# You lookin' at me?

**Webcams are perhaps the most versatile and cheap peripheral you can buy for your PC. They can be used for video capture, video-conferencing, grabbing still images or just as plain old webcams. We've checked out 12 of the latest USB models to help you make an informed purchase.**

**T**he heyday of webcams has arrived. Starting life innocuously monitoring the status of a research lab's coffee pot, they're now trained on every segment of society. On the web you'll find everything from glimpses of *Eastender's* Albert Square to copulating couples. Nothing is sacred as the webcam's peering eye tantalisingly reveals all to the Internet.

If you've got a website and an Internet connection, then all you need to join in the fun is a webcam to take your pictures and a simple piece of software to upload them for all the world to see.

If you're not ready to reveal all to a worldwide audience but to just a chosen few, then video-conferencing is the way forward. Today, people from all walks of life are enjoying video communication with colleagues, friends and loved ones. Best of all, new technologies have allowed us to dispense with expensive point-to-point connections, enabling us to communicate with anyone in the world for the cost of a local Internet connection.

Perhaps you'd prefer to make a short video clip and email that instead? Or shoot a handful of still images? All this is possible with today's PC webcam packages – they even plug into your USB port for hassle-free installation. And the best part is that they cost, on average, a mere £70.

We've rounded up a dozen of the best webcams, have tested every aspect and explained how they work. Both fun to use and genuinely useful, a webcam could end up being the most flexible and best-value PC peripheral you ever buy.

# contents

*• Webcams tested and reviewed by Gordon Laing*

PHOTOGRAPH PATRICK LLEWELYN-DAVIES

## 3Com **HomeConnect WebCam**

**3COM'S HOMECONNECT** PC Digital WebCam looks pretty serious in its slim, dark grey flat case and carries a price tag to match. While most cameras in this test cost around £70, 3Com's is the most expensive at a whopping £129.29.

The unit features a 3m, detachable USB cable, which has sufficient reach for you to point it at subjects other than those sitting in front of the screen. There is no built-in microphone, or even one included in the package, and the laptop clip is also optional. In use, an LED on the front of the unit flickers distractingly.

Installation is straightforward, and once up and running, you're presented with the 3Com HomeConnect Launcher. This presents a menu bar with three simple options: VideoPhone (which launches Microsoft NetMeeting), VideoMail (for capturing and emailing video clips using PictureWorks NetCard) and VideoGear. The last option has four sub-headings to fire up additional capture and editing tools, along with RealPlayer and WebCam 32, which guides you through setting up and maintaining a webcam in easy steps.

The imaging CCD features a true 640 x 480 resolution, which can be software interpolated up to 1,280 x 960. Other modes include 352 x 288, 320 x 240, 176 x 144, 160 x 120 and 128 x 96. The HomeConnect's quality is good, but does not justify its high price.

### DETAILS
★★★

**PRICE** £129.29 (£110.03 ex VAT)
**CONTACT** 3Com 01189 278 300
**www.3com.co.uk**
**PROS** Good quality package and software
**CONS** Too expensive and annoying LED
**OVERALL** Good, but out-priced

## Creative **WebCam 3 USB**

**GOING FOR A STYLE** all its own, Creative's WebCam 3 more than resembles a large bug on all fours, with its head looking upwards to peer at you – in a cute and endearing way, though.

The design also lets you tilt the head down, then pick up the entire unit for handheld work. This is the basis behind the similarly designed WebCam Go model, which also features built-in memory and standalone capabilities as a basic digital camera for £119.

Back to the WebCam 3; it doesn't feature a built-in microphone, but does come with one of Creative's tall mics on a stick. The 640 x 480 pixel CMOS sensor captures virtually fault-free smooth video at 352 x 288 in 30fps, or around 10 to 15fps at full 640 x 480 resolution.

The software package is good, with ArcSoft Polaroid PhotoMAX capturing stills, then editing them with serious tools or fun special effects before placing them in an album or emailing them.

Video Blaster WebCam monitor is a great surveillance package, which can be set to react to different levels of motion, then set off an alarm, send a message or post an image to a website – this can also be used as a standard webcam tool. Microsoft NetMeeting 3.01 for Internet video-conferencing completes a well-rounded package.

### DETAILS
★★★★

**PRICE** £69 (£58.72 ex VAT)
**CONTACT** Creative Labs 01189 344 744
**www.europe.creative.com**
**PROS** Well built and great software package
**CONS** Not as slick as others
**OVERALL** Great unit, but just beaten by our winners

## How a webcam works

The story starts with the lens, typically 5mm in focal length, with coverage roughly equivalent to a standard 50mm lens on a 35mm camera. Behind the lens lies the imaging chip, which is usually either a CCD or a CMOS sensor, although for typical online applications, there's little difference between the two technologies in terms of quality.

At this point, the camera is instructed which resolution to use by the PC; typical modes include VGA (640 x 480), Common Interchange Format CIF (352 x 288), QVGA (320 x 240), QCIF (176 x 144), along with 160 x 120 and sometimes even lower resolutions still. The quality, however, is very much limited by the camera's connection to the PC.

Modern webcams, including all 12 models in this test, use USB connections. In theory, USB can deliver 12Mbits/sec, which is sufficient to deliver an uncompressed 160 x 120 pixel window in 24bit colour at 25fps. Dropping to 16bit colour could increase the resolution or the frame rate.

*USB connections can theoretically deliver 12Mbits/sec*

Fortunately, most webcams capture video in a more efficient YUV colour format, which can deliver smooth windows at higher resolutions still. Add a little in-camera JPEG compression, and it's possible to deliver smooth 320 x 240 pixel video in what looks, to all intents and purposes, like full colour.

Remember that current webcam technology may be relatively simple, but it's more than sufficient for today's typically modest Internet connections. After all, online webcams typically update every 20 seconds and most video-conferencing users have learned to accept small 160 x 120 images at relatively modest frame rates of 15fps.

## D-Link DU-C300

**ONE OF THE MOST** old-fashioned looking webcams in this test, D-Link's DU-C300 is perched on a tall, non-removable stand. The unit doesn't have a built-in microphone, but comes with a conventional model that you can connect directly to your sound card.

Installation was smooth, but not as slick as the rest. At one point, the installer asks which port the camera is connected to, and offers the choice of COM1, COM2 or ECP, when the device employs USB. The printed A4 sheet illustrates this step and tells you to press OK and move on. If you follow the instructions it all works fine, but seeing dialog boxes such as these after the smooth processes of other cameras is a bit of a let down.

It comes supplied with SmithMicro VideoLink Telephone, which lets you make direct, point-to-point video-conferencing calls using the H.324 protocol or across the Internet using H.323. We also got the unit to work using Microsoft NetMeeting 3.01 for Internet video-conferencing. SmithMicro VideoLink Mail creates self-executing compact video clips for the PC or Mac, which are perfect for attaching to emails. Video is captured at rates between 19.2 and 128Kbits/sec. There's no webcam software, but the unit worked fine with SpyCam.

### DETAILS
★★

**PRICE** £81.08 (£69 ex VAT)
**CONTACT** D-Link 020 8235 5555
**www.dlink.co.uk**
**PROS** Includes direct H.324 video-conferencing software
**CONS** Not the slickest installation
**OVERALL** Average package, but not the best

## Intel PC Camera Pro Pack

**INTEL HAS BEEN** in the video-conferencing market for some time, and its PC Camera Pro Pack is testament to the chip giant's experience. It's an attractive-looking device, no bigger than it has to be, with a curving, cream case, a smart, blue base and a big, blue button on the top. Intel also joins Logitech in being the only companies to fit a sliding plastic lens shutter for guaranteed privacy and lens protection.

Intel doesn't include a microphone in the unit or the bundled package, but has built the only model with an alternative video input. Round the back, you'll find a standard composite video phone jack into which you can connect a camcorder, DVD player or VCR, and deliver their video into the supplied software applications in the same way as the live camera output. Speaking of which, the 640 x 480 CCD captures smooth and clear video at 320 x 240 pixels.

Intel supplies its own highly capable Create and Share software package, which from a single smart interface can deliver anything from high-end video-conferencing to great fun games courtesy of Reality Fusion. Almost uniquely, Intel has not supplied NetMeeting, but its own Videophone instead, and while it's missing some of Microsoft's bells and whistles, it does support direct H.324 connections.

### DETAILS
★★★★

**PRICE** approx £69 (£58.72 ex VAT)
**CONTACT** Intel 0870 607 2439
**www.intel.com/pccamera**
**PROS** Great quality and unique video input
**CONS** No microphone
**OVERALL** Superb, but pipped at the post

## Kensington VideoCAM VGA

**KENSINGTON OFFERS** three versions of its VideoCAM, with increasingly higher resolutions. We reviewed the middle-of-the-range VideoCAM VGA, which costs £79.99 and delivers 640 x 480 resolution.

The unit is a smart looking semi-circular design that, from the front, shares a similar outline to a snow-storm toy. The optical portion tilts back and forth and, like all the cameras reviewed here, employs manual focus adjustment. However, unlike the others, we found it was easy to actually pull the lens off our sample while focusing it. The lens barrel slid back on again without complaint or damage. There's no microphone either built-in or bundled with the package, but the 3m USB cable certainly gives you plenty of room to manoeuvre.

The CMOS sensor supplies 640 x 480 pixels, and also supports 352 x 288, 320 x 240, 176 x 144 and 160 x 120 modes. While the 352 x 288 mode delivers smooth video, Kensington only states the unit will produce 30fps in the lower 176 x 144 mode.

The VideoCAM software fires up a well-designed interface, which lets you capture video and stills. NetMeeting 3.01 handles Internet video-conferencing, but you'll need to supply your own webcam software.

### DETAILS
★★

**PRICE** £79.99 (£68.08 ex VAT)
**CONTACT** Kensington 0800 252 359
**www.kensington.com**
**PROS** Well-designed software interface
**CONS** Loose focuser on ours, no microphone
**OVERALL** Average package, but there are better ones available

## *Kodak* **DVC325**

**KODAK WAS ONE** of the first manufacturers with a USB webcam and suffered from the early days of USB problems under Windows 95. Fortunately those days are long gone and the

DVC325 installed itself without delay.

Worryingly, the installer instructs you to press Ctrl & Alt & Del and close all tasks other than Explorer and SysTray before proceeding. A technical user may not be phased by this, but others might find it odd, particularly when compared with the hassle-free installations of some other cameras.

Within the *Star Trek* phaser-styled device lies a 640 x 480 pixel CCD that delivered good-looking images. Video captured at 320 x 240 pixels was smooth but, generally, this webcam stood in the middle of the pack in terms of overall quality. Like the others, video captured at 640 x 480 pixels was jerky. Sadly, there's no built-in microphone, or one supplied as part of the package. The

camera's stand does tilt an impressive 75 degrees up or down, though.

Presto VideoWorks and Mr Photo handle the tasks of capturing and managing still and motion video. Kodak's own interface is typical of the company's products, with a consumer-oriented style. Microsoft NetMeeting 3.01 is included for Internet video-conferencing, but there's no webcam software.

### DETAILS
★★★

**PRICE** £69.99 (£59.57 ex VAT)
**CONTACT** Kodak 0870 243 0270
www.kodak.com
**PROS** Well-designed software interface
**CONS** No microphone
**OVERALL** Good unit, but beaten by others

# Getting your work on the web with SpyCam

**T**he theory behind webcams is straightforward.
1. Simply take a photo every so often and upload it to a website where a page then displays it to the world.
2. Make sure you use the same filename for the image, so that the new picture replaces the old one.
3. Ensure the web page instructs the browser to refresh at regular intervals in order to automatically update the picture to your viewing public. Easy.

While all the cameras on test could make perfectly adequate webcams, few

actually came with the required software to do it. Fortunately, all worked fine with a shareware utility called SpyCam, by Bill Oatman. Version 6.20 is a 997KB download with a suggested $15 (£9.38) contribution.

SpyCam simply takes your website's FTP details, snaps a picture with your installed webcam, then uploads it at intervals set by yourself. Obviously, you'll need to be online for this to happen, and SpyCam can either dial up for you or transfer images while you're already connected; clearly this is where permanent connections to

the Internet come into their own.

You'll need to build a web page with a couple of lines instructing how often you want the page to refresh, and this should match the frequency that you're uploading images. The SpyCam website gives suggested HTML code, or you could check out our *Hands On, WebCam* workshop in the December 1999 issue.

There are a couple of catches webcam users should be aware of. First is that the auto refreshing HTML code used on webcam pages will instruct the browser to slowly

reload the entire page and all its elements, just as if you'd pressed F5. Therefore, keep your webcam image on as bare a page as possible, or isolate it in a frame.
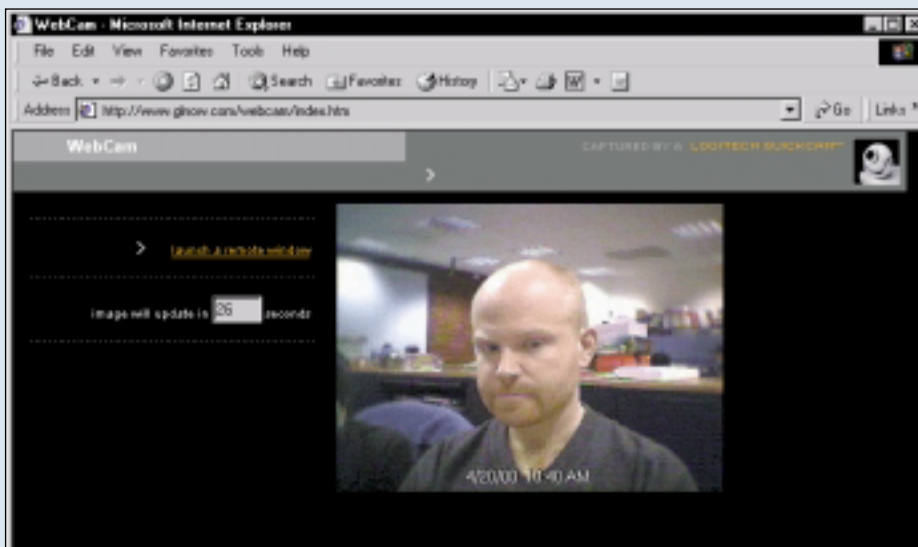
Second, many people will be viewing your pages with a slow Internet connection, so be careful with file sizes and refresh times. SpyCam produced suitably compact images – a typical 320 x 240 pixel JPEG image measured 17KB, while a 160 x 120 JPEG came in at a mere 8KB. Both are acceptable sizes to update at least every 20 seconds.

Third, don't get too carried away with update speeds, as you may find your ISP has bandwidth limitations. Many accounts are limited to 1GB per month before additional charges are levied.

This may sound like a lot, but it works out at around 1MB per hour, and that must be shared between all visitors. Already that's nowhere near enough for a single user to constantly view a new 20KB JPEG every 20 seconds.

Admittedly, most users won't be connected to your webcam 24 hours a day, and you probably won't be web-casting for this amount of time, but it's worth checking your ISP's terms and conditions and doing the sums nonetheless.
www.getspycam.cjb.net



*A webcam in action, with a page automatically generated by the Logitech QuickCam Web package*

# *Logitech* **QuickCam Web**

**WHILE LOGITECH'S** vertically designed QuickCam Web can sit freely on your desk, it seems best suited to sit on top of your monitor, overhanging slightly and pointing more directly at your face, although the overhang may obstruct the tops of displays with thin bezels. There is small sliding cover over the lens for privacy.

Like the Philips Vesta Pro, the QuickCam Web features a built-in microphone which transfers its data along with video and power on a single USB cable. This eliminates the need for a sound card for input, although you'll still need some type of audio hardware to hear your caller.

The QuickCam Web features a 512 x 582 pixel CCD, which can generate video stills of up to 640 x 480 pixels. For smooth playback, you'll be working at resolutions of around 320 x 240.

Installation is easy, after which you get a bright, clear interface. The webcam software is Logitech's own and simple to use. You can create a webcam page in moments, albeit one branded by Logitech. Microsoft NetMeeting 3.01 for Internet video-conferencing is also supplied, along with some fun games from Reality Fusion.

## DETAILS
★★★★

**PRICE** £79.99 ( £68 ex VAT)
**CONTACT** Logitech 01306 734 300
**www.locitech.com**
**PROS** USB mic, easy installation, good software
**CONS** Overhanging position may clip the top off some images
**OVERALL** Superb package, but pipped at the post for our Editor's Choice award

# *Philips* **Vesta Pro**

**PHILIPS' VESTA PRO** stands out from the crowd with its bug-like appearance. The bulbous unit is designed to sit on a rubber-footed stand, which grips the camera well and lets you position it with ease. Alternatively, the 0.25in standard tripod thread lets you attach the unit to something more serious; Philips even supplies a tiny tripod with bendy legs.

The Vesta Pro features a built-in microphone and, as there's only one cable coming out of the back, this transports the audio information across the USB interface. This is also employed by Logitech, with neither requiring a sound card for audio input, although you will need additional hardware to hear the caller at the other end.

The 640 x 480 pixel CCD can deliver up to 15fps at VGA resolution, or smooth 30fps at resolutions of 128 x 96.

Installation is easy and the supplied CD has short video clips demonstrating where to plug in the unit. The software bundle is excellent, with a choice of SmithMicro VideoLink or Microsoft NetMeeting for video-conferencing, along with Ulead PhotoExpress 2 SE and Media Studio Pro 5.2 Video Edition. SmithMicro's software allows point-to-point calls using H.324 protocols. No webcam software is supplied, but we got it working with SpyCam.

## DETAILS
★★★★★

**PRICE** £52.87 (£45 ex VAT)
**CONTACT** Microtronica 01189 633 733
**www.pcstuff.philips.com**
**PROS** USB mic, easy installation, good software
**CONS** No webcam software supplied
**OVERALL** An excellent, well-priced package

# *SIIG* **Eye for PC**

**SHARING THE SAME** spherical design as the Vcam and Zoom cameras, the SIIG Eye for PC is described as being 'SIIGnificantly Better'. It is, in fact, SIIGnificantly similar to the Vcam USB Digital PC Camera also reviewed in this test. Like the Vcam, there's a button on the top of the unit to fire up the still image capture software, but no microphone.

The Eye for PC houses a 640 x 480 pixel CCD and can support multiple resolutions, including 352 x 288. Like its competition, SIIG claims its camera can capture a 352 x 288 pixel video at a smooth 30fps. While all the models in this feature had a good stab at this claim, all suffered from slight jerkiness.

Admittedly, 352 x 288 looks pretty good on the Eye for PC, but for guaranteed smooth video playback, you'll have to choose a lower resolution. Again, like the competition, the full 640 x 480 pixel resolution drops the Eye for PC's video frame rate to between 10fps and 15fps.

SIIG throws in Ulead iPhoto Express 1.1 for image editing, Intercom Live Express for sending video emails, and Intercom Live Snap for capturing and managing still images. Microsoft NetMeeting 2.1 is supplied, but we did get it working with 3.01 and SpyCam.

## DETAILS
★★

**PRICE** £89.99 (£76.59 ex VAT)
**CONTACT** Ivell 01206 878726
**www.ivell.com**
**PROS** Non-transparent blue finish may be right up your street
**CONS** Pricier than similar Vcam model
**OVERALL** Average, but there are better units

## *Vcam* **USB Digital PC Camera**



**LIKE THE ZOOMCAM** USB and SIIG Eye for PC, the Vcam USB Digital PC Camera is a spherical design, held by a small stand, allowing it to tilt up and down. You can also screw it into an optional tripod. Unlike its spherical cousins, the Vcam is finished in an iMac-style transparent blue case, with a clear USB cable coming out of the back. It'll either fit right in with your setup, or stand out like a sore thumb.

The Vcam doesn't feature a built-in microphone, nor does it come with a separate one. The imaging CCD is rated at 350K pixels, good for resolutions of up to 640 x 480, and supporting smooth video recording and playback with lower resolutions up to 352 x 288.

A reasonable software bundle includes Intercom Live Express for sending video emails, Intercom Live Snap for quick and simple still capture, Ulead iPhoto Express for image editing, Microsoft NetMeeting for Internet video-conferencing, and a trial version of Gotcha SE for security and remote surveillance. Live Snap has an attractive interface which pops your images into a mini gallery. The quality is reasonable but, like the other webcams, it won't give a proper digital camera a run for its money. There's no webcam software, but we got it working with SpyCam.

### DETAILS
★★

**PRICE** £51.06 (£59.99 inc VAT)
**CONTACT** TriSys 020 8808 2130
www.trisys-europe.com
**PROS** Transparent blue finish may be right up your street
**CONS** No microphone
**OVERALL** Average, but better units available

## Video-conferencing over the Internet

People don't need identical devices to video-conference, but they do need communication software that conforms to certain standards. The International Telecommunications Union (ITU) has defined the H.323 and H.324 protocols for that very purpose.

If you want to dial a number directly and place a video call, then look for H.324 compatibility, be it on a PC or standalone device. As long as both devices support H.324, you'll be able to dial each other directly, independent of the Internet.

SmithMicro's VideoLink software, supplied with many of the cameras tested along with Intel's own Create and Share software, will do the trick. A direct H.324 call will make the most of your connection's bandwidth, but will incur a point-to-point charge, which is prohibitive for international calls.

Communicating via the Internet is preferable as you only incur local ISP dialup charges. The downside is that the bandwidth can be variable and often intolerable for video-conferencing. But, then again, a local rate for an international video phone call is too tempting to ignore, so how's it done?

For video-conferencing on the net, you'll need software that supports the H.323 protocol. A popular choice is Microsoft's NetMeeting, currently in version 3.01 and supplied with Windows 2000 as standard, or as a free 1.56MB download from the company's website.

NetMeeting 3.01 is an improvement over the previous 2.1 version, and it's remarkable that Microsoft gives it away for free. The interface is a simple, tall thin window, split between video and text frames. It's possible to place your own video in a separate window or as a minimised picture-in-picture in the corner of the receiving video window. Audio uses a fixed amount of bandwidth, comparable to telephone quality, while the video takes whatever is left.

Since you're on the Internet, you'll have an IP address, and the easiest way to call someone is by entering their IP address and pressing dial. It may also be possible to connect using an email address or telephone number. Clicking on About NetMeeting reveals your own IP address, although office network users may need to talk to their MIS departments about security and allocation issues when attempting to establish an external call.

At the bottom of the main NetMeeting window are four large icons activating program sharing, a chatboard, whiteboard and file transfer. The whiteboard is terrific, firing up a window on both machines for people to draw on live. The program sharing is nothing less than complete remote access and control, rendering the same facilities from pcAnywhere and LapLink redundant.

You may get frustrated with the often poor quality of video-conferencing over the Internet, but it's cheap, and when it works it's great. Remember, faster connections are just around the corner. Either way, install a copy of NetMeeting now!
www.microsoft.com/netmeeting



*Microsoft NetMeeting 3.01 is a great utility for video-conferencing over the Internet. It's free of charge and even lets you remotely access and control another PC. Remember that everyone can see you sip your coffee, though*

## VideoLogic **HomeC@m**

**VIDEOLOGIC IS** known for producing solid PC peripherals and its HomeC@m is no exception. The unit features an interchangeable base for either sitting on top of your monitor or notebook, while a button on the top activates the picture capture mode.

The HomeC@m features a built-in microphone that connects to your sound card's microphone input via a separate cable. It's not as cunning as the Philips and Logitech models, but at least you don't have to worry about a separate device on your desk. The HomeC@m's USB and microphone cables are 1.8m long and connected to the unit permanently.

The imaging CCD features true 640 x 480 pixels and can deliver this for video and stills, along with 352 x 288, 320 x 240, 176 x 144 and 160 x 120 modes. Relatively smooth playback and video recording was only possible at up to 352 x 288, with VGA mode being too jerky for most applications.

Installation was easy and the software bundle included tools for video capture and editing, still image editing and management, and demo or shareware packages for web page creation and surveillance. VideoLogic also threw in the SpyCam utility for maintaining a webcam.

### DETAILS
★★★★

**PRICE** £59.57 (£69.99 inc VAT)
**CONTACT** VideoLogic 01923 277488
**www.videologic.co.uk**
**PROS** Built-in mic, easy installation
**CONS** No video-conferencing software supplied
**OVERALL** Decent unit, but beaten by others

## ZoomCam **USB**

**THE ZOOMCAM USB** can sit either on its stand or on an optional tripod. There's no built-in microphone, but Zoom throws in a separate one to plug into your sound card. Rather than gripping or pushing the edge of a wheel, you have to press your finger on to a front-facing wheel to focus, which can be quite fiddly. The internal CMOS sensor features a relatively low 352 x 288 pixels, which can be interpolated up to 640 x 480 or 704 x 576 pixels.

Zoom supplies software, including PaintShop Pro 4.15 SE, Exterminator AntiVirus, Howdy email postcards, Web Cannon for web page creation, Ivisit CU-SeeMe video chat software, and SmithMicro VideoLink Mail and H.323/H.324 packages. Compatibility with H.324 lets you make direct point-to-point, video-conferencing calls. We got the unit working with NetMeeting 3.01 for Internet video-conferencing, and SpyCam for creating a webcam.

Insertion of the USB device fires up the standard Windows driver request, but the supplied disc doesn't deliver the required files at first. Instead, you must cancel this step, after which the CD auto presents you with a list of options including driver installation. Installation is not as slick as other units on test.

### DETAILS
★

**PRICE** £59.57 (£69.99 inc VAT)
**CONTACT** Zoom 0870 720 0060
**www.zoom.com**
**PROS** Includes direct H.324 video-conferencing software
**CONS** Lowest native resolution of only 352 x 288 pixels
**OVERALL** Small details let this package down

# Checking out the competition

**T**he problem with webcams is that, although you might think a picture of your office or bedroom updated every 20 seconds is fascinating, others on the web may not. And once you think you've come across something that would make a good subject for a webcam, you do a search on the web and find there are already a hundred different webcams in a hundred different countries, all doing the same.

A good place to start if you want to check out what other people are doing with their webcams is **www.cams2000.com**. This site has a neat index of a couple of hundred webcam sites, split into categories such as science, wired and sports cams.

Another searchable list of good webcam sites, which also has links to sites with tips on setting up your own webcam, can be found at **webring.webcamworld.com**.

But for the ultimate in webcams, check out **www.percetualrobotics.com**. This company makes robotic cameras that can be controlled over the web. Want

*Try www.cams2000.com for sites or check out NASA's cameras*

to zoom in on a part of the image to get more detail? No problem, how about x32 zoom. You can even move the camera to look at another point in the room. The company's web site has lots of links to sites using its cameras, from NASA (which has one in its Goddard Space Flight Center) to Granada TV (which has one of its cameras pointed at Big Ben).

**NIALL MAGENNIS**

## Table of features



| Manufacturer | 3Com HomeConnect | Creative Labs | D-Link | Intel | Kensington | Kodak |
|---|---|---|---|---|---|---|
| Name | PC Digital WebCam | WebCam 3 USB | DU-C300 | PC Camera Pro Pack | VideoCAM VGA | DVC325 |
| Price (inc VAT) | £129.29 | £69 | £81.08 | £69 | £79.99 | £69.99 |
| Contact | 3Com | Creative Labs | D-Link | Intel | Kensington | Kodak |
| Telephone | 01189 278 300 | 01189 344 744 | 020 8235 5555 | 0870 607 2439 | 0800 252359 | 0870 243 0270 |
| Web address | www.3com.co.uk | www.europe.creative.com | www.dlink.co.uk | www.intel.com/pccamera | www.kensington.com | www.kodak.com |
| Type of sensor | CCD | CMOS | CCD | CCD | CMOS | CCD |
| Native resolution | 640 x 480 | 640 x 480 | 640 x 480 | 640 x 480 | 640 x 480 | 640 x 480 |
| Microphone | ✗ | External | External | ✗ | ✗ | ✗ |
| Webcam software | WebCam 32 | Creative Labs | ✗ | ✗ | ✗ | ✗ |
| H.323 software | NetMeeting | NetMeeting | SmithMicro | Intel | NetMeeting | NetMeeting |
| H.324 software | ✗ | ✗ | SmithMicro | Intel | ✗ | ✗ |

## Table of features



| Manufacturer | Logitech | Philips | SIIG | Vcam | VideoLogic | Zoom |
|---|---|---|---|---|---|---|
| Name | QuickCam Web | Vesta Pro | Eye for PC | USB Digital PC Camera | HomeC@m | ZoomCam USB |
| Price (inc VAT) | £79.99 | £52.87 | £89.99 | £59.99 | £69.99 | £69.99 |
| Contact | Logitech | Microtronica | Ivell | TriSys | VideoLogic | Zoom |
| Telephone | 01306 734 300 | 01189 633 733 | 01206 878 700 | 020 8808 2130 | 01923 277 488 | 0870 720 0060 |
| Web address | www.logitech.com | www.pcstuff.philips.com | www.ivell.com | www.trisys-europe.com | www.videologic.co.uk | www.zoom.com |
| Type of sensor | CCD | CCD | CCD | CCD | CCD | CMOS |
| Native resolution | 512 x 582 | 640 x 480 | 640 x 480 | 640 x 480 | 640 x 480 | 352 x 288 |
| Microphone | Built-in USB | Built-in USB | ✗ | ✗ | Built-in | External |
| Webcam software | Logitech | ✗ | ✗ | ✗ | SpyCam | ✗ |
| H.323 software | NetMeeting | NetMeeting | NetMeeting | NetMeeting | ✗ | SmithMicro |
| H.324 software | ✗ | SmithMicro | ✗ | ✗ | ✗ | SmithMicro |

# How we did the tests

All the cameras recommended a PC with a minimum 166MHz Pentium processor and 16MB of RAM. We used a Dell system with a 350MHz Pentium II processor and 64MB of RAM for our tests. All the cameras were USB devices, demanding at least Windows 95 OSR2 or only supporting Windows 98. For the greatest compatibility, we used Windows 98 SE. For the test, our users sat at PCs, all of which contained a camera on top of the monitor.

We looked carefully at how easily each camera was to set, as that fact alone can make or break a product's success. While most of the cameras were pitched as video-conferencing or video-emailing devices, we wanted to see how they fared on all-round use. Consequently, we tested them with their bundled still and motion-video capture software, along with any supplied video-conferencing and webcam tools.

Where not supplied, we used NetMeeting 3.01 to test Internet H.323 video-conferencing, and a shareware version of Bill Oatman's SpyCam 6.20 to drive the cameras as webcams. Video-conferencing was tested over a busy office 10Mbit Ethernet network and also across the Internet using standard 56K modems and dialup accounts.

Still images were captured at 640 x 480 pixels and motion video at both 320 x 240 pixels and 640 x 480 pixels at the highest frame rates offered. We did not alter the default settings, instead evaluated the units as they came out of the box.

# Editor's **Choice**

**B**efore revealing our award winners, here are our experiences with the devices as a whole. Despite asking manufacturers to supply webcams, most of the packages we received didn't offer the facility out of the box. The hardware and drivers were up to the job, but in only a handful of cases was there any software supplied to regularly upload images to a website. Fortunately, a wealth of third-party and shareware products are available which should work happily with these cameras. We tried them out with the ever-popular SpyCam 6.20 shareware utility, which, while not boasting the slickest interface, certainly does the job.

But is a webcam for you? While the marketing people like to talk about exciting and exotic applications, the fact remains that many people leave theirs on top of their monitors at work, offering a fascinating glimpse into them looking bored in the office – do us all a favour, and point your webcam at something interesting or useful!

Since these devices double up as video-conferencing cameras, the chances are that they will end up spending much of their life pointing at you from above or below your monitor. The problem is that while watching your friend or colleague on-screen, you're far from looking directly into the camera. Try to place the video window as close to the location of the camera as possible for the most natural results. Be aware of your surroundings too, as a bright background will simply render you as a silhouette.

We can't tell you how much easier this group test was to get through with the help of the standard USB interfaces on these devices. Certainly there were some installers that were slicker than others, but it has to be said that none gave us any trouble to speak of. Then again, we were using Windows 98 SE, with full support for USB. Many of the cameras claimed compatibility with Windows 95 OSR2, but in our experience, USB on this platform can be far from a fun experience. Looking forward, there's no reason Windows 2000 couldn't be supported, so check the manufacturer's websites for relevant advice or driver updates. Either way, if you're into webcamming today, go for Windows 98 SE.

Quality-wise, all the devices were capable of delivering the goods in an online environment, but remember that your connection will probably be the limiting factor. Making video calls with a 56K modem over the Internet produces highly variable results, but it's worth a shot, particularly for cheap long distance chats. Also, remember that a regularly updated webcam will need to be equally regularly connected to the Internet, and for dialup accounts, this could prove expensive or infrequent. Clearly a permanent connection to the Internet is highly desirable in this respect, and the forthcoming availability of ADSL and cable modems should see these applications rocket.

Locally speaking there were slight differences between the devices. The 640 x 480 pixel still images captured with each device varied in quality, but none were anywhere near the quality you'd get on a cheap digital camera or scanner. It's best to consider still capture as a bonus, that's adequate for a quick snap.

Motion capture was more promising, but limitations meant smooth frame rates were only possible at resolutions of less than 352 x 288. Then again, our eyes are expert at picking up moving details, and even on a tiny 160 x 120 window, a short video clip with audio is useful.

## The winners

Now for the awards. All 12 devices could do the job, but a handful stood out from the crowd. Creative Labs and VideoLogic deserve a mention for a pair of great products which were just pipped at the post, but our **Highly Commended** awards go to Intel's PC Camera Pro Pack and Logitech's QuickCam Web. Intel boasted a composite video input for capturing from other sources, while Logitech's built-in USB microphone and clever overhanging mounting were welcome innovations. Both offered excellent quality, great software, and were also the only two to offer sliding privacy shutters.

Beating both for the **Editor's Choice**, but only by a hair's breadth, was the Philips Vesta Pro. Like the Logitech, it was a superb design with built-in USB microphone, and a great all-round package. The clincher, however, was the price: while Logitech and Intel's products retail at around £70, Philips was only asking £52.87. Shop around and you may find a better deal, but for our money, you can't go wrong with the Philips Vesta Pro – just make sure you download some webcam utilities.



*Philips Vesta Pro wins on design and price*



*Intel's offering has composite video input*



*Logitech's mounting caught our eye*