

Picture this

With image quality improving and prices coming down, digital cameras are a real alternative for getting pictures from camera to PC without using a scanner. We tried out a crop of the latest cameras

The world of cameras is undergoing something of a revolution. Film, the traditional photographic medium, has a rival, and it's digital.

Digital technology has irreversibly changed recorded music, and recorded images are the next logical progression. Although digital cameras aren't a new invention (models have, in fact, been available for the past couple of years), the latest crop are the first to combine high-quality images with an affordable price.

Digital cameras can't quite match the image quality of a cheap 35mm one. Some get pretty close and, as long as you're aware of their limitations, digital cameras can be an effective replacement for the traditional variety.



Camera costs

A capable 35mm compact camera can be bought for £100 or so; the cheapest digital camera costs twice that. So what exactly does that extra cash buy you? At first glance, not much – few digital cameras have all the bells and whistles of even a cheap camera. Look further though, and they start to make sense for some applications.

Although initially expensive, a digital camera has very low running costs and when it's taking pictures, the only things it uses up are batteries. Pictures cost next to nothing to take and if the camera has a built-in screen, you can keep taking a picture until you can see you've got it exactly right.

Since pictures are stored electronically, it's no trouble transferring them to a PC, removing the need for a scanner. If the PC is a notebook, add a modem and pictures can be sent from anywhere to another machine in the world in a matter of minutes.

It's not all sweetness and light, though, and digital cameras do have their drawbacks. The most obvious is that a digital camera needs to be connected to a PC before you can get at the pictures, adding another £1,000 or so to the cost of the setup. Some cameras can be linked directly to a dedicated printer but these tend to be expensive to buy and run.

Fill up a roll of film in a 35mm camera and you can pop in another. Reach a digital camera's capacity and that's the end of your photographic expedition. Some cameras can store images on removable flash memory, which is a useful, if expensive solution. Others allow individual images to be deleted, freeing up useful space, but if you plan on taking lots of pictures, consider taking a notebook PC with you so you can transfer them to that.

Agfa ePhoto 307

Agfa is involved in pretty much everything else to do with image capture, so it's no surprise that it has a digital camera as well.

Physically, the ePhoto 307 is similar to the Epson PhotoPC 500 (reviewed later in these pages) but the pseudo-1970s styling is executed with a little more panache. It's just as bulky though, and despite the cylindrical grip on the right of the case, it's still awkward to hold.

Lenses are easily damaged and given the price of a digital camera, it's good to see a protective panel covering the ePhoto 307's lens. Sliding the panel back results in a tactile click and the camera turns on. When closed, the panel also blocks the viewfinder, thus preventing embarrassing 'taking-a-picture-with-the-lens-cap-on' accidents.

The number of pictures remaining and the current mode are shown by an LCD panel on top of the ePhoto 307 and there are four small buttons for cycling through the various features. Given the camera's size, it's good to see that the viewfinder is of a similar scale and two LEDs next to it indicate when the camera is ready and when it is storing a picture.

With image quality that is up there with the best and a price that is down there with the cheapest, the Agfa ePhoto 307 is an absolute bargain.

Agfa ePhoto 307

Ease of use	★★★★★
Features	★★★★★
Picture quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

○ £299 (inc VAT)
○ Agfa: 0181 560 2131

Apple QuickTake 200 & Fuji DS-7

Apart from their colours, the Apple QuickTake 200 and Fuji DS-7 are physically identical. Their styling may not be to everyone's taste, but at least they're solidly built.

There is a large dial on top of the cameras to select the various modes, and two sliding switches activate other functions. Both cameras do without a viewfinder and instead use a colour LCD display on the back panel for framing pictures. This makes taking pictures in broad daylight problematic, though images can be previewed, deleted and retaken until you get them right.

The DS-7 has a fuller accessory pack than the QuickTake. In addition to software for PC and Mac links (the QuickTake is Mac-only), it comes with a mains adaptor and rechargeable batteries with charger.

Although there is not much between the two in terms of image detail, the DS-7 beats the QuickTake 200 on capturing colours. It is much more expensive, though, but does come with several accessories.

○ QuickTake 200: £299 (inc VAT) ○ DS-7: £499 (inc VAT)
○ Apple: 0800 127753 ○ Fuji: 0171 586 5900

Apple QuickTake

Ease of use	★★★★★
Features	★★★★★
Picture quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

Fuji DS-7

Ease of use	★★★★★
Features	★★★★★
Picture quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

Casio QV-100

Casio has two digital cameras in its range, shortly to be increased to three. For the moment though, the QV-100 is its highest specification model.

Not surprisingly for a consumer electronics wizard like Casio, the QV-100 is extremely compact. Like the Sony DSC-F1 reviewed later, it also looks like a fantastic gadget. The lens is mounted on a swivelling unit on the left of the case and since the viewfinder is an LCD panel on the camera's back, this allows such feats as taking pictures over the heads of crowds.

The QV-100 is solidly built and light enough to slip into a pocket, though the rotating lens may be prone to snagging since it doesn't lock into position. A strip of buttons across the top select the various options and although there isn't a flash, there is a button to select between normal and low light levels.

The LCD panel isn't the clearest of the bunch but the camera can store the most pictures. These can be previewed singly on the LCD as usual, but it's also possible to tile them four or 16 to a screen – useful for choosing which one to delete when freeing up memory.

Given its price, the QV-100's image quality is frankly dreadful. Image capacity is outstanding, though that hardly makes up for it.

Casio QV-100

Ease of use	★★★★★
Features	★★★★★
Picture quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

○ £587.49 (inc VAT)
○ Casio: 0181 893 2592

Agfa ePhoto 307



Not the richest in the colour department, but the Agfa ePhoto 307 images are still reasonably crisp and clear.

Casio QV-100



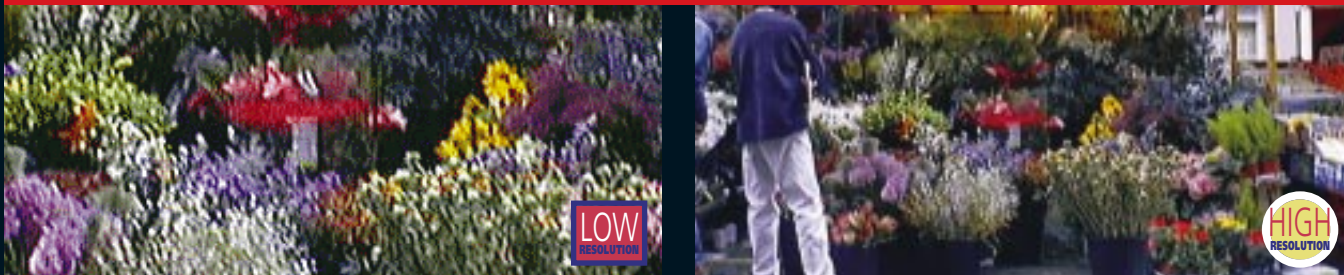
Not a particularly impressive performance from the Casio QV-100. The image is fuzzy with blue vertical lines from the CCD (see box on the last page of this article) and is over-exposed.

Apple QuickTake 200



Contrast is lacking in the Apple QuickTake 200's images, resulting in pictures that look a little washed out. They're still reasonably clear, though.

Fuji DS-7



The Fuji DS-7 has done a better job of capturing the colours and has a sharper contrast. Oddly, as well as dropping the resolution, standard images are also cropped to save space.

Epson PhotoPC 500



A good performance from the Epson PhotoPC 500. Clear with bright colours, though a touch over-exposed in places.

Kodak DC20



Considering it's the cheapest camera here, the DC20's image quality isn't bad at all. The exposure isn't perfect and colours aren't the brightest but otherwise it's adequate for snapshots.

Kodak DC25



The resolution of the DC25 is the same as its cheaper sibling but although colours are generally richer, no more detail is captured.

Nikon Coolpix 100



The Nikon Coolpix 100 uses JPEG compression when storing its images, giving 42 in normal mode and 21 in fine. The difference is only apparent upon close inspection, though fine-mode images have slightly sharper contrast.

Olympus Camedia C-410L



The clarity of the Camedia C-410L is very impressive and it captures the vivid colours of the flower stall most successfully. In standard mode, the Camedia is also capacious – 120 images.

Sony DSC-F1



The Sony DSC-F1's images are wonderfully vibrant but unfortunately not the clearest. The DSC-F1 also uses JPEG compression, and 108 images in economy mode is very useful.

Digital cameras compared										Digital cameras compared									
Make & model	Focal length	Maximum aperture	Focusing	Close focus	CCD pixels	Internal memory (max)	Economy images	Standard images	Fine images	Maximum resolution (pixels)	LCD monitor	Flash	TWAIN compliant	Batteries	Mains adaptor	Size mm (wxhxd)	Weight (without batteries)	System	Make & model
Agfa ePhoto 307	6mm	f/2.8	Fixed	60cm	22,320	2Mb	n/a	72	36	640x480	○	●	●	4 x AA	Optional	143x84x47	274g	PC/Mac	Agfa ePhoto 307
Apple QuickTake 200	7mm	f/2.8	Fixed	25.4cm	2,320	2Mb	n/a	30	20	640x480	●	○	●	4 x AA	Optional	129x77x47	240g	Mac	Apple QuickTake 200
Casio QV-100	4.2mm	f/2.8	Fixed	11cm	32,320	4Mb	n/a	192	64	640x480	●	●	○	4 x AA	Optional	139x66x40	190g	PC/Mac	Casio QV-100
Epson PhotoPC 500	6mm	f/2.8	Autofocus	20cm	2,320	2Mb	n/a	60	30	640x480	Optional	●	●	4 x AA	Optional	142x81x53	300g	PC/Mac	Epson PhotoPC 500
Fuji DS-7	5.7mm	f/2.2	Fixed	9cm	22,320	2Mb	n/a	60	30	640x480	●	○	●	4x rechargeable AA	●	129x77x47	240g	PC/Mac	Fuji DS-7
Kodak DC20	7mm	f/4	Fixed	50cm	3,392	1Mb	n/a	16	8	493x373	○	○	●	1x 3V Lithium	○	102x61x31	133g	PC/Mac	Kodak DC20
Kodak DC25	7mm	f/4	Fixed	50cm	3,392	2Mb	n/a	27	14	493x373	●	●	●	2x 3V Lithium	Optional	130x71x40	270g	PC/Mac	Kodak DC25
Nikon Coolpix 100	6.2mm	f/4	Autofocus	14cm	2,320	1Mb	n/a	42	21	512x480	○	●	○	4 x AA	Optional	60x154.5x34.5	160g	PC/Mac	Nikon Coolpix 100
Olympus Camedia C-410L	5mm	f/11	Autofocus	20cm	22,320	3Mb	n/a	120	30	640x480	●	●	○	4 x AA	Optional	145x72x47	295g	PC/Mac	Olympus Camedia C-410L
Sony DSC-F1	4.8mm	f/1.2	Fixed	8cm	22,320	4Mb	108	58	30	640x480	●	●	●	1x rechargeable	Supplied	102x78x41	300g	PC/Mac	Sony DSC-F1

● = Yes ○ = No

Epson PhotoPC 500

Probably best-known for its superb inkjet printers, Epson also makes devices to get images in and not just out of computers. The Epson PhotoPC 500 stands alongside the company's range of scanners in this respect.



The PhotoPC 500 is a little on the large side but at least its chunkiness hasn't resulted in extra weight. That said, it doesn't feel particularly robust, though there's nothing obvious to snap off and lose.

A large rubber grip on the right-hand side of the body makes the PhotoPC 500 easy to hold steady, but the camera's thickness may make it tricky for small hands to hold. The shutter release shares the top of the camera with an LCD display and a quartet of smaller buttons, used to access the PhotoPC 500's various functions.

A sliding switch on the front of the PhotoPC 500 turns it on and slides back the lens's protective cover. Picture framing is easy, thanks to the large, clear viewfinder and two small LEDs next to that indicate when the camera is ready for use or storing a picture.

Big and bulky it may be, but the Epson ePhoto 307 takes great pictures and is reasonably priced.

Epson PhotoPC 500	
Ease of use	★★★★★
Features	★★★★★
Picture quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

○ £470 (inc VAT)
○ Epson: 0800 289622

Kodak DC20

If anyone ought to know something about cameras, it's Kodak. It has three digital cameras in its range (two of which are reviewed in these pages) and the DC20 sits at the bottom.



Even by compact 35mm standards, the DC20 is small – not much larger than a cigarette packet. It is the cheapest of the cameras here and although it unfortunately looks it, it nevertheless has a certain cute appeal.

Not surprisingly given its price, the DC20 isn't big on features. There's no flash to worry about and it makes do without any form of LCD. Unfortunately, this does mean that there's no way to tell how many pictures the DC20 has taken but there is at least an LED that glows when the memory is full.

Apart from the shutter release, there's only one other button on the DC20, used to erase its memory. Individual pictures can't be deleted and since the DC20's capacity isn't great, pictures need to be taken with more care than usual.

Alas, the pokey viewfinder makes careful framing difficult, as does the lack of frame lines. Since the camera is intended for snapshots, not professional photographs, this doesn't matter too much.

Cheap and reasonably cheerful, the Kodak DC20 is ideally suited for occasional snapshots, though Agfa's ePhoto 307 is better value.

Kodak DC20	
Ease of use	★★★★★
Features	★★★★★
Picture quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

○ £199 (inc VAT)
○ Kodak: 0800 281487

Kodak DC25

The Kodak DC25 is a couple of hundred pounds more expensive than the DC20 and is bigger, has more features and looks a tad less stylish.



Unlike the smooth DC20, the DC25's case has several humps and bumps. This makes it slightly uncomfortable to hold but it's still compact by digital camera standards. The finish is similar to the DC20's, though and it has to be said that it still looks rather cheap.

The DC25 is replete with buttons and switches. The shutter release and other buttons sit on the top right of the camera, with two sliding switches on the left and another five buttons on the back.

Although the DC25 has both viewfinder and LCD panel, pictures can only be framed using the viewfinder. The LCD is reserved solely for reviewing pictures already taken, reducing the camera's functionality somewhat.

This isn't the most intuitive camera to use. Buttons don't do what you would think and the only way to find out how many pictures are left is to turn on the screen. Pictures can't be taken with the screen on, though, resulting in more button pressing.

The DC25 has more features than the cheaper DC20 and takes brighter pictures, but whether it's worth the extra money is debatable.

Kodak DC25	
Ease of use	★★★★★
Features	★★★★★
Picture quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

○ £399 (inc VAT)
○ Kodak: 0800 281487

Nikon Coolpix 100

Nikon is another company that knows a few things about cameras but its Coolpix 100 isn't quite what you'd expect its foray into digital cameras to look like.



First of all, Nikon's Coolpix 100 looks nothing like a camera. Long and thin, it's eminently pocketable but the design means that it has to be held vertically, rather than horizontally. This arrangement actually works rather well but it does give the impression that you're a doctor about to take a look into someone's ear.

A sliding switch turns on the Coolpix and the shutter release sits in a dip on the front of the case. The viewfinder is large and clear but the image frame area occupies a surprisingly small area. An LCD display on top of the camera shows shots remaining, together with the mode selected with one of four small buttons.

The Coolpix doesn't come with a PC link lead – it doesn't need one. Press a button on either side of the case and the camera splits in two. The half containing the lens slides out of the battery case to reveal an attached PC Card. Slot the unit into a notebook's PC Card slot and the card acts as another disk drive, allowing the images to be read directly from it.

The Nikon Coolpix 100 occupies the middle ground in terms of picture quality but scores highly for convenience – if you have a notebook PC, that is.

Nikon Coolpix 100	
Ease of use	★★★★★
Features	★★★★★
Picture quality	★★★★★
Value for money	★★★★★
Overall	★★★★★

○ £515.83 (inc VAT)
○ Nikon: 0800 230220



Olympus Camedia C-410L

Of all the digital cameras reviewed here, the Olympus C-410L is the one that looks most like an ordinary 35mm compact camera.

This camera is rather stylish, making a change from the other square-edged functional boxes. The front of the camera curves in a sweeping 'S' shape, culminating in a thick wedge on the right that acts as a sturdy hand grip.

A sliding cover protects the autofocus lens and doubles as an on/off switch. The viewfinder is smaller than you might expect on a camera that is otherwise well thought out but it's still clear enough in use. The large silver shutter release button uses the familiar 35mm system of a half-press to lock the focus, and five smaller buttons select various camera functions.

There are two LCD panels – one on the top to show mode and pictures remaining and a colour one on the back that acts as both viewfinder and picture viewer. In viewfinder mode, the screen is only active when a small button is pressed and although this saves on batteries, it makes the operation rather fiddly. Close the lens cover and the LCD can then view pictures that have been taken and individual images can be deleted.

The picture quality of the C-410L is astonishing, but then so is the price. A well-designed camera for demanding users.



Olympus Camedia C-410L

Ease of use	★ ★ ★ ★ ★
Features	★ ★ ★ ★ ★
Picture quality	★ ★ ★ ★ ★
Value for money	★ ★ ★ ★ ★
Overall	★ ★ ★ ★ ★

○ £587.49 (inc VAT)
○ Olympus: 0171 253 0513

Sony DSC-F1

Given Sony's track record for producing fiendishly compact pieces of desirable consumer electronics, the DSC-F1 should come as no surprise.

A little larger than the Kodak DC20, the DSC-F1 still manages to cram in a wide range of handy features. Most obvious is the lens and flash unit. Mounted on a barrel on top of the camera, it can be rotated through 180 degrees to allow a variety of shooting angles.

The DSC-F1's shutter release is in the usual place but that's about as traditional as the DSC-F1 gets. There's no viewfinder – images are framed using a crystal-clear colour LCD on the rear of the camera – and a dial on the right of the case switches between off, record and playback.

Stepping through the DSC-F1's functions is a little confusing – it uses a combined button and dial, plus an on-screen menu. Not that this cuts down on the number of buttons, of which there are seven, alongside the LCD, for various features.

The Sony DSC-F1 is a fantastically compact camera bristling with features but is let down badly by an outrageous price.



Sony DSC-F1

Ease of use	★ ★ ★ ★ ★
Features	★ ★ ★ ★ ★
Picture quality	★ ★ ★ ★ ★
Value for money	★ ★ ★ ★ ★
Overall	★ ★ ★ ★ ★

○ £699.13 (inc VAT)
○ Sony: 0990 424424

How digital cameras work

Although the principles are broadly similar, a digital camera stores images in a very different way to a standard 35mm camera. In a normal camera, pressing the shutter release button causes light to briefly pass through the lens and then strike an area of light-sensitive film. The film reacts to the light, stores the image and is then wound on to a blank portion.

Instead of film, digital cameras use a CCD – Charge-Coupled Device. This is a rectangular plate that consists of thousands of light-sensitive elements. Each element corresponds to a pixel on the image, so the more there are, the better the image quality.

When the shutter is opened, each CCD element records the colour and intensity of the light striking it. The resulting numerical information is then stored in the camera's memory, creating a digital record of the image. Unlike film, the action of storing the information takes a few seconds, and so digital cameras can't take pictures in rapid succession.



Awarding a Best Buy for the cameras tested here is a little tricky. Which is most important – picture quality, features or price? In the end, we tried to strike a balance and so chose a camera that we feel offers the best combination of all. For a touch under £300, the Agfa ePhoto

307 is still expensive compared to a 35mm compact, but compared to the other cameras here, it represents staggeringly good value for money. Chunky but well-built, the ePhoto is easy to use and has plenty of storage capacity. Add to this good-quality images and you end up with an absolute bargain.



If image quality is paramount then there's no question about it – the Olympus Camedia C-410L is the camera to go for. It's not cheap, but an LCD viewfinder and crisp pictures with vibrant colours make it almost, almost worth it. It's well designed too, looking more like a standard 35mm compact than most. The Kodak DC20 also gets a mention. The cheapest digital camera around, it still offers respectable performance, though the lack of frills make it trickier to use than some. If you're on a tight budget, it is good value for money.

Julian Prokaza