![SENSAR logo]

Sensar…Secure®Cam

User Guide

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Notices

FCC Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including any that causes undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more
of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Sensar, Incorporated may void the user's authority to operate the equipment.

EEC Notice

This product conforms to emissions product standards EN55022, class B and EN50082-1 (1992) of the European Economic Community.

Copyright Notice

Licensee Notice

IriScan of Marlton, New Jersey, USA holds the exclusive world-wide patents on the iris recognition concept originated by Drs. Leonard Flom and Aran Safir and the software and process technology invented by Dr. John Daugman, Cambridge University, England. Sensar uses, under license, the iris recognition process developed and owned exclusively by IriScan. IRISCAN® is a trademark of IriScan, Inc., of Marlton, New Jersey, and is used by Sensar, Inc. under license from IriScan, Inc.

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Introduction

Today's digital world requires us to access and protect computer information and interact securely with computer systems. The use of passwords has long been the most popular method for accomplishing these tasks. . .until now. Sensar has introduced a personal identification system which allows you to conveniently and securely identify yourself to your PC and the Internet.

It all starts with an image of your eye—iris recognition. The Sensar Secure®Cam captures an image of your iris and creates an identifying template. This is your enrolled digital code and is stored in a secure database. When verification of your identity is then requested, the camera will take another image of your eye, digitally encode it, and compare it to your enrolled digital code. If they match, then your identity has been verified.

Iris recognition is called a biometric because it uses a measurable physical characteristic. With 266 measurable characteristics, the iris is the most unique, data rich physical structure on the human body—substantially more unique than a fingerprint. And, unlike other measurable human features, the patterns in the iris do not change over time.

No two people on earth have the same irises. In fact, even the left iris and right iris of the same person have uniquely different patterns.

There are two versions of the Sensar Secure®Cam; a Parallel Port (LPT) camera and a USB camera.

System Requirements

- 486 processor or better
- Sound card / speakers (optional, recommended)
- LAN or Internet connection and 28.8bps or greater modem
- Internet Explorer 4.01 or later or Netscape Navigator 4.06 or later

Parallel Port Camera
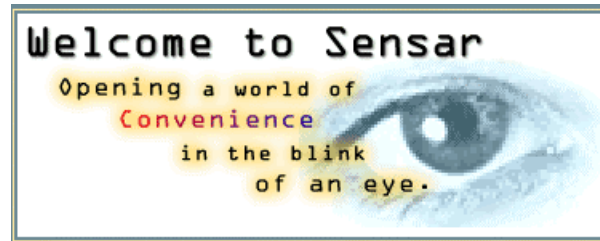- Microsoft Windows 95, 98, or Windows NT 4.0 or later versions

USB Camera
- USB (Universal Serial Bus) port equipped Pentium IBM compatible
- Microsoft Windows 95 or 98 (Windows 98 is strongly recommended)

Installation

Software Installation

Windows 95

To install the USB or Parallel Port version of the camera software, please follow this procedure:

1. To find out if your version of Windows 95 is USB compliant, right-click the "My Computer" icon and select Properties. The System should be 4.00.950B (Windows 95B) or later. If you are running Windows 95B and USB is not available, you need to execute a program from your Windows 95 installation CD. Your Windows 95 CD should say on it "With USB Support." Open the Windows Explorer and go to the directory Drivers\USB\Enduser. Double click on the file USBSUPP.EXE to install USB support to Windows 95. If you do not find this file in this location, go to the Start Menu and select Find–Files or Folders and search for USBSUPP.EXE on the CD. To find out more about the Universal Serial Bus standard, visit the USB Website at www.usb.org.

2. Insert the camera CD into your CD-ROM drive. Run the program SETUP.EXE located in the root directory of the CD. Follow the instructions as they appear on your screen.

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Windows 98

To install the USB or Parallel Port version of the camera software, please follow this procedure:

1. Insert the camera CD into your CD-ROM drive. Run the program SETUP.EXE located in the root directory of the CD. Follow the instructions as they appear on your screen.

Windows NT4.0

To install the Parallel Port version of the camera software, please follow this procedure:

1. Insert the camera CD into your CD-ROM drive. Run the program SETUP.EXE located in the root directory of the CD. Follow the instructions as they appear on your screen.

Hardware Installation

USB Camera

1.   Find the USB port on your computer. If your computer does not have a USB port, a USB card can be added. See Section "Adding a USB Card."

2.   Plug the flat rectangular end of the detachable USB cable into any USB port of your computer.

Figure 1
Plug the USB Camera into Your PC

3.   Plug the square end of the detachable USB cable into the rear of the camera.

Figure 2
Plug the USB Cable into the Camera

4.   Windows will automatically recognize the USB camera.

The most common problem for users installing a USB device for the first time is that the computer's BIOS does not have the USB hardware on the motherboard

enabled. To rectify the problem you must restart the computer and enter the SETUP utility to enable the USB hardware on the computer's motherboard. After entering the SETUP utility there will be a peripheral or advance section that will allow you to enable the USB hardware. After enabling the USB, exit the SETUP utility making sure you SAVE the changes when exiting. See your PC owner's manual for starting the BIOS Settings Utility specific to your PC.

Parallel Port Camera

1.   Make sure the power to your computer is off.

2.   Remove the printer cable from your PC, if installed.

Figure 3
Locate and Remove Your Printer Cable, If Present

3.   Connect the camera cable to the printer port on your PC.

Figure 4a, b
Connect Camera Cable

4.   Reconnect the printer cable, if present, to the adapter cable.

Figure 5a, b
Reconnect Your Printer Cable, If Present

Note: You can not PRINT and use Sensar Secure®Cam *at the same time*.

5.   Remove the keyboard cable from your PC.

6.   Connect the camera cable with the round male connector to the keyboard port on your PC.

Figure 6
Locate and Remove Your Keyboard Cable

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7. Reconnect the keyboard cable (round male connector) to the cable with the round female connector.

Figure 7a, b
Reconnect Your Keyboard to the Camera Cable

8. Turn the power to your computer back on.

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Configuring Your Browser

In order to ensure secure transactions over the world wide web, the Sensar Secure®Cam Demo uses a 'Secure Sockets' (or SSL) connection over the internet. Follow the steps indicated below for your browser in order to invoke the correct SSL level.

Internet Explorer 4 (IE4)

To invoke the correct SSL level within IE4:

1. Invoke the browser if you have not already done so.
2. Click on the "View" menu.
3. Select the "Internet options" label.
4. Select the "Advanced" tab in the dialog box that appears.
5. Scroll down to the "Security" label.
6. Deselect "PCT 1.0" and deselect "SSL 3.0" (the boxes should not have an "x" when you are through.)
7. Click "OK" when you are done.

Important Note:

When using the software you may be alerted by the Microsoft Browser that signed content from Sensar is being loaded. This is normal and completely secure since the content from Sensar is digitally signed, and can be checked by examining the digital certificate. You may examine the digital certificate by clicking on the TBD button, and you may elect to trust content from Sensar for future downloads by clicking the "Always trust content from Sensar" check box. Click "Yes" to exit the dialog box.

Internet Explorer 4 Upgrade

Sensar Secure®Cam Demo requires the latest version of the "Java Virtual Machine" which allows IE4 to operate Java Applets in the standard java mode. On the installation CD you will find the file "MSJavx86.exe" located in the root directory. Run this application to upgrade your IE4's Java Virtual Machine (Note that this will require re-booting your PC).

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Netscape

To invoke the correct SSL level within Netscape:

1. Invoke the browser if you have not already done so.
2. Click the "Security" Icon.
3. Click on the "Navigator" link.
4. Disable "SSL v3" box (remove the check mark if it is present.)
5. Click "OK" when you are done.

Important Note:

When using the software you may be asked by the Netscape browser to grant permission to enable "high risk activities"–our system requires resources of the operating system not usually granted to browsers. This is completely safe, and Sensar's software is digitally signed (you may view the certificate) so that you know that you are truly running software provided by Sensar. You may wish to click on "remember this decision" so that you will not be prompted with this dialog the next time you wish to run the application.

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Viewing The Tutorial

The installation procedure will place an animated tutorial "video" onto your PC. This file, named "SecureNET.exe," can be found in the directory "C:\Program Files\Sensar\SecureCam." To run the program, use the shortcut found in the "Start Menu,"–look under "Program Files," then "Sensar Utilities" for the entry labeled "Tutorial Video." You can also locate the tutorial using Windows Explorer and launch it by "double-clicking" the file. Once you are connected to the demo web page, you may run it by clicking the camera icon located at the bottom right of the web page.

The tutorial shows a typical camera user demonstrating the use of the Sensar Secure®Cam camera. A few things to note from the tutorial…

- The tutorial may not run immediately – hit the space key twice to start the animation. Hitting the space key pauses the animation; hitting it again resumes the motion. Hit the "Esc" key to exit.
- The camera's range starts about 4 inches away from the eye.
- Moving the camera closer or farther away will make the yellow ball of light shrink or grow respectively.
- Moving the camera up, down, left, or right will move the yellow ball accordingly, without making the ball shrink or grow.

The goal is to put the yellow ball in the center, then make it shrink or grow until it just fills the dark, open area in the center of the blue field.

Even after the goal is met we suggest, as the tutorial shows, that you move the camera just slightly (~1/4 inch) closer then farther away. This will put your eye in the best focal range.

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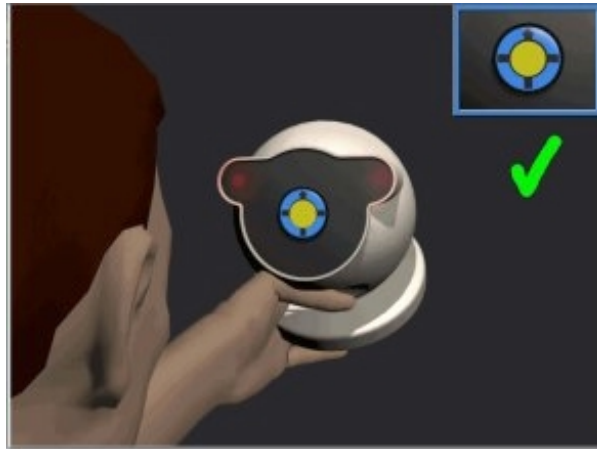The tutorial will run continuously until the "escape key" is hit. Below is one screen from the tutorial.

Figure 8
Tutorial Animation Screen Shot

Practice Using The Camera

The installation procedure will place a "TroubleShooting Assistant and Camera Practice" application onto your PC. This file, named "Practice.exe," can be found in the "C:\Program Files\Sensar\SecureCam" directory. A shortcut to this progam may be found under the "START" menu (Start->Program Files->Sensar Utilities->Practice). You can also locate the Practice Application using Windows Explorer and launch it by "double-clicking" the file.

Practice using the camera with and without your glasses. You do not need to remove your contact lenses.

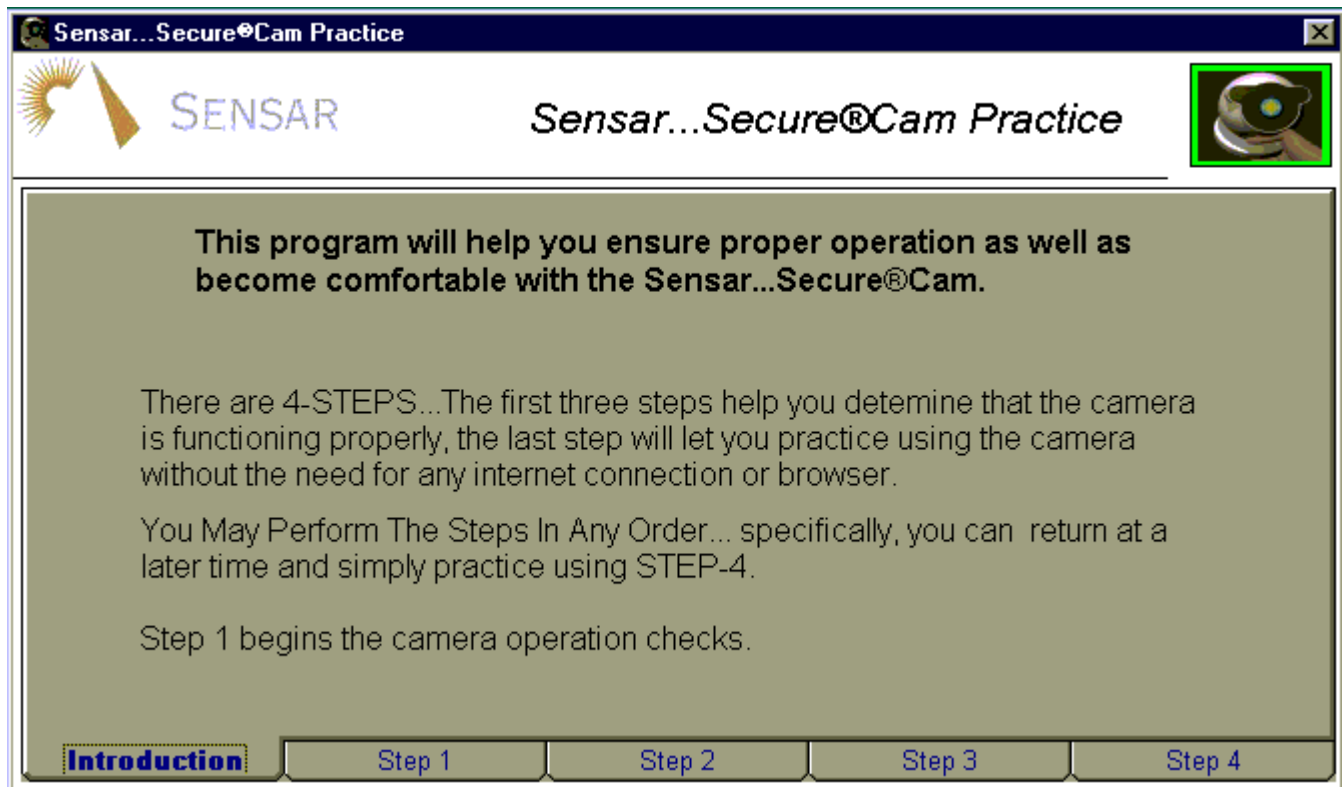Below is a screen shot from the practice application.

Figure 9
Screen Shot From Practice Application

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Getting Started

Figure 10
The Sensar Secure®Cam

Enrollment

After you have finished installing the camera, you will need to enroll for the first time. Enrolling is the process of collecting several iris images and comparing them against each other. The system collects from 1 to 4 eye images for enrollment. The best image is selected as your enrolled image and will be used in comparison checks during all future verifications.

Enrollment will automatically start by a software application or web page you download from a site supporting the Sensar…Secure®Cam system. Enrollment software is not provided with this package. You should remove your glasses for the enrollment process.

Focusing—You must position your eye about four inches away from the lens before a focused image can be taken. You will see a ball of light when looking into the lens which gets bigger or smaller as you move toward or away from the window. The goal is to make the ball of light approximately the same size as the target window. You should slowly move the camera slightly closer and then farther away (~1/4 inch) to attain the correct focus position.

The camera can be placed on an elevated level surface or you can pick up the camera with your hand. Keeping your eyes wide open, position your eye in the focus range and listen for four shutter sounds from your speakers. These indicate the four images being taken. If needed, cover the opposite eye to aid in image taking. If no sound occurs, first check your sound setup. Next, try moving your

eye closer or farther away from the lens slightly (alternatively, you can move the camera!). You will hear a "ding" if the enrollment is successful, otherwise you will need to try again. The system may timeout after 10 seconds if it finds no suitable images and you may need to start enrolling again. The key points are to place your eye in focus and to keep your eye as wide open as possible. Another suggestion is to try to keep the face of the camera "flat" with respect to your eye…try not to squint which may occur if you close the other eye (keep both eyes open and cover one eye).

Once you have succeeded in enrolling your eye (you may choose to enroll both eyes if you wish), use the verify feature to verify your eye image. In this operation, only one image will be taken and compared to your enrolled image. If they match, then you will have verified your eye. Place your eye in focus and you will hear a "ding" sound to signal that you have been verified successfully. If it does not work, try the same suggestions as in the enrolling process.

NOTE: Do not obstruct the black window during any portion of the enrollment or verification process.

Congratulations! You can now use the Network Security System for secure access over the Internet.

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Troubleshooting

Problem	Suggestion
No flashing red lights.	Verify the camera is properly *and completely* plugged in. Run the Practice Application to review operation and use. Note: The USB Camera has a "snug fit" connection on both the camera and PC end. It is possible that either end has become unplugged slightly.
Windows does not recognize camera (USB only).	The most common problem for users installing a USB device for the first time is that the computer's BIOS does not have the USB hardware on the motherboard enabled. To rectify the problem you must restart the computer and enter the SETUP utility to enable the USB hardware on the computer's motherboard. After entering the SETUP utility there will be a peripheral or advance section that will allow you to enable the USB hardware. After enabling the USB, exit the SETUP utility making sure you SAVE the changes when exiting. See your PC owner's manual for starting the BIOS Settings Utility specific to your PC. To find out if your version of Windows 95 is USB compliant, right-click the "My Computer" icon and select Properties. The System should be 4.00.950B (Windows 95B) or later. If you are running Windows 95B and USB is not available, you need to execute a program from your Windows 95 installation CD. Your Windows 95 CD should say on it "With USB Support." Open the Windows Explorer and go to the directory Drivers\USB\Enduser. Double click on the file USBSUPP.EXE to install USB support to Windows 95. If you do not find this file in this location, go to the Start Menu and select Find–Files or Folders and search for USBSUPP.EXE on the CD. A USB system test program has been included in this package. It can be run by clicking the "USB System Ready" shortcut located under the "Start Menu->Program Files->Sensar Utilities" group.

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Technical Support

For technical support call:

Your system administrator

Sensar (609) 222-9090
Visit our website at www.sensar.com

Or equivalent vendor.

Specifications

A summary of the camera specifications are as follows:

Operating Temperature: 5° to 40°C
Environment: Indoor operation

Package Contents

The package should contain the following items:
USB or Parallel Port Camera, User Guide, and CD-ROM containing software.
The USB version contains a detachable USB cable.

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Adding a USB Card

If your PC does not have a USB port, an after-market USB port card is available from:

ADS Technologies
13909 Bettencourt St.
Cerritos CA 90703
(800) 888-5244
http://www.adstechnologies.com

This card operates with Windows 98 only. The USB card may also be available at your favorite computer retailer. This card has been verified to operate with the Sensar Secure®Cam.
Note: Windows NT users… the Parallel Port camera *must be* used.

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User Tips

- Begin with the camera 4 inches (10 cm) away from your eye.
- Keep both eyes wide open. If you need to close one eye, use your hand to cover it instead because closing it will cause the eye your enrolling to squint.
- Remove glasses during enrollment. You may wear them during any subsequent verifications.
- Contact lenses do not need to be removed.
- Keep your head pointed directly at the camera lens without turning it.
- The correct distance for focus does vary slightly among individuals. If you are having difficulties using the camera, try moving the camera slightly closer or slightly farther away from you – you may have better results even if the yellow dot is a bit bigger or smaller than the target.
- You may want to try holding the camera at eye level, with your head completely upright.