

Technofile: digital projectors

Digital projectors vary from heavy-duty models for the office meeting room to portable devices for the travelling executive, while more and more home users are investing in mid-range devices to turn their current computer setup into a home cinema extravaganza. Robin Morris highlights what's available in these three categories



Projectors are more streamlined, eye-catching and affordable than ever before. Whether you want to use your projector in the office, at home or take it on the road, it's easier than ever to find one to suit your needs. There are three main categories of projector and in this feature we will look at each one in turn.

We kick off with the largest sector – office projectors. Whether based in a meeting room or a conference hall, this category offers the widest choice of all. If you need to do offsite presentations, then you'll have different requirements, so we also look at what's available on the portable market, and give you tips on how to make your projector more effective. Finally, we look at the home projector market. We explore what home users are looking for from a projector and how manufacturers are adapting their products to make them suitable for use in a home cinema setup.

Office projectors

With the increased sophistication of Windows applications, more and more projectors are offering XGA (1,024x768) resolution support as standard. By using more pixels to construct the image, XGA allows for a greater depth of detail than older SVGA (800x600) models. Although the latter are fine for displaying basic presentations, for spreadsheets and high-definition video, you should look to XGA.

Don't pay attention to anything other than the projector's native hardware resolution. Most models can emulate higher resolutions, but the results tend to be patchy. To truly assess resolution capabilities, load up a blank Excel spreadsheet. Gradually increase the resolution on the PC, and notice how the cells start to disintegrate as the projector gets out of its depth.

See the light

You no longer have to block out all light sources to get a visible picture using a projector, but the results may be less effective if you don't choose a model suited to your environment and intended image size. The key is the projector's brightness rating. Measured in ANSI lumens, this can vary from a few hundred to several thousand. A modest 72in image can be displayed in a light room without blinds using just 600 ANSI lumens. If you're looking for a picture in excess of 100in, however, choose a projector capable of at least 1,100 ANSI lumens.

In a dimmed room you have more options open to you, although to generate

a clear 100in image look for at least 800 ANSI lumens. Some projectors offer more in the way of brightness. Canon's LV-7545, for instance, touts 3,700 ANSI lumens.

Projector lamps have to be replaced from time to time. The prices may be steep – they can reach upwards of £250 – but the running times are long. A typical lamp has a life of 2,000 hours, so the running costs associated with them are unlikely to be a decisive factor. Nonetheless, frequent users will note some discrepancies. The value-for-money Toshiba TLP-551 costs just 12.5p an hour, for example, compared to 30p an hour demanded by the Sanyo PLC-XW20.

The easy availability of spares is likely to be far more important. Lamp failures are rare, but all the same you don't want to be left with a redundant projector simply because the manufacturer no longer supplies the parts. It's also worth finding out whether the projector has an Economy mode, as this can extend the lamp's lifetime by 50 percent or more.

Carry weight

Projector prices increase as the weight falls off. Most modern devices are light enough to be carried from one room to another, so unless you'll be making frequent long-distance trips you could save money by opting for a bulkier model. In fact, if the projector will be staying in one room, a heavy-duty model will provide greater durability. Not only that, the bigger the projector the more ports you're likely to be offered. A USB port will allow you to hook up a full size mouse, while a DVI (digital visual interface) could also prove an asset.

◀ Our current Best Buy, the Toshiba TLP-551, offers great looks, quality and economy



One of the most significant features on a large projector is the manual lens shift function. Models like the Canon LV-7545 let you manually reposition the lens so that you can put the image where you want it. If you'll be relying on the manual lens shift, test it before you buy. Some models will have this feature integrated, but cripple its effectiveness by limiting the amount of lens travel.

Room service

Having a dedicated projector room will allow for the best results. Attaching the projector to the ceiling is the perfect way of maximising floor space and increasing security. The price of ceiling mounting will vary, although you should be able to get a basic kit for around £200. You can also maximise picture quality by acquiring a high-quality projection screen from a photography store. Although most projectors come with built-in speakers, the tinny audio quality isn't impressive. Instead, consider having a full sound system installed – Creative offers a range of speakers including the Inspire 5300 for around £100. Better still is the meaty Videologic DigiTheatre DTS, which is great value at around £400.

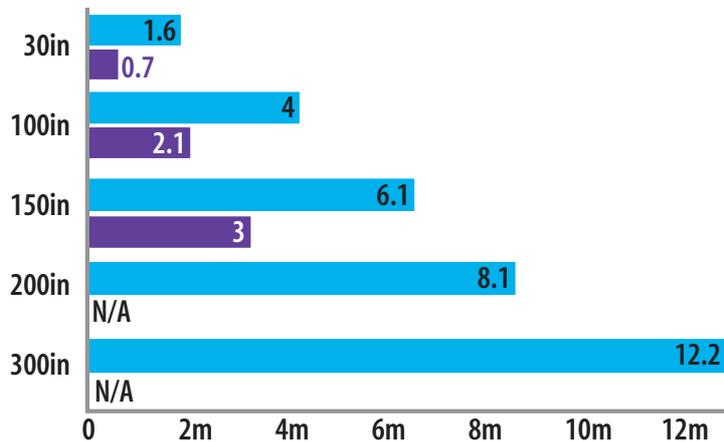
Office choice

For most office users the Toshiba TLP-551, our current chart leader, offers the perfect mixture of features and performance. Its stunning picture size and good quality ensure it'll look the part in any small- to medium-sized meeting room. However, the incredibly powerful Canon LV-7545 is the only model with enough force to take a conference hall by storm.

Short throw lens

Ever-decreasing prices have fuelled the rush for projectors. However, there is one development that will plant them firmly in the mainstream – the short throw lens. Traditionally, the projector displays an image on a wall or screen. As the projector is moved further away from the wall, the maximum size of the image increases. So where a projector placed 1.6m from the wall displays a 30in image, the same model standing 12.2m from the wall would display an eye-popping 300in picture.

The short throw lens effectively doubles the screen size, producing fantastic results in restricted space. The technology does have its problems, though, and in models like the Toshiba TLP-551 images are less focused and the colour palette is lighter than on some of the best standard models. Neither is it the ideal choice for conference halls, as it doesn't work well over longer distances. Only the very richest of customers are going to have the space to fully utilise standard projector technology. For the rest of us, a short throw lens is a crucial factor in getting the latest cinematic experience or making the right impression on an important client.



Portable projectors

A top-of-the-range projector with a host of accessories is all very well, but what if you're taking it on the road? The bells and whistles won't ensure a dynamic performance if you're still recovering from hauling your projector's 10kg carcass the length of the city. There's a whole range of portable projectors designed to minimise fatigue, but choosing the correct model requires you to enter the murky world of sales jargon. You'll find such terms as portable, ultra-portable and micro-portable being thrown around, so your best option is to focus on the weight.

If a projector is classed as 'portable' this simply means that one person can lift it and carry it for a short distance. The ultra-portable tag tends to cover models weighing under 5kg. These may be slim, but you're still going to feel the strain after

lugging one of them around for a while. For genuine ease of movement, look to the micro-portable projectors. These can weigh up to 3.5kg, although the true micro-portable will tip the scales at under 2.5kg. Indeed, with their tiny 1.5kg frames the Eizo IX421M and NEC LT150Z can be easily ferried from location to location.

In terms of picture quality, even the micro-portable projectors vary little from the heavier models. The Eizo and NEC generate images every bit as sharp as their bulkier rivals. Expect to pay around £200 more for the privilege of compact casing, although the value-for-money Eizo demonstrates that the cost of portability is far from prohibitive.

Word of caution

Micro-portables are unlikely to offer the same range of ports and connectors. Their cases, designed for portability over protection,

Top 10 presentation tips

1. A standard lens will be perfect for a conference hall; use a short throw lens for meeting rooms.
2. Use a projector offering at least 800 Ansi lumens for a 70in display, 1,100 Ansi lumens for a 100in display and 3,000 Ansi lumens for 150in or more.
3. SVGA (800x600) resolution is clear and bold, making it perfect for PowerPoint presentations. For more detailed spreadsheets and text documents, choose XGA (1,024x768).
4. If you're using audio, position the speakers so that the audience is in the middle of the sound field.
5. Most projectors have laser pointers and USB mouse options. If these make your job easier, use them.
6. When constructing your presentation, leave a half-inch border around the edges in case you have to use a smaller screen.
7. Choose fonts carefully. Stick to clean fonts (like Arial and sans serif fonts) and never use more than two or three.
8. A different coloured background will make you stand out from the crowd, but first test your new scheme on some neutral observers.
9. Turn off all screensavers, power saving facilities and Office Assistants.
10. Reinforce an important point by drawing on the screen. Use Ctrl, P to bring up the pen tool and click and drag the mouse to start scribbling.

are more likely to be damaged so you'll need a hard carrycase. Also extend the warranty and, if you'll be taking the projector abroad, check that the manufacturer offers overseas service.

↳ Sub-1.5kg models, like this NEC, make good sense



Features comparison

Product	Telephone	Website	Price (ex VAT)	Warranty	Maximum brightness (Ansi lumens)	Lamp life	Lamp power	Replacement bulb (ex VAT)	Weight	Maximum resolution (dots per inch)	
Office projectors											
Canon LV-7340	0800 616 417	www.canon.co.uk	£2,799	1-year	1,500	2,000 hours	200 Watts	£305	4kg	1,024x768	
 Canon LV-7545	0800 616 417	www.canon.co.uk	£5,499	1-year	3,700	1,500 hours	200 Watts	£385	8.5kg	1,024x768	
Epson EMP-600	0800 220 546	www.epson.co.uk	£2,949	3-year	1,700	1,500 hours	200 Watts	£396	4.2kg	800x600	
Sanyo PLC-XW20	01923 246 363	www.sanyo.co.uk	£2,595	3-year	1,100	1,000 hours	150 Watts	£300	2.8kg	1,024x768	
 Toshiba TLP-551	01932 828 828	www.toshiba.co.uk	£2,895	3-year	1,100	2,000 hours	270 Watts	£250	3.2kg	1,024x768	
Portable projectors											
 Eizo IX421M	01483 719 505	www.eizo.co.uk	£2,440	3-year	1,000	1,000 hours	130 Watts	£260	1.5kg	1,024x768	
InFocus LP530	0800 028 6470	www.infocus.com	£2,740	2-year	2,000	2,000 hours	270 Watts	£255	2.6kg	1,024x768	
 NEC LT150Z	0645 404 020	www.nec.co.uk	£2,867	3-year	1,000	1,500 hours	135 Watts	£313	1.5kg	1,024x768	
Philips UGO S-lite	01756 702 892	www.ce.philips.co.uk	£1,849	1-year	1,000	1,000 hours	130 Watts	£429	1.5kg	800x600	
Sony VPD-MX10	08705 111 999	www.sony.co.uk	£2,650	2-year	1,000	2,000 hours	130 Watts	£300	2kg	1,024x768	
Home projectors											
CTX PS-6160	01923 810 800	www.ctxeurope.com	£2,129	2-year	1,600	4,000 hours	120 Watts	£199	3.26kg	1,024x768	
 Epson EMP-TW100	0800 220 546	www.epson.co.uk	£3,599	3-year	700	3,000 hours	150 Watts	£300	4.2kg	1,280x720	
 NEC VT45	0645 404 020	www.nec.co.uk	£1,965	3-year	1,000/800 hours	1,000/2,000	135/110 Watts	£291	2.5kg	800x600	
 Panasonic PT-LC75	08700 100 464	www.panasonic.co.uk	£2,495	2-year	1,200	4,000 hours	160 Watts	£210	2.8kg	1,024x768	
Sony VPL-HS1	08705 111 999	www.sony.co.uk	£1,871	2-year	700	2,000 hours	120 Watts	£182	3.9kg	800x600	

You can't guarantee optimum projection conditions on the road, so err on the side of caution when picking specifications. Light levels may be difficult to control, so don't select a model with a brightness rating under 1,000 Ansi lumens. Indeed, 1,200 or more is preferable and a model like the InFocus LP530, offering 2,000 Ansi lumens, should ensure a perfect presentation in almost any environment.

Don't undervalue ease of use. The ability to quickly adjust the projector's settings to suit the location makes a big difference. Try and test the controls – both remote and on the projector – before you buy: the NEC and Eizo have the most intuitive and versatile control panels.

Memory loss

Unfortunately, the memory card slot hasn't become a standard feature on portable projectors, but you can still opt for a model

with a dedicated storage device. NEC's LT150Z, for example, allows you to copy slides on to CompactFlash cards. Not only can presentations be displayed, but the running order can be altered and special touches applied without even touching a PC or laptop. At £15 for a 32MB card, it is cheap enough to store a whole library of presentations. Sony's VPD-MX10 projector stores images on its proprietary Memory Stick media. At a little over £50 for 64MB this is tempting, and it's compatible with a slew of other Sony products – if not with many products from other makers.

Portable choice

For portable users, the value-for-money Eizo is the favourite with its stunning image quality. Another good purchase is the NEC LT150Z, where the inclusion of a CompactFlash option is a useful complement to the 1.5kg frame.

Home projectors

At a time when magnificent image quality is available for no more than the price of a good power PC, it's no wonder that increasing numbers of manufacturers are paying more than lip service to the home projectors market. The prices may still be too high for anyone who isn't a dedicated cinephile, but even a sub-£2,000 model will transform your viewing experience.

When choosing a home projector, the factors to look for are high image quality, quiet operation and a large maximum image size. Don't be conned into buying a corporate projector masquerading as a home model. You don't need a barrage of DVI and USB ports, while an excessive brightness rating will do no more than cause you a headache.

	Dimensions (width x depth x height)	Maximum screen size/distance	Contrast ratio	Economy mode	PC Card/ Memory Stick	DVI/ RGB	S-Video	Speakers	Noise (decibels)	Short throw lens
	332x232x90mm	300in/12m	350:1	Y	N	Y/Y	Y	Y	37dB	N
	319x465x168mm	400in/14.7m	800:1	Y	N	Y/Y	Y	Y	37dB	N
	349x276x114mm	300in/12.48m	400:1	N	N	Y/Y	Y	Y	38dB	Y
	257x229x75mm	200in/8.1m	300:1	N	N	Y/Y	Y	Y	37dB	N
	260x295x96mm	180in/3.63m	400:1	N	N	N/Y	Y	Y	34dB	Y
	230x177x48mm	200in/8m	650:1	N	N	Y/Y	Y	Y	36dB	N
	260x305x85mm	258in/9.1m	400:1	Y	N	Y/Y	Y	Y	39dB	N
	243x96x53mm	200in/10m	400:1	Y	Y	N/Y	Y	Y	38dB	N
	230x177x48mm	200in/9.4m	650:1	N	N	N/Y	Y	Y	39dB	N
	255x229x58mm	150in/7.1m	N/A	N	Y	Y/Y	Y	Y	37dB	N
	325x250x92mm	252.4in/10m	400:1	N	N	N/Y	Y	Y	34dB	N
	349x276x114mm	300in/10m	600:1	N	N	N/Y	Y	Y	30dB	Y
	299x207x90mm	300in/11.2m	300:1	Y	N	N/Y	Y	Y	38dB	N
	310x243x86mm	300in/10.7m	400:1	Y	N	N/Y	Y	Y	30dB	Y
	340x300x154mm	150in/6.8m	400:1	N	Y	N/Y	Y	Y	33dB	Y

Although you'll get a satisfactory viewing experience from SVGA (800x600) resolution, you'll notice the increased image quality when viewing your films through an XGA (1,024x768) model like the Panasonic PT-LC75. For even more stunning results, however, look for a top-flight home projector like Epson's EMP-TW100. Offering the home cinema-specific W-SVGA (1,280x720) mode, this is the perfect way to get the best from widescreen cinema.

Projectors generate plenty of heat, and the fans needed to keep temperatures down tend to be noisy. The loud droning noise may fade into the background when competing with the spiel of the sales director, but in the solitude of your sitting room it could prove less easy to ignore. You can gauge how loud a projector will be by looking at the noise level. This is measured in decibels and ranges from

unbearably loud (anything above 39dB) down to almost silent (30db). A rating of 35dB and below is acceptable, although if you get the chance to try out the projector in a home environment (rather than a bustling showroom), it could save you from any unpleasant surprises. Aesthetically, the results are far from uniform. The trendy styling of Sony's VPL-H51 demands pride of place. The socket-laden NEC VT45, on the other hand, is probably one fashion statement you'll want to relegate to last season's bargain bin.

Older projectors tend to handle dark colours less well, and for high-calibre video output it's worth looking for a high contrast ratio. For the best results, look to the 600:1 contrast ratio of a model like the Epson EMP-TW100.



◀ The Panasonic PT-LC75 is almost silent and produces great images

Home choice

For home users with £3,000 to spare, the Epson EMP-TW100 is a fantastic choice. It has wonderfully quiet operation, massive screen size and superb widescreen facilities, which are all more than enough to push it to the front of the home-cinema queue. On a slightly more economical note, the NEC VT45 is good value, while the Panasonic PT-LC75 appealed to us on the strength of its virtually silent fan. ■