



CamVu 2000 Camera

User Guide



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Introduction



Offering up to six times the definition of analogue cameras, the Dedicated Micros CamVu 2000 Camera is ideal for situations where high resolution, high quality images are required. The camera's high definition technology is based on Dedicated Micros award winning NetVu Connected architecture, allowing seamless operation and deep integration with a wide range of DVRs and other devices, as well as simplified integration into large-scale systems.

The unique Dedicated Micros soft codec technology allows the CamVu 2000 camera to transmit simultaneous MPEG-4 and JPEG images to the associated DVR for image capture. This flexibility allows users to record high quality images for evidence and watch streamed video at the same time.

Ideal for applications such as public space monitoring, retail or banking installations. The CamVu 2000 camera can be housed internally or externally (via an external camera housing) to cover a wide field of view. Its web configuration pages allow the installer to adjust the cameras features over the network without the need to return to the site. The CamVu 2000 camera is the ideal choice for capturing high quality, high definition images

Features

- Chipwrights 5521 ViSP (Visual Signal Processor)
- 1600x1200 max resolution
- Max frame rate at max res 5fps
- Max frame rate at CIF res 30fps
- Programmable camera settings
- CS mount lens (C mount capable with adapter)
- Extruded aluminium housing
- Accessory mounting 1/4" 20 UNC or 1/4" BSW (bottom)
- PoE to IEEE802.3af (option)
- Two way push fit connector for 12VDC (or 24VAC option)
- RJ45 network port
- Audio input via 3.5mm stereo jack
- Built in web server for configuration
- JPEG and MPEG-4 delivered simultaneously for live viewing and recording
- Serial port via D-Type for RS232 (3 wire), RS485 (2 wire) and RS422 (4 wire)

Features To Be Supported In Future Releases

- SD media slot
- 2 x EOL alarm inputs
- 500mA light duty relay output
- Audio output
- BNC output configurable for PAL or NTSC
- Four pin lens connector for DD iris control

Benefits

- High resolution image capture provides more detail to increase the ability to identify a suspect.
- Wide area can be covered by a single camera.
- Enables High Definition CCTV, which is not possible with analogue cameras.
- Operates seamlessly within a NetVu Connected network.
- Telemetry support allows the Megapixel camera to be paired with a Pan/Tilt housing
- Remote configuration removes the need for multiple revisits
- Images can be viewed over low bandwidth networks using MPEG-4 but captured in JPEG
- BNC Connector allows local lens adjustment or spot monitor positioning*
- Pre-Alarm allows the moments prior to an incident to be captured.*

** This feature will be available after future development.*

Components Supplied

Before installing unit, please verify that all items listed below have been supplied:

1 x CamVu camera

1 x User Guide

1 x Set of 3 CDs containing information and software for use with the camera

1 x C/CS lens conversion ring

1 x 9DF-9DF RS232 communications cable

Note: A PSU is not supplied with this camera. If the camera is a Power Over Ethernet (POE) version (DM/CMVU2000D) it is not necessary to use a separate PSU if power is available via the Ethernet connection. Otherwise a suitable 12Vdc 0.5A PSU (for any version of the camera) or a 24Vac. 0.25A PSU (for the DM/CMVU2000A version of the camera) is required.

Alternatively a 12Vdc PSU can be purchased from Dedicated Micros.

CE NOTICE (EUROPEAN UNION)

This section contains the regulatory declarations for the EU for the CamVu 2000 Camera.



This product is marked with the CE symbol and indicates compliance with all applicable Directives. A "Declaration of Conformity" is held at Dedicated Micros LTD, 1200 Daresbury Park, Daresbury, Cheshire WA4 4HS WWW.dedicatedmicros.com

Hereby, Dedicated Micros LTD, declares that this CamVu 2000 Camera is in compliance with the essential requirements and other relevant provisions of Directive 95/5/EC.

Marking by the symbol CE indicates compliance of this Dedicated Micros product to the Electromagnetic Compatibility Directive 89/336/EEC, and the Low Voltage Directive 73/23/EEC of the European Union. Such marking is indicative that this system meets the following technical standards

- EN 61000-6-3 EMC Standard Residential, Commercial and Light Industry.
- EN 62000-3-3 Limitations of voltage changes, fluctuations and flicker in public low-voltage supply systems for equipment with rated current up to 16A.
- EN 61000-3-2 Limits for harmonic current emissions for equipment with rated current up to 16A.
- EN 50130-4 Immunity requirements for components of fire, intruder and social alarm systems.
- EN 60950 Safety of IT and similar equipment.
- EN 55022 Class A. Radiated Emissions Standard, suitable for Commercial or Residential use

Further details about these applicable standards can be obtained from Dedicated Micros Ltd., 1200 Daresbury Park, Daresbury, Cheshire WA4 4HS

RF Interference warning

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

Canadian EMC statement

This product is compliant with Class A ICES-003

Note: *This Class A product meets the requirements of the Canadian Interference causing equipment regulations. Cet appareil numérique de la Classe A, respect toutes les exigences du règlement sur le matériel brouilleur du Canada.*

Important Safeguards

Read Instructions

All the safety and operating instructions should be read before the unit is operated and adhered to during operation. These instructions should be retained with the unit, and all warnings and cautions contained should be heeded.

Power Sources

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

Power Over Ethernet

Versions of this product support POE and when connected to a suitable switch, will not require an external PSU to drive the device.

Servicing and Repair

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 and repair to qualified service personnel.

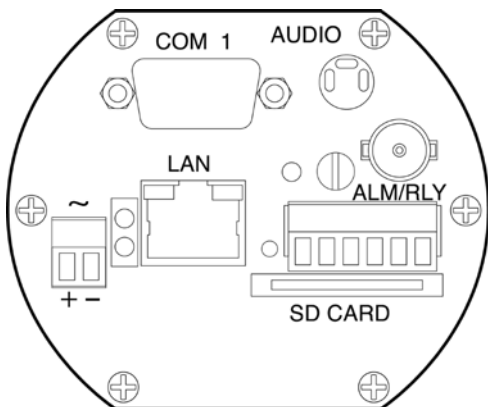
Equipment

Use only attachments/accessories specified by the manufacturer.

Ventilation

Ensure unit is properly ventilated to protect from overheating.

Rear Connections



The CamVu 2000 features push fit connectors which house connections for 12VDC power and the relay output. There are also connections for an audio input (via 3.5mm stereo jack socket) and an RJ45 socket for connection to a suitable network point. Telemetry information is passed to the camera via the D type socket. This can be configured for RS232, RS485 or RS422 protocols. The BNC connection is used in conjunction with a local monitor to focus the camera once installed.

- Serial port via D-Type for RS232 (3 wire), RS485 (2 wire) and RS422 (4wire)
- Audio input and output via 3.5mm stereo jack
- BNC output configurable for PAL or NTSC*
- Two way push fit connector for 12VDC (or 24VAC depending on version)
- LEDs for power and network access
- RJ45 network port (with POE option)
- 2 x EOL alarm inputs*
- 500mA light duty relay output*
- SD media slot with LED*

*Please note that this feature will be available after future development.

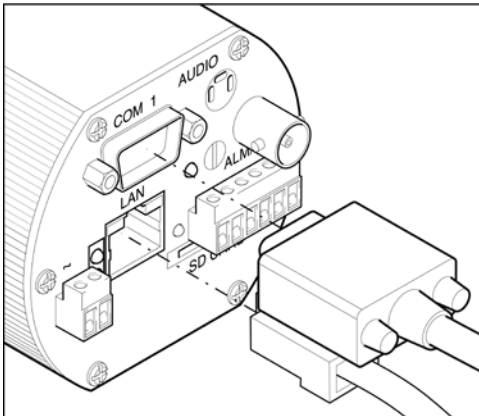
Overview of the CamVu 2000

Step 1 Connecting to the Network

Note: If the device utilises POE (Power Over Ethernet), this step should be postponed until all other devices are connected.

The CamVu 2000 supports one RJ45 network port. Use a properly screened Ethernet cable to connect the unit to the network.

By default the unit is configured for DHCP (Dynamic Host Configuration Protocol). DHCP works on assigning an IP address at initial connection to the network. It is however possible for this IP address to change without notification (i.e. in the case of power failure). Therefore it is recommended that the CamVu 2000 is allocated a fixed IP address to remove the possibility of address change.



Step 2 Connecting Video

The CamVu 2000 has a 75 Ω BNC connector configurable for PAL or NTSC which can be used to focus the lens during installation. The video feed will be sent via the network connection.

Note: This feature will be available after future development.

Step 3 Connecting Alarms

The CamVu 2000 supports two EOL (End Of Line) alarm inputs, these are located on the push fit connector. The End Of Line (EOL) functionality is part of the Advanced Alarms supported on NetVu Connected products and included features required for Central Monitoring and is compatible with the British Standard BS8418.

Please note that this feature will be available after future development.

Step 4 Connecting Audio

The CamVu 2000 support a single channel of bi-directional audio, accessible through NetVu ObserVer. Connect the audio equipment to the 3.5mm stereo socket. The tip of the jack shall be used for audio input.

The following modes of operation are supported:

- Challenge – one way audio, DVR to camera, optionally recorded.*
- Listen – one way audio from the camera to the DVR, optionally recorded.
- Help Point – two way audio, optionally recorded.

* Client sourced audio will be available after future development

Step 5 Connecting Power

Note: *If the device utilises POE, this step would not be necessary. Connect the Network connector at this stage.*

The CamVu 2000 is supplied by a two way 3.81mm pitch screw terminal push fit connector, separate to the alarm connector.

Please note that there are two versions of this camera:

For DM/CMVU2000A, power can be 12Vdc or 24Vac via screw terminal connector

For DM/CMVU2000D power can be 12Vdc via screw terminal connector or POE via network connector.

Configuring the Unit

Locating the Unit IP address

The unit is configured using the on-board web pages. This can be done remotely once the unit has been installed in position.

The IP address of the unit is required to access these pages. The assigned IP address can be found by using the serial port. For ease of configuration, it is recommended that the installer sets the IP address before installing the unit in position.

One of the first tasks should be to disable DHCP and assign a permanent IP address to the unit. If this is not done, the IP address of the unit may change whenever it is powered off, and the new address will have to be acquired directly from the unit (ie using a serial connection or by connecting a spot monitor and cycling the power).

It is possible to enable DHCP to allow the unit to acquire a free IP address and then allocate the address permanently by entering the details in the IP address fields of the cameras Network web page (refer to page 11) which will also disable DHCP.

If a permanent IP address is not assigned to the unit, it will attempt to contact the DHCP server every time it starts up. If for any reason a DHCP server cannot allocate an IP address to the unit, the camera will use a default IP address (169.254.6.10)

Note: Always consult the network administrator for IP Address, Subnet Mask and Gateway information.

To acquire the IP address using the serial connection;

1. On the PC, click Start->Programs->Accessories->Communications->Hyperterminal and create a new connection via the COM port using the following settings:

Bits per second	38400
Data Bits	8
Parity	None
Stop bits	1
Flow Control	None
2. With the power to the camera disconnected, connect a standard 9DF-9DF RS232 communications cable from the PC to the serial port of the unit. Connect power to the camera.
3. Hyperterminal will display the communications information as the unit boots. This will include the IP address, Subnet and Gateway.
4. To alter the IP address settings of the camera from the Hyperterminal, input the following information after the camera has finished its startup:

setip followed by the new IP address e.g. setip 192.168.1.100

setsub followed by the new subnet mask e.g. setsub 255.255.0.0

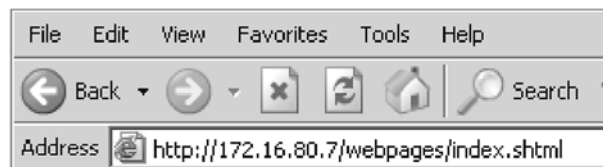
setgw followed by the new gateway address e.g. setgw 192.168.50.1

reset (to reset the camera so that the new IP address settings are adopted)

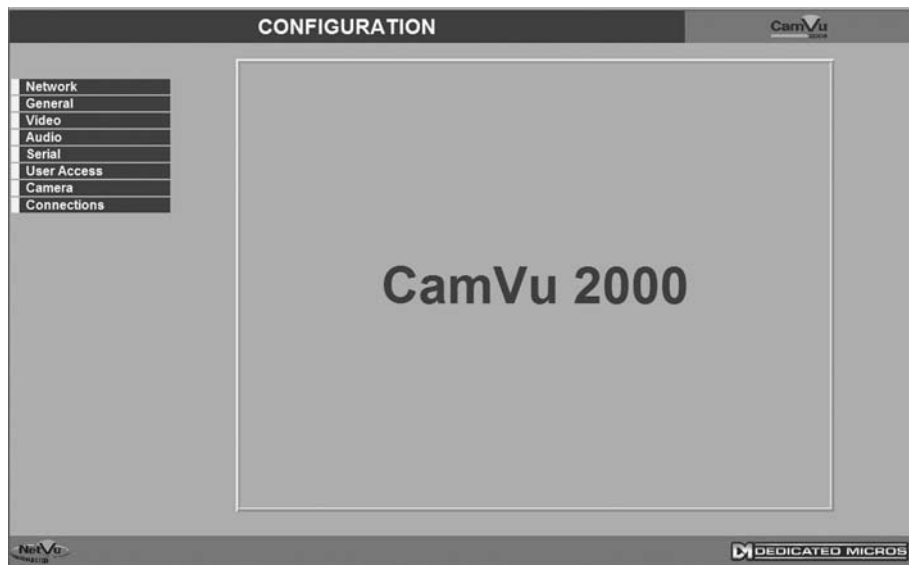
Accessing the Configuration Web Pages

The unit is configured using the on-board web pages. To access these:

1. Launch Internet Explorer (or Netscape Navigator).



2. Type the IP address of the unit into the address bar.
3. The Main Menu page will be displayed.



The configuration menus are accessible via the links on the left hand side of the page.

Note: Changes made to the settings on the webpages are saved to the camera when the webpage is refreshed. This can be done by clicking on the webpage name in the links on the left-hand side of the page. Clicking cancel before the webpage is refreshed will cancel any changes that have been made on the webpage without saving them to the camera.

Network

CONFIGURATION

CamVu 2000

Network

IP Address: 0 0 0 0
Subnet: 0 0 0 0
Gateway: 0 0 0 0
Primary DNS: 0 0 0 0
Secondary DNS: 0 0 0 0

DHCP IP: 172.17.100.51
DHCP Subnet: 255.255.0.0
DHCP Gateway: 172.17.50.1
DHCP Name:

Restart Camera
Cancel

NetVu
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This page allows access to the network settings of the unit.

IP Address, Subnet, Gateway This is the static IP address and subnet mask, and if applicable, default gateway

Note: If these fields are changed to zero, the camera will revert to DHCP once reset.

Primary DNS This is the primary DNS server IP address for applications that are utilising domain names

Secondary DNS This is the IP address of the secondary DNS server in case of failure of the primary server

DHCP IP If the unit was installed on a DHCP network this will display the IP address of the DHCP server allocated on power up of the unit

DHCP Subnet If the unit was installed on a DHCP network, this will be the subnet of the network the unit is connected and will automatically be allocated by the DHCP server on power up

DHCP Gateway This is the IP address of the default gateway (router) that the unit will automatically be assigned by the DHCP server

DHCP Name This will be the name of the unit that is automatically allocated by the DHCP server

Note: *After saving the Network setting changes to the camera; click the Restart Camera button at the bottom of the webpage to restart the camera. The new network settings will then take effect*

General

CONFIGURATION

General

System Resolution: 1600 x 1200

System Name:

Camera Name:

Timezone:

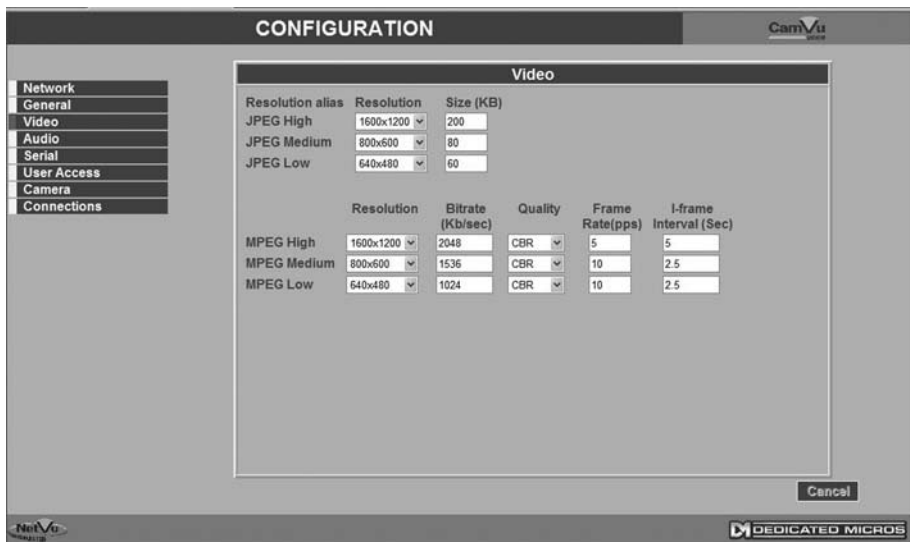
Software Version: 00.1 (083)
 Web Page Version: 1.10
 PCB Serial Number: Not_Calib

This page shows the general information about the unit, including the version of software installed and the video standard adopted.

System Resolution	This is the fundamental resolution for the unit.
System Name	The system name can be edited here.
Camera Name	A name can be assigned to the camera here.
Timezone	From the accompanying drop down menu, select the appropriate timezone (corresponding to the location of the camera).
Sync Time from PC	The unit can be synchronised with the PC being used for the configuration process. The PC network clock time will then be adopted by the unit.

All other parameters on this page may be required in the event that Technical Support are contacted.

Video



This page allows configuration of the video settings for network viewing.

The unit supports both JPEG and MPEG-4 compression for high quality image display.

The JPEG image size has two configurable parameters; File Size and Image Resolution.

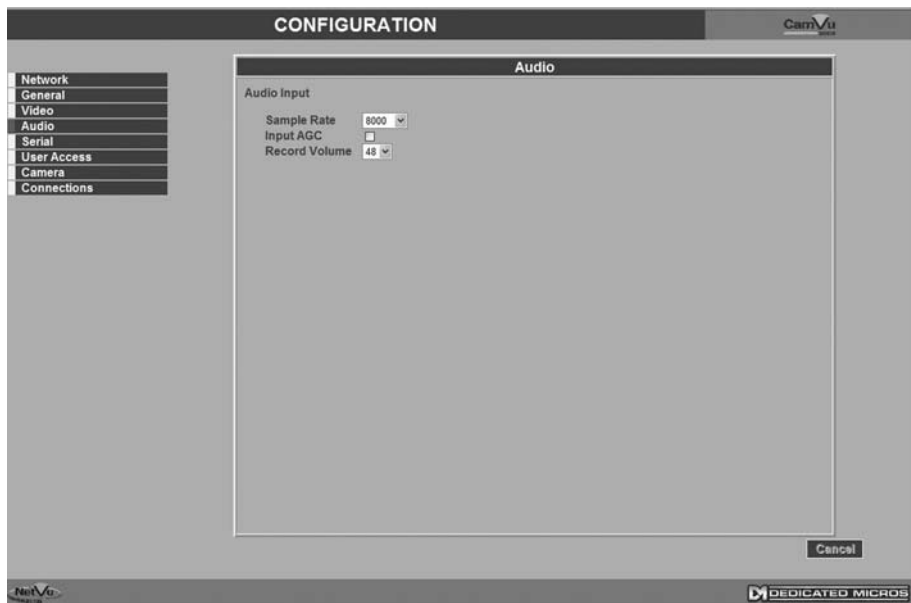
The file size setting can be configured between 5 to 255 KB. This determines the size of the images transmitted across the network. The image resolution setting has been included to allow the most appropriate image resolution to be configured in line with the selected file size. The image resolution is the number of pixels captured in each image.

Resolution Alias	This describes which of the alias High, Medium and Low viewing settings are being configured, for either JPEG or MPEG.
Resolution	There are six pre-configured resolutions to select from.
Size (KB)	This is the image size for the JPEG alias being configured. A larger file size will give more information per frame, as less compression will be used.

TIP: The resolution and size settings should be tested to ensure the most appropriate recordings are produced that fit the customer and storage requirements for the system.

Bitrate	The bitrate dictates how much information is sent in each second of MPEG video. Higher bitrate will generally result in a better quality image, but will take more network capacity.
Framerate (pps)	This dictates the number of pictures per second this profile will send to the viewer
I-Frame Interval (secs)	MPEG-4 compression uses I and P frames, the I frame being a full frame image from the video source, the P frame being a record of only those areas of the image which differ to the I frame. This option allows the User to determine how often a new I frame will be recorded.

Audio



The settings for any available audio stream can be edited on this page.

- | | |
|---------------|---|
| Sample Rate | The sample rate relates to the quality of the audio being processed. A higher figure will require more bandwidth to transmit. It is selectable between 8000 Hz (voice mail quality or 8 bit (mono), 11025 Hz, 16000 Hz and 22050 Hz (half CD quality or 16 bit mono). |
| Input AGC | The Automatic Gain Control function can be utilised to lower excessive volume. |
| Record Volume | Adjustable level between 0 and 64. |

Serial

The screenshot shows the 'CONFIGURATION' window for the CamVu 2000 Camera. On the left is a sidebar menu with options: Network, General, Video, Audio, Serial, User Access, Camera, and Connections. The 'Serial' option is selected. The main area is titled 'Serial' and contains the following settings:

- Serial Port Usage: OFF (dropdown)
- Telemetry Protocol: None (dropdown)
- Baud Rate: 38400 (dropdown)
- Parity: None (dropdown)
- Data Bits: 8 (dropdown)
- Stop Bits: 1 (dropdown)
- Flow Control: None (dropdown)

At the bottom of the configuration area are two buttons: 'Restart Camera' and 'Cancel'. The footer of the window includes the 'CamVu' logo and 'DEDICATED MICROS'.

This page allows configuration of the Serial port on the rear of the unit. It can be programmed to operate with telemetry.

Serial Port Usage	It is possible to configure the serial port to utilise RS232/485 Telemetry
Telemetry Protocol	The camera can transmit either DM-Serial or Dennard serial telemetry protocol.
Baud Rate, Parity, Data Bits	These settings are displayed for protocols that may require configuration.
Stop Bits, Flow Control	

Note: *When a telemetry protocol is selected these settings will be set to the default to predetermined values for the protocol, and should not normally be altered manually.*

Note: *Any changes to this page will require the unit to be reset. This can be done via the Restart Camera button at the bottom of the webpage.*

Note: *The telemetry receiver should be set to address number 1.*

User Access



Access to the configuration options can be safeguarded by the setting of passwords. These can be set individually for Webpage configuration, FTP administration and Telnet access.

System Accounts Administration

Within this section, the system accounts that have been pre-configured using the .ini files will be displayed. This allows the username and password of these accounts to be easily modified.

The default passwords are:

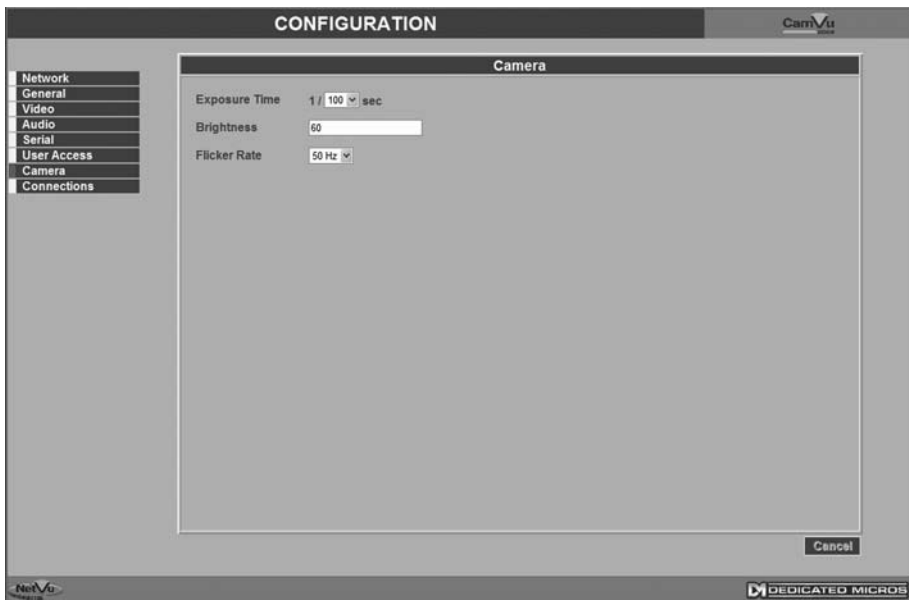
Webpage Configuration :	Username = dm :	password = web
FTP Admin :	Username = dmftp :	password = ftp
Telnet :	Username = dm:	password = telnet

Video Accounts Administration

This option allows Users that are tasked to monitor the camera to be added/deleted to/from the system. When a User is added, it is necessary to create a username and password. These must then be entered when accessing the device via NetVu ObserVer or a DVR.

Note: Please ensure all configured Usernames and Passwords are retained as loss of this information may result in the unit being returned to Dedicated Micros.

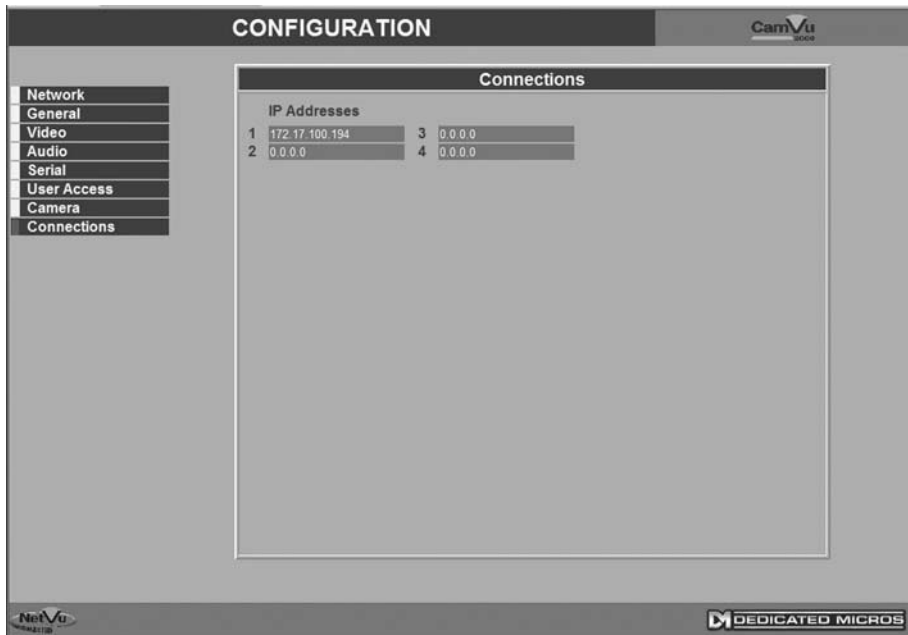
Camera



This option allows specific camera functionality setting to be established.

Exposure Time	Set the camera exposure rate (select from 1/1 to 1/100 seconds)
Brightness	Establish the camera brightness settings
Flicker Rate	Set the camera flicker rate, select from 50Hz or 60Hz.

Connections



This page shows the IP addresses of machines currently connected to the camera via the network.

IP Addresses A list of up to four IP addresses connected to the camera will be displayed.

Connecting to the CamVu 2000 Camera

Using the DVR

The Camera can be connected to and viewed across a network using a NetVu capable DVR or server, or via the NetVu Observer software.

To connect a NetVu capable DVR using the OSD.

Note: *Not all DVRs will be able to support connections to the CamVu2000 when it is streaming high resolution images.*

To enable a NetVu capable DVR to connect to IP cameras;

1. Verify the Version of operating software on the DVR by pressing the menu button once to display the 'Time, Date & Language' page. If the Version is below 4.5(010), use the enclosed CD to upgrade the system to accept IP camera streams.
2. Using the DVRs on board web pages select Configuration Options, then via System, select Advanced Features. Tick the IP Camera checkbox in the Cameras section of the Advanced Features web page. Save the setting by clicking the save button at the bottom LHS of the page. Now it is possible to connect IP cameras to the DVR.

In order to setup a CamVu 2000 Camera using the On Screen Display menus;

1. On the Camera Setup page, the 'Camera Type' parameter will have an option called 'IP Cam'.
2. Select 'Edit' to set up the Camera. Use the parameters listed below.

Type - NetVu Server
 URL - <CamVu 2000 IP address>
 Port - 0080
 Camera Number - Refer to Note below
 FPS - 04

To connect a NetVu capable DVR using the DVR webpages

To set up a CamVu 2000 Camera using the DVR on board webpages;

1. Open the web browser and type the IP address of the DVR into the address line. Select 'Configuration Options' and log in using the web username and password (defaults username-dm, password-web).
2. Select the 'Cameras' option on the side bar. There is a page called 'IP-Camera and Record Setup'. Select this page.

Add the CamVu 2000 Camera information to a free position in the camera table. Use the parameters listed below.

Camera type - IP
 IP Cam type - NetVu Server
 IP Cam URL - <Enter the IP address of the CamVu 2000>
 IP Cam port - 80
 IP Cam Cam - Refer to note below
 IP Cam FPS - 4

It is possible to treat the digital video feeds from other networked Dedicated Micros DVRs as IP cameras.

Using NetVu Observer

The CamVu 2000 Camera produces a digital video stream from an independent IP address. NetVu ObserVer can connect directly to this video stream in the same way as it connects to a DVR. However, the camera needs to be within the same subnet as ObserVer.

A CamVu 2000 Camera can be added to ObserVer to allow the Operator to easily select the camera for viewing and control:

1. Highlight the Stored Image Servers Folder, or if a sub-folder (a folder within a folder) is required highlight the top level folder.
2. Click the right mouse button and select the Add Image Server option.
3. Enter the IP address of the NetVu 2000 Camera. Enter a suitable name to identify the camera in the Site list.
4. Click OK to enter these parameters. A shortcut to the camera will be displayed in the Site List. A PTZ camera will be controllable via NetVu ObserVer. Alternatively, the IP address of the encoder can be entered into the dialog box on the bottom of the Image Server Tree pane. This will create a temporary connection to the camera. This can be made permanent by dragging the Entry into the Stored Image Servers folder.

These basic instructions will display the camera for viewing and control. For more information on the options available, refer to the NetVu ObserVer documentation.

Note: *If a video account has been configured on the camera, a username and password will be requested when NetVu ObserVer connects.*

Notes

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