

Pocket power

Step into the Nineties and replace that bulging Filofax with a Personal Digital Assistant (PDA). Choices range from devices to store telephone numbers to power-packed mini PCs small enough to fit in your pocket. We survey the scene

In the Seventies you might have struggled with a full-page diary replete with badly handwritten entries. In the Eighties a Filofax, bulging at its weathered clasp, could have been the recipient of your hastily scribbled appointments and notes. Now it's the Nineties, and the modern way to organise your life is electronically – with a little help from a Personal Digital Assistant, or PDA for short.

PDA is a term that's been widely used to describe any number of the recent breed of hand-held organisers. Some of these are very basic and can store nothing more than a few truncated names along with telephone numbers, while others boast of being fully-fledged computers with large memories and wide expansion capabilities. With so many companies claiming that their machines are the best thing since sliced bread, and with the 'PDA' label being so wildly applied, it's understandable if you're a little confused.

So what is a real PDA? In a nutshell, a PDA should offer most of the functionality of a desktop PC, but in a highly portable, preferably pocketable, form. Additionally, the machine should have some facility whereby it can hook up to a desktop computer and exchange data. Add-ons and extras for PDAs, such as modems and other software packages, are extremely useful if available, but you should not consider them a requirement.

For this test we've filled our pockets with eight of the most popular and powerful current models, and crammed the remaining space in our briefcases with a few of the cheaper machines.

Psion 3c

The name Psion and the term PDA go together like bread and butter, but that hasn't always been the case. The London-based company began life in the early Eighties, writing games and educational software for home computers like the Sinclair Spectrum. In the mid-Eighties, the tiny software house branched out into the embryonic personal organiser market and launched the Psion Organiser.

This was a success and set Psion on a path which led to the company's current position as the manufacturer of the world's leading personal organiser – the Psion 3a. In the October 1996 issue of *What PC?* we published an exclusive review of the long-awaited follow-up to the 3a – the Psion 3c.

Physically the 3c is almost identical to its predecessor. The main noticeable difference is an inconspicuous IrDA (Infra-red Device Association) communications port at the top left of the device. In addition, a rubberised coating has been applied to the casing.

Open up the 3c's clamshell case and, similarly, little has changed. There's a full Qwerty keyboard with a suitably wide spacebar underlining it. Between this and the 480x160-pixel screen is a row of buttons which allow quick access to the 3c's built-in suite of applications. These applications will be familiar to Psion 3a users because they remain mostly unchanged, and include: a fully-featured word processor, a Filofax-style agenda, a Lotus 1-2-3-compatible spreadsheet, a calculator, and a world clock program accompanied by a silhouette map of the Earth.

A new addition to this software line-up is 'Jotter'. This acts exactly as its name suggests: press the appli-

cation button and you can enter notes immediately. With the 3a you had first to create a new Word file, which hindered speedy note-taking. There's also a file management tool, aptly named 'Files', and this gives a dual-pane view of the contents of any present drive.

The 'drives' in question are the 3c's standard 1Mb of memory (known as the 'internal' drive), and two proprietary expansion slots that sit underneath the keyboard at either side and are accessible by opening swing-out doors.

There's an impressive collection of software available on the small, solid-state disks (SSDs) that plug into these slots. This ranges from games compendiums to stock market tracking programs. There are also several hardware devices, including one of the most popular, the 3Fax fax modem. This can send and receive faxes, and offers data communications up to 14,400bps (bits per second).

Compact enough to fit in a jacket pocket yet with sufficient power to warrant a tag of 'palmtop computer', the Psion 3c is a fine machine. However, it's hardly a giant leap forward for the series, and Psion needs to do more to retain

Psion series 3c



its market-leading position.

- £339.95 (1Mb); £399.95 (2Mb)
- All prices inc VAT
- Psion: 0990 143050

Psion 3c

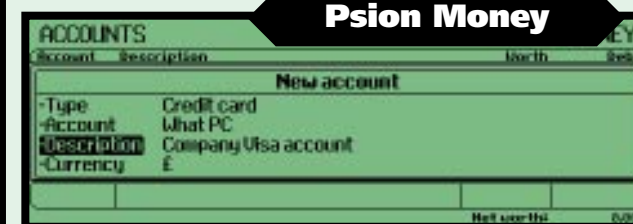
Build quality	★★★★★
Features	★★★★★
Ease of use	★★★★★
Value for money	★★★★★
Overall	★★★★★

Money and motorways on a smaller scale

Psion Money

Intuit's Quicken on the PC offers a simple yet comprehensive way of tracking your personal finances at the desktop, and Psion Money offers the same facilities on a PDA. The advantage, of course, is that Psion Money can be carried around with you in your pocket. The software allows you to create up to 256 accounts and you are able to input a maximum of 16,000 transactions per file. Adding to Psion Money's usefulness is its ability to export files to Quicken or Microsoft Money formats.

- £45.83 (inc VAT)



AutoRoute Express – UK and Ireland

A respectable conversion of Microsoft's route-planning software, AutoRoute for the Psion 3a/c has most of the features found in the PC original, including the ability to vary the detail level. It comes on, and runs from, a single SSD (solid-state disk) and has a database of 7,000 place names and 77,000 miles of connecting roads and motorways.

- £64.63 (inc VAT)

Both packages are available from Clove Technology, which specialises in Psion software and accessories by mail order. Clove: 01202 302796



HP OmniGo 700LX

The Hewlett-Packard name is often associated with printers and PCs, but the company also produces a wide range of palmtop computers and organisers. Of these, the OmniGo 200LX, released last year, has been one of its most successful products. The 700LX reviewed here is HP's latest model, and it takes the best features of the 200LX and adds several new ones.

The 700LX has one of the thickest profiles of any personal organiser. In fact, so wide is its girth that the 700LX can barely be squeezed in to a jacket pocket. The reason for this size? The 700LX has a pair of raised guides on the top leading to a connector which accommodates a Nokia 2110 mobile phone.

On the left-hand side of the machine is a Type II PC-Card (PCMCIA) slot with a hinged cover. With a modem plugged into this slot or with the Nokia 2110 phone inserted, you can prepare and send faxes or e-mail messages (assuming you are signed up with an on-line service such as CompuServe).

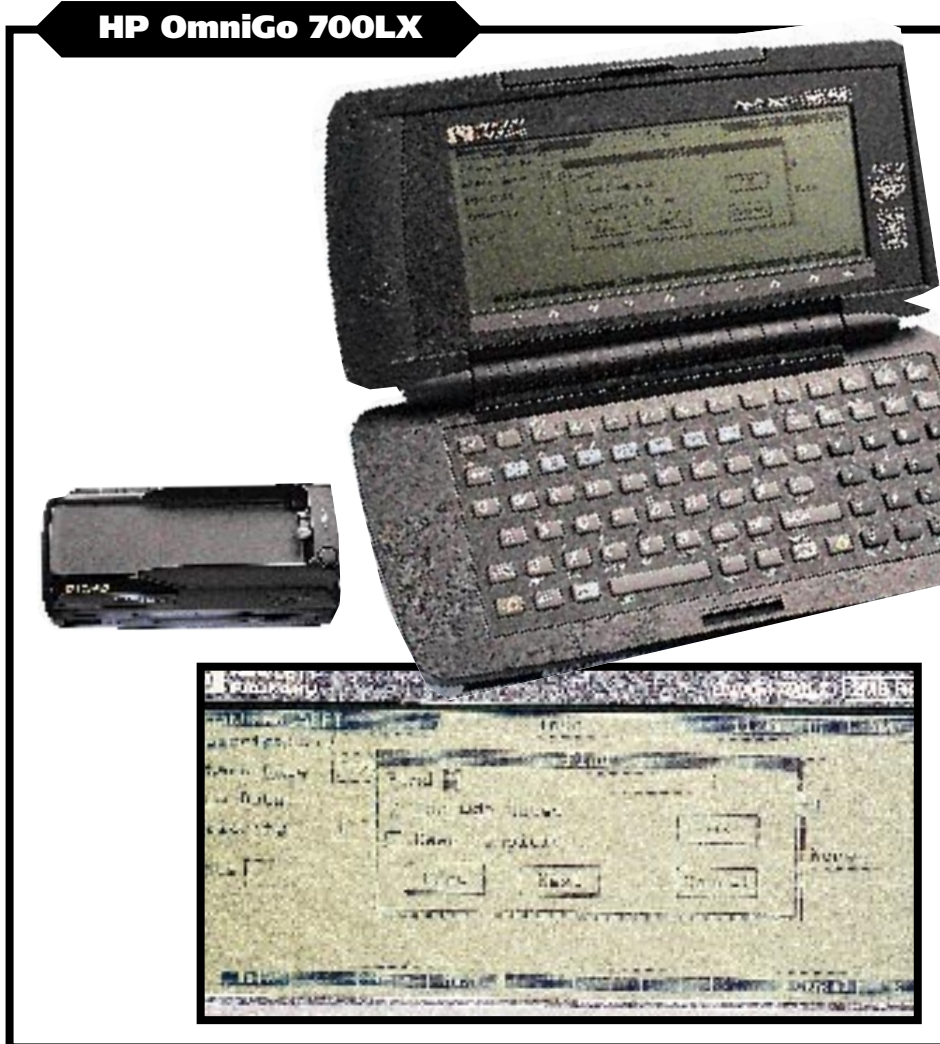
The first time you switch on the 700LX you are greeted with extremely unfriendly, DOS-like prompts to enter the time and date, and your personal/company details. There is a reason these prompts resemble DOS, but we'll cover this later. Subsequent power-ups lead to a much more familiar, icon-based interface. You can navigate through these icons using either cursor keys, or one of the seven application-specific buttons on the keyboard.

The keyboard is set out with a grid-like uniformity, and most of the 80 keys are tiny. This, coupled with a stiff depress-and-return action, rules out the possibility of achieving a decent typing speed. However, the numeric keys are set aside as a separate keypad and this is a definite plus point.

Each icon – and there are plenty of them – takes you into one of the 700LX's applications or utility programs. As you would expect, the main applications are a memo taker, a database, a scheduler and a spreadsheet.

Most spreadsheets on the palm-tops in this test are file-compatible with Lotus 1-2-3, which for years was considered the industry-standard spreadsheet. HP, however, has taken this one stage further: the 700LX's spreadsheet is Lotus 1-2-3. Unfortunately, this implementation employs the older DOS-style interface and it's hardly intuitive to use. This is particularly frustrating since the other main applications have a consistent menu-based interface.

HP OmniGo 700LX



Lotus 1-2-3 isn't the only branded software in the 700LX's ROM (read only memory) – Intuit's Quicken also makes an appearance. And a very welcome one it is, too. Without a doubt, Quicken is one of the best personal finance packages available on the PC. Called, rather ironically considering the size of the machine it runs on, Pocket Quicken, this is a cut-down version of the original PC product, but it's none the less usable for that.

The memo taker looks and operates just like a word processor, but it's missing some of the more advanced features, with a spell checker being the most obvious omission. While the 700LX isn't the only PDA to lack such features, it is certainly the only one to sport such a high price tag.

One of the 700LX's most versatile features – although, depending on your viewpoint, this may or may not be considered an advantage – is that a fully operational version of MS-DOS 5.0 is included.

When you use the 700LX in DOS mode, it acts exactly like a PC running the equivalent version of DOS. This means you can run many older DOS-based programs and use DOS commands to manage your files. To make this work, 640K of

the 700LX's 2Mb memory is reserved as DOS 'base' memory. The remainder of the memory (around 1.3Mb) is treated as a hard disk drive and, just like on a PC, is assigned drive letter 'C:'. There's also a second 'drive', 'D:', but this has a read-only status because it stores the 700LX's numerous program and system files.

Like its forerunner, the 700LX can be connected to a PC to transfer files using the 700LX Connectivity Pack, but this was unavailable for review.

The 700LX has a good collection of software tied together with a relatively consistent interface, and die-hard fans of Microsoft's ancient operating system will welcome its DOS compatibility. However, as personal organisers go, the 700LX has one major failing: it's simply too big.

£938.83 (inc VAT)

Hewlett-Packard: 0990 474747

HP OmniGo 700LX

Build quality	★ ★ ★ ★ ★
Features	★ ★ ★ ★ ★
Ease of use	★ ★ ★ ★ ★
Value for money	★ ★ ★ ★ ★
Overall	★ ★ ★ ★ ★ ▶



Sharp ZR-5800

Sharp has its corporate fingers dipped in many pies. From televisions and videos to telephones and microwave ovens, the Sharp name adorns consumer products the world over. It should come as no surprise, then, to find that the company also has a mound of palmtop organisers and electronic diaries on offer. Residing firmly at the top of that pile is the new ZR-5800.

The ZR-5800's case has a tough, leather-like finish which certainly makes a refreshing change from the dull plastic that usually encases these devices.

On the right-hand side of the organiser is a Type II PC-Card slot, and on the opposite side is a covered serial connector which is used to hook the ZR-5800 up to a PC. At the rear there's an infra-red communications port.

As well as using Sharp's faster but proprietary infra-red communications protocols, this port is IrDA-compliant (Infra-red Device Association). This means the ZR-5800 can perform wireless communications directly with any IrDA-equipped device, such as newer printers and PCs.

When we opened the case we were immediately impressed by the size of the screen. Although it's narrower than the Psion 3c's display, it's nearly 50 percent taller. This makes a big difference to the work area available in most of the applications, none more so than the spreadsheet.

With its drag-and-drop copying and pasting, click-and-drag cell resizing and pre-prepared templates, this spreadsheet is more akin to a PC-based program such as Excel than the generally quite basic PDA implementations. But how can you drag and drop on a PDA? Simple, all you need is a pointing device.

The pointing device in question is a pen. This 'pen' is simply a pen-shaped piece of plastic, around five inches long, which slides into a hole at the front of the ZR-5800 when not in use.

Pen-based computing is hardly a new idea – several laptop PCs have had pen-entry features, and the Apple Newton was the first PDA to feature pen operation – but it has become realistic on these smaller devices only recently since the advent of comparatively high-resolution LCD panels. The ZR-5800's panel has a resolution of 320x240 pixels, which is exactly half that of the basic VGA resolution (640x480), but it's enough for a reasonable implementation of a graphical user interface (GUI).

All the ZR-5800's applications can be operated with the pen,

Sharp ZR-5800



although the machine doesn't perform handwriting recognition. Instead, there's a full Qwerty keyboard for typing and data entry. Unfortunately, this keyboard is quite poor; the keys are a decent size, but they have an exceptionally light action and we found that it was all too easy to press a key twice unintentionally.

The word processor isn't particularly remarkable or feature-laden, but it does allow you to include your own hand-drawn graphics and notes in documents. There's also a secondary note-taking application, simply called Notes, which lets you create and store purely handwritten notes.

The ZR-5800 has outstanding filing and linking capabilities. Documents, notes, spreadsheets and appointments can all be linked to a database, or even to individual contacts. This feature makes cross-referencing simple.

Display a record in the Contact application, for example, and at the bottom of the screen appears a list of icon tabs. Each tab leads directly to the linked item and, if necessary, opens the appropriate application. And it's not just the linking facilities that shine: the screen does, too, thanks to a built-in backlight.

Usefully, Sharp has included a facility to connect to CompuServe. Obviously, to access CompuServe you'll need a PC-Card modem, and you'll have to register with CompuServe for an account. Additionally, there's a basic terminal emulator

included, and this could be used to hook up to bulletin board services (BBSs) or any other on-line service.

With a suitable modem installed, the ZR-5800 will happily send and receive faxes using a normal telephone line, or even a GSM mobile phone.

Each of the main applications has a 'Send' button which, as well as having options to send to a PC or another ZR-series machine, will automatically convert the current document into a fax and send it. You're also given the opportunity to add a cover page before committing the fax to send.

The ZR-5800 can be upgraded to a maximum of 4Mb of RAM by inserting a 2Mb SRAM card into the PC-Card slot. Alternatively, less versatile Flash memory cards can be inserted, but with the advantage of storage capacities of up to 16Mb.

The ZR-5800 has a lot going for it. The applications are mostly superb, although they take a little while to master, and the backlight adds masses of appeal. If Sharp lowered the price it would have a potential Psion-beater on its hands.

£529.99 (inc VAT)

Sharp: 0800 262958

Sharp ZR-5800

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



US Robotics Pilot 5000

Until recently, saying 'US Robotics' during a game of word association with computer industry names would have inevitably led to a response of 'modems'. But this industry is renowned for its speed of change, and now US Robotics is just as readily associated with PDAs.

Early in 1996 the company set up a new division, Palm Computing, to concentrate on the development and manufacture of palm-top computer devices. The first fruit was the Pilot.

Of all the PDAs we've seen, the 'hand-held' epithet has never been more aptly applied than to the Pilot. The device measures only 78mmx118mmx11mm and rests comfortably in the palm of your hand. But its size belies its power: the Pilot's functionality comes close to that of the bulkier clamshells.

Unlike the clamshell PDAs, however, the Pilot doesn't have a keyboard. Instead, the organiser has a touch-sensitive screen which virtually fills the front of the machine. All operations are carried out using a stylus that pulls out from a 'silo' on the Pilot's right-hand side. To input data you need to use the stylus as well as a simplified form of handwriting, known as Graffiti.

Although Graffiti isn't new – it was first seen in Hewlett-Packard's OmniGo 100 PDA – it's an extremely accurate handwriting recognition system. It's made up of a number of simple pen strokes which represent alphanumeric characters and symbols.

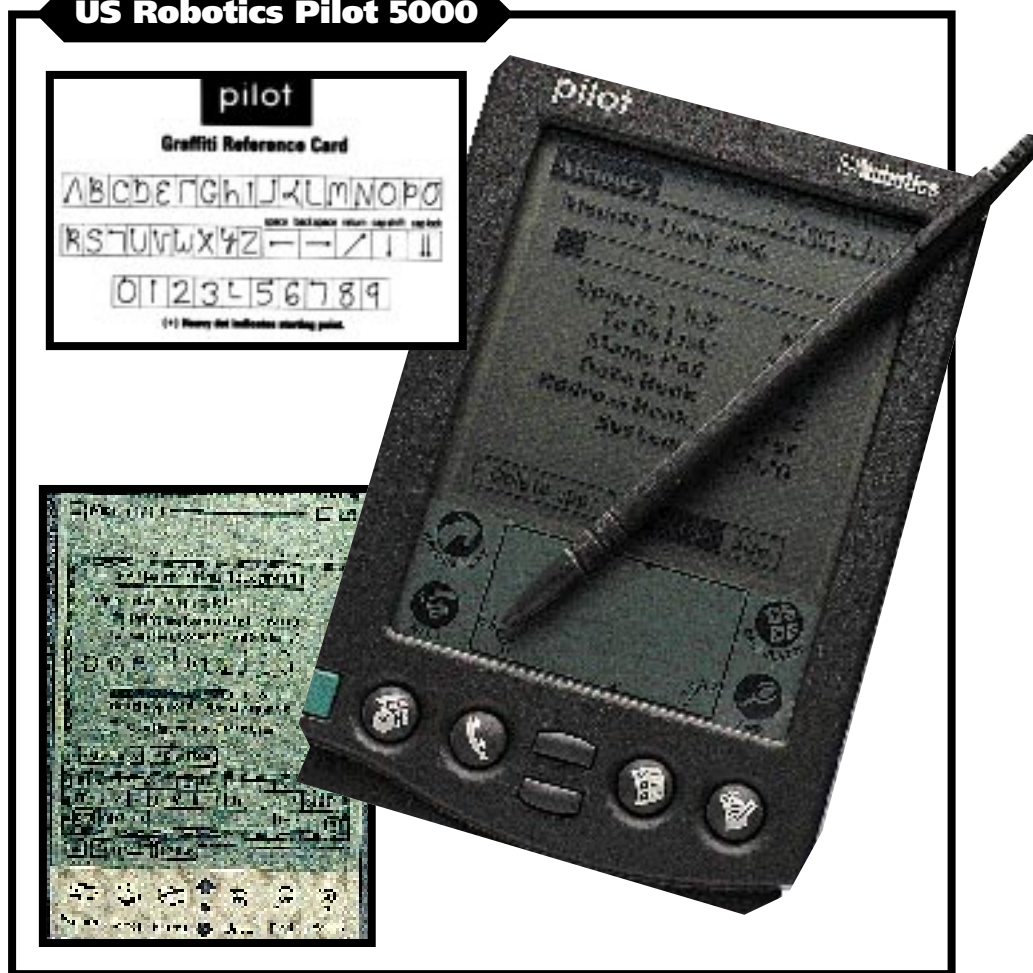
You write the Graffiti strokes into an entry box in the bottom quarter of the Pilot's screen, and the Pilot duly converts them into the appropriate letter or symbol. It might sound a little contrived, but Graffiti is incredibly easy to learn and it takes no longer than half an hour to master the basics.

The Pilot 5000 has four main applications and each can be accessed by pressing one of the row of buttons that underlines the screen. All the applications have a simple and consistent graphical interface, and the stylus is used to navigate through their various menus and options.

You make entries in the Date Book by pointing at a time slot and writing the details in the Graffiti entry area. You can attach notes to each entry and reminder alarms can be set to sound at intervals ranging from daily to annually, and repeats can be set up if necessary.

The Address Book is a basic contacts database which has a number of fixed and customisable entry fields. You can switch views and

US Robotics Pilot 5000



your contacts can be divided into various categories.

The Pilot also includes ToDo and Memo Pad applications. ToDo has the usual facilities for assigning due dates and priority levels, and Memo Pad is exactly what it says – a place to enter and store memos.

The most basic and easy to use feature is the calculator. A calculator is hardly a remarkable program – most PDAs have excellent calculator applications – but the Pilot's is so well implemented it deserves to be highlighted. The display is filled with round, fingertip-sized buttons, and you can jab at the digits with one of your own digits, just like a real calculator.

Most PDAs offer some way of transferring data to and from a desktop PC, but the Pilot's system for doing this is extremely polished.

Supplied with the machine is a 'cradle', a piece of apparatus that connects to a PC's serial port. Also included is 'Pilot Desktop', which is an enhanced but compatible set of Pilot applications written for the PC. The outstanding part of this system is known as 'HotSync'. You just slip the Pilot into the cradle, press the HotSync button and the Pilot and the PC communicate transparently in order to synchronise their information.

The only thing that's missing from the Pilot's application set is a

spreadsheet. However, US Robotics is distributing PC- and Mac-based software development kits (SDKs) so it shouldn't be too long before one appears.

Indeed, barely four months after its launch, there's already a large (and growing) collection of programs, utilities and games available for the Pilot, written by third-party developers.

A few of these are commercial releases, but the vast majority are either shareware or freeware and can be downloaded from the Internet (a good starting point can be found at: www.inforamp.net/~adam/pilot/).

The Pilot won't suit everybody's tastes, but it's a little box with a lot of power. If you don't mind being restricted to handwritten data entry, you could do a lot worse than investing in one of these organisers.

○ £349 (Pilot 5000)

£279 (Pilot 1000)

All prices inc VAT

○ US Robotics: 01734 228200

US Robotics Pilot 5000

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

Psion Siena



Psion Siena

The Siena is designed to give Psion a bigger slice of the burgeoning market for cheaper personal organisers dominated by the likes of Casio and Sharp.

The Siena offers most of the applications present on the Psion 3a – the exception being the 'record' facility. The device is also a good bit smaller than the 3a/c and easily slips in to a shirt pocket.

Another advantage the Siena has over the 3a/c is a numeric keypad to the right-hand side of the screen. Unfortunately, the sacrifice made for this is in the size of the screen, around half that of the 3a/c. **The Siena isn't the cheapest organiser of its kind, but a combination of powerful features and a good design makes it by far and away the most appealing.**

- £169.95 (512K);
£229.95 (1Mb)
- All prices inc VAT
- Psion: 0990 143050

Psion Siena

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

HP OmniGo100

The OmniGo 100 shares two contrasting features with a couple of other machines included in this group test: it has the same awful keyboard as its big brother, the 700LX; and it accepts handwritten data entry using the same superb recognition system as the US Robotics Pilot – Graffiti.

The case opens up in much the same way as any other clamshell design, but with one slight difference: the screen can actually fold all the way up and over to rest on the back of the machine. Once you've done this you can hold the machine in one hand and use the other to write with the pen. You can instantly rotate the displayed image through 90 degrees, so it's possible to hold and use the OmniGo 100 in whichever way feels most comfortable.

Let down only by its poor keyboard, the OmniGo 100 is an otherwise outstanding machine. It has a good suite of software fronted by an excellent graphical user interface.

- £340.75 (inc VAT)
- Hewlett-Packard: 0990 474747

HP OmniGo 100

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

Sharp IQ-8920

Sharp produces one of the largest ranges of PDAs in the world. Somewhere in the middle of this vast collection is the IQ-8920, a somewhat cut-down version of Sharp's ZR-5800, both in terms of size and features.

It has calendar, schedule, notebook and outline applications, but it lacks the intuitive drag-and-drop functions of its big brother and doesn't have a backlight. The device retains the useful pen, though, and this allows you to draw simple diagrams and make handwritten notes.

Unlike the ZR-5800, the IQ-8920 doesn't have an industry-standard PC-Card socket. Instead, the device's built-in applications can be augmented with a number of proprietary plug-in IC (integrated circuit) cartridges; included among these is a spreadsheet and an expense manager.



Personal Digital Assistants

The IQ-8920 is a very usable machine, particularly when operated with the pen. The applications are good but we feel the price tag is a touch too high.

- £299.99 (inc VAT)
- Sharp: 0800 262958

Sharp IQ-8920

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

Nokia 9000

Many, including the company itself, believe Nokia notched up a first with the 9000, a mobile phone-cum-organiser. Not so. More than two years before the 9000's launch, IBM and Bell South announced a device, called the Simon, which was almost identical in concept. However, Nokia's implementation is highly polished and has seemingly wiped out all memory of the Simon.

Although the 9000 looks much like any other hand-held mobile phone, it's also a PDA with an LCD screen and a full Qwerty keyboard. The device also has a World Wide Web browser built in. The other applications – notepad, address book, calendar, calculator, world clock and music composer – are basic but adequate.

The Nokia 9000 is far too expensive to have any kind of mass appeal, but it's an admirable attempt at combining two naturally converging technologies.

- £999.99 (inc VAT)
- Nokia: 0990 002110

Nokia 9000

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



Nokia 9000



Sharp IQ-8920



Casio VDB200

Personal organisers don't need to be big or expensive to be useful. Some fit in your wallet, while others simply strap to your wrist, but all contain a host of features. We take a look at some of the best devices for those of you who don't need a fully-featured PDA

Casio Data Bank DC-4000-s



Sharp EL-6090

On a budget

Casio VDB200 Data Bank wristwatch

This wristwatch's ugly face hides a neat collection of organisational facilities. As well as the expected time displays, multiple alarms and stopwatch functions, the VDB200 can store up to 200 names and telephone numbers. These can be divided into categories such as personal and business.

Unlike most digital watches, with their plethora of control buttons and knobs, the VDB200 has no buttons at all. Instead, the device has a touch-sensitive screen to allow access to its features. Usefully, the screen can be backlit at a touch.

In its class the VDB200 is pretty good, but we cannot imagine anyone over the age of 16 wanting to wear one.

○ £69.99 (inc VAT)
○ Casio: 0181 450 9131

Casio VDB200 Data Bank
Overall ★★★★★

Casio Data Bank DC-4000-s

The DC-4000-s sits comfortably in the palm of your hand and its weight is negligible. The lid opens to reveal a full Qwerty keyboard

and a number of function buttons. There's a three-line LCD display, and the first line of this uses pixels, which means it offers an alphanumeric display. A button switches the keyboard between alpha or numeric input – this is a little awkward if you want to use the calculator feature.

On top of a basic agenda-cum-scheduler, the DC-4000-s can store a maximum of 149 12-digit telephone numbers (with four-character names). There are also clocks covering all the world time zones and a simple currency converter.

○ £18.99 (inc VAT)
○ Casio: 0181 450 9131

Casio Data Bank DC-4000-s
Overall ★★★★★

Sharp EL-6090

Like Casio's DC-4000-s, the Sharp EL-6090 is a palm-sized device that can do calculations, store telephone numbers, perform currency conversions and keep track of a limited schedule.

Usefully, the EL-6090's keyboard has a full complement of alphanumeric keys, set out in the standard Qwerty layout. You can make up to 131 telephone entries, based on six characters for the name and 12-digit numbers. This,

and all other information, is displayed on a two-line LCD panel.

The EL-6090's surrounding wallet also has a small pocket into which you could slot a credit card or two.

○ £16.99 (inc VAT)
○ Sharp: 0800 262958

Sharp EL-6090
Overall ★★★★★

Sharp PB-EE1

The PB-EE1 is, at the moment, unique. Although barely larger than Sharp's already small EL-6090, the PB-EE1 dispenses with a keyboard and uses a rubber-tipped stylus for all entries. Using this stylus you enter information by pointing at an on-screen Qwerty keyboard. However, when used as a calculator the displayed buttons are just about big enough for you to use your fingers.

The PB-EE1 has only just been launched in the UK and although we didn't receive a manual with our review model, we didn't have any problem getting it up and running. It has a 16x5-pixel character display and all the applications, which include a scheduler to-do lists, a memo taker and world clocks, are easy to use.

The design is a triumph; held in the heel of your hand with the sty-

lus in the other, the PB-EE1 is an ideal replacement for a notepad. The 32K of memory is a limiting factor, but even so this is sufficient room to store several hundred entries. In fact, the only niggle we have is the absence of a backlight, which would have been useful.

○ £69.99 (inc VAT)
○ Sharp: 0800 262958

Sharp PB-EE1
Overall ★★★★★

Texas Instruments PS-6960Si

The PS-6960Si is one of the better featured organisers of this bunch. It has a comparatively large 256K of memory and a good-sized screen which can display 24 characters across its six lines.

The applications are exceptionally easy to use and more than adequate for most purposes; but don't be fooled into thinking they're a match for those found on the more expensive organisers.

When it's closed, it vaguely resembles the Sharp PB-EE1, but open it up and you'll find a full Qwerty keyboard with several function buttons above it. Another plus is the Indiglo backlight technology, which means the PS-6960Si can be used in most lighting conditions.

The PS-6155 Windows Connectivity Kit is available as an option and this lets you transfer data to and from your desktop PC.

○ £89.99 (inc VAT)
○ Texas Instruments:
0181 875 0044

Texas Instruments PS-6960Si
Overall ★★★★★

Sharp ZQ-4550

Like the Texas Instruments PS-6960Si, the ZQ-4550 has a clamshell-style case with a Qwerty

keyboard and 10 function buttons on its lower half. Unlike the PS-6960Si, however, the 128K ZQ-4550 has a numeric keypad next to the screen; there's also a full complement of calculator function buttons next to this.

The function buttons call up simple applications such as To Do, Memo, Calendar and so forth, and there's also an expense tracker which, apart from the odd financial Americanism, is a welcome extra.

○ £99.99 (inc VAT)
○ Sharp: 0800 262958

Sharp ZQ-4550
Overall ★★★★★

Casio DBC-30 wristwatch

This looks like a typical calculator watch from the early Eighties. It has a large face which is split roughly in half, with the display nestling above a minuscule 'keyboard'. The keyboard has only 16 keys, so entering names and numbers into its 30-record memory is laborious.

The DBC-30 also has a number of alarm and stopwatch features, and the display can be backlit at the touch of a key.

○ £51.99 (inc VAT)
○ Casio: 0181 450 9131

Casio DBC-30 Wristwatch
Overall ★★★★★

Casio SF-5780

The SF-5780 teeters on the very edge of being considered a 'proper' PDA. It has many of the features you'd expect to find on a fully-fledged device – including a scheduler and memo taker – although they are comparatively limited.

However, the SF-5780's facilities are easy to use and its 256K of memory offers more scope than most of the other, cheaper organisers on the market.

The Qwerty keyboard has a surprisingly nice feel to it. The keys are big and rubbery, and are reminiscent of those on the old rubber-keyed Sinclair Spectrum computer. On the right-hand side of the screen there's a numeric keypad with calculator functions.

○ £129.99 (inc VAT)
○ Casio: 0181 450 9131

Casio SF-5780
Overall ★★★★★



Casio DBC-30



Sharp ZQ-4550



Sharp PB-EE1



Texas Instruments PS-6960Si



Casio SF-5780



Today the PDA, tomorrow the PIT and the HPC

If the latest announcements from Sharp are to be believed, then the PDA of the future will be the PIT. PIT, or personal information tool, is the unfortunate acronym bestowed on Sharp's new Zaurus MI-10DC.

Like the rest of Sharp's ZR series (as the Zaurus machines are known in Europe), the MI-10DC is a pen-based hand-held device. However, it boasts three major advances: it has a colour, backlit, LCD screen; there's a built-in Web-browsing facility; and it doubles as a view-before-you-shoot digital camera, much like the Casio QV-10A reviewed in the September 1996 issue of *What PC?*

Microsoft, of course, has other ideas. The software giant recently launched a compact edition of its highly successful Windows 95



operating system. Called Windows CE, the cut-down operating system is destined to be the front end of a new species of palmtop computer, the 'hand-held PC' (or HPC), a name coined by Microsoft. According to the company, HPCs 'are designed to provide the millions of mobile professionals using Windows-based personal computers an affordable, easy-to-use, PC companion'.

Microsoft goes on to stress that HPCs are unlike PDAs because the latter can be 'classified as standalone, keyboardless devices with proprietary user interfaces and applications'.

While Microsoft's suggestion that PDAs are 'keyboardless' is misguided, it is true that today's PDAs do have proprietary interfaces and applications.

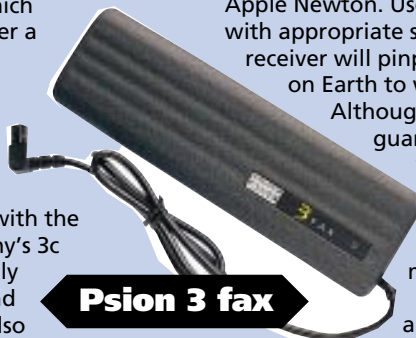
With the introduction of Windows CE, the crop of confirmed HPC manufacturers, which includes Casio, NEC, Philips and Hewlett-Packard, is free to concentrate on hardware development.

Those of you with a Web browser and access to the Internet can try out an interactive sample of the Windows CE environment at: [/king.glo.be/teamce](http://king.glo.be/teamce).

Getting attached

Nowadays PDAs are expected to do a lot more than simply help you to organise your life. There's an increasing trend among PDA manufacturers to produce peripheral devices which connect through either a PC-Card socket or another proprietary expansion slot.

An example of this is Psion's 3Fax device, recently updated to coincide with the launch of the company's 3c PDA. The 3Fax not only allows you to send and receive faxes, it can also



Psion 3 fax

be used as a 14,400bps (bits per second) modem for data communications.

There's even a GPS (Global Positioning System) add-on for the Apple Newton. Used in conjunction with appropriate software, this GPS receiver will pinpoint your position on Earth to within 100 metres.

Although there are no guarantees, it probably won't be long before similar systems start appearing for other makes of PDA.

Software, too, is an area where there's

plenty of scope for enhancement.

Psion solid-state disk

Numerous third-party software developers are writing software packages for the leading PDAs. The Psion 3x series easily has the lead in this arena, with well over 200 software titles available.

Others are catching up, though. US Robotics' recent Pilot launch has spawned a barrage of Web sites dedicated to the machine, and most of them carry shareware and freeware programs that can be downloaded.



Newton on the handwriting trail

When it was first launched in August 1993 Apple's Newton was unique. Foregoing the obvious choice of a keyboard as a method of entering information, Apple decided that handwriting recognition would prove a more desirable feature to the buying public. The company had a point, of course: what better way to take notes than using your natural handwriting? But it didn't work. The handwriting recognition was, at best, erratic and the operating system and applications were poorly implemented.

Not a company to be easily perturbed, Apple set out to fix the problems that plagued the original Newton and, two years later, released the Newton 2. Both physically and technically, the hardware remained essentially unchanged; there was still a Type II PC-Card socket on the side and on the top was an infra-red

communications port. The changes came in the software: the Newton 2 operating system was completely rewritten. This resulted in much more intuitive operation because the user interface had been overhauled and given a heavy graphical tilt.

The Newton 2 MessagePad 120 is certainly an easy-to-use and friendly system, but it still has several handicaps. The first drawback is its size: it's barely 'pocketable' and heavy as well. And, although considerably improved, the handwriting recognition – on which the success or failure of the Newton inevitably rides – is still patchy.

- £298.45 (inc VAT)
- Apple Newton helpline: 0800 639866



Apple Newton



Personal Digital Assistants compared

	Psion 3c	HP 700LX	Sharp ZR-5800	US Robotics Pilot	Psion Siena	HP OmniGo 100	Sharp IQ-8920	Nokia 9000
Price (inc VAT)	£339.95 (1Mb); £399.95 (2Mb)	£ 938.83	£ 529.99	£279 (Pilot 1000); £349 (Pilot 5000)	£169.95 (512K); £229.95 (1Mb)	£ 340.75	£ 299.99	£ 999.99
Supplier	Psion	Hewlett-Packard	Sharp	US Robotics	Psion	Hewlett-Packard	Sharp	Nokia
Contact number	0990 143050	0990 474747	0800 262958	01734 228200	0990 143050	0990 474747	0800 262958	0990 002110
Dimensions (w x d x h, in mm)	165x85x22	180x90x50	168x98x25	78x118x11	150x73x19	152x95x25	155x97x24	65x174x36
Weight (in grammes, inc batteries)	275	397	390	162	183	329	300	397
Screen size	127x44	123x47	103x67	60x60	64x44	64x64	87x62	119x38
Screen resolution (w x h, in pixels)	480x160	640x200	320x240	160x160	240x160	240x240	240x160	640x200
Display	Black and grey	Black	Black	Black	Black and grey	Black	Black	8 grey scales
Memory	1Mb	2Mb	2Mb	512K	512K, 1Mb	1Mb	256K	2Mb
Keys	58 (plus 9 application keys)	80	63 (plus 14 application keys)	7 (plus 4 application keys)	68	67 (plus 12 application keys)	63 (plus 15 pen buttons)	71 (plus 20 for phone operations)
Quoted battery life (continuous use)	50hrs	60hrs	70hrs	Several months of normal use	40hrs	60hrs	70hrs	30hrs
Card/expansion slots	2 (proprietary)	1 Type II PC-Card (PCMCIA)	1 Type II PC-Card (PCMCIA)	Memory upgrade slot	None	1 Type II PC-Card (PCMCIA)	1 (proprietary)	None
Pen based?	○	○	●	●	○	●	●	○
Diary/calendar	●	●	●	●	●	●	●	●
Word processor	●	●	●	○	●	●	●	○
Spreadsheet	●	●	●	○	●	●	○	○
Database/contact index	●	●	●	●	●	●	●	●
Notepad/jotter facility	●	●	●	●	●	●	●	●
Spell-checker	●	○	●	○	○	○	○	○
Infra-red comms	●	●	●	○	●	○	●	●
Serial connection	Optional	Optional	Optional	●	Optional	Optional	●	Optional
Handwriting recognition	○	○	○	● (Graffiti system)	○	● (Graffiti system)	○	○
Mains input	●	●	●	○	○	●	●	●
DTMF (tone phone) dialling	●	○	○	○	○	○	○	●
Digital audio	●	○	○	○	○	○	○	○

● = Yes ○ = No



Psion series 3c

Sharp ZR-5800



The Best Buy status is awarded, yet again, to a Psion machine – the Series 3c. Although it doesn't represent a huge step forward, and is a tad expensive, the 3c is the most well-rounded, powerful and easy-to-use PDA you can buy.



But for its high price and rather excitable keyboard, the ZR-5800 could well have nudged the Psion 3c from the top of the ladder. As it stands, Sharp's machine is a few rungs below Psion's, but certainly within ankle-grabbing distance. If you

like the idea of a backlit PDA with an excellent graphical interface, and can spare the extra £200, buy the ZR-5800.

For those on a tighter budget but still in need of a powerful machine, the compact Psion Siena is an excellent buy, retaining most of the Psion 3a's features.

Scott Colvey