

Heavy duty recording

What our experts say...

IN THE OLDEN DAYS OF ANALOGUE VCERS IT was often possible to get a fair idea of a video recorder's build quality and capabilities simply by picking up the box. Lightweight machines tended to have flimsy mechanics and you just knew they were going to fall apart as soon as the warranty expired. Big heavy VCRs, on the other hand, were generally made of sterner stuff, and whilst they may not always have had the latest or most interesting features, you felt they had the potential to soldier on indefinitely.

In these days of digital recording, where all the clever stuff is done electronically, size and weight isn't such a reliable indicator. But if it were then the Ganz ZR-DHD1621 DVR would be off to a good start. Tipping the scales at well over 10kg and measuring 432 x 88 x 450 mm, it's quite a beast, but when you get past the heavy duty casework and very busy front panel it quickly becomes apparent that it is nowhere near as fearsome and intimidating as it first looks.

The first pair of digits in the model number indicates that this is a 16-channel recorder (no prizes for guessing the specs of the DHD921, launched at the same time). It operates in full triplex mode and can record – using wavelet compression – and simultaneously playback on both a local monitor and on a network PC, through a Client program or a standard Internet browser.

Inside the machine there is room for up to four hard drives with a combined capacity of 1.2 terabytes (our test sample was equipped with 4 x 400Gb drives).

Recording resolution is switchable between

720 x 280 or 360 x 280 pixels, and there's a choice of 12 quality settings at recording rates of up to 50 or 100 fps, depending on the resolution.

As always it's difficult to say precisely how much recording time a particular DVR setup can provide, but in this case, with all 16 cameras connected and running at the highest quality and frame rates, it will record continuously for over 16 days before overwriting data. Using eight cameras with mid-range quality and frame rate settings recording time increases to around 45 days or 400 hours and at the lowest frame and quality settings, with eight cameras connected, it will record for 455 days or a little over 10,000 hours.

Handy calculator

The machine has a menu function that displays estimated recording times but for a really precise figure you can refer to a handy calculator, included on the utility disk that comes with the DVR, which works out times based on hard disk size and record settings.

Recordings can be exported or backed up locally on the built-in DVD writer, or to external recording devices via a USB port. It also has an IEEE 1394 or 'Firewire' port and both this and the USB ports can be used to connect the recorder to external drives for storage and backup (up to 20 Firewire devices can be attached to the DVR...).

In addition to alarm inputs for each camera it has independently configurable motion detection

and event recording facilities for each channel. Event notification via email is possible and it has camera PTZ functions, which can be controlled from the front panel. There's also a single channel audio recording facility, which can be associated with any of the camera channels.

Keeping everything under control is an embedded version of the Linux operating system, which runs discretely behind the scenes. In normal use you wouldn't know it was there and the only reason we've mentioned it is that it boots up very quickly and has a very good reputation for reliability and stability and in general this was borne out during our tests.

A large jog/shuttle dial dominates the right side of the fascia and to its left is a circular cluster of buttons for menu selection and transport mode. The DVD drive loading tray is in the centre of the front panel; there's a set of LED indicators just above the drawer, and underneath a row of buttons for controlling PTZ functions. On the left side is a bank of illuminated camera selectors and above that the display mode controls and Search button. The USB port is mounted in the bottom right left corner of the front panel.

The rear panel is dominated by a bank of 32 BNC sockets for camera inputs and associated loop-throughs. Above that is another row of sockets and from left to right they are 2 x RS-422 for external communications, 10/100 LAN Ethernet, a pair of RS-485 sockets for external communications and telemetry, two multi-way sockets for alarm inputs and outputs, a Firewire port, a 6-pin mini DIN socket for



The bench test [2]



S-Video output, a pair of BNC sockets for main and spot monitor outputs and a pair of phono sockets for the audio input and output. On the far right is the mains socket and on/off switch.

Inside the case it is unusually crowded, with a pair of hard drives mounted either side of the DVD drive, and two densely populated PCBs, stacked on top of each other, at the rear, with a power supply board on the left.

Installation is fairly effortless thanks in part to the well-illustrated instruction manual, which for once manages to be both brief and to the point. The networking instructions on the CD ROM are also fairly simple, except that actually setting up a connection is quite a convoluted business, requiring more than the usual amount of box filling and configuring. A little more automation certainly wouldn't have gone amiss. Even when it was working, our sample proved to be a touch jittery and was almost certainly responsible for crashing our small office network a couple of times. It may well have been due to mis-configuration (though we have our doubts) but either way this is one occasion where a little network savvy can be very useful.

Setup and operation

For normal operations the DVR is more or less ready to go on the default settings. The only adjustments that need to be made are to the frame rate and quality settings, fine-tuning the display and assigning camera titles, and this is all done through the well thought out menu-driven on-screen display.

It opens with nine options: Camera Setup, Recording Setup, Alarm Setup, Display Setup, Audio Setup, Administration, Backup, Event Log and Power. The Camera Setup menu leads to set of sub menus for selecting Channel Setup, PTZ mode and video format (PAL or NTSC). The Channel page, and there's a separate one for each camera input, covers setting camera ID, enabling PTZ options and adjustments for brightness, contrast, saturation and hue.

Recording Setup also has three sub menus, for setting up the recording schedule (colourful 'planner' type layout), Manual Recording settings deals with the recording speed and resolution for each channel, and the previously mentioned recording time estimation display. Alarm Setup

handles alarm outputs, pre and post alarm event recording times, Motion detection setup (14 x 14 target grid and 30-step sensitivity control), alarm input name setup and alarm buzzer timeout.

The Display menu is responsible for setting up camera assignments on the 8 pre-defined display screens, live channel sequencing, spot monitor

The Ganz ZR-DHD1621NP 16-Channel DVR is a weighty machine, and it should live to a ripe old age...

configuration and on-screen display transparency. Audio setup has adjustments for sampling rate (8 or 12kHz), gain and setting the camera channel it is associated with. Administration covers a wide range of functions including OSD language (English, French, German, Italian, Polish, Spanish, Portuguese, Russian Japanese and Chinese); HDD management (drive type, capacity and free space), initialising, and overwrite when full switch. The Network Setup submenu is concerned with all aspects of network operation, from setting a static IP address to web server configuration.

Date/Time setup and Password administration do exactly what they say and Firmware Management is responsible for updating the machine's internal software. Covert Channel excludes cameras from the monitor display and Mail Notification is where the recipient's email address and the network's SMTP server settings are keyed in.

Still with the Admin menu, Configuration Management allows the DVR's key settings to be saved to (and restored from) a USB memory device. Telemetry Control is the place to go when

setting up a multi-DVD installation and System Information reports on current BIOS and firmware versions.

Back now to the last couple of items on the main menu and Backup is where information stored on the internal hard drives can be copied to DVD or other removable or external media. The Event Log records alarm and motion detector motion detector activations and the Power menu is used to power down the machine.

Performance

By default the machine records continuously. To review a recording simply use the manual replay controls, or to find a specific event, use the Search facilities, which are used to locate a recording by time or date, from the recording event list or from one of the backup drives. The jog/shuttle dial provides fast and accurate control over playback speed and direction. At the highest quality settings the image looks crisp and reasonably well defined, there's a fair amount of detail in the picture, colours are accurately rendered and noise levels are

Product assessment

Design and design features ★★★★★

Circuitry and components ★★★★★

Ease of installation and wiring ★★★★★

Range and variety of functions ★★★★★

Technical advice and backup ★★★★★

Accompanying instructions ★★★★★

Value for money ★★★★★

Grading Key: Outstanding ★★★★★ Very good ★★★★★ Above average ★★★ Average ★★ Below average ★

low. It's not the sharpest picture we've seen on a DVR in recent times but the flaws are relatively minor in nature; there's a slight raggedness along sharp horizontal and vertical edges and some striation in heavily saturated areas of the picture. If pressed picture quality can be summed up as average to good. Audio quality is more than adequate for recording incidental sounds picked up by camera microphones.

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

Factspanel

Equipment	ZR-DHD1621NP
Product group	Triplex+ Professional range DVRs
Application	Retail, Airports, Pubs, Nightclubs, Hotels, Factories, Hospitals
Manufacturer	CBC (EUROPE) Ltd
Address	6-8 Garrick Industrial Centre, Irving Way, London, NW9 6AQ
Telephone	020 8732 3312
Fax	020 8202 3387
E-mail	marketing@cbcuk.com
Available from	Norbain, ADI Gardiner
Trade price	£2150 (with no HDD) £2768 (with 750GB HDD)
CE Mark awarded	Yes
Format:	PAL/NTSC
Recording system	TRIPLEX+
Operating system	Embedded Linux (not stored on HDD)
Compression system	Video: Wavelet, Audio: AC97
Recording speed	PAL 50fps, NTSC 60fps @ 720x280, 120fps @ 720x280PAL 100fps, NTSC 120fps @ 360x280
Audio recording	Yes
Horizontal resolution	PAL: 720 x 280, 360 x 280, NTSC: 720 x 240, 360 x 240
Supply voltage	115vAC or 230vAC
Max current consumption	50W excluding HDDs
Size in mm	432 x 88 x 450
Weight	10Kg
Warranty	3 years

What the manufacturer says ...

The ZR-DHD1621NP is a professional, robust and workmanlike DVR from a top brand manufacturer. This compact 9 and 16 channel Triplex model features built-in multiplexer, telemetry and DVD-RW.

It allows the user to play and record while viewing in multi-screen mode, with the added functionality of control via ethernet and back-up storage to fire wire simultaneously.

The matrix element to the DVR enables the flexibility of switching any of the 9 or 16 channel cameras to your chosen monitor.

Audio recording can be carried out on one channel and remote connectivity is possible via a 10/100 Base-T network. Output choices are composite or S-Video, with an additional spot monitor output.

Recordings can be programmed via continuous or event recording, and there

are seven quality settings. Resolution can be 720x820 or 360x280, resulting in maximum record rates of 50fps or 100fps respectively.

Wavelet compression makes it possible to archive compact files with high image resolution and allows events to be backed-up (with memory stick, DVD-RW and HDD). Up to 1.2TBytes of storage is installed as standard using three in-built HDDs. If more capacity is required a further 20 external HDDs can be easily connected via Firewire to provide up to 6TBytes.

With many in-built telemetry controls you can control most popular fully functional domes and PTZs, or you can seamlessly integrate with CBCs C-Dome range of dome, keyboard and matrix.

You can also control the DVR remotely via RS422 keypad, Ethernet or via a standard web browser or client software (issued free of licence). Each unit incorporates automatic daylight saving time adjustment through an inbuilt calendar or Continuous Time Correction via Network Time Protocol.



Overall assessment

Hopefully the twitchy and less than friendly network operation was confined to our sample; otherwise it gets a clean bill of health. It is sturdy and very well built and with a full complement of storage devices, it has enormous recording capacity. Picture performance is fine, if a little unexciting, but it is easy to setup and use and there is every reason to suppose that like the previous generation of analogue heavyweights, it should have a long and useful life.