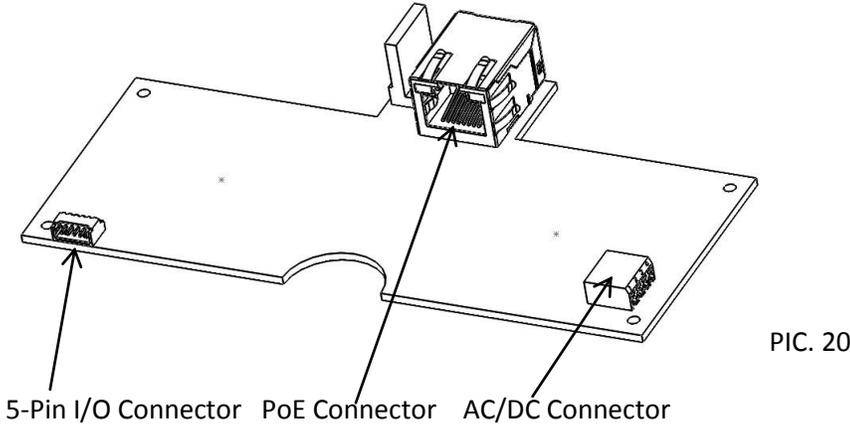
1. Insert CAT 5E cable into Grommet Installation Tool as shown on Pic. 19.
2. If intend to use AC/DC power to power up the camera, insert the wire (not supplied) into grommet. See instructions on page 23 for cable preparation.
3. If intend to use I/O cable, insert the supplied cable into grommet.
4. Insert Ethernet Cable with Tool on it into the Grommet as shown. Make sure the Grommet is installed from the correct side.
5. Remove Grommet Installation Tool



PIC. 19

## Connecting Digital I/O

1. To use digital I/O use 5-wire pigtail cable (included) and plug it into I/O connector (Pic 13). The color coding is shown in Table 1 below



PIC. 20

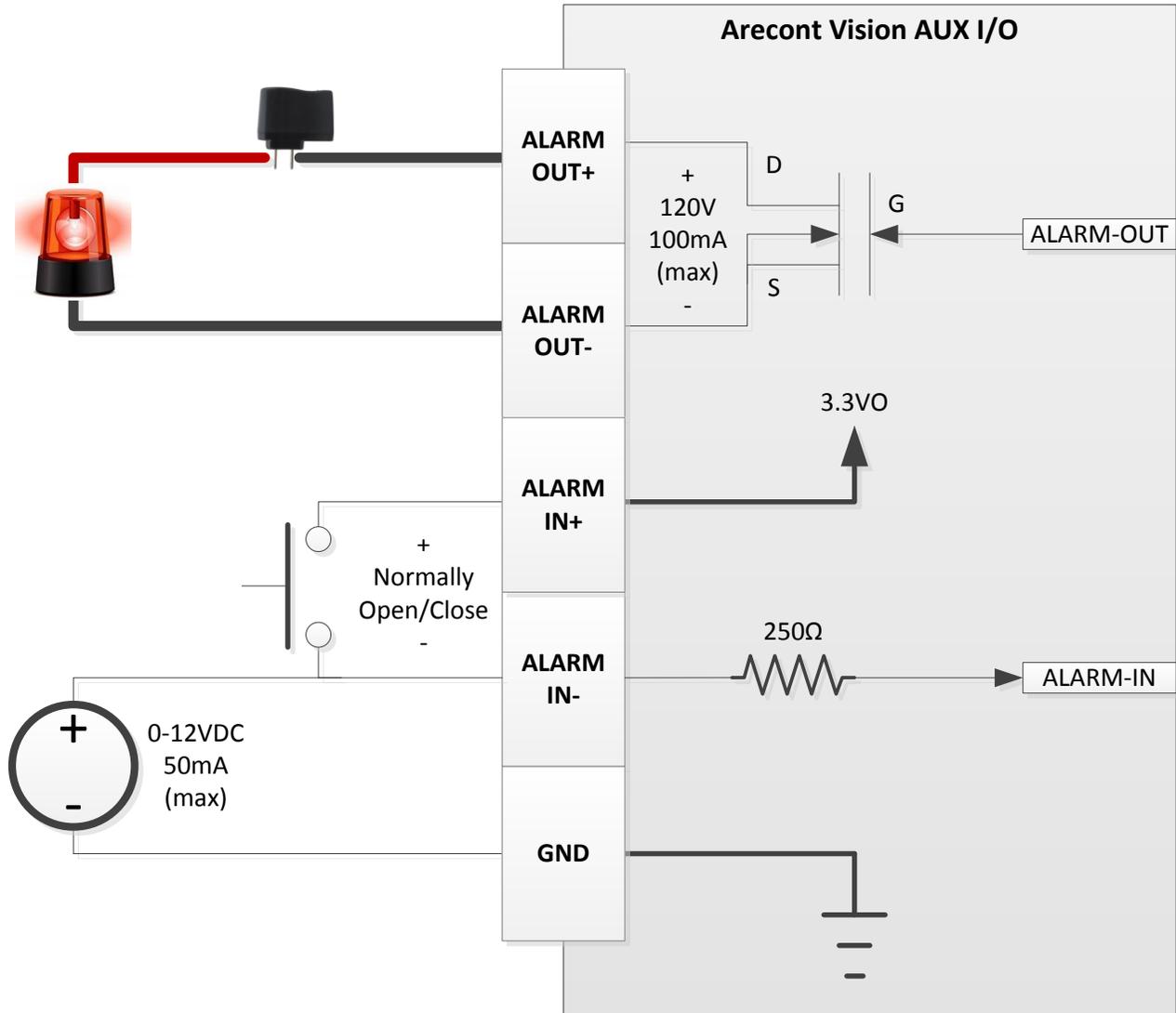
### Electrical Characteristics

		MIN	MAX	PIN	I/O CABLE WIRE COLOR
Input Voltage (V) (Measured between “+” and “-” terminals)	ON	2.9	6.3	3	WHITE (OUT +)
	OFF	0	1.3	4	BLACK (OUT -)
Output Current (mA) (Measured between “+” and “-” terminals) Applied Voltage Range: 0-80V	ON	-	50	1	ORANGE (OUT +)
	OFF	-	0.1	2	YELLOW (OUT -)
GROUND				5	GREEN

**Table 1.**

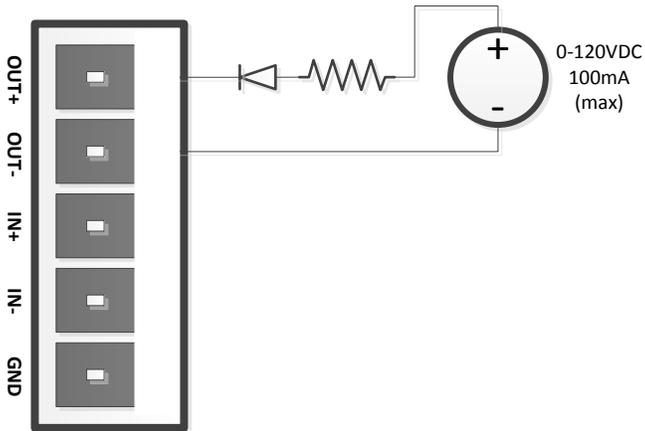
The output consists of an optically coupled solid state relay (SSR) and the input has an optocoupler. Both the SSR and optocoupler have an isolation voltage of 1500 VRMS between the external terminals and internal camera circuitry. The input is further protected with a serial 250Ω resistor and a debouncing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

### 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.



### 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=(\)

The following table shows the output control and electrical characteristics:

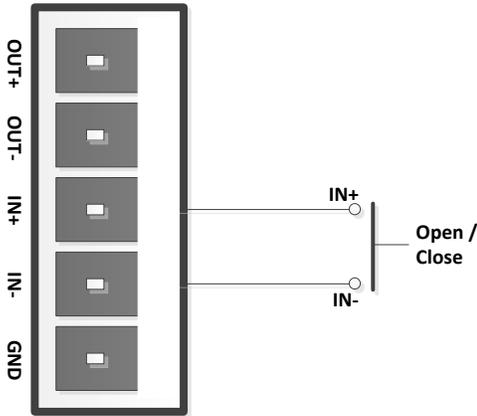
Output Control				
Terminals	External Status	Camera Status	Max Voltage	Max Current
OUT+ & OUT-	OPEN	OFF	120V	-
	CLOSED	ON	-	100mA

## INPUT Alarm Control and Detection

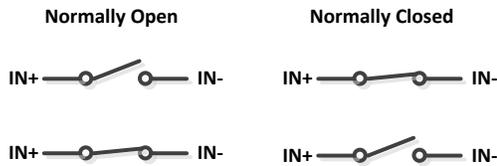
The input optocoupler supports two ways to connect external unsupervised alarms to Arecont Vision camera. **Only one of the following two schemes should be used at any given time.**

### 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 below



The diagram below illustrates the unsupervised alarm conditions:



The following table shows how camera detects unsupervised alarms:

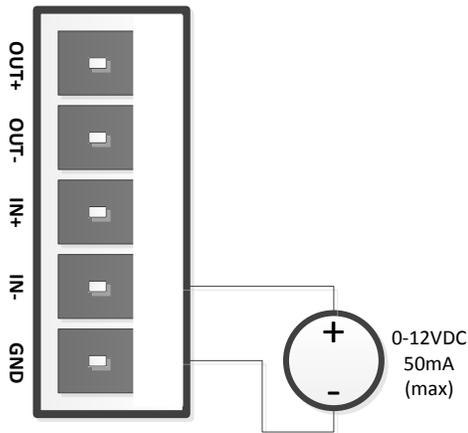
Input Unsupervised Alarms		
Terminals	External Status	Camera Status
IN+ & IN-	OPEN	ON
	CLOSE	OFF

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.



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 using PoE

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. Remove cover from the camera as described on page 6.
2. Plug one end of Ethernet cable into female end of pre-installed camera Ethernet cable.
3. Plug opposite end of Ethernet cable into PoE port on 100Mbps Poe switch, Cat 5e or Cat 6 cables are recommended.
4. Observe the yellow and green lights on Main Board PoE connector for connection status

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.

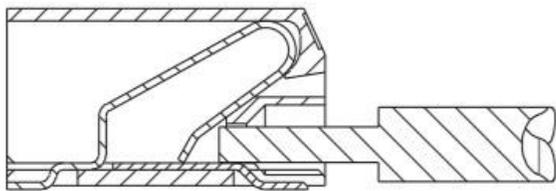
### Use of Auxiliary Power

1. If the camera is powered by a separate outside AC or DC power source, run the wire (not supplied) through the grommet and connect the power cable to the 4-position connector on the Main Board. (see Page 17 and 18 for illustration and detailed instructions)
2. The Poke-Home connector requires 18 AWG to 24 AWG wire (solid or stranded).
3. Please refer to picture below for more information on cable preparation and use

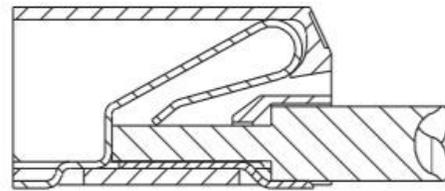
NOTE: Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/ANSI, and with all local codes and authorities having jurisdiction. Wiring should be UL Listed and/or Recognized wire suitable for the application.



TRIM INSULATION.  
DO NOT CRUSH CENTER OF WIRE.  
STRANDED WIRES TWISTED TOGETHER BEFORE INSERTION.  
CHECK ALL STANDS OF WIRE ARE CORRECTLY ALIGNED  
AFTER THE INSULATION IS REMOVED.

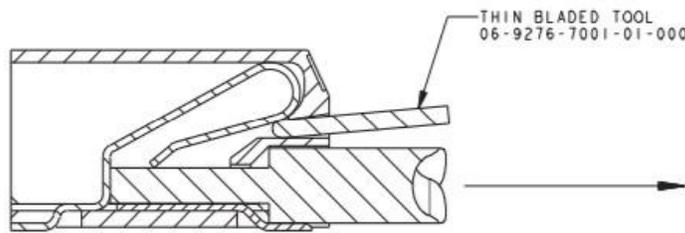


PUSH WIRE INTO HOLE IN FRONT OF CONNECTOR  
DO NOT BEND CONNECTOR



CONTINUED TO PUSH WIRE UNTIL STOP IS REACHED.

### WIRE EXTRACTION



PUSH BLADE (NOT SHARP) INTO SLOT ABOVE WIRE.  
WHEN WIRE IS FREE, PULL TO EXTRACT.

## 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 comes with your camera or available on our website.

## Network Protocols

The Arecont Vision MicroDome Duo cameras support RTSP, RTP/TCP, RTP/UDP, HTTP, DHCP, TFTP, QoS, IP version 4 (IPv4) and IP version 6 (IPv6).

**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 data transmission. The HTTP interface on a camera allows users to connect to it with a web browser and a GUI interface.

**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 assignment.

**TFTP** The Trivial File Transfer Protocol is a protocol used for file management and transfer. On a camera the TFTP is used to receive commands or to stream video. TFTP lacks security features.

**QoS** Quality of Service can assign a higher priority for a given type of IP traffic. A QoS-aware network prioritizes network traffic and provides greater network reliability by controlling the amount of bandwidth an application may use.

**ONVIF** – The Open Network Video Interface is a protocol specific to IP cameras that provides a common interface for all camera manufacturers. ONVIF is an industry wide standard for camera configuration, discovery, user authentication, security, event notification, and video streaming.

**IPv4** The MicroDome Duo 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.

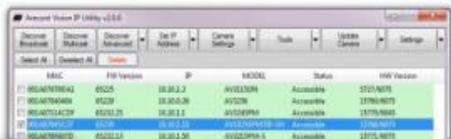


Figure 1: Double click via AV IP Utility



Figure 2: Type the camera IP address

2. Scroll to the Focus Tab section.



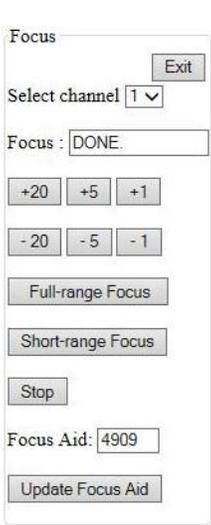
NOTE: Additional information regarding the Arecont Vision® web interface is found separately in the [AV IP Utility Web Browser Manual](#) via the Arecont Vision website.

3. Click the “Select Channel” and choose channel 1 (Please see image below)
4. 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.



5. Please complete the same action for Channel 2 by following steps 2 to 5.

### AV IP Utility Focus Tab

Menu	Feature	Description
	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>
	Select Channel	Allows user to change settings of each channel. All the parameter settings in “Settings” Menu only apply to the selected channel.

## Administration and Password Setting

The screenshot shows a web interface titled "Administration". It contains two sections for password management. The first section is for the "admin" user, with fields for "password" and "confirmation", and "Set" and "Erase" buttons. The second section is for the "viewer" user, also with "password" and "confirmation" fields, and "Set" and "Erase" buttons.

**Administration** is the place to set a password. Arecont Vision cameras support two levels of password-protected access control. Camera authentication is compatible with RFC-2068 HTTP 1.1 and is supported by all standard browsers and video surveillance software.

A. There are two types of users with the following reserved names:

**admin** – full access to all camera settings and live video.

**viewer** –viewing access only to live video.

Setting and removing the passwords is the privilege of the **admin** user, while the **viewer** can only use the existing password, but not change it. Factory defaults erase all current passwords for both the **admin** and the **viewer**. A newly shipped camera has no password protection and allows full anonymous access from the network. In case the **admin** password has not been set, the camera has full anonymous access from the network, even if the **viewer** password has been set.

B. Access control setup consists of three steps:

1. Set **admin** password (using http commands or using the camera’s web page, see below).
2. Log-in using the **admin** password and set the **viewer** password.
3. Communicate the **viewer** password to the users.

**NOTE:** The Password accepts a 16 character ASCII but cannot contain white space or following illegal symbols: # % & ` “ ‘ < >.

In order to delete **viewer** password, log-in as **admin** and change the viewer password to a reserved password **empty** – this would restore the full anonymous access to the camera. The **admin** user can change the **viewer** password at any time, even without knowing the current **viewer** password.

**NOTE:** If the admin password has been set and forgotten, it can only be erased by AV IP Utility using key file. Please contact Arecont Vision technical support to obtain the key file required to perform this function.

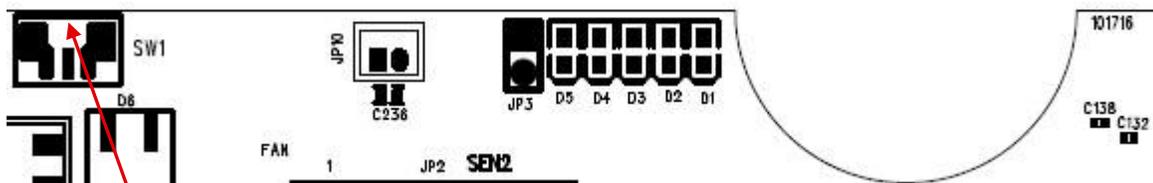
## Reset to Factory Default

Press and hold the Reset Button, release it after 10 seconds. See picture below for approximate switch position on board. The camera has been reset to the factory default.

If the camera is not connected to DHCP server, the camera will use Link-local address.

The Reset to Factory Default can be done via camera Web interface or AV IP Utility.

NOTE: Additional information regarding the Arecont Vision® web interface can be found separately in the AV IP Utility Web Browser Manual via the Arecont Vision website <http://www.arecontvision.com>



Approx. Switch Position (board top view)

## Troubleshooting

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

## 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)