TCM-1231 Series

H.264 Megapixel Outdoor IP IR D/N PoE Bullet Camera

Hardware User's Manual

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ACTi
Connecting Vision

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0. 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.

FCC/CE Regulation

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the users will be required to correct the interference at their own expense.

1. Introduction

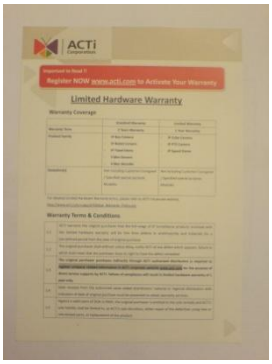
Package Contents

TCM-1231 Series

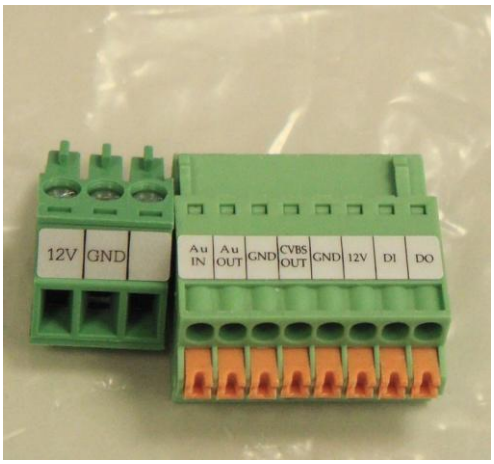
(No Bracket Included)

Product CD

Warranty Card



Terminal Blocks for Power, Audio and DIO



Features and Benefits

This is a cutting-edge digital video surveillance camera. It can compress and transmit real time images with outstanding image quality (18 FPS @ SXGA, 1280x1024) through a standard TCP/IP network. This camera is your best choice to build an intelligent IP surveillance system.

H.264/MPEG-4/MJPEG Triple Codec Dual Streaming

This device supports 3 compression formats, H.264, MPEG-4 and MJPEG. It brings superior image quality at 18 frames per second up to a resolution of SXGA (1280 x 1024) pixels, and offers up to 26 frames per second in HD720 (1280x720). In D1 (720 x 480) / VGA (640 x 480) / QVGA / QQVGA the device reaches 30 frames per second.

Wide Dynamic Range

This IP camera includes a special process that enhances the view in the brightest and darkest areas. This provides for more evenly illuminated image and brings out greater details to the eye.

Built-in Hardware Motion Detection

No more external motion sensors are required. You may assign up to 3 video motion detection areas. By tuning the object size and sensitivity, it will reliably detect objects passing though in view. Hardware motion detection also offers better sensitivity and faster response time than software motion detection.

Powerful Bundled Surveillance Software

To extend the capabilities of the camera, a powerful surveillance program is included in the package for free. Users can easily use an existing PC as a digital video recorder. Scheduled recording and manual recording keep every important video recorded in the local hard disk. Reliable and accurate motion detection with instant warning enables immediate response in every condition. Quick and simple search and playback function lets you easily find the images and video you want.

Software Development Kit Support

This camera can be integrated or controlled by applications from third party software developers. Software developers can save considerable efforts by using our Streaming Library or ActiveX control. Please contact us for details on integration support.

Digital Time Code Embedded

The "Digital Time Code Embedded" function records video time in the video stream. Therefore, each image frame is marked with its original recording time. It is very useful when users want to find the video at an exact time or between a certain time intervals.

Safety Instructions

Don't use the power supply with other voltages

This device is likely to be damaged or damage other equipments / personnel, if you use a power supply with different voltage than the one included with this device. All warranty of this product will be voided in the situations above.

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

Do not use this video product near water, for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool and the like.

Don't use accessories not recommended by the manufacturer

Only install this device and the power supply in a dry place protected from weather

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.

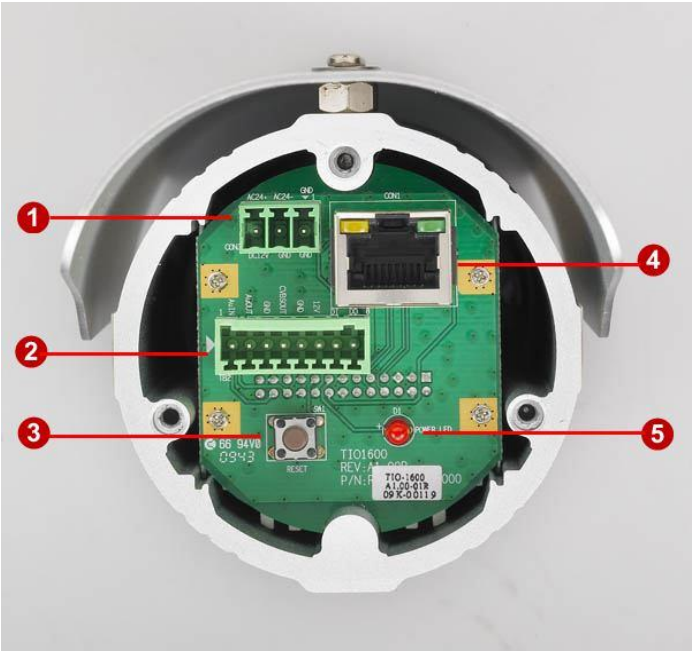
1) When the power-supply cord or plug is damaged
2) If liquid has been spilled, or objects have fallen into the video product.
3) If the video product has been directly exposed to rain or water.
4) If the video product does not operate normally by following the operating Instructions in this manual. 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.

Physical description



1) Power Input

Connect the power adaptor here if your power input is DC12V.

PIN	NAME	DESCRIPTION
1	12V	DC Power Input
2	GND	Ground Pin

This device only supports DC 12V and PoE power input, doesn't support AC 24V.

2) Digital Input / Output & Audio Terminal Connector

This IP Camera supports DI/O & Audio input / output via terminal block.

Used in applications like motion detection, event triggering, time lapse recording, alarm notifications, etc., the I/O terminal connector provides an interface to respective devices. The Terminal Block wiring diagram is as follows:

This camera provides:

•**1 transistor output** - For connecting external devices such as relays and LEDs. Connected devices can be activated by Output buttons on the Live View page or through video management software.

•**1 Digital Input** - An alarm input for connecting devices that can toggle between an open and closed circuit, for example: PIRs, door/window contacts, glass break detectors, etc. The device will detect the change in digital input and transmit the signal to video surveillance servers.

Terminal Pin Define is described as below:

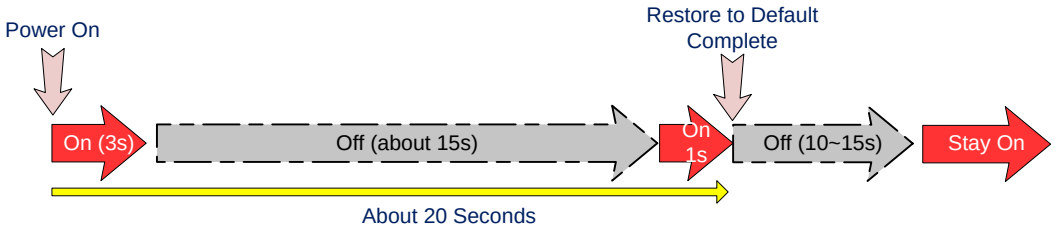
Pin Name	Description	Spec
DO (Transistor Output)	Uses an open-collector NPN transistor with the emitter connected to the GND pin. If used with an external relay, a diode must be connected in parallel with the load, for protection against transient voltages.	Max load = <100mA Max voltage = 24V DC (to the transistor)
DI (Digital Input)	Connect to GND to activate, or leave floating (or unconnected) to deactivate.	Must not be exposed to voltages greater than 30V DC.
DIO PW	Electrically connected in parallel with the connector for the power supply, this pin provides an auxiliary connector for mains power to the unit. This pin can also be used to power auxiliary equipment, with a maximum current of 100mA.	Voltage: 12V DC, Max: 1.2W
DIO GND	Ground	

3) Reset Button

Step 1: Switch off IP device by disconnecting the power cable

Step 2: Press and continue to hold the Reset Button (with a sharp tipped object, like a pen.)

Step 3: ***Reconnect the power cable while continuing to hold the reset button.*** The red Power LED light will flash on for 3 second first, turn off for about 15 seconds, flash on for another second and turn off again. By this time the reset to default operation is already completed. ***This will take around 20 seconds from power up.*** You may then release the reset button. This length of time fluctuates slightly with the environment. The Power LED light will come back on and stay on after a few more seconds. The unit will start up with factory default settings automatically.



4) Ethernet Port

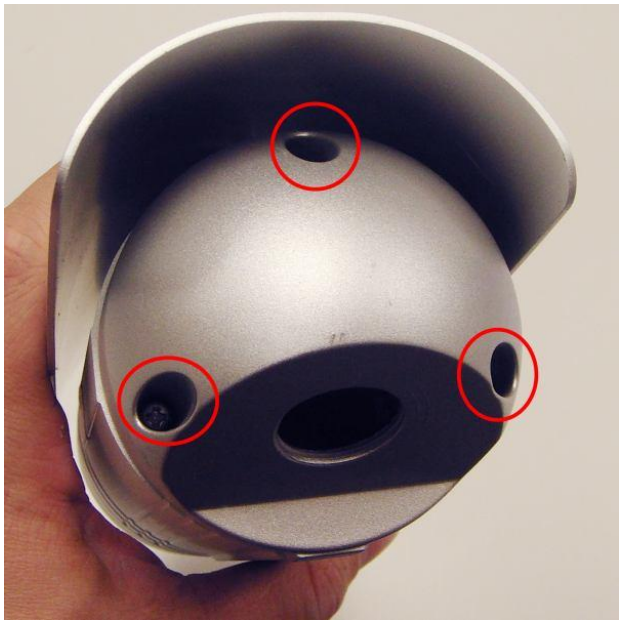
The IP device connects to the Ethernet via a standard RJ45 connector. Supporting NWAY, this IP device can auto detect the speed of local network segment (10Base-T/100Base-TX Ethernet).

5) Power LED Indicator

The LED indicator lights up once the power is turned up. It will light up again when the device is fully booted up.

Preparing for Installation

Remove the back cover by unscrewing the three attachments



Remove the sunshade by unscrewing the two screws

How to Do the Waterproof Installation

The following installation procedure makes the camera be water-resistant even for the situations where the camera can easily be flooded by pouring rain.

The important part to focus on during the installation:

The protection of the cabling has to be done by a proper flex conduit. The size of the flex conduit that matches with the conduit gland is 1/2". Please note that the **conduit gland is included to the package** of the bullet camera.

The following images show the step-by-step procedure of completing the water-proof installation.

1. Disassemble the conduit gland as shown on the photo.

2. Pull the network cable through the flex conduit. Please note that the size of the conduit and the gland is big enough to let the RJ-45 connector pass through all the way.

3. Two pieces from the conduit gland set will be attached to flex conduit first.

4. The third piece goes through the back side cover of the camera.

5. The fourth piece (locking nut) is used to lock the gland firmly from the inside of the back side cover.

6. Pull the network cable through the back side cover of the camera.

7. Connect the flex conduit to the back side cover of the camera.

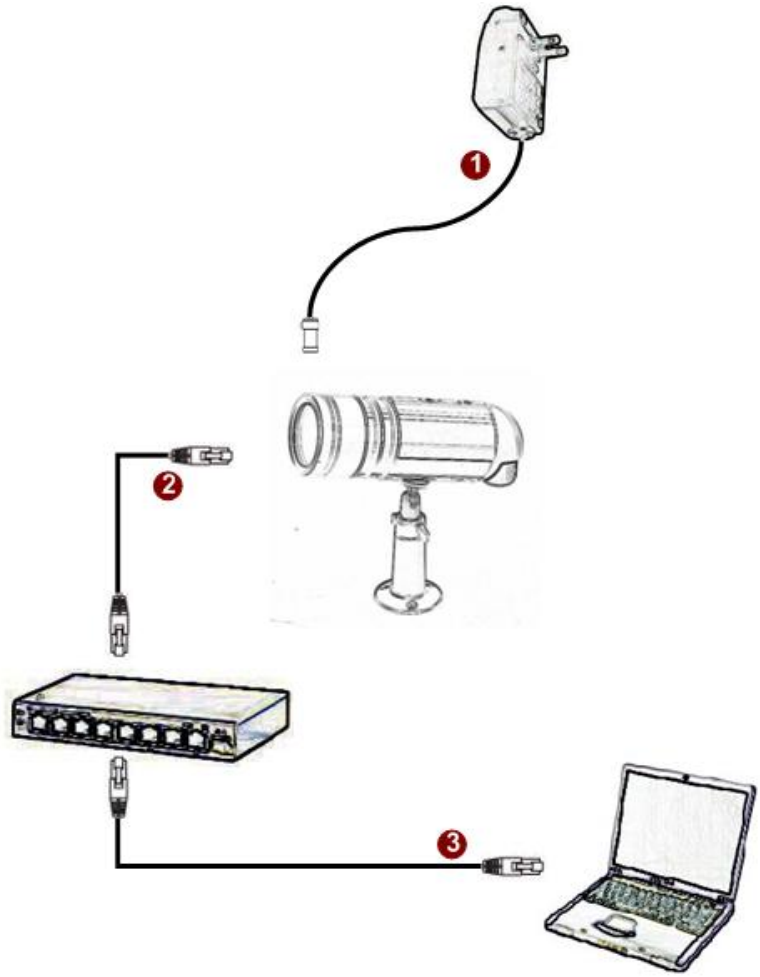
8. Tighten the domed sealing nut.

9. Plug the network cable into the camera's RJ-45 connector before closing the back side of the camera. If you are not using PoE and need an additional power cord then please connect it at this stage, too.

10. Tighten the screws of the back side of the camera properly.

11. Finally, the bullet camera with properly mounted flex conduit as well as with proper outdoor bracket would look like this. The camera is now ready to withstand even the most severe rain storms.

Basic Connections



Follow the procedures below to connect the IP device to the respective apparatuses.

If you have a PoE (Power over Ethernet) supported switch or injector:

1) Connect your IP Camera to the Switch / Injector by CAT5 or CAT6 cables with RJ45 connector.
2) Connect your Switch / Injector to PC with another CAT5 / CAT6 network cable.

If your switch does not support PoE, and you are powering the camera with power adaptor:

1) Connect the power adaptor to IP Camera
2) Connect IP device's Ethernet port to Network switch (via RJ45 connectors).
3) Connect a PC to the Ethernet switch (via RJ45 connectors)

Please refer our PoE Guide for more details on Power over Ethernet related concepts.

Product Specification

		TCM-1231	TCM-1232
Image	Device	Micron Progressive Scan CMOS	
	Size	1/3 inch	
	Effective Pixels	1280(H) x 1024 (V)	
Min. scene Illumination	Color	Color mode automatically switched to B/W mode under 4 Lux	
	B/W	0 Lux (IR LED ON)	
	IR Sensitivity	from 700nm to 1100nm	
	IR LED	IR LED x 24 (850nm)	
	CDS Sensor	Yes	
	IR Working Distance	20~30 M(30 IRE)	
Lens	Lens	f3.3mm~ 12mm/ F1.6	
	Viewing Angle	89.8º ~ 23.9º (Horizontal)	
Synchronization	Sync. System	Internal	
Day/Night functions	Mechanical IR Cut Filter	Yes	
Functions	Motion Detection	Yes (3 Windows)	
	Electronic shutter	1/5 ~ 1/15,000 sec	
	Fixed Shutter (Manual)	1/30 ~ 1/1,000 sec. (60Hz)	
	Flickerless	1/120 sec. (60Hz)	
	BLC	Yes	
	AGC	Automatic (User defined)	
	White Balance	Auto, Indoor1, Indoor2, Outdoor1, Outdoor2, Hold Current, Manual	
	Wide Dynamic Range	Yes	
S/N Ratio	S/N Ratio	Better than 44 dB	
Video Compression	Compression	H.264/ MPEG-4 SP/ MJPEG simultaneous dual streams selectable	
	Picture Resolution	SXGA (1280x1024) HD 720 (1280x720) VGA (640x480) QVGA (320x240) QQVGA (160x112)	
	Bit Rate	28K ~ 6M bps	
	Image Frame Rate	18 fps at SXGA; 26 fps at HD720; 30 fps at VGA, QVGA and QQVGA	
Audio Input	Compression	8kHz, Mono, PCM	
	Audio Line Input	Unbalanced, 1.4Vp-p, 1Vrms, terminal block	
Audio Output	Compression	8kHz, Mono, PCM	
	Audio Line Output	Unbalanced, 1.4Vp-p, 1Vrms, terminal block	
Alarm	Digital Input	1, TTL, Terminal Block	
	Digital Output	1, TTL, Terminal Block	
External I/O	Reset Button	Factory Default	
	LED	System Status	
Casing	IP66 Rated	Weatherproof casing with IP66 standard	
Network	Ethernet	Ethernet(10/100 Base-T), RJ-45 connector	
	Protocol	TCP, UDP, HTTP, HTTPS, DHCP, PPPoE, RTP, RTSP, DNS, DDNS, NTP, ICMP, ARP, IGMP, SMTP, FTP, UPnP, IPv6	
Software	Web Browser	Microsoft Internet Explorer 6.0 or above	
	SDK	ACTi SDK-10000	
	Security	Password Protection: Configured by the Administrator	
Operating	Temperature	-20 ºC ~ 50 ºC (-4 ºF ~ 122 ºF)	
Power	Power Requirement	PoE (IEEE 802.3af) with Class 3	AC 24 V±10%
	Power Consumption	6.96 W (DC 12V) w/ IR LED ON 8.16 W (PoE) w/ IR LED ON	6.96 W (DC 12V) w/ IR LED ON 7.68VA (AC 24V) w/ IR LED ON
Physical	Dimensions (ØxL)	77mm x 220 mm (3.03"x 8.66")	
	Weight	685g (1.51lb), with sunshield	
Approvals	Certificate	CE, FCC, IP66	

2. Accessing Camera

If you have DHCP server / router in your network:

Many network server / routers are able to automatically provide IP addresses through DHCP. If you are using such a network, just plug in your computer and IP Camera into the network and your IP device will acquire network address by itself. Find and access the device with our IP Utility program. You may download it at:

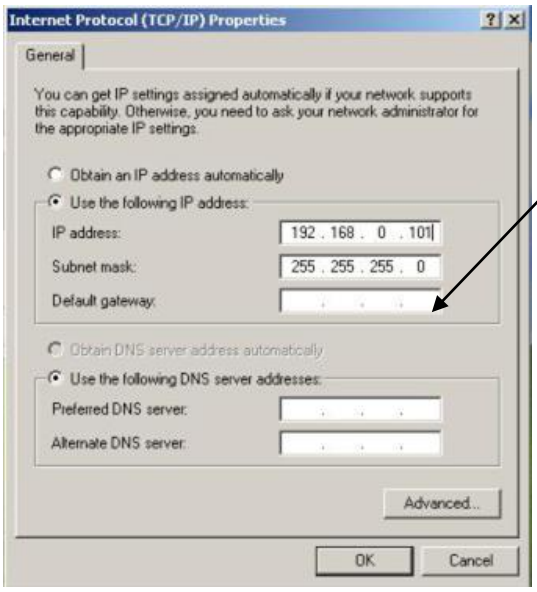
http://www.acti.com/product/detail/Software/ACTi_Utility_Suite

If you do *NOT* have DHCP server / router in your network:

1. Configure your PC to use the same subnet by changing your PC's IP address to the subnet with prefix 192.168.0.XXX. The last number should be anything from 1 to 254 except 100 and other occupied IP addresses. Subnet mask should be 255.555.255.0.

2. **The default IP used by this device is 192.168.0.100. Please make sure your PC is *NOT* using this address and that no two equipments use the same IP address in the network.**

3. Change your IP address by going to Control Panel ->Manage Network Connections -> Right click on the connection to change -> Option -> TCP/IP IPv4 Properties.



Please set the settings as below.

-
- IP address: 192.168. 0.xxx
- Subnet mask: 255.255.255.

0

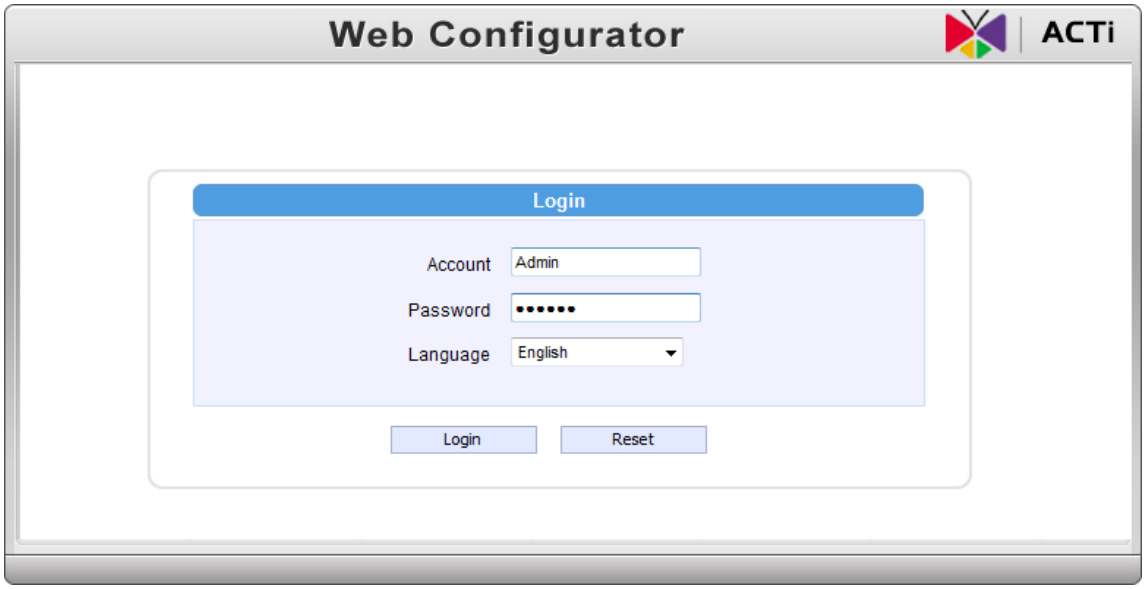
(**NOTE**: xxx should be a number from 1 to 254 except 100, which is used by the IP device. Please also make sure that no two equipments use the same IP address in the

4. Open Internet Explorer (Version 6.0 or above) , and type in the Default IP:

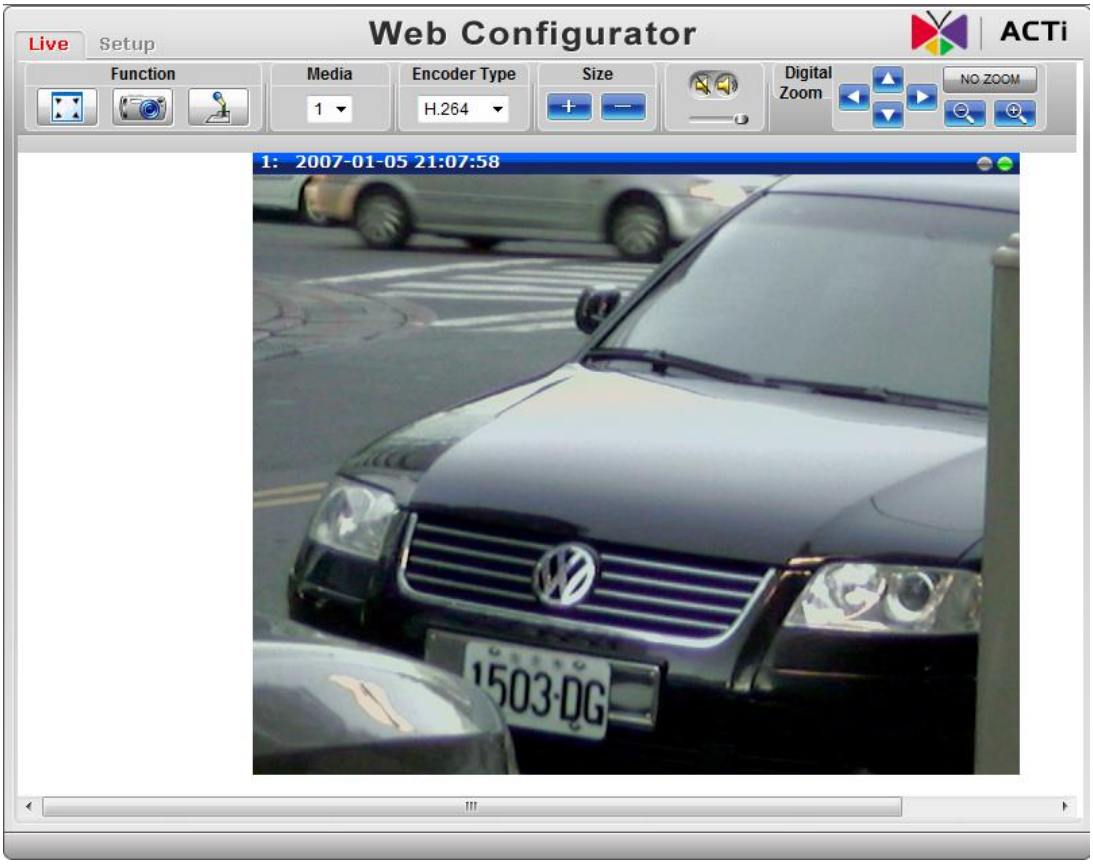
   192.168.0.100

5. When you see the login window, please input default user and password:

   Default User: Admin Password: 123456



6. After logging in, you will see the video from camera. To go to the main menu, click the "Setup" button on the top left.



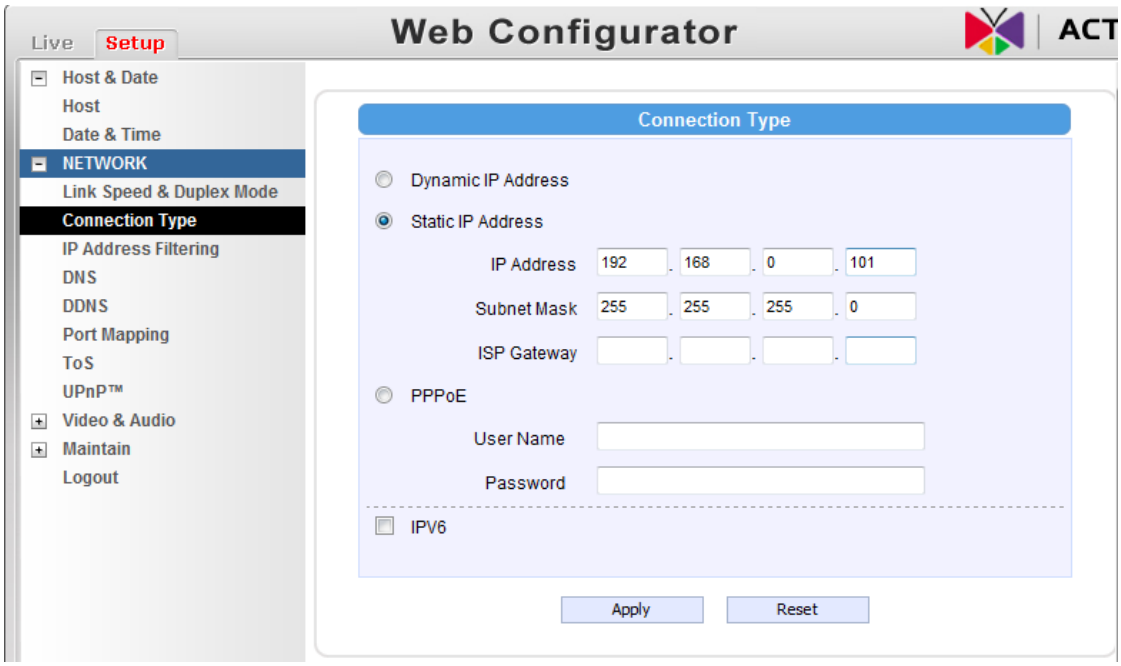
If you are using a single camera, this is enough to access the device.

If you are using multiple devices, you need to change the current device to another unused IP address, so that when the next device is connected to the network, no two devices use the same IP. Please perform the following steps.

7. Go to Network -> Connection Type

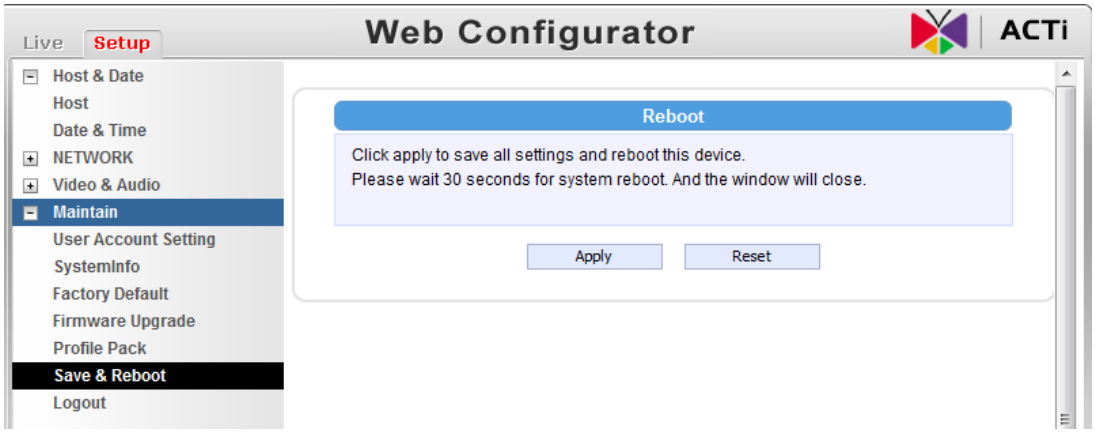
8. Change the IP mode to Static.

9. Change the IP to 192.168.0.101 or any other unused IPs. Do NOT use the PC's IP address or 192.168.0.100.). If this is not the first device you add to the network, please also avoid other devices' IPs.



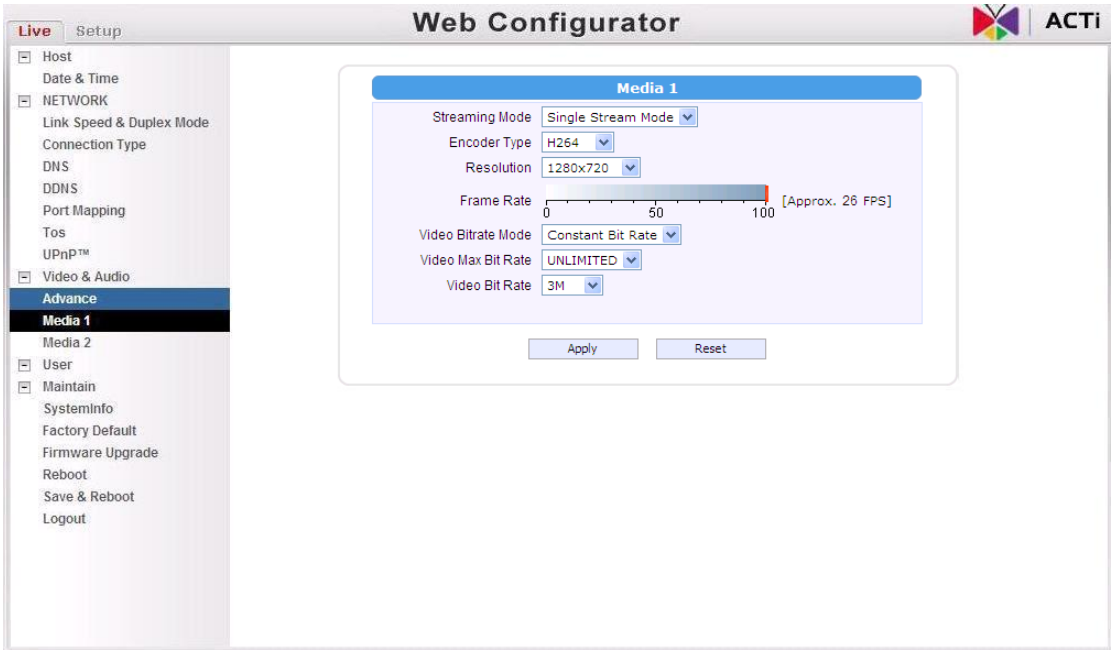
10. Click "Apply"

11. Please go to Maintain -> Save & Reboot, and click "Apply". Internet Explorer will close after a few seconds. This is normal.



12. Wait for 30 seconds, and open IE again to connect to the **new IP**. (In this example, 192.168.0.101). For the second device or more you add into the network, please type the correct IP.

13. Adjust the default Video setting by going to Video & Audio -> Media 1


Live
Setup
Web Configurator
ACTi
Host
Date & Time
NETWORK
Link Speed & Duplex Mode
Connection Type
DNS
DDNS
Port Mapping
Tos
UPnP™
Video & Audio
Advance
Media 1
Media 2
User
Maintain
SystemInfo
Factory Default
Firmware Upgrade
Reboot
Save & Reboot
Logout
Media 1
Streaming Mode
Single Stream Mode
Encoder Type
H264
Resolution
1280x720
Frame Rate
0
50
100
[Approx. 26 FPS]
Video Bitrate Mode
Constant Bit Rate
Video Max Bit Rate
UNLIMITED
Video Bit Rate
3M
Apply
Reset