TV-PC350

USB Digital Video Camera

User's Guide
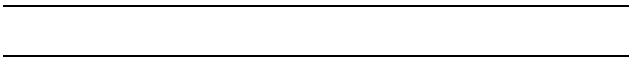
Model TV-PC350

Table of Contents

Appendix: Microphone Installation

                 Video Conference Glossary

Overview

Thank you for purchasing the USB Digital Video Camera. This high performance PC camera imbedded with video compression engine inside and push the video transmission through USB interface to the limit. A choice of high resolution sensor provides sharpest image quality, you will never too late to enjoy the pleasure of video applications in your PC with this USB Digital Video Camera. Following is the installation guide for running USB Digital Video Camera in Windows environment for the first time.

System requirement

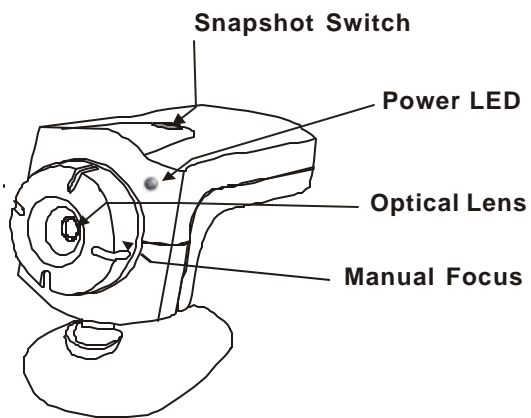Pentium 133 or above CPU, Pentium II 350 recommended

32 MB of system RAM

One USB port

Microsoft Windows 98 or above

20MB hard disk space

Camera Diagram

Snapshot Switch

Power LED

Optical Lens

Manual Focus

Hardware installation

To plug in the USB cable of PC camera into the USB port in the PC
or any USB hub attached to the PC.

Note:

The Add New Hardware Wizard will start automatically once the
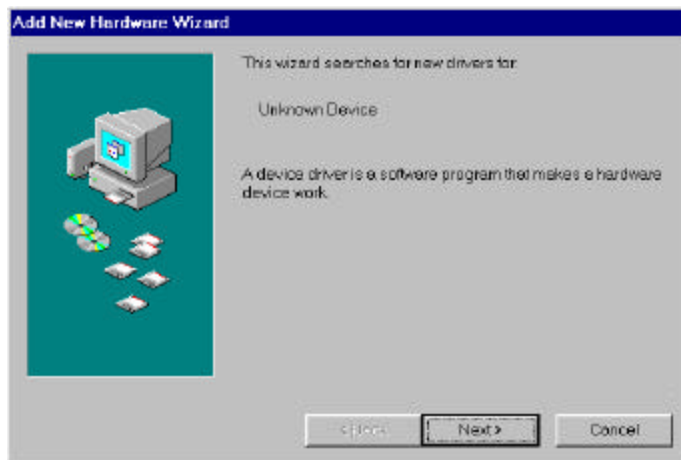camera has been plugged in.

The LED indicator of the camera will be active after the USB host
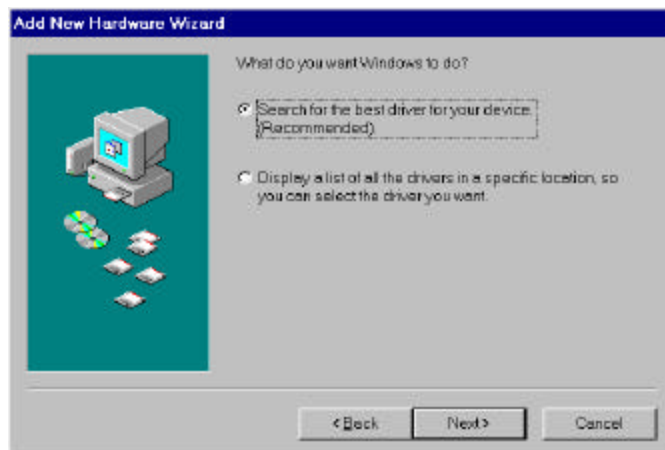controller having initiated the USB device properly.

Driver installation

Win98

Once the camera has been installed, the Windows will detect the
camera and prompt "Add New Hardware Wizard" dialog box on the
screen.

Click on "**Next>"** button to continue.

Select the "**Search for the best driver for your device.**"
And click on the **Next** button to search for the best driver.

Select the "**Floppy disk driver**" and insert the driver diskette that
came with the camera into the floppy drive. Then click on the **Next**
button.
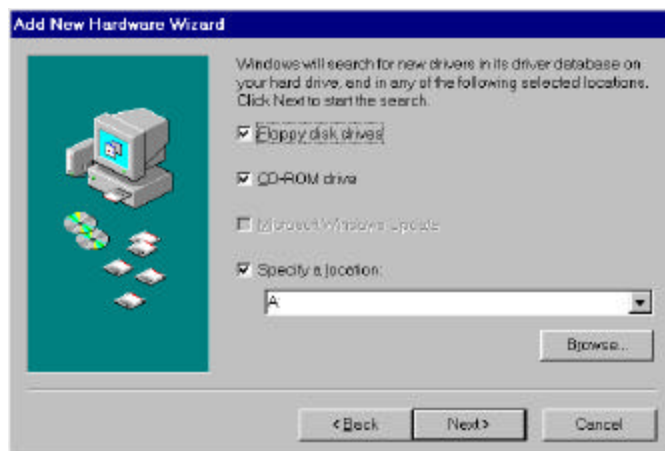
Click on the **Next** button, then the Windows will copy all required files from the driver diskette to system.

Click on the **Finish** button to complete the driver installation.
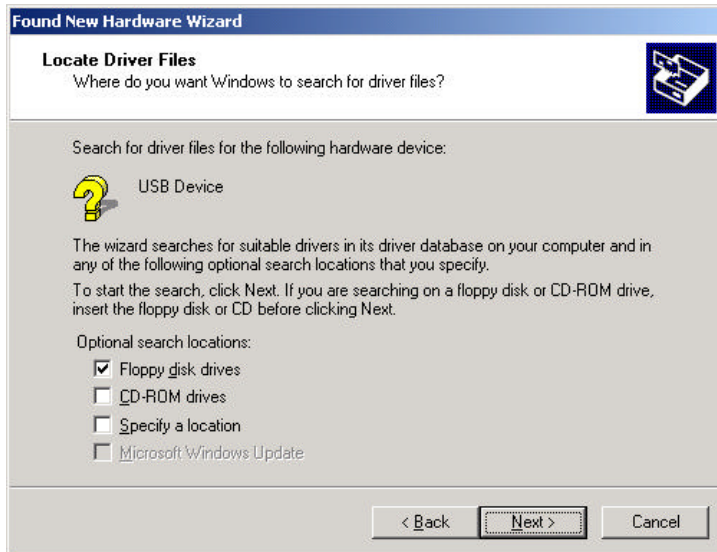
Win2000

1. Boot up the computer to Win2000 and then attach the camera to computer's USB port.

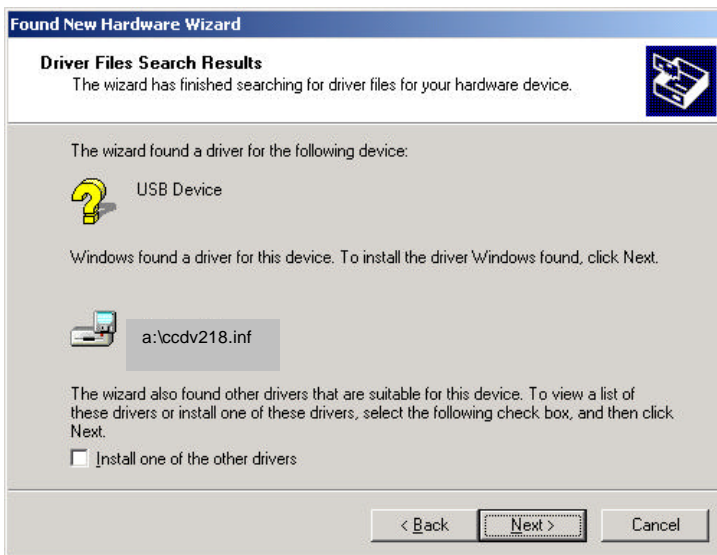2. At "Found New Hardware Wizard" click on "Next".

3. Select "Search for a suitable driver for my device" and then click "Next".

4. Select "Floppy disk drives" and then click on "Next".

5. Click "Next".

6. Click "Yes".

7. Click "Finish".

Quality & Format Adjustment

The driver provides "Source" and "Format" option to adjust quality

and format for display.

When you pop up the application software, to select " **Option ->**

Video Source" allows you to fine tune image related parameters,

such as Contrast, Sharpness and Gamma.

Auto White Balance is not recommended to change, unless the

video color unstably shift.
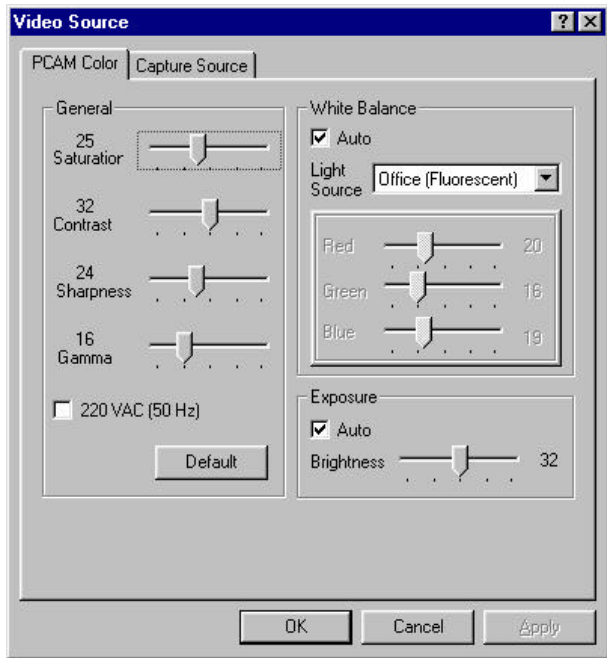
To select "**Option -> Video Format"** allows you to set the

incoming color depth as 24-bit RGB and choose image resolutions.
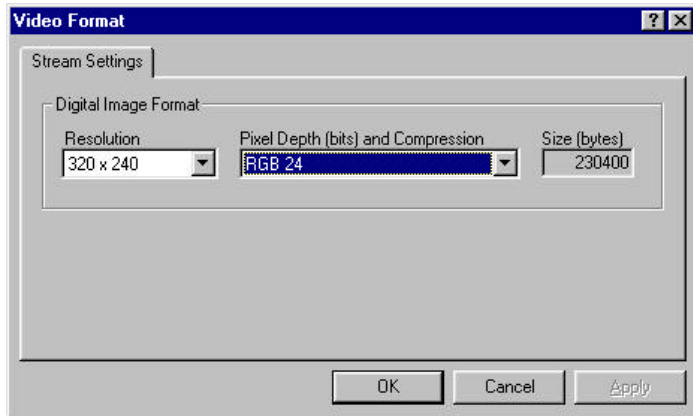
Note: The higher the RGB bits, the larger the video file size well be. The

lower resolution is recommended for video-conferencing or recording video.

after this step the Configuration Advisor will check to ensure that the

installation went smoothly.

Specifications

Sensor	1/4" progressive mode CCD sensor
Resolution	350.000 pixels
Color support	16.8million true color and 256gray level
Frame rate	30fps@352x288,15fps@640x480
LED indication	Camera active
Brightness control	Automatic
Color control	Automatic
Focus	4mm - **8**
Lens	f=6mm, F=2.0
Interface	USB port, compiles with USB version 1.1
OS support	Win98 , Win2000
Software control	Hue, saturation, Gamma
Operating Temperature	0? ~ 55?
Storage Temperature	-20? ~ 70?
Humidity	10% ~ 90% non-condensing
Power Input	5Volt from USB port
Power consumption	1.5Watts, (300mA @ 5V)
Safety	CE, FCC ClassB

Appendix:

Microphone Installation

In the package, it includes a microphone. With Microphone, the user can record image with voice.

To install the microphone, just plug the microphone to the "**Mic in**" connector on the sound card of the PC.

The user can check the microphone by running Windows **Start Menu/ Programs/ Accessories/ Entertainment/ Sound Recorder**. This program allows the user to do voice record and play back.

Appendix:

VIDEO CONFERENCE GLOSSARY

CMOS image sensor - CMOS (abbreviated for *Complementary Metal Oxide Semiconductor*) is similar to CCD with different silicon process in production. The advantage of CMOS is low power consumption, low production cost and small in chipset dice. The cons are lacking of noise immunity, which leads to less sensitivity in image quality. The modern silicon technology, however, can improve the signal-to-noise ratio significantly. Major suppliers of CMOS sensor are: OmniVision, VLSI Vision, Rockwell, Sharp, HP, Sony, and EleVision with resolution start from 80,000, 250,000 to 1,000,000 pixels.

Digital PC Camera - Digital PC camera, on the other hand, sends the digitized video signal, so-called YUV format, directly to your PC through parallel port, COM port, USB port, Fast Ethernet or IEEE 1394 interface. CCIR 601, a digital TV encoding standard, defines video digitized signal in YUV 4:4:4, or YUV 4:2:2 format. A corresponding driver in PC will decode and translate the data into correct color for splay. Digital camera is dedicated, but not limited, for PC applications today. The most popular interface today are parallel port and USB port.

Image DSP - Image DSP is used to deal with the image and color captured and ensure sharpness of color displayed on monitor. Image DSP can control white balance, hue and saturation of RGB color, gamma value for color adjustment. Different algorithms are implemented in DSP to provide such functions. Some silicon suppliers has already integrate DSP together with image sensor as one-chip solution for cost-down reason, while others implement compression engine in image DSP to speed up the data transmission rate.

Image quality - PC camera has to faithfully reflect and reproduce true color of observed object, any distortion of image or twisted of color will consider being poor image quality. Since the responses of human eyes to color are slightly different, some testing equipment and environment is necessary to accurately judge the image quality. Nevertheless, image sensor, lens and design method is the key factors of image quality.

Another criteria of image quality is the sensitivity to environmental luminance, some PC camera can sense the image in dim condition for light source as low as 5 luxs, while others can respond in 10 luxs only.

Lens - Lens is another critical component in PC camera that can affect the quality of image sensed. The focal length and viewing-angle of lens, associated with IR-cut and low-pass filter, will determine the picture quality sensed. The most popular lens used in PC camera market is 1/3",1/4" and 1/5" lens, with 3.6 ~ 6.0 mm focal length each has their own advantages in different applications. To avoid distortion on edge of image, focal length above 4.0 mm is recommended.

Performance and resolution - The performance of PC camera is determined by frame size (resolution) and frame-per-second PC camera can handle. Frame size has certain standard for comparison, so-called SQCIF (160 x 120), QCIF (176 x 144), CIF (352 x 288) and VGA (640 x 480). Analog PC camera can transmit up to 30 frames/second at any resolution, which is almost the highest quality similar to the motion picture as you see in the cinema.

Still 18 frames/second claims to be acceptable in digital PC camera, although some jerking image may occur and cause inconvenience for visual effect. The new USB or parallel port PC camera with compression technologies should be able to support up to 30 frame-per-second in CIF formats.

Personal videoconferencing system- A system designed to connect a single person into a teleconference. Most desktop video conferencing systems are personal systems.

Frame rate - The number of images per second displayed in a video stream.
Approximately 24 frames per second (fps) is considered full-motion video.

POTS (Plain Old Telephone Service)-
Conventional analog telephone service.

ISDN (Integrated Services Digital Network)
- A type of digital telephone service available in two speeds: 128-Kbps basic-rate interface (BRI) and 1.54-Mbps primary-rate interface (PRI).

H.261- Leads the pack. H.261 is the standard for video codecs, with the compressed video signal operating over one or more 64-kbps ISDN B-channels. H.261 defines two picture or resolution structures that are compatible with all three worldwide television display formats. The picture structures are the Common Intermediate Format (CIF) and the Quarter Common Intermediate Format (QCIF). CIF is also referred to as "full CIF" (FCIF).

H.323- Standard that provides a gateway for LAN/WAN videoconferencing. Desktop video conferencing on the LAN must adjust to the constantly -changing available bandwidth. This means LAN-based videoconferencing requires special compression technology. H.323 also covers Internet video-conferencing. Early in 1996, Intel and Microsoft, along with more than 70 other companies, announced support for the standard. Inter and Microsoft also collaborated on the H.323 stack that would become part of Microsoft's operating system.

H.324 for POTS - Another family of standards covers desktop videoconferencing over POTS. This family is called H.324, which the ITU-T ratified in early 1996. H.324 covers low-bit-rate videoconferencing between multimedia telephones. These telephones include stand-alone video phones, PC-based video phones, and TV-based video phones that resemble cable boxes with built-in cameras that sit atop televisions. This standard improves on H.320 in its flexibility. H.324 calls for transmission of real-time video, audio, and data over V.34 modems to be video phone ready, they must support a protocol called V.80. Part of H.324 is a newer video codec standard called H.263. H.263 defines and requires a new low-end SQCIF picture format of 128x96 pixels. QCIF is also required in H.263, and FCIF is optional. H.263 is a major breakthrough in video compression, and is substantially better than H.261 at low data rates. However, at 384 kbps and above, the difference is less apparent. Work is underway in the ITU-T to migrate H.263 into the H.320 family. However it is mandatory that the H.324 terminal support H.261 as well as H.263. The H.324/M series covers videoconferencing over mobile or wireless radio networks. H.324 is critical in delivering desktop videoconferencing products to the home and small office/home office (SOHO) market.

QCIF (Quarter Common Intermediate Format)- A 176-by-144 video format defined by the ITU's H.261 specification.

CIF- Display paints 352 pixels per line and 288 lines per picture, normally displayed full-screen.

VGA - Video Graphics Array, resolution is 640 x 480 pixels.

SVGA - Super Video Graphics Array, resolution is 800 x 600 pixels.

Twain - A standardized interfacing system that allows many different software applications to access many different image input devices. TWAIN compliance is needed for both software applications and imaging hardware devices (scanners, cameras) to be compatible.

USB port - USB is the abbreviation for *Universal Serial Interface*, and is a new interface with throughput goes up to 12Mbps. It allows daisy-chained of 127 PC peripherals connection with 5 meters per device. USB provides the power for each device, means no more external power adapter for PC peripheral. USB also supports hot swap of device, or dynamic insertion-removal, and auto configuration as device changes. The throughput of USB, however, is not sufficient for real-time video transmission. The recently released USB PC camera, imbeds video compress/decompress technology to increase the data transmission and supports 30 fps in QCIF or CIF format.

Video Communication Software - Users can do little with PC camera and other hardware without application software. Microsoft bundles NetMeeting in Windows98 providing basic solution for video conferencing over Internet or Intranet. While other software vendors provide video-mail, video editing, pattern recognition, personal security and remote monitoring utilities to touch down specific arena. Some software is quite sophisticated with comprehensive user interface, check you're nearby software dealers to get latest information. VGA: Video Graphics Array, resolution is 640 x 480 pixels.