DEDICATED MICROS

Eco 9
Setup Guide

NetVu CONNECTED

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Introduction

What is …

Eco9 ?

The Eco9 is part of the NetVu Connected range of DVR's from Dedicated Micros, and is a cost effective and easy to use video multiplexer, digital video recorder, and network video transmitter in a single box solution.

With the NetVu Connected capabilities the Eco9 can be integrated into any NetVu Connected system and supports remote monitoring from a dedicated software application or web browser. This manual introduces the Eco9 and Eco9 with integrated CD/DVD writer.

A video multiplexer

- Designed with security in mind.
- Easy to use.
- Operates like a traditional multiplexer, not a PC
- All the features you would expect from a Dedicated Micros multiplexer:
  - Main and Spot monitor.
  - Multiscreen displays.
  - Activity detection.
  - Alarms.
  - Scheduling.
  - Adjustable record rates.
- NetVu Connected product with support for remote monitoring via the NetVu ObserVer software.

A Digital Video Recorder

- Playback and record simultaneously, without affecting recording.
- 31 days or more of 24 hour time-lapse recordings in one box*.
- Instant access to images recorded on the hard disk with no tapes.

*Refers to 300GB (or higher) models.

Network Transmission

- View live and playback images across the network.
- No extra software to buy, NetVu ObserVer Network Viewing software for Windows™ provided.
- Copy images across the network

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Features

Installation

- Auto detect cameras on power up
- Default recording

Operation

- Play, record, copy and transmit simultaneously
- Hidden camera option
- Control via IR remote control
- Scheduling

Playback

- VCR style playback
- Full, Quad, PIP and multiscreen playback

Events

- Activity detection
- Alarms
- Event log with preview window

Network viewing

- Live viewing
- Playback viewing
- Multiple simultaneous Users
- Copy images across networks
- E-mail on event activation

Storage devices

- Internal CD writer on Eco9 with integrated CD only

Design of the manual

The manual has two parts:

1. Installation

–Giving details of how to install the unit and connect external devices.

2. Setup

–Giving details of the configuration menus of the unit.

3. Operating

–Giving quick reference details on how to control the unit

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Important Safeguards

Read Instructions

All the safety and operating instructions should be read before the unit is operated.

Power Sources

This unit should be operated only from the type of power source indicated on the manufacturer's label.

Servicing

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards.

Refer all servicing to qualified service personnel.

Ventilation

Ensure unit is properly ventilated to protect from overheating.

All the safety and operating instructions should be read before the unit is operated.

To prevent fire or shock hazard, do not expose this equipment to rain or moisture. The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of this equipment that there are dangerous voltages within the enclosure which may be of sufficient magnitude to constitute a risk of electric shock.

WARNING

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Lightning Strike

The unit has some inbuilt protection for lightning strike, however it is recommended that isolation transformers be fitted to the system in areas where lightning is a common occurs.

Regulatory Notes and FCC and DOC Information

(USA and Canadian Models Only)

Warning: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the US Government Printing Office, Washington, DC20402, Stock No. 004-000-00345-4.

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This reminder is provided to call the CCTV system installer's attention to Art. 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

CE Mark

If this product is marked with the CE symbol it indicates compliance with all applicable directives.

Directive 89/336/EEC.

A 'Declaration of Conformity' is held at Dedicated Micros Ltd.,

11 Oak Street, Swinton, Manchester M27 4FL.

Laser

Some models of this unit have an integrated CD writer. The following are additional warnings associated with installing and operating the CD writer, please pay particular attention to this information.

- Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- To prevent exposure to laser emanations (harmful to the eyes), do not attempt to disassemble this unit.

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Installing the Unit

Before you start

Check the contents of the box

The following items are included in the box:

- Digital Video Recorder
- PSU
- Mains cable with three pin plug fitted (North America)
- Mains cable without plug fitted (other regions)
- Mains cable with two pin plug fitted (EC)

Choosing a location for installation

The unit is designed to be desk mounted. The following precautions must be taken during installation:

- Openings in the unit's case are provided for ventilation. To prevent overheating, these openings should not be blocked or covered.
- Ensure there is a 1" (2.54 cm) gap on either side of the unit.
- When stacking units, ensure there is at least a ½" (1.3 cm) gap between each unit.
- Ensure the unit is not located in an area where it is likely to be subjected to mechanical shocks.
- The unit should be located in an area with low humidity and a minimum of dust. Avoid places like damp basements or dusty hallways.
- If the unit is to be installed in a closed assembly, the maximum operating temperature must not exceed 104°F (40°C).
- Ensure there is reliable earthing of the mains outlet when fitted to supply connections, other than direct connections, to the branch circuit.
- Any branch circuit supplying the unit must be rated 15Amps.
- It is recommended that an uninteruptable power source be connected to the unit in case of power failure, to ensure continuous operation of the unit.

A quick overview of digital recording

Digital multiplex recorders work in exactly the same way as analogue multiplexers except that they use hard disks to store video, instead of VCR tapes. Analogue recording uses time-lapse recording to extend the length of time recorded onto 2 or 3-hour tape - recording fewer pictures every second.

Adjusting the number of pictures recorded every second also extends the length of time recorded onto the hard disk of a unit. However, other factors also determine the amount of time that can be stored on the disk of a digital multiplex recorder:

The image quality

The record rate

The hard disk capacity

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Image quality

Digital multiplex recorders store images in a compressed format, allowing images to be recorded more efficiently. The higher the compression, the smaller the file size, but the image quality will suffer. The DVR offers a range of compression options and image storage formats to give the end user the flexibility to balance between image quality and storage capability.

Kilobytes and Gigabytes are units of storage:

1GB = 1024 Megabytes (MB)

1MB = 1024 Kilobytes (KB)

With analogue recording, the image quality is dependent on the type of VCR being used; VHS or S-VHS. The unit allows the image quality to be altered by adjusting the image size, for example, Low quality is 14KB, Medium is 18KB, and High is 25KB.

Note: *As for all digital recording, image quality can vary for different scene types, Medium quality may be 18KB in one scene, but it may be 30KB or more to get the same quality in a scene with more detail.*

Using a larger image size will fill the hard disk faster than a smaller image size, as more space is required to store it. To achieve the same amount of recording time when a larger image size is used requires the record rate (PPS) to be reduced.

Standard record rate

The record rate is the amount of pictures recorded to disk in a second, or pictures per second (PPS). This is a system wide figure and is not effected by how many cameras are connected. The update rate per camera can be worked out using the record rate:

Update rate = No. of cameras/Record rate

Calculating recording time

The unit calculates the recording time automatically when the record rate and image quality are entered. Alternatively, an interactive record calculator is available for download from our web site:

www.dedicatedmicros.com

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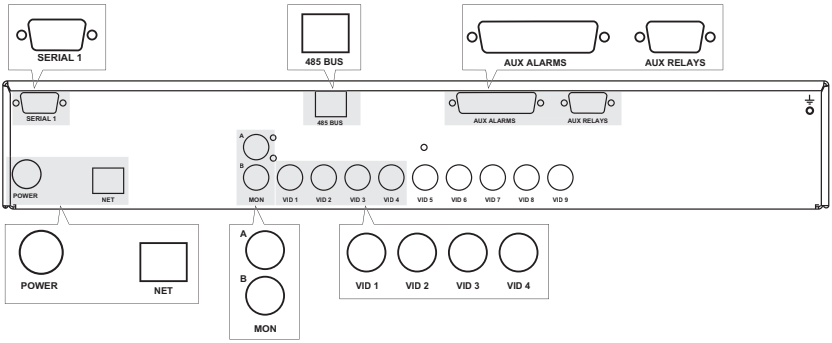
Simple Installation

The unit can be installed in as little as 4 steps, and being plug-and-play, cameras will be detected and begin recording automatically.

Rear Panel connections

The illustration shows the rear panel connections.



Video

VID1 to VID9	75Ω BNC composite camera connections (1V pk-pk)
MON A	Main monitor, 75Ω BNC composite monitor connection (1V pk-pk)
MON B	Spot monitor, 75Ω BNC composite monitor connection (1V pk-pk)

Data

NET	RJ-45 10/100-baseT Ethernet connection
SERIAL 1	9-way (Male) D-type RS-232 serial port (PPP modem)
485BUS	MMJ port for DM/IR01 485-BUS Infrared receiver for use with SA-RC05 IR remote controller

Alarms and relays

ALARMS	25-Way (Female) D-Type
RELAYS	9-Way (Female) D-Type

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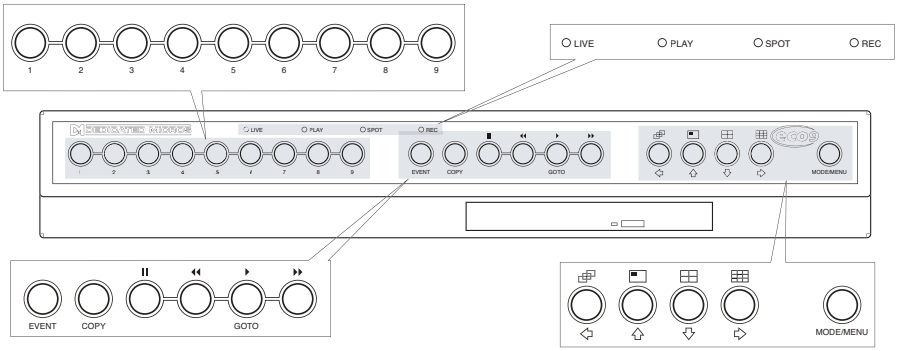
Front Panel

Eco9



CD Variant shown

Camera control

1 - 9 Camera keys for camera selection.

Monitor control

Sequence

The button under this symbol will initiate a sequence on Main (MON A) or Spot (MON B) Monitor.

Picture in picture

The button under this symbol will show a Picture in Picture display on the Main (MON A) monitor.

Four way

The button under this symbol will show a four way split screen display on the Main (MON A) monitor.

Multiscreen

The button under this symbol will show a multiscreen display on the Main (MON A) monitor.

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VCR buttons

Pause

Pause the image in Live and Playback mode.

Rew

Rewind/Search images in Playback mode.

Play

Playback recorded images and GOTO function.

FFwd

Fast forward / Search images in Playback mode.

Additional Buttons

EVENT	Access Event Log and Event Search Filter menu
COPY	Access Copy Images menu
MODE/MENU	Select between Main and Spot monitor control (press and release) and access Installer menus (press and hold).

LED's

LIVE	Unit is in Live mode when lit
PLAY	Unit is in Playback mode when lit
SPOT	Spot (MON B) monitor is being controlled
RECORD	Unit is recording video to the internal hard disk

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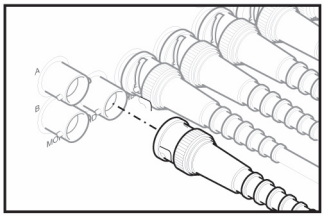
Quick Connection

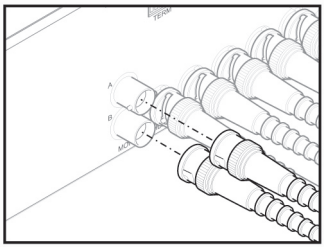
STEP 1. Connect Cameras

Connect cameras to the video inputs



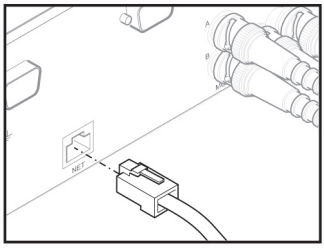
STEP 2. Connect Monitors

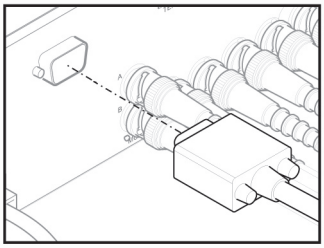
Connect the video output marked MON A to the Main monitor (digital playback and multiscreens). Connect output marked MON B to the optional Spot monitor (analogue full-screen images).



STEP 3. Connect the External Devices

If external devices need to be connected to the unit, go to the next section - ‘Connecting external devices’, before proceeding to Step 4.





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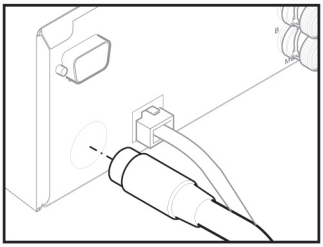
STEP 4. Connect Power

Once the unit is in its final position and all external devices have been fitted and powered, connect the PSU to the rear of the unit and apply the power. The power-up procedure may take up to one minute. The unit will be ready to use once it this is complete.



The unit will now record all cameras in a 24-hour time-lapse mode without any further programming!

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Connecting External Devices

Devices that can be connected to unit include:

485-Bus Infra red receiver

Ethernet networks

Alarms and Relays

Dial up modems

485-Bus Infrared Receiver

A single 485-BUS Connector is available for a DM/IR01 485-BUS Infrared receiver, which will allow the unit to be controlled remotely using a SA-RC05 IR Remote Controller. The unit is compatible with this model of remote controller only.

Connecting to an Ethernet network

The unit includes an enhanced video server allowing remote connectivity across an Ethernet network. Multiple users can connect simultaneously to the unit to view and control live or recorded video, download recorded images or review database details.

The unit can be connected to a standard 10/100-baseT Ethernet network and using the viewing application offers full control of the unit from a remote location.

Network connection

Refer to the Network Options in the Configuration section for full details on how to configure the units IP address.

To connect the unit to a network you will need the following items:

- One RJ-45 network cable (CAT5 or equivalent).
- A static or DHCP IP address and Subnet mask (if accessed from beyond the LAN, a Default gateway IP address will also be needed. Consult the network administrator for advice).

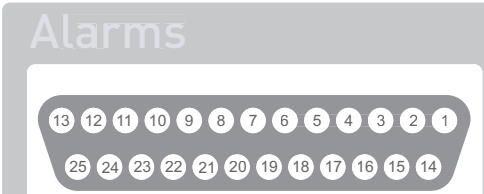
Connecting Alarms and Relays

Alarm inputs

Eco9

Dry contact alarms can be wired directly to the alarm connection on the back of the Eco9. There are 10 alarm inputs, one for each camera, and a global alarm input. The alarm connections are as follows (view from solder side):

The polarity of the alarms - normally open or normally closed - can be set in the ‘Camera Setup’ menu.



Pin	Connection
1 - 9	*Alarm*
10	*Global Alarm*
11 - 20	*Reserved*
21 - 25	*Ground*

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When the camera alarms are triggered on the Eco, the following actions will occur:

Actions

Set	Unset
Close Relay 1	*Open relay after 5 seconds*
Display alarm camera on main monitor	*Resume pre alarm display after 5 seconds*
Interleave record alarm camera	*Standard record after 5 seconds*

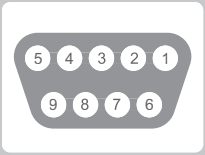
Note: *If the standard PPS is set to 000PPS the alarm cameras will exclusive record.*

Triggering the global alarm input will switch all cameras into alarm record at the selected event rate.

Relay inputs

Relay connections and actions are as follows:

Relays



Relay	Pin	Action
R1	1 & 6	*Close on Alarm*
R2	2 & 7	*Close on Activity detection*
R3	3 & 8	*Close on camera fail*
R4	4 & 9	*Reserved*

NOTE: *The on-board relays are rated at 24V 500mA, do not attempt to connect mains power through the relays.*

Connecting Dial-up Devices

The DVR supports PPP (Point to Point Protocol) connections via the RS-232 serial port (Serial 1). This port allows an external modem to be connected to the unit providing a path for outgoing and incoming PPP connections.

Set up

Configuring PPP operation is explained in the section ‘System Options’ later in this manual.

NOTE: *The unit will only transmit OR receive data over PPP at any one time. It is not possible to send and receive simultaneously.*

Remote dial-up

TIP: *To make a dial-up connection in Windows®, Click on Start -> Help, and type in ‘Dial Up’ in the search window. A description of making a dial-up connection to another PC should be displayed.*

Once the remote computer has been configured to dial-up to the Eco, enter the PPP_Link2 IP address that was allocated to the port on the unit to make a remote dial up connection.

NOTE: *The IP address used to dial in to the unit is the IP address used for PPP_Link2.The PPP IP address used in System Options->Network Settings->PPP Selection is the base PPP IP Address. The dial in address is one greater than this. Ie if the PPP IP address is defined as “10.0.0.1”, the PPP IP address required to connect to the unit is “10.0.0.2”.*

The unit will request a username and password, as defined in the ‘profiles’ configuration file. The default settings are ‘username’ and ‘password’.

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NOTE: *The Username and Password should be changed to maintain security. This is done by editing the 'profiles' configuration file on the unit. For full details on how to do this, see the Networking Guide, which can be downlaoded from the unit's web pages (See Operator Reference section)*

Dial out

To make an outgoing PPP connection (to send an email), ensure the unit has been configured to send an email under specific conditions, that the correct telephone number has been entered in the profiles file, and that this profile has been configured in the email settings. Email settings are configured using the embedded web pages and the process is explained in the Networking guide..

Configuring the unit

Using the Menus

The unit uses on-screen (OSD) paged menu system to guide users through the installation process. The integrated web pages allow remote configuration using an internet browser such as Internet Explorer or Netscape Navigator.

Entering the menus

To access the Installer OSD menu;
Press and hold the MODE/MENU button. Tapping the MODE/MENU button will switch the monitor control between Spot and Main monitor. Menus are not available in Spot mode.

Note: *The MODE/MENU button will be referred to as the Menu button*

Navigating the menus

The menus are displayed with options on the left-hand column and settings in the right hand column. A cursor (highlighted text) can be moved using the ⇦ ⇧ ⇩ ⇨ buttons on the front panel.

Note: *If a password has been set and enabled it will be necessary to enter the Installer password to gain access to the menus. This is disabled by default.*

To view the next menu

Tap the Menu key to view the next page.

Tip: *Tapping the fwd or rew video keys will allow you to navigate back or forward one page in the menus.*

To exit the menus

Press and hold the Menu key to exit the menus.

Tip: *Tapping the Menu key until all the menus have been viewed will also exit.*

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Example of using the menu to change the time:

1. Press and hold the Menu key to enter the installer menu. The 'Time, Date & Language' page is displayed.

2. The 'Time & Date' option will be highlighted use the ⇨ button to move to the hours setting.

3. Use the ⇨ button to highlight the minute setting.

4. Use the ⇧⇩ button to change the settings, in this example 15:45.

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5. Use the ⇦ button to return to the left-hand side of the page and select another option. Or press the Menu key to move to the next menu.

Note: *Navigation is also possible using the optional remote control instead of the cursor keys.*

Warning: *Images may be overwritten if the time or date is adjusted whilst recording is in progress.*

Tip: *Ensure the timezone is correct before changing the time.*

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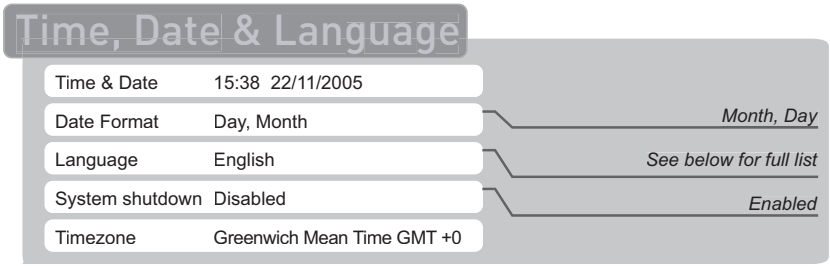
Time, Date & Language



Date

As default, the date is entered DD:MM:YYYY, this can be changed using the Date format option below.

Time

The time should be entered in 24 hour format (HH:MM).

Note: *The Daylight Saving Time setting is indicated by 'S' for summertime and 'W' for wintertime*

Date Format

The date format can be changed from Day, Month to Month, Day depending on regional preference.

Language

The menus on the unit can be displayed in a number of languages.

System Shutdown

If the unit needs to be switched off for any reason, the shutdown procedure needs to be followed:

1. Select 'Enabled' in the System Shutdown option.
2. When the pop-up menu appears, press and hold Camera 1 button for five seconds to shutdown.
3. The message 'It is now safe to switch off your unit' is displayed, switch the unit off at the supply switch/isolator.

To abort the reset, press the Menu/Mode key.

Note: *Shutting down the unit by any other method will put the integrity of your DVR at risk.*

Tip: *The unit can be restarted from the 'System Shutdown' option by pressing and holding Camera 4.*

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Time Zone

There are numerous time zones supported on the unit, select the zone for where the unit is installed so the time and date will reflect the local time and will change in conjunction with Daylight Saving Time.

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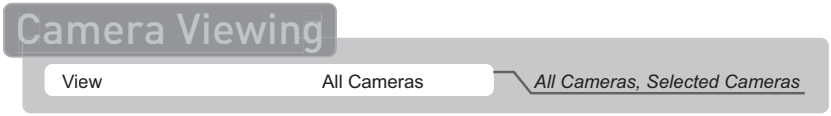
Camera Viewing

An option is available to view all cameras or selected cameras. All the cameras are viewed by default. Cameras removed from viewing do not affect the cameras being recorded.



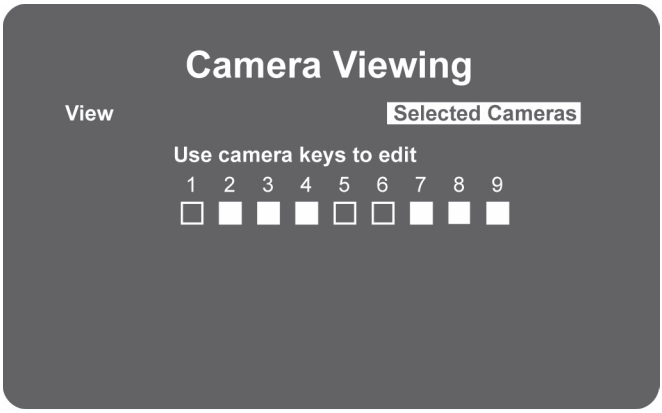
To change the cameras to be viewed

- Press the ⇧ button to change the edit field to 'Selected cameras'.
- A menu will display the cameras to be viewed.
- Press the camera button to toggle the camera in or out of the viewed sequence. This camera will be displayed. A filled box denotes cameras that can be viewed.

Note: *Cameras removed from view (covert) are not displayed on the main or spot monitor in live or playback mode, multiscreen displays will show a blank segment.*

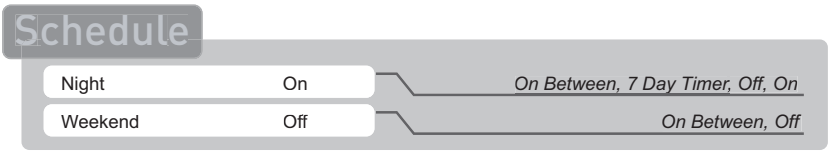
Tip: *It is advisable to set a password to stop this setting being altered by unauthorised personnel.*

Note: *The number of boxes displayed onscreen coresponds to the number of video inputs*



Schedule

A schedule can be used to record selected cameras at different times, change the record rates, and select whether alarms or activity is enabled.



Night

The Night option allows times to be configured to determine when the night settings would be applied.

The options are:

- On - Night settings would be permanently applied.
- 7 Day Timer - This activates a sub menu where Day and Night times can be allocated, refer to the 7 Day Timer section.
- On between - this allows the start and end times to be set when the Night settings will be applied.
- Off - When the night option is off the Day settings will be applied at all times (default).

7 day Timer

This sub-menu allows a schedule to be independently set for each day of the week.

7 Day Timer

		Day	Night
Monday	Timed	09:00	18:00
Tuesday	Timed	09:00	18:00
Wednesday	Timed	09:00	18:00
Thursday	Timed	09:00	18:00
Friday	24Hr Day		
Saturday	24Hr Night		
Sunday	24Hr Day		

24 Hr Day

This enables the unit to record using the Day settings at all times.

24Hr Night

This enables the unit to record using the Night settings at all times.

Timed

The schedule will enable the Day settings during a set period and then switch automatically to the Night settings at a programmed time. The diagram shows that the unit will be active with the Day settings from 09:00 on Monday until it switches to the Night settings at 18:00. This is repeated each day until Friday when the settings will be switched to Day then over to Night settings on Saturday and back to Day on Sunday.

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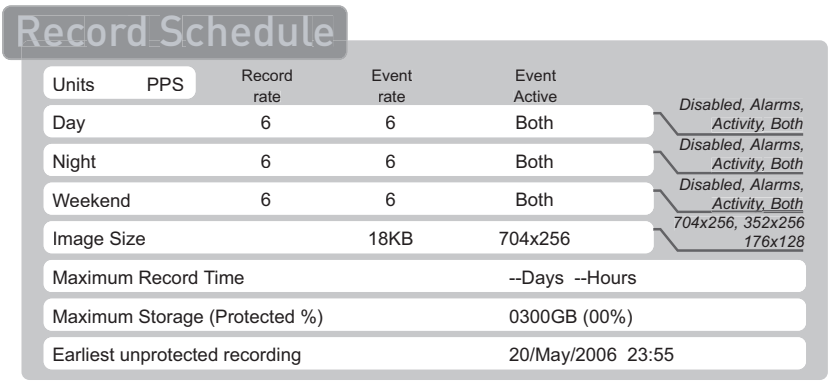
Weekend

The weekend option allows times to be configured to determine when the weekend settings would be applied. The options are:

- On between - this allows the start and end times to be set when theweekend settings will be applied.
- Off - When the weekend option is off the weekend setting will never apply.

Record Schedule



Note: *The Night and Weekend options are only displayed if a corresponding Night and Weekend schedule has been configured in the Schedule menu page.*

Units

The settings within this menu can be configured in either the number of Pictures Per Second or Milliseconds. Using the ⇨ move the cursor to the PPS option and use ⇧ to select ms (milliseconds).

Record Rate

Select a record rate in pictures per second (PPS) to be recorded across all cameras. The maximum record rate is 25PPS for PAL and 30PPS for NTSC cameras when a single camera is recorded.

The default record rate is 6PPS, this is the equivalent to a VCR in 24-hour time-lapse mode.

Note: *If 'Day' and 'Night' are set to disabled on the 'Schedule' page, this screen will not display options to set Day and Night parameters.*

The standard record and alarm record rate can be configured for Day time operation and Night time operation allowing the system to automatically change the required number of PPS (or ms) between the two time schedules e.g. day time could be during business hours, night time operation outside of business hours.

Note: *The Record Schedule menu will alter if the schedule options are disabled. This will only display Day options.*

Event Rate

The Event PPS is the record rate that the unit will switch to when an event has been triggered on the unit (the default settings is 6PPS).

As with the Standard PPS the Event PPS is the rate recorded across all cameras.

Interleave Recording

When an event is triggered, if the Record rate is set to 1pps or above, the unit will switch to interleave record. The unit will interleave the event camera(s) with the non-event cameras and record at the specified Event rate.

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Example of interleave recording
The standard record sequence for the unit in normal operation is 1, 2, 3, 4, 5, 6, 7, 8, 9, etc.

If the event is associated with camera 2 the interleaved record sequence would change to 1, 2, 3, 2, 4, 2, 5, 2, etc. interleaving camera 2 with each of the non-event cameras.

Tip: *To work out the update rate per camera - the number of seconds before the camera is updated. Divide the number of cameras by the record rate (PPS). For example, 9 cameras with a record rate of 6PPS will be:*

Update rate (seconds) = Number of cameras/PPS = 9/6 = 1.5 seconds

You can decrease the update rate by increasing the record rate (PPS), the only drawback is that the recording time will also decrease.

Note: *The majority of the Event PPS during interleave recording will be allocated to the event cameras to increase the images available for playback on the event cameras.*

Exclusive Recording

If the Record rate is set to 0pps, the unit will switch to exclusively record the alarm camera(s), i.e. record the event cameras (alarm/activity) only at the select Event PPS.

Events Active

It is possible to select when the Alarms and Activity will be active during operating modes (Day, Night Weekend).

The options are to Disable both activity and alarms, enable alarms only, enabled activity only or enable both Alarms and Activity.

Note: *The Record Schedule menu will change if the Schedule options are switched off. The Record Schedule option will then only allow the day settings to be configured.*

Image Size

The unit supports JPEG compression for high quality recording and image display. The image size has two configurable parameters, File Size and Image Resolution.

The file or image size setting can be configured between 2 to 45 KB. This determines the size of the images that will be stored on the hard drive. A larger file size allows more detail to be included in the recorded video and provides higher picture quality, however this also means that the hard disk will be filled faster and images will be overwritten sooner.

The image resolution setting has been included to allow the most appropriate image resolution to be configured in line with the selected file size. The image resolution is the number of pixels captured in each image and has the following options: 704 x 256, 352 x 256, 176 x 128.

Tip: *Where possible it is recommended that the 704 x 256 option be used for maximum picture clarity.*

Typical File Sizes and Resolutions
The following table shows typical settings when configuring the Image Size, it details a range of file sizes from 2KB to 30KB alongside the most appropriate image resolutions ensuring the optimum video quality is achieved.

Tip: *It is advised that the settings be tested to find the best recorded video quality for the system being configured.*

Typical Settings

File Size	Image Resolutuion
12 - 30Kb	704 x 256
6 - 15Kb	352 x 256
2 - 6Kb	176 x 128

Maximum record time

This will show an estimate of the number of days and hours before the recorded images on the hard disk will be overwritten. The maximum record time is read only and will be displayed when the record or alarm rate (day or night) is highlighted. It will be automatically calculated by the unit when the standard or alarm record rate is changed.

Tip: *Reducing the file size (KB) or record rate (PPS) will increase the maximum recording time.*

Maximum storage (protected %)

The maximum storage setting is read only. This displays the total video storage, in Gigabytes (GB), along with the percentage of video storage that is protected from being overwritten.

Note: *The calculations for recording time assume there is no protected video. Video that is protected will need to be manually unprotected in the 'Image Protection' menu before it can be used for recording again.*

Earliest unprotected recording

The earliest unprotected recording displays the date and time of the first image on the disk that has not been protected.

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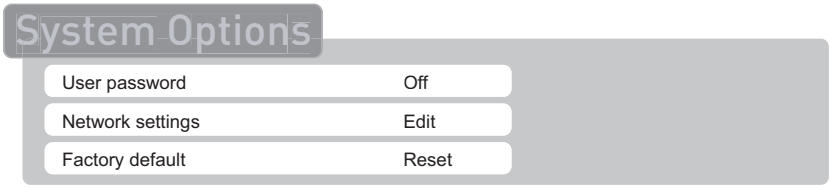
System Options



User Password

A password can be set to prohibit unauthorised access to the menu systems.

The default setting is Off.

To set or change the menu password:

1. Use the cursor buttons to change the User password to On.
2. When the new password menu is displayed use the camera button numbers to enter a password - up to eight numbers.
3. Press the MODE/MENU button to enter the password.
4. When prompted re-enter the password to confirm and press the MODE/MENU button when complete.

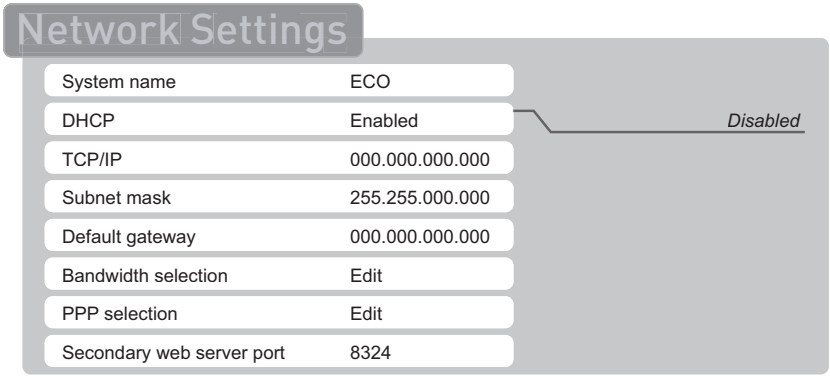
Warning: *For security reasons, loss of passwords will require the unit to be returned to Dedicated Micros for the passwords to be reset.*

Make a note of your password here __ __ __ __ __ __ __ __

Remember to keep all passwords safe.

Network Settings

This option is used to configure the unit for connection to an Ethernet network or dial-up. A pop-up box for configuring the network settings is displayed with the following items:



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System name

Each unit on the network can be given a system name to help identification. A maximum of 30 characters can be used for the system name.

DHCP

The unit needs a unique IP address and subnet mask to communicate over a network.

The unit can be installed in a DHCP network environment where an IP address, subnet mask and default gateway will be automatically allocated from the network DHCP Server. This is enabled by default.

Disabling this option would require a static IP address and subnet mask to be manually configured.

NOTE: *A DHCP address is temporary and can change, therefore it is recommended that the unit be allocated a fixed (permanent) IP address, subnet mask and default gateway. Alternatively power up with DHCP enabled and once an address has been assigned disable DHCP. The assigned IP address will then be permanent.*

TCP/IP address, Subnet mask, Default gateway

This allows a permanent IP address, subnet mask and default gateway to be allocated to the unit. On an existing network this information is often obtained from the network administrator. A Default gateway will be required if the unit is to be accessed from a remote location, such as via a WAN or dial-up using a router.

Note: *DHCP must be disabled to configure a static IP address.*

Bandwidth selection

It is possible to set maximum limits for the bandwidth utilisation on the Network port of the unit.

Bandwidth Selection

Force 10 BaseT operation	Disabled	*Disabled, Enabled*
Type	LAN	*CUSTOM, LAN, WAN, ISDN*
Max Trans Rate	010000 KBits/Sec	*000001-100000KBits/S*
Tx Image Buffers	3	*1 - 3*
Ethernet MTU	1500	*576 - 1515*
Ethernet re-tx t/o	0250ms	*0000 - 5000ms*

Force 10 BaseT operation
The unit supports a 10/100Mbps auto detecting connection, however this option forces the network port on the unit to be a 10BaseT connection if the local hub/switch requires this.

Type
The unit can be configured for a specific value or it can be set to a default network setting, for example a WAN connection would automatically set the speed of the network port to 32Kbytes/second.

This will ensure the speed of the data from the unit does not exceed the speed of the network connection. The options available are:

- Custom - this will allow the Administrator to select specific values.
- ISDN - This will set the maximum transmission rate to 64KBits/second for remote network connection via an ISDN link, it will also automatically alter the transmit image buffers and Ethernet re-transmit timeout.

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- WAN - This will set the maximum transmission rate to 256KBits/second, and automatically alter the transmit image buffers and Ethernet re-transmit timeout.
- LAN - This will set the maximum transmission rate to 010000KBits/second for a local network connection, and automatically alter the transmit image buffers and Ethernet re-transmit timeout.

Max trans rate
This is a read only setting and shows the maximum transmission speed for the type of network selected.

Note: *If Custom is selected in the Type option, it is possible to configure this setting between 000000 Kbits/s and 100000 Kbits/s.*

Tx Image Buffer
This is a read only setting and shows the buffer size for the network type selected.

Note: *If Custom is selected in the Type option it is possible to configure this setting the options are 1, 2 or 3.*

Ethernet MTU

MTU

Network Connection	MTU Sizes
PPP (PSTN Modems, ISDN/PSTN routers)	576
Ethernet	1500 (default)
PPPoE (PPP over Ethernet, ADSL, Cable)	1458
PPPoA (PPP over ATM, ADSL)	1500
VPN	1350

The MTU (Maximum Transmission Unit) is the largest physical packet size, measured in bytes, that a network can transmit. Any messages larger than the MTU are divided into smaller packets before being sent.

Ideally, the MTU should be the same as the smallest MTU of all the networks between your machine and the final destination. If the MTU figure is too large they will be broken up (fragmented), which slows down transmission speeds, and in some cases cause a 'Connection to Unit Timed Out' message when using NetVu Observer.

MTU sizes can vary for each connection and it may be necessary to use trial and error to find the optimal MTU. Suggested MTU sizes are as follows; Dedicated Micros recommend you obtain this information from your Internet Service Provider who will provide you with the optimal figure.

Warning: *Changing the MTU size can have adverse affects on the transmission speed and operation over the network. Contact your network administrator for advice on MTU sizes for the network.*

Ethernet re-transmit timeout (Ethernet re-tx t/o)
The Ethernet re-transmit timeout is the time the unit will wait to re-send a network packet if an acknowledgement is not received. When making a connection across WAN link, this figure should match the timeout figure for the router. Your Network Administrator can provide this information.

PPP selection
The unit supports Point to Point Protocol, this menu allows the PPP settings to be configured.

Note: *It is necessary to edit the 'profiles.ini' file for PPP to function. Basic configuration information is provided here. Refer to the Network Guide, which can be downloaded from the unit web pages, for full details.*

PPP Selection

PPP IP	010.001.001.241	*Disabled, Enabled*
PPP idle line timeout	180 Seconds	*000 - 500 Seconds*
PPP link down timer	02 Minutes	*00 - 60 Minutes*
Modem / TA	Off	
Baud rate	1200	*2400, 4800, 9600, 19200, 38400, 57600, 115200*
Parity	None	*Odd, Even*
Data bits	8	*7*
Stop bits	0	*1, 2*
Flow control	None	*Hard, Soft*

Base PPP IP address (PPP IP)
Enter the IP address allocated to the PPP functionality. Use the ⇧ and ⇧ buttons to scroll through the available numbers.

NOTE: *The IP address defined here is the base PPP IP address. The IP address used for dial in to the PPP_Link2 is one greater than this i.e. if a PPP IP address is defined as "10.0.0.1" in the PPP Selection menu, the IP address associated with PPP_Link2 is "10.0.0.2".*

PPP Idle line timeout
This is the time the unit will wait before disconnecting the PPP link if no data is being transmitted or received.

PPP link down timer
This is the time the unit will wait before dropping the PPP connection should it be lost.

profiles.ini configuration
To fully configure PPP operation on a serialport, it is necessary to edit the configuration file \etc\profiles on the unit. This file contains a number of lines of code, each of which defines of part of the connection settings. The fields listed below are required for each full configuration entry.

<Username & Profile Label>

- For a dial-in connection, this is the username the external user has to enter to be authenticated by the unit. For a dial-out connection, this is the username the unit will provide to authenticate with the remote computer. This field is also used as the label that will be entered in webpages when selecting this profile. e.g. for email on alarm.

<Password>

- For a dial-in connection this is the password the external user has to enter to be authenticated by the unit. For a dial-out connection this is the password the unit will provide to authenticate with the remote computer.

<Port>

- This defines the PPP port over which the connection is made. For a PPP connection via Serial 1 on the unit this is "PPP_Link2".

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<Phone No>

- For a dial-out connection, this defines the phone number that will be dialed when the profile is used. This field is not relevant for a dial-in connection.

<IP Address Range>

- For a dial-out connection, this defines the first in the range of IP addresses with which the unit will communicate over the connection established with this profile. This field is not relevant for a dial-in connection.

<Subnet Mask>

- For a dial-out connection, this defines the mask for the range of IP addresses with which the unit will communicate over the connection established with this profile. This field is not relevant for a dial-in connection.

All fields on one line are separated by white-space, and comments can be added by preceding the line with a '#' character.

Example entry for defining a dial-in user ("remoteuser", password "D1alin") on Serial 1. Note – all fields after PPP_Link2 are irrelevant, but need to have values defined

```
remoteuser      D1alin      PPP_Link2      1234567890      10.0.0.1      255.255.255.0
```

Example entry for defining a dial-out connection using on Serial 1. This will dial the phone number "1234567890" and use this connection for communication with IP addresses 10.0.0.1 to 10.0.0.255

```
alarmuser      D1alout      PPP_Link2      1234567890      10.0.0.1      255.255.255.0
```

Modem / TA
The unit supports numerous modems and terminal adapters, select from the list the most appropriate.

Note: *Select GenericAT modem if the modem is not in the list, or 'Off' if using a permanent link without fixed dialling. i.e. via a leased line.*

Baud rate, Parity, Databits, Stop bits and Flow control
These are the physical settings for the communication between the unit and the modem, set these as appropriate refer to the relevant product documentation for the correct information.

Secondary web server port

The unit can be configured to send video via a web port. If the standard web port (80) is already utilised on the network, it is possible to configure a secondary web server port.

To view the device, via a web browser, using the secondary web port, you will need to enter the following in the internet web address section or the unit viewing software:

http://<IP Address of the unit>:<secondary web port number>

For example of the secondary web address allocated is 8000, with an IP address of 172.16.1.2 then the entry would be: http://172.16.1.2:8000.

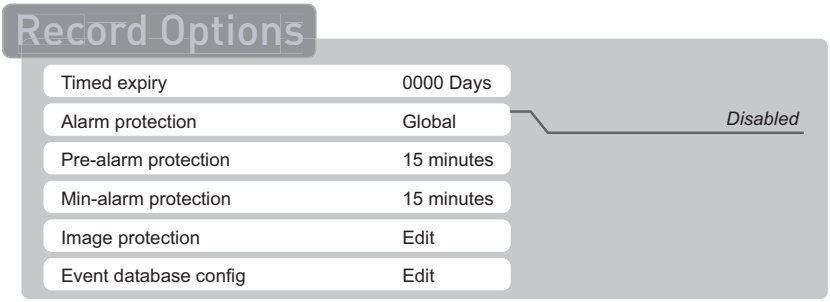
Note: *There is no indication as to the new port number on the digital recorder itself, the port number is only revealed within this menu.*

If you are using a broadband connection, you will need to use the 'Port Forwarding' or 'Virtual Server' function of the router to direct port traffic to the correct IP address.

Factory Default

This will switch the majority of the settings back to factory default. However hardware specific settings such as the IP address will remain unchanged.

Record Options



Timed expiry

Images recorded onto disk can be programmed to expire after a user-defined number of days and hours. This option has been designed to assist where the installation requirements define that recorded images must adhere to legislation on retaining images for a maximum record time, for example 31 days.

Warning: *Once the timed expiry has been set, all images older than the selected time will be no longer available.*

Alarm Protection

Global alarm triggers can be automatically protected from being over-written as they are received. If no alarms are to be protected, select Disabled.

Pre-alarm Protection

Images recorded before a Global alarm is triggered can be protected along with the alarm. This parameter sets the amount of time protected. By default this is set to 15 minutes, but this is adjustable from 00 minutes (no pre-alarm protection) to 60 minutes.

Min. alarm Protection

This is the amount of time the images are protected after the Global alarm has ended. By default this setting is 15 minutes, but this is adjustable from 00 minutes (no post-alarm protection) to 60 minutes

Image Protection

Selecting this option allows images to be protected or unprotected manually.

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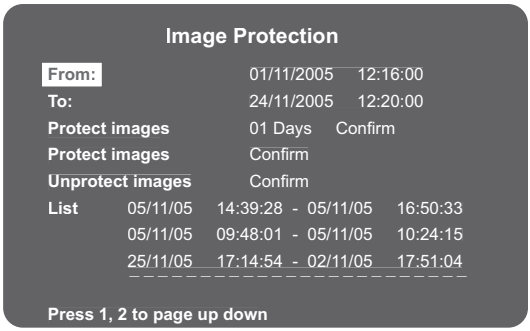


To protect images:

1. Enter the time of the first image to be protected (in the From area).
2. Enter the time of the last image to be protected (in the To area).
3. Select the number of days these images are to be protected for and use the ⇨ to highlight, Confirm and press MENU.

   Alternatively highlight Confirm in the second Protect Images option to protect the images indefinitely, press MENU.
4. The selected images are protected and placed in the list.

To un-protect images:

1. Enter the time of the first image to be unprotected (in the From area).
2. Enter the time of the last image to be unprotected (in the To area).
3. Select 'Confirm' in the Unprotect images option.
4. The selected images are unprotected and removed from the list.

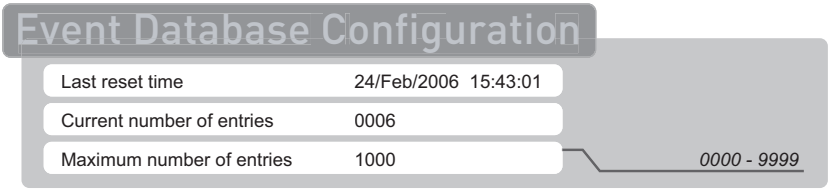
Note: *If you try to unprotect a sequence of images before they are all protected, for example if you are protecting a large number of images, some of the images may be left in the list. It may be necessary to wait a few minutes for the remaining images to be protected before un-protecting them.*

Important information regarding Protected Images.
There is a percentage indication of the amount of images that are currently protected on the hard disk. It is important to remember that the protected images will remain on the hard disk and will not be overwritten until they are manually removed.

Protected images reduce the amount of space you have for normal recording. For example, if 50% of the images are protected, this effectively means you only have half the disk available for normal recording, so recording settings that should normally give you 30 days would only allow 15 days of recording.

Event Database Configuration

The unit supports a database that stores events on the unit. This allows the user to configure the size of this database.



Last Reset Time

This read only setting is generated by the unit and shows the date and time of the last database reset (i.e. when the maximum entry database is changed, the database is reset).

Current Number of Entries

This read only setting identifies the existing number of entries within the event database.

Maximum Number of Entries

This sets the maximum entries within the event database. Changing this will reset the event database and clear all previously stored events.

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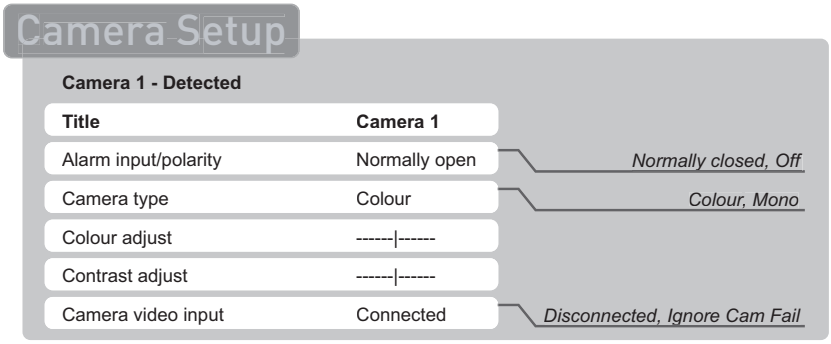
Camera Setup



Title

Each camera title can be up to 12 characters long.

Alarm Input / Polarity

Select whether the alarm connected is Normally open (default), Normally closed, or Off.

Camera Type

Colour and monochrome cameras are detected automatically, allowing colour/mono switching cameras to be connected. The camera type can be manually configured as Colour or Mono if necessary.

Colour Adjust

When the colour bar is selected, press ⇩ to reduce, and ⇧ to increase the colour.

Note: *This option is not displayed if the camera is set as monochrome.*

Contrast Adjust

When the contrast bar is selected, press ⇩ to reduce, and ⇧ to increase the contrast.

Camera Video Input

This option is only displayed when a camera has failed or is offline. Select disconnect whilst the camera is offline to prevent the camera fail message and alarm being triggered.

If the video input is not to be monitored for camera failure select Connected - Ignore cam fail.

Tip: *This menu can be entered directly by pressing and holding a camera button.*

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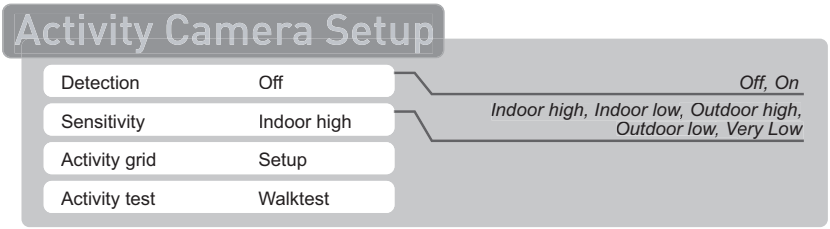
Activity Camera Setup



Detection

Select whether activity detection is 'On' or 'Off' for the selected camera.

Sensitivity

There are 5 levels of sensitivity for activity detection to ensure any scene environment can be covered.

Note: *When setting the sensitivity it is recommended that an Activity test is run to ensure the correct sensitivity is selected.*

Select the sensitivity level to suit the camera location:

- Cameras sited outdoors where there may be a lot of background movement, such as trees or rain, should be set to Outdoor high, Outdoor low or very low sensitivity.
- Cameras sited indoors where there is very little background movement can be set to Indoor high or Indoor low sensitivity.

The sensitivity levels are:

- Indoor High (most sensitive setting).
- Indoor Low.
- Outdoor High.
- Outdoor Low.
- Very Low (lowest sensitivity level).

Activity Grid

A 16 x 16 grid can mask areas where activity detection is enabled. Select 'Setup' and follow the on-screen menus to configure the activity grid.

Note: *An NTSC video source will display an activity grid of 16 x 14.*

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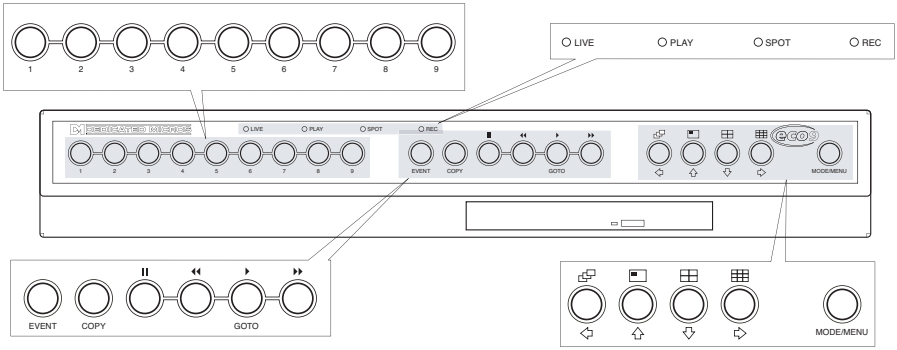
Use direction keys to navigate grid
Use camera 1 key to toggle cells on/off
Use camera 2 key to latch selection

Press MENU/MODE key to start setup
Press MENU/MODE key again to exit grid

Activity Test

Use this option to test and tune the sensitivity and activity grid set up for each camera. When activity is detected on the camera a yellow box is displayed. Press the MODE/MENU button to exit the test.

Operator Reference



Playback

- To playback images tap rew to rewind to the desired location and then press play. Press play for review mode or press and hold play for the GOTO option.
- When in playback, tap rew or fwd to search rewind or fast forward, multiple taps will increase the search speed.
- Tap pause to pause the current image. Tapping rew or fwd whilst paused will frame advance or rewind.

Goto Time

Press and hold play (GOTO) to play back from a specific time or date.

Enter the required time and date, and press play.

Tip: *The images are updated in the background automatically when the time and date is adjusted.*

Exit Playback

Tap the MODE/MENU button to exit playback mode, the Play LED will go out.

Using the Event Log

Alarms and activity detection are tagged and stored in the event log for easy retrieval. Each event is labelled with event type (alarm or activity), its camera title, time, and date. To view an event from the event log:

- In Live mode with control of the Main Monitor tap the event button to display the event log.
- Use ⇧ and ⇩ to select the event required, the selected event is displayed in the preview window.
- Tap play to view the event in full screen.
- Tap MODE/MENU to exit the Event log.

Event Search Filter

It is possible to filter the search by selecting a particular function (alarm, activity or system) within the time and date and on a specific camera. To enter this option, with the Event Log displayed press the EVENT button again. This will display the Event Search Filter menu.

Tip: *You can enter this menu by pressing and holding the EVENT button.*

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Viewing Single Cameras

Full
Pressing a camera button will display a full screen image of that camera.

Zooming an image
Press the same camera button to toggle zoom on and off.

When zoom is enabled, use ⇦ ⇧ ⇦ to scroll around the image

Freezing an image
Double tap the camera button or press the pause button toggle freeze frame on or off.

Viewing Multiple Cameras

Picture in Picture
Press and hold the PIP button to edit the display, use ⇦ ⇧ ⇩ ⇨ select the segment, press the required camera button to fill that segment.

Press MODE/MENU to exit.

Press the PIP button to toggle the main and PIP image.

Quad
Press the QUAD button to switch to quad display.

Press and hold the QUAD button to edit the display, use ⇦ ⇧ ⇩ ⇨ to select the segment, press the required camera button to fill that segment.

Press MODE/MENU to exit.

Multiscreen
Press the Multiscreen button to toggle between a 9-way, 6-Way, 4+3 or 8+2 display.

Press and hold the Multiscreen button to edit the display, use ⇦ ⇧ ⇩ ⇨ to select the segment, press the required camera button to fill that segment.

Press MODE/MENU to exit.

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Sequencing Cameras

Sequence
Press the Sequence button to toggle the main monitor sequence on or off.

Press and hold the Sequence button to edit the sequence.

Use the camera buttons to include or remove cameras from the sequence.

Press MODE/MENU to exit.

Note: *The spot monitor sequence can only be activated or edited in spot mode.*

Viewing Cameras on the Spot Monitor

Press the MODE/MENU button to toggle 'spot' mode, indicated on the main monitor and the front panel LED. Press a camera button to display that camera on the spot monitor or tap the sequence button to sequence the cameras.

Viewing across a network

The unit can use either a Web interface or network viewing software to view images across the network.

The network viewing software can be downloaded directly from the unit onto your local PC using the network connection, see 'Downloading the Viewer from the Unit' for details.

The recommended PC specification for viewing images over a network is:

- Pentium IV, 1.8GHz processor.
- 256MB RAM.
- 8MB of Video RAM.
- 1024 x 768 x 32bit colour monitor (min).
- 10/100Mbit Ethernet half duplex network interface card.
- Windows 2000, Windows XP.
- Internet Explorer 6 or Netscape Navigator 7.1.

Although the system will operate on lower specification computers this standard will provide high performance video quality and update rates. If lower specification processors are used this will affect the overall performance of the computer.

Downloading the Viewer from the Unit

Connect to the DVR to download the Viewing application:

1. Open your web browser on your PC.
2. Enter the IP address of the DVR in the 'Address' box of Internet Explorer or Netscape and press Enter. Remove all preceding 0's, i.e. 123.123.123.001 in the DVR should be entered as 123.123.123.1 in the web browser.

The unit needs a valid IP address and Subnet mask to allow access across the network. This can be configured in the 'Network Settings' menu, described later in the manual.

Note: *If a password has been configured it will be necessary to enter the Username and Password information to gain access to the unit. The default user name and password are dm and web.*

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3. The main web page from the DVR will be loaded. Click on the 'Downloads' option you will be presented with three options:

   Viewer Software

   System Manuals

   Language Files

4. The PC will require Java Runtime Environment to be installed. To install the JRE and viewer application, select Viewer Software and press the link for the appropriate file (jre-x_x_x_x-windows.). Follow the on-screen instructions.
5. Go back to the Downloads menu and select the System Manuals option, download the NetVu ObserVer User Guide (.pdf).
6. Go back to the Downloads menu and select 'Viewer Software', select the NetVu ObserVer windows link (NetVuObserVer_windows), follow the on-screen instructions to install the viewer application.

Note: *The viewer applications can be found in Start > Programs > NetVu Observer. Details of using the software can be found in the relevant 'User Guide'.*

Viewing images using a web browser

It is possible to use Microsoft Internet Explorer (version 6.X and above) and Netscape Navigator (version 7.1 and above) to view images.

Follow the previous instructions to display the web page, but click on the 'Live' option instead of the 'Downloads' option.

It will be necessary to enter a user name and password at this point, the default user name and password is dm and web.

Tip: *The web viewer does not have all the features of the Viewing application, but it is useful if it is not possible to download the software, or if you want to view the images from an offsite location i.e. via the web.*

Viewing images across the network using an Apple Mac or Linux

There is limited support for viewing images using an Apple Mac or Linux system based operating system, contact Technical Support for more information.

Operating the Internal CDR

Images are recorded to the internal hard disk for instant playback and searching by the operator. The capacity of the internal disk affects the amount of images and time that can be recorded. For example, a unit with a 160GB hard disk can record for 16 days, while a 300GB hard disk allows up to one month of recording.

The internal hard disk is a temporary storage device as the images are constantly being overwritten after a certain period of time. If images need to be kept for longer then external storage is required. The internal CD writer can be used to extend the storage capacity.

Images can be copied from the internal hard disk onto CDR disks for long term storage. CD's are ideal for recording relatively small amounts of images such as events, video clips, or incidents. These images can be played back on any PC running the NetVu ObserVer software and supporting a CD drive.

The unit with the built in CD writer offers simple and easy archiving of recorded images. The CD writer is accessible from the front panel.

Note: *Although the CDR drive may have a DVD-ROM label on the drawer it is not possible to read or write to DVD media. To insert a CDR:*

1. Press the button on the CDR drawer
2. Pull the CD drawer out until there is resistance

3. Place the CDR with the writing side up on the spindle and press down until there is a click.
4. Push the drawer back in until it latches.

To remove a CDR:

1. Press the button on the CDR drawer
2. Pull the CD drawer out until there is resistance
3. Hold the CDR between thumb and forefinger and lift to remove from the spindle.
4. Push the drawer back in until it latches.

Note: *In the event of a CD becoming jammed in the drive, or a power failure, it is possible to open the CDR drawer by inserting a thin object such as a paper clip, or watchmaker's screwdriver into the small hole in the CDR drawer and applying pressure until the drawer unlocks.*

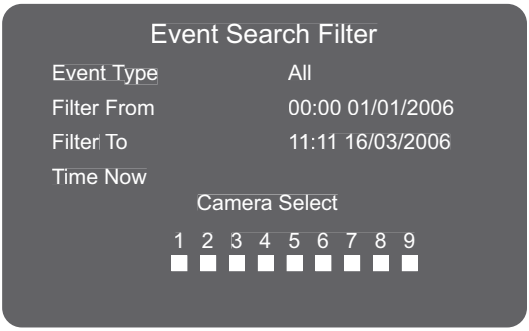
WARNING: *The CDR is a Class 1 laser product to EN 60825-1:1994, avoid exposure to the beam.*

Event Search

It is possible to filter the search by selecting a particular function (alarm, activity or system) within the time and date and on a specific camera. To enter this option, with the Event Log displayed press the EVENT button again. This will display the Event Search Filter menu.

To search for an event:

Press and hold the Event key, the Search Setup screen will be displayed.



Event Type

This option dictates what kind of event is searched for, Alarm, Activity, Sytem or All

It is possible to filter the recorded images to find images associated with the following options:

- Alarm - any external alarms that have associated recorded images.
- System - any system functions that has associated video recordings.
- Activity - Activity triggered recorded images.
- All - this will select all of the above options and find all associated recordings.

Filter from

Enter the time and date you wish to search from. The default is the earliest recorded time of the disk.

Filter to

Enter the end time and date for the search.

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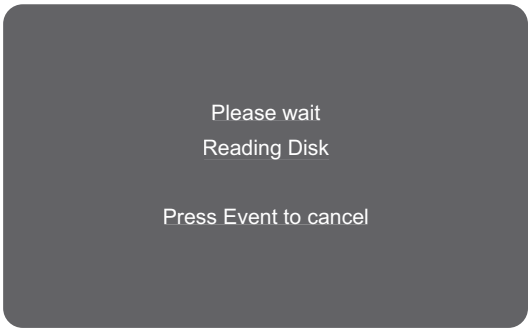
Time Now

This will set the Filter To value to the current time and date.

Once the Event Search Filter screen has been completed press the rewind button to begin the filter, the following screen will be displayed.



The unit will search the hard disk for the relevant recorded images as configured. Once it has generated a list of 20 (PAL units) or 18 (NTSC units) events the Event Log will be displayed.

Note: *The search can be cancelled at any time by tapping the Event key; any event found up to that point will only be displayed in the Event List.*

Use the up and down cursor buttons to move the highlight up or down the list of events. The image in the bottom left corner will be automatically updated as the highlight is moved over the events.

From this screen you have access to the following options:

Play an event back full screen

Highlight the relevant event and press play to play it back full screen. Tap the Event key to return to the same event list.

Copy an event to the Archive List

Highlight the event that is to be copied and press the Copy button on the front panel of the unit. The event will be copied to the archive list.

Refer to the Copy Images section for details on using the Archive List.

View more events

To view more than a page of events scroll down the list to the bottom, the unit will search further back in time and a new list with earlier events will be displayed. If there are no more events to be displayed an ‘end bar’ ========== will be displayed.

Start a new search

If you wish to start a new search filter, tap the Event key to exit the Event Log, then re-enter data in the Event Search Filter menu as described in step 1.

Copying Images to CD

Using the Copy Images Menu

1. Insert a blank CDR into the CD drive of the unit.
2. Press and hold the COPY button to display the following screen.
3. Use the cursor buttons to change the time to copy 'to and from'.

Copy destination	This is the name of the internal CD drive of the unit.
Copy from time	Select the time you wish to copy images from.
Copy to time	Select the time you wish to copy images to.
Watermarking	A unique watermark can be added with the images as they are copied to it's destination.
Unprotect on archive	If an image has been manually or automatically protected it is possible to remove this protect when the image is archived, to ensure archived images will be over-written

Once the 'Copy images' page is complete, press the menu button to display the following menu:

This menu displays the disk archive list with the images listed that are to be copied to the CD, the 'CD Use' bar indicates the how much space is available on the CD. Once it reaches 100% no more images can be added to the archive.

Add next	Add the selected times to the archive list.
Clear list	Removes all entries from the list.
Archive	This will start the archive process to the CD.
Archive& Verify	If you want to verify archiving has been successful, select this option instead.

To select any of the above options, highlight the option and tap MODE/MENU . To add images to the CD:

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1. Select ‘Add next’ and press the MODE/MENU button to add the displayed time to the list.
2. You may wish to add more images to the CDR archive if the CD is not yet full. To select more images to add to the list press ‘rewind’ to return to the ‘Copy images’ screen.
3. Once all the required images are added to the archive list, select ‘Archive’ or ‘Archive & Verify’ and press the MODE/MENU button to create the CD.
4. Please wait ‘archiving in process’ will be displayed, it will also show the percentage complete of the archive process
5. Press and hold the MODE/MENU button to exit the Disk Archive List page.

Using the Copy option during Playback

It is possible to copy playback images to the Disk Archive List while reviewing the images. This provides the Operator with a simple process of selecting images that are of interest to be automatically copied to the Disk Archive List for burning to a CD.

1. Press rew to return to the start of the recorded files that are to be copied.
2 Press play and immediately press the COPY key, a message will appear to say the images are being copied.
3. When the end of the recorded images are reached press the COPY key again to stop the copy process.
4. Confirm the files have been added to the archive list by selecting the Disk Archive List menu.

Using the Copy option within Event Log

Within the Event Log it is possible to highlight an event as copy this to the Disk Archive List for copying to a CD.

1. Press the EVENT button to display the Event Log screen.
2. Using the ⇧ ⇩ to highlight the event to be copied.
3. Press the COPY key, a message will be displayed to say the event has been copied.
4 Confirm the files have been added to the archive list by selecting the Disk Archive List menu.

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