# iCanView220/220W

## MPEG4 Mini-Dome Network Camera

Full D1 resolution with True De-Interlace Filter produces brilliant, artifact free video. Using state-of-the- art MPEG-4 (video) and synchronized ADPCM (audio) encoding, the iCanView220 affords superior video quality and improved network performance.

The iCanVdiw220 outperforms the competition when compared to other network cameras using still picture encoding technology (i.e. M-JPEG, or Wavelet encoding), or MPEG-4 units using basic encoding technologies.

iCanTek's superior cross bit rate encoding technology, ixBR Control® (iCaNtek Cross Bit Rate), delivers powerful bandwidth control. With ixBR digital video streams more fluidly because the data is encoded and streamed at a constant rate, yet retains all the rich data of variable bit rate encoding!

iCANTEK

## Directions

iCanView220 series network camera are designed for indoor use only. When using iCanView220 outdoors or in an environment that exceeds the limited range, you must separately use a water-resistant case.
Be careful not to cause any physical damage by dropping or throwing the iCanView220 /220W network camera. Especially keep the network camera out of reach from children.

Do not disassemble iCanView220/220W. You will be excluded from After Service when disassembled.

Use only the power adapter provided with the iCanView220/220W.

If you would like to use the iCanView220/220W for security, monitoring, please check the legal regulations within the country.

## 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 in a residential installation. This equipment generate, use 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 and outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

**Caution**

Any changes or modifications in construction of this device which are not explicitly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This appliance and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirements.

Revision History

| Date | Rev No | Description |
|---|---|---|
| Aug. 14, 2006-08-14 | 1.0 | Creation of the document |
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# Table of Contents

# 1. Introduction

### 1.1. Overview

The iCanView220/220W is a state-of-the-art network camera which transmits synchronized video and audio data in real time with D1 resolution at full frame rate. This is possible through MPEG4 CODEC technology, which provides high quality video with highly compressed data streams. The iCanView220/220W can be connected, controlled and monitored from a remote location through an IP connection over internet or intranet. Unlike CCTV or DVR, the iCanView220/220W is easy to install and owner will experience cost and space savings in the installation owing to the state of the art technologies embedded in the system. Based on Embedded Software Solution (Embedded Web Server, Embedded Streaming Server, Network Protocol), the iCanView220/220W ensures unprecedented performance and stability to be an ideal network camera solution for system integration solutions.

iCanView220/220W is offered with standard Ethernet interface while iCanView220/220WW is offered with embedded WiFi solution.

### 1.2. Features of iCanView220/220W

- 1 channel synchronized real time Video/Audio streaming
  **MPEG-4 video, ADPCM audio**.
- Bi-directional audio communication
  Real time audio communication between iCanView220/220W and Client PC
- The viewer assisted **recording and playback functions**.
- 1 Alarm sensor input/1 relay output
- Motion detection – Up to 3 motion detection zones
  Arbitrary shape motion detection zone
  Motion detection can initiate video recording, which is sent to the user through FTP and/or E-mail.
- Resolution
  - NTSC : 704x480, 352x240, 176x144.
  - PAL/SECAM : 704x576, 352x288, 176x144
- RS-485 interface for Pan/Tilt device connection
- Remote administration control
  Entire operational parameter set up, Software upgrade
- Embedded WiFi interface (**iCanVeiw220W** only) – IEEE 802.11a/g
- Proprietary PoE (Power over Ethernet) for convenience of installation and cost savings

### 1.3. Applications of iCanView220/220W

- Security surveillance (buildings, stores, manufacturing facilities, parking lots, banks, government facilities, military, etc.,
- Real time Internet broadcasting
- Remote monitoring (hospitals, kindergartens, traffic, public areas, etc.,)
- Teleconference (Bi-directional audio conference)
- Remote Learning
- Weather and environmental observation

# 2. Product Description

## 2.1. Contents

Open the package and check if you have the followings:

| Components | Description | Remarks |
|---|---|---|
| **iCanView220/220W** | iCanView220/220W Network Camera/Server | |
| **Power adapter** | Input : 100~250V 50-60Hz<br>Output : +12V, 1.0A | Standard Power |
| **AC power cable** | AC 250V, 10A~16A | |
| **Video cable** | Cable for analog video output from camera module inside of network camera | |
| **Antenna** | | iCanView220W only |
| **CD-ROM** | Software & User's Guide | |
| **Quick Reference Guide** | Quick installation guide | Will be provided |

## 2.2. Preview

| iCanView220/220W | IP-Installer | i-NVR |
|---|---|---|
|  |  |  |
| 1CH MPEG-4 Network Camera | PC software to allocate an IP address to the iCanView220/220W | PC software to view and record the A/V streaming data transmitted from iCanView220/220W |

## 2.3. Physical description

### 2.3.1. Switches and Knobs for the adjustment

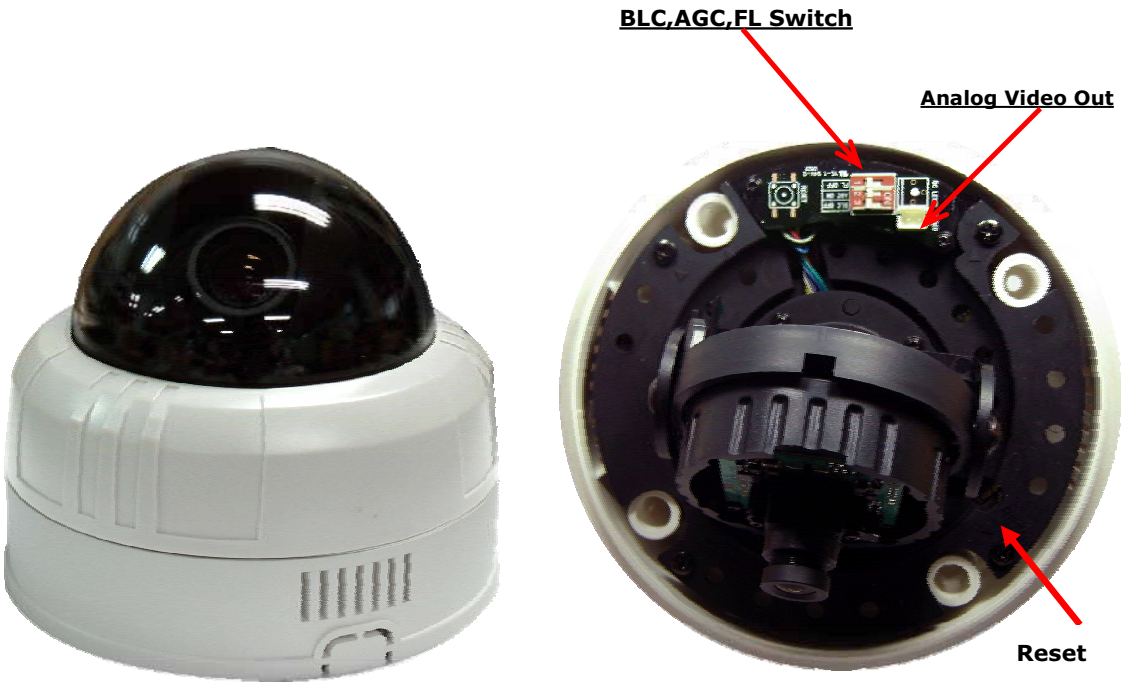


**Figure 2-1. Front view of CanView220/220W**

### 2.3.2. Bottom view and Cable Harness

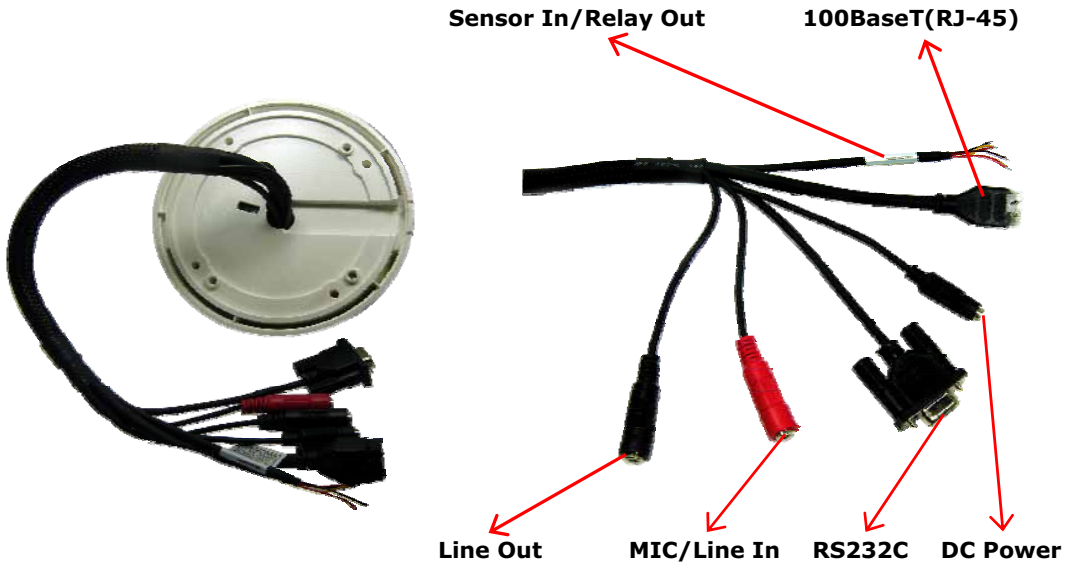


**Figure 2-2. Rear views and Cable of iCanView220/220W**

• **MIC. /LINE In :** Connect external audio source or microphone. If external audio is connected, embedded microphone will be disabled.

Use Standard stereo earphone jack for the connections.


**Figure 2-3. Pin assignment of the plug for MIC/LINE In (left) and LINE OUT (right)**

• **Line Out** : Connect speakers with built in amplifier. Audio from remote site is output through

Line out in bi-directional audio mode.
Use Standard stereo earphone jack for the connection.

• **100BaseT (RJ45)** : 100Mbps Ethernet connector (RJ-45) with proprietary PoE.
- Link LED : Continuous yellow light means that network cable is plugged in. It will flicker when there is traffic.
- Status LED: Green color indicates that the camera is in normal operation mode, while RED color indicates that the camera is in abnormal condition.

• **RS-232C**

3 Pins from the connector are assigned for RS-232 port. Please note that the bottom most pin is numbered as 1.

| Pin | Description | Misc. |
|---|---|---|
| 2 | TxD of RS-232C | For debugging & factory use only. |
| 3 | RxD of RS-232C | For debugging & factory use only. |
| 5 | Ground of RS-232C | For debugging & factory use only. |

• **Analog Video Output**

This can be used for installing network camera and adjust the viewing angle etc.,
A video cable which is supplied with network camera is used to get the analog video signal from the camera module and to output to analog monitor.


**Figure 2-4. Analog Video Cable**

• **BLC -** BLC(역광보정기능)

Back Light Compensation의 준말로서 역광의 단점을 극복하기 위한 기능
피사체가 역광상태 하에서 촬영될 경우 모니터에 재생 시, 배경은 밝고 피사체는 어둡게 되어 피사체가 식별불능 상태가 되는 것을 방지하기 위하여 대두된 기능으로, 한마디로 역광상태의 화질을 개선시키기 위하여 사용되는 기

능을 말한다.

- **AGC -** AGC는 Automatic Gain Contol, 즉 자동이득조정을 말하며 규정을 오버한 강한 레벨의 신호가 입력 됐을 시에는 Gain(필름의 감도와 같은 의미)을 제어하여 신호포화를 방지하고, 약한 신호의 경우에는 규정의 레벨까지 올려서 일정의 레벨을 유지하는 역할을 수행한다.
- **FL –** Flicker(플리커) 사람의 눈은 명암의 반복 주파수가 작으면 눈에 반짝반짝 어른거리는 형상을 느끼게 되는데, 이것을 플리커라 하고 주위의 밝기가 밝을 수록 같은 명암의 반복 주파수에서도 플리커를 느낀다. NTSC방식의 텔레비젼에서는 이 플리커를 피하기 위해 필드 주파수를 60Hz와 형광등의 전원 주파수 50Hz의 차인 10Hz의 어른거림이 플리커로 감지된다. 이 플리커를 피하기 위해 CCTV카메라는 1/100초의 전자 셔터 기능을 사용한다.
- **DC Power**

  Power input of iCanView220/220W. **DC 7-23V, 1A**

  Do not apply power through this power input when power is applied through LAN cable using proprietary PoE.

- **Sensor In/Relay Out :** used for connecting sensor, and alarm devices to iCanView220/220W. Note that the each signal is differentiated by color of cable.

| Cable color | Description | Misc. |
|---|---|---|
| **red** | Sensor In (-) | NC/NO selectable in admin mode. |
| **black** | Sensor In (+) | NC/NO selectable in admin mode. |
| **orange** | Relay out | Normal close |
| **brown** | Relay out | Common |
| **yellow** | Relay out | Normal open |

  - Sensor Input : Connect external alarm sensors such as the infrared sensors, heat sensor, magnetic sensors, etc. NC/NO selectable in the admin page.
  - Alarm Output : It is used for connecting external alarm generators such as sirens, flashing light, etc. When activated, relay output configures a closed circuit.

  Please refer to Section 6.1 for more detailed description on the Alarm In/Out connections.

- **Reset :** There is a factory default switch provided for returning the network camera to factory default state. Press the switch through a tiny hole at the left of the 100BaseT connector using tools with sharp tip for a few seconds while power is applied.

- **Antenna Connector(for iCanView220W only)**

Connector for connecting 3dBi antenna supplied with I CanView220/220W. Antenna connector is located at inside of the network camera.

### 2.4. PC Requirements

AV streaming data received from iCanView220/220W can be decoded or stored in a PC running i-NVR program which is a viewing & recording program for a PC. Minimum requirement of the PC is described below:

| | Minimum | Recommended |
|---|---|---|
| CPU | Pentium III 700 | Pentium IV 1.2G above |
| Main Memory | 128 MB | 256MB above |
| Operating system* | Windows 2000 or later | Windows 2000 or later |
| Web browser | Internet Explorer 5.0 | Internet Explorer 5.0 above |
| Resolution | 1,024 X 768 | Higher than 1,024 X 768 |
| Network | 10 Base-T Ethernet | 100 Base-T Ethernet |

* Operating Systems supported : Windows 2000 Professional
Windows XP Professional / Windows XP Home Edition

### 2.5 Quick Installation Guide

Brief information for rapid installation is provided in this section. For more detailed information you are recommended to refer to pertinent documentations provided with the product or refer to iCanTek's home page **(http://www.icantek.com)**

1. **Connect iCanView220/220W to LAN by using one of the following methods**

   1) If you have power adaptor and PoE injector, connect the network camera and PC as illustrated in Figure 2.5. Both power and network connection is made with a single LAN cable.

   2) If you have power adaptor with PoE, connect the network camera and PC as illustrated in Figure 2.6. Both power and network connection is made with a single LAN cable.

   - The propriety PoE (Power over Ethernet) adds convenience in installing the network

camera by providing both power and LAN connection using single LAN cabling.

3) If you have standard power connect the network camera and PC as illustrated in Figure 2.7.

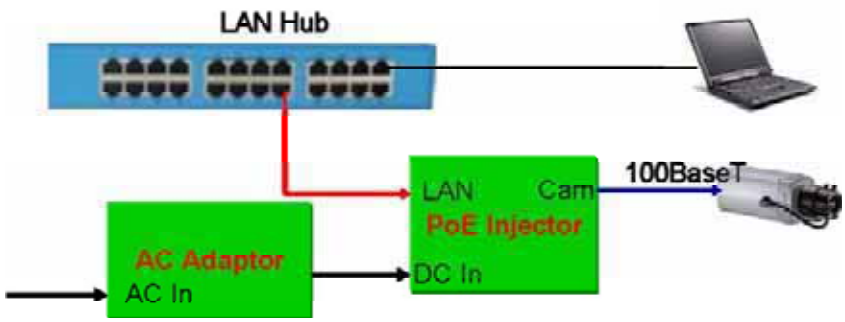


**Figure 2-5. Connecting Network camera and PC using PoE Injector**

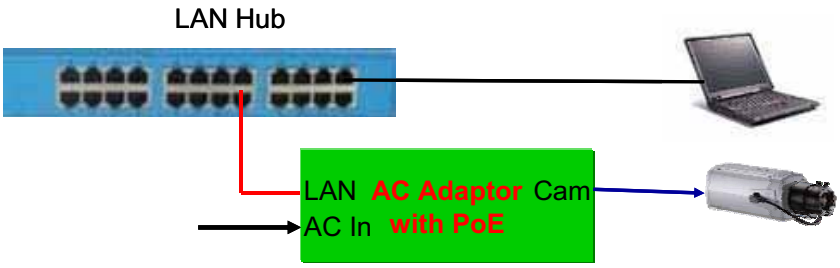


**Figure 2-6. Connecting Network camera and PC using PoE Adaptor**

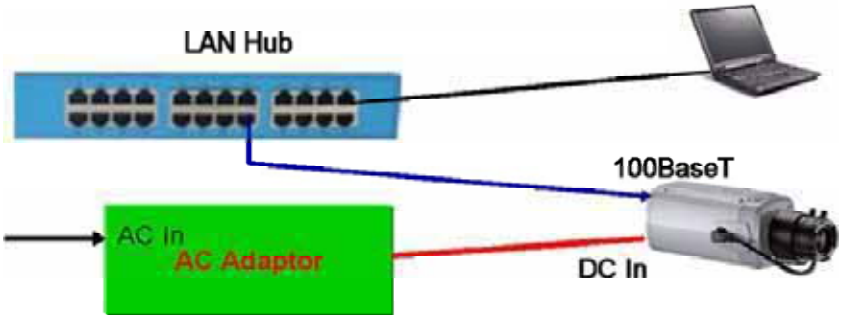


**Figure 2-7. Connecting Network camera and PC without using PoE**

**<Caution>: The products of iCantek does not support standard PoE. Do not**

**connect the network camera directly to a hub supporting standard PoE. iCantek assumes no responsibility for the damages caused by use of standard PoE device with iCanTek's products.**

2. **Apply power to iCanView220/220W**

3. **Install "IP installer" and "i-NVR" on your PC.**
   Detailed information for installing these programs can be found in **[IP-Installer User's Guide]** and **[i-NVR User's Guide],** respectively.

4. **Assign IP address to iCanView220/220W using IP installer.**
   Identify the type of the network environment and set up IP address. Detailed process of setting up IP address can be found in **[IP-Installer User's Guide]**. If network type is xDSL or Cable modem you need supplementary information provided by your ISP.

5. **Connect to iCanView220/220W in Administrator Mode for initial parameter set-up.**
   All parameters are set to factory default state when iCanView220/220W is delivered. You are asked to configure the system for your environment in administration mode. Detailed information of using administration mode can be found in **[5. Configuring iCanView220/220W in Administrative Mode]**. Among the parameters, the parameters in the following table should be set-up with proper values. Detailed information for the parameters in Administrator Mode is found in **[5. Configuring iCanView220/220W in Administrative Mode]**
   **[Note]: Set-up values are preserved even the power is turned off.**

| Page | Parameter | Setup value | Factory default value |
|---|---|---|---|
| Basic Setup | Video Size | Set the resolution of the video transmitted from iCanView220/220W. | Make sure that you press Check button to find out the number of maximum possible simultaneous users then set the number of users smaller than or equal to the number. |
| | Max Upload Rate | Set this value smaller than the upload speed of your network. | |
| | Frame Rate | The number of frames to be transmitted per second. | |
| | Video Rate | Bandwidth assigned for video transmitted from iCanView220/220W. | |
| User Admin & Time | Administrator name & | For safety, you are recommended to change these values from factory | Default value<br>User name : root |

| | | | |
|---|---|---|---|
| Setup | password | default. For new connection, you need to input changed values for corresponding fields. Do not disclose these values to others and memorize these values. | Password : dw2001 |
| User Admin & Time Setup | Current Time | Input correct time in this field. | Default value : 2001/1/1 |

**6. Connect the input and output signals to iCanView220/220W.**

| Connectors | Function | Signal description | Number |
|---|---|---|---|
| **LINE-In/MIC** | Audio in | Connect microphone or output from audio devices. | 1 |
| **Line Out** | Audio out for speaker | Audio from remote site is available from this connector in bi-directional audio mode. Connect speaker with amplifier. | 1 |
| **Sensor In /Alarm Out** | Connecting Alarm Sensor | IR sensor, Motion Sensor, Smoke Detector… | 1 |
| | Connecting Alarm annunciating device | Siren, Flashing Light, … | 1 |
| **100Base-T** | Network connection | Connect iCanView220/220W to the network, LAN, ADSL or Cable modem. | 1 |
| **DC Power** | | Apply DC Power to network camera | 1 |

**7. Remote video connection to iCanView220/220W**

Run i-NVR on your PC. Before connecting to iCanView220/220W it is needed to configure the connection information on the i-NVR. More detailed information of using "i-NVR" can be found in [i-NVR User's Guide].

# 3. Connecting iCanView220/220W to Network

iCanView220/220W supports LAN, xDSL, and Cable modem. It also supports shared IP environment where single IP address is shared by at least 2 IP devices. Refer to **[IP-Installer User's Guide]** for details of setting the IP address for iCanView220/220W.

### 3.1. Connecting to LAN

In case of connecting the iCanView220/220W to LAN, it is generally connected as in Figure 3-1.

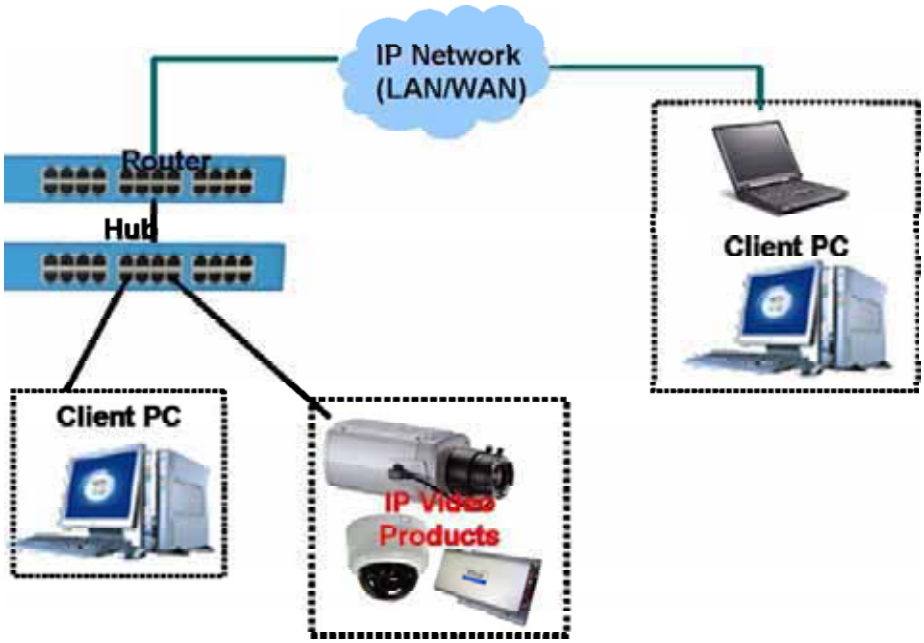


**Figure 3-1. Connecting the iCanView220/220W to LAN**

1. Follow through steps 1 to 4 in Section 2.5 to assign IP address to iCanView220/220W.
2. Install iCanView220/220W and connect it to desired LAN.
3. Check if you can receive video data when connecting to iCanView220/220W using the viewer program.
4. When one or more IP video products are connected through a IP sharing device (i.e. router) to a larger network (i.e. the internet), in order to access each unit from outside the local area network, each device must have a unique RTSP (Real Time Stream Protocol) and HTTP port number. You must also configure your IP sharing device for port forwarding, so that each port, when accessed

on the IP sharing device, will forward to the appropriate device's IP address. If you only plan to access multiple units from within a local area network, you do not need to change the RTSP and HTTP port numbers, unless other IP sharing devices sit in-between the client and the IP video products. For more detailed information regarding the use of IP sharing device refer to the document **[Use of Private IP network using IP-sharing-device]**.

### 3.2. Connecting to xDSL/Cable Modem

1. Follow through steps 1 to 4 in Section 2.5 to assign IP address and other network parameters to iCanView220/220W.
2. Install iCanView220/220W and connect it to xDSL or Cable modem as in Figure 3-2.

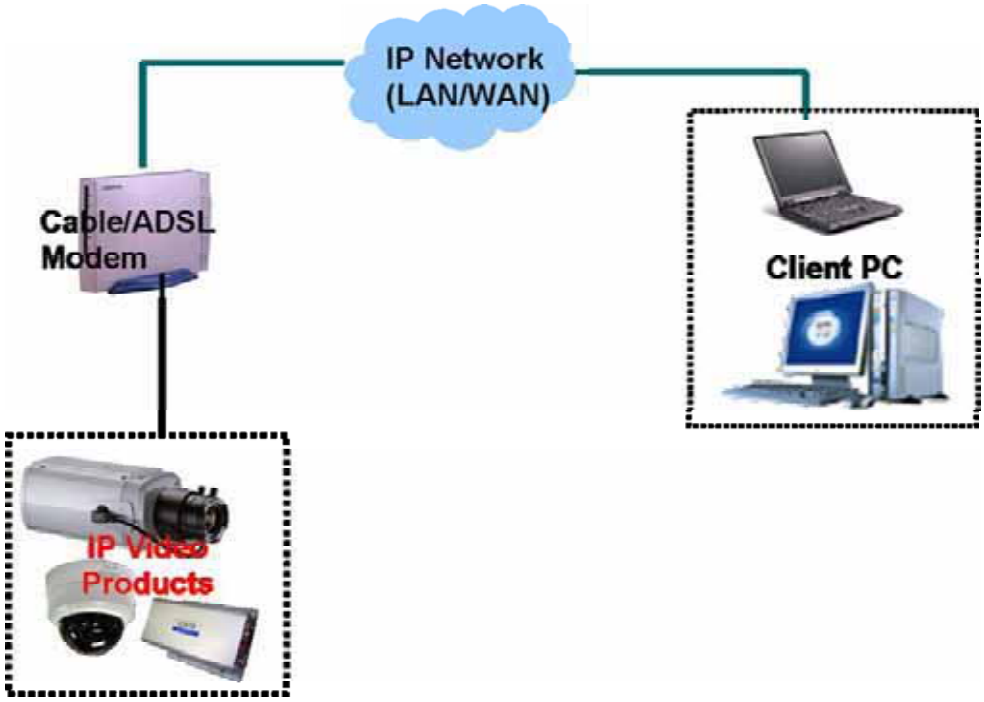


**Figure 3-2. Connecting the iCanView220/220W to ADSL Modem**

When fixed IP address is assigned to the xDSL or Cable modem, follow the same way as assigning IP address for the case of LAN using IP-installer. To enable the notification of the changed IP address to the user over e-mail when the IP address is changed in floating IP environment, you have to assign the e-mail address when user name and password are

input using IP-installer. **(Management server provides a convenient way of connecting to your network camera under dynamic IP environment. Please refer to the Application note regarding "Management Server" in the CD.)**

**When connecting iCanView220/220W to xDSL or Cable modem, usually regular LAN cable is required. But since some modems have crossover connections, please contact your service provider for detailed information.**

# 4. IP-Installer

iCanView220/220W needs IP network parameters for connection to the network(Internet/Intranet). IP-Installer is a PC program for the initial network configuration to IP video products such as Network Camera or A/V Server. IP-Installer is provided in a CD supplied with iCanView220/220W or it can be downloaded from "**www.icantek.com**".

**Detailed information of Installing and running IP-installer can be found in [IP-installer user's guide]**

### 4.1. Main window of IP-Installer

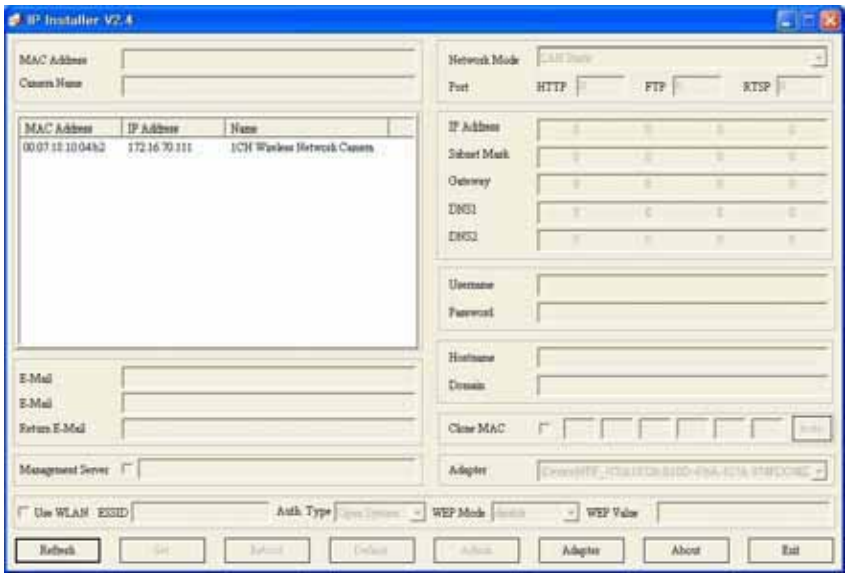


**Figure 4-1. IP Installer**

All the basic network parameters needed for the initial connection to IP video products can be assigned by IP-Installer. Once the basic parameters are assigned and the initial connection is successfully made, you can connect to the administration page for more sophisticated control of the network parameters and other operational parameters. Refer to Chapter 5 for more details of the administration page.

# 5. Configuring iCanView220/220W in Administrative Mode

### 5.1. Log On

There are 2 ways of connecting to iCanView220/220W administrative mode. One is through Internet Explorer and the other is through "**i-NVR**" program.

**1. Using Internet Explorer**

Type in the connection address of the network camera in the address window of the Internet Explorer as followings:

http://[iCanView220/220W IP address]/admin.htm

**Example: http://172.16.64.133/admin.htm**

If you changed the HTTP port from default value you can login by typing in:

http://[iCanView220/220W IP address]:[HTTP port]/admin.htm

**Example: http://172.16.64.133:8080/admin.htm**

**2. Log on from "i-NVR"**

Select video channel in the viewing window of "**i-NVR**". Selected video channel will be highlighted. Click  button on the right side of the display screen.

**Figure 5-1. Select display channel and click "Camera Admin" button for Log on to administrative mode from "i-NVR"**