Outdoor Dome

Hardware Manual

A71, A74, A77

Ver. 2023/03/28

ACTi
Connecting Vision

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Precautions

Read these instructions

You should read all the safety and operating instructions before using this product.

Heed all warnings

You must adhere to all the warnings on the product and in the instruction manual. Failure to follow the safety instruction given may directly endanger people, cause damage to the system or to other equipment.

Servicing

Do not attempt to service this video device yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Trademarks

All names used in this manual are probably registered trademarks of respective companies.

Liability

Every reasonable care has been taken during the writing of this manual. Please inform your local office if you find any inaccuracies or omissions. We cannot be held responsible for any typographical or technical errors and reserve the right to make changes to the product and manuals without prior notice.

Federal Communications Commission Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

European Community Compliance Statement

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to European Standard EN 55022 and EN 55024. In a domestic environment, this product may cause radio interference in which cause the user may be required to take adequate measures.

Safety Instructions

Cleaning

Disconnect this video product from the power supply before cleaning.

Attachments

Do not use attachments not recommended by the video product manufacturer as they may cause hazards.

Water and Moisture

Install other devices (such as PoE injector, alarm, etc.) that will be used with the camera in a dry place protected from water.

Servicing

Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring service

Disconnect this video product from the power supply immediately and refer servicing to qualified service personnel under the following conditions.

1) When the power-supply cord or plug is damaged
2) If liquid has been spilled, or objects have fallen into the video product.
3) If the video product has been directly exposed to rain or water.
4) If the video product does not operate normally by following the operating Instructions in this manual. Adjust only those controls that are covered by the instruction manual, as an improper adjustment of other controls may result in damage, and will often require extensive work by a qualified technician to restore the video product to its normal operation.

Safety Check

Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine if the video product is in proper operating condition.

Introduction

List of Models

This hardware manual contains the following models:

A71		4MP Outdoor Dome with D/N, IR, Extreme WDR, SLLS, Fixed Lens
A74		6MP Outdoor Dome with D/N, IR, Superior WDR, SLLS, Fixed Lens
A77		6MP Outdoor Dome with D/N, IR, Extreme WDR, SLLS, Fixed Lens

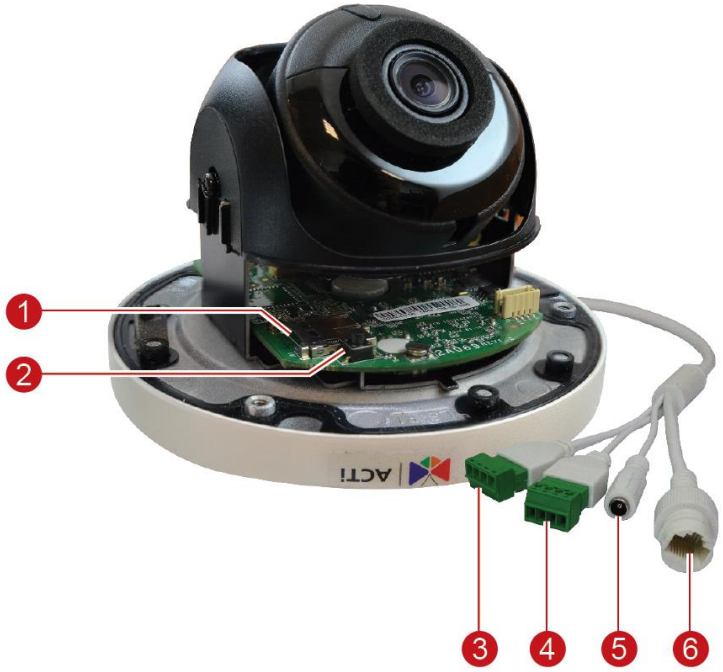
Package Contents

Check if the camera package comes with the following items:

Camera	Cable Gland with Rubber and Washer	Wrench
Mounting Screw Kit	**Drill Template**	**Quick Guide & Warranty Card**

IMPORTANT: When the camera is taken out from the box, the lens cover is covered by a thin film. DO NOT remove this film. It is used to protect the lens cover from scratches or fingerprint marks which may happen during installation. Remove this film only after the camera is securely installed and all connections are complete.

Physical Description



Item		Description
1	**Memory Card Slot**	Insert a memory card (not included) into the slot for local recording purposes. See ***How to Install / Remove the Memory Card*** on page 25 for more information. **NOTE:** Supports microSDHC cards only.
2	**Reset Button**	Restores the factory default settings of the camera. To reset the camera, while the power is on, press and hold the **Reset Button** for at least 10 seconds or until the **Green LED** turns off.
3	**Audio Input / Audio Output**	Connects to audio input / output devices, such as a microphone with built-in amplifier or speaker, etc. See ***How to Connect Audio Input /Output Device (Optional)*** on page 24 for more information.
4	**Digital Input / Output**	This connector connects to digital input or output devices, such as an alarm trigger, panic button, etc. Digital Input (DI) and Digital Output (DO) devices are used in applications like motion detection, event triggering, alarm notifications, etc. See ***How to Connect DI/DO Device (Optional)*** on page 22 for more information.

Item		Description
5	**DC 12V**	In case the camera is connected to a non-PoE (Power over Ethernet) switch, use this connector to connect the camera to an external power adapter (not included). See ***How to Connect a Power Adapter*** (Optional) on page 21 for more information.
6	**Ethernet Port**	Connects to a network using an Ethernet cable with RJ-45 connector.

Mounting Options

Select the most suitable solution for your installation environment. The camera can be mounted by either of the following methods:

Mount Types	Accessories
Surface Mount	Suitable when mounting the camera directly on walls or ceilings without additional mounting accessories. See ***Installation Procedures*** on page 12 for more information.
Gangbox	Suitable when mounting the camera on a 4” Round or 4” Octagon Gangbox. The use of gangbox is lawfully required in some areas in the United States. A Gangbox Converter (purchased separately) is required for this type of installation.
Wall Mount	Suitable when mounting the camera on the wall with the camera facing down as if installed on the ceiling. The Wall Mount (optional mounting accessory) is required for this type of installation.
Pendant Mount	Suitable when installing the camera on high ceilings where a straight tube is used to lower the camera. The Pendant Mount with Mount Kit (optional accessory set) is required for this type of installation.
Pole mount	Suitable when installing the camera on a vertical pole. The Pole mount (optional accessory set) is required for this type of installation.

NOTE:

- For more information about the mounting solutions and accessories, please check the *Mounting Accessory Selector* in our website (http://www.acti.com/mountingselector).
- The above mounting accessories are not included in the package. Contact your sales agents to purchase.

Installation Procedures

This section describes procedures in mounting the camera on a flat surface.

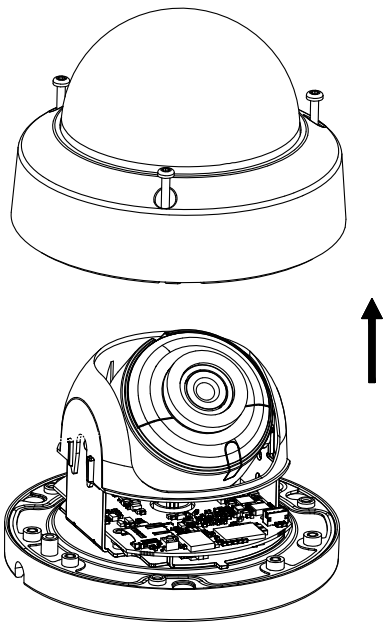
NOTE: The camera images on this documentation are for reference only and may be different from the actual camera.

Step 1: Prepare for Installation

1. Before installing the camera, prepare the additional accessories required for installation.
2. Determine whether the cable will go through a hole on the surface or be routed along the surface. Note also the direction to which the cable will be routed to attach the bundled drill template on the surface according to the direction of the cable.
3. Drill the screw holes. Depending on the material of the surface where the camera will be installed, it may be necessary to drill the three (3) screw holes and use the supplied screw tox.

Step 2: Open the Dome Cover

Loosen the three (3) screws using the bundled wrench then life the dome cover.



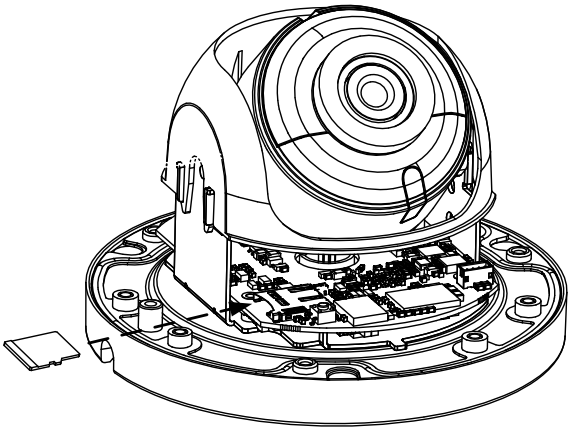
NOTE:

- The dome cover is attached to the camera body by a string; do not abruptly lift the dome cover!

Step 3: Insert the Memory Card

If necessary, insert a memory card into the memory card slot of the camera with the metal contacts facing down the camera. Push the card until it clicks into place.

Once inserted, make sure to access the camera Web Configurator and “mount” the card to prepare the card for local recording. Refer to the camera Firmware User’s Manual for more information.



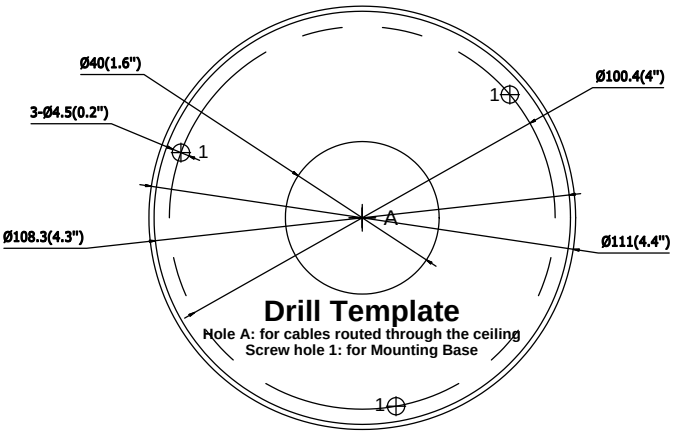
NOTE: In case there is a need to remove the card, make sure to access the camera Web Configurator to safely “unmount” the card first (see the camera Firmware User’s Manual for more information). Once unmounted from the firmware, pull the card from the slot.

Step 4: Route the Cables

Determine whether the cable will pass through a hole on the surface or be routed along the surface:

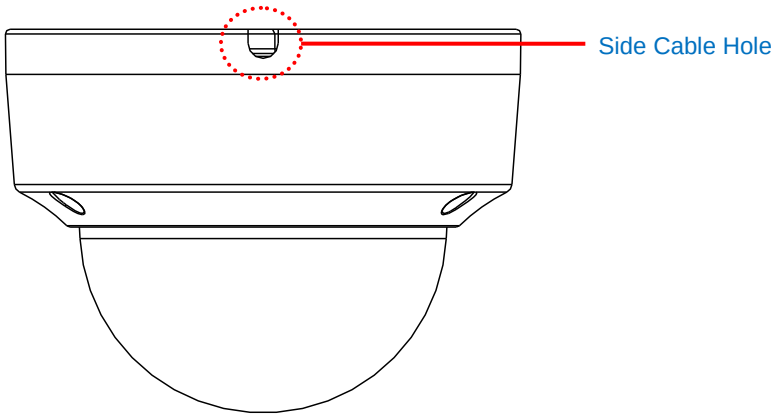
If the cable will pass through a hole on the surface:

1. Drill the hole for the cable on the surface.



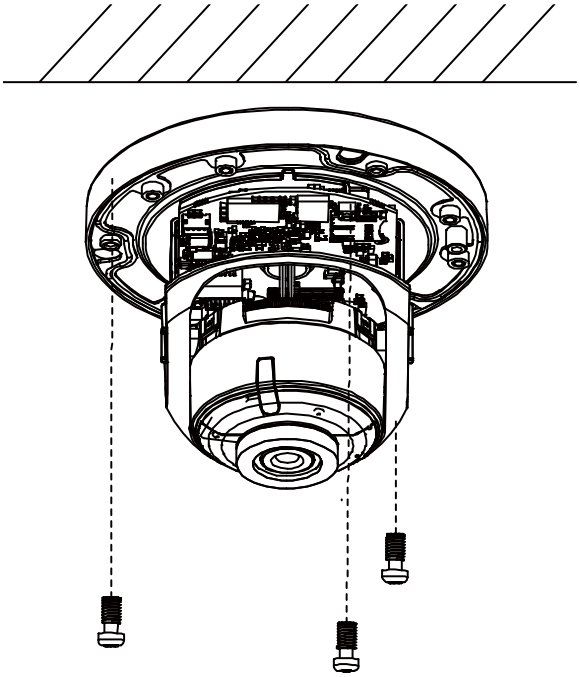
2. Route the cable from the network side and connect it to the Ethernet port of the camera.
   NOTE: If the camera will be installed outdoors or in places wherein environmental factors change drastically, make sure to waterproof the cable connection; see ***Step 6: Connect and Manage the*** Cable on page 16 for instructions.
3. Push the cable through the hole on the surface.
4. Skip to ***Step 5: Mount the Camera*** on page 15.

If the cable will be routed along the surface, route the cable through the gap on the side of the camera.

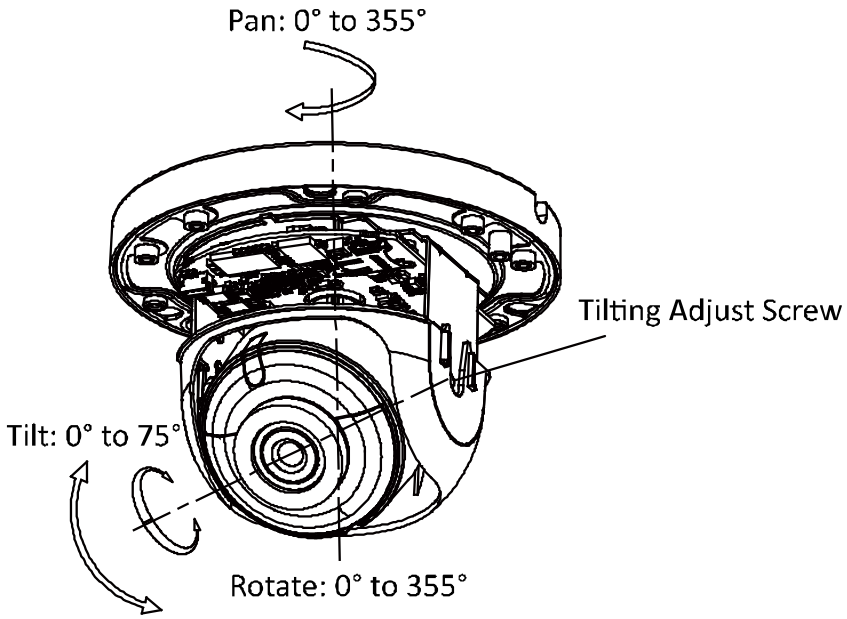


Step 5: Mount the Camera

1. Mount the camera to the surface using the three (3) bundled screws.



2. Adjust the camera tilt angle.



Step 6: Connect and Manage the Cables

The camera and the pre-installed network cable, “pigtail”, are resistant to salt, water, weak acid, alcohol, oil, grease and other common solvents. If the camera will be installed indoors, simply connect the network side cable to the camera Ethernet port.

However, if the camera will be installed outdoors, ensure that the cable connections are protected from different environmental factors. Use the bundled cable gland to protect the Ethernet connection and use a waterproof tape to protect other cable connections. For other cable connections, such as a power adapter and input or output device, see ***Other Cable Connections*** on page 21 for more details.

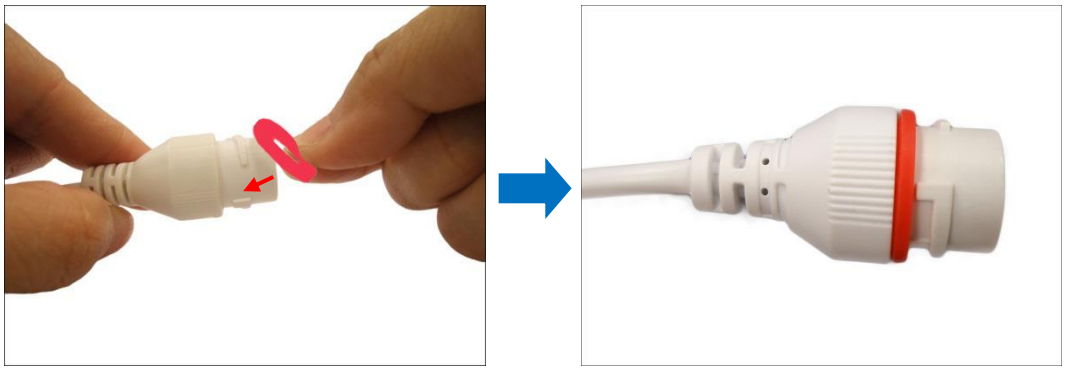
DISCLAIMER: ACTi will not be responsible for camera damage caused by water entering the cable connections.

Using the Cable Gland

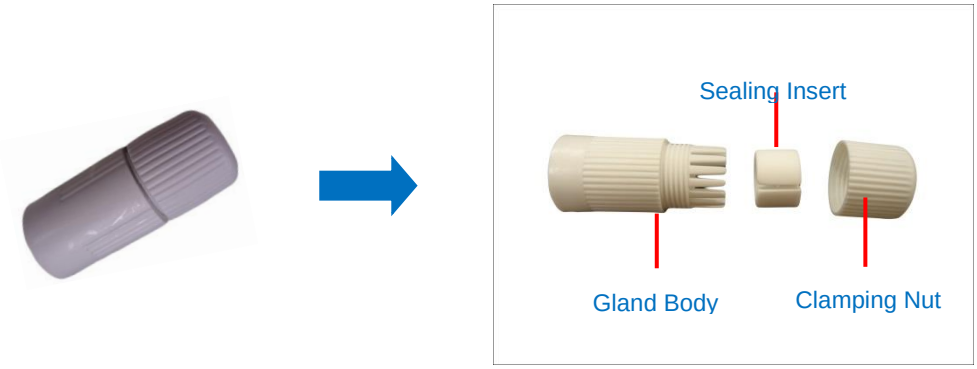
This section describes how to waterproof the cable-out or “pigtail” of the camera using the bundled cable gland. Before connection, prepare an exterior-grade Ethernet cable with RJ-45 connector.

Perform the following to waterproof the “pigtail” using the cable gland:

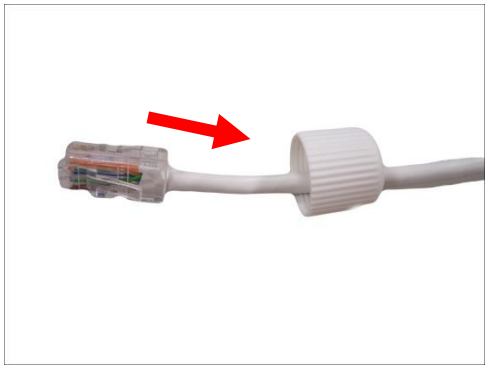
1. Attach the washer to the Ethernet connector of the camera.



2. Detach the clamping nut and sealing insert from the gland body:

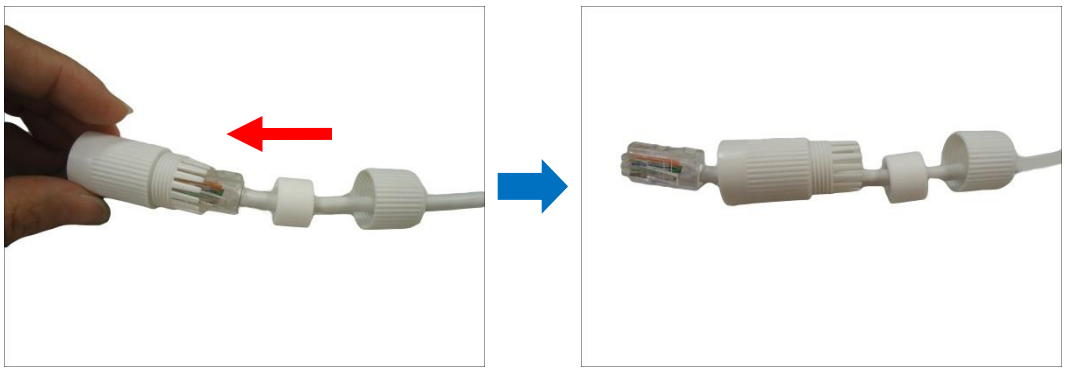


3. Insert the clamping nut into the Ethernet cable.

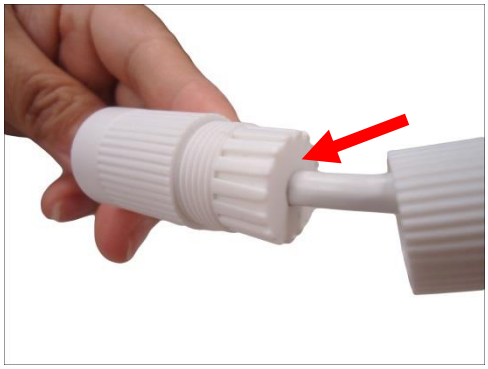


4. Insert the sealing insert through the Ethernet cable.

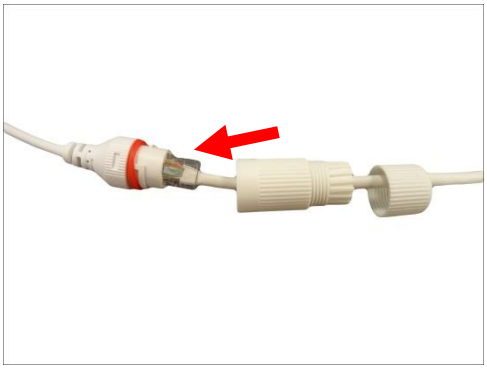
5. Insert the cable through the gland body.



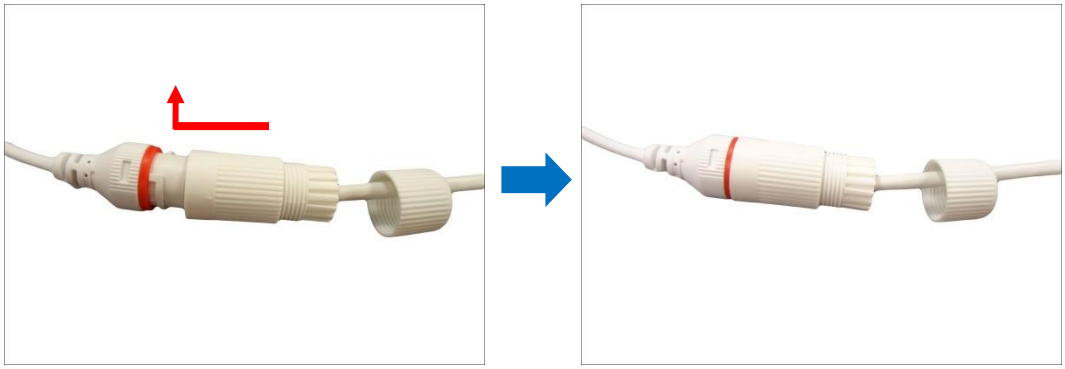
6. Push the sealing insert into the gland body.



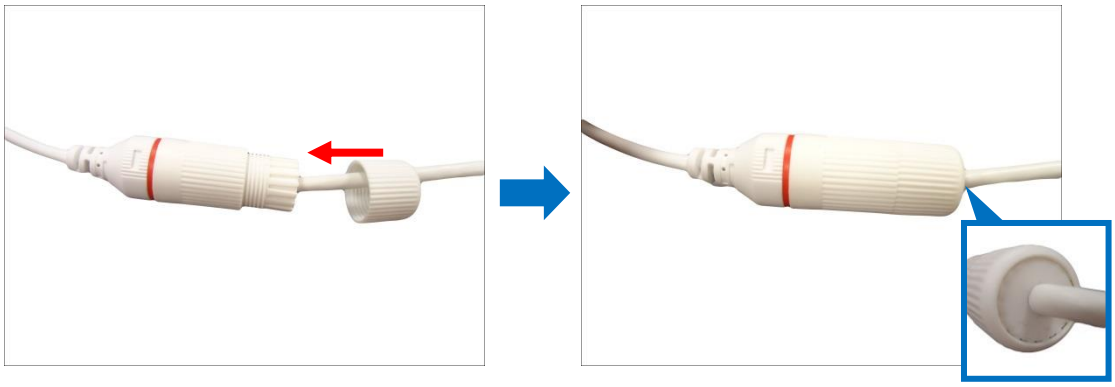
7. Connect the RJ-45 connector to the camera connector.



8. Attach the gland body to the camera connector.



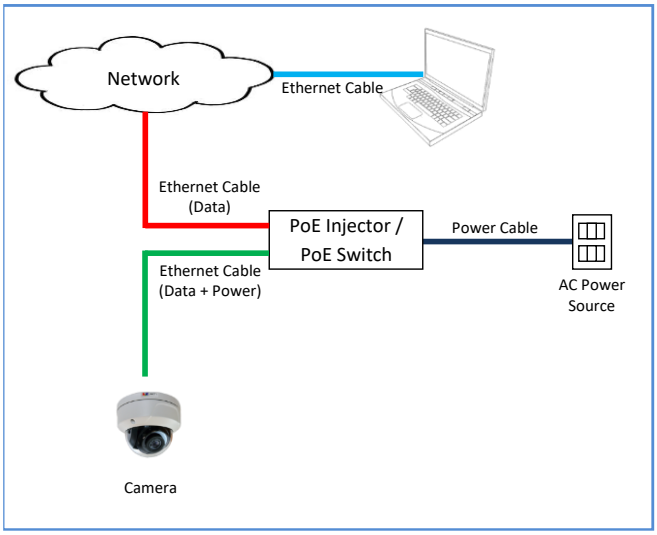
9. Attach the clamping nut to the gland body to complete the cable solution.



NOTE: Make sure the clamping nut is tightly attached to the cable gland body and the sealing insert is squeezed tightly.

Step 7: Connect to Network

Connect the other end of the network cable to a switch or injector. Then, connect the switch or injector to a network or PC and a power source. See Power-over-Ethernet (PoE) example connection diagram below.



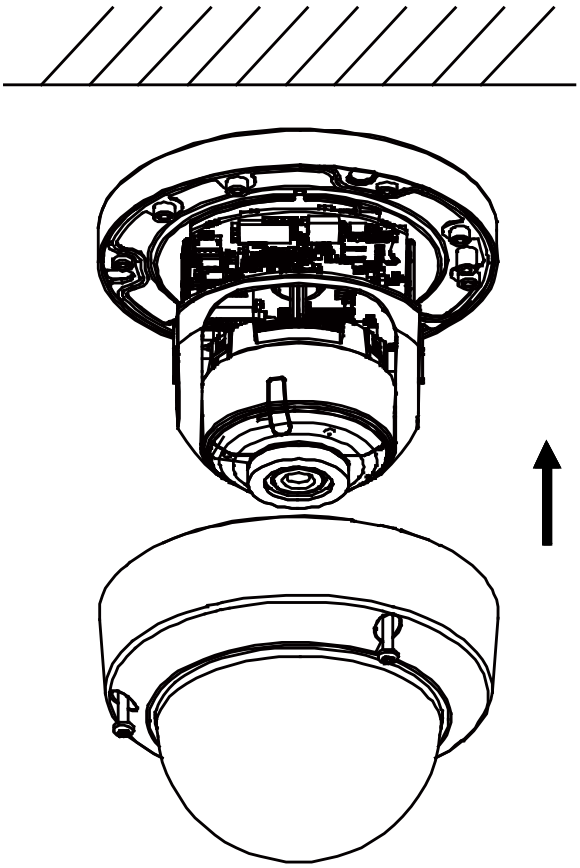
Step 8: Access the Camera Live View

See ***Accessing the Camera*** on page 27 for more information on how to access the Live View of the camera.

Step 9: Adjust the Viewing Angle and Orientation

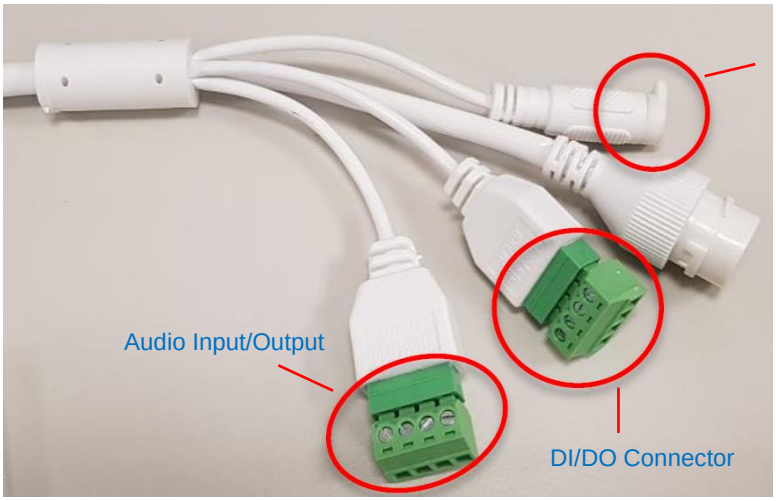
See ***How to Adjust the Viewing Angle and Orientation*** on page 26 for detailed information.

Step 10: Close the Dome Cover



Other Cable Connections

This section describes the procedures in attaching the Ethernet cable connector, preparing and connecting an external power adapter, digital input and output (DI/DO) device, such as alarms, sensors, etc., and audio input and output devices. The use of these devices, however, is optional.



NOTE: If these connectors will not be used, make sure to wrap them with waterproof tape to avoid water or dust from entering the connectors.

How to Connect a Power Adapter (Optional)

The camera can be powered by a Power over Ethernet (PoE) switch that is IEEE802.3af compliant. In case of using a non-PoE switch or your PoE switch has limited power supply, you can purchase a power adapter and directly connect the camera to a power outlet.
After connecting the power adapter, make sure to protect the cable connection.

NOTE: The power adapter is not bundled in the package.

How to Connect DI/DO Device (Optional)

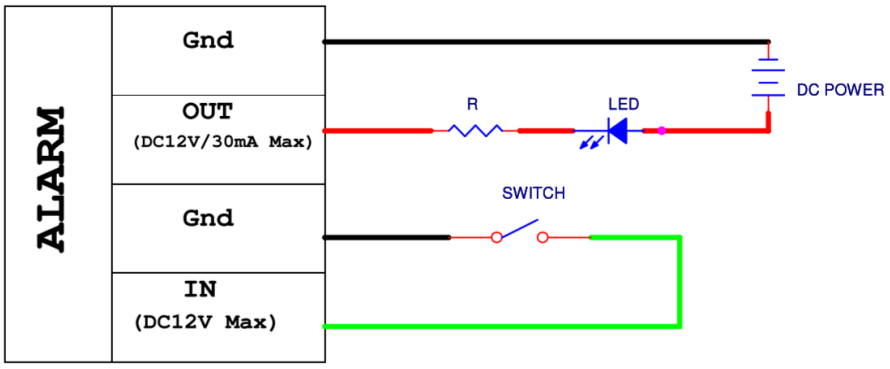
Depending on your surveillance needs, you may connect one digital input and one digital output device to your camera.

Digital Input (DI) devices can be used to notify the camera about an activity in the camera site. DI can be triggers of events. For example, you can connect a “panic button” to the camera; as such when the panic button is pressed, the alarm signal will be sent through the camera. Other common DI device applications are emergency button, smoke detector, passive infrared sensor, etc.

Digital Output (DO) devices are external devices that are activated by the camera upon an event inside the camera. For example, you can connect an “alarm horn” to the camera; as such when an event occurs inside the camera (e.g. detected intruder), the alarm horn will sound. Other common DO device applications are motion-triggered lights, electric fence, magnetic door locks, etc.

Using the cable ALARM connector, loosen the screw and insert the wire through the pin slot, then tighten the screw to secure the wire.

To connect the digital input / output devices, map the pins to the corresponding pin combinations:



The table below shows the DI/DO connection specifications:

Device			
DI (Alarm IN)	Connection design		TTL - compatible logic levels
	Voltage	To trigger (low)	Logic level 0: 0V ~ 0.4V
		To trigger (high)	Logic level 1: 3.1V ~ 12V
DO (Alarm OUT)	Connection design		Transistor (Open Collector)
	Voltage & Current		< 12V DC, < 30mA

After mapping the wires to the terminal block, connect the terminal block to the DIO connector of the camera and make sure to protect the cable connection against water or other environmental factors, such as by using a waterproof tape.

NOTE: For more information on DI/DO connections, please refer to the Knowledge Base article All About Digital Input and Digital Output downloadable from the link below (http://Download.acti.com?id=516).

How to Connect Audio Input /Output Device (Optional)

Audio input / output devices, such as an active microphone or speaker can be connected to the camera using the supplied terminal block which is already connected to the AUDIO cable connector.

Loosen the screw and insert the wire through the pin slot, then tighten the screw to secure the wire.

To connect audio devices, map the pins to one of the pin combinations below:

Device	Pin	Mapping Instructions
Audio Output (OUT)	OUT	Connect the wires of the audio output device to **OUT** and **G** (Ground).
	G	
Audio Input (IN)	IN	Connect the wires of the audio input device to **IN** and **G** (Ground).
	G	

NOTE: For more information about AUDIO in connections, please refer to the Knowledge Base article *How to Use Audio-in of ACTi Cameras*, downloadable from the link below (http://www.acti.com/support/KnowledgeBase/outside/detail.asp?KB_ID=KB20100114003).

DISCLAIMER: ACTi will not be responsible for camera damage due to water leakage caused by improper waterproofing of cables.

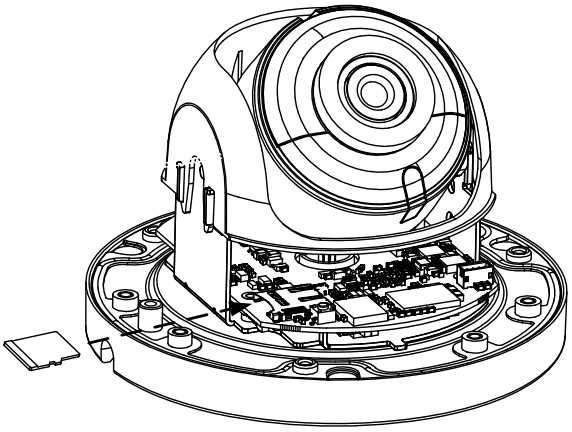
Other Adjustments and Accessories

How to Install / Remove the Memory Card

How to Insert the Memory Card

1. Loosen the three (3) screws to remove the dome cover.

2. Insert the memory card into the card slot with the metal contacts facing the lens.



3. Push the card until it clicks into place.

4. Attach the dome cover to the camera and tighten the three (3) screws.

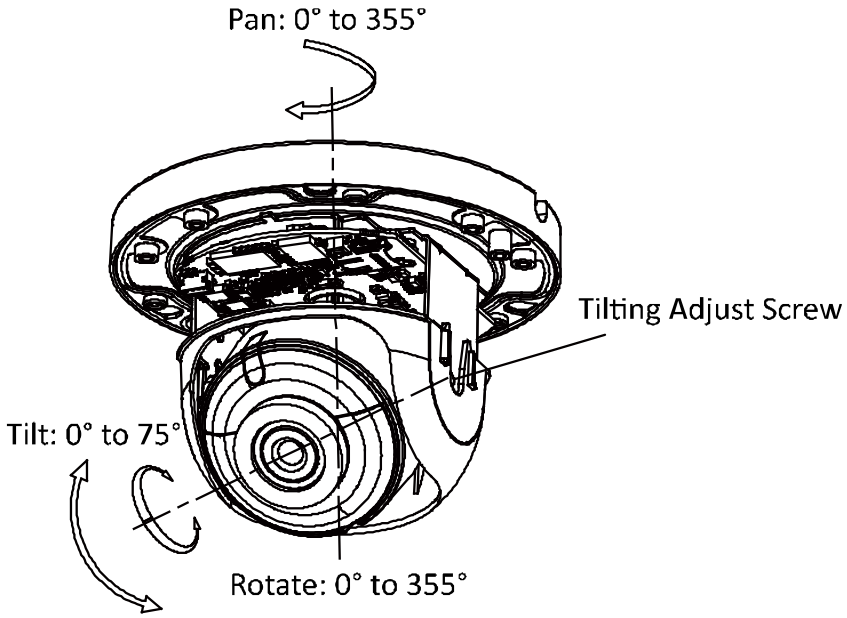
Once inserted, make sure to access the camera Web Configurator and “mount” the card to prepare the card for local recording. Refer to the camera Firmware User’s Manual for more information.

How to Remove the Memory Card

In case there is a need to remove the card, make sure to access the camera Web Configurator to safely “unmount” the card first (see the camera Firmware User’s Manual for more information). Once unmounted from the firmware, pull the card from the slot.

How to Adjust the Viewing Angle and Orientation

Check the camera live view and adjust the viewing angle and pan direction of the camera accordingly.



Accessing the Camera

Configure the IP Addresses

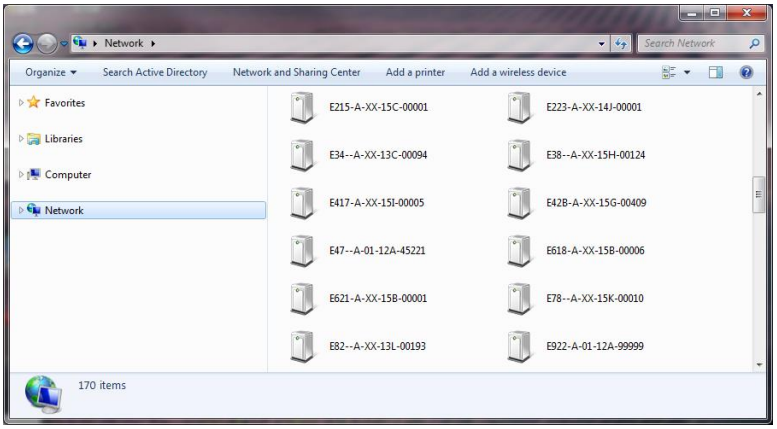
In order to be able to communicate with the camera from your PC, both the camera and the PC have to be within the same network segment. In most cases, it means that they both should have very similar IP addresses, where only the last number of the IP address is different from each other. There are 2 different approaches to IP Address management in Local Area Networks – by DHCP Server or Manually.

Using DHCP Server to Assign IP Addresses

If you have connected the computer and the camera into the network that has a DHCP server running, then you do not need to configure the IP addresses at all – both the camera and the PC would request a unique IP address from DHCP server automatically. In such case, the camera will immediately be ready for the access from the PC. The user, however, might not know the IP address of the camera yet. It is necessary to know the IP address of the camera in other to be able to access it by using a Web browser.

The quickest way to discover the cameras in the network is to use the simplest network search, built in the Windows system – just by pressing the “Network” icon, all the cameras of the local area network that has UPnP enabled will be discovered by Windows.

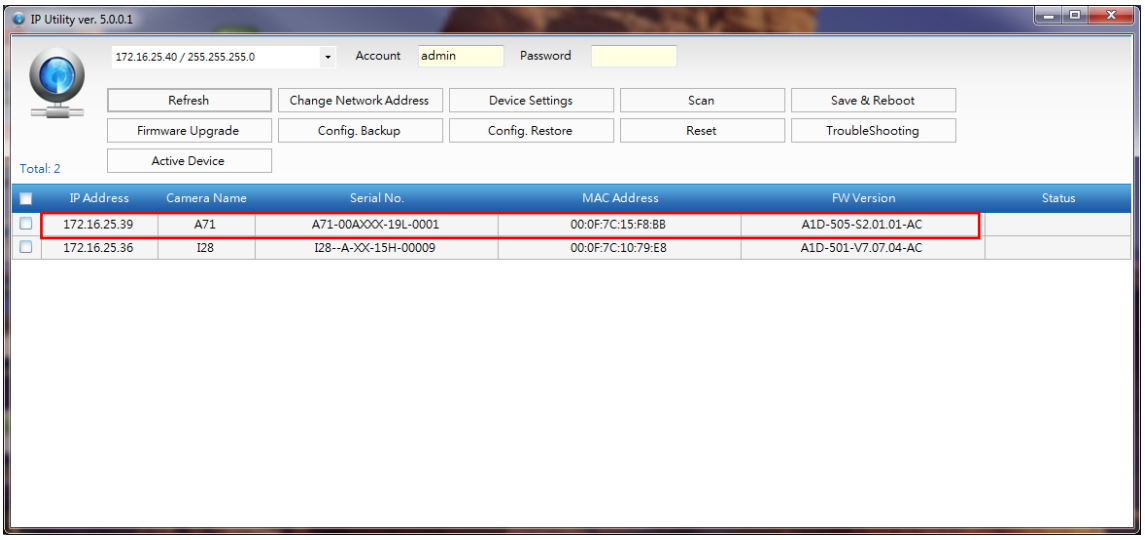
In the example below, we successfully found the camera that we had just connected to the network.



By double-clicking with the left mouse on the camera model, it is possible to automatically launch the default browser of the PC with the IP address of the target camera filled in the address bar of the browser already.

If you work with our cameras regularly, then **there is even a better way to discover the cameras in the network** – by using **IP Utility**. The IP Utility is a light software tool that can not only discover the cameras, but also list lots of valuable information, such as IP and MAC addresses, serial numbers, firmware versions, etc, and allows quick configuration of multiple devices at the same time.

The IP Utility can be downloaded for free from **http://www.acti.com/IP_Utility**
With just one click, you can launch the IP Utility and there will be an instant report as follows:



You can quickly see the camera model in the list. Double-click on the IP address to automatically launch the default browser of the PC with the IP address of the target camera filled in the address bar of the browser already.

Using the Default Camera IP Address

If there is no DHCP server in the given network, the user may have to assign the IP addresses to both PC and camera manually to make sure they are in the same network segment.

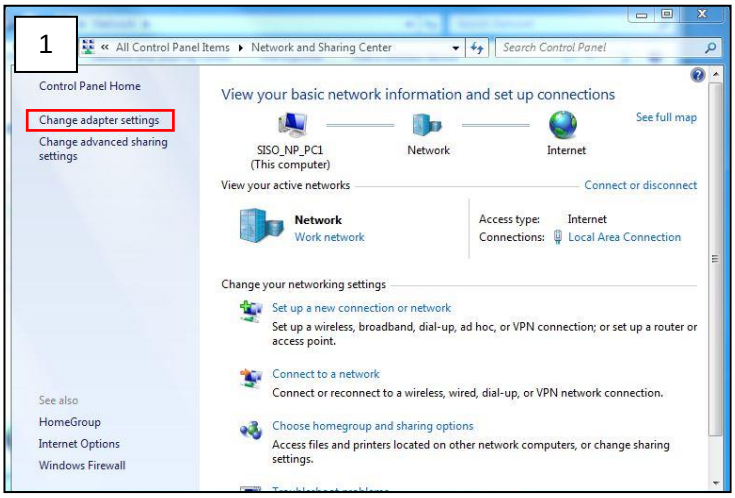
When the camera is plugged into network and it does not detect any DHCP services, it will automatically assign itself a default IP:

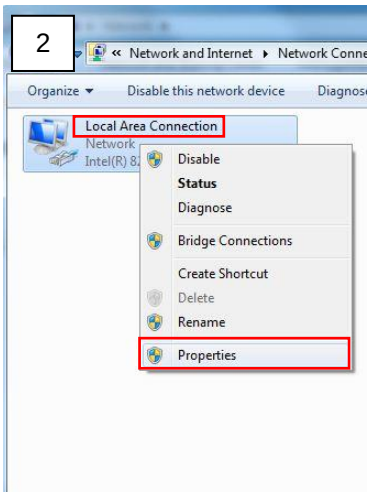
192.168.0.100

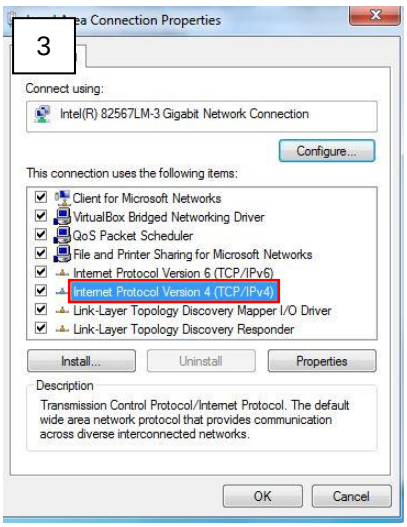
Whereas the default port number would be **80**. In order to access that camera, the IP address of the PC has to be configured to match the network segment of the camera.

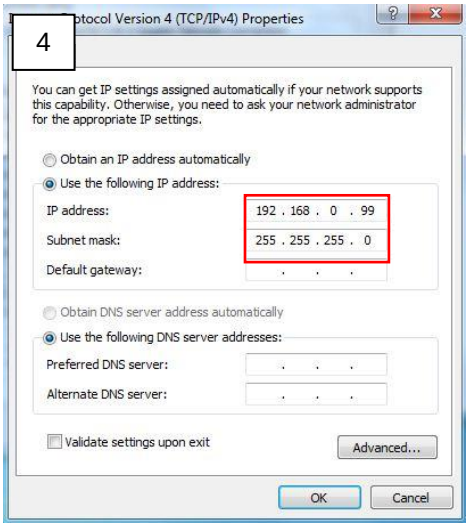
Manually adjust the IP address of the PC:

In the following example, based on Windows 7, we will configure the IP address to **192.168.0.99** and set Subnet Mask to **255.255.255.0** by using the steps below:



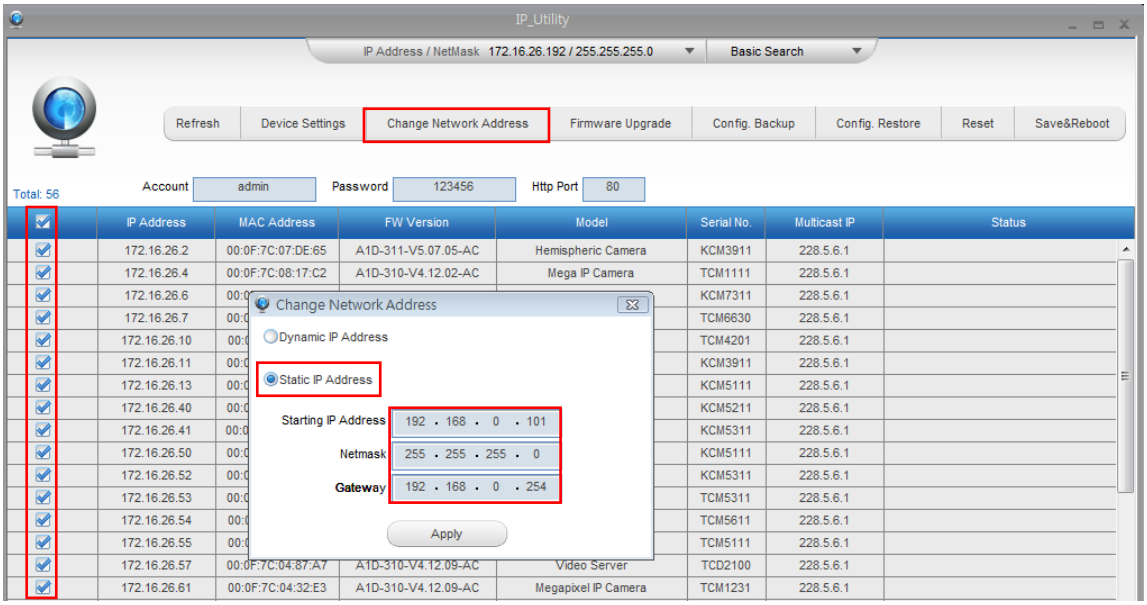






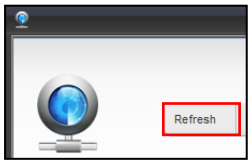
Manually adjust the IP addresses of multiple cameras:

If there are more than 1 camera to be used in the same local area network and there is no DHCP server to assign unique IP addresses to each of them, all of the cameras would then have the initial IP address of **192.168.0.100**, which is not a proper situation for network devices – all the IP addresses have to be different from each other. The easiest way to assign cameras the IP addresses is by using **IP Utility**:



With the procedure shown above, all the cameras will have unique IP addresses, starting from 192.168.0.101. In case there are 20 cameras selected, the last one of the cameras would have the IP 192.168.0.120.

Later, by pressing the “Refresh” button of the IP Utility, you will be able to see the list of cameras with their new IP addresses.



Please note that it is also possible to change the IP addresses manually by using the Web browser. In such case, please plug in only one camera at a time, and change its IP address by using the Web browser before plugging in the next one. This way, the Web browser will not be confused about two devices having the same IP address at the same time.

Access the Camera

Now that the camera and the PC are both having their unique IP addresses and are under the same network segment, it is possible to use the Web browser of the PC to access the camera.

You can use **Microsoft Internet Explorer** to access the camera

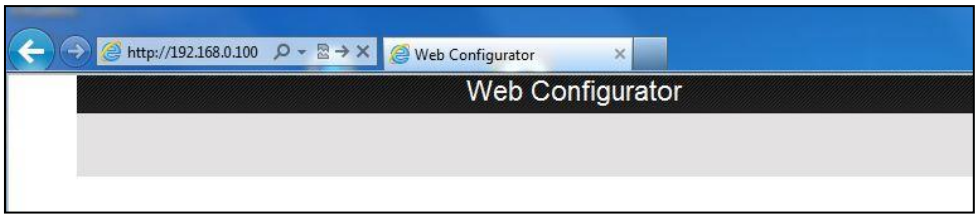
When using Internet Explorer browser, the ActiveX control for video stream management will be downloaded from the camera directly – the user just has to accept the use of such control when prompted so. No other third party utilities are required to be installed in such case.

The following examples in this manual are based on Internet Explorer browser in order to cover all functions of the camera.

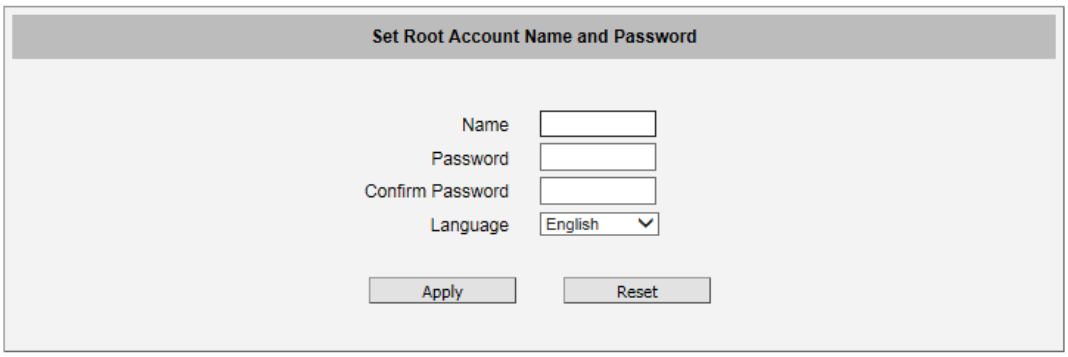
Assuming that the camera's IP address is **192.168.0.100**, you can access it by opening the Web browser and typing the following address into Web browser's address bar:

http://192.168.0.100

Upon successful connection to the camera, the user interface called **Web Configurator** would appear together with the login page. The HTTP port number was not added behind the IP address since the default HTTP port of the camera is 80, which can be omitted from the address for convenience.



Before logging in, you need to setup the root Account and Password of the camera.



Then use this newly setup **Account** and **Password** to login to the Web Configurator.

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