User's Guide

VideoGhost

DVI, HDMI, VGA

Check http://www.keydemon.com/ for the latest version of this document.

Table of contents

Introduction

About the product

The *VideoGhost* is an intelligent **hardware frame-grabber**, compatible with **DVI**, **HDMI**, and **VGA** signal sources such as **computers** and **laptops**. It features a built-in **JPEG compressor**, and a huge **4 GB internal flash disk**. Frames captured from the DVI, HDMI, or VGA bus will be compressed and stored to the built-in Flash Drive. The *VideoGhost* may be switched to **Flash Drive mode** at any time, and will pop-up as a **removable disk**, containing captured screenshots as JPEG files. The device is **100% stealthy** and does not influence the operation of the computer, laptop, etc. No drivers or software are required, no configuration necessary, works out of the box!

Features

- Compatible with all **DVI**, **VGA**, and **HDMI** devices
- Supports resolutions up to **Full-HD (1920 x 1080)** and **WUXGA (1920 x 1200)**
- Works with **computers** and external **laptop monitors**
- No power supply necessary (power is drawn from the USB port)
- Built-in **JPEG encoder**
- **4 Gigabytes** of internal memory in all versions
- Built-in **time-stamping module** with battery (7 years lifetime guaranteed!)
- No software or drivers required, **Windows**, **Linux**, and **Mac** compatible
- **Ultra compact** and discrete, looks like a mini-extension cable
- Transparent to computer operation, undetectable for security scanners
- Several color options available: white, black, gray, blue

Requirements

- Compatible DVI / HDMI / VGA video signal source (no HDCP encryption)
- Standard resolution up to 1920 x 1200 and bandwidth up to 160MHz
- Computer with standard USB 1.1 or 2.0 port
- Operating system with USB Mass-Storage device support
- Optionally *MS Windows XP/Vista/7/8* (only for running *KL Tools*)

Quick Start

This section contains concise information on basic video-logger handling. If you need detailed instructions, please refer to sections **Recording screenshots** and **Viewing recorded data**.

To record snapshots, connect the *VideoGhost* to graphics card output or the digital TV output.

DVI version

HDMI version

VGA version

Then, connect the output device (TV or monitor) to the other end of the *VideoGhost*. Finally, connect the USB connector to a free USB port. **Do not use the supplied USB key**.

DVI version

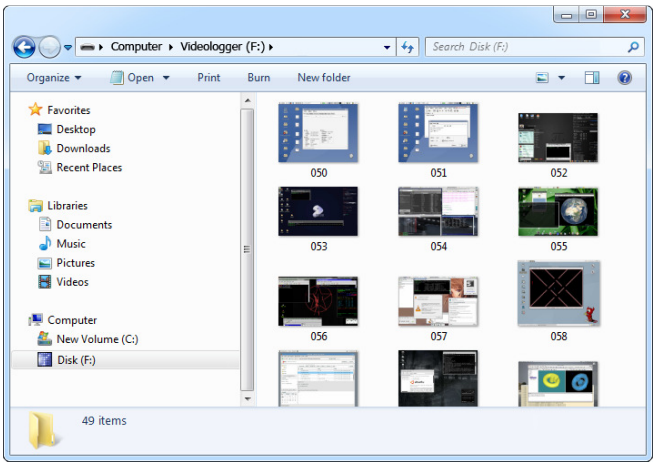
HDMI version

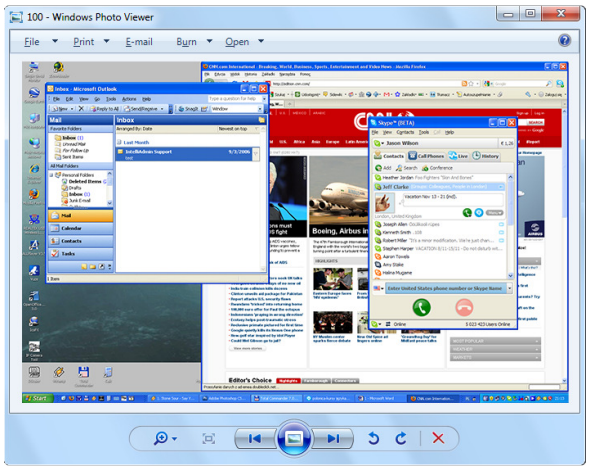
VGA version

Recording will start automatically on power-up.

To view recorded snapshots, connect the USB cable of the *VideoGhost* to a free USB port using the supplied USB Key.

The video-logger will pop up as a removable disk, containing the captured screenshots as JPEG files (just like a digital camera). Browse the disk using standard image-viewing software.





Recording screenshots

Recording mode is the default mode of operation for the *VideoGhost*. In record mode, the device will silently monitor the DVI, HDMI, or VGA video signal and record a screenshot every few seconds. The screenshots will be stored as JPEG files on the internal Flash Drive.

Installation of the video-logger in record mode is quick and easy, no software or drivers are required. Connect the *VideoGhost* to the source of the video signal, such as the output of the graphics card, or the TV output.

DVI version

HDMI version

VGA version

Then, connect the output device (TV or monitor) to the other end of the *VideoGhost*.

DVI version

HDMI version

VGA version

Finally, connect the USB connector to a free USB port. **Do not use the supplied USB key**. Recording will start automatically on power-up.

DVI version

HDMI version

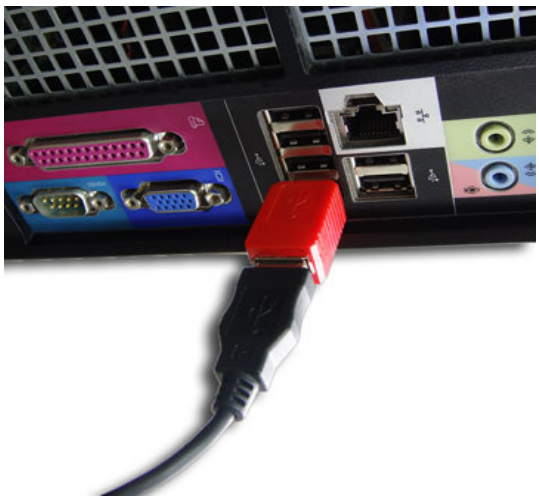
VGA version

Note: The USB connection is used for powering the device only. If no USB port is available, a +5V DC USB power supply may be used instead.

Viewing recorded data

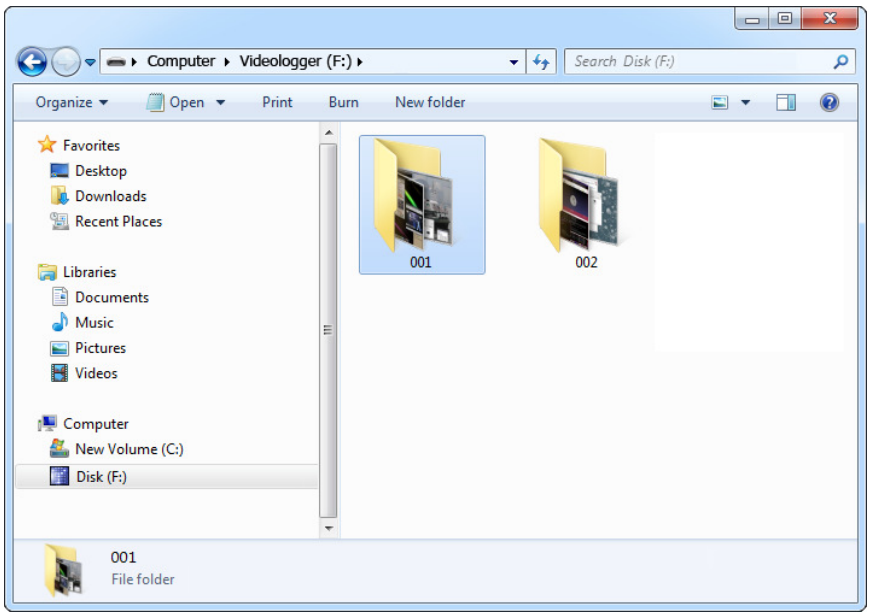
Once screenshots have been recorded to the internal Flash Drive, they may be viewed on any computer, laptop, or TV with USB Mass Storage support. The procedure is very similar to restoring images from a digital camera.

Use the supplied USB Key to connect the *VideoGhost*'s USB output to a free USB port. The device may stay connected to the video source and TV/monitor, however this is not necessary.

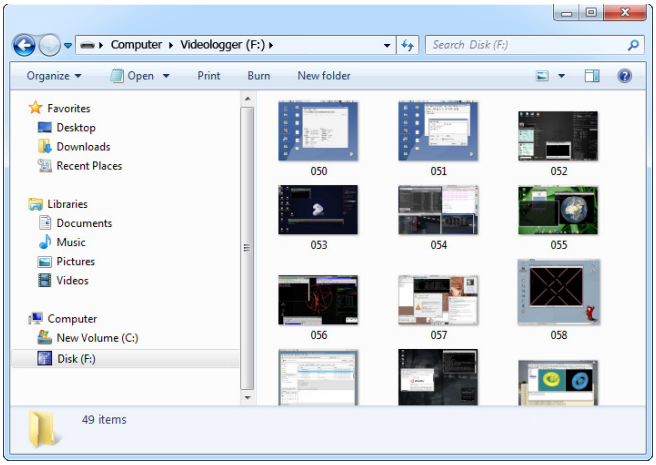


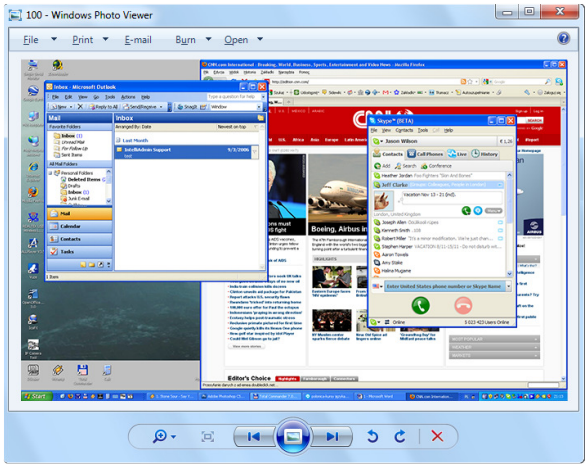
After a few seconds, the hardware video-logger will automatically get detected as a Mass Storage Device. The operating system will use the standard built-in mass storage driver (*MS Windows 7* in the following examples).

Note: During the first switch to Flash Drive mode, the operating system can ask for drivers. In such case choose automatic driver installation (usually default option).



The Flash Drive will contain the captured screenshots as JPEG files, grouped in folders named *001*, *002*, etc. Depending on the device configuration, the images may have burned-in time- and date-stamps. Use any image-viewing software to browse the JPEG files, such as the default *Windows Photo Viewer*.





Switching back to record mode can be achieved by a safe software removal of the flash disk. Use the systems standard disk removal procedure. For *MS Windows*, left-click on the *Safe Removal* icon in the system tray and select the appropriate drive. Then reconnect the *VideoGhost* to the USB port, however without the supplied USB Key.

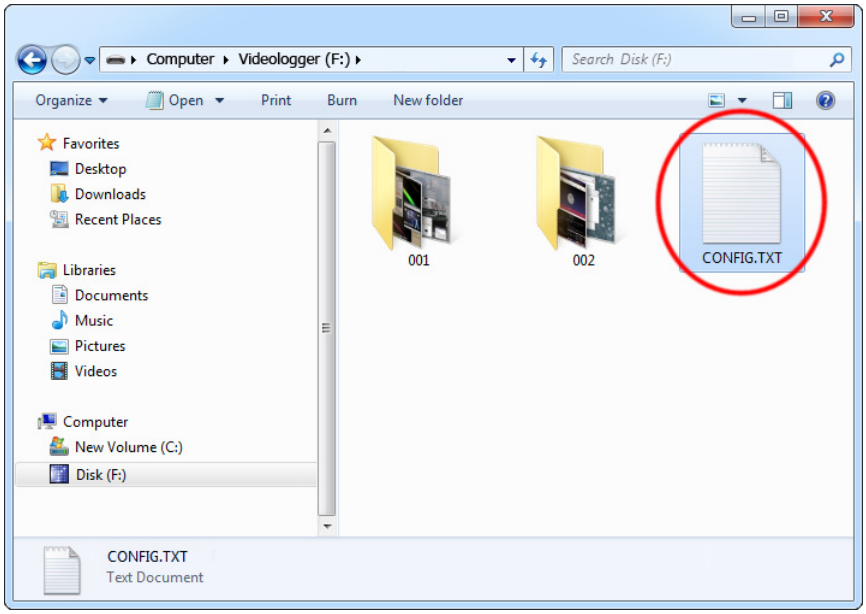
To get the most out of the *VideoGhost*, install the supplied application *KL Tools*. Go to section **Using KL Tools** to find out more.

Configuration options

The *VideoGhost* may be configured through the file CONFIG.TXT, placed in the Flash Drive root folder. Use any text editor to prepare such a configuration file, containing the following text:

```
Interval=300
Resize=50
Timestamping=Image
```

Copy this file to the root folder in Flash Drive mode. The new configuration will be loaded on next power-up.



The following list presents the most common configuration options. All variable and value strings are case insensitive.

Interval sets number of seconds between successive screenshots. Please note that compressing and saving an image takes several seconds (depending on the image size and quality), so this may become the limiting factor for low values of *Interval*. Default value is *300*.

Resize sets the resizing factor for storing screenshots. Allowed values are *No* (no resizing), *Auto* (automatic resizing factor based on image size), *75* (75%), *67* (67%), *50* (50%), *33* (33%), and *25* (25%). Default value is *No*.

Timestamping configures the built-in time- and date-stamping module. Allowed values are *Yes* (timestamping active, but limited to updating the modification time and date of JPEG files), *Image* (timestamps burned into JPEG image content), and *No* (timestamping disabled). Default is *Image*.

Quality sets the quality factor for JPEG compression. Allowed values are from *1* (lowest quality, smallest file size) to *10* (highest quality, largest file size). Please note that setting a

high quality value will result in longer compression times and increased disk space usage. Default value is *7*.

DisableLogging allows to disable screenshot logging. Allowed values are *Yes* (logging disabled) and *No* (logging enabled). Default value is *No*.

Encryption enables flash disk encrypting. Encryption will ensure full confidentiality of the stored data, even if the device is physically tampered with. Allowed values are *Yes* (encryption enabled) and *No* (encryption disabled). Default is *No*.

Important: toggling the encryption setting will format the entire flash disk. All data will be lost, including the configuration file!

An example configuration file contents is shown below:

```
Interval=200
Resize=25
Timestamping=Yes
Quality=5
```

A full list of available parameters with descriptions is available below.

Basic parameter list

Parameter	Values	Example	Description
Interval	Screenshot interval in seconds (default 300)	Interval=200	Number of seconds between successive screenshots.
Resize	No (default) Auto 75 67 50 33 25	Resize=50	Resizing factor for storing screenshots in percent. *Auto* will choose an optimal resizing factor based on the image size.
Timestamping	Yes Image (default) No	Timestamping=Yes	Time-stamping disable flag.
Quality	JPEG compression quality (default 7)	Quality=5	Quality factor for JPEG compression from 1 to 10.
DisableLogging	Yes No (default)	DisableLogging=Yes	Screenshot logging disable flag.

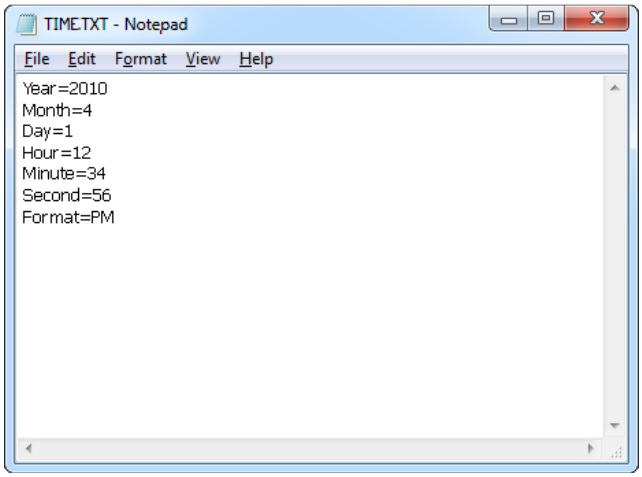
Advanced parameter list (use only when you know what you're doing!)

Parameter	Values	Example	Description
Brightness	Brightness factor (default 0)	Brightness=50	The factor to add to the standard image brightness from 0 to 150
ForceWidth	Image width in pixels (defaults to resolution X)	ForceWidth=1024	If this parameter is present, it will force the width of the captured image regardless of the current resolution.
ForceHeight	Image height in pixels (defaults to resolution Y)	ForceWidth=768	If this parameter is present, it will force the height of the captured image regardless of the current resolution.
TopMargin	Top margin in pixels (default 0 or table value)	TopMargin=10	If this parameter is present, it will cut out the top part of the captured image. It is used primarily in the VGA version, for filtering out the useful part of the signal.
LeftMargin	Left margin in pixels (default 0 or table value)	LeftMargin=5	If this parameter is present, it will cut out the left part of the captured image. It is used primarily in the VGA version, for filtering out the useful part of the signal.
RightFrame	Right frame in pixels (default 0 or table value)	RightFrame=20	If this parameter is present, it will add a frame on the right side of the captured image. It is used primarily in the VGA version, for filtering out the useful part of the signal.
BottomFrame	Bottom frame in pixels (default 0 or table value)	BottomFrame=15	If this parameter is present, it will add a frame at the bottom of the captured image. It is used primarily in the VGA version, for filtering out the useful part of the signal.
ShiftX	Horizontal shift value (default 0 or table value)	ShiftX=-10	If this parameter is present, it will shift the image horizontally within the bounds given by LeftMargin and RightFrame. It is used primarily in the VGA version, for filtering out the useful part of the signal.
ShiftY	Vertical shift value (default 0 or table value)	ShiftY=-5	If this parameter is present, it will shift the image vertically within the bounds given by TopMargin and BottomFrame. It is used primarily in the VGA version, for filtering out the useful part of the signal.

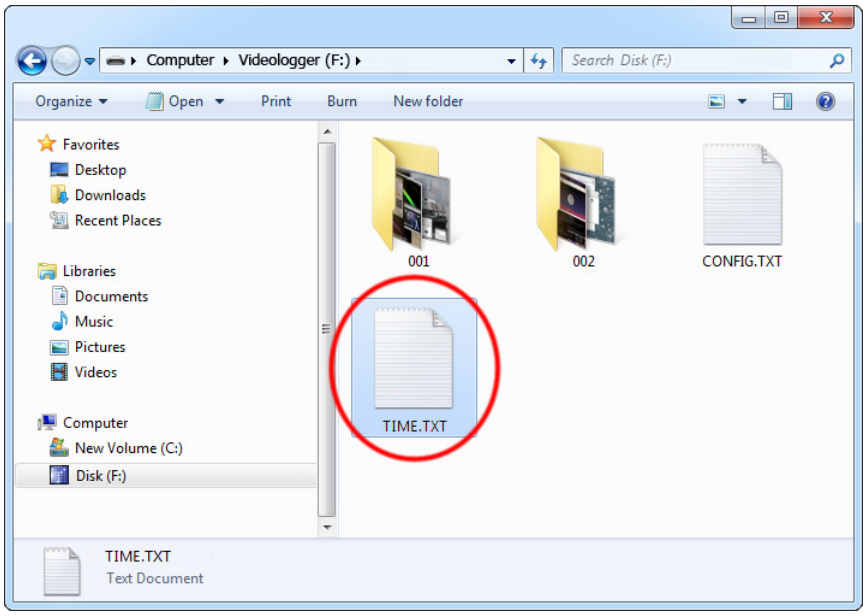
Clock configuration

It is necessary to configure the built-in clock module for getting correct date and time-stamps. To do this, a text file named TIME.TXT should be prepared with the following format:

```
Year=2010
Month=4
Day=1
Hour=12
Minute=34
Second=56
Format=PM
```



The fields should contain the current time and date. The field *Format* allows distinguishing between A.M., P.M., and 24-hour time (use the value *AM*, *PM*, or *24*). After the file has been prepared, switch to Flash Drive mode and copy the file TIME.TXT to the root folder of the flash disk. The supplied USB Key has to be used to switch to Flash Drive mode.



After copying the file, safely remove the Flash Drive and disconnect the USB Key. The new clock configuration will be loaded during the next power-up.

The clock configuration file must be named TIME.TXT and must be placed in the root folder. Variable and value strings are case insensitive, however they must match the options listed below.

- *Year* sets the clock year value. Valid range is from 2000 to 2099.
- *Month* sets the clock month value. Valid range is from 1 (January) to 12 (December).
- *Day* sets the clock day value. Valid range is from 1 to 31. If the specified day exceeds the maximum number of days in the specified month, the next valid day value will be chosen.
- *Hour* sets the clock hour value. Valid range is from 1 to 12 for 12-hour time (A.M./P.M.), and 0 to 23 for 24-hour time.
- *Minute* sets the clock minute value. Valid range is from 0 to 59.
- *Second* sets the clock second value. Valid range is from 0 to 59.
- *Format* sets the time format. Valid values are *AM*, *PM*, and *24*. If *AM* is chosen, the 12-hour format is selected and the specified hour is treated as before noon. If *PM* is chosen, the 12-hour format is selected and the specified hour is treated as after noon. If *24* is chosen, the 24-hour format is selected and the specified hour is treated as 24-hour format.

Sample TIME.TXT for 12-hour time:

```
Year=2010
Month=10
Day=25
Hour=5
Minute=51
Second=43
Format=PM
```

Sample TIME.TXT for 24-hour time:

```
Year=2010
Month=10
Day=25
Hour=17
Minute=51
Second=43
Format=24
```

Specifications

	VideoGhost DVI	VideoGhost HDMI	VideoGhost VGA
Power supply	4.5 V – 5.5 V DC	4.5 V – 5.5 V DC	4.5 V – 5.5 V DC
Max. power consumption	250 mA (1.3 W)	250 mA (1.3 W)	250 mA (1.3 W)
Memory capacity	4 GB	4 GB	4 GB
Data retention	100 years	100 years	100 years
Interface support	DVI-compatible video source, USB 1.1 or 2.0 with MSD support	HDMI-compatible video source, USB 1.1 or 2.0 with MSD support	VGA-compatible video source, USB 1.1 or 2.0 with MSD support
Max. video bandwidth	160 MHz	160 MHz	160 MHz
Max. video resolution	1920 x 1200	1920 x 1200	1920 x 1200[1]

Typical JPEG encoding time in seconds[2]:

Frame size	**Quality = 3**			**Quality = 5**			**Quality = 7**		
	50% Resize	Auto Resize	No Resize	50% Resize	Auto Resize	No Resize	50% Resize	Auto Resize	No Resize
640x480	1	1	1	1	1	1	1	1	2
800x600	2	3	3	2	3	3	2	3	3
1024x768	2	5	5	2	5	5	2	5	5
1280x720	3	5	5	2	5	5	2	5	5
1440x900	4	5	7	4	6	8	4	6	8
1280x1024	4	5	7	4	5	7	4	5	7
1680x1050	5	6	9	5	6	9	5	6	9
1600x1200	5	7	10	5	7	10	5	7	10
1920x1080	5	7	11	5	7	11	5	7	12

[1] Limited to standard resolution and refresh rate combinations.

[2] Encoding times may vary depending on image contents.

The VGA version supports the most common resolution and refresh rate combinations:

	50 Hz	56 Hz	60 Hz	70 Hz	72 Hz	75 Hz	85 Hz	100 Hz	120 Hz
640x480			X		X	X	X	X	
800x600		X	X		X	X	X	X	
1024x768			X	X		X	X	X	X
1152x864			X	X		X	X	X	
1280x720	X		X			X			
1280x768			X			X			
1280x800			X						
1280x960			X			X	X	X	
1280x1024			X			X	X	X	
1360x768			X			X	X		
1440x900			X			X			
1600x900			X			X	X		
1600x1200			X	X		X	X		
1680x1050			X	X		X			
1920x1080			X			X			
1920x1200			X			X			

All Keydemon products come with 1 year warranty against manufacturer defects. Defect products must be shipped by the customer. All warranty repairs and delivery to the customer will be paid by the manufacturer.

Legal disclaimer

Keydemon does not take responsibility for any damage, harm or legal actions caused by misuse of its products. The user should follow the guidelines contained in this document, otherwise no liability will be assumed. It is the user's responsibility to obey all effective laws in his/her country, which may prohibit usage of Keydemon products. Please also consider, that not knowing the law does not allow to not obeying it. A good example is the U.S. Department of Justice Letter on Keystroke Monitoring and Login Banners, according to which a clear notice should be displayed, warning that user keystrokes may be logged. Please check with your legal representative for logging requirements in your country.

For more information on Keydemon products, visit our website:
http://www.keydemon.com/

You should not use this device to intercept data you are not authorized to possess, especially passwords, banking data, confidential correspondence etc. Most countries recognize this as a crime. Please consult a legal representative for logging requirements in your country.

European Office

Electroware
Sw. Elzbiety 10
PL 43-100 Tychy
Poland

http://www.keydemon.com/
keydemon@keydemon.com

✓RoHS