

Feature presentation

What our experts say ...

IF YOU WERE TO SIT DOWN WITH A BLANK sheet of paper and draw up a feature list for a general-purpose digital video surveillance recorder for the commercial and retail sector, there's a very fair chance you would end up with something that's remarkably similar to the JVC VR-509.

Let's begin with the number of camera channels. These days four is too few and 16 too many for most small to medium scale installations; nine is just about right, which is precisely what you get with the 509.

How about recording quality? There's a wide range of codecs and compression schemes in use at the moment, but far and away the most widely used, and theoretically capable of the best image quality, is MPEG-2, the same one that is used on commercial DVDs, and that's the one used by the 509. What's more it can record at up to 100 frames per second simultaneously on all nine channels, and for good measure there's two high-quality audio channels.

A lot of DVRs fall down on their ability – or rather lack of it – to readily export recordings to external media. By far the most common method is to use CD-R, but this either involves a significant reduction in image quality or relies on non-standard formats that require special viewer software in order to view the recording on a PC.

The 509 exports MPEG-2 images to blank DVDs (DVR-R/RW), which are playable on any domestic DVD player. Additionally still images can be exported to USB flash memory modules. Live and archived recordings can also be viewed remotely on any PC using a standard web browser

The bench test [2]

The 509 is more or less ready to run straight out of the box

with its networking facility, which also gives access to the 509's main function and setup menus.

Recordings are archived on two internal 160Gb hard drives with the option to connect an external drive of up to 500Gb. Recordings can be stored for periods of between one day and three months, though the maximum duration will depend on the number of connected cameras and recording quality.

Years of recording

For the record the maximum possible recording time for a single channel at the lowest quality (High Resolution/Low) and frame rate (0.8fps), with audio recording switched off, is a theoretical 55,239 hours or approximately six years and four months! A nine-camera feed running at 5fps at the highest HR setting will record for around 37 hours.

When the disks are full there's an option to stop recording or overwrite old data, though alarm triggered recordings will be preserved. Talking of which there are independent alarm inputs for each camera channel and a motion detection facility, independently configurable for each camera channel. The 509 can also be programmed to send an email alert with a short message upon alarm activation.

Display options include single screen (static or sequenced), quad (configurable), 5 + 1 or 3 x 3 split screens. A range of on-screen indicators show the recording and alarm status for each channel and there's a Covert Channel mode that allows channels to be recorded but not shown on the monitor outputs.

Playback is controlled from a jog/shuttle dial that gives precise frame-by-frame viewing, slow motion and a range of search speeds up to x360 normal playback (in both directions).

A two-stage zoom electronically magnifies any selected part of the image and archived recordings can be searched by time and date or alarm

activation. Titles – one line of up to 20 characters – can be assigned to each camera channel and a daily/weekly timer can be programmed with up to eight 'events'.

But rather than get bogged down on the many and various secondary features let's move on to the layout and construction. The 509 is housed inside a compact case measuring 340 x 88 x 350mm. The front panel is dominated by the jog/shuttle dial on the far right and the DVD drive.

Below that are the main recording and playback function buttons and on the left side there's a bank of multi-function buttons for camera selection, display mode, DVD recording and menu operations. On the far left is the on/standby button, a pair of phono sockets for video and audio output and a USB port for connecting a flash drive.

Rear panel features

The rear panel has two rows of BNC sockets for camera inputs and loop-throughs plus the main and spot monitor outputs. There are three phono sockets, (two inputs and one output), two banks of spring terminals for alarm inputs and outputs, a VGA socket for a PC monitor output, RS-485 LAN socket, a 9-pin D-SUB for RS232 serial comms and a second USB port which can be used by an external hard drive, flash memory or a control connection for an optional uninterruptible power supply (UPS).

Inside the case there is a large motherboard and a number of daughter boards, including the power supply module and control/rear-panel interface PCBs. The DVD and twin hard disk drives are mounted at the front of the case and there's a cooling fan (and quite a noisy one at that) mounted on the back panel.

The standard of construction is generally up to JVC's usual very high standard and everything is neatly laid out and accessible. The only small surprise was the front panel, where the left side





wasn't very well secured to the chassis, however, we'll be charitable and put this down to our test machine being an early sample.

Setup and operation

The 509 powers up and is more or less ready to run straight out of the box on the factory defaults. To configure the DVR it is necessary to press and hold the menu button for a second and this brings up a simple brightly coloured main menu with four options: Camera Setup, Record Setup, Operation Menu and Live Display; below that is a diagram showing the functions of the front panel buttons.

At this point things start to go slightly awry. The menu system is far from easy to use and peppered with obtuse messages of which this is a typical, and frequently seen example: 'The setting is not reflected when giving up in midstream. Please advance as follows pushing the Set key'. Roughly translated it seems to mean that changes to settings are not stored until you press the Set button, probably...

It's not helped by the instruction book, which jumps all over the place without necessarily following the order of the menus, so finding out how a particular function works can be a time-consuming business. To add to the misery, the layout of the front panel buttons is also unhelpful and it takes a good while to get used to its many idiosyncrasies.

On-screen help

There is an on-screen Help facility that can be called up at any time by pressing a recessed Function button on the front and this is slightly easier to follow, but in the end the quickest way to get to know this machine is through trial and error, though keep the instructions handy.

The first menu, Camera Setup, deals with enabling or disabling camera inputs and setting recording image quality for each camera input. The two options are 'Smooth', which has a recording rate of 100 fps at 352 x 288 pixels, and 'High Resolution', which runs at 50fps with a 720 x 288 pixels. Selecting the Record Setup menu brings up a set of sub menus for enabling/disabling audio recording, the alarm terminals, alarm recording (with further sub menus for configuring the Motion Detection facility), setting 'Emergency' recording duration, timer mode recording, setting the timer and switching the electronic anti-tamper 'watermark' on and off.

The Operation Menu delves deep into the DVR's control and housekeeping functions. Here you will find switches for the main and spot monitor, audio output, on-screen displays, network setup, and maintenance, which includes disc tools and management, time, date and language settings and so on.

Copying recordings to a DVD is fairly straightforward and is enabled by pressing a button on the front panel. The DVD drive can only record on DVD-R/RW discs but this isn't a

problem and when 'finalised' to 'DVD-Video' format they will be playable on any domestic DVD deck, though strangely not on the 509.

The alternatives are 'Self Play' mode, which results in discs that can only be replayed on the 509, or a mixture of both. Once the mode has been set the next step is to select the recording to be copied. Up to 99 recordings or 'titles' can be copied to disc, each one divided into up to 99 'Chapters' in a single session. Once again the instructions are a little vague on some points - how chapters are designated is one example. In practice it's easier to fathom it out by actually using it to make a test recording or two. Recording to DVD is a fairly leisurely process and as a rough guide an hour's worth of data can take between 20 minutes and 1 hour 45 minutes, depending on frame rate and quality settings. A simple two-letter status display shows at what stage the recording is in as the display reverts to live mode as soon as the 'Export' button is selected.

Network operation is refreshingly easy to set up. Once the appropriate changes have been made to the DVR's IP address the password protected live display can be accessed though any PC running Internet Explorer, after a small Active X plug has been installed.

Unfortunately it only works with IE and there doesn't seem to be any way to view the display on the increasingly popular Firefox browser, a shortcoming that we highlighted on the JVC VR-616, which we reviewed last year. In addition to the live camera displays a network connection also allows access to a number of other functions including camera titles, email notification setup, network configuration and the 509's setup menus.

Performance

The change from a proprietary 'Wavelet' compression (on the VR-616) to MPEG-2 on the 509 hasn't resulted in a noticeable improvement in picture quality. It was already very good, though we did notice a small reduction in colour accuracy on our sample, compared with previous JVC DVRs we've looked at. Bright reds, for example could look a little flat. Otherwise it's a case of what goes in comes out, with no significant difference between a live and recorded image on the highest quality setting using standard cameras and test signals. Pictures show a lot of fine detail, noise levels are very low indeed and picture stability is excellent at all replay speeds.

The big change, however, is the difference in the quality of recordings exported to disc, which are almost indistinguishable from those stored on the hard drive. Images sent over the network also look very good, there is some degradation but it's certainly no worse than comparable DVRs and network devices.

*** Reader Service No 101 (or go to www.security-installer.co.uk/enquiries and key in 101)**

JVC's expertise in video recording shows through on the VR-509, which is a high point for mid-range DVRs...

Factspanel

Equipment:	VR-509E
Product group:	DVRs
Manufacturer:	JVC Professional Europe Ltd
Address:	JVC House, JVC Business Park, 12 Priestley Way, London, NW2 7BA, United Kingdom
Telephone:	0208 208 6200
Fax:	0208 208 6260
E-mail:	cctvsales@jvcpro.co.uk
Available from:	UK distributors
List price :	£2,595
CE Mark awarded:	Yes
Format:	MPEG-2
Recording system:	320GB HDD, expandable
Recording times:	High density recording at 100 ips
Audio recording:	2x RCA Standard jack (In), 12 kHz sampling
Sound system:	2x RCA Standard jack (Out)
Horizontal resolution:	720 x 288 (High - quality)
Supply voltage:	360x 288 (Smooth)
Max current consumption:	240V
Size in mm::	0.5 Amps
Weight:	340 x 350 x 88
Warranty:	7kg
	1 year

PHOTOGRAPHY: TOM DOBBIE

