



Operating Manual

iCAM500

Intentionally Left Blank

Document Number 313295 (See Last Page for Revision Details)

©2006 Extronics Limited. This document is Copyright Extronics limited.
Extronics reserve the right to change this manual and its contents without notice, the latest version applies.

Contents

Contents	3
1.1 Functional Description	4
1.2 Delivered Components	4
2 Safety Information and Notes.....	5
2.1 Storage of this Manual.....	5
2.2 List of Notes	5
3 Operation & User Instructions	7
3.1 Quick Start Information.....	7
3.2 How to install battery	8
3.3 Key Definition	8
3.4 How to use iCAM500 as a Digital Camera – DSC.....	9
3.5 How to use iCAM500 as Macro / Normal Lens	10
3.6 How to use iCAM500 with your PC to retrieve pictures.....	10
3.7 Driver Installation (For Windows 98/98SE)	11
3.8 Removing iCAM500 From Your PC	13
4 Liability	15
5 Technical Data	16
6 Certification.....	17
7 EC Declaration of Conformity	18
7 FAQ – Frequently Asked Questions	20
8 Hints and Tips.....	23
8.1 Light Levels	23
8.2 Holding the Camera Still.....	23
9 Manual Revision	24

To get the best out of your iCAM500 please refer to Section 8
Hints and Tips of the Manual

1 Introduction

This manual contains data concerning explosion protection, operational data and instructions for operating with a PC.

1.1 Functional Description

The **iCAM500** is an intrinsically safe USB camera; the iCAM500 is suitable for taking photos in hazardous areas (Ex areas, potentially explosive atmospheres). The photos can then be viewed / edited on a PC located in a safe area via the USB port. Viewing the photos requires no special software because the camera acts like an external hard disk drive.

Further advantages:

- small size, light weight
- two alkaline cell supply size AAA
- close-up switch (for 15 - 30 cm distance)
- optical indicators for operation for noisy industrial environments
- 256 MB memory, sufficient for more than 400 photos (according to the degree of compression)
- data retention for 10 years without supply
- USB memory stick for all kinds of data
- Sensitivity 10Lx (Images can be taken at lower light levels but quality may be affected as the light levels diminish)

Special notes concerning the explosion protection:

- In a hazardous area the leather pouch for USB and battery cover must be used.
- Do not open the USB or battery cover in hazardous areas.
- Do not take the hand loop, the USB lead or other accessories into explosive areas.
- Ambient temperature -20°C ... +50°C
- Pay attention to the technical data and the safety advice!

1.2 Delivered Components

Delivery includes:

- USB photo camera **iCAM 500**
- 2 alkaline battery cells size AAA
- USB lead (not allowed in a hazardous area!)
- Manual for the Ex version
- Leather bag for battery and USB cover
- Carrier bag with belt clip and hand loop (hand loop not allowed in a hazardous area!)

2 Safety Information and Notes

2.1 Storage of this Manual

Keep this user manual safe and in the vicinity of the iCAM500. All persons who have to work on or with the unit should be advised on where the manual is stored.

2.2 List of Notes

In hazardous areas the battery and the USB cover must always be protected against opening by the leather bag.

The notes supplied in this chapter provide information on the following.

- Danger / Warning.
 - Possible hazard to life or health.
- Caution
 - Possible damage to property.
- Important
 - Possible damage to equipment.
- Information
 - Notes on the optimum use of the device

Warning In a hazardous area the leather bag for USB and battery cover must be used.

Warning • Do not take the hand loop, the USB lead or other accessories into explosive areas.

Warning:- Do not open the battery or USB cover in hazardous areas.

Warning:- In hazardous areas any access to the battery or the USB plug is prohibited.

Warning :- Operation with rechargeable batteries prohibited, even in safe areas.

Caution:- After exchanging of the battery, the camera function must be verified before entering the hazardous area, e. g. by checking the flashing of the lamps after switching on.

Caution:- Hand loop and USB lead are prohibited to be taken into hazardous areas.

Important:- Read the manual completely and carefully before operation. Only the latest documentation is valid.

Important:- Installation, maintenance and cleaning of the units must only be performed by persons trained and authorized for this purpose, insofar as they are familiar with the units.

Important:- If it can be assumed that safe operation is no longer possible, switch off the unit and secure it against being used again.

Important:- It is prohibited for the operator to open the units in a way that is not described in this manual. This may only be done by specifically authorized personnel of Extronics Ltd.

Important:- Modifications and conversions to the units are not permissible and will cause the Ex protection and the guarantee to become void. Extronics Ltd is not liable for any consequential damage.

Important:- The technical data specified for hazardous areas comply with the values certified in the European EEx approval. The user bears the sole responsibility of examining the equipment with regard to its suitability for the intended application and environmental conditions. Extronics Ltd accepts no liability for any lack of suitability.

Important:- For installation, maintenance and cleaning of the units, it is important to observe the applicable standards and provisions concerned with explosion protection (VEN 60079-14, EN 50014 - 50039) as well as the Accident Prevention Regulations and codes of practice in your region.

Important:- Clean with a soft cloth or brush. There are small gaps and holes in the case, so do not use a fluid cleansing agent. Do not clean in the hazardous areas because of potential static charging of the cleaning tool

3 Operation & User Instructions

Please note the safety advice and the data for hazardous areas use!

3.1 Quick Start Information

To Turn the Camera on

Press the button on the back of the camera for 4 seconds. The Camera operation starts with one flash of the red L.E.D and the blue L.E.D flashing continuously.

If the camera does not start after 5 seconds, retry the above operation.

If the camera still will not start exchange the batteries. **Please note that this is not permitted in hazardous areas.**

Selecting the iCAM500 Lens

Choose between standard distance and close-up with the macro switch. Refer to section 3.5 for more detailed information.

Taking a Photo

Briefly pressing the button on the back of the unit again will take a photo. The blue L.E.D on the side of the iCAM500 will light, and will stay lit for a few seconds during this time the photo will be taken, the time is dependant on the illumination and motion of the subject. The blue L.E.D stays on until the photo taking process is completed and the picture is compressed and saved to the cameras memory.

When the camera is ready to take another picture the blue L.E.D will flash.

The camera switches off automatically after 90 seconds if the button is not pressed.

iCAM500 is a Digital Camera and a USB storage device.

When plugging iCAM500 into your computer, it can be used as standalone and driverless USB storage device, with an available capacity of 256MB. It can support different operating system including Windows, Apple Mac.

Prolonging the battery life

Please remove the battery, if you are not going to use the camera for a long time period of time.

The Battery should last up to 60 days in normal conditions



3.2 How to install battery

1. Remove the USB cover
2. Remove the battery cover by pressing down and sliding out.
3. Insert the batteries making note of the correct polarity.
4. Replace the battery cover.



3.3 Key Definition

When the device is being used as an USB flash drive, the Snap (Picture taking) function will not work.

- Power On: Hold Power/Snap key 3 sec and release will turn the power on.
- Power Off: The iCAM500 will turn power off. When 90 sec without operation

3.4 How to use iCAM500 as a Digital Camera – DSC

3.4.1 Turning the power on

1. Press and hold the button for 3 seconds to switch on the camera.
2. The Red and Blue LED indicators will then light for around 1 second
3. The Red LED will then go out and the Blue LED will then be flashing indicating a ready status.

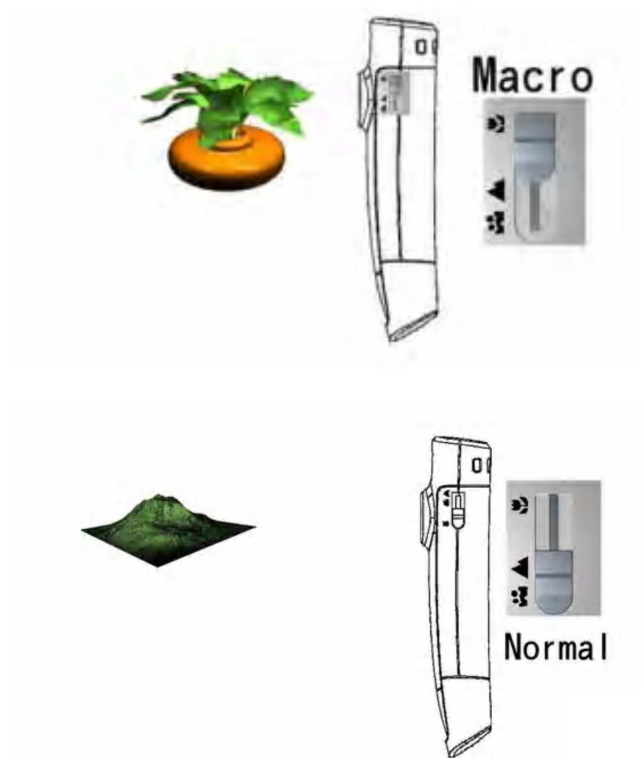
3.4.2 Taking a Photo

1. Observe the item you wish to take a picture of through the view finder.
2. Check the iCAM500 is in the ready status (Blue LED is flashing),
3. Press the button to take a photo, Blue LED will then light while the image is stored to memory.

IMPORTANT!	Do Not move the Camera away from the Subject until the Blue LED Flashes Once More
	Moving the camera before the Blue LED Flashes will reduce the quality of the image

4. When, the Blue LED flashes this indicates the image is stored and the iCAM500 is ready to take another picture.
5. If the camera fails to take a picture the Red and Blue LED will be on at the same time, this indicates that
 - a. The Internal Flash memory is full
 - b. The Battery is very low

3.5 How to use iCAM500 as Macro / Normal Lens



1. Turn on the Macro switch when target object is close to the iCAM500.
2. Turn off the Macro switch when target is far away from the iCAM500 e.g. landscapes.

3.6 How to use iCAM500 with your PC to retrieve pictures

- Ensure your PC supports USB devices.
- Connect the iCAM500 to your PC's USB port directly.
- The device will operate on Microsoft Windows™ 98/98SE, 2000, XP, Me, or MAC OS v9.x above.
- The pictures can be viewed from the folder \DCIM\100MEDIA folder on the iCAM500.

3.7 Driver Installation (For Windows 98/98SE)

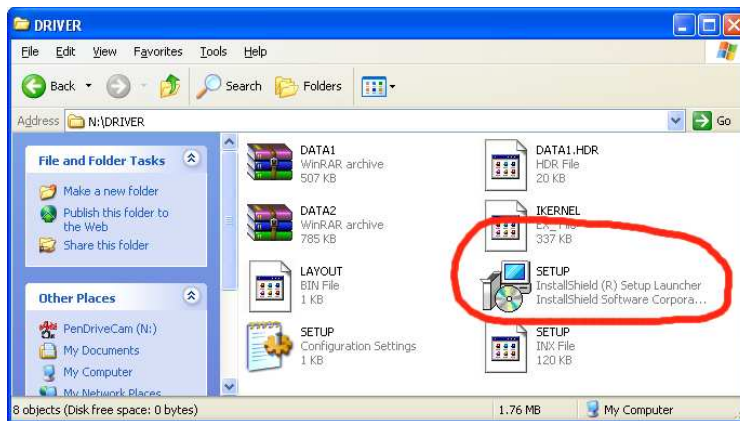
3.7.1 Windows 98/98SE Installation

(1) To install the windows 98/98SE driver download the zip file called “iCAM500driver” from the Extronics website, this can be found under the link below

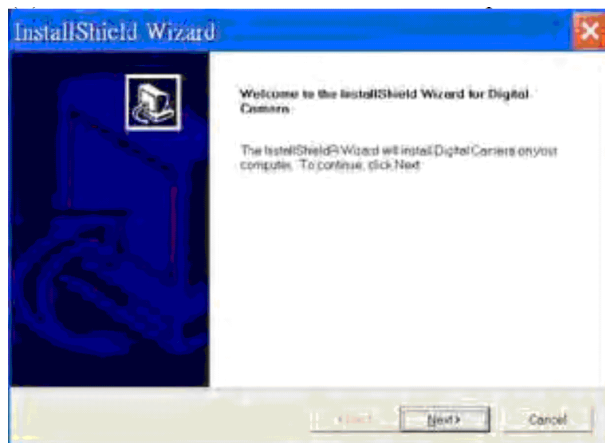
www.extronics.com/drivers/icam500driver.zip

Download and save the zipped file to your system, unzip the file to a folder

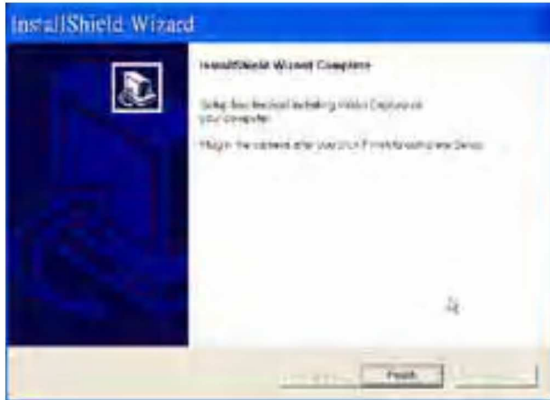
When you have unzipped the file to a folder on your system, browse the folder and double click the **SETUP.EXE** file.



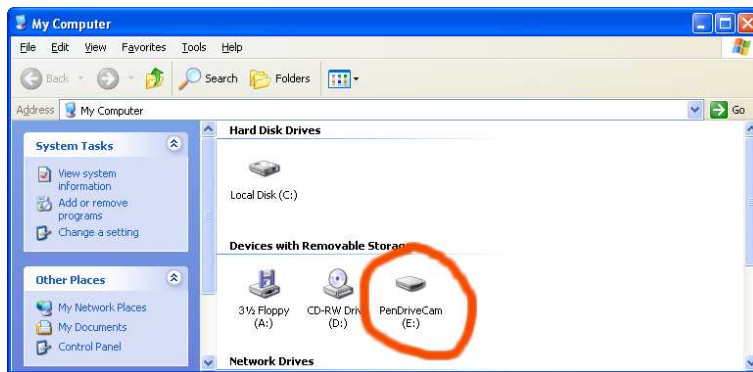
(2) Follow the on screen instruction and press “next >” to continue.



3) The System will install all the necessary files onto your Windows operating system. When the setup installation is complete, click “OK” to restart the computer



(4) Once the installation is finished completely, you can see a “Removable Disk” in “My Computer” when you plug your iCAM500.



3.7.2 Removing the driver for Win 98 / 98 SE

To remove the driver from the operating system, simply run the installation procedure again, as if the drivers were being installed, when running installation again, it will prompt you whether you want to remove the driver or not.

Make sure the device is not plugged in the USB port, then follow the on screen instruction to un-install the driver.



3.7.3 Windows ME / 2000 / XP

For these three operating systems, NO Driver is required, because Windows has a built-in driver to support the iCAM500's USB removable disk.

Simply plug iCAM500 into the USB port and it will be recognized by the system. The operating system will setup iCAM500 automatically without any need for a driver.

Once the installation is complete, you will see a "Removable Disk" drive in "My Computer".

3.7.4 Mac OS 9.x or above

No driver is required for these operating systems. Simply plug the iCAM500 into the USB port and the system will automatically find iCAM500.

3.8 Removing iCAM500 From Your PC

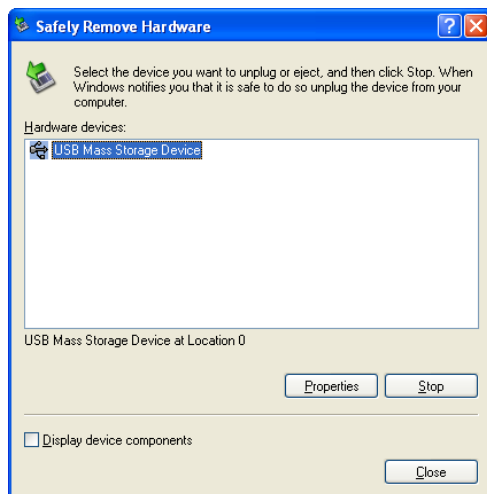
Please remove your iCAM500 via one of the following methods. Incorrect removal of iCAM500 may result in data lost.

3.8.1 Windows 98/98SE

You could unplug iCAM500 from the USB port directly once the LED stops blinking and dimmed. The "Removable Disk" icon will disappear automatically.

3.8.2 Windows Me/2000/XP

Click the icon at the lower right hand corner, and a "Stop USB Mass Storage Device-Drive (X:)" message will appear. Click the message to stop the device.



Click "OK" to confirm, then wait till the LED dimmed before removing from USB port.

3.8.3 Mac OS 9.x or above

Drag the "Removable Disk" icon to "Recycle Bin", wait till the LED dimmed before removing from USB port.

3.8.4 Important Notices

- (1) In Windows 98/98SE, please install the driver before plugging in your device, otherwise, Windows will ask you for a driver even after you have installed it.


- (2) If you plug your iCAM500 into the USB port, the operating system finds it as a new device, but you are unable to see the “Removable Disk” icon appear in “My Computer”, please check and make sure you do not have any other drives or devices which maybe conflicting with the devices drive letter. If you do, please force change the drive letter of your iCAM500.

- (3) Please remove the iCAM500 in the correct way (see section 4), otherwise, it may result in data lost.

4 Liability

The technical data specified for hazardous areas comply with the values certified in the European Ex approval. The user bears the sole responsibility of examining the equipment with regard to its suitability for the intended application and environmental conditions. Extronics Ltd accepts no liability for any lack of suitability.

5 Technical Data

Certificate no.: IBExU 06 ATEX 1044
Certification Type:  II 2 G Ex ia IIC T4
Ambient temperature: -20°C ... +50°C

Supply:

2 alkaline cells size AAA

Type of cells: Duracell MN 2400 AAA, Capacity: 1150 mAh ...

... or further cells approved according to EN50020, §10.9:

Manufacturer:	Type:	Manufacturer:	Type:
Daimon	Alkaline	Eveready	Alkaline Energizer No. E92
Duracell	Alkaline Plus	GP	Super Alkaline Battery 24 A
Duracell	Alkaline Procell	Varta	Alkaline No. 4803
Duracell	Alkaline Ultra	Toshiba	Alkaline LR03GR
Energizer	Ucar Gold		

Current consumption during operation ~ 130 mA
during standby: ~ 1 mA

Case:

IP protection: IP20
Material: ABS
Dimensions: 118 x 32 x 22 mm
Weight: ca. 50 g (without battery and bag)

6 EC Declaration of Conformity



EC Declaration of Conformity

Extronics Ltd, Meridian House, Roe street, Congleton, CW12 1PG UK

Declare under sole responsibility that the product;

iCAM500 USB Photo Camera II 2 G EEx ia IIC T4

Certification:

To which this declaration relates is in accordance with the provision of the following directives

- | | |
|-----------|---|
| 94/9/EC | Equipment and protective systems intended for use in potentially explosive atmospheres. |
| 89/336/EC | CE Marking for Electromagnetic Compatibility Directive |
| 72/23/EC | Low Voltage Directive (LVD) |

And is in conformity with the following standards or other nominative documents

- | | |
|-------------------|--|
| EN60079-0:2004 | Electrical apparatus for potentially explosive atmospheres - General requirements |
| EIEC60079-11:2004 | Explosive atmospheres - Equipment protection by intrinsic safety 'I' |
| EN55022:1998 | Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement |
| EN55024:May 1999 | Information technology equipment - Immunity characteristics - Limits and methods of measurements |
| EN60950:2000 | Information technology equipment safety |

Signed:

Date: 16/11/07

A handwritten signature in black ink, appearing to read 'Nick Saunders', is written over a horizontal line.

Nick Saunders
Technical Service Manager

7 Certification

ATEX Certificate

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[1] **EC-TYPE EXAMINATION CERTIFICATE**

according to Directive 94/9/EC, Annex III

(Translation)



[2] Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres, Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **IBExU06ATEX1044**

[4] Equipment: USB-photo camera
type iCAM 500

[5] Manufacturer: Extronics Ltd.

[6] Address: Meridian House, Roe Street
Congleton, Cheshire, CW12 1PG
UNITED KINGDOM

[7] The equipment mentioned in [4] and any acceptable variation thereto are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 in accordance with article 9 of the Council Directive 94/9/EC of 23rd March 1994, certifies that the under [4] mentioned equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the test report IB-06-3-058 of 01st March 2006.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2004 and E IEC 60079-11:2004.

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified under [17] in the schedule to this EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this directive apply to the manufacture and supply of this equipment.


[12] The marking of the equipment mentioned in [4] shall include the following:

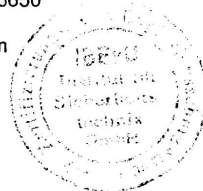
Ex II 2G Ex ia IIC T4
-20 °C ≤ T_a ≤ +50 °C

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - 09599 Freiberg, Germany
☎ +49 (0) 3731 3805-0 - 📠 +49 (0) 3731 23650

Authorised for certifications Explosion protection

By order


(Dr. Lösch)



- Seal-
(ID no. 0637)

Freiberg, 02nd March 2006

Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Schedule

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[13] **Schedule**

[14] **to the EC-TYPE EXAMINATION CERTIFICATE IBExU06ATEX1044**

[15] **Description of equipment**

The USB-photo camera is a hand-held intrinsically safe apparatus which serves for recording and storing of photos in explosive areas. It consists of a plastic housing with a view-finder and 2 LED. The camera is supplied by 2 Alkaline primary cells size AAA, which must be replaced only outside of the hazardous area.

Electrical data

internal supply electrical circuit

Operating voltage: 2 x 1.5 V Alkaline primary cell, size AAA (Micro)

Safety technical notes

- In the hazardous area the battery and USB cover must be locked by the safety bag.
- Any access to the battery holder or the USB plug is inadmissible in the hazardous area.
- Only the battery types listed in the operating manual are to be used.
- After exchanging the battery the camera function must be checked outside of the hazardous area.

[16] **Test report**

The test results are recorded in the test report IB-06-3-058 of 01st March 2006. The test documents are components of the test report and listed there.

Summary of the Test Result:

The USB-photo camera Type iCAM 500 fulfils the requirements of the Type of protection Intrinsic Safety for an explosion-proof electrical apparatus for Equipment Group II, Category 2G, Explosion Group of IIC, Level of Protection ia and Temperature Class T4.

[17] **Special conditions**

none

[18] **Essential Health and Safety Requirements**

Confirmed by norms (see [9]).

By order



(Dr. Lösch)

Freiberg, 02nd March 2006

8 FAQ – Frequently Asked Questions

Q1 Can the iCAM500 support Linux Kernel version 2.3 or earlier?

No, the iCAM500 only supports Linux Kernel version 2.4.0 or later.

Q2 Which operating systems can the iCAM500 operate on?

The iCAM500 can be operated on any of the following OS's. Windows 98, Windows 98 SE, Windows ME, Windows 2000, Windows XP, Mac 8.6 or above.

Q3 My computer cannot detect iCAM500. What should I do?

If you are using Windows 98 / Windows ME / Windows 2000 / Windows XP, make sure the USB function is enabled in the BIOS, and Windows has detected the USB port successfully. Then install the iCAM500 driver for Windows 98.

If you still have problem setting up the iCAM500, then contact one of our technicians.

Q4 What kind of data can be stored on the iCAM500?

You can save any type of files on the iCAM500, whether they are text, graphic, program, music or multimedia files.

Q5 Will virus infect the iCAM500? How can I prevent it?

Yes, the iCAM500 is just like your hard drive, it can get a virus via any files that you save onto it. Therefore anti-virus software is recommended.

Q6 Do I need to turn my computer off when installing the iCAM500?

No, the iCAM500 is a hot plug and play device. You can install the iCAM500 anytime you want, even with the computer on.

Q7 Can the iCAM500 work on earlier PC's?

Yes, as long as it has a USB connection interface available and driver has been set up properly. Also the operating system must support USB devices.

Q8 The light is flashing on the iCAM500 when connected to my PC, what does this mean?

When the light is flashing, that means the iCAM500 is in use and data transfer is taking place between the iCAM500 and host machine.

Q9 Is it safe to remove the iCAM500 while files are being transferred?

No, when the light is flashing it means data transfer is taking place, do not remove the iCAM500 as it may result in loss of file/data, or even damage the iCAM500.

Q10 What memory sizes are available for the iCAM500?

Only a 256MB Version of the iCAM500 is available.

Q11 Which personal computers does the iCAM500 support?

iCAM500 supports all PCs, which have a USB port connection and runs under the operating systems that the iCAM500 supports (refer Q3). (Most of the PCs after 1997 have a USB connection)

Q12 Can the data on the iCAM500 be shared in a networking environment?

Yes, the data can be shared in a networking environment, as long as the host machine enables the share function for the iCAM500.

Q13 Can the iCAM500 be used as a boot disk?

No, The iCAM500 Cannot be used as a boot disk.

Q14 Can the iCAM500 be formatted? Is so how?

Yes, the iCAM500 can be formatted under Windows 98, Windows ME, and Windows 2000 and Windows XP, using normal formatting function.

Q15 Can the iCAM500 be used under DOS environment?

No, because DOS does not support USB devices, so the iCAM500 cannot be used under DOS environment.

Q16 If the iCAM500 is dropped in water, what should I do?

Dry the iCAM500 thoroughly before using the iCAM500 again. Otherwise the humidity may cause a short circuit when iCAM500 is inserted into the USB port.

Q17 What is transfer rate of the iCAM500?

It can transfer files at a rate of more than 1.44MB/sec

Q18 What interfaces does the iCAM500 supports?

The iCAM500 only supports the USB interface. The iCAM500 can be inserted directly into any USB port or connected to the computer through a USB cable with A-type plug and A-type receptacle.

Q19 How many times can the iCAM500 be used and how long can the data be stored on the iCAM500?

The iCAM500 can write and erase at least 1 million times, while data on the iCAM500 can be stored more than 10 years.

Q20 What operating systems will the iCAM500 NOT support?

The iCAM500 will not support Windows 95a or Windows NT 3.51, since both of these operating systems do not support USB devices.

Q21 How many iCAM500s can I connect to a single computer?

In theory, USB allows 127 iCAM500 to be connected to a single PC, but practically under Windows operating system, due to the alphabetical ordering of the disk drive and existing drives, the maximum iCAM500 that can be connected to a single PC is 23 by using USB hubs.

Q22 What type of memories does the iCAM500 use?

The iCAM500 uses highly reliable and non-volatile flash memory.

Q23 Can other programs be running at the same time while iCAM500 is in used?

Yes, other programs/applications can be running at the same time while using iCAM500.

Q24 Can I perform a ScanDisk on the iCAM500?

Yes, ScanDisk can be performed on the iCAM500.

Q25 Does iCAM500 resist vibration, magnetic fields and humidity?

The iCAM500 is highly resistant to vibration and can be operated under wide ranges of magnetic fields and humidity.

Q26 When an application such as Word or Excel is running, what happens if I pull the iCAM500 out?

If an application is running and you pull out the iCAM500, the computer screen will go blank. Just press the "Esc" key to make the computer go back to normal condition.

Q27 What should I do if the iCAM500 icon does not appear/disappear on the screen after inserting / extracting?

Simply click the "View" menu and select "Refresh". Otherwise, please contact one of our engineers.

Q28 What precautions should be taken while using the iCAM500?

Wait for a few seconds upon inserting and removing of the iCAM500, to give time to the operating system to recognize the iCAM500. Avoid immediate removal after inserting the iCAM500 or performing repetitive insertions / removals.

Q29 What happens if I drop the iCAM500?

There is no need to worry about dropping the iCAM500, because iCAM500 is highly shock proof.

Q30 What are the differences between the iCAM500 and Compact Flash, Smart Media, Multimedia card, Memory Stick, Secure Digital card and USB hard disk drive?

The advantage of the iCAM500 over all the different memory cards is that it can be connected to the USB port directly and the data can be accessed without an external card reader, and the flash memory storage products and drives are not compatible to each other.

USB hard disk drive is much heavier and more delicate than the iCAM500. It is only a hard disk drive with a USB interface. iCAM500 is much smaller, lighter and rugged.

Q31 Can iCAM500 work in Windows NT?

No. Since Windows NT does not support USB devices, therefore, iCAM500 cannot work under the Windows NT environment.

9 Hints and Tips

To help you get the best out of your iCAM500 please follow the tips below:

8.1 Light Levels

- The camera functions well down to light levels of 10Lux below this you may notice a reduction of image quality.
- If you can increase the level of light on the subject you will be able to improve the quality of the image

8.2 Holding the Camera Still

- When taking photographs the camera must be held still again this will improve the quality of the image taken.
- Do Not move the camera away from the Subject until the Blue LED Flashes indicating that the image is stored
- Hold the camera with both hands during the process of taking the image
- Provide support for the camera by resting your elbows on a solid object

10 Manual Revision

Revision	Description	Date	By
1	New Manual	18/05/06	A Bates
2	User Instructions added	02/06/06	A Bates
3	Corrections	13/7/06	N Saunders
4	Battery type detail corrected, cleaning instruction added	15/08/06	A Bates
5	Memory size changed from 128MB to 256MB	25/09/06	A Bates
6	Added URL link for the 98/98SE driver	29/11/06	D Revell
7	Added Hints and Tips Section	19/12/06	D Revell
8	Changed Picture on the Front Cover	10/04/07	J Eastwood
9	High Res Picture Added	12/04/07	J Eastwood
10	EC Declaration Revised	16/11/07	J Eastwood