

eco16

Setup Guide



www.dedicatedmicros.com



Warning: Do not move the unit whilst the power is connected.

Contents

• Introduction	1
• Features	2
• Important Safeguards	3
• Installing Eco16	4
• Quick Install	6
• Connecting External Devices	7
- Connecting 485 Bus Infrared Receiver	7
- Connecting to Alarms & Relays	7
- Connecting to an Ethernet network	8
- Connecting Dial-up Devices	8
• Configuring Eco16	9
- Using the Menu	9
- Time, Date & Language	10
- Camera Viewing	11
- Schedule	12
- Record Schedule	13
- System Options	15
- Record Options	18
- Camera Setup	20
- Activity Camera Setup	21
• Operating the Internal CDR	22
• Using Eco16	23

Introduction



What is Eco16?

The Eco16 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 one box solution.

With the NetVu Connected capabilities the Eco16 can be integrated into any NetVu Connected system and supports remote monitoring from a dedicated software application or web browser.

A Video Multiplexer?

- Designed with security in mind.
- Easy to use.
- Operates like a traditional multiplexer, not a PC
- All the feature you would expect from a Dedicated Micros multiplexer:
 - Main and Spot monitor.
 - Multiscreen displays.
 - Activity detection.
 - Alarms.
 - Scheduling.
 - Variable 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 time-lapse recordings in one box*.
- Instant access to images recorded on the hard disk with no tapes

Network Transmission?

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

**Refers to the 300 GB model at default settings.*

Features:

Installation

Auto detect cameras on power up	✓
Default recording	✓

Operation

Play, record, copy and transmit simultaneously	✓
Hidden camera option	✓
Scheduling	✓

Playback

VCR style playback	✓
Full, Quad, Multiscreen and PIP 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	✓
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The manual has three parts:

1. **Installing Eco16**
2. **Configuring Eco16**
3. **Using Eco16**

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.

WARNING

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.

The Eco16 has an integrated CD, please pay particular attention to the following warnings when installing and using this model.

- Caution - Use of controls or adjustments of 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.

LIGHTNING STRIKE

The Eco16 has some in-built protection for lightning strike, however it is recommended that isolation transformers be fitted to the system in areas where lightning is a common occurrence.

REGULATORY NOTES 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.

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



This product is marked with the CE symbol and 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.

Installing the unit

Before you start:

Check the contents of the box

The following items are included in the box:

- 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

Eco16 is designed to be desk mounted. The following precautions must be taken when installing Eco16:

- 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.
- When connecting the Eco16 to a branch circuit this must be rated 15Amps.

- It is recommended that a UPS (Un-Interruptible Power Supply) be connected to the unit in case of power failure. This will ensure the continuous operation of the Eco16.

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 Eco16. 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

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. Eco16 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. Eco16 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 that 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.

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, so whether 1 or 9 cameras are recorded, the record rate remains the same. The update rate per camera can be worked out using the record rate:

$$\text{Update rate} = \frac{\text{No. of cameras}}{\text{Record rate}}$$

Calculating recording time

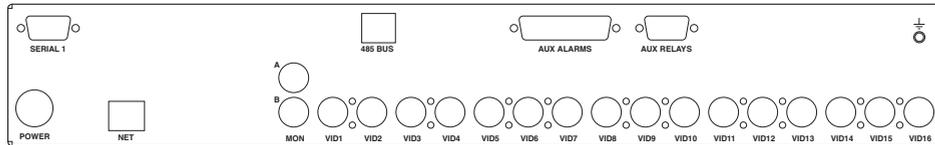
Eco16 calculates the recording time automatically when the record rate and image quality are entered. Alternatively, an interactive record calculator is available for download from our web site:

www.dedicatedmicros.com

Quick Install

Eco16 can be installed in as little as 4 steps, and being plug-and-play, cameras will be detected and begin recording automatically.

Connections at Rear of the Eco16



Video

- VID1 to VID16 - 75ohm BNC composite camera connections (1V pk-pk)
- MON A - Main monitor, 75ohm BNC composite monitor connection (1V pk-pk)
- MON B - Spot monitor, 75ohm BNC composite monitor connection (1V pk-pk)

Data

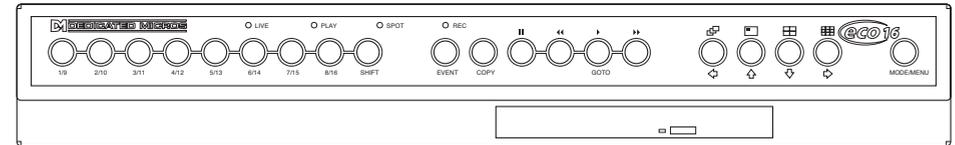
- NET - RJ-45 10/100-baseT Ethernet connection
- SERIAL 1 - 9-way (Male) D-type RS-232 serial port (PPP modem)
- 485BUS - MMJ port for DM/IR01 485-BUS Infrared receiver for use with SA-RC05 IR remote controller

Alarms and relays

- ALARMS - 25-Way (Female) D-Type, programmable direct alarms; NO/NC
- RELAYS - 9-Way (Female) D-Type

Eco16 has an integral CD writer, accessed from the front panel of the Eco16.

Front Panel Layout



Camera control

- Cameras 1 - 8 - Camera buttons for camera selection.
- SHIFT - This allows selection of cameras 9 - 16, Note this is a latching button

Note: The camera buttons on the unit provide access to one of two video feeds. Button 1 will access both camera 1 and camera 9. To select camera 9 press Shift then the camera button.

Monitor control



Initiate a sequence on Main (MON A) or Spot (MON B) Monitor.



Show a Picture in Picture display on the Main (MON A) monitor.



Show a four way split screen display on the Main (MON A) monitor.



Show a multiscreen display on the Main (MON A) monitor.

VCR buttons



Pause the image in Live and Playback mode.



Rewind / Search images in Playback mode.



Playback recorded images and GOTO.



Fast forward / Search images in Playback mode

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).

LEDs

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

STEP 1. Connect Cameras

Connect cameras to the video inputs marked VID1 to VID16.

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 Eco16, go to the next section - 'Connecting external devices', before proceeding to Step 4.

STEP 4. Connect Power

Once the Eco16 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 before Eco16 can be used.

Connecting External Devices

Devices that can be connected to Eco16 include:

485-Bus Infra red Receiver**Alarm and relays****Ethernet networks****Dial-up modems**

If you do not require any of the above devices to be connected to Eco16, move on to 'Configuring Eco16' - Page 8.

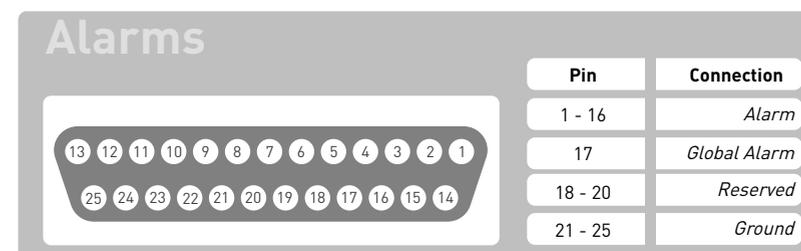
485-Bus Infrared Receiver

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 Eco 16 is compatible with this model of remote controller only.

Connecting Alarms and Relays

Dry contact alarms can be wired directly to the alarm connection on the back on the Eco16. There are 17 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.

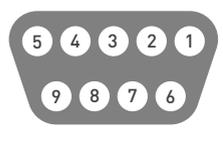
When the camera alarms are triggered the following actions will occur:

Alarm Actions	
Set	Unset
Close Relay 1	Open relay after 2 seconds
Display alarm camera on main monitor	Resume pre alarm display after 2 seconds
Interleave record alarm camera	Standard record after 2 seconds

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

When the global alarm input (input 17) is triggered this will switch all cameras into alarm record at the selected event rate.

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

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

Connecting to an Ethernet Network

Eco16 can be connected to a standard 10/100-baseT Ethernet network allowing full control and configuration of the Eco16 from a remote location.

Network connection

To connect an Eco16 to a network you will need the following items:

- A spare 10/100-baseT network point.
- A RJ-45 network cable (CAT5 or equivalent).

- A static IP address and Subnet mask (some networks may also require a Default gateway, consult the network administrator for advice). Refer to the *Network configuration section for information on setting an IP address.*

Connecting Dial-up Devices

The Eco16 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 Eco16 providing a path for outgoing and incoming PPP connections.

IMPORTANT NOTE: The Eco16 can only transmit **or** receive data over PPP at one time it is **not** possible to send and receive at the same time.

To make a remote dial up connection to the Eco16 enter the PPP_Link2 IP address allocated to the port on the unit.

You will be prompted for a username and password the default settings are 'username' and 'password'.

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.

To make an outgoing (for sending an e-mail) PPP connection ensure the the unit has been configured to send an e-mail under specific conditions, the correct telephone number and other required settings have been entered in the profiles file and this profile has been configured in the e-mail settings.

For security it is recommended that the default settings for the username and password are changed. This is achieved by editing the *profile* file on the Eco16, for full details refer to the Eco16 Networking Guide.

Configuring the unit

Using the Menus

Eco16 uses on-screen (OSD) paged menu system to guide users through the installation process. The Eco16 has integrated web pages which allow remote configuration using an internet browser such as Internet Explorer or Netscape Navigator.

Entering the menus

To access the Installer OSD menus:

Press and *hold* the **MODE/MENU** button (tapping the **MODE/MENU** button will switch the monitor control between the Spot and Main monitor, menus are not available in Spot mode).

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 $\leftarrow \rightarrow \uparrow \downarrow$ cursor buttons on the front panel.



To view the next page

Tap the **MODE/MENU** button to view the next page.

TIP: Tapping the \leftarrow or \rightarrow buttons will allow you to go back or forward a page in the menus.

Exiting the menus

Press and hold the **MODE/MENU** button to exit the menus.

TIP: Cycling through all the menus by tapping the **MODE/MENU** button will also exit the menus.

Example of using the menu to change the time:

1. Press and hold the **MODE/MENU** button to enter the installer menu. The 'Time, Date & Language' page is displayed.



2. Use the \downarrow cursor to select the 'Time' option on the left-hand side of the menu.



3. Use the ⇨ cursor to highlight the minute settings.

Time, Date & Language	
Date	31/04/2005
Time	W 12:00
Date format	Day, Month
Language	English
System shutdown	Disabled
Timezone	Greenwich mean time GMT +0

4. Use the ↑↓ cursors to change the settings, in this example 12:30.

Time, Date & Language	
Date	31/04/2005
Time	W 12:30
Date format	Day, Month
Language	English
System shutdown	Disabled
Timezone	Greenwich mean time GMT +0

5. Use the ⇐ cursor to return to the left-hand side of the page and select another option. Or, press and hold **MODE/MENU** to exit the menu.

Time, Date & Language	
Date	31/04/2005
Time	W 12:30
Date format	Day, Month
Language	English
System shutdown	Disabled
Timezone	Greenwich mean time GMT +0

Time, Date & Language

Time, Date & Language

Time & Date	15:38 22/11/2005	
Date Format	Day, Month	Month, Day
Language	English	
System shutdown	Disabled	Enabled
Timezone	Greenwich Mean Time GMT +0	Manual

Date

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

Time

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

Note: Summer and Winter time is signalled by an 'S' or 'W' next to the time.

Date Format

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

Language

The menus can be displayed in a number of languages. Upon selection these are presented as a list.

Available languages are: English, French, German, Spanish, Italian, Russian, Czech, Polish, Dutch, Hungarian, Swedish and Croatian.

System Shutdown

If the Eco16 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 for five seconds to shutdown.
3. The message 'It is now safe to switch off your unit' is displayed, switch the Eco16 off at the supply switch/isolator.

WARNING: Data loss or disk failure may occur if a system shutdown is not performed before removing power.

Timezone

There are numerous timezones supported on the Eco16, select the relevant zone for where the unit is installed so the time and date will reflect the local time and will automatically change in conjunction with Daylight Saving Time (DST).

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 \uparrow cursor 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 are not displayed on the main or spot monitor in live or playback mode, multiscreen displays will show a blank segment - hidden camera.

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

Schedule

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

Schedule



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 by default.

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 the weekend settings will be applied.
- **Off** - When the weekend option is off the weekend setting will never apply.

7 Day timer

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

- **24 Hr Day** - This enables the unit to record using the Day settings at all times.
- **24 Hr Night** - This enabled 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.

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		

Record Schedule

Units	PPS	ms	Record Rate	Event Rate	Event Active	
Day	006	006	Alm & Act	<i>Disabled, Alarms, Activity, Both</i>		
Night	006	006	Alm & Act	<i>Disabled, Alarms, Activity, Both</i>		
Weekend	006	006	Alm & Act	<i>Disabled, Alarms, Activity, Both</i>		
Image size			18KB	704x256		
Max recording time			--:--			
Main storage (protected %) size			129GB(2%)			
Earliest recording			01/01/2006	12:00		

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 \rightarrow move the cursor to the PPS option and use \downarrow 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.

Event Rate

The Event PPS is the record rate that the Eco16 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 Eco16 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.

Example of interleave recording

The standard record sequence for the Eco16 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:

$$\text{Update rate (seconds)} = \frac{\text{Number of cameras}}{\text{PPS}} = \frac{9}{6} = 1.5 \text{ seconds}$$

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 Eco 16 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 only allow the day settings to be configured.

Image size

The Eco16 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.

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

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

Maximum Record Time

The maximum recording time is the number of days and hours before the images are overwritten. The maximum record time is calculated automatically and takes into account the number of pictures per second and the selected file size.

Highlight one of the standard or event record rates to see the calculated days and hours.

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

Maximum Storage (Protected%)

The total video storage in Gigabytes (GB) is displayed along with the percentage of video storage which is protected (will not be overwritten). Note that the calculations for recording time assume there is no protected video. Video that is protected will need to be manually unprotected in the 'Record Options' before it can be used for recording again.

Earliest Unprotected Recording

The earliest recording displays the date and time of the first image on the disk.

System Options

System Options

User password	Off
Network settings	Edit
Factory default	Reset

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 for the passwords to be reset.

Make a note of your password here _ _ _ _ _

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:

Network Settings

System name	ECO16
DHCP	Enabled <i>Disabled</i>
TCP/IP	000.000.000.000
Subnet mask	255.255.000.000
Default gateway	000.000.000.000
Bandwidth selection	8324
PPP selection	Edit
Secondary web server port	0000

System name

Each Eco16 on the network can be given a system name to help identification. A maximum of 30 characters can be used for the system name. The default unit name is 'Eco16'.

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.

Important 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 Eco16.

Bandwidth Selection

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

Force 10 BaseT operation

The Eco16 supports a 10/100Mbps auto detecting connection, however this option forces the network port on the Eco16 to be a 10BaseT connection if the local hub/switch requires this.

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.

Type

The Eco16 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 Eco16 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.
- 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.

Ethernet MTU

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.

Every network has a different MTU, which is set by the Network Administrator.

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 Eco16 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 refer to the Network Guide for full details.

PPP Selection

PPP IP	010.001.001.241	
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

Enter the IP address allocated to the PPP functionality. Use the ↑ and ↓ buttons to scroll through the available numbers.

PPP Idle line timeout

This is the time the Eco16 will wait before disconnecting the PPP link if no data is being transmitted or received.

PPP link down timer

This is the time the Eco16 will wait before dropping the PPP connection should it be lost.

Modem / TA

The Eco16 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.

Baud rate, parity, Databits, Stop bits and Flow control

These are the physical settings for the communication between the Eco16 and the modem, set these as appropriate refer to the relevant product documentation for the correct information.

Secondary web server port

The Eco16 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 Eco16 viewing software;

http://<IP Address of the Eco16>:<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.

Factory Default

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

Record Options

Record Options	
Timed expiry	Edit
Alarm protection	Global <i>Disabled</i>
Pre-alarm protection	15 minutes
Post-alarm protection	15 minutes
Image protection	Edit
Event database config	Edit

Timed Expiry

The timed expiry option allows images to be held on the disk for a selected number of days. Images on the disk which are older than this time cannot be accessed. By default there is no timed expiry. This option can be used to prevent the unit recording over 30 days for example.

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

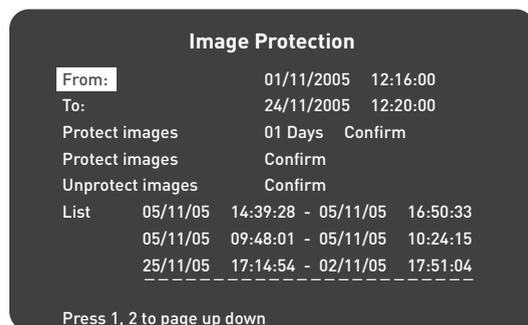
This is the amount of time the images are protected before the Global alarm is triggered. By default this setting is 15 minutes, but this is adjustable from 00 minutes (no pre-alarm protection) to 60 minutes.

Min. Post-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.



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 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 protected (in the From area), or highlight an image in the list and press Camera 1.
2. Enter the time of the last image to be protected (in the To area), or highlight an image in the list and press Camera 2.
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.

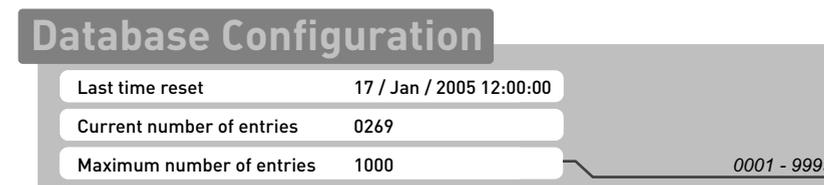
Important information regarding Protected Images.

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 Eco16 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 Eco16 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.

Camera Setup

Camera Setup

Camera 1 - Detected

Title	Camera 1	
Alarm input/polarity	Normally open	<i>Normally Open, Off</i>
Camera type	Colour	<i>Mono, Colour</i>
Colour adjust	----- -----	
Contrast adjust	----- -----	
Camera video input	Connected	<i>Connected - Ignore cam fail, Disconnected</i>

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 down to reduce, and up to increase the contrast.

Camera Video Input

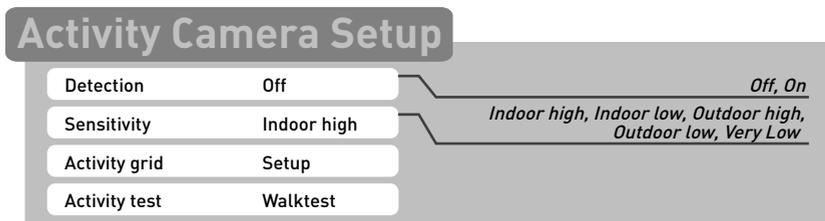
This option is only displayed when a camera has failed or is offline. Select disconnect whilst the camera is offline to prevent the camera fail message and alarm being triggered.

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.

Activity Camera Setup

Activity detection is used to record more images to disk from cameras that have activity. The sensitivity of activity can be adjusted and areas can be masked off according to the scene type.



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 the Activity test option be utilised to ensure the correct sensitivity is selected.

Select the sensitivity level which matches the camera's placing:

- 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 sensitivity or very low sensitivity.
- Cameras sited indoors where there is very little background movement should be set to Indoor high or Indoor low.

The sensitivity levels:

- 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.

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 keygrid

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 white dot is displayed. Press the **MODE/MENU** button to exit the test.

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, an Eco16 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 of the Eco16.

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 Eco16 with integrated CD operates in exactly the same way as the Eco16 and offers a built in CD writer allowing for simple and easy archiving of recorded images. The CD writer is accessible from the front of the Eco16.

The operation of the internal CDR is identical to using the external CDR as described on the Eco16 Operator Guide.

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:

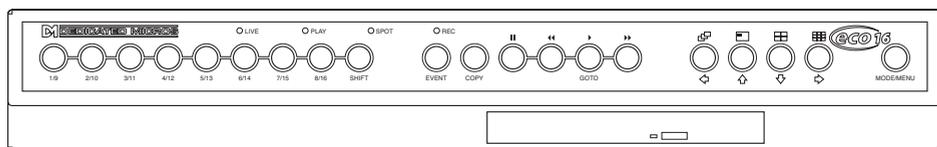
1. Press the button on the CDR drawer
2. Pull the CD drawer out until there is resistance
3. Hold the CDR between thumb and forefinger and lift to remove from the spindle.
4. Push the drawer back in until it latches.

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.

Using the Eco16



Remote Viewing

Eco16 can use either the web browser or NetVu ObserVer software to allow images to be viewed remotely across the network. The NetVu ObserVer software can be downloaded from the unit. To download the software:

1. Open your web browser.
2. Enter the IP address of the Eco16 in the address bar, e.g. 192.168.3.3, remove any 0's that are configured in the units menu.
3. The Eco16 home page will be displayed, select the Download option, select the Viewer Software option and NetVu ObserVer executable link.
4. Follow the on-screen prompts to install the software on the PC.

Note: The web configuration manual and the viewing application manual can also be downloaded from the unit from this page.

The Home page of the web interface also provides access to viewing images from the unit. Select the Live tab from the home page and select a camera input to view video. *Refer to the Web Interface manual (on the unit) for web control and configuration.*

Playback

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

Goto Time

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

Enter the required time and date, and press ▶.

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 ▶ 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.*

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

Press and hold the **PIP** button to edit the display, use ◀⇒↑↓ to select the segment, press the required camera button to fill that segment.

Press **MODE/MENU** to exit.



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 display, 12+1 display 8+2 display or 16 Way.

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.

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.

Copying Images to CD

Using the Copy Images Menu

1. Insert a blank CDR or pre-formatted CD-RW 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.
- Copy** Select 'All cameras' or individual cameras to copy using the camera buttons (filled boxes are selected cameras, unfilled boxes are not selected).
- Watermarking** A unique watermark can be added to the images as it is 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.

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

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 **◀** 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 an 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 **◀** to return to the start of the recorded files that are to be copied.
2. Press **▶** 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 **↑↓** keys 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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